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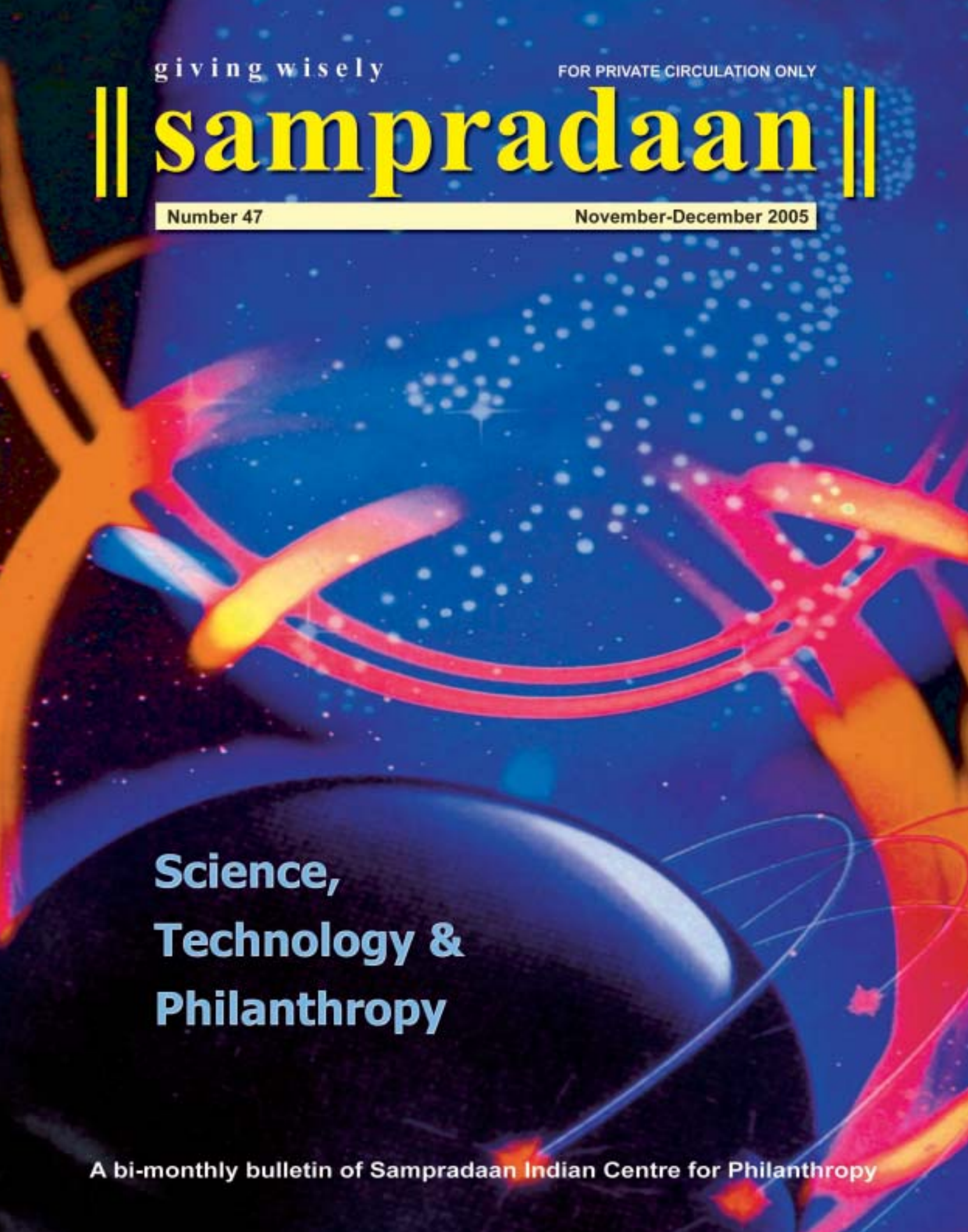

Science, Technology & Philanthropy

A bi-monthly bulletin of Sampradaan Indian Centre for Philanthropy

Contents

For the Sake of Science

Mathieu Delarue, protagonist of a famous novel by Jean-Paul Sartre, The Age of Reason, set in the volatile Paris summer of 1938, is faced with a dilemma – he has to make a choice between personal freedom and moral commitment. His personal freedom can be won by the means of a weapon made available by modern science, by aborting the child of a woman with whom he has been living for seven years, or else he has to accept the mantle of fatherhood and the moral responsibilities coming with it. The novel begins with ambiguity of choices and ends up in a more intense moral ambivalence in Mathieu. The dilemma of the protagonist persists even today in our lives. The dilemma is about the role of science and technology in our lives. It was more aptly embodied in the words of physicist-politician, George E. Brown Jr., the then Chairman of the Science, Space and Technology Committee of the House in American Senate in 1993. He posed this question to his audience in a Science and Technology Policy Colloquium, "Neither technology nor economics can answer questions of values, is our path into the future to be defined by the literally mindless process of technological evolution and economic expansion, or by a conscious adoption of guiding moral precepts?" A dilemma that tortured the minds of Mathieu and Representative Brown, underlined by the power of science, is set to trouble us in India now as we enter the age of high growth and technological expansion.

The Human Development Report of 2005 by UNDP highlights India's commendable achievements, in less than two decades, on the front of economic growth and technological capacity enabling her to join the league of top twenty techno-economic powers of the world. However, the report goes ahead to point out our limitations in translating the economic growth and technological gains into better quality of life for a huge mass of people. The report says that still 1 child in every 11 in our country meets death before attaining the age of 5 years due to lack of availability of low technology, low cost interventions. As a nation, we have to make choices based on a mix of pragmatic and moral approaches. Neither can we ignore the power of science and technology to make life 'acceptably'

from the editor's desk

comfortable for our citizens nor can we afford to subjugate our lives to mindless development of technological gadgetry. Elsewhere reports already suggest that it is impossible for a billion population of India's size to enjoy levels of comfort similar to those of today's USA irrespective of optimal economic and technological growth even in distant future. All these imply that we ought to do much more to augment our capacity to develop resource base in science and technology, yet we cannot afford to overlook equitable social distribution of products of science and technology. Although our India Science Report of 2005 is an achievement in itself, the report is a rude reminder of the structural gaps and gross disparities in the base of scientific resources of our country. The days are over when the State could be expected to deliver everything that we needed and blamed for after failing to do so. The rapid economic growth is accompanied by growth in personal wealth. Those who are fortunate to enjoy the fruits of economic growth before others should play a more proactive role in contributing to the cause of advancement of science and technology in our society, for the benefit of all and not a select few. Philanthropists in India have a great scope for putting their precious resources in the form of knowledge and wealth for the benefit of the less privileged in a strategic way and collectively. We are a civilization which had the principle of learning deeply enshrined in it, then why should we shy away from learning from philanthropists in other countries on this front too.

Dr Sandeep Deshmukh

Philanthropy should focus on progress of S&T in India

By Dr Sandeep Deshmukh

Science and technology (S&T) are unique to human thinking. They have been associated with our existence as a species since antiquity. In a fascinating way, the cosmologist Dr. Carl Sagan tried to put the chronology of the universe on the scale of a calendar (1977). The chronology corresponds to the best evidence now available. The January 1 in the cosmic calendar is marked by the Big Bang explosion with which began the history of our known universe 15 billion years ago. The first humans emerge in the calendar at 10.30 P.M. on the last day. Agriculture is invented by man at 20 seconds past 11.59 P.M. The first clear sign of metallurgy in the form of extraction and processing of Bronze takes place at 52 seconds past 11.59 P.M. Experimental method in science is articulated fully in a system at 59 seconds past 11.59 P.M. Moreover, widespread development of science and technology, accompanied by a global culture happens during the last one second of the calendar. We humans, in spite of being a rather late entrant on the cosmic scene and a comparatively young form of life, have gained an incredible capacity to affect the course of events at least in our part of the universe substantially.

One can be definitely assured, about our ability to make this planet either a repository of rich array of life forms or a junkyard piled up with rudiments of a life that swarmed this planet once because of the means made available to us by S&T. As mentioned by Dr. Sagan, the last second of the cosmic year is a distinct moment because of the fork at end of the road mankind has been treading. On the one side, we possess the means of self-destruction and on the other side; we are faced with the exciting possibility of giving life to the dream of mankind to cross the frontiers of space.

The emergence of science as a way of thinking and its practical implications for our life, have frequently raked up debate about the desirable and undesirable aspects of science. Underlying this debate is the issue of relationship between science and society. Could mankind afford to allow science and its products rule her life? In a scholarly reflection over science and human affairs, the physician – biologist, Dr. Jonas Salk has underlined the potential of biology not only as a science but also as a basic cultural discipline with unifying potential for the relationship between man and his physical universe (1972). In the chapter on diseases and counter diseases, he has used the analogy between behavior arising in response to 'drug-taking' and immunological system. He proposes in the absence of effective measures for eliminating the 'etiological agents' (drugs) or for distinguishing between 'victims' and 'carriers' it is sensible to adopt a widely practiced 'immunizing' education against drugs that would protect largest possible number of individuals from ill-effects of drugs. Thus, Dr. Salk visualizes an educative role for biology, a major branch of modern science.

