



SPECTRUM

Private Circulation only

January 6, 2011

Volume IV Number IV

Argumentativeness is part of scientific tradition
— Amartya Sen

A Spectrum Reporter

For those who had come to hear Nobel Laureate Amartya Sen talk about economics generally or about welfare and developmental economics in particular, there was indeed a surprise of sorts. Sen made it abundantly clear at the start of his talk that he had something totally different in his mind. He had come to talk about Nalanda and the pursuit of Science—an Indian university, oldest in the world, a centre of higher education, international in character and razed by the Afghans in 1193.



“Had it not been destroyed and had it managed to survive our time, Nalanda would be, by a long margin, the oldest university in the world,” Sen told the large gathering sitting in rapt attention to the Harvard

→ P 8

Follow your passion, Nobel winner tells youngsters

Ratnika Sharma and Archana Arul

Physics prepares a person to think quantitatively. Modern biology is all about molecules that are dictated by chemical laws, so it’s not a big surprise, quipped Nobel Laureate Venkataraman Ramakrishnan, when asked by a youngster why he moved from physics to biology to chemistry.

One of the major highlights of the Children Science Congress was an interaction with two Nobel Laureates.

The other Nobel winner present was Dr. Thomas Steitz. The two top scientists even upped the ante by promising an award for the two best questions put across to them.

Dr. Ramakrishnan, when asked about the problems faced in his career, said that career depends on four things: skill, luck, patience and money. “A bit of everything is needed,” he added.

But the questions were also subject-focused to both the Nobel winners with Dr. Ramakrishnan asked on possibility of restoring the earth’s former condition through science. It has



to be a combination of social methods, political will and technological and scientific solutions that can help conserve the earth, he replied.

According to Dr. Ramakrishnan, the biggest and the best invention of mankind is the internet, owing to the free flow of information across nations. It is a tremendous boon to the scientists and to the accumulation of knowledge.

In response to the question on the darker side of science, he said that it

is never necessary for a nation to wage bio-warfare.

Prateek of Central Academy School, Chittorgarh, Rajasthan won the prize for the best question from Dr. Venkataraman when he asked whether organisms can be constituted of something else other than carbon.

Dr. Steitz, when asked about how he won the Nobel Prize and what the turning point in his life was, replied that all he did was to follow his passion to win the Prize and the turning point was when

he found his interest in chemistry during college.

The prize winning question to Dr. Steitz was asked by Ritu Singh of GRM School, Uttar Pradesh who asked how conformational changes take place in yeast hexokinase. The Nobel winner remarked that the question tickled and impressed him because it addressed directly to his research.

“When you ask a question, you have already won a prize,” concluded Dr. Ramakrishnan.

Today's Schedule

- 9.00 am - 11.00 am Plenary Session
Strategic Electronic Sector
Venue : Dr.T.P. Ganesan Auditorium
- 9.00 am - 11.00 am Plenary Session
Medical Science: Recent Advances in Asthma Research
Venue: Main Pandal
- 11.00 am - 1.00 pm Plenary Session
Science Challenges of Energy Security
Venue: Dr.T.P. Ganesan Auditorium
- 11.00 am - 1.00 pm Plenary Session
Health and Disease - Cancer:
Development of Novel Drugs for Therapy and Prevention
Venue: Main Pandal
- 11.00 am- 12.00 noon Special Lectures
Dr. S. K. Sharma & Dr. H. K. Satapaty
Venue : Auditorium Hall II
- 1.00 pm - 2.00 pm Lunch
Venue: Sannasi Hotel
- 2.00 pm - 5.30 pm Sectional Sessions
Science Communication
Venue: Auditorium Hall II
- 3.00 pm - 4.00 pm Children Science Congress
Valedictory Function
Venue: Dr.T.P.Ganesan Auditorium
- 4.00 pm - 4.15 pm Tea Break
- 5.00 pm- 5.40 pm Public Lecture
Dr. Pudur Jagadeeswaran
Venue: Dr.T.P.Ganesan Auditorium
- 6.00 pm - 8.00 pm Cultural Programme
Venue: Dr. T.P. Ganesan Auditorium
- 8.00 pm Dinner
Venue: Sannasi Hostel

Make children comfortable in learning science : nobel Laureate

Mandakini, Prashanti, Arvind and Anuj

The National Children's Science Congress, which began in 1993, aims at kindling the curiosity of children between the age group of 10 and 17. This, according to Dr. Venkatraman Ramakrishnan, Nobel Laureate, is inappropriate.

"The age range of the congress is too large, the sixth-graders might not feel comfortable with the eleventh-graders," he said in his inaugural address at the opening of the Children's Science Congress on January 4, 2011. "The smaller the age-range, the more opportunities for people to exchange ideas and talk," he maintained.

He disapproved the tendency of Indians to confuse science and scientists with movie stars. "I have always liked Richard Feynman's work, but that does not mean I worship him or want to be like him," he said.

The structural biologist emphasized on how all of us were born scientists, but stopped being that when we began taking things for granted and stopped asking questions. "Science is a curiosity-based drive to accumulate knowledge of the world we live in," he said. "Science is nothing special," he reassured.

Mr. Dinesh Singh, Vice Chancellor, Delhi University, urged the student audience to be curious and inquisitive. "Allow your minds to flow and cross all kinds of barriers."

Sharmishta Pal (Indian Institution of Agricultural Studies), Chinmay Moharana (National Brain Research Centre), C. Padmavati (IIT Kharagpur), K. Satya (Gandhigram Rural University) were some of the students who won the Indian Science Congress Association (ISCA) Award, of Rs. 25,000, among others.

Stern regulation

Just like how people can come together to represent various symbols, proteins and nucleic acids can be combined in different ways to form the building blocks of our body said Dr Ramakrishnan.

Later, delivering a Public Lecture Dr Ramakrishnan, spoke about antibiotics and diseases. "Before I can really explain my work, you must understand that antibiotics work by blocking proteins. My work concerning the structure of the ribosomes is based on this," said Dr Ramakrishnan.

He gave a brief summary of the Watson - Crick Model of deoxyribonucleic acid (DNA), and how translation of ribonucleic acid (RNA) resulted in the formation of protein. Ribosomes which were responsible for protein formation could not be studied at the beginning of his research due to their volatile state.

"Ada Yonath was actually the first person who perfected the crystallisation process of ribosomes which enabled us to study the atomic structure of the ribosomes," explained Ramakrishnan. With this, Ramakrishnan was able to graph the 30S subunit of the ribosome in 3-D form. In conclusion, Dr Ramakrishnan warned the people of misuse of antibiotics and argued for sterner regulation of sale of the same.



Celebrities thrilled with children's projects

Siddhant Bohara

Over 80 schools and 200 students presented their mini-research projects at the 18th Children Science Congress Exhibition at the SRM University. "The students aged between 10-17 are given societal relevance themes which is very demanding today, said Dr. D.K Pandey, NCSTC, and Department of Science & Technology. This year's theme was Soil Conservation and Land resources-use for prosperity that could be for posterity passed from generation to generation. On the process of preparation, students learnt scientific methodology and its application and found out solutions with the available resources, he added.

The exhibition carried the concepts of Impact

of Population, Modern Farming, Preparation of Bio-fuelling, using algae, save water, Go- Green, transformation of carbon-di-oxide in to fuel from Nano-tube and many more.

Dr. R. Chidambaram, who inaugurated the exhibition, was surprised to see the young students bring out innovative theories and techniques. More than the dignitary's praise, what thrilled the students to a greater degree was the honour of explaining their projects to Dr. Chidambaram, Dr. Venkataraman Ramakrishnan, and the delegates. "It is a pleasure to explain my projects to Dr. Chidambaram as he appreciated me. I also want to become a scientist like him," said Mayuri Bhagat, a ninth standard student from Maharashtra.

Security men ensure orderliness

Avani Khandelwal and R.Krishnan

As many as 150 policemen each from the districts of Kanchipuram, Vellore, Thiruvallur and Thiruvananthapuram are being stationed at the SRM University campus for the security of the delegates.

Apart from this, there is a Quick Rapid Action team (QRT) in the campus, to operate in case of emergencies. There is also an Auto Supportive Check (ASC) team and a Bomb Detector Disposal Squad (BDDS) present round-the-clock.

Security agencies "Q Branch", "SIU" and other secret agencies are also engaged in surveillance. Apart from this, two dog squads are in operation to assist them.

The campus has been divided into sectors with each of them monitored by a Deputy Superintendent of Police. There are CCTVs installed in the campus, the footages are monitored at the mini control room of police, located beside the auditorium.

Delegates praise hospitality

Avani Khandelwal and R.Krishnan

Special arrangements have been made to comfortably accommodate 5,000 delegates in 15 hostels. The hospitality and food for the delegates is arranged by Prof. Leenus J Martin convener, hospitality committee. He is assisted by a team of 18 faculty members and 20 volunteers.

"On the first day of the Indian Science Congress (ISC), the hospitality committee catered to 7,000 delegates, 2000 supporting staffs and 5,000 personnel," he said. There are separate dining halls for vegetarians and non-vegetarians. The food is being cooked and served by a team of 600 that includes the staff and the managers from The Royal Café and 100 students of SRM Institute of Hotel Management. Special care has been taken to cater to the needs of children round-the-clock. Solar panels have been setup on the roof of Sannasi Hostel building for providing hot water for cooking.

Labour involved in making more effective antibiotics

R. Krishnan and Vishnu Raj

"There is a serious health problem around the world due to rapid rise of antibiotic drug-resistant bacteria" said Dr. Thomas Steitz, a winner of the Nobel Prize in the year 2009 (quoted from abstract). Therefore, there is a greater need to research new and more powerful antibiotics for combating the steadily growing drug resistant bacteria.

Prof Thomas Steitz spoke about his studies on the structure and function of the ribosome which showed that peptidyl transferase was an RNA catalyzed reaction. After referring to the mechanism of inhibition of this function by antibiotics, the professor described the structure of the larger and smaller sub units of ribosome and about synthesis of polypeptide from them.

The ribosome is an organelle which produces proteins and has 2 sites 'A-site' and a 'P-site'. The growing polypeptide is present on the 'P-site' and the amino acid is attached to the 'A-site'. Dr. Thomas worked with the macrolide family of antibiotics, which bind to the



polypeptide exit tunnel. This is located just below the site where peptide formation occurs. This inhibits polypeptide synthesis and thereby facilitates the antibiotic action.

The structure of the complexes with antibiotics he had prepared has been used in the synthesis of many new antibiotic compounds. The antibiotic compounds have cleared the phase II of clinical

trial and work is on to clear the final phase III.

The specialty of his compound is that it proved effective even against the more resistant strains of bacteria like TB strain and XDR. His research on structure and function of ribosomes has developed new antibiotics which fight resistant-bacterial strains, including MRSA. He showed a movie made by Dr. Schmeing

on peptide bond formation. And he rounded off on a lighter note with pictures of Dr. Ada Yonath, Dr. Venkatraman & him (the joint awardees of the Nobel Prize in Chemistry, 2009) at the Noble Prize distribution ceremony. He shared the instance of Dr. Venkatraman & he being featured with the Dutch crown princess on the front page of a newspaper.

Human activities impacted climate, Says Nayak

Anuj Srivas and Vimal Raj

"The Earth as a planet is very dynamic and while it goes through natural changes, over the last 250 years mankind has started making changes that have an effect on our climate," said Dr Shailesh Nayak, President of Indian Society of Remote

By Avani Khandelwal . .

Sharing the floor with the likes of Defence Research and Development Organization (DRDO) and Council of Scientific & Industrial Research (CSIR) are the students of SRM University with their various projects for display at the exhibition centre here at the SRM University.

The exhibition centre is one of the highlights of the science congress attracting strengths of

Sensing (ISRS).

The scientist was chairing a panel at a Plenary Session on Addressing Issues of Climate Change at SRM University during the 98th Indian Science Congress.

Giving a summary of how the Earth evolved over the last 4.8

billion years, Dr Nayak said, "Our planet has changed its atmosphere over four times, as a result climate science is not as developed as other fields."

"The issues we will deal with in this panel are plotting the changes the Earth will go through, monitoring the monsoon system in India and

the question of aerosols and black carbon," said Dr. Nayak. Another issue to be discussed will be the response of oceans to climate change, he added.

The issue that we as Indians should be looking towards is the effect of climate change on the availability of water in our country, Dr. Nayak maintained.

Exhibits of the students of SRM University

over 3000 visitors everyday.

The SAE-Baja vehicle of SRM University from the- Team Conrods is a prime attraction. The team has put together an All Terrain Vehicle (ATV) capable of negotiating in the harshest of terrains. The ATV is powered by a 350cc engine delivering a power of 13bhp. The team has a fully customised

chassis and wheel hub design. "Most of the delegates were mighty impressed looking at the work we had put in." said team captain R.V.Subramanyam

Another major attraction is the SRMSAT. It is the first Nano Satellite of SRM University, being designed and developed by students and faculties of different departments. It weighs

10 kg and its main purpose would be to monitor the green house gases. It is to be launched along with an Indo-French satellite called 'megatropics' this May. Ms Amutha, from biotechnology department, under the guidance of the provost Dr M. Ponnaivaikko has designed what she terms as "the virtual eye".

Photo Fea



ture . . .



Earth, a natural lab for study of integrated systems

Ashish George and Prashanti Ganesh

“The earth is a complex system of interacting processes and provides a natural lab for studying integrated systems,” said Dr Ranganath R Navalgund, Director, Space Applications Centre, Indian Space Research Organization (ISRO), Ahmedabad. The distinguished scientist was chairing a Space Summit Plenary Session at the 98th Indian Science Congress at the SRM University.

Responsible for establishing the Decision Support Centre, a facility that helps with disaster monitoring and mitigation using space-borne and airborne systems, Dr. Navalgund emphasized the need to observe phenomena such as greenhouse gases, changes in land cover and retreating glaciers from a vantage point. The benefits of the Indian Earth Observing Programme such as complete global coverage and simultaneous observations at different resolutions, angles and spectral regions were some



of the key points discussed.

It was pointed out that previous instances where earth observation has been successfully used in, are the Indian National Satellite System (INSAT) Series to monitor vegetation patterns, Oceansat 1 & 2, which is used to determine and study ocean colour, chlorophyll distribution and surface wind and the Indian Remote Sensing (IRS) Series to support areas of agriculture,

water resources, ecology, geology and coastal management.

“Calibration and validation are important components of earth observation,” said Dr. Navalgund, who is the recipient of the distinguished Alumnus Award from the Tata Institute of Fundamental Research, Bombay.

“In a Global System, there are more than 24 satellites each in 19000 – 24000 Km altitude

orbits... Science enabled the building of such a system,” remarked Dr Suresh.V.Kibe, Professor Brahmprakash, ISRO, discussing the ground infrastructure required to maintain them in place.

He stressed the impact of mobile handsets with GPS facilities. “A handset which is capable of communicating can also tell you where you are. It is a very powerful

combination,” he maintained going on to discuss some of the challenges in technology pertaining to navigation such as modulation and codes in the signal structure, modeling delays in studying atmospheric science and transmitting accurate time.

Dr. V. Adimurthy, Professor Satish Dhawan, ISRO, explained the new frontiers of space exploration. Low cost access to space and its exploration are the key points to be worked upon, for which concept of hypersonic transportation and reusable launch vehicle will be introduced, he said.

He highlighted the implication of uncontrolled re-entry of space debris, orbiting the earth with hyper velocity. “Space debris from manmade operations can pose serious problems,” he said pointing to the devastating asteroid impacts of the past and the measures to avoid in the future—some of the remedial measures being asteroid tugboat, gravity tractor, laser deflection and nuclear explosion.

“Earth only planet having more liquid H₂O”

Siddhant Bohara and Harish Murali

“Our planet is the only celestial body that contains liquid H₂O in large quantities, which should be conserved”, said Dr. S. W.A Naqvi, Senior scientist at the National Institute of Oceanography. He was addressing the plenary session titled Role of Indian Ocean Biogeochemistry at the 98th Indian Science congress. Dr. Naqvi praised the uniqueness of our planet, by comparing its atmospheric composition with neighbouring planets. “The dominant gas carbon-dioxide is 95 percent in Venus and Mars whereas it’s only 0.039 in Earth that makes it possible for human habitation,” he explained.

With the rise in carbon-dioxide emissions, coral reefs will stop growing. This issue needs to be addressed with utmost

urgency and there is a need to formulate policies soon, he concluded.

Later, Mr. Anil V Kulkarni, Coordinator, Snow and Glacier Project, Space Application Centre (SAC) Ahmedabad focused on the depletion of Himalayan glaciers. He said, “Since 1975 the decrease in amount of glaciers and snowfall on Himalayas has been 18m and the loss at a rate of 0.41 to 0.24m.” He explained that the maximum altitude of snowline has shifted from 4800m to 5200m from 1980, affecting the mass balance.

Towards the end, he stressed the importance of relative temperature, snowfall, and minerals and to develop an institutional network of glaciological observation using field, aerial and satellite techniques.

Centre asked to set up a space biology programme

Ratnika Sharma and Maheshwari M.D.

In order to imitate the earth’s biosphere on other planets like Mars, there is a need to build bio-regenerative systems that will allow plants, people and microbes to live together, in a system closed for all inputs, except energy from the sun, said Prof. P. Dayananadan, Emeritus Professor, Chennai. Surveying the history and current status of gravitational and space biology,

he appealed to the ISRO and the Government of India, to establish a full-fledged Indian Space Biology Programme.

Gravitational biology is a field that explores how organisms perceive and respond to gravity or lack of it.

“In space vehicles, astronauts face problems of radiation, muscles losing strength, bones losing calcium and heart not pumping enough fluid.” Prof Dayananadan said on the effects

of micro gravity adding that scientists were able to grow plants like lettuce, spinach, mustard, pepper, and cereals like wheat and rice in space successfully.

To a question about the possibility of life on moon, he said that it is not possible without a bio-regenerative system because of radiation, less gravity and extreme temperature on moon.

Dr. T. K. Alex, Director, ISRO

Satellite centre, Bangalore, explained the advantages of small satellites as benefiting the student community for using it as a hands-on tool for experimenting with space technology. Small satellites find applications for low-cost, short life missions and allow researchers to take risks with the added benefits of quick realization of the mission.

Some of the Indian universities like SRM, IITs, IIST and VIT and

other organizations developed and launched small satellites using Polar Satellite Launch Vehicle of ISRO.

They include Hamsat for Amateur Radio services, IMS-1 ANUSAT, STUDSAT, Youthsat etc. Small satellite technology has opened up the feasibility of constellations and swarms of satellites for specific applications like remote sensing and astrophysical studies, Dr. Alex said.

Climate change impacting river water

Esther Vinodhini and Karishma Lodaya

“All the water that flows through the river is not available for beneficial use because of the extreme variation in climate,” said Prof. A. K. Gosain, Civil Engineering Department, Indian Institute of Technology, Delhi. He focused on ‘Water and its Sustainability’ in the larger Plenary session devoted to addressing the critical issues of climate change here at SRM University.

The requirement of water has been increasing with increasing population - 69 percent of water is used for agricultural purposes, 23 percent is used in industries and the remaining eight percent for domestic use. He stated that climate plays a crucial role in water resource availability and that our country needs a framework for providing mechanism to evaluate the interventions.

Dr. Vinay K Dadhwal, Associate Director at National Remote Sensing Centre (NRSC), Indian Space Research Organization (ISRO) focused on ‘Satellite Monitoring of Land Cover and Land Surface Process change over India’ highlighting the usefulness of remote sensing to identify and monitor forest fires, biomass burning, deforestation, and floods.

“Remote sensing allows us to locate any change occurring over land surface and also helps in acquiring the required data through maps”, Dr. Dadhwal added.

“Effect of chemistry on climate is the influence of anthropogenic aerosols,” said Dr. Manmohan Sarin, Physical Research Laboratory, Ahmedabad. Dr. Sarin focused on ‘Atmospheric Anthropogenic Carbon: Implications and Climate Impacts.’ He explained about the two types of carbon, black carbon which is the absorbing type and organic carbon, the scattering type. He also mentioned that the chemical reaction of black carbon with the atmospheric mineral dust can also alter the composition of both the particles of gas phase.

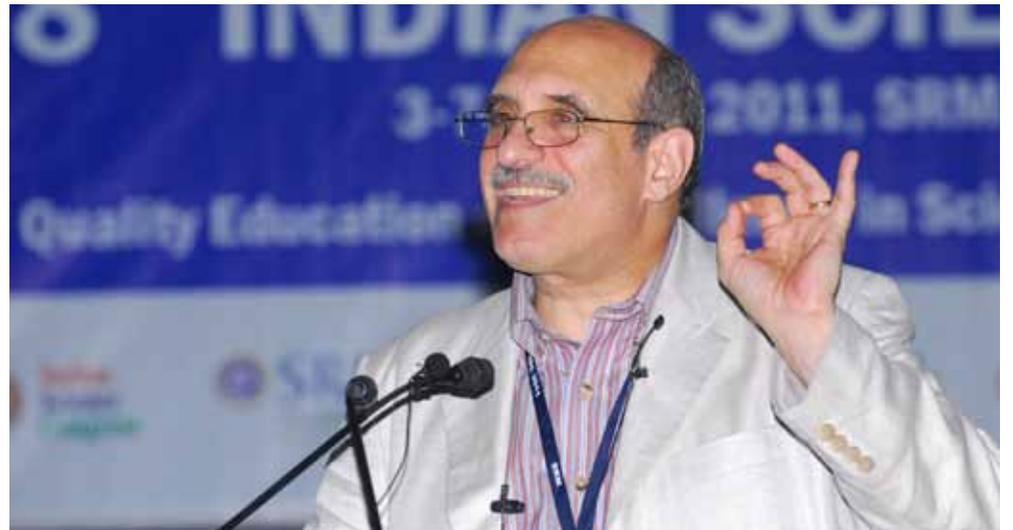
“I enjoy doing my experiments”, says Dr. Chalfie

Hari Priya Madhavan and Harish Murali

“You start doing experiments on Saturday and Sunday so that people won’t know how crazy they are and if your idea works, you gloat about it on Monday morning”, said Dr. Martin Chalfie while speaking on ‘Adventures in Non-Translational Research’, at one of the Nobel Quest sessions on 4th January.

Chalfie observed that a significant majority of scientists have been working only on translational research which aims at transforming scientific results into beneficial solutions. This inspired him to carry out non-translational research.

He discovered that certain transparent organisms produce a specific green light which helps in exploring how genes develop inside the organism. The pursuit resulted in his study on ‘Green Fluorescent Proteins (GFP) as a Marker for



Gene Expression’. In the early 1990s, most observations of gene activity were conducted on dead specimens that were specially prepared, thus giving only a static view of life. Explaining why GFP is an exciting molecule, he maintained that it enabled scientists to look at the inner workings of living cells and gives a chance to watch life as it unfolds. “You can have

a dynamic view, and even see nerve cells growing out”, he added. In simple terms, he said “It is like adding a flashlight or a lantern to a protein that you want and watch what’s happening to it”.

He recalled his elementary school learning that portrayed all scientists as geniuses and isolated personalities, and except

Marie Curie all scientists were men, which he claimed to be wrong notions. Pointing out that basic research is essential and it is the engine that drives innovation towards insights, he concluded that scientific success comes through many routes.

“Basic research is essential and it’s the engine that drives innovation towards insights”,

‘Media, scientists must become fraternal’

Ratnika Sharma and Aditya Panja

“In terms of communication between the media and scientists, it is a partnership we have to work on,” said Dr. Martin Chalfie, 2009 Nobel Laureate in chemistry, Columbia University, USA. He regretted that effective and uncumbersome science communication was a global phenomenon. He exemplified a case of Café science that was started in New York by a science

faculty of a local university. The professors gave science talks in a local café for the common public. This to an appreciable extent.

On the occasion of the 4th Science Communicators’ Meet inaugurated, Dr. KK Dwivedi, Advisor and Head NCSTC, Department of Science and Technology said the reason behind the ineffective science communication in India was the lack of proper scientific content generation by the scientist

and lack of dedicated science television channel and daily.

He added, “Unless the fruit of scientific research gets to the bottom of the pyramid we cannot prepare the country to face the challenges of the 21st century.”

Dr. Vijaylaxmi Saxena, General Secretary (Scientific Activities) Indian Science Congress Association delivered the welcome address. Ms. Anuradha Parakkat, Director, Corporate Affairs and Student Mentoring,

SRM University briefed the gathering on the objective of the meeting, the theme of which was Public Communication of Scientific Research- Bridging the Knowledge Divide.

Later speaking to Spectrum, Dr. Chalfie added that people were under the impressions that scientists were different but in reality they were excited by different things. The spirit of scientific enquiry should be inculcated in the children at the school-level itself.

‘Global warming makes Indian monsoon unpredictable’

Mercy John and Rahul Preeth

“Global warming makes Indian monsoon less predictable,” said Professor B N Goswami, Indian Institute of Tropical Meteorology, Pune, at the Plenary Session on the Knowns and Unknowns about the Indian Monsoon in a Warming World. The theme of the session was Addressing Critical and Challenging Science Issues of Climate Change.

Temperature in India and that of the Indian Ocean are

on the rise. This is expected to cause more rainfall, but on the contrary, for the last 50 years the amount of rainfall in India had been steadily decreasing, Prof Goswami said.

While there is no definite answer for the varying trends in the Indian monsoon, he maintained that there are few possible factors that can be accounted for, like the concentration of aerosol in the clouds.

Speculating on what might happen to the monsoon in the next 100 years in India, he felt



that there is a greater possibility for further decrease in the amount of rainfall due to a consistent

increase in temperature.

Later speaking on The impact of aerosol on Indian climate, Dr. J Srinivasan, Chairman Diveche, Centre for Climate Change, IIT Bengaluru, said, “There are two basic aerosols, salt and sulphate and soot and dust.” Salt and sulphate aerosols result in decreased rainfall, whereas soot and dust aerosols result in increased rainfall. However, there is no certainty as to which trend is more prevalent, Dr Srinivasan said.

Defences of peace must originate in mind: UNESCO official

Rahul Preeth

“Since war has begun in the minds of men it is in the minds of men that the defences of peace must be constructed,” said Dr. Kalonji, Assistant Director General, the UNESCO. He was addressing a select gathering at the Mini Hall 1, to begin the session on International Co-operation, through a discourse on International collaboration on Science, technology and innovation from the UNESCO’s perspective.

She gave an outline on what the UNESCO is, a picture of current portfolio of science activities within the UNESCO, its future plans and some preliminary models for strengthening ties between the UNESCO and India.

“...Strategically at this point in world science, India has very interesting leadership roles to play,” Dr. Kalonji said.

The UNESCO has been striving to achieve world harmony by establishing a platform where representatives of member nations can interact among one another in a space that does not belong to any particular

“...Strategically at this point in world science, India has very interesting leadership roles to play,” Dr. Kalonji said.

member or “neutral space”, so as to foster international co-operation.

Its prime focuses are on water, society, natural disasters, to develop scientific understanding among countries, with a greater priority accorded to the scientific welfare of Africa.

Agreeing with what Dr. Manmohan Singh and Mr. Kapil Sibal said on the inaugural day of the Indian Science Congress, Kalonji said that higher education in India was crucial for its future. She said the UNESCO aimed at “collaboration on innovations in higher education through creation of multinational research efforts integrated into curricular pathways.”

Mr. Arabinda Mitra, Director, Indo-US Science and Technology Forum, New Delhi, spoke on the Indo-US scientific collaboration

and co-operation.

He said various partnerships between the two countries, tie-up with industries and co-operation on the grounds of global security and terrorism would foster the relationship.

He described the various educational opportunities the forum put forward to students in the form of student exchange programmes and research fellowships. Over a lakh of students make it to the US annually and more than 40 research scholars from India could work in any laboratories across the US and vice versa for up to a year, he added.

DR. A. Amundeshwari, Indo-French centre for promotion of advanced research, Mr. Anjan Das, Confederation of Indian Industries, Prof. Ragnar Stafansson from Iceland also spoke.

The Chalanchitra mela provides varied fair

Aravind T S

Dr. Arvind C. Ranade, and Mr. Kapil Tripathi chaired two technical sessions on Challenges of science film making followed by the presentations by the selected science film producers as part of the Rashtriya Vigyan Chalanchitra Mela at the School of Bioengineering. The multi-cultural event began on the second day of the 98th Indian Science Congress.

The fourth-day event of the Congress will witness the screening of “Ants All Around Us” by SIET, Thiruvananthapuram, “Beyond Bicycle” by the Television Programme company, Delhi besides “400yrs of Telescope” by the Credence India, Vigyan Prasar, New Delhi and “Acharya Jagdish Chandra Bose” by NCSM, Kolkatta between 2 and 3.30pm.

The second session which is between 4 and 7pm will have the screening of “Touching Lives” by VSSC, Thiruvananthapuram. “History of Sound Recording” by EMMRC, St. Xaviers College, Kolkata. This is followed by “Action Reaction” by CIET, NCERT, New Delhi, “Pupi 2” by Hibiscus Digital Media,

The mela happened to screen “A Stem Cell Story” by Euro Stem cell, “Ever Wondered?” from New Zealand and “The Land of Space and Time” by CSIRO, Australia.

Thiruvananthapuram, “Telescope and Galileo” by DDK-Kolkata, “Batein Raj ki” by BHU Entertainment, Mumbai, besides “Engineering Marvels” by Lucrative Eye, Delhi and Quest for an AIDS vaccine by International AIDS vaccine Institute, New Delhi.

Dadasaheb Phalke Awardee Adoor Gopalakrishnan, will give away the awards on the last day of the mega event.

The Chalanchitra mela that started on the second day of the Congress happened to screen “A Stem Cell Story” by Euro Stem cell, “Ever Wondered?” from New Zealand and “The Land of Space and Time” by CSIRO, Australia. A technical session titled “Science in Indian Television” was chaired by Er. Anuj Sinha, Dr. T. V. Venkateshwaran and Er. Gauhar Raza were the two prominent speakers who spoke.

Argumentativeness is part of...

↳ P1

scholar now having taken up the task of chairing the interim governing body that is trying to get Nalanda back to its old glory. Professor Sen recollected the pursuit of science in Old Nalanda, which in turn will be the inspirational force and guide to the long-term efforts of the New Nalanda.

Nalanda, the 1998 Nobel Laureate pointed out, had a definite international character with students not only from China and Tibet, Korea and Japan and the rest of Asia but also from Turkey far away in the West. “Nalanda is the only non-Chinese institution in which any Chinese scholar was educated in the history of ancient China,” Prof Sen pointed out. “It is also important to recognise that while Nalanda was very special, it was still

a part of a larger tradition of organized higher education that developed in that period in India - in Bihar in particular,” he added.

The significance of Nalanda is that it provided room for science in what was essentially a religious institution with fields of study focused on Buddhist commitments as well as analytical disciplines, Sen said adding that even Buddhist monks who had specialised in subjects like science and mathematics were not motivated by religion or religious concerns. And from what is available by way of records, Indian accounts have it that even a subject such as logic was taught at Nalanda.

Sen maintained that intellectual life at the Old Nalanda was indeed powerful in the sense that the scholars there were involved in aggressively debating issues. “The faculty and students at

Nalanda loved to argue and very often had argumentative encounters with faculty. I have discussed elsewhere how deep this argumentativeness is in Indian history but I want to add here that it is a part of the scientific tradition as well, to seek arguments and defences, refusing to accept positions and claims on ground of faith,” the Nobel Laureate remarked.

So what was special about the Old Nalanda? Internationalisation yes, but also in spreading the enlightenment to all lands. “If the seeking of evidence and vindication by critical arguments is a part of the tradition of science, so is the commitment to spread knowledge and understanding beyond its frontier. Science has to fight parochialism, and Nalanda was firmly committed to do just that,” Sen concluded.



Sen awarded gold medal

Professor Amartya Sen was given the ICSA General President’s Gold Medal on the second day of the Science Congress. Dr. Sen should have received the Gold Medal from the Prime Minister on Monday but could not attend the programme.

“This is in token of our respect and regard,” Prof K C Pandey, the General President of ICSA said while giving away the medal. The Vice Chancellor and Provost of SRM University participated in the event.