

ANNUAL REPORT

2009-2010



THE INDIAN SCIENCE CONGRESS ASSOCIATION

14, DR. BIRESH GUHA STREET, KOLKATA-700 017

Published by :

The Indian Science Congress Association
14, Dr. Biresw Guha Street,
Kolkata-700 017

Cover Photographs :

Dr. Manmohan Singh, Hon'ble Prime Minister of India
Presenting Medal to ISCA Awardee at the inaugural session
of the 97th Indian Science Congress on January 3, 2010
while Dr. Madhavan Nair, General President and other
dignitaries look on.

Printed at :

East India Photo Composing Centre
69, Sisir Bhaduri Sarani,
Kolkata-700 006

Contents

	Page
PROFILE OF THE INDIAN SCIENCE CONGRESS ASSOCIATION	1
THE NINETY SEVENTH INDIAN SCIENCE CONGRESS	3
<i>Inauguration</i>	3
Inaugural Address by Dr. Manmohan Singh	5
Address by Shri Prithviraj Chavan	9
Presidential Address by Dr. G. Madhavan Nair	15
Public Lectures and Plenary/Panel Sessions	20
Activities in Sections	29
ISCA Endowment Lectures	29
Children Science Congress	30
Vigyan Sancharak Sammelan	32
Pride of India Science Exhibition	33
Valedictory Session	33
Major Recommendations	35
OTHER ACTIVITIES	47
ISCA Chapters	47
Hindi divas	47
Publications	47
Library Service	47
OTHER ITEMS	48
ISCA Meetings	48
ISCA Representation in other Organizations	48
Membership	49
Organizational Set-up	49
ACKNOWLEDGEMENTS	51

ANNEXURE - I	
Title of Addresses of Sectional Presidents of 97 th Session	52
ANNUEXURE – II	
97 th Session – Platinum Jubilee Lectures	53
ANNUEXURE – III	
Titles of Symposia on specialized topics organised by the Sections of 97 th Congress	55
ANNUEXURE – IV	
List of Young Scientist Awardees for 2009-2010	56
ANNEXURE – V	
List of Awardees judged as Best Poster presented during the 97 th Indian Science Congress-2010	58
APPENDIX — I	
Members of the Council for 2009-2010	61
APPENDIX — II	
Members of the Council for 2010-2011	63
APPENDIX – III	
Personnel	65
APPENDIX – IV	
The Past General Presidents of ISCA	66
APPENDIX – V	
The Past General Secretaries of ISCA	71
APPENDIX – VI	
The Past Treasurers of ISCA	72
AUDIT REPORT & ACCOUNTS	73

PREFACE

The 97th Indian Science Congress was held at Thiruvananthapuram under the auspices of the University of Kerala from January 3-7, 2010. Dr. Manmohan Singh, Hon'ble Prime Minister of India, inaugurated the Congress on 3rd January. Professor A. Jayakrishnan, Vice-Chancellor, University of Kerala and Chairman, Organising Committee, ISC-2010, Shri P. S. Veera Raghavan, Chairman, Local Organising Committee, ISC-2010, Shri Prithviraj Chavan, Hon'ble Minister of State (Independent Charge) for Science & Technology and Earth Sciences, Government of India, Shri Sashi Tharoor, Minister of State, Ministry of External Affairs, Government of India, Shri Vayalar Ravi, Union Minister (Overseas Affairs) Government of India, Shri R. S. Gawai, Governor of Kerala, Shri V. S. Achuthanandan, Chief Minister of Kerala, Shri M. A. Baby, Minister of Education & Culture, Government of Kerala, Prof. C. N. R. Rao, Chairman, PM's Scientific Advisory Council, Govt. of India, Dr. T. Ramasami, Secretary, DST, Govt. of India, Dr. G. Madhvan Nair, General President, 97th Indian Science Congress, Prof. K. C. Pandey, General President Elect. 2011, Dr. Ashok K. Saxena, General Secretary ISCA were present on the dias along, with other council members of ISCA and ISCA Awardees.

Dr. G. Madhvan Nair delivered presidential address on the Focal Theme "Science and Technology Challenges of 21st Century – National Perspective". Dr. Manmohan Singh, the Hon'ble Prime Minister of India, presented Awards to dignitaries and delivered the Inaugural Address. The inaugural function was attended by over 5000 delegates including quite a few overseas scientists.

Nobel Laureate Prof. Roger Tsien and Prof. John. C. Mathar were present in the inaugural programme and also delivered lectures during the Congress.