The views of Dr. Salk were echoed in essence in the masterly exploration of parallels between modern physics and eastern philosophies by Dr. Fritjof Capra (1975), though he chooses to be more philosophical about the unity of physics and eastern spiritualism, than looking at the implications of discoveries of physics for worldly affairs. Thus, he takes a rather long snapshot of implications of rediscovery of Truth by modern physics for human civilization.

These great scientist-philosopher minds of our times do not disregard the most basic quality of science and her most favored offspring, technology. That quality is the openness to Truth, a principle embraced and cherished by great minds for ages in all cultures. Karl Popper (1983) criticizes positivist philosophy, which formed basis of modern science until the tumultuous developments in the realm of physics and mathematics in early and mid twentieth century, for failing to understand the importance of

metaphysics in discovering Truth in a fuller form. The great science thinkers of our times have helped human society immensely by highlighting the limitations as well as potentials of science. They have not stopped there. They have also given clues to assimilation of science and its products in our existence, in our minds and bodies, in congruence with natural harmony offered by spiritualism. These thinkers have greatly shaped the emerging worldview of human society. They have highlighted the educative value of science and ameliorative qualities of technology. One may like to look at a snapshot of spread of science and technology and distribution of their benefits globally and especially in India.

Table 1 – Literacy and enrollment (figures for year 2003)

Country	Adult Literacy Rate (% of ages 15 years >)	Tertiary Students in Science, Mathematics & Engineering (% of all tertiary students)
Cyprus	96.8	17
Georgia	Not available	28
India	61	20*
China	90.9	N A

Source: Human Development Report, 2005, UNDP

* The report urges cautious treatment to this figure as the reported number of enrolled pupils in "Not known or unspecified" category represents more than 10% of the total enrolment.

The Human Development Report (2005) observes: "the era of globalization has been marked by dramatic advances in technology… and an impressive increase in prosperity. Gains in human development have been less impressive. Large parts of the developing world being left behind." The report adds that there is a widening gap in access to technology between rich and poor countries. If one checks India's record on technology in a comparative perspective, the picture is full of huge challenges calling for distributive justice and innovative solutions.

The 177 countries covered by the report are distributed into three groups depending upon their achievements in human development. The three groups are High Human Development group; Medium Human Development group and Low Human Development group. India is included in the medium human development group. Achievements in the knowledge domain, commensurate with MDGs, are measured for each country with respect to education and technology related indicators. For our purpose of comparison, it is reasonable to choose the countries located at the median point in each of the series of HHD and MHD groups. The two countries found out by this logic were Cyprus in the HHD group and Georgia in the MHD group.

Both are European countries. Since international economists, business analysts, political enthusiasts and others find it important these days to compare achievements of China and India; it might be useful to include China also in the comparison. The findings are presented in two tables.

The above statistics once again show that the absolute figures of our education and science related achievements could be misleading about our strengths if we remain complacent about what we have. However, a closer look at the available statistics indicate clearly that we have miles to walk before we reach the goal of universal spread of science education and penetration of technology to the lowest income and social groups in population. We cannot excuse ourselves from the responsibility of severe shortcomings in broadening and consolidating the base of resources and products of science and technology on time. Some one may argue that we are a big country, much bigger in size than Cyprus and Georgia; therefore, the problems in spread of science and technology are inevitably going to be massive than the smaller countries. However, one could always reply that our large geographical size and population base is our resource and not a liability, and therefore, we have actually a much bigger potential resource base than

Table 2 - Technology diffusion and creation (figures for 2003)

Country	Telephone mainlines (/1,000 people)	Cellular subscribers (/1,000 people)	Internet users (/1,000 people)	Patent granted to residents (/million people)	Receipts of royalties and license fees (US $ per person)	Research and development expenditures (% of GDP)	Researchers in R&D (/million people)
Cyprus	572	744	337	1	19.9	0.3	569
Georgia	134	145	24	27	1.2	0.3	2317
India	46	25	17	0	0	0.8	120
China	209	215	63	5	0.1	1.2	633

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India special: The next knowledge superpower

The first sign that something was up came about eight years back. Stories began to appear in the international media suggesting that India was "stealing" jobs from wealthy nations - not industrial jobs, like those that had migrated to south-east Asia, but the white-collar jobs of well-educated people. Today we know that the trickle of jobs turned into a flood. India is now the back office of many banks, a magnet for labour-intensive, often tedious programming, and the customer services voice of everything from British Airways to Microsoft.

In reality, the changes in India have been more profound than this suggests. Over the past five years alone, more than 100 IT and science-based firms have located R&D labs in India. These are not drudge jobs: high-tech companies are coming to India to find innovators whose ideas will take the world by storm. Their recruits are young graduates, straight from India's universities and elite technology institutes, or expats who are streaming back because they see India as the place to be - better than Europe and the US. The knowledge revolution has begun.

The impact of the IT industry on the economy has been enormous. In 1999 it contributed 1.3 per cent of India's GDP. Last year that figure had grown to 3 per cent. And what's good for one science-based industry should be good for others. India has a thriving pharmaceutical industry which is restructuring itself to take on the world. And biotech is taking off. The attitude is growing that science cannot be an exclusively intellectual pursuit, but must be relevant economically and socially. The hope among some senior scientists and officials is that India can short-cut the established path of industrial development and move straight to a knowledge economy.

For the New Scientist reporters who have been in India for this special report, many features of the country stand out. First, its scale and diversity. With a population of more than a billion, the country presents some curious contrasts. It has the world's 11th largest economy, yet it is home to more than a quarter of the world's poorest people. It is the sixth largest emitter of carbon dioxide, yet hundreds of millions of its people have no steady electricity supply. It has more than 250 universities which catered last year for more than 3.2 million science students, yet 39 per cent of adult Indians cannot read or write.

These contrasts take tangible form on the outskirts of cities from Chennai to Delhi, Mumbai to Bangalore. Here, often next to poor areas, great gleaming towers of glass are growing in which knowledge workers do their thinking. These images of modernity are a far cry from stereotypical India - a place bedevilled alternately by drought and flood, of poor farmers and slum-dwellers. Yet both sets of images are real - and many others besides.

High-tech is not the sole preserve of the rich. Fishermen have begun using mobile phones to price their catch before they make port, and autorickshaw drivers carry a phone so that customers can call for a ride. Technology companies are extending internet connections to the remotest locations. Small, renewable electricity generators are appearing in villages, and the government is using home-grown space technology to improve literacy skills and education in far-flung areas.

These efforts are often piecemeal, and progress is slow. "Illiteracy today is reducing only at the rate of 1.3 per cent per annum," says R. A. Mashelkar, director-general of the government's Council of Scientific and Industrial Research. "At this rate, India will need 20 years to attain a literacy rate of 95 per cent." He is hopeful that technology can speed up this process.

Science too has its role to play. Critics of India's investment priorities ask why the country spends large sums on moon rockets and giant telescopes while it is still struggling to find food and water for millions of its citizens? The answer is that without science, poverty will never be beaten. "You cannot be industrially and economically advanced unless you are technologically advanced, and you cannot be technologically advanced unless you are scientifically advanced," says C. N. R. Rao, the prime minister's science adviser.

Rise of the middle class

The knowledge revolution is already swelling the ranks of India's middle class - already estimated to number somewhere between 130 million and 286 million. And the gulf in spending power between the poor and the comfortably off has never been more apparent. Take cars. Sales are rising at more than 20 per cent a year. Before India opened up its economy in the early 1990s, only a few models were available, almost all home-built.

Today, top-end imported cars have become real status symbols. Another consequence of the knowledge revolution is that the extreme wealth of a new breed of young, high-tech yuppies is challenging traditional gender roles and social values.

Whether the new-found prosperity and excitement of present-day India can be sustained will depend crucially on how the government guides the country over the next few years. Cheap labour and the widespread use of English do not guarantee success, and there are major obstacles that the country will need to tackle to ensure continued growth. Take infrastructure. Where China has pumped billions into water, road and rail projects, India has let them drift. Likewise, companies complain that bureaucracy and corruption make doing business far more difficult than it ought to be.

One of the critical issues facing India is the gulf between the academic world and industry. The notion that scientific ideas lead to technology and from there to wealth is not widespread. This stems in large measure from the attitudes prevalent before 1991. Before economic liberalisation, competition between Indian companies was tame, so they were under no pressure to come up with new ideas, nor did academics promote their ideas to industry.

India's attitude to patents are a product of that mindset. The country has no tradition of patenting, and only recently have institutions and academics started spinning off companies and filing for patents in earnest. Most applications filed in India still come from foreign companies. Until this year, the country did not recognise international patent rules, a failure that hampered interactions with foreign companies.

The suspicion remains that Indian companies are out to steal ideas, says Gita Sharma, chief scientific officer of Magene Life Sciences, a start-up company in Hyderabad. "We are not yet able to wipe away that image." And while India has now adopted those international rules on paper, there are still concerns about how strictly they will be enforced. "It will take a couple of years before the full implications play out," says Sankar Krishnan, a biotechnology analyst for McKinsey and Company in Mumbai.

Bringing research round to a more commercial way of thinking is not the only issue that academia must face up to. Another cultural problem, according to some scientists, is that too often institutions have an ethos of playing safe. Researchers who devise and test daring theories are criticised if they fail, discouraging the kind of ground-breaking research that India needs.

