Courtesy by **NISCAIR, CSIR.**

Coverage of 98th Indian Science Congress 2011 at Chennai

Posted on January 1, 2011 by H J Khan

The 98th Session of the Indian Science Congress is going to be held during 3-7 January 2011. The 98th Indian Science Congress is being hosted by the SRM University, Chennai.

The National Institute of Science Communication And Information Resources (NISCAIR), New Delhi a constituent laboratory of the Council of Scientific & Industrial Research (CSIR) would be covering the proceedings of the five-day event billed as the largest conglomeration of scientists in the country and set to be inaugurated by Prime Minister Shri Manmohan Singh on 3 January 2011.

Reports on significant deliberations in the various sessions of the 98th Indian Science Congress would be uploaded on a daily basis on this Blog.

Prime Minister Inaugurates 98th Indian Science Congress: Calls for a 'Year of Science'

Posted on January 3, 2011 by H J Khan

3 January 2011, Chennai. The 98th Indian Science Congress kicked off to a grand start today at the SRM University in Chennai with Prime Minister Shri Manmohan Singh giving a call to celebrate the year 2012-2013 as the 'Year of Science' and the next decade as the 'Decade of Innovation'. The year 2012-2013 also happens to be the centenary year of the Indian Science Congress.
Referring to the theme of the 98th Indian Science Congress, "Quality Education and Excellence in Science Research in Indian Universities", the Prime Minister in his inaugural address stressed that a university is the vital link in the chain of science teaching and research. And unless we strengthen the educational system, we could never hope to achieve excellence.

The present government, he said, has tried has tried to pay special attention to the growth and development of our university system by sanctioning funds for the creation of new universities and increasing the capacity of existing ones. In the past five years, the Government has established eight new IITs and five Indian Institutes of Science Education and Research to provide high quality education and carry out research in frontier areas of science and technology. An Academy of Scientific and Innovative Research which seeks to produce more than 1,000 doctoral and post graduate fellows every year is also being established.

The Prime Minister urged the teaching community to strengthen both the teaching and research sides of our University system. He called upon science educators to create an innovation eco-system so that innovation becomes a way of life in our knowledge institutions. He stressed that our Universities have to be more hospitable to creativity and genius, and less captive to bureaucracy and procedure. They should be more open to talent and to the challenge of new ideas.

In this connection he referred to the vision document brought out by the Science Advisory Council to the Prime Minister (SAC-PM), which set out a vision and a roadmap for India to become a global

leader in science. The Council recommended measures to attract the best of young talent to the study of science.

The Prime Minister said that in his visits abroad he came across innumerable bright young people doing science who were very keen on doing good science in India. He called upon the community of scientists and administrators to think of ways of drawing upon this huge pool of young scientists.

Earlier, in his address to the large gathering of scientists, educators and students, Shri Kapil Sibal, Minister for Human Resource Development, Science & Technology, Earth Sciences and Communication & Information Technology, also referred to the huge demographic dividend of young people that the country enjoyed at this point in time and stressed on the need for policies to capitalise on this dividend.

Referring to the theme of this year's Indian Science Congress, Shri Sibal said that currently as far as research in Indian universities was concerned, Indian science could only be called average. The goal should be to raise this to excellent. And to realise this aim it was necessary to concentrate on some of the immediate hotspots such as increasing industry-academia linkage, recognising the contributions of young researchers, enhancing public funded research and providing incentives to businesses that collaborate with universities.

The five-day extravaganza at the SRM University would be hosted under 14 sections apart from deliberating on topics of significant importance such as enhancing academia-industry interactions, minimizing and managing waste, climate change, energy security and the like in the Plenary Sessions. With almost 7,000 delegates from around the country and six Nobel Laureates slated to deliver special lectures, the inauguration of the 98th Indian Science Congress promises to tackle a host of scientific issues of critical importance for the country.

University Overhaul Needed: Dr K.C. Pandey, General President, 98th Indian Science Congress

Posted on January 3, 2011 by H J Khan

3 January 2011, Chennai. As the 98th Indian Science Congress rolled off to a smooth start after being inaugurated by Prime Minister Dr Manmohan Singh at the SRM University, Dr K.C. Pandey, General President of this year's Science Congress, made a strong pitch for private initiatives in university education.

While delivering his Presidential Address, Dr Pandey asked why we hesitate to encourage private initiative in the field of university education when we have opened the doors to private investment in agriculture, industry, business and transport. Especially in today's scenario when several foreign universities had expressed interest in collaboration with Indian counterparts.

