‘Food, nutrition and environmental security’ was the focal theme of the recently concluded Indian Science Congress. For the first time in the history of the Congress, augmenting the theme, was an invitation extended to progressive farmers to attend the Congress. Several scientists, farmers, students, NGOs, the public and the media attended the Congress, whose aim, according to one top scientist was ‘to serve as a forum for interaction between individuals from diverse backgrounds and not merely a science and technology meet’. Also for the first time, farmers, whose inventions were supported under the Technopreneur Promotion Program (TePP) under the Ministry of Science and Technology were present. Some of the farmers felt that by attending the Congress they had gained technical information on new varieties and value-added products. However, it was felt by some that they should be represented for some relevant sessions in agriculture, with the help of interpreters to facilitate interaction with scientists.

Against this backdrop, serious issues such as hunger, malnutrition and environmental degradation that continue to loom large, were discussed as part of eight plenary sessions and four public fora. Also, there were 42 sectional symposia and 24 concurrent sessions on contemporary issues in various scientific disciplines and a programme ‘Science for Children’. At this point in time, India has a record harvest of nearly 206 million tons. With the population growing in India at the rate of 1.8% per year, an estimated food grain requirement of about 260 million tons is envisaged by 2025, when much of it is to be grown on rapidly diminishing arable land area. This will put a great strain on our present natural resources, making it all the more important to resort to ecologically sustainable agricultural production, while increasing the need for nutritional crops that can combat ‘hidden hunger’ caused by deficiency of micronutrients.

In his Presidential Address, R. S. Paroda (Director-General, ICAR and General President of the Congress) said that the theme ‘Food, nutrition and environmental security’ symbolizes the three basic needs which any civilized society must guarantee to its people. In order to achieve a ‘Food Secure India’ by 2015, ‘we must double our food production in the next decade’, he said. The emerging challenges are due to our natural resources at risk from soil degradation, deforestation, water scarcity and contamination, biodiversity loss and climate change. He also said that water availability to the agricultural sector would reduce from 89 to 75% by 2020, affecting our capacity to produce more food. The crucial issue is to continue building our human resource in order to compete globally. He spelled out his strategy of ‘Panch Sutras’ (consisting of 5 Ps) for creating a rich and just society through an integrated scientific intervention. These are: people, productivity, permanency, policy and partnership. He said that the new world trade regime, following the formation of the World Trade Organization (WTO) had also thrown open many challenges. He also emphasized that moving towards an ‘evergreen revolution’ through diversified agriculture, precision farming, resource conservation and value addition was needed to attain the food, nutrition and environmental security for Indians.

In his Inaugural Address, Prime Minister Atal Bihari Vajpayee said that what we are facing today was ‘a shortage not of food, but of facilities to store food’. Malnutrition threatened the brain development of children, with 50% of pregnant women and children being anaemic. Agricultural environment had been affected by increase in food production, therefore making environmental security no longer a peripheral issue to food and nutrition security. He pointed out that there has been qualitative and quantitative degradation of land, water and bioresources; yields were down due to wrong cropping patterns and faulty usage of fertilizers and acute depletion of the water table. He also said that in the New National Storage Policy with the help of private investment, modern silos at 20 locations would take care of buffer stocks; restructuring of the Food Corporation of India and removal of the weak links in the food chain. He stated that we are entering the era of ‘precision agriculture’, which is knowledge intensive and uses the latest that science has to offer, such as biotechnology, information technology, space science, nuclear science and genetic engineering. ‘Lab to land’ remained a nice sounding slogan. He said that in order to close the gap between the scientist and the farmer we need to supplement the slogan with a new one, ‘Land to lab’. Funding needs of Indian science can be met by ‘a public private partnership’. He was happy to note that Indian industry was ‘beginning to respond to the opportunities in the knowledge industry’.

V. S. Ramamurthy (Secretary, Department of Science and Technology) reporting on the recommendations of the 87th Session of the Indian Science Congress spoke of the Rs 50 crores grants each for the India Millennium Missions to be executed by Technology Information, Forecasting and Assessment Council (TIFAC) and the New Millennium Technology Leadership Initiatives by CSIR. A New Drug Development Foundation was soon to be set-up with a budget allocation of Rs 150 crores. Manju Sharma (Secretary, Department of Biotechnology) said that a Department of Biotechnology initiative for a Biotechnology Park, a technology incubator for women has opened in Chennai, with several others proposed. A taskforce to look into problems of women and science had been set-up under SAC-C, whose recommendations would be implemented next year. A new science and technology policy would be finalized in the next few months, according to Ramamurthy. Three core issues would be part of the new policy, namely the universality of science and its global competitiveness, evolution of local technologies and a social perspective.

In the session on ‘Improving productivity and alleviating poverty’, G. S. Khush (International Rice Research Institute, Manila) spoke of ‘closing the yield gap’ by use of genetic engineering to increase tolerance of rice to salinity, drought and waterlogging so as to increase the present 5 tons/hectare yield to a potential of about 10–13 tons/hectare in the tropics, with use of optimum breeding and management practices. Uma Lele (World Bank) compared the various
growth and development parameters between China and India over three decades and said: ‘If India is to join the true ranks then there is need to understand how to mobilize science to change our economic and investment policies’.

In the session on ‘Nutritional needs for human health’, V. Ramalingaswami (AIIMS, New Delhi) painted an absolutely grim picture of the fact that 47% of children are underweight and 46% under 3 years of age are stunted. He said that retardation of growth was caused by protein calorie malnutrition. Powerful non-clinical intervention methods such as education of girls, equal opportunities for women, together with ‘mother and child’ approach would help in combating malnutrition.

He added, ‘From an agenda of welfare we must move to an agenda of rights’. ‘Home gardening, i.e. nutrition gardening is the key to fight micronutrient deficiencies as has been successfully demonstrated in Narsapur Mandal of Medak district of Andhra Pradesh’, said Mahtab S. Bamji (Dangoria Charitable Trust, Hyderabad). This coupled with ‘Poshana’, a low-cost cereal pulse-based complementary food developed by the Trust and establishing a ‘Poshana bazaar’ or social marketing centre in the village has led to combating malnutrition at the village level. N. Kochupillai (AIIMS, New Delhi) spoke of the fertile Bihar–East Uttar Pradesh areas where impoverished people live, whom planners describe as ‘lazy’. However, there is a reason, ‘their diminutive build and disproportionate body, slow response to stimuli and dull apathetic expression, tardy reflexes and physical sluggishness were all symtomatic of some overwhelming patho-biology’. He said that the root cause is iodine deficiency – a micronutrient required for growth and development of the human body. There is cause for concern of the recent decision of the government to lift the ban on consumption of non-iodized salt, the impact of which will surface in due course. Clinically significant vitamin-D deficiency amongst Indians also needed collaborative scientific work between agricultural and medical scientists, he added.

Finally, in the session on ‘Public policies for food, nutrition and environmental security’, Ismail Serageldin (former Vice-President, World Bank and Chairman, Consultative Group on International Agricultural Research, Cairo) felt that ‘in context of global food security, the response should be to produce differently, not less; to use sustainable precision farming that has the best of science and management’. He stressed the need ‘that scientists must speak out on public policies affecting food, nutrition and environmental security’ and gave information about an International Movement for Scientific Responsibility. M. S. Swaminathan (Chairman, M.S. Swaminathan Research Foundation, Chennai) said that stockpile of research information must be used in ‘integrated natural resource management, learning to work with the private sector’ and that ‘we must fight to incorporate ethics and equity principles in the WTO agreement. He urged the government to bring out a white paper on the WTO agreement and Indian agriculture’. He reiterated this in his evening lecture titled ‘Shaping our agricultural future’.

In a public forum on ‘Science and technology’, to bring together presidents of national academies of science on a single platform, N. K. Gaguly (President, National Academy of Medical Sciences) spoke on health issues posed by climate change. Anil Kakodkar (President, National Academy of Engineering) described the relevance of irradiation to food security, while V. L. Chopra (President, National Academy of Agricultural Sciences) explained how ‘collective effort of the academies might provide an avenue’ to solve the problems that science and scientists in India face.

Public fora on ‘GMOS and genomics’, ‘How food secure is India’ and ‘WTO and Indian agriculture’ addressed issues of concern. Significant highlights were that India would soon have a Protocol on Biosafety to safeguard against any risks from genetically engineered plants. Serageldin later emphasized the need for strong regulation of all foods and labeling for informed consumer choice and the necessity for a comparative study of risks for different foods and their genetically modified counterparts.

A. P. J. Abdul Kalam (Principal Scientific Adviser to the Government of India) in his lecture entitled ‘Networking multiple technologies for nation building’ said that to achieve a GDP growth rate of 6–10%, networking between government and all sections of society in the five core areas is necessary. These areas, laid out in the ‘2020 Technology vision document’, are agriculture and food processing, production of quality electric power, education and health care, information technology and development of strategic sector technologies such as space, nuclear and defence.

An Exhibition ‘Agro-vision 2001’ as part of the theme ‘Towards food secure India’, displayed crops and vegetables, including exotic varieties, and floriculture. Here one could see healthy interaction between the visitors and the staff manning the ‘crop cafeteria’. Animals were specially brought to the Congress to highlight the National Animal Genetic Resources that exist in India and the cross-breeding experiments conducted by several government institutions leading to improved stock. In the ‘Goat’ category, the Central Institute for Research on Goat, Mathura brought goat varieties such as Jamunapari, black Bengal goat and Barbari. The average milk production is about 4–5 kg per day for the Jamunapari variety that is found in UP. The black Bengal goat is a prolific breeder and is found in Bihar and Assam. The Pashmina goats whose natural habitat is the mountain areas of Leh and Ladakh, are known for their ‘Pashmina wool’. Their food includes leaves of peepul, neem and datura that are not utilized by other livestock and they can survive for 15–20 days without water. Buffalos were on show by the Central Institute for Research on Buffalo, and the National Dairy Research Institute, Karnal has specially developed cross-breeds ‘Karan Fries’ and ‘Karan Swiss’.

Horses used popularly in marriage ‘barats’ and riding such as Marwari (Malani breed) were brought by the National Research Centre on Equines, Hisissar. A huge French donkey weighing about 330 kg was seen, as were Jaisalmeri and Bikaneri camels. One of the Jaisalmeri camels was intricately decorated with Rajasthani folk motif worked by clipping the wool; it took the craftsman a week for getting it ready for the Congress. The Madras red sheep, Chokla (whose wool is used for carpets) along with Indian cross-bred rabbits were some star presentations. And finally, the Central Avian Research Institute, Izzatnagar had attractions such as Cari-Virat Turkey weighing 15 kg, Kadakanath, an all-black avian, Cari-Aaseyl Kagar noted for ‘cock fights’ and several types of quails all of which generated tremendous interest among those who visited the exhibition.
An informal survey conducted among young scientists attending the Congress, revealed the following mixed bag of comments; ‘Wasteful’ said some and ‘Should be held every two years’ said some; others felt that it improves self-confidence and promotes interaction, etc. When asked whether they would attend the Congress if no financial support was given, most of them said ‘no’.

The 88th session of the Indian Science Congress adopted the vision statement for food, nutrition and environmental security of India. The recommendations presented by Paroda are for establishing ‘Genomic valley’ for protecting national interests and conservation, eliminating bureaucratic controls in educational establishments and enhancing agricultural R&D to 2% of agricultural GDP. A ‘Livelihood box’ would allow developing countries to impose restrictions on imports if they affect livelihood opportunities; included among the goals are precision farming, female literacy, infrastructure development, employment generation for rural poor, post-harvest value addition and nutrition management. Biotechnology could be a powerful tool to alter the nutritional, therapeutic, functional and economic aspects of plant and animal food, and synergy between science, technology, organizations and public policy for enhancing competitiveness in the newly emerging global scenario. The statement set a target date of 2020 to achieve the rainbow revolution.

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The Academy meets in Goa*

Goa played host to the 66th Annual Meeting of the Indian Academy of Sciences, Bangalore, for the first time. As part of the scientific proceedings in 2000, was the topical symposium on ‘Climate, Monsoon and India’s Water’. C. V. Raman, in his presidential address at the 1st Annual Meeting of the Academy held at Bombay in 1935 and attended by 65 Fellows, had outlined that among the activities of the Academy should be meetings for discussion of research papers, symposia on special subjects and publication of the proceedings.

Today, the Academy has nearly 800 Fellows and 50 Honorary Fellows. Raman’s views in the inaugural address nearly 65 years ago, that the scientific meetings of the Academy, especially the symposia ‘are a valuable opportunity for discussing problems of common interest from different points of view’, were amply reflected at the vibrant meeting of the Academy in Goa. The open meeting was attended by Fellows, and other scientists, invited teachers from Goa and rest of India and the media.

There were two captivating public lectures. One was the ‘show of visual delight, illusion and magic’ demonstrated by S. Ranganathan, Indian Institute of Chemical Technology, Hyderabad in his public lecture ‘The magic in chemistry’. This attracted a thumping participation from the public, including young students who were enraptured by his ability, with the help of his assistant, in drawing them to the beauty of chemistry. The magic of nature as seen around us was richly brought out by Madhav Gadgil, Indian Institute of Science, Bangalore in his public lecture ‘Butterflies’. This was preceded by the release of the book ‘India – A Lifescape, Butterflies of Peninsular India’. This is the first of a series of fascicles to be published under Project Lifescape – that is part of an initiative by the Indian Academy of Sciences, to enhance the quality of science education. In addition, an exhibition displaying exquisite nature photographs drew accolades. The Academy’s initiative to improve the state of science education by attracting bright young minds, found success in spreading this very message, to jam-packed audiences attending the public lectures in Panaji’s beautifully constructed Kala Academy.

The three-day meeting had the opening session followed by nine more, which included special lectures, public lectures, lecture presentations by Fellows and Associates and the micro-symposium. N. Kumar (President of the Academy), Raman Research Institute, Bangalore spoke about India being a participant to the ‘knowledge revolution’ with its ‘multi-disciplinary window’ in science and technology. Stressing India’s important role in prediction and study of the monsoon, a symposium on the same was part of the meeting.

Kumar’s Presidential Address on ‘Cold atoms’ to the distinguished gathering dealt with the how and why of trapping and cooling of atoms towards Bose-Einstein Condensation (BEC). It has been easier to heat than to cool, borne out by the fact that refrigeration is costlier than heaters. He said that a gas of identical and quantum-mechanically indistinguishable atoms is cold in an absolute sense, if the de Broglie wavelength for its thermal motion exceeds the mean interatomic spacing. BEC phenomenon associated with superfluidity, as seen in ‘He has been known for a long time. However, more recently the changeover from helium to alkali centric has occurred. This has been made possible by entrapment in a shallow container (mm size) of dilute alkali-atomic gases, using laser beams for cooling down to nano-kelvins. This has created a revolution in cooling, with a new chemistry and physics emerging, he added. Novel applications can be found, as in ‘atom laser’, extending frontiers of physics. Atom lasers could be used to produce nanometric electronic components, shaping a new lithography unimaginable so far. Other possible uses could be in atomic clock, gravity meter and creating acceleration. He suggested that researchers look anew from a laser viewpoint for building optical elements, as the time had come to take initiatives in this field.

A special lecture by P. M. Mathews, University of Madras, Chennai titled ‘Glimpses into the earth’s interior from observation of objects in space’, dealt with how methods of space geodesy, such as very long baseline interferometry (VLBI), using distant reference objects such as quasars, moon and artificial earth satellites could help unravel the mysteries of lunar and solar gravitational forces to

a high degree of precision. These forces subject the earth to a stretch and squeeze action (resulting in solid earth tides), raise ocean tides and their interplay causes variations in earth’s orientation in space, he said. He added that altimetry satellites for mapping ocean surface topography could be used. Precise information, for the first time, on the magnetic coupling between the outer and inner cores and the inner core and the mantle of the earth, hitherto not measured by electric and magnetic measurements and the importance of magnetic coupling in disturbing tidal frequency could now be obtained. Studying the nutational motion of the earth’s pole and its amplitude, i.e. the dance of the earth’s axis, is one of the best ways to find out about the earth. For accurate future predictions, an integration has been achieved with geophysical theory, he said, and the present-day space observations give us glimpses of the earth’s interior to surprising depths.

‘Peering into the hearts of galaxies’ by K. P. Singh, TIFR, Mumbai sought to facilitate our understanding of the classification and types of galaxies that exist in space, composed of several billions stars, gas and dust, taking a variety of shapes. In some galaxies, the central nucleus outshines the whole surrounding galaxy. Such galaxies are known as Seyfert or active galaxies. With studies of images, spectra and variations in light output (both X-ray light and visible light) using new diagnostic tools in X-rays, nuclei of galaxies can be studied and newer types discovered. Images of Centaurus A, Andromeda, Starburst and variations of Seyfert such as I and II gave some feeling for the types of activity in galaxies such as starburst, super winds, conical flows and jet-like phenomena.

Palaeoclimatic studies of change in monsoon rainfall over several thousand years can usefully complement research on modern monsoons, according to R. Ramesh, Physical Research Laboratory, Ahmedabad. He described quantitative reconstruction of palaeomonsoon parameters from natural archives using stable oxygen and carbon isotopes. For this, three natural archives chosen, namely the speleothems from Madhya Pradesh, sediments from the Lunkaransar lake in Rajasthan and fast-accumulating sediments in the coastal Arabian Sea have yielded valuable data on the past fluctuations in monsoon rainfall.

Speaking on the topic ‘Changes in monsoon in the recent past’, K. Krishna Kumar, Indian Institute of Tropical Meteorology, Pune said that the knowledge of monsoon variability on time scales in the range from daily, interannual to longer periods can be helpful for effective management of available water resources and planning long-term strategies. This has been achieved by studying variations in rainfall and temperature over India using available instrumental records dating back to 1871. Also, variability of the tropical-atmosphere system associated with El Nino/Southern Oscillation (ENSO), which though has its origin in the tropical Pacific, extends to influence even the Indian summer monsoon rainfall. According to Krishna Kumar, surface air temperature over India shows an increasing trend of about 0.4°C per 100 years on an all-India scale.

The aerosol–cloud interaction over the Arabian Sea, playing a crucial part in the onset of the monsoon and the spatial distribution of rain over India was highlighted by A. Jayaraman, Physical Research Laboratory, Ahmedabad. An Indian Ocean Experiment (INDOEX) on-board the vessel Sagar Kanya, revealed the presence of large amounts of aerosol over this region. Composed mainly of soot particles produced anthropogenically, they act as condensation nuclei for the formation of raindrops and help in precipitation. However, this is mitigated when they are present in large quantities, as they do not allow the droplets to grow and so rainfall is inhibited.

‘Geochemistry of Himalayan rivers as an agent of long-term climate change’ is the focus of study by M. M. Sarin, Physical Research Laboratory, Ahmedabad. The transport of dissolved materials and the distribution of elements such as uranium and strontium carried by erosion to the ocean by the large rivers, give an insight into their significance in the global oceanic budget. Atmospheric CO₂ consumption rates resulting from silicate and carbonate weathering in the Himalayan river basin, related to present day Himalayan erosion could have influence on the global climate, he said.

The details of the ‘Prediction of the Indian summer monsoon’ were elucidated by M. Rajeevan, India Meteorological Department (IMD), Pune, being of great importance to the commerce and economy of India. IMD has been carrying out operational long-range forecasting activities for more than 100 years now. These forecasts are put into place using statistical models based on neural networks, while research to improve the model with larger number of parameters is in progress.

Concerns about food security and the availability of nearly 8 million hectares of saline land area unsuitable for crop agriculture was the focus of the special lecture ‘Genetic engineering for developing plants for high soil salinity environment’ by S. K. Sopory, International Centre for Genetic Engineering and Biotechnology, New Delhi. He emphasized the need to use all available technologies to develop plants that are tolerant or resistant to abiotic stress. The tolerance to stress such as drought, salt and temperature conditions varies from plant to plant and these have a negative effect on crop yield. Developing plants to have a higher degree of tolerance, especially to saline soil conditions using a proteomic approach, could lead to better productivity of crop plants under unsuitable soil and environmental conditions, he said.

Several other presentations by Fellows and Associates of the Academy covered wide areas of interest such as probing of microstructures and applications, biogeneric approaches to new macroporous materials, cluster dynamics in intense laser fields and porphyrin systems as molecular receptors. In addition, there were presentations in biology about the brain, lipid design, collective behaviour, fluorescence dynamics in macromolecular systems and a panel discussion on the human genome.

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Spatial technologies for natural hazards and management*

About 160 scientists, professionals and students from various institutions participated in the two-day Convention and Symposium of the Indian Society of Remote Sensing. Seven foreign scientists from Germany, USA and Japan also participated and presented papers. The theme of the Symposium was ‘Spatial Technologies for Natural Hazards and Management’. The theme was important for the people of Uttar Pradesh (UP) who witness various kinds of natural hazards every year like the recent Uttarkashi and Chamoli earthquakes, Malpa landslide, numerous forest fires, snow avalanches in the Himalayan region, droughts and lightning.

In his inaugural address, S. K. Acharyya (Director General, GSI) drew the attention of the earth scientists and the remote sensing community to the basics of earth system and called on them to formulate strategies and plans to meet the challenges of natural hazards, increased needs of minerals, metals and energy for the industry to feed the increasing population, taking note of environmental impact of unplanned anthropomorphic exploitations and plan for remedial actions. He stressed the significant role of remote sensing and GIS for the earth scientists.

In the special technical session on ‘natural hazards’, three invited papers and five contributed papers were presented. The efforts being made by scientists from SASE, Chandigarh dealt with the importance of minerals, metals and energy for the industry to feed the increasing population, taking note of environmental impact of unplanned anthropomorphic exploitations and plan for remedial actions. He stressed the significant role of remote sensing and GIS for the earth scientists.

The invited paper on the ‘Use of remote sensing data for assessment of damage due to the application of IRS P4 and Radarsat satellite data for preparing erosion intensity map of the Himalayan region’ presented by A. K. Joshi (RRSC, Nagpur) using GIS and remote sensing data for preparing erosion intensity map of the Himalayan region. Multi-date remote sensing data showed changes after treatment in some of the watersheds and also showed that the erosion has reduced in some areas due to such treatment.

In the technical session on ‘Remote Sensing, hydrology and snow’, B. J. Choudhury (NASA, USA) gave an invited talk on the application of satellite data to evaluate evaporation and vegetation productivity of selected river basins of different parts of the world. The application of remote sensing data in determining various surface and meteorological parameters in evaluating evaporation has been illustrated. S. K. Ambast (IIT, Delhi) illustrated the importance of hydrological modelling with remote sensing in irrigation system management. P. C. Joshi (SAC, Ahmedabad) presented the utility of IRS P4 MSMR data in retrieving surface-specific humidity over the Arabian Oceanic region.

In the evening of 21 November 2000, Govind B. Pant (Director, Indian Institute of Tropical Meteorology, Pune) gave the Vikram Sarabhai Memorial Lecture on ‘Weather-based natural hazards and their management’. Pant gave an account of the role of weather on natural hazards like drought, floods, tropical cyclones, thunderstorms, hail storms, dust storms, fog, haze and mist. Looking at the huge loss of life and property due to natural hazards, he stressed the need for disaster management, advance warning, rescue and relief.

The second day of the Symposium started with a special session on students’ presentation, which was well attended by 48 post-graduate and research students from various institutions.

In the technical session on ‘Air pollution’, S. Mukai (Kinki University, Japan) presented an invited paper giving detailed account of aerosol retrieval techniques using various remote sensing data over ocean and land. Important area of polarization and radiance in the visible and NIR wavelength were stressed. A special algorithm was presented by Mukai in aerosol retrieval using look-up table method. The importance of ground-
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based measurements in validity of POLDER satellite data over southern Indian Ocean was also emphasized. K. V. Prasad (NRSA, Hyderabad) presented his work related to trace gas emission from biomass burning of secondary mixed deciduous forest estimates from satellite and ground-based measurements in the, Eastern Ghats area, Andhra Pradesh. Use of IRS-P4 OCM data and ground truth data to quantify a few trace gases during pre- and post-burning was presented. Different components of biomass combustion have been calculated and correlated with the satellite data, which was found to give good results.

In the technical session on ‘Forest and agriculture’, Indrani Chaudhary (SAC, Ahmedabad) demonstrated the use of Radarsat data acquired in 24-days repeat cycle in monitoring different stages of rice crop growth. B. M. Singh (INRIMT, Dehra Dun) presented the utility and cost effectiveness of IRS III and PAN data in sodic land mapping of UP. M. S. Yadav (RSAC, Lucknow) presented the application of multi-date multi-stage monitoring of sodic lands in a part of Pratapgarh district, UP using remote sensing and GIS. Vegetation detection through remote sensing in extreme arid zone was presented by S. Kumar (CAZRI, Jodhpur). He brought out the limitations of remote sensing techniques for vegetation mapping, in particular in the desert land of western Rajasthan.

Mapping of planform cyclicity in an unstable reach of Sarda river using remote sensing and GIS was presented by K. Rajarajan (RSAC, Lucknow), who described the use of multi-date satellite data in conjunction with GIS and its use in identifying and delineating river channel changes in the middle reach of the Sarda river. It was indeed encouraging to note that use of multi-date satellite data is being made in studying the dynamic aspects of river channels, which is the basic requirement while planning for river training measures leading to combat floods and erosion on the water.

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NEWS IN BRIEF

News from SAC-C

The second meeting of the Scientific Advisory Committee to the Cabinet (SAC-C) chaired by A. P. J. Abdul Kalam, Principal Scientific Adviser to the Government of India, was held on 3 November 2000 in New Delhi. It was poorly attended by members from the industry and thus sprang a few surprises. SAC-C is a body primarily for tendering advice on S&T policies and programmes of the Government of India and their implementation.

According to the official press release, the following items were considered in the above meeting. SAC-C recommended a programme of action by the government, for which it identified specific projects for developing ‘critical technologies in the country with forward strategic thinking and with forward engineering’. SAC-C members were apprised of the India Millennium Mission-2020 (IMM-2020), wherein programmes have been ‘worked out to transfer India into a developed nation within 20 years, focusing on wealth generation and wealth protection’. A report of the sub-committee, on private sector initiative in higher S&T education is now finalized. The report, submitted to the Ministry of Human Resource Development, ‘welcomes’ private sector participation while suggesting ‘some regulation to rule out purely market-driven structures for faculty, students and course contents’.

Another sub-committee report on ‘all aspects of simplification of administrative and financial rules and procedures in scientific ministries, departments and institutions’ has been prepared. Among the recommendations of this report are those for increasing the financial limits from the existing amounts, for approval by scientific ministerial departments and providing ‘real’ functional autonomy for R&D autonomous institutions and removal of ‘blanket and routine budge
tary’ cuts inflicted on scientific institutions. For furthering scientific activity, ‘mobility’ of scientists would be encouraged. Approval time for sponsored research projects would be ‘within a month’ after peer review. A Science and Technology Audit Board would be formed in the C&AG’s office and this would have in addition, two part-time members nominated from the S&T community.

Women, in the S&T arena, also figured in a sub-committee report on ‘maximal utilization of the human resource of women S&T personnel’. The report sent for approval to the Group of Ministers on S&T recommends the following:

1. Relaxation of age of recruitment of women S&T workers by 5 years, to allow them to rejoin and restart.
2. A provision for additional months of ‘leave without pay’, beyond 135 days of maternity leave.
3. Facilities for a good creche within the campus for infants and children up to 5 years.
4. Flexible working hours for women.
5. Husband and wife to be posted in the same station.
6. Transportation to be provided during late hours of work.
7. Special schemes to be initiated that are suitable for women.

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