There is a widespread view that the entire university system needs an overhaul. India awards only 5000 science PhDs a year, says Mashelkar, yet it should be producing 25,000. There are funding problems and political interference in the running of some universities, particularly those run by state governments. In response, central government has decided to select 30 universities, give them extra money, and mentor and monitor them to create a series of elite institutions. But such changes will be for nothing if students choose not to study science. In recent years, increasing numbers have chosen to study IT and management because that's where money is to be made. "IT and outsourcing has improved the economy and quality of life of people, but has had a negative effect on science," Rao says. Mashelkar hopes that as science-based companies grow, and demand for fresh blood increases, salaries will rise and more students will opt for science.

Chasing China

These problems must be solved if India is to capitalise on its recent gains, and there are hopeful signs that Indian science is improving in the global scheme of things. Its share of the top, highly cited publications has increased, but it is starting from a very low base. The government spends only $6 billion a year on research and it still has fewer scientists per head of population than China or South Korea.

India's greatest rival has always been its giant neighbour to the north. While IT and services are helping India log 6 per cent year-on-year increases in GDP, China's vast manufacturing base is raising its GDP by around 9 per cent a year. Even in India's strong suit of knowledge-based industries, China could still steal the march on it, not least because its Communist government can command change, while in India the democratic government can only guide national development.

Nevertheless, the rewards for India of a thriving science-based economy could be huge. The investment bank Goldman Sachs estimates that if India gets everything right it will have the third largest economy in the world by 2050, after China and the US. India is not yet a knowledge superpower. But it stands on the threshold.

Source: *New Scientist*, February 2005

You too can help to advance S&T

One is a scientist, the other is a marketing expert, but both, in their own unique way, have been involved in philanthropy for the advancement of science and technology in the country. Although, he may not like the word 'philanthropy', that is what *Dr. Suresh N. Karkhanis,* Organic Geochemist/ Mass Spectroscopist, Professor Emeritus at the Analytical Research Laboratory, Department of Polymer and Petroleum Engineering, MIT College, Pune, a life member of the Royal Society of Spectroscoy, London has actively pursued most of his life, sharing knowledge and wealth with the people of his home town by donating a US $200,000 worth spectrascope and lab equipment to the local engineering institute. A rural marketing expert from Maharashtra, Mr Pradeep Lokhande, may not be a man with a formal science education; however, he too has been actively involved in philanthropy, introducing many a villagers to computers through an inter-state campaign. In their separate interviews with *Dr Sandeep Deshmukh*, Dr Karkhanis, Fellow, Royal Microscopical Society, London, and Mr Lokhande, who successfully runs an organization called Rural Relations, suggest ways to promote science and technology in the country through philanthropy.

Dr Suresh Karkhanis

Pradeep Lokhande

Question: What was the special action that heralded your entry on the philanthropic scene?

Dr Karkhanis: Personally, I don't like the word philanthropy. It is a very "loaded word". How many people would genuinely fall under this category, is very debatable! For almost 20 years, I have been a member of Rotary Club. I served the community through the Rotary in various capacities such as treasurer and the director of international services. I was able to raise funds for international community projects for building schools; floods/ earthquake relief (Poland/ India), harelip operations (Indonesia), and water supply through bore-wells (Maharashtra, Karnataka) etc. In this organization, I learnt a lesson that one should give to the community, until it hurts. It means that if you have one rupee in your pocket then you should pay back 99 paise and the one paise left in your pocket will apprise you of the plight of the haves-not!

Mr Lokhande: Realizing that the rural student is going to be left behind if not exposed to computers, we decided to do something about it. However, in order to expose rural students to a computer, it was important to first equip every school with a computer. Since it was not possible for us to provide so many new computers, we came up with the idea of donating used/ discarded computers to the schools. This was combined with another idea of providing a job opportunity to rural youth in order to stop them from fleeing to the urban areas. These ideas gave birth to our 'non-resident villager (NRV) movement of equipping village schools with computers donated by individuals who want to give something back to their communities.

Question: What is the nature of the philanthropy you are currently engaged in?

Dr Karkhanis: I have been fostering five deprived children from different parts of the world. I look after their medical needs, education/ schooling and clothing needs. This has been going on for the past 15 years. Once one of the kids is off the assistance, I replace him with another needy child. Being an animal lover, I volunteer at the animal clinic, which has over 150 stray animals under its care. I have promised myself to sterilize/neuter at least 5-7 dogs per year, so that there won't be any more addition to their population in the area we live in. This of course is a drop in an ocean! But somebody has to make a start!

Mr Lokhande: We are currently running the Non-Resident Villager movement I mentioned earlier. We identify individuals who would like to connect with their roots and donate computers to students hailing from their villages. The idea evoked an overwhelming response and today we have installed about 350 donated computers in 348 schools in equal number of villages so far.

Question: Tell us about your personal and professional background. Does it have to do with science and technology?

Dr Karkhanis: Although I am a Canadian citizen, I was born here. Now, I am in India on residence transfer. I came back to India with the thought to spend the remaining years with my countrymen. After graduating from the University of Pune, I worked as a chemist in Africa in the area of petroleum and mining. Later, I went to UK to do my Masters in Advanced Analytical Chemistry with emphasis on instrumentation. I migrated to Canada in 1969 and worked at the University of Western Ontario. After a couple of years, I returned to UK to do a doctorate in the area of organic geochemistry from the Imperial College of Science & Technology and was back in Canada for post-doctoral research at the University of Toronto followed by the University of Western Ontario in the laboratory of Earth sciences and Chemical Physics, working on Nuclear Waste Disposal. Eventually I set up my own consulting laboratory, serving clientele with environmental issues and petroleum exploration. When I retired from work, I decided to move to India and donate my laboratory and equipment to my alma mater, the University of Pune. However, my good intentions came to a naught. During my talks with the university establishment, one of the members remarked that there was some 'selfish' motive behind my donations, I immediately walked out of the proceedings and donated my equipment, worth $200,000, to Meer's Maharashtra Institute of Technology.

Mr Lokhande: I am not really from a science background. I am a Commerce graduate from a village called Wai in Satara district, Maharashtra. And have worked in the field of marketing and relationship management. I got into philanthropy following an urge to do something different and new.

Question: What steps should be taken for the advancement of science and technology in India?

Dr Karkhanis: With all the wisdom and philosophy that we Indians possess, we still feel that our problems can be solved only by 'advanced nations. This is the consequence of the dogma that we have been following from the very beginning – 'Do not try to invent the wheel'. This has made us less inventive and less imaginative. It has also made us fearful of R&D work and we have developed an aversion to negative results. Alternatively we feel comfortable in copying somebody else's invention or just recycling the ideas available elsewhere.

Mr Lokhande: We have realized that rural students are as brilliant as ones in cities, if not more, and have tremendous grasping power. The only thing they lack is exposure. The requisite material does not reach them at all. Take for instance the one time when we collaborated with the Nehru Center, Mumbai, and distributed a book titled Cosmic Adventure by Dr Jayant Naralikar1 to 2,000 rural schools. This led to a large number of students writing to Dr Naralikar, asking him questions about the cosmos. Similarly, the used computers donated to rural schools have resulted in a rise in the number of students wanting to use the machine as often as possible. Surprisingly, about 200 schools invested in new computers for students to study. Thus, exposure to science and technology is the only way to take these subjects to the rural masses.

Question: What lessons can be drawn by potential philanthropists from your endeavor? Is it possible for the faceless among philanthropists to replicate what you dared to do?

Dr Karkhanis: I don't think that I would like to take a lead. I would prefer to remain modest and not blow my trumpet. If somebody wants to be a philanthropist, one cannot force this philosophy on to somebody. It has to come from within.

Mr Lokhande: It is up to each one of them to decide what they can learn from my work. Yes its possible to replicate what we have done; in fact, there is a need to do so. We can provide all necessary help for this.

Question: Is there a scope for science and technology in meeting some of our country's development challenges?

Dr Karkhanis: I will repeat what I said earlier. However, change in mind-set is what is required in immediate future.

Mr Lokhande: Without science and technology, none of the challenges could be met. We need to depend and benefit entirely from science and technology in order to move from a developing country to a developed one.

Question: What is the attitude of our people, towards science and technology? Is their adequate scientific thinking displayed by them and are they capable of adopting technology as a solution provider to many of their problems?

Dr Karkhanis: *Aam janata* (common people) has no scientific thinking (temper). The illiterate are excusably illiterate. But the intellectuals are, in my view, attitudinally illiterate. Take a simple example of traffic in any of our cities. There are very few who ally

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Meaning Beyond the Tsunami

The Asia Pacific Philanthropy Consortium (APPC), in collaboration with Charities Aid Foundation, organized a conference "Philanthropy in Disasters: TSUNAMI and After", from November 28 to 30, 2005 at Phuket, Thailand. It provided a forum for non-profit organizations to share with each other the happenings and the learnings from the field. "In the process of channelling resources to disaster areas, what was critical for us to understand to be able to use these effectively? How do we meet the challenges before us, for the tsunami affected communities who are recovering, and what lessons do we take for similar other situations especially after the tsunami, the importance of which has been so graphically presented by devastations in the US Gulf Coast hurricanes and most recently, by the earthquake in India and Pakistan, especially the latter? All this compelled us to explore how we can play our part more, and how we can do it better than we have done so far," said *Dr. Iftekhar Zamanm*, APPC chairperson, talking about the objective of the conference. It highlighted the issues that arose from the unprecedented giving that happened. These were issues on collaboration amongst donors and local leaders, accountability, effectiveness of material giving, and the role of media and celebrities in driving responsible action for the tsunami affected people.

The lessons being learned were further enriched by the sharing of experiences from the Katrina hurricane and Pakistan earthquake disasters. It was a conference with a full and action-packed agenda!

Exploratory research presented at the conference showed among others, that the top givers were individuals and local communities themselves. A study by the Charities Aid Foundation focused on Joint Appeals for disaster relief as a highly effective funds mobilizer mechanism.

A phenomenon that has not been seen in previous disasters was the influence of media and electronic communications technology in proving its singular effectiveness in capturing people's emotions and galvanizing them to respond. International and local news media, SMS and Internet tools, communications not only raised the resources but actually increased the giving.

The Asia Pacific Philanthropy Consortium is a 10-year old network of grantmaking philanthropic institutions and organizations that support the growth and development of philanthropy in the Asia Pacific region. APPC was incorporated last year with the Companies Registry of Hong Kong SAR. APPC's mission is to increase the quality
and quantity of philanthropy within and for Asia by strengthening the institutional infrastructure and improving the operating environment for philanthropy sector. To achieve its mission, APPC serves as catalyst, convener, and network builder.

APPC's efforts have focused primarily at the level of policy development, human resource development, and increasing public understanding of the potential role of philanthropy in addressing significant national problems.

Its programs are in these four areas:

- Improving the legal, regulatory, and fiscal framework for the philanthropy sector;
- Increasing public awareness of and support for the philanthropy sector;
- Facilitating resource mobilization in and for Asia; and
- Contributing to the development of organizational and human resource s for philanthropy.

For details log on to:
www.asianphilanthropy.org

The "Tsunami" has come and gone.
It will strike again, sometime, somewhere.
That is the way of "Mother Nature":
Transient, changing, forming, disintegrating,
Occasionally erupting, then subsiding.
Never staying still, never ending.
Humans are but minute particles,
Intertwined amidst the supreme vastness of the
"Universe",
Also transient, changing, forming, disintegrating.
To " Mother Nature", humans are no more than
Meaningless particles,
Coming and going, forming and disintegrating,
No different from "Tsunamis".
Yet within the small society of humans, meaning
Can be created,
If not to " Mother Nature", it is to one another.
This is the meaning of love, caring, sharing and
Giving.
The meaning that makes life worth living,
While the heart is still beating, and the spirit is
Longing…
For the reason of "Being".

India Science Congress held in Hyderabad

Inaugurating the 93rd session of the Indian Science Congress in Hyderabad, on January 4, 2006, Prime Minister Dr Manmohan Singh urged the scientific community to develop technologies both in agriculture and rural manufacturing so that jobs could be created closer to home for those who live in villages.

"My vision of rural India is of a modern agrarian, industrial and service economy co-existing side by side, where people can live in well-equipped villages and commute easily to work, be it on the farm or in the non-farm economy. There is much that modern science and technology can do to realise this vision." The PM said that the strategy for rural India had to be one of improving the quality of life in villages, based on easily accessible and appropriate technologies. He assured that his government would encourage world class research in appropriate water and energy-related technologies.

Delivering a lecture on "Science and Practical Reason" at the Congress, the Nobel Laureate Prof. Amartya Sen said the rapid growth of the country's economy in the recent past notwithstanding, India cannot become a major player in the global economy unless it completed the land reform process. Referring to the distress in the agricultural sector in comparison with the upwardly mobile industrial and urban segments, Prof. Amartya Sen said, "Our vision of India cannot be one that is half California and half sub-Sahara Africa." Prof Sen felt that the development of social infrastructure in health and education could make a "dramatic difference" in rural India.

Quoting a survey conducted in a district of Jharkhand, he said that while 62 percent of the people depend on quacks, another 14 percent go to ojhas and magic healers.

In his address on January 5, 2006, President Dr A.P.J.Abdul Kalam asked the scientific community to play a leading role in the Central government's programme for "Provision of Urban Amenities in Rural Areas" (PURA) by giving scientific, technological and ministerial leadership. He said that the scientific community could help set up 100 PURA centres in different parts of the country in 2006. The PURA clusters could comprise 20 – 30 neighbouring villages and provide facilities such as village and knowledge centers, agri-clinics, tele-education and tele-medicine centres, water treatment plants, cold storage plans for fruits and vegetables etc.

Dr Kalam recalled his recent visit to three PURAs, which are already operational in Vallam in Thanjavur district of Tamil Nadu, Chitrakoot in Madhya Pradesh and Loni in Maharashtra. In all of them, he found that technology and application of scientific methods of functioning played an important role.

During the session President Kalam also presented the Norman Borlaug Award to the former director-general of Indian Council of Agricultural Research, Dr R.S. Paroda.

Bengal Launches IIT – Designed Rickshaw

Recently, the West Bengal Government officially adopted a sophisticated, aerodynamic tricycle rickshaw developed by a professor from IIT-Guwahati at Dinhata near Cooch Behar. Over the next few years, the new vehicle is all set to replace over – 6000 hand-pulled rickshaws that ply Kolkata's streets. Two of these vehicles, christened the "Dipvahan Plus" and purchased from IIT-Guwahati for Rs. 12,000, each, were handed over to two Dinhata Rickshaw pullers by state agriculture minister, Mr. Kamal Guha recently. The west Bengal Marketing Board has chipped in a subsidy of with Rs 5000, per rickshaw so that rickshaw pullers can afford the new model. "If the trial runs at Dinhata are successful the state government will bring successful the state government will bring them to Kolkata, said Prof Amarendre Das, who developed the "Dipvahan". The Dipvahan is fitted with two gears is fully covered, has luggage space and is very light since it is made from jute composites, "the driver will not be subjected to vagaries of the weather, like sun and rain," said Das.

Source: Times of India, January 31, 2006

Doctors Back Ban on Gifts From Drug Makers

The gifts, drugs and classes that makers of pharmaceuticals and medical devices routinely give doctors undermine medical care, hurt patients and should be banned, a group of influential doctors said in a recent issue of *The Journal of the American Medical Association.*

Medical schools and teaching hospitals should be the first to establish a comprehensive ban, the group writes. But the authors argue that all doctors should eventually follow suit. Broadly adopted, the recommendations would transform doctors' day-to-day lives and shut off the focus of drug makers' biggest expenditures. But Dr. David Blumenthal, an author of the article, said it was "not very likely" that many in medicine would listen to the group. "I'm not very optimistic," said Dr. Blumenthal, a professor at Harvard Medical School who, like many of the article's 10 other authors, has studied conflicts of interest in medicine for years.

US Federal law forbids companies from paying doctors to prescribe drugs or devices, but gifts and consulting arrangements are almost entirely unregulated. Voluntary professional guidelines suggest that doctors refuse gifts of greater than "modest" value. Sanctions against doctors who accept gifts of great value are extremely rare. The drug industry spends tens of billions of dollars a year to woo doctors, far more than it spends on research or consumer advertising. Some doctors receive a significant part of their income from consulting arrangements with drug and device makers. Others take regular vacations and golfing trips that are paid for by companies. A recent lawsuit involving the device maker Medtronic revealed that one prominent Wisconsin surgeon received $400,000 for a consulting contract that required him to work just eight days. While such rich arrangements are often restricted to specialists, most physicians routinely accept small gifts from drug salespeople, including pens, mugs, pads and food. Surveys show that most doctors do not believe that these gifts influence their medical decisions, although most believe that they do affect their colleagues' medical judgment.

But even small gifts can lead to profound changes in doctors' prescribing behavior, with "negative results on clinical care," the article states. As a result, all gifts should be banned, the authors conclude.

Ken Johnson, a spokesman for the Pharmaceutical Research and Manufacturers of America, said the drug industry had a voluntary code of marketing conduct. "Only practices that do not compromise independent judgments of health providers - such as modest working meals, gifts of minimal value that support the medical practice, and distribution of free samples - are permitted," Mr. Johnson said in a statement. Dr. Duane M. Cady, board chairman of the American Medical Association, said in a statement that "drug and medical device makers can play a role in educating physicians about new products."

Source: New York Times, January 25, 2006

'Trustworthy' Donations

UK trusts and foundations give about £2 billion in grants each year to charities (which include universities and religious organisations).

To this might be added around £280 million by a dozen large operating charities which make grants in the course of their work (eg Cancer Research, Oxfam).

About 70 per cent of trusts and foundations give in the health and social welfare fields. 30 per cent give to the arts and recreation and 9 per cent give to causes related to religion. About 7 per cent of their funds are given internationally. Trusts' total giving to charities is about the same as the total of grants given to charities by the UK government.

However, many charities now also receive funds to provide public services, on contract from central and local government. In fields such as education and health, total government spending is about one hundred times greater than total spending by trusts and foundations. Trusts and foundations like to fund what government does not fund:

**** new methods of tackling problems***

• disadvantaged and minority groups which have trouble using ordinary services, or which have inadequate access to services;

• responses to new or newly discovered needs and problems;

• work which is hard to finance through conventional fundraising;

• one-off purchases or projects;

• short and medium-term work which is likely to bring a long-term benefit and/or to attract long-term funding from elsewhere.

Source: Association of Charitable Foundations website,2005

Tool Kit to Help Charities

With Canada's federal election around the corner, a local non-profit organization called Imagine Canada came out with a novel way to urge people to get involved to ensure that issues affecting the charitable and nonprofit sector in Canada are raised. In order to be heard and securing commitments for support from the politicians who would ultimately represent the people, they put together an election toolkit for public use.

The election tool kit included the letter which could be used as a potential template or starting point for a letter to candidates in their own areas. The people were asked to visit the party websites to identify local candidates running in their area. The organization also urged them to acquaint themselves with the local candidates and their mandates, to get in touch with them in person, by phone, or in writing, and to clearly outline to them their concerns on behalf of the charitable and nonprofit sector. "The more candidates that hear from us, the stronger our voice will be," said Georgina Steinsky-Schwartz, President and CEO, Imagine Canada.

The toolkit also included four backgrounders to put key messages, facts, and figures at the fingertips of the people. Three of the backgrounders address federal financing issues – the problems associated with programme funding; the issue of accountability, and the administrative burden it brings with it; and proposed tax changes to help encourage charitable giving. An additional backgrounder provided handy basic facts about the charitable and nonprofit sector as a whole.

"When speaking to your local candidates, I remind you that it is essential to be non-partisan and to present your position clearly. Ask your local candidates to commit their support to the changes for which you are asking," CEO of Imagine Canada, suggested.

Since the media could play a crucial role in helping to bring the concerns of the charitable and nonprofit sector into the pre-election dialogue, the organisation urged the public to contact their local media, and set out the concerns and issues that affect them. The tool kit included an op-ed article, which could be tailored and adapted for submission to the local media.

"We have the privilege of living in a nation with a democratically elected leadership where we can all enjoy freedoms of association and expression. It is up to us to use these privileges to the fullest, and to participate in the election process by speaking to the people who are vying to represent us. We hope that these materials will prove helpful to people in this work," Steinsky-Schwartz added.

Imagine Canada is a registered charity that was launched in January 2005 on the foundations of the Canadian Centre for Philanthropy (CCP) and the Coalition of National Voluntary Organizations(NVO).

For more information log on to http://www.imaginecanada.ca/

Noah's Ark for Seeds Inside Arctic Mountain

The future of humanity may soon rest deep in a frozen mountain on a remote Norwegian island.

The Norwegian government plans to build a "doomsday vault" to house 2m seeds which represent the entire agricultural diversity of the planet. The idea is to safeguard the world's food supply against threats such as nuclear war, asteroid impact, terror attack, climate change and rising sea levels.

"It's a Noah's ark for seeds," said Cary Fowler, executive director of the Global Crop Diversity Trust, who carried out a feasibility study on the project. "It would be used to re-establish agriculture."

The precise location has not been decided, but it will be close to Longyearbyen on Svalbaard, well inside the Arctic Circle. The vault, measuring 5 metres by 5 metres by 15 metres, will be cut from solid rock in the side of a mountain and should be finished by September 2007.

The £1.7m cost is being put up by Norway, which will own the facility, but technically not the seeds inside. "It's a gift to humanity," said Dr Fowler. "It's a fairly cheap insurance policy given the importance of agriculture."

The seeds will be cooled to between -10C and -20C, but if the cooling system fails the permafrost surrounding the vault will keep them at around -4C, cold enough to save most of them. The facility will not need to be permanently manned, but "the mountains are patrolled by polar bears", said Dr Fowler. The UN Food and Agriculture Organisation estimates that 75percent of the genetic diversity of agricultural crops has already been lost. "This will be the world's most secure gene bank by some orders of magnitude," he told *New Scientist* magazine. "But its seeds will only be used when all other samples have gone for some reason. It is a failsafe depository rather than a conventional seed bank."

Source: The Guardian, January 12 2006

KNOW YOUR NGO - SRISTI

Sristi is an Ahmedabad based non-governmental organisation setup to strengthen the creativity of grassroots inventors, innovators and ecopreneurs engaged in conserving biodiversity and developing eco-friendly solutions to local problems. Last December, they organised the 'Third Traditional Food Festival' at IIMA. This was a food fest with a difference. It focussed on traditional and organic food. It included stalls by various organizations, farmers' collective and individual farmers to showcase and sell organic processed and non-processed foods like minor millets, vegetables and fruits etc. There were stalls by NGOs promoting generation and dissemination of awareness pertaining to organic food and sustainable health-care. Besides the food items, organic and traditional non-food items like soap (fat less), hair oil, utensils, shampoo, vermin-compost, mouth freshener, clothes (using vegetable dye), herbal medicine etc were also showcased. The major participants included Jatan, Gandhi Vidyapeeth, Vedchi, Paryavaran Sikhsan Kendra, Jasdan, Krutika (Pvt) Ltd., Vikalpa, South Gujarat Organic Farmers Association, Sabarkantha Organic Farmers Association, Asal, Anand Gruha Udyog and Alpha Milk, among others.

The over-all objective of the festival was to encourage conservation of bio-diversity and associated knowledge system through market mechanism.

The food festival also proved to be a good occasion to familiarize the urban audience with the recipes made from minor millets and less cultivated crops. This was meant to inform the city dwellers about the nutritional benefits of such recipes and also give a boost to the conservation of the verities used in recipe.

Such food festivals have been used by Sristi as a platform to reach out to as many people as possible to sensitize them about the implications of going organic. The organisation's efforts are specifically focused upon the school going children; for moulding the consumption preference of young people is one of the major challenges faced by the organic movement. It also undertakes consumer surveys to gauge people's opinion about organic food.

Sristi has set the following goals for itself to promote and celebrate grassroots creativity and traditional knowledge.

To expand space in society for building upon sustainable technological, institutional and educational initiatives and innovations at the grassroots with special focus on women's knowledge.

To document, analyse and disseminate innovations developed by people themselves.

To validate and add value to local innovations through experiments (on farm and on-station) and laboratory research for generating nature-friendly sustainable technologies.

To conserve local biodiversity through in-situ and ex-situ gene banks managed by local people.

To protect the intellectual property rights of grassroots innovators and to generate incentive models for recognising, respecting and rewarding grassroots creativity and associated ethical values and norms.

To provide venture support to grassroots innovators to scale up products and services based on grassroots innovations through commercial or non-commercial channels.

To embed the insights learnt from grassroots innovations in the formal educational system in order to expand the conceptual and cognitive space available to these innovations. Sristi is headed by founder-president Prof. Anil K Gupta who is currently the K.L. Chair Professor of Entrepreneurship in the Indian Institute of Management, Ahmedabad.

For details log on to: www.sristi.org

Guiding Philanthropy in India

GuideStar India is a private, not-for-profit initiative to develop a system that will capture extensive information about the work of thousands of India's civil society organisations (CSO) and present this information in easily understood reports for each CSO in a highly searchable form at a free public website.

The effort in India follows successful development of similar GuideStar systems in the US (www.guidestar.org) and the UK (www.guidestar.org.uk). The independent Indian initiative is assisted by Civil Society Systems, a charity registered in the US and UK, a steering committee of leaders from Indian civil society.

The purpose of the GuideStar service is to deploy extensive information and establish general transparency, thereby encouraging greater philanthropy, more effective CSO operations, a better allocation of society's resources and enhanced accountability.

The users for this site would be the institutional donors, grant makers, government officials, civil society leaders and individual donors.

There are a few challenges for establishing such a system in India such as poor penetration of Internet, resistance to transparency by select civil society organisations, lack of a central repository of returns filed with the government.

The development phase has begun in October 2005 and will require six to nine months for completion.

For further information: Contact
G.Mohan, Project Manager
gmohan@guidestarindia.org
www.civilsocietysystems.org/india

1. **The Scholarship scheme for Women Scientists** for societal programmes is a recent initiative of the Department of Science & Technology. Project proposals could be for:

- Research, development and adaptation of technology to improve the quality of life and provide additional opportunities for income generation in urban slums or rural areas;
- Adaptation and transfer of an innovative technology form laboratory to field
- Capacity building of applicant in technology areas relevant to the needs in rural areas; and Nature of Support Provided
- Support will include a scholarship grant of Rs.15,000 per month for Level I and Rs.10,000 per month for Level II for a period of two years.
- Grant for minor equipment, consumables and contingencies, Travel and overheads will also be considered if found necessary under the work plan.
- For proposals on capacity building course fee along with a grant to cover boarding and lodging will be provided.

Women Scholarship Scheme - Societal Programme
(WOS-B) - 2006
Application Invitied for Year 2006
(Last Date 20 February 2006)
Contact:
Dr. R. Saha
Adviser & Head
Science & Society Division
Department of Science & Technology
Ministry of Science & Technology
Technology Bhavan, New Mehrauli Road,
New Delhi – 110 016 (INDIA)
Ph: - 01-11-26859581
E-mail: -raghav@alpha.nic.in

2. National Science & Technology Entrepreneurship Development Board (NSTEDB)
Department of Science and Technology , Government of India
Invites Applications for
National Award for Technology Business Incubators
For the year 2005

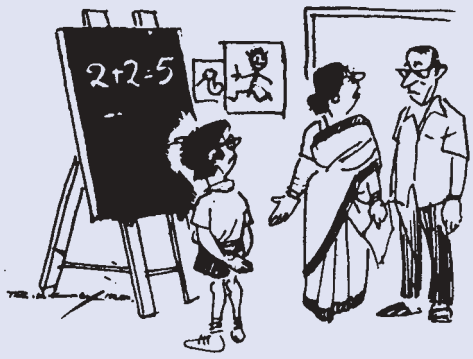
In order to recognize and reward the work done in the area of techno-entrepreneurship development through promotion of knowledge driven and technology based start-up ventures by organizations such as Science and Technology Entrepreneur's Park, Technology Parks, Technology Business Incubators, Innovation Centres, Software Technology Parks etc., the National Science & Technology Entrepreneurship Development Board (NSTEDB), Department of Science and Technology, Government of India, has instituted a National Award for Technology Business Incubators.
Eligibility: Organizations in operation for at least three years. (This award is not for an individual).
Contact:
Dr. Anita Gupta
Scientist -D
National Science & Technology Entrepreneurship Development Board (NSTEDB)
Department of Science & Technology
Technology Bhavan
New Mehrauli Road
New Delhi-110016
Ph: 011-30997059/ Telefax: 011-26854416/26517186
e-mail:anitagupta@nstedb.com

3. **The S&T International Cooperation Division of the Department of Science & Technology** deals with the International Scientific and Technological Affairs including the negotiations and implementation of Scientific and Technological Cooperation Agreements and responsibility for scientific and technological aspects of activities of international organizations.

- Exploratory missions of scientific delegations;
- Exchange visits of scientists for collaborative work and information exchange;
- Joint workshops;
- Fellowships / training / study visits for Indian scientists abroad and foreign scientists in India;
- Development and implementation of joint R&D programmes, Joint projects and collaborative R&D programmes;
- Support to Indian scientists to access major international research facilities abroad; and
- Establishment of Joint Centers of Excellence.

Contact Address
Shri Y.P. Kumar
Adviser & Head (International)
Department of Science & Technology
Technology Bhawan
New Mehrauli Road
New Delhi-110 016.
Telefax: 011-26961912
Email : ypk@nic.in

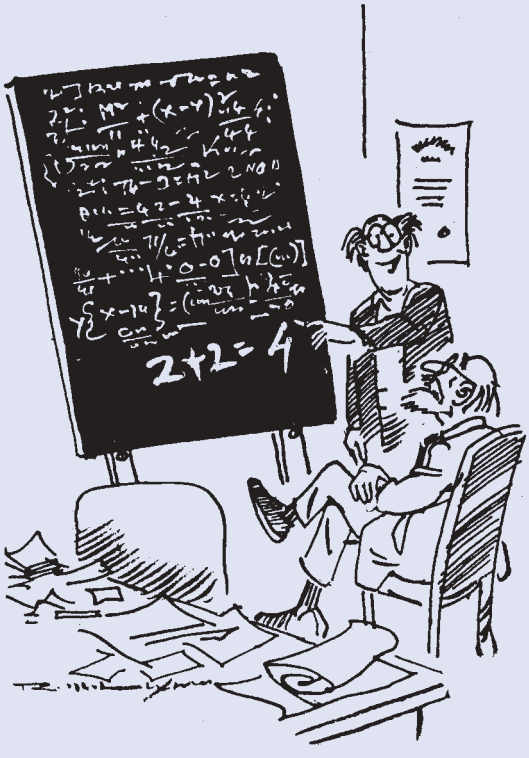
Doctor, doctor ...What makes scientists laugh?



"Either he is a mathematical genius or a born politician - he says he can prove how he arrived at that conclusion."

Richard Fortey is a palaeontologist at the Natural History Museum and author of a number of books including The Earth: an intimate history and Trilobite. His favourite cartoon is by the Australian Michael Leunig:
It features a dismal-looking figure proceeding along a shadowy road. A signpost reads: "The life you lead." Crossing this road at right angles is a brilliantly lit side road, the signpost for which reads: "The life you could have led."
Susan Greenfield, professor of pharmacology at Oxford University, director of the Royal Institution of Great Britain, and member of the House of Lords.
Q: What is an ig?
A: It's an Eskimo's home without a loo
Steve Jones, professor of genetics at University College London and author of popular science books including Almost Like a Whale: the origin of species updated:
Well, there was this homeopath who forgot to take his medicine and died of an overdose.
Raj Persaud, consultant psychiatrist and senior lecturer at the Maudsley Hospitals and Institute of Psychiatry, and presenter of All in the Mind on Radio 4:
Q: How many psychoanalysts does it take to change a lightbulb?
A: Two, one to change the lightbulb and one to hold the penis, sorry ladder... don't know why I keep making that slip ...

Martin Rees, Astronomer Royal and professor of cosmology and astrophysics at the University of Cambridge said: "One cartoon I like (I think it was in the New Yorker in the 1970s or earlier) has a salutary message for 'pure' scientists who get above themselves and don't appreciate technology."
A rabbit and a beaver are looking up at the Boulder Dam. The beaver is saying: "I didn't actually build it, but it's based on my idea."
Marcus du Sautoy, professor of maths at Oxford University and author of Music of the Primes:
Q: How can you spot an extrovert mathematician?
A: He looks at your shoes when he talks to you.
Lewis Wolpert is professor of biology as applied to medicine at University College London, popular science author and broadcaster:
A man is walking in the country and comes across a shepherd with his flock. He says to him: "I am a scientist and if I can at a glance tell you exactly how many sheep you have can I have one?" The shepherd agrees and the scientist says: "423." "You are right," says the shepherd, "take one."
As he is leaving, the shepherd calls out: "If I tell you what sort of a scientist you are can I have my animal back?" "Of course,' says the scientist. "You are a theoretical biologist." "You are right. How could you know?" "You have taken my dog."
Richard Wiseman, the award-winning professional magician who is now a psychologist at the University of Hertfordshire, did an experiment (Laughlab) to find the world's funniest joke. He says: "We had about 40,000 jokes sent in by people all over the world. Here is my favourite."
An elephant and a mouse were talking together. The elephant said to the mouse: "Why am I so big and strong and heavy and you are so tiny, weak and puny and grey?" The mouse said: "Well, I've been ill haven't I."
(Source: The Guardian, September 08 2005)



And thus in the most long-winded, complicated way, I have proved the oldest mathematical concept.

Donate Generously!

Respected Sir,

I am a medical doctor and a research fellow in Radiology from Pune. I am involved in research in Human Bio-electromagnetic Field (HBF) Imaging for early detection of cancers. A similar research has been undertaken by a renowned scientist Dr. Hiroshi Motoyama from Japan and also at the University of New York. I intend to set up a center for research in conventional and integrated medicine. The center will undertake research in many areas like Human Bio-field detection making a large impact on human health globally. According to the 'World Cancer Report' by the World Health Organisation (WHO):"Every years, 10 million people are diagnosed with cancer as new cases. In the year 2000, cancer was responsible for 12percent of the 56 million total deaths worldwide. In many countries, more than 25percent of deaths are due to cancer. In developed countries, some 50percent of cancers are diagnosed in late stages, while in developing countries, 80percent of cancers are late-stage incurable tumors when diagnosed, pointing to the need for much better detection techniques and screening programmes. Late diagnosis and treatment results in higher expenditure and chances of long term survival are poor. Early detection is the best strategy for cancer second to primary p prevention. Screening 'apparently healthy' individuals and to identify the ones with the disease is an important step to control cancer hoping a cure.

AN APPEAL

Many of the currently available cancer screening techniques either have a low accuracy or are too expensive to screen large population -- especially in developing countries. My research is planned to develop a single cancer screening technique (in contrast to different modalities used for different types of cancer) for almost all the common cancers. Our objective is to make it simple to use, affordable and accessible to the people even in rural areas. It will enable us to suspect the tumors about two years before they appear in any part of the body i.e. much before the patients develop symptoms and signs of cancer thereby reducing their expenditure, improving the quality of life and chances of long term survival. Initial study by health economists says that the successful outcome of this project can save US $ 3 to 4 billion of the cancer patients per year.

We need better cancer screening modality at the earliest. I request the investors to invest for a social cause. Is it feasible for any organization to help me in fund-raising to undertake the project in HBF imaging and to raise the research center (CRICIM)? Is it feasible for any organization to introduce my project to a university or an institute for a support or to include myself in a research group at their institute? Is it feasible for any organization to introduce this project to any of the possible donors.

Yours Sincerely

Dr. Sameerkumar S.Shah, Pune

TIME MACHINE

Science events in 1906

Chemistry

Charles Barkla discovers that each element has a characteristic X-ray and that the degree of penetration of these X-rays is related to the atomic weight of the element.

Mikhail Tsvet discovers the chromatography technique for organic compound separation.

Geology

April 18 - The 1906 San Francisco earthquake, an est. 7.9 on the Richter scale and centered on the San Andreas fault, strikes near San Francisco, California. The earthquake and fire destroy over 80% of the buildings in the city, and kill as many as 6,000 people.

Richard Oldham argues that the Earth has a molten interior.

Physics

Walther Nernst presents a formulation of the third law of thermodynamics

Medicine

BCG (Bacilli-Calmette-Guerin) immunization for Tuberculosis first developed

Frederick Hopkins suggests the existence of vitamins and suggests that a lack of vitamins causes scurvy and rickets

Clemens Peter von Pirquet with Béla Schick, coins the term "allergy" to describe hypersensitive reactions.

Technology

Reginald Fessenden makes the first radio broadcast: a poetry reading, a violin solo, and a speech.

Awards

Nobel Prizes

Physics - Sir Joseph John Thomson

Chemistry - Henri Moissan

Medicine - Camillo Golgi, Santiago Ramón y Cajal

Source: www.wikipedia.org

Colombian Radio Thrives in Armed Conflict

Tiny radio stations and other media initiatives managed by citizens' groups are operating successfully in regions where leftist guerrilla organisations, right-wing paramilitary groups, drug traffickers and the Colombian army have a strong presence. The University of Oklahoma in the USA, Magdalena Medio Community Radio Stations Association, Universidad Javeriana and Universidad del Norte in Colombia have examined citizens' media in areas of armed conflict. Initiatives are achieving significant results and transforming communities living in difficult circumstances.

Some years ago the radio station director in Santa Rosa del Sur del Bolívar, a small town in Magdalena Medio, was captured by one of the guerrilla groups in the region, as a way of pushing the community to support them. As soon as the radio station heard the news, it broadcast a message demanding that the guerrillas respect the director's life as a civilian uninvolved with any of the armed groups. Immediately messages and letters of support poured in from individuals and social organisations, demanding his freedom and respect for his life.The guerrillas then called the station and challenged the community to go to their camp to recover the director. The station broadcast their demand and within six hours 480 citizens had approached the station, ready to go. A caravan of buses, trucks, and jeeps packed with men, women, and children made a fifteen hour journey through the Andes highlands to the guerrilla camp. Two days later they returned with the director. This collective action, facilitated by the radio station, sent a clear message to the guerrillas and other armed groups in the region that the community had declared itself neutral, and that all armed groups were expected to respect civilians' rights. This case illustrates that more than pre-designed campaigns and messages about peace-building and conflict resolution, what communities in regions of armed conflict need are their own ommunication tools and skills that can be used when needed.

(For details log on to: www.id21.org)

Interview:
continued from page 8

understand why the city speed limit is 40km per hour or how to negotiate the traffic circle. If you look around, you may come across plenty of potential talent, backed up by exceptional brilliance, which collectively create an intellectual capital. But the unfortunate thing about this is that none of this is reflected when you look at the society at large. This gap between reality and potential is very wide, it should be a matter of concern, and efforts need to be directed to shorten this gap.

In some sphere our country is developing at a rate faster or otherwise depending upon the individual point of view. But this development is like inverted pyramid, which is structurally a very unstable. It can collapse at any time until we do not address the fundamental issues of our societal evils. In my view, there is no point in running, before we can

"The public should impose certain minimum obligations on themselves, rather than looking to their leaders for solution."
- Dr Suresh Karkhanis

first learn to walk. Our fundamental issues are rampant corruption, cleanliness affecting health and hygiene, non-transparency, discipline, poor work ethics. These are evils of our society and we have hit the bottom of the bottom!

Mr. Lokhande: People of our country are not averse to science and technology. Actually, one can see science and technology being applied by even some uneducated rural people. They only do not know what they are doing and why. A farmer for example, knows almost everything or even more than any agriculture graduate. He only cannot put it like the graduate does.

Communication technology, we think, will play a major role in rural development. The rural masses have very quickly understood and adapted to the latest of the gadgets and technical aspects in their field.

Question: Can you suggest any specific measures or interventions to improve the capacity of our people to employ science and technology as the tools of their own development and that of their community?

Dr Karkhanis: We are going through the phase whereby some of the individual idiosyncrasies need to be put on leash. If this happens then we will be able to rectify the societal evils that exist. Then any development in the area of technology or society would take off and our nation would be able to take quantum jump and go forward!

Mr Lokhande: Science and technology can be readily acceptable if it is need based and not market driven. The needs of every region

might not be similar. Hence, it will have to be custom made and need based. Proper technical support, from the same area, if possible, will add to the utility and acceptability.

Question: The Indian government has come out with the India Science Report for the first time in our history. By the virtue of this study, we have joined the league of the industrialized countries that have been engaged in National Science Surveys for the many decades. Do you think it is the government's responsibility alone to advance science and technology in India?

Dr Karkhanis: I have not read this report. Therefore, I would refrain from making any comments. However, I feel it is not only the government's responsibility alone to advance science and technology in India. The government should take lead in creating conducive environment for R&D by providing decent funding to the universities. The government could give some tax incentives to the industries to carry out R&D.The relationship between the government and industry is important. It is far too important to simply be allowed to develop haphazardly. It deserves a lot of thoughtful planning. One aspect I am very sure is that there should be less bureaucracy and efforts should be result oriented and time bound! The government should be compelled to focus on cutting edge technology and research in frontier areas. It should direct national research institutes, universities and the corporate world in that direction.

Mr Lokhande: I don't think it is solely the government's job to advance science and technology. There is a need to do this as part of corporate social responsibility. This is happening, but it needs to be done on a higher scale.

Question: In western society, for example in USA and Japan, many prominent foundations have allocated huge funds for advancement of science and technology; and they distribute their resources in a spirit of partnership and in a strategic way to achieve results. Do you think it would be possible for institutional donors in India to follow the example of their counterparts abroad in this respect?

Dr Karkhanis: Yes, provided there is sufficient transparency between the various parties involved!

Mr Lokhande: It will take some time for Indian establishments to reach that stage. While Indian companies are yet to become multi-national companies (MNCs) in the true sense of the word, the MNCs that have come down to India are new to the country and are still to get a hang of it. Hence, it is too early to expect any such thing. However, it has begun on a small scale and is likely to increase as time passes by.

Question: Apart from the foundations, is there any opportunity for the corporates to advance specific areas or themes pertaining to science and technology? Which competencies and resources can be shared by the corporate in strengthening of science and technology in our country?

Mr Lokhande: Foundations, in association with corporate can do a lot in this direction. The foundation should concentrate on implementation of the programme while the corporate can do the financing, against proper accountability of course.

Question: Which are the areas in which we need to concentrate while thinking of organized philanthropy for advancement of science and technology?

Dr Karkhanis: There is something fundamentally wrong with the 'aam janata' who has lost the capacity or will to feel anger, fear and outrage over the events that are happening around. We need citizens who are pro-active in solving problems; they need to feel involved and concerned. The citizens need to act themselves. The importance of cultivating individual responsibility needs to be emphasized. I call this approach "Power of One Philosophy" which is as follows:

"The public should impose certain minimum obligations on themselves, rather than looking to their leaders for solution."

Mr Lokhande: According to what we have seen, the rural areas have their own ways and means of developing themselves, which they will. However, if one needs to expedite this process, the villages need to be connected. They can be connected in two ways. By building good all season roads between villages and towns along with modern communication facilities. This way, they will not only exchange information, but will also be able to enhance trade with neighboring areas. This is quite possible because the number of villages with population between 2000 and 10,000 is not more than 75,000. This is further more possible and easy if 75,000 non-resident villagers come forward to do it for their native place.

(Endnotes)

1 The world renowned Indian astrophysicist who proposed the Steady State Universe model, and was involved in pathbreaking research in the origin and evolution of our solar system in association with late Dr. Fred Hoyle.

Philanthropy Should Focus... Continued from Page 4

these countries. The second viewpoint is further substantiated by the achievement figures of China.

China has a territory three times bigger than India and almost 30 % more population to support than we do. We cannot also overlook the fact that China was lagging behind India with respect to modern infrastructure of science and technology, industry and organized mercantile in the form of stock exchanges for many decades in twentieth century. However, the comparative achievements of China in education and diffusion of technology are better than that of India.

The UNDP report goes further and uses India as a case to demonstrate disconnect between science and development. The report observes: "Over the past two decades the country has moved into the premier league of world economic growth; high technology exports are booming… The incidence of income poverty has fallen…. Overall, the evidence suggests that the pick-up in growth has not translated into a commensurate decline in poverty… Some of India's southern cities may be in the midst of technology boom, but 1 in every 11 Indian children dies in the first five years of life for lack of low-technology, low-cost interventions…".

Therefore, a time has come when we ought to shrug off inertia about universalizing of science and technology, and pitch our resources towards creating a bigger base of research, development and its application. One is aware that it is easier said than done, but then we are not faced with a bright prospect otherwise either. If we do not do it now, then we are strapping ourselves with increased liabilities, which are bound to affect our economic growth and social development. The roots of the problem lie elsewhere. One, we persisted with the nineteenth century model (followed then by USA and Japan) of 'import based science, technology, and industry' for little too long. Two, a cultural stigma seems to have evolved over the colonial period and in the post-independence period in our national psyche towards science. Therefore, we may take pride in having a few globally competitive centers of science and technology, but at the same time also accept the limitation in building cultural mechanisms for integrating scientific thinking and its applications in our lives. The India Science Report (ISR) definitely gives us moments of joy but compels us to think further about the way we treat science and technology in our national life (table 3).

The list of indicators cited above is only indicative and does not represent the complete set of data contained in the ISR. However, they are indicative

Table 3 - Indicators of diffusion of science and technology in daily lives

S.N.	Indicator	Population character (percentile figures) (a) Rural	(a) Urban	(b) Illiterate	(b) Higher education	(c) Lowest income	(c) Highest income
1.	Television as a major source of information	50.1	73.6	40.9	71.1	47.7	71.8
2.	Daily use of TV as a major source of information	31.3	87.0	28.0	73.8	45.0	88.9
3.	Daily use of Internet as a major source of information	0.1	1.5	0.0	4.1	0.1	4.5
4.	Percentage of persons who visited a scientific institute once in past twelve months	1.7	5.7	0.1	12.6	1.4	9.3
5.	Percentage of persons who never visited a scientific institute in past twelve months	65.8	67.4	57.0	68.3	62.9	67.6
6.	Percentage of persons who never visited a library in past twelve months	66.0	60.2	69.6	38.1	66.4	47.7
7.	Percentage of households owning a thermometer	7.4	14.7	2.7	9.6	5.0	31.3
8.	Preference for information on science and technology over other subjects	2.04	2.15	1.79	2.39	1.96	2.67

Source : India Science Report, 2005

enough of the sorry state of diffusion of scientific products and scientific spirit in our country. These indicators speak not only about access to science-based products but also about the general disposition of our people towards science and technology. One, the gap in access to products and services based on science is glaring between the different segments of population. The poor, illiterate mass of population in rural area is way behind the educated, rich, urban-based population with respect to the basic products of technology. The forward segment of population shows a tendency of polarization with respect to frequency of visit to scientific institutes. Though the proportion of persons having visited scientific institutes at least once in past twelve months is more in the forward segment, yet those who did not visit at all during the reporting period are more in number than the backward segment. Amusingly, one factor that binds the forward and backward poles of our population together is dislike for science and technology related subjects and issues! People from all layers of our society invariably find science and technology as the least interesting subject amongst many choices.

The situation calls for a greater role for philanthropy in advancement of science and technology in India, another ancient institution like science, rooted in the basic quality of humility in human mind. Again, we should not shy away from learning a few lessons from nations who have successfully engaged philanthropy in development of science, and in an institutionalized manner. The limitations of the medium at hand unfortunately stop us from taking a global, or even wider inter-regional overview of the phenomenon. A few, in-depth country studies by us reveal a number of functional aspects of the

Joseph E. Sheffield, (1793 -1882) is also known as the father of "scientific philanthropy". He helped establish the School of Science at Yale University. The school consisted of departments of engineering and analytical chemistry.

phenomenon of philanthropy for science and technology. The two outstanding cases are those of USA and Japan. What philanthropy did for advancement of science and technology in these two countries can be called as a 'Proliferation and Partnership' model. Henceforth, we will call it as the P2 model. What happened under the patronage of the emerging entrepreneur-business class, the ruling nobility in USA and Japan respectively was indeed prolific, and one can safely say that the phenomenon has not only continued but also grown and become strategic by the beginning of the third millennium. For the purpose of focused and functional analysis as well as limitations of space, we will highlight the case of USA.

Approximately, until the middle of nineteenth century, the center of scientific inventions and discoveries hovered over continental Europe and Great Britain. However, a silent revolution was sweeping across America since the beginning of the nineteenth century. The American people had a disposition towards learning science and technology, and they were studiously observing and absorbing the advancements taking place across the Atlantic. They were learning their lessons right that were translated into a fine infrastructure devoted to science and technology on the ground.

This change overtaking the mind and intellect of the Americans was reflected in a couple of phenomena beginning in the mid-nineteenth century. An interesting event took place somewhat during 1840s in the not so prominent Cincinnati town of ninenteenth century USA. There were many more reverberations of this event in rest of the country over the course of many decades to come, sweeping from the Pacific coast to the prominent settlements on the Atlantic coast. This event was building of a powerful telescope in Cincinnati through community contributions. In a way, this event symbolized the augmentation of space exploration capacity of that country. Observation of space truly began to be a public business. This was followed by a proliferation of observatories with philanthropic support across USA. Many ambitious projects were supported by eminent philanthropists like Andrew Carnegie, while others came to fruition through community donations. A characteristic aspect of this proliferation was attachment of social prestige to the telescope projects. In fact, there are recorded instances of unwarranted social elements some times trying to use the garb of telescope philanthropy to earn social acceptance. This attachment of social prestige to building of telescopes led to a competition between cities and cities and states and states (O'Connell, 1986). This reminds one of a parallel phenomenon still prevailing in Indian society, and that is the prolific phenomenon of temple building. From

rich patrons to small agrarian communities, people in this country prefer to build temples. Use of personal wealth for earning social prestige through public services is a common aspect of both these phenomena. One can say that the nineteenth century American was building Temples of Science, which in future attained value in political symbolism.

Another important factor in the P2 model is the close association between entrepreneurship and objective oriented philanthropy. A pioneering entrepreneur - philanthropist in science and technology was Joseph E. Sheffield (b.1793 – d.1882). He made fortunes in cotton trade and by laying railroads. This prompted him to make a huge endowment to establish a School of Science at Yale University. The endowment was given with the clear purpose to strengthen education and research in engineering and 'hard sciences'. The hard sciences included physics, chemistry and biology. The school of science at Yale is still a vibrant center of research in USA, and over the course of a century, the activities at the school have grown manifold.

Third important factor in P2 model is moral premises of philanthropy for science and technology. Many inventors who led the American scientific – technological revolution were convinced that they owed a lot to society and therefore, it was their moral responsibility to give back to her what came to them in the form of wealth. The new creed of inventor-philanthropists kept large portions of wealth made through their patents for contribution to development of scientific and technological institutions. For example, Frederick Gartner Cotrell formed the Research Corporation in 1912 out of the royalties won on his electrical device. A more recent example is of Dr. Arnold Beckman, regarded as a father figure in the field of instrumentation technology. He went on to establish the Arnold and Mabel Beckman Foundation, which have supported research in areas as wide as artificial intelligence, nanotechnology, biomedical optics, spectroscopy and sociobiology.

Fourth factor that sustained the P2 model is the sense of history among the philanthropists. They were almost sure about the fact that they were making history by sharing their personal wealth for advancement of science and technology. The logical consequence of this self-perception was the preparedness to take risks. They were taking this risk for the future generations of their nation. This is aptly expressed in the words of Cotrell, "Bet on the youngsters. They are long shots, but many will pay off". The alliance between philanthropy and entrepreneurship prevailed in USA after the World War II too. For example, the Parapsychology Foundation was established by Eileen J. Garrett in 1951 to support research of phenomena in human surroundings that cannot be explained by traditional psychology or other sciences. She went on to establish the Foundation after realization that the established Foundations and research institutions were least interested research of such phenomena. She saw the potential for evolution of a new domain of human knowledge while establishing the Parapsychology Foundation. But then who would have imagined in early nineteenth century that at the beginning of the next century a man named Albert Einstein was going to change our concepts of reality, space, time and matter forever? Partnership in a project mode for the sustenance of philanthropic causes is another important factor in the P2 model. People in India know the fascinating story of Robert H. Goddard's assiduous efforts to develop the rocket technology as a lifelong mission. However, very few perhaps know about the spirit of the philanthropists who enabled the rocket science to come to complete fruition by supporting his mission. The initial grant for his experiment came from Hodgkins Fund through Smithsonian Institutions in 1917. The second phase of development was largely sponsored by Daniel Guggenheim through a generous grant starting in 1929. He kept supporting Goddard's mission through Daniel and Florence Guggenheim Foundation. This support from Guggenheims to development of rocket technology continued uninterrupted even after death of Goddard in 1945. History shows many more examples of American universities and research institutions leveraging resources through various philanthropic institutions. Indeed, the principle of partnership and leveraging was well articulated in Rockefeller Foundation's grant making policy towards basic life sciences. The policy was termed as 'leveraging and discontinuation'. After the knowledge in a particular field of research had reached a certain level of growth and there was a secure support base available for the endeavor from other sources, the support from the Foundation, which would stretch over years, used to be withdrawn. Last but most important factor that has lent the kind of solid structure to the P2 model is well-articulated perspective and action (a) to cultivate talent in cross-sections of population, especially bringing the marginal groups within the mainstream of scientific discovery through support to science education; and (b) to disseminate knowledge products of science and technology in the bigger communities. A research done by us on 50 biggest American Foundations showed that 19 out of those

have a well-defined and substantial component of support to science, technology and/or science education in their grant program. The structural elements of such science support programs are identification of state and private agencies as partners, putting a long-term strategy in place, emphasis on review and development of educational content, employment of project review process, and permanent mechanisms for engagement of beneficiary communities.

The closing of this paper should mark the beginning of a new phase in Indian philanthropy – well-orchestrated action philanthropy for strengthening and universalizing science and technology in our country. What can be done to begin the new chapter?

1. Get over complacency regarding our achievements in the past both in the sphere of philanthropy and science and technology.
2. Establish a dialogue between government and donors about the need to match our capabilities.
3. Open up a dialogue with the cross-sections of Indian society to identify the blind spots in their life histories where the winds of science and technology cannot touch.

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(Footnotes)

* The report urges cautious treatment to this figure as the reported number of enrolled pupils in "Not known or unspecified" category represents more than 10% of the total enrolment.

*** About the Author:**

Dr. Sandeep Deshmukh, Executive Director, Sampradaan Indian Centre for Philanthropy, 8 / 8704, Vasant Kunj, New Delhi - 110 070.

Email: icp@ndb.vsnl.net.in

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