However, he stressed that while encouraging such private initiatives it should be ensured that factors such as nepotism, arbitrariness and favouritism do not come into play. There should be no compromise on eligibility norms, teaching standards and infrastructure requirements so that quality of teaching does not suffer.

The General President was lamenting the slow decline in research in Indian universities, which had once been traditional sources of research. Very few Indian universities are known for good standards in teaching and research, he said. In fact, the country is fast losing its competitive edge in research to other countries, which till recently were far behind.

Among one of the reasons he cited was the scarcity of quality researchers. In the last six decades there had been tremendous expansion of the knowledge base but most universities had not even made efforts to keep up with it. Today, being recognized as a center of excellence and producer of knowledge research has to be one of the primary agendas of universities.

Dr K.C. Pandey also strongly stressed on the need to strengthen the teaching backbone in Indian universities. One way of doing this could be by promoting the concept of 'star' researchers and professors as followed in USA, UK and even China. He said that the university must also encourage the faculty to undertake research with multidisciplinary perspectives, conduct research jointly in groups, and have collaborations with national laboratories, other research institutions, and industry. A special Plenary Session on 4thJanuary, "Enhancing Academia-Industry Interactions", will dwell on this issue at some length.
Universities also needed to outgrow the archaic and rigid courses they have been following, which were irrelevant to emerging needs. Dr Pandey said that our courses and programmes in the universities have to be redesigned to meet the growing needs of specializations, to facilitate mobility between programmes and courses, to update and modernize curricula and to facilitate the introduction of reforms in the evaluation procedure.

In this context he said that the present examination system contributed to inordinate strain, slackness, corruption and inefficiency. It encourages rote learning, discourages innovative teaching and serious and sustained study. He called for dismantling such a system and replacing it with a system of continuous and comprehensive internal assessment which would eliminate the fear of examinations, evaluate the student's proficiency, encourage regular study habits, facilitate continuous feedback on performance and also ensure teacher's accountability.

Science Academies Need to Converge

Posted on January 4, 2011 by H J Khan

4 January 2011, Chennai. The one significant point that came out of the Science Academies Summit held here today as part of the 98th Indian Science Congress at SRM University was that the various Science Academies in the country need to work in tandem and synchronize their efforts to attend to the various scientific issues faced by the country.
In fact, as Prof. N. Mukunda of the Indian Academy of Sciences, Bangalore stressed in his presentation, the coming together of the Indian National Science Academy (INSA), the Indian Academy of Sciences and the National Academy of Sciences India (NASI) to propose a road map for science education in the country over the past few years had not only increased the scope of the Academies enormously but had also raised the prestige of the Academies.

Prof. Mukunda stressed that the Academies had grown, stabilised and matured and that the time had come when the Academies would increasingly need to take up areas of public policy jointly. But at the

same time he also said that the Academies were still learning to work in synchronization on scientific matters in the public turf.

With almost all the presidents of the science academies in the country gathered on the dais, Prof. M.S. Swaminathan, who chaired the Science Academies Summit, took the opportunity to appeal to the academies to set up a task force to plan priorities for the year 2012-2013 that was declared as the 'Year of Science' by the Prime Minister while inaugurating the 98th Indian Science Congress. Prof. Swaminathan said that the Academies should take up this opportunity to plan programmes jointly that would give a quick push to science in India.
In fact, Prof. Swaminathan expressed happiness that perhaps for the first time the country's science academies had come together on the same platform. He also said that it was a good sign that science academies were being increasing called upon by governments to give advice on science policy matters. This was especially gratifying because of the earlier impression of the academies being inward looking in the sense that they talked about scientific issues of interest to them rather than the country.

Prof. Swaminathan emphasized that the role of science academies was especially called for when faced with issues that have ethical considerations. Although scientific truth must not be driven by public perceptions, when faced with strong arguments and counter-arguments he called for striking a balance and this was where science academies could play a vital role. He was also hopeful that the academies could play a role in the political understanding of science. He cited the example of the Royal Society that had initiated a programme to pair Members of Parliament with its own members.

Other speakers in the Summit also agreed with the fact that the national science academies needed to come together in national interest. But, as Prof. Vijayan pointed out, there was also a need to address issues like media interest, commercial interest and public perception. It was equally important for the academies, he said, and also a fundamental duty, to promote scientific temper in the country in the light of prevailing pseudoscience and obscurantism.