Plenary & Special Sessions devoted to different facets of the Focal Theme and Public Lectures were held where many eminent scientists, technologists, policy-makers, industrial executives from industrial sectors and social activists participated. Symposia on different interesting topics organised in 14 sections besides the Platinum Jubilee Lectures constituted a significant component of the entire programme. Invited Lectures and Paper Presentations (through Posters/Oral) organised in different sections were highly applauded. Special emphasis was given on ISCA Young Scientists' Programme in sections and the awards were presented in this occasion. A large number of students from the neighbouring schools and colleges visited and participated in the programmes on "Science for School Children". Endowment lectures constituted a vital part of the programme. Besides, a few award lectures were organised in some sections.

"Pride of India– Exhibition 2010" was one of the major events of the 97th Science Congress. The development, achievement and contribution of science and technology vis-à-vis the Society was being show-cased by scientific institutions and the universities. The major organizations of Central and State Govts, R & D Institutions, Corporates, Academic Institutions, NGOs, Defence & Allied Organisations participated.

The Valedictory Session was held on January 7, 2010. Professor A. Jayakrishnan, Vice-Chancellor, University of Kerala, delivered the Welcome Address. Dr. Madhavan Nair presented Best Poster Awards to the participants judged for Best Poster presentation in the respective sections during the 97th Indian

Science Congress. Dr. G. Madhavan Nair, ISCA made his presidential remarks and also presented plaques and certificates to the Awardees of “Infosys - ISCA Travel Awards”. Dr. Ashok K. Saxena, General Secretary, ISCA delivered the vote of thanks.

ISCA Chapters continued their activities during the year by organizing seminars, symposia, lectures, quiz contests, etc. Among various activities, the Chapters observed National Science Day, Doctor’s Day, World Environment Day, World Wetland Day, Earth Day, National Technology Day, World Health Day, World AIDS Day, National Children Day, Teachers Day, etc.

The Association feels greatly honoured for receiving active financial support from Department of Science & Technology, Government of India to carry out many of its intended activities and to execute improvements over its existing infrastructure. The attempts are being made to expand resource base and improve the fund position by effective finance management. The strength of Association lies on the strong support it is receiving from its members. I am confident that with this support, the Association will be able to fulfill its objectives in a bigger way.



(Dr. Manoj Kumar Chakrabarti)

General Secretary (Membership Affairs)
The Indian Science Congress Association

25 October, 2010

PROFILE OF THE INDIAN SCIENCE CONGRESS ASSOCIATION

The Indian Science Congress Association (ISCA) is a premier scientific organization of the country established in 1914. ISCA has been promoting science and inculcating the spirit of science through its multifarious activities. ISCA meets in the first week of January in an Annual Congress of scientists, science administrators, policy makers and the general public to give a stronger impulse and a more systematic direction to the scientific inquiry, to promote the interaction of societies and individuals interested in science in different parts of the country and to obtain a more general attention to the objects of pure and applied sciences. ISCA brings together scientists both from India and abroad for mutual interaction in the cause of national development. Annual Congress of the Association has been held every year ever since 1914 with a very distinguished scientist as its General President.

The Association was formed with the following objectives :

- (i) To advance and promote the cause of Science in India;
- (ii) To hold an Annual Congress at a suitable place in India;
- (iii) To publish proceedings, journals, transactions, etc.;
- (iv) To popularise Science.

Since its foundation, the Association has steadfastly worked to uphold its lofty objectives. The scope of its activities has expectedly increased many fold since 1914. The first Session of the Congress was held during January 15-17, 1914 at the premises of The Asiatic Society, Kolkata, with the Honourable Justice Sir Asutosh Mookerjee, the then Vice-Chancellor of the Calcutta University, as General President. One hundred and five Scientists from different parts of India and abroad attended and papers numbering 35 were divided into six sections; Botany, Chemistry, Ethnography, Geology, Physics and Zoology under six Sectional Presidents. From these relatively modest beginnings ISCA has grown into a strong fraternity with nearly eighteen thousand members – who participate in fourteen different sections of the Congress. The number of papers communicated for presentation has risen to about one thousand. After independence ISCA has been actively interacting with various foreign Scientific Academies/Associations, namely, British Association for the Advancement of Science, American Association for the Advancement of Science, French Academy of Sciences, Bangladesh Academy of Sciences, Sri Lanka Association for the Advancement of Science, Beijing Association for Science & Technology and others with a view to have a fruitful interactions on topics of mutual interest.

The year 1976 witnessed a significant departure in the trend of deliberations during the Congress. It was being felt for sometime that such a gathering of scientists, covering a wide spectrum and seized of national issues that have scientific and technological implications to adopt a cogent theme every year. In 1976, Dr. M.S.Swaminathan, the then General President of ISCA, introduced the concept of Focal Theme of national relevance which is now discussed at an Annual Session of the Indian Science Congress. Further, several plenary sessions are organised around various facets of the Focal Theme in which scientists and technologists as well as policy makers and administrators interact with one another. ISCA has thus become an important platform where members from different disciplines and from different walks of life contribute to discussions on the Focal Theme.

Another significant breakthrough was made in 1980, when the Department of Science and Technology, Government of India, set up a permanent Task Force involving representatives of ISCA and chiefs of different agencies and voluntary organizations. Chaired by the Secretary, DST, as being responsible for follow-up action on various recommendations on the Focal Theme. Every year follow-up actions on recommendations made in the previous Science Congress are discussed at a General Session organized by DST during the Science Congress. Through this process, the Indian Science Congress Association has been contributing to the development of Science in general and National Science Policy, in particular.

ISCA introduced a programme for the benefit of young scientists from its 68th Session in 1981. The Programme enables young scientists to present their proposed research work with opportunities to exchange ideas in the relevant scientific problems with their counterparts and specialists. For the best presentations, such young scientists are given the ISCA Young Scientist Award. The Young Scientist Award has been enhanced from Rs.5,000/- to Rs.25,000/- from 2006 to encourage talented young scientists.

A substantial number of the contributed papers, which are accepted on the basis of a careful screening to be done by the concerned Sectional Presidents with the help of some experts, are presented by way of posters. Further, to encourage scientists it was decided that at most two Prizes of Rs.1,000/- in cash along with a certificate be awarded to the best presentation in each section from 1999 Session. The value of these prizes has been now enhanced to Rs.5,000/- from 2007. Oral presentations of selected contributed papers are also included in the programme of each section.

The Indian Science Congress Association has instituted several Awards to honour and encourage scientists in India – mainly through special endowments received from individuals and groups and also from its own funds. The concept of instituting Awards started from 1965 onwards and presently there are about 29 Awards that are given by ISCA.

THE NINETYSEVENTH INDIAN SCIENCE CONGRESS INAUGURATION

The 97th Session of the Indian Science Congress was held at Thiruvananthapuram, under the auspices of the University of Kerala from January 3 to 7, 2010. Dr. Manmohan Singh, Hon'ble Prime Minister of India, inaugurated the Congress on 3rd January. Professor A. Jayakrishnan, Vice-Chancellor, University of Kerala and Chairman, Organising Committee, ISC-2010, Shri P.S. Veera Raghavan, Chairman, Local Organising Committee, ISC-2010, Shri Prithviraj Chavan, Hon'ble Minister of State for Science & Technology and Earth Sciences, Government of India, Shri Sashi Tharoor, Minister of State, Ministry of External Affairs, Government of India, Shri Vayalar Ravi, Union Minister (Overseas Affairs) Government of India, Shri R.S. Gawai, Governor of Kerala, Shri V.S. Achuthanandan, Chief Minister of Kerala, Shri M.A. Baby, Minister of Education of & Culture, Government of Kerala, Prof. C.N.R. Rao, Chairman, PM's Scientific Advisory Council, Govt. of India, Dr. T.Ramasami, Secretary, DST, Govt. of India, Dr. G.Madhvan Nair, General President, 97th Indian Science Congress, Prof. K.C. Pandey, General President Elect, 2011, Dr. Ashok K. Saxena, General Secretary ISCA were present on the dias alongwith other Council members of ISCA and ISCA Awardees.

Inauguration

The Congress was inaugurated on 3 January 2010 by the Honorable Prime Minister of India, Dr. Manmohan Singh, at a colourful and august ceremony in the massive Main Pandal. The dignitaries came to the dais in a formal procession as per the traditional custom of Indian Science Congress.

Dr. G. Madhavan Nair, General President, welcomed the dignitaries and reminded about the Prime Minister's deep-rooted interest and faith in science as a tool for national development. He also said that "*Students and researchers must be taught to relate what is taught in classes with real-life situations early enough, from their primary classes*".

During the inaugural address, the Prime Minister stressed the importance of Science and Technology in the development of the country as a super power in the 21st Century. He suggested that we should make special efforts to encourage scientists of Indian origin who are currently working abroad to return to India: to convert the *brain-drain* of the past into *brain-gain* for the future. He also said that the Government has announced 2010-2020 as the 'Decade of Innovations' and is looking forward to new solutions in many areas like healthcare, energy, urban infrastructure, water and transportation, to achieve our goals of inclusive and sustainable growth.

Shri Prithviraj Chavan, Minister of State, Science and Technology, Govt. of India, in his keynote address, highlighted the need for increasing the thrust on research and development in various sectors to improve the quality of life of the common man. The Minister called upon the scientific community to take up the challenges of the 21st century, which are tougher than those of the earlier centuries.

The Chief Minister of Kerala, Shri V. S. Achuthanandan felicitated 97th ISC and emphasized the need for research in basic sciences to cater to societal development and ensure social justice. He also explained the various steps taken by Govt. of Kerala for improving the quality of higher education in the State.

The Prime Minister unveiled the Plenary Proceedings of 97th ISC by handing over the first copy to His Excellency the Governor of Kerala, Shri R. S. Gawai. ISCA awards were presented by the Prime Minister to distinguished scientists and academicians for their outstanding contributions towards the development of science and technology in the country. Five special awards announced by General President were also given away. The Prime Minister also presented the coveted **India Science Award** to Prof. C. R. Rao, renowned statistician. The award carries a gold medal and cash prize worth Rs 25 Lakhs.

Dr. Manmohan Singh presented the following ISCA Awards to the following recipients :

Srinivasa Ramanujan Birth Centenary Award	Dr. Rajinder Jeet Hans Gill
M.N. Saha Birth Centenary Award	Prof. S.M. Chitre
P.C. Mahalanobis Birth Centenary Award	Prof. Manindra Agrawal
P.C. Ray Memorial Award	Dr. Ganesh Prasad Pandey
H.J. Bhabha Memorial Award	Dr. Anil Kumar
J.C. Bose Memorial Award	Prof. N. K. Gupta
Vikram Sarabhai Memorial Award	Dr. K. Radhakrishnan
B.P. Pal Memorial Award	Dr. Lalji Singh
Millennium Plaques of Honour	Dr. R. Gadagkar
	Dr. D. Datta
Excellence in Science & Technology Award	Dr. Srikumar Banerjee
Prof R.C. Mehrotra Memorial Life Time Achievement Award	Prof. R. Ramamurthi
M.K. Singal Memorial Award	Prof. Satya Deo

Dr. A. Jayakrishnan, Vice-chancellor, University of Kerala proposed the formal vote of thanks which marked the end of the inaugural ceremony, heralding the start of the various events of 97th Indian Science Congress.

INAUGURAL ADDRESS BY DR. MANMOHAN SINGH, HON'BLE PRIME MINISTER OF INDIA

“I am delighted that my first important engagement in this New Year is the inauguration of the 97th Indian Science Congress. If India has to re-emerge as a knowledge power in the 21st Century, then it can only be through developing a strong capability in science and technology. It is particularly appropriate that this Congress is being held in Kerala which has led the way in education and human resource development. I recall it was in Thiruvananthapuram that we launched India into the era of space exploration. I wish the people of Kerala - this “God’s Own Country” – a very happy and joyous year ahead.

In the past few years our Government has invested heavily in expanding and upgrading the science, technology and innovation system in our country as well as in supporting a more broad-based educational base. We have worked hard to do what is good for science. We are determined to ensure that what we have announced does get implemented. We also know that we need to do much more because scientific capability is what will determine our ability to overcome the challenges which lie ahead. We face new challenges of climate change and the management of our scarce water resources. We also face old challenges of food security and disease control. In all these areas, our success will depend critically on the quality of our institutions of science and technology.

Last month, world leaders came together at Copenhagen to grapple with the threat that climate change poses to our planet and to our way of life. It is a problem that is challenging the knowledge and wisdom of humankind. We were able to make only limited progress at the Copenhagen Summit and no one was satisfied with the outcome. And yet, there is no escaping the truth that the nations of the world have to move to a low greenhouse gas emissions and energy efficient development path.

All over the world, countries are chalking out strategies to achieve greater energy efficiency and a shift to renewable sources of energy. They are also chalking out strategies for adapting to such climate change as is inevitable. India must not lag behind in these areas. Indeed we should plan to be among the leaders in the development of science and technology related to mitigation and also adaptation to climate change. The market for such technologies is not just India. It is indeed the whole world.

As far as energy is concerned, renewable and clean energy supplies will need to play a much bigger role than what they do currently. Nuclear and solar energy supplies will need to increase considerably. The agreement reached last year with the Nuclear Suppliers Group represents a landmark in lifting long standing restrictions on the transfer of nuclear fuