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CSIR NEWS

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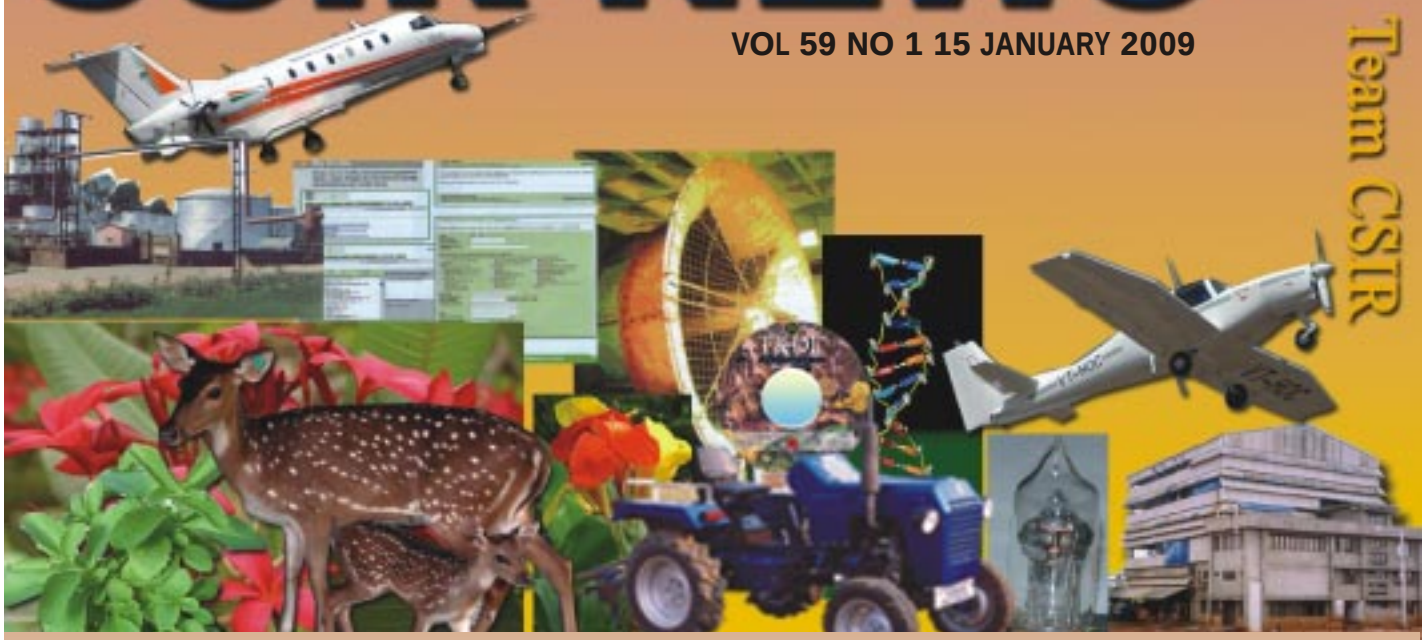
Team CSIR



Prime Minister Dr Manmohan Singh gives away Shanti Swarup Bhatnagar Prizes for 2007 & 2008, CSIR Diamond Jubilee Technology Award for 2007 and CSIR Award for S&T Innovation for Rural Development for 2007 & 2008

Seen on the dais at the CSIR Award Presentation Function: Prime Minister Dr Manmohan Singh *(centre)*, Minister for Science & Technology and Earth Sciences and Vice President, CSIR, Shri Kapil Sibal (*left*) and Director General, CSIR, Prof. Samir K. Brahmachari

Prime Minister of India and President, CSIR, Dr Manmohan Singh, gave away Shanti Swarup Bhatnagar Prizes for 2007 & 2008. CSIR Diamond Jubilee Technology Award for 2007 and CSIR Award for S&T Innovation for Rural Development for 2007 & 2008, at a glittering function held on 20 December 2008 in the Dr D.S. Kothari Auditorium, DRDO Bhawan, New Delhi. Attended by a galaxy of S&T personnel, the function was presided over by Shri Kapil Sibal, Minister for Science & Technology and Earth Sciences and Vice President, CSIR. Prof Samir K. Brahmachari, Director General, CSIR, proposed a vote of thanks.

We bring in this issue, speeches of Dr Manmohan Singh, Shri Kapil Sibal and Prof. Brahmachari on the occasion along with the citations of the prize-winners.

Speech of Prime Minister Dr Manmohan Singh

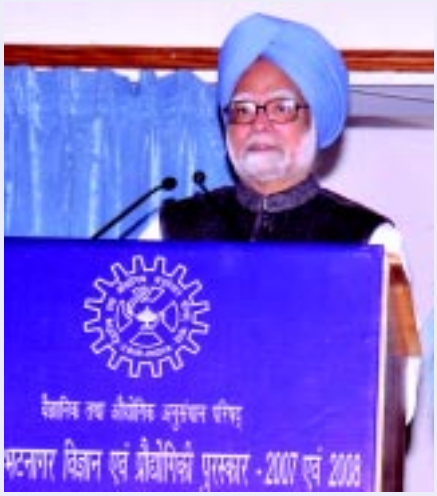
I am very pleased to be here in your midst today to give away the Shanti Swarup Bhatnagar Prizes for the years 2007 & 2008. I congratulate each one of the award winners. And I shall also like to congratulate their spouses because this creative pursuit is a joint enterprise which is not often recognized. This is the most prestigious award for scientific excellence and is given to scientists who are under 45 years of age. The awards recognize past work but are also an inspiration for the winners to achieve even greater successes in the years to come. I sincerely hope that while we celebrate the achievements of these scientists, best is yet to come.

The Shanti Swarup Bhatnagar awards are named after one of our scientific pioneers and institution builders. Shanti Swarup Bhatnagar, along with Homi Bhaba, P.C. Mahalanobis and Vikram Sarabhai among others created the scientific infrastructure of our country. He was a visionary and laid the foundation of the great institution that is today the Council of Scientific and Industrial Research, a pride of India. Pandit Jawaharlal Nehru said about Shanti Swarup Bhatnagar that: *"Dr Bhatnagar was a special combination of many things, added to which was a tremendous energy with an enthusiasm to achieve things. The result was he left a record of achievement which was truly remarkable. I can truly say that but for Dr Bhatnagar you could not have seen today the chain of national laboratories."*

It is this energy and this enthusiasm of our scientists that we honour and celebrate each year on such events. The creativity and innovation of our scientists are a matter of great national pride for our country. They have pushed the frontiers of scientific knowledge to enable us to strengthen our defence capabilities; improve our healthcare and our agricultural economy; extend the reach of our communications and enable us to land on the moon.

The Diamond Jubilee Technology Award to Mahindra & Mahindra Ltd, symbolises the importance we attach to commercialization of scientific and technological research. The Rural Technology award given jointly to the National Research Centre on Yak for improvement of sustainable Yak husbandry practices in the Himalayan Region and to the Nimbkar Agricultural Research Institute along with the National Chemical Laboratory for genetic improvement of Deccani breed of sheep recognizes the difference these innovations have made to the livelihoods of the people in rural areas. My warm felicitations to these award winners.

I am happy that CSIR has undertaken a number of important initiatives over the past few years. We are the first country that has successfully mapped the entire genetic diversity of its population. This will lead to the identification of populations that are genetically at risk of various complex and



infectious diseases including adverse drug responses. Another initiative that has immense economic importance for our farmers is a path breaking scientific discovery that enables mass propagation of even asexually produced seeds.

I convey my warm appreciation to Shri Kapil Sibal, our dynamic Minister for Science & Technology and to Dr Samir Brahmachari, the Director General, CSIR for these achievements.

Even as we applaud these achievements, we have to address ourselves as a nation to the larger challenge before us. How can science, industry and government work as one efficient and integrated machine to deliver to the people the benefits of these scientific and technological advances?

This is an area where countries such as China and Japan have scored over us. Unless we apply ourselves to this task, the powerful scientific tools of social and economic change will remain

confined to our laboratories and to our institutions. Our scientists, I suggest, should work to connect science to the daily lives of millions of our people. S&T based entrepreneurships and innovation in industry should be encouraged at all levels. And government should create a favourable enabling environment for this to take place.

Public-private partnerships should be used to commercialize the technologies emerging from R&D programmes being funded by various science departments. We should focus more on linking the lab with the market.

I urge CSIR to take the lead in this regard and define new strategies for translating cutting edge science and technology into globally competitive enterprises. To begin with, let CSIR work to commercially exploit its vast knowledge base, currently embodied in more than 3000 or so patents held nationally and globally.

The role of technology in supporting our counter terrorism and internal security efforts is I believe not adequately appreciated. Other countries have used modern science and technology in their security structures with great effect. It acts not only as a force multiplier but can also provide solutions to human problems relating to command, coordination and communication.

Some of the areas where greater work is required are surveillance systems, cryptography, near real time search and identification from distributed large data bases and computer simulation exercises to enhance our crisis tactics and responses. We should use scientific interventions to neutralize weapons of terror and mass destruction. I believe that investment in security technologies is vital if our security systems are to keep pace with the increasing sophistication of international terrorism and crime.

This is also a time when the world is confronted with potentially devastating climatic changes. It is also a time when the world is faced with a growing economic recession. But with adversity comes opportunity. We can use the ingenuity and inventiveness of science to find ways to 'leapfrog' to future technologies, which are affordable and also sustainable. We can use some part of the public investment, which we will spend to stimulate our economies, in these new technologies that will help build sustainable pathways to development.

We have proposed the creation of a National Mission on Strategic Knowledge for Climate Change as part of the National Action Plan on Climate Change. I understand that the Ministry of Science and Technology is currently putting together a plan that will provide us the framework for research and investigation in this area. I think public policy should increasingly adopt strategic approaches based on science.

Our government has worked hard for the rejuvenation of the S&T establishment in our country, including through a huge expansion of the learning infrastructure. This is a very important national priority and we will spare no resource to ensure that we realize the huge potential of our Science & Technology capability.

Our budgetary support to the Ministry of Science & Technology during the XIth Five Year Plan is three times higher than during the Xth plan. I hope that our scientific departments will make judicious use of these enhanced allocations based on a new vision, a new work culture and a renewed focus on scientific solutions that impact on the lives of the common man.

I recognize that if our scientific institutions of higher learning and research laboratories are to flourish, they require high quality manpower particularly at entry levels. We have made strenuous efforts in this regard, which I hope will show visible results in the years to come. We cannot be satisfied becoming a back office for providing Research & Development solutions for multinational companies.

I am very happy that the scientific departments are making their own efforts to create a talent pool from which our scientific establishment can draw upon. In this regard, the STIO initiative of CSIR, the INSPIRE programme of the Department of Science & Technology and Welcome Trust Fellowship programme of the Department of Biotechnology are worthy of mention.

With these words, I once again congratulate the award winners and wish them many many years of stimulating and productive research career in the service of the country and in the service of humanity at large. Their intellectual drive and brilliance give us hope and confidence that Indian science can devise effective solutions for the many problems that confront our country and indeed the world.

Welcome address by Shri Kapil Sibal, Minister of S&T and ES

It is indeed an honour for me to welcome Dr Manmohan Singhji, Prime Minister of India this morning to this CSIR Awards function to do the honours. My hearty welcome to all the awardees, their friends and associates and the galaxy of luminaries from the S&T community that I see in front of me. A special welcome to my friends from the media who are doing their best to spread the message of science and scientists to the nation.

Sir, today is an occasion to salute our achievers, our future 'Navratnas' and celebrate the triumph of science and technology. At the outset, my heartiest congratulations to the Bhatnagar Prize awardees as this is surely regarded as India's Nobel Prize. Today my friends you have joined the elite club of around 500 Bhatnagar Laureates. My dear friends, this recognition imposes an onerous responsibility on you to build further on what you have done and achieve higher successes and be the role models for our budding scientists.

At this juncture, I would like to raise a question as to whether Nobel Prize winning discoveries, commonly understood to be associated with fundamental knowledge, like Raman Effect, are outside the realm of patents. Consider the example of Prof Alan Heeger of the University of California, one of three researchers who shared the Nobel Prize in Chemistry for the year 2000 for the discovery and development of conductive polymers. He has to his credit more than 150 patents. Then take the case of Dr Paul Lauterbur and Sir Peter Mansfield, recipients of the 2003 Nobel Prize in Medicine for their work on magnetic resonance imaging (MRI). They hold some 30 patents related to MRI technology. Similar is the case of Prof Stanley B Prusiner of the University of California, who was awarded the 1997 Nobel Prize in Physiology for his discovery of a new biological principle of infection caused by a new type of infectious agent called 'prion'. He has several patents to his credit for the discovery. I thus would like to tell my Bhatnagar awardee and other scientist friends gathered here that in the process of arriving at a conclusive research, basic or otherwise, there would definitely be intermediate findings, big or small, which may be inventive and novel in themselves to qualify for grant of patents and they may also have commercial value in their own way. Thus, you as scientists and researchers, must be alert to spot such inventions and seek intellectual property rights for these.

To encourage and motivate our research community to be IPR conscious, we in the government

have just introduced in this session of Parliament the Protection and Utilisation of Public Intellectual Property Bill. It will provide our scientists and researchers an incentive and means to protect their inventions and also enable them to have a share in the monies realized by the transfer and commercialization of their researches. Sir, I am confident that we will see many more patents emanating from our scientists in the next few years.

Sir, I am pleased to see that the CSIR Award for S&T Innovation for Rural Development is being awarded to two institutes this year for introducing improvements in animal breeding practices for the yak and the sheep. Sir, it is truly amazing to see such high level science being applied to impact the lives and livelihood of the people at the very bottom of the pyramid. I feel it is such a relevant science and technology problem and issue that our scientists should be addressing.

In this regard, I must congratulate the CSIR for mounting the Project 800 – to address the needs of 800 million of our brethren who need our help the most. As an example of CSIR's endeavour in this regard, Sir, along with the Chief Minister of Delhi, I had the privilege of launching a Soleckshaw, the motorized, solar powered, ergonomically designed and engineered version of the ubiquitous cycle rickshaw on Gandhi Jayanti day, this year. Designed and engineered by CSIR, we hope that Soleckshaw will replace at least a fraction of the eight million cycle rickshaws plying in the country and provide an ecofriendly mode of transport for middle class clientele to use in congested areas and for neighbourhood trips – undoubtedly a small step in reducing our carbon footprint.

My congratulations also to Mahindra & Mahindra for being awarded the CSIR Diamond Jubilee Award for Technology for their SUV Car – the Scorpio. The company through out-of-box approach has reduced the time and cost of development and engineering by involving major suppliers in this endeavour. Their success provides learning to us in the scientific community of the need and value of networking and alliancing. Often times, finding a solution to a problem is beyond the intellectual and even financial capacity of an organization or a firm however big and well endowed it may be. We need not feel squeamish about networking and partnering with others to build meaningful strategic relationships. The emergence of USA as the epicenter of innovation has been basically due to the ability of their industry and research community in forging such relationships. My humble plea to the industry friends is to come forward and forge relationships with our researchers in the universities and research institutions. We in the Ministry are committed to support any such endeavour.

Sir, I am also convinced that despite the remarkable progress of science and achievements of our technologists, the asymmetry in the distribution of wealth, health, comfort and safety has in fact increased globally as well as in India. A new social contract of science with society, especially in India is called for, with the intent and determination to address and solve these unbearable problems. I feel this can be done by the collaborative effort and partnership of the scientists and the users/ beneficiaries of research. I would thus like to plead with my scientist friends to develop more community based research projects which allow the direct users/beneficiaries to influence the choice of problems and technology. This collaborative effort would lead to better cost-benefit analysis, so necessary for on the-ground decision making and acceptance and ownership of the research outputs. Science and technology would then directly be able to help our brethren to live their life with greater dignity and comfort.

Sir, to conclude, I would like to thank you and the government for the un-flinching support to science and technology that you have accorded over the past five years. This is evidenced by the fact that the Plan budget allocation for the two Ministries that you have entrusted me have nearly quadrupled in the Eleventh Five Year Plan. Sir, given the faith that you repose in the scientific community, we resolve and commit to contribute our little mite to position India as formidable player in the comity of nations.

Respected Pradhan Mantriji, a very warm welcome to you and all my friends gathered here today.

Thank you.

Vote of Thanks by Prof. S.K. Brahmachari

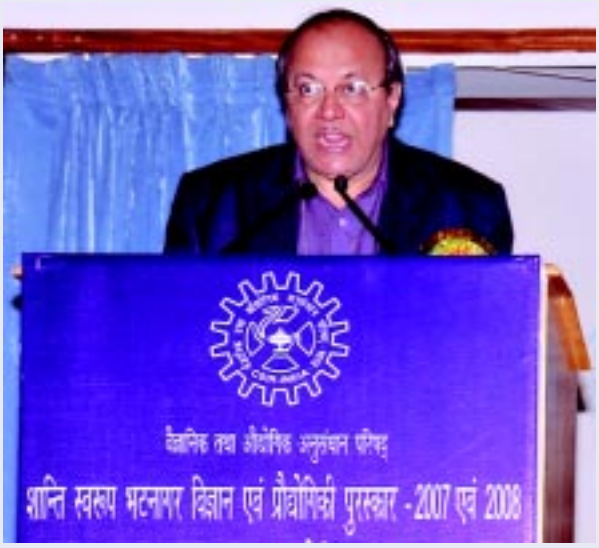
Hon'ble Prime Minister Dr Manmohan Singh; Hon'ble Minister Shri Kapil Sibal; the Awardees and their justifiably proud families; all the members of my CSIR family; young students of science; distinguished audience and Members of the Press:

It is my proud privilege to represent all of CSIR as I stand here today to honour those whose contribution to science has made the nation proud and to thank all of you whose efforts have made this function, a truly grand success.

Our beloved Prime Minister, Sir, we profoundly thank you for keeping up the long- standing tradition, as a head of CSIR family, of giving away the prestigious Shanti Swarup Bhatnagar Prizes, which symbolize excellence in science. I am sure all the awardees, who received prizes from your hand today, will remember this day for ever. We are also grateful to you for giving away the CSIR Diamond Jubilee Technology Award, which represents a new era where Indian Technology will dominate the Global market.

Sir, the CSIR Awards for S&T Innovations for Rural Developments are testimonials to our commitment to the cause. I am especially proud that along with the National Research Centre on Yak, three of our CSIR laboratories have been chosen, after a nation-wide competition, to receive the Award from your hands.

Hon'ble Kapil Sibal ji, CSIR is indeed deeply indebted to you for the faith that you have demonstrated in the capability of CSIR. Your message that CSIR should forge ahead boldly with its programmes: that it apply the great prowess of science to meet the basic human needs of our people; generate research scientists in cross-disciplinary sunrise areas of S&T; build up competence, capability and technology options in the emerging areas and partner with Indian industry to enable it to compete globally, has become our guiding principles.You have charmed us with your warmth and wit, and we are really thankful to you for being with us today. Your presence has added grandeur to today's function.



Only one who has received the prestigious Shanti Swarup Bhatnagar Prize can really appreciate the thrill of walking up to the podium to receive the Award from the hands of the Prime Minister even as the nation applauds the achievement. While I salute all you young achievers, I would like to thank your parents, spouses and colleagues who stood by you during the long hours of work.

My congratulations to Mahindra and Mahindra for winning the CSIR Diamond Jubilee Technology Award for 2007. CSIR's continued commitment to recognize and honour outstanding Industrial R&D and to set very high standards is reflected in the fact that there are no Awards in this category for 2008.

In paying tribute to the winners of CSIR Awards for S&T Innovations for Rural Developments, I am reminded of the words of Mahatma Gandhi who said: *"Just as some of the experiments in your laboratories go on for all the twenty-four hours, let the big corner in your heart remain perpetually warm for the benefit of the poor millions."* I also congratulate all the four institutions that won the CSIR Awards for S&T Innovations for Rural Developments.

An event like this cannot be hosted without the untiring efforts of many. The Human Resource Development Group of CSIR works tirelessly for this function every year. To them, and all scientists, staff and workers of CSIR, and above all, to DRDO for providing us with this beautiful venue; my most heartfelt thanks.

Shanti Swarup Bhatnagar Prizes

Instituted in 1957, the Shanti Swarup Bhatnagar Prizes are the most coveted S&T Prizes in the country. These prizes are awarded annually for notable and outstanding research, applied or fundamental, in (1) Biological, (2) Chemical, (3) Earth, Atmosphere, Ocean and Planetary, (4) Engineering, (5) Mathematical, (6) Medical and (7) Physical Sciences. Any citizen of India engaged in research in any field of Science and Technology, who is not more than 45 years old on 31 December of the year preceding the year of the Prize, is eligible. He/she should have made, in the opinion of CSIR, conspicuously important and outstanding contribution to human knowledge and progress – fundamental or applied- in the particular field of endeavour, which is his/her specialization. The prize is awarded on the basis of contributions made through work done primarily in India during the five years preceding the year of the prize.

From the award year 2008 onwards the SSB Prize money has been enhanced from Rs 200,000, to Rs 500,000 per awardee. Also, a special grant honorarium of Rs 15,000 p.m. will be awarded to all awardees currently serving in public funded organizations. In addition, each prizewinner is presented a citation and a plaque.

Shanti Swarup Bhatnagar Prize-winners for 2007: Citations

Biological Sciences

Dr Upinder Singh Bhalla, National Centre for Biological Sciences, Bangalore: Dr Bhalla has made outstanding contributions in computational and experimental approaches to understanding neuronal and synaptic signaling in memory and in coding of olfactory information.

And

Dr Narayanaswamy Srinivasan, Indian Institute of Science, Bangalore: Dr Srinivasan has made outstanding contributions to the area of computational genomics, protein structure analysis, modeling and computational studies on proteins that are involved in cellular signal transduction pathways. His studies at the whole genome level have helped to identify remotely similar proteins sharing structural and functional features.

Chemical Sciences

Dr Amalendu Chandra, Indian Institute of Technology, Kanpur: Dr Chandra has made pioneering contributions to microscopic theories and simulations of liquids, interface and clusters, leading to definitive predictions borne out by experimentation.

The Shanti Swarup Bhatnagar Prize-winners for 2007 with Prime Minister Dr Manmohan Singh, Minister of Science & Technology and Earth Sciences Shri Kapil Sibal and CSIR Director General Prof. S.K. Brahmachari

And

Dr A. Ajayaghosh, National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram: Dr Ajayaghosh has made significant contributions to supramolecular assemblies and light induced sensor systems.

Earth, Atmosphere, Ocean & Planetary Sciences

Dr Anil Bhardwaj, Vikram Sarabhai Space Centre, Thiruvananthapuram: Dr Bhardwaj has made fundamental contributions and creative ideas to elucidate X-Ray emissions from planetary bodies including auroras and advancing its subsequent enrichment and futuristic potential by attracting international collaboration.

Engineering Sciences

Dr Rama Govindarajan, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore: Dr Govindarajan has made original contributions to the understanding of instabilities in shear and non-parallel flows, flow entrainment, turbulent transition and small-scale hydraulic jumps.

And

Dr Budaraju Srinivasa Murty, Indian Institute of Technology Madras, Chennai: Dr Murty has made original contributions to synthesizing nano materials by mechanical alloying and to the synthesis and nanocrystallization of bulk metallic glasses.

Mathematical Sciences

Dr B. V. Rajarama Bhat, Indian Statistical Institute, Bangalore: Dr Bhat has made outstanding contributions to quantum stochastic calculus, minimal dilations of quantum dynamical semi groups, theory of product systems and E o–semi groups.

Medical Sciences

Dr Pundi Narasimhan Rangarajan, Indian Institute of Science, Bangalore: Dr Rangarajan has made outstanding contributions towards understanding gene expression changes induced by neurotropic viruses as well as DNA vaccine development.

Physical Sciences

Dr Yashwant Gupta, National Centre for Radio Astrophysics, Pune: Dr Gupta has made novel observations of pulsars leading to new interpretation of these enigmatic objects. He has made a vital contribution to the highly complex digital correlation system of Giant Metrewave Radio Telescope (GMRT) near Pune.

And

Dr Pinaki Majumdar, Harish-Chandra Research Institute, Allahabad: Dr Majumdar has made outstanding contributions to the area of strongly correlated systems in the presence of disorder, leading to definitive understanding of metal-insulator transition, nanoscale texture formation and colossal response driven by external fields.

Shanti Swarup Bhatnagar Prize-winners for 2008: Citations

Biological Sciences

Dr Gajendra Pal Singh Raghava, Institute of Microbial Technology, Chandigarh: Dr Raghava has contributed significantly to the field of bioinformatics, particularly in the searching of potential drug and vaccine targets.

And

Dr L. S. Shashidhara, Centre for Cellular & Molecular Biology, Hyderabad: Dr Shashidhara has made outstanding contributions to the understanding of appendage development in animals. His studies on the underlying molecular pathways have important implications in deciphering growth control and cancer.

Chemical Sciences

Dr Pradeep Thalappil, Indian Institute of Technology, Madras, Chennai: Dr Thalappil has made significant contributions to the area of molecular and nanoscale materials, with special focus on metal nanoparticles.

And

Dr Jarugu Narasimha Moorthy, Indian Institute of Technology, Kanpur: Dr Moorthy has made significant contributions to physical organic chemistry towards understanding the photoreactivity and organization of organic molecules.

Earth, Atmosphere, Ocean and Planetary Sciences

Dr P. N. Vinayachandran, Indian Institute of Science, Bangalore: Dr Vinayachandran has made outstanding contributions to the physical oceanography of the Indian Ocean and its role in air-sea interaction and biological processes.

Engineering Sciences

Dr Ranjan Kumar Mallik, Indian Institute of Technology, New Delhi: Dr Mallik has made seminal contributions to the performance analysis of multiple-input multi-output systems, characterization of fading channel statistics, and error analysis under correlated fading conditions.

Mathematical Sciences

Dr Jaikumar Radhakrishnan, Tata Institute of Fundamental Research, Mumbai: Dr Radhakrishnan has made fundamental contributions to the theory of lower bounds in general, and to quantum information theory and communication complexity in particular.

Medical Sciences

Dr Ravinder Goswami, All India Institute of Medical Sciences, New Delhi: Dr Ravinder Goswami is recognized for his significant contributions to the field of clinical endocrinology with particular reference to hypocalcaemic disorders. His research work has documented the prevalence, significance and causes of vitamin D deficiency in apparently healthy individuals for the first time in India. His work on sporadic idiopathic hypoparathyroidism has provided valuable information on the etiopathogenesis and clinical feature of this disorder as seen in our country.

Physical Sciences

Dr Raghunathan Srianand, Inter-University Centre for Astronomy & Astrophysics, Pune: Dr Srianand made outstanding contributions in obtaining information on redshift evolution on the cosmic microwave background radiation and establishing bounds on the variation of fundamental constants using the absorption line spectra of quasars.

And

Dr Srikanth Sastry, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore: Dr Sastry's work has had an impact on the theoretical understanding of glass-forming liquids and conditions under which materials end up in structurally arrested states. His work on glass forming ability of materials has led to the experimental breakthrough of making a monoatomic metallic glass by vitrifying germanium. He has established a novel liquid-liquid transition in supercooled silicon and shown it to be a metal to nonmetal transition.

The Shanti Swarup Bhatnagar Prize-winners for 2008 with Prime Minister Dr Manmohan Singh, Minister of Science & Technology and Earth Sciences Shri Kapil Sibal and CSIR Director General Prof. S.K. Brahmachari

CSIR Diamond Jubilee Technology Award for 2007 awarded to Mahindra and Mahindra Limited

The CSIR Diamond Jubilee Technology Award, given annually, was instituted in commemoration of CSIR Diamond Jubilee in 2003. It is given for technological development in the country by Indian innovators and which meets the highest global standards. The award carries a cash prize of Rs ten lakh, a shield and a citation.

The CSIR Diamond Jubilee Technology Award 2007 was awarded to Mahindra and Mahindra Limited. The Company has won the award for development and commercialization of *Scorpio.*

Prime Minister Dr Manmohan Singh, presenting the CSIR Diamond Jubilee Technology Award for 2007 to Dr Pawan Goenka, President, Automotive Sector, Mahindra and Mahindra Limited, for 'Development and Commercialization of *'Scorpio*'

Citation

Mahindra and Mahindra Limited, has been conferred with the CSIR Diamond Jubilee Technology Award 2007 for 'Development and Commercialization of *Scorpio*'.

The *Scorpio* '*W*' is a new and improved version of Mahindra's state-of-the-art flagship vehicle, the *Scorpio.* Forty-three incredible new features separate this vehicle from its earlier predecessors. It exhibits improved drive, performance, handling, and styling. Each feature of the vehicle has been designed as per customer's convenience, ensuring superior customer satisfaction.

The new and improved *Scorpio* '*W*' has multi-link rear suspension, which significantly improves passenger comfort and vehicle handling on all terrains, including in-city and out-of-city driving. To accommodate for drivers of different sizes, Mahindra & Mahindra introduced the tilt adjust steering wheel, which allows everyone equal comfort behind the wheel. The Sliding Middle-row Seats for better space utilization without increasing the size of vehicle, allows the passengers to utilize the space as per their need, offering the utmost solution in passenger convenience. The Scorpio'W' vehicle also has a CRDe engine, the first vehicle of its kind in India to utilize this cutting-edge technology. It offers an unmatched combination of smoothness, performance, and fuel efficiency.

The original Scorpio vehicle transformed the image of an SUV vehicle in India. From a utilitarian workhorse, to a lifestyle statement, the SUV in India has come a long way since the original Scorpio launch. Loads of attractive styling and details make owning a Scorpio'W' vehicle a true pleasure and lifestyle addition.

With the development of 'Scorpio', Mahindra and Mahindra has joined a handful of companies, who have designed and produced world class vehicles, thus enabling the company to move into International league of automobile manufacturers.

CSIR Award for S&T Innovations for Rural Development

The CSIR Award for S&T Innovations for Rural Development (CAIRD) was instituted in 2006 to recognize those S&T innovations that have helped transform the lives of rural people or alleviated the drudgery of the rural people or have helped in generation of employment. Only successful S&T innovations that have been implemented at ground level are considered for the award. The award carries a cash prize of Rs 10 lakh, a shield and a citation.

CAIRD 2007

CSIR Award for S&T Innovations for Rural Development (CAIRD) for the year 2007 has been conferred jointly on National Research Centre on Yak (NRC-Yak), Dirang for "Improvement of Sustainable Yak Husbandry Practices in Himalayan Region" and Nimbkar Agricultural Research Institute (NARI), Phaltan alongwith National Chemical Laboratory (NCL), Pune, for "Use of the FecB (Booroola) gene in Deccani breed of sheep, to increase lamb production and thereby the incomes of Shepherds".

Recipients of the CAIRD-2007 — Dr Mohan Bhattacharya and Dr Mihir Sarkar of NRC-Yak; Dr (Ms) Chanda Nimbkar of NARI; and Dr (Ms) Vidya Shrikant Gupta of NCL with Prime Minister Dr Manmohan Singh, Minister of Science & Technology and Earth Sciences Shri Kapil Sibal and CSIR Director General Prof. S.K. Brahmachari

NRC-Yak has successfully standardized the protocol for super ovulation, embryo recovery and transfer in yak. This unique effort has enabled stabilization of the dwindling Yak population in the states of Arunachal Pradesh, Sikkim, Himachal Pradesh and Jammu & Kashmir. The age for attaining puberty has also decreased, as a result yaks are now producing one calf/year instead of earlier record of 1 calf/3 years. Further, the Centre has produced the first ever female yak calf 'MISMO' through embryo transfer technology. The rural communities in Yak inhabited states are getting benefited tremendously from this research effort as they get more produce and services by rearing the yak.

NARI in collaboration with NCL has successfully introduced FecB gene in Deccani sheep to enhance lamb production. A new strain of Deccani sheep with higher productivity called 'NARI Suwarna' has thus been developed. The FecB gene carrier ewes produce twin lambs at every alternate lambing. This increase is high enough to bring about a substantial increase in the shepherd's income. It is thus transforming the rural shepherds economy.

It is intently hoped that this award to NRC-Yak and NARI alongwith NCL will inspire all those engaged in the profession and business of innovation in the country to find S&T inputs & solution to enable rural development and help in economic development of out rural brethren.

CAIRD 2008

CSIR Award for S&T Innovations for Rural Development (CAIRD) for the year 2008 has been conferred jointly on Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar, for 'Innovations in the area of Salt for Rural Development' and Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, for 'Biovillage strategy for Agri-business of Medicinal and Aromatic Plants.'

CSMCRI has developed various processes for the recovery of high purity salt by rural salt producers. The processes for removal of impurities through heap washing and desulphatation utilizing distiller waste liquor of soda ash plants are unique and helped in mitigating disposal problem. These processes enabled rural salt producers to produce salt of purity > 99.5% and whiteness index of 87-91. Rural salt producers of Gujarat, Rajasthan and Orissa have greatly benefited from this innovation and enhanced their income by many folds.

CIMAP has strategically operationalized 'Biovillage Concept' for developing and disseminating technologies aimed at sustainable production and commercialization of medicinal and aromatic plants (MAPs) in rural areas. The institute has backed the concept by developing several new cultivars of mint, artemisia, geranium, patchouli and khus suiting to diverse agro-climates. CIMAP has also facilitated linkages between farmers and industry for necessary buy back of the produce. Further, a dependable complete package for managing distillation waste, farm waste, weed waste etc. has been integrated to generate biofertilizer, a value added product. Thus, the complete solution has helped in economic upliftment of farmers in a big way.

It is intently hoped that this award to CSMCRI and CIMAP will inspire all those engaged in the profession and business of innovation in the country to find S&T inputs & solution to enable rural development and help in economic development of our rural brethren.

Prime Minister Dr Manmohan Singh presenting CAIRD 2008 to Dr Pushpito K. Ghosh and Dr V.P. Mohandas of CSMCRI (*top*); and Dr P.S. Ahuja and Dr A.K. Singh of CIMAP (*above*). Shri Kapil Sibal and Prof. S.K. Brahmachari are also seen in the photograph

GGSIU grants Approved Research Centre Status to NPL

The Guru Govind Singh Indraprastha University, Delhi, has accorded the status of an Approved Research Centre to National Physical Laboratory (NPL), New Delhi. This will enable scientists NPL to be recognized as independent research supervisors and guide research students for the award of Degree of Doctor of Philosophy in all the approved schools of the university. This will provide a much needed fillip to the ongoing research activity at NPL by obviating the inconvenience of identifying a research supervisor in another university/institute for award of degrees. Currently seventy students are pursuing their research at the laboratory for the doctorate degree.

National Conference on Composites

The Indian Society for Advancement of Materials and Processing Engineering's (ISAMPE's) two-day National Conference on Composites (INCCOM 7), concluded on 5 December 2008. The conference was a joint effort of the Bangalore Chapter of the ISAMPE, and the National Aerospace Laboratories (NAL), Bangalore, adding to its Golden Jubilee Celebration spirit. It marked creation of a unique platform in bringing together the R & D, academia, and industry, fulfilling the core objective of ISAMPE to forge a strong linkage between the technology-providers and its propagators, through this annual feature, viz. the INCCOM. Over 60 presentations in the form of plenary lectures, invited talks and contributed papers, clearly demonstrated an up beat mood of the Composite's Community that converged during 4, 5 December 2008, at Dr S. R. Valluri's Auditorium in the NAL campus. The august presence of former Directors of NAL, past Presidents of the ISAMPE, and several distinguished guests and invitees, and corporate VIPs enhanced the importance of this conference.

While the inaugural address on "Composites for the Space", by the Chief Guest Dr S. K. Shivakumar, Director, ISTRACT (ISRO), was the booster, the Key Note Lecture of Dr Tessy Thomas, Project Director, AGNI, on "Aerospace Composites" set the pace to the conference. The presidential address of Dr A.R. Upadhya, Director, NAL, outlining the importance of the "high-end and high-volume applications" of composites and likening the "Future of Mankind" to the "Future of Composites", provided the silver lining to this Golden Jubilee ingredient. Shri T. M. Naidu, President, ISAMPE, Dr R. M. V. G. K Rao, Chairman of Bangalore Chapter and the INCCOM 7 Organising Committee, gave introductory remarks.

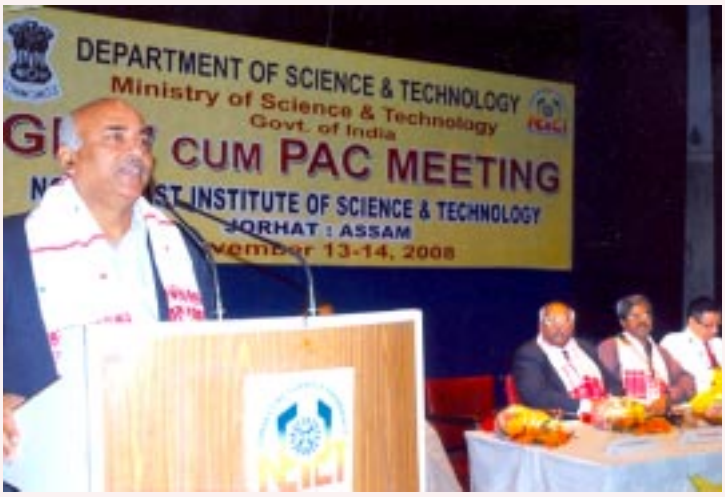
The participation of many R & D organizations such as ISRO, DRDO, HAL, AeSI, IITs, IISc, private sector industry, including corporate like M/s Kemrock and the Tata Matrix, in the Industry-Meet held on the Inaugural-Evening, added a new dimension to this INCCOM 7. Intensive presentations, deliberations and close interactions between all the participants reflected the urge of the R & D and the industry to come together to work towards the "Cause of Composites", both for their current and futuristic growth, in a very rapidly changing global environment. This meet saw an expression of immense satisfaction and interest from the indusry-Czars, turning into a cynosure of all those who attended the conference. The constructive remarks by Shri Mahendra Patel, Shri C. R. Satya, and Dr R. Gopalan formed useful feedbacks from the industry side. The topics of the conference covered fundamental aspects of synthesis and characterization of composite formulations, design and analysis and the practical engineering tips on emerging cost-effective fabrication processes, relevant to the aerospace, non-aerospace and spin-off technology products. A special session on "Nano Composites" had distinctly connected this conference to future of composites. Cutting across disciplines, scientists, engineers and industrialists, not to ignore the youngsters including the budding students, the event resembling more like a "community celebration" rather than a "routine-conference".

The conference set two agenda as a follow up to the INCCOM 7: INCCOM 8, will be organized by the ISAMPE – Thiruvananthapuram Chapter in Nov/Dec 2009, and the composite industry will by itself organize an Industry-Meet, where the R & D will participate.

Mr D. Saji, the Conference Convener, proposed a vote of thanks.

Group Monitoring Workshop of DST Project Advisory Committee at NEIST

The North East Institute of Science & Technology (NEIST), Jorhat, hosted the Group Monitoring Workshop (GMW) of the Department of Science & Technology (DST) – Project Advisory Committee in Organic Chemistry during 13-14 November 2008. The two-day workshop was organized in a bid to attract young researchers of the NE region for understanding projects on innovative research in the above field with financial grants to be extended by DST, Government of India.



Prof. Javed Iqbal, Chairman, DST-PAC, addressing the DST-PAC cum GMW meeting in the area of organic chemistry held at NEIST. Seen on the dais *(from left)* are : Dr P.G.Rao, Director, NEIST; Dr R. Brakaspathy, Advisor, DST; Dr R.C. Baruah, Scientist

The workshop was attended by Prof. Javed Iqbal, Chairman, DST-PAC; Dr P.G.Rao, Director, NEIST; Dr R. Brakaspathy, Advisor, DST; Dr Ram Vishwakarma, member, DST-PAC; DST-PAC members from BHU, NIIST, IIT-Madras, IIT-Roorkee, IIT-Kharagpur, IIT-Delhi, NIPER—Mohali and Shivaji University, scientists, teachers, young researchers from nearby colleges, universities and the scientific community of NEIST.

Dr Javed Iqbal lauded the high quality research being carried out at NEIST and mentioned that the aim and objective of DST-PAC is to make scientists of the country aware about the new happenings in R&D.

Dr Rao thanked the DST authorities for choosing NEIST as the venue and expressed that the workshop was a great opportunity for the researchers. He mentioned the research activities of NEIST in Chemical Sciences, specially in Organic Chemistry, and various technologies and drug molecules like caffeine, chloroquine phosphate, etc., that have been successfully commercialized. He also mentioned about the collaboration/MoUs which NEIST has entered into with various universities of NE in Chemical Sciences and Biosciences. Later, Dr Iqbal informed the young researchers about the various schemes of DST and advised them to pursue research career in the country instead of going abroad. He specially mentioned about the schemes of DST for married women scientists.

Dr Ram Vishwakarma, member DST-PAC and Vice President, Nicholas Piramal, in his vivid and elaborative lecture on "Post Translational Modification of Proteins and Opportunities for Organic Chemistry & Drug Discovery", informed that there is no other better perspective of science than Organic Chemistry for drug discovery. He explained how small molecules of proteins play important role in drug discovery. The post- translational changes include editing, splicing, glycosylation acetylation, methylation, coconformation isomers along with sulfation, alkylation, premylation, ubiquitination, O-glycosylation, P-glycosylation, etc. and the three major post-translational modifications of proteins viz., addition, cleavage and internal cofactor. He also mentioned the role of protein kinases, kinase inhibitors and lipid kinases as drug targets. More than 200 known covalent modifications of proteins are present in human biology and natural products have immense opportunity for novel targets in organic chemistry and drug discovery, he added.

Dr Vishwakarma also answered the questions raised by researchers and scientists present.

MoEF Expert Group Meeting at NEIST

The North East Institute of Science & Technology (NEIST), Jorhat, hosted the 13th Meeting of the Expert Group of Ministry of Environment & Forest (MoEF), Government of India, during 20-21 November 2008 to discuss the issues pertaining to 'Prevention, Abatement & Control of Pollution'. The meeting was attended by eminent scientists namely Prof. B.B. Dhar, Chairman, expert group MoEF; Dr Asoke Bhatia, Director (RE), Member Secretary, MoEF and members namely Prof S.N. Gaur, Prof. Avinash Tiwari, Prof. Mahadevaswamy, Dr B.R. Reddy and Dr Harendra Kharadwal, RO, MoEF. Dr P.G. Rao, Director, NEIST, and scientists of NEIST and various other institutes handling projects of MoEF were also present. Shri B.P. Barua, Scientist, NEIST and Coordinator, Organizing Committee, welcomed the distinguished gathering.

Dr Rao, briefly presented the environment related activities of NEIST on petroleum, oil fields, coal mining, geosciences, biotechnology, plant science and ecology, advanced materials, risk and hazard analysis, other processes and technologies developed for pollution abatement, through a slide show. He also introduced the NEIST scientists who received award on environmental research, to the expert group.

Speaking on the occasion, Prof Dhar lauded the NEIST activities. He released a draft book on '*NEIST activities for environmental protection and restoration*'. Expressing his gratitude to NEIST Director, Prof Dhar praised the remarkable leadership of Dr Rao and the high quality applied research on environmental aspects being carried out under his leadership. He exhorted the scientists to submit more projects to MoEF. In the sessions that followed, presentations of four completed and four ongoing projects were made by various scientists of NE region for review. Apart from a total of 10 sanctioned projects of MoEF on NE region, three new projects were freshly submitted for financial grants. The expert committee evaluated the projects and gave suggestions for improvement in the completed projects and also for improving the progress of research of the ongoing projects.

Prof. B.B. Dhar, Chairman, Expert Group, MoEF, releasing the draft book on '*NEIST activities for environmental protection and restoration*' on the occasion of 13th meeting of MoEF held at NEIST. Dr P.G. Rao, Director, NEIST and Dr Asoke Bhatia, Director (RE) are also seen in the photograph

Chinese Delegation visits CSIO

A Chinese delegation visited the Central Scientific Instruments Organisation (CSIO), Chandigarh, on 15 September 2008 to take an overview of the Scientific Instrumentation development programmes at CSIO and get a general understanding of management of scientific equipment and the sharing of instrumentation among the institutes. The delegation comprised Dr Wang Qiming, Counsellor, Mr Cao Jianru, First Secretary, and Mr Qin Hongming, Second Secretary in the Science Office, Chinese Embassy.

The delegation was welcomed by Shri A.K. Dimri, Acting Director and was acquainted with the various R&D activities of the organization. The delegates interacted with the DU Incharges during which the possibility of co-operation with Chinese research institutes was deplored. Also, the delegation was taken round the FBG facility and the ISTC where they interacted with the scientists and technicians.

At the end it emerged that being neighbouring countries and with similar climatic and cultural conditions, there was wide scope for research cooperation among the Chinese R&D institutes including universities and CSIO in the area of instrumentation.

Prof. Alok Dhawan of IITR bags NASI Toxicology Award

Prof. Alok Dhawan, Scientist, Indian Institute of Toxicology Research (IITR), Lucknow, has been given the prestigious 'Lecture Award in the field of Toxicology' by The National Academy of Sciences (NASI), India, for the year 2008. The award carries a Gold Medal Citation and Rs 10,000 cash prize. Prof. Dhawan has been given this award in recognition of his outstanding contributions to the field of toxicology, in particular to the area of biomonitoring human genotoxicity.

He delivered the Award lecture on 'Multipronged approach in toxicology: A new paradigm' during the Annual meeting of the Society of Toxicology (India) held at Ludhiana.

Prof. Dhawan has won several other awards including the INSA Young Scientist Medal in 1994, CSIR Young Scientist Award in 1999 and the Shakuntala Amir Chand Prize of ICMR in 2002. His work has won him international accolades as well — recently he was awarded an Indo-UK project under the prestigious UK-IERI programme.

Prof. Dhawan is currently working on nanomaterial toxicology for which he has established the facilities in the institute. To predict the toxicity of chemicals at an early stage and to reduce the use of animals in toxicology Prof. Dhawan has used *in silico* toxicology efficiently to unravel the toxicity of benzene and its metabolites.

Dr Vikram Kumar elected Fellow of INAE

Dr Vikram Kumar, Director, National Physical Laboratory, New Delhi, has been elected a Fellow of the Indian National Academy of Engineering (INAE) at its recent meeting of its Council, in recognition of his distinguished contributions to "Engineering".

Dr P. Banerjee elected Chairman of Commission A on Electromagnetic Metrology of URSI

Dr P. Banerjee, Scientist G and Head, Electrical & Electronic Standards, National Physical Laboratory, New Delhi, has been elected Chairman of Commission A on Electromagnetic Metrology of URSI.

It is for the first time that the Chairman of Electromagnetic Metrology has been elected from NPL, India since the inception of URSI in 1919. This recognition was conferred on him during the XXIX General Assembly of the International Union of Radio Science (Union Radio Scientifique Internationale-URSI), held during 7-16 August in Chicago, Illinois, USA.

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