Intelligent Robots to Man the Battlefield

Posted on January 4, 2011 by H J Khan

4 January 2011, Chennai. Robots go where humans fear to tread. But can they be programmed to take decisions based on changing surroundings—the way humans come pre-programmed? A beginning has certainly been made with the development of autonomous robots and imparting some level of intelligence to these 'machines' is also being attempted.
Claiming that today's robots had moved much ahead of their conventional definition valid for early industrial robots, Dr V.S. Mahalingam, Director of the Bangalore-based Centre for Artificial Intelligence and Robotics (CAIR), DRDO detailed attempts being made to impart robots with the capability to analyze and take necessary action to face new and unexpected situations effectively. In fact, he mentioned that a robot was being planned for the Chandrayaan-2 mission also.

Delivering the Platinum Jubilee lecture in the Engineering Sciences Section at the 98thIndian Science Congress being held at SRM University, Chennai Dr Mahalingam mentioned that early robots were essentially designed for doing repetitive and hazardous operations, were vulnerable to change, and had limited flexibility. However, today's robots could be designed for autonomous operations by

incorporating a wireless component for remote operation, building powerful sensors to take care of localization, installing infrared and ultrasonic devices for perception, and introducing neural networks, fuzzy logic and expert systems to impart a certain level of intelligence. The CAIR has already developed autonomous golf carts and robot sentry for patrolling.
In fact, the military is keen to introduce robots into the battlefield to reduce risk to soldiers and also act as a force multiplier. Such robots are capable of performing innumerable other strategic tasks such as counter intelligence, surveillance and reconnaissance, route opening, ammunition handling, enhancing the reach of communications and logistic support.

However, building such multipurpose autonomous robots was not an easy task. Dr Mahalingam listed out several challenges that include ruggedness against environmental factors, water and dust proofing, insulation against high temperature ranges, vibration and shock. Some other challenges were secure communications and anti-jamming, which would mean that the information they exchange and disseminate amongst them should be secure. And in the event of being caught in the battlefield should have an inbuilt feature to self-destruct. Integration of lethal and non-lethal weapons was also a challenge and an ethical dilemma too.

The Dilemma of Ethics

Posted on January 5, 2011 by H J Khan

4 January 2011, Chennai. With scams in the air like pollens in the flowering season, one got a queasy feeling listening to a presentation on ethics and morals. Of course, this was about ethics in education and research, but haven't we heard enough about unethical practices in the field of education lately? We have had plagiarism of the worst sort in some of our most prestigious institutions, and of course, the case of the fake institute in IIT-Kharagpur is still making news.
Well, the venue was the Tech Park in the sprawling SRM University campus and the occasion the Presidential Address in the Engineering Sciences Section in the 98th Indian Science Congress being held here.
Dr Vipin Tyagi of the Jaypee Institute of Engineering & Technology, Guna and the President of the Engineering Sciences Section, rightly started by saying that science can be excellent only if its practitioners conduct their research in accordance with the accepted practices in their field. Such accepted practices would include adherence to the principles and practices of valid experimentation, which would essentially mean not fudging data, unbiased peer and expert review and communication of results to the scientific community.

He cited several important reasons why it is important to adhere to ethical norms in research. Beacuse it promotes the aims of research such as knowledge, truth and avoidance of errors. And since every research involves working in tandem with several co-workers, following ethical standards promotes trust, mutual respect and fairness.

The question of authorship of papers also cropped up during Vipin Tyagi's presentation referring to the tendency of professors and heads giving their names as authors without actually contributing to the research, something he called "gift" or "honorary" authorship. But are there any easy answers to that?

Prof. K.L. Chopra, former Director of IIT-Kharagpur, picked up the ethical thread of Dr Vipin Tyagi in an invited lecture on 'Ethics for S&T'. And, as expected, very soon his association in the unsavoury IIT-Kharagpur fake institute saga did come up. Prof. Chopra ended up giving clarifications that have already been splashed across newspapers the past few weeks.

Prof. Chopra said that Frankenstein-like ethical dilemmas had been created by the emergence of science that strives to work at the molecular level—both with regard to biotechnology as well as nanotechnology—and also information technology. Issues like genetically modified foods, stem cell harvesting, dangers of nanotechnology, and the invasion of privacy through the various tools of information technology required hard deliberations.

Misconduct in research also featured prominently in Prof. Chopra's talk. But how do we define research misconduct? He referred to one such effort made in the US during Bill Clinton's tenure. Known as the "Presidential Finding" it defined misconduct in research as "Fabrication, Falsification, and Plagiarism (throwing up a fancy acronym in FFP) in proposing, performing or reviewing research results."

But how do we promote the concept of ethical functioning? In the West, Prof. Chopra said, it is mandatory to study ethics. However, he felt that ethics could not be taught and had to be nurtured since childhood. If the country has global ambitions of becoming a world player, it will have to devise ways of inculcating ethical and moral values in its children.

One way of actively promoting ethics could be respecting and protecting whistleblowers, said Prof. Chopra. Something where, unfortunately, India had been seriously found wanting.

Dangers of the Debris

Posted on January 6, 2011 by H J Khan

5 January 2011, Chennai. There are more than 45000 objects in outer space and almost 10000 pieces larger than 10 cm continue to hurtle through space posing real dangers to space craft. The space debris piling up in space could even jeopardise future space missions.

Expressing concern at the rising pile of space debris, Dr V. Adhimurthy from the Indian Institute of Space Science and Technology, Thiruvananthapuram, said that the problem had acquired such proportions that scientists were even considering active removal of space debris if required in the future. Dr Adhimurthy was speaking in the 'Space Summit' Plenary Session at the ongoing 98th Indian Science Congress here at the SRM University.

Ever since the first satellite went into space in 1957, exploration beyond earth's atmosphere had littered the vast space with debris that continues to grow. Dr Adhimurthy said that space debris refers to objects or fragments cast off in space, whether on purpose or accidentally. Parts of spacecraft, spent rocket bodies, waste products dumped out into space and the like comprise the space debris.

In February 2009, a collision between a defunct Russian Cosmos satellite and an Iridium communications satellite left 1,500 pieces of debris in orbit leading the space community to ponder on the implications following a collision between the debris and satellites should it happen sometime in the future. Dr Adhimurthy said that although much of the space debris burns off in space some like

steel and titanium still survive to wreak potential havoc. The debris could pose real dangers to radiator tubes, TPS tiles, crew cabin and window replacement. To avoid such mishaps proximity avoidance technologies were being worked out, he said.

But this was not the only danger from outer space that Dr Adhimurthy sought to familiarise the audience with. Asteroid hits in the past have led to massive extinctions, 65 million years ago one such hit wiped out the dinosaurs, and the danger persists for the future too.
The Chicxulub Crater in Mexico measuring some 10 to 20 km across is believed to be the result of the collision with an asteroid. The environmental effects that accompanied its formation were thought to have been responsible for the mass extinction about 65 million years ago, in which the last of the dinosaurs, along with many other species, disappeared.
It is estimated that if a medium-sized asteroid lands in the ocean, it could throw up tsunamis and the water vapour and sea salt thrown up by the impact could damage the Earth's protective ozone layer, leading to high levels of ultraviolet radiation that could threaten human civilisation.

Dr Adhimurthy talked of several strategies to deflect asteroids should they threaten the earth any time in the future. Some of these strategies seem right out of science fiction such as exploding the asteroid with nuclear bombs or simply tugging away the asteroid or even using lasers to deflect it from its path of destruction.

But the only question facing scientists today was whether such technologies should be developed right now or should we wait before a bully asteroid actually threatens us.

NISCAIR Coverage of 98th Indian Science Congress

Posted on January 6, 2011 by H J Khan

The National Institute of Science Communication and Information Resources (NISCAIR), Council of Scientific & Industrial Research (CSIR), New Delhi is covering the 98th Indian Science Congress 2011 being held at SRM University in Chennai during 3-7 January 2011. This is a joint venture with Vigyan Prasar, New Delhi. Throughout the event, NISCAIR shall be uploading a 10-minute video coverage on a daily basis. A 30-minute documentary on the whole event will also be uploaded to the link in a fortnight.

To view the programs please go to the following link.

NISCAIR
Link: http://www.niscair.res.in/Downloadables/down.asp?a=topframe.htm&b=content.htm&c=ISC-Video/isc2011.htm
Youtube Link:

Segment 1: http://www.youtube.com/watch?v=bFrDnnDKQeM
Segment 2: http://www.youtube.com/watch?v=srfkBHaXJmY
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First Ever National Science Film Festival Inaugurated

Posted on January 6, 2011 by H J Khan

4 January 2011, Chennai. In a major boost and encouragement to Indian science film makers, the first National Science Film Festival ever to be held in the country was inaugurated here on the sidelines of the 98th Indian Science Congress. Organized by Vigyan Prasar, New Delhi, the Rashtriya Vigyan Chalchitra Mela was inaugurated by Er. Gauhar Raza and the venue was the Bioengineering Building of the SRM University.

A look at the sparse attendance in the room made Mr Raza remark in his inaugural address that perhaps this was an indicator of the very small number of science film makers in the country. This called for some soul searching. There was a need to look into the reasons why this was so, he said.

Gauhar emphasized to all those present that a science film festival such as this was being organized for the first time in India, it was a historic moment. And the unique opportunity would be lost if the occasion was not taken seriously and not utilized fully to ignite young minds gathered at the 98th Indian Science Congress. It was necessary to take this opportunity to launch a movement and inspire the young in the art and craft of science film making.

Stressing on the need for making high quality science films, Gauhar Raza also said that science films provided an important platform for understanding complicated issues and topics. However, he emphasized the need for authenticated content in science films. Being on the national jury panel for evaluating the science films, Gauhar also shared his observations with the assembled audience.

Earlier, in his opening remarks, Er. Anuj Sinha, Director-Vigyan Prasar was also hopeful that organizing the science film festival for the first time and that too as part of the 98thIndian Science Congress apart from providing encouragement to science film producers in the country would also provide a platform for professional and emerging science producers to interact with experts in different streams of science. Anuj Sinha stressed that it was necessary for government agencies to look at ways of increasing the number of science films being made in the country.

The Rashtriya Vigyan Chalchitra Mela received 58 entries of which 23 were short listed by a national jury under the chairmanship of Shri Kiran Karnik. Giving these details, Dr. T V Venkateshwaran, Scientist, Vigyan Prasar said that all the short listed films would be screened during the next three days in the 98th Indian Science Congress. The award ceremony would be conducted on 7 January at 3 pm. The Guest of Honour for the award ceremony would be Dr Adoor Gopalkrishnan, noted film maker.

One Response to *First Ever National Science Film Festival Inaugurated*

1. **S R Kundu** *says:*

January 6, 2011 at 4:54 pm

This is really interesting and encouraging, films being a very powerful media of communication. I hope science film making gets an impetus after this. This can lead to far reaching impact on young minds. Young scientific minds will refurbish confidence and self belief in our Nation. I congratulate Indian Science Congress for this new dimension to their yearly activity.

No Market for Science Films?

Posted on January 6, 2011 by H J Khan

5 January 2011, Chennai. Think of science programmes and your mind wanders to*Discovery Science* or *National Geographic,* or perhaps, *Animal Planet*. Are Indian television channels then right in their belief that there is no market for science films or science programmes in India. Is that so? Seema Muralidhara, a science film maker herself, strongly disagrees.

Although in the world of *saas-bahu* serials and the maddening race for TRPs the challenge for science programmes is indeed great, Seema said that statistics prove that the contention of TV channels is wrong. She buttressed her argument with the example of her own science programme, which despite being sandwiched between two high TRP programmes recorded higher TRPs than those programmes.

Seema Muralidhara was putting forward a passionate argument for science films and programmes on the second day of the first National Science Film Festival, or the Rashtriya Vigyan Chal Chitra Mela, being held here in the SRM University as part of the 98th Indian Science Congress. She was speaking in a session titled "Challenges for Science Film Makers".

Seema said that with most TV channels covering events like an eclipse with a sadhu in the studio rather than a scientist, the challenge for science film makers was to make science rational, acceptable and understandable.

The main challenges for science film makers according to Seema were that the content is already spelt out; secondly, the viewer may not be interested in science, and finally, the word 'science' puts off many. Content is the key, she said, and this is especially true for science films and programmes. Seema said that as a journalist one could leave out portions where one had doubts, but as a science communicator there could simply be no doubts.

Science programmes need to be made in simple spoken language without much jargon and the catchline should be: Do I understand it myself? Seema also said that analogies could become good visual aids for deconstructing complex concepts as she played out a few examples of analogies that she had depicted in her own programmes.

Seema stressed on the fact that Indian science film makers did not need to compete or follow Western counterparts because they made films with different sensibilities and settings. So, Indian film makers should strive to Indianise the content by using Indian culture and lifestyle and highlighting Indian scientists and settings.

She was also firm in the belief that fighting superstitions and myths was a social responsibility of Indian science film makers. Unfortunately, the buck stops with the channel. Are Indian TV channels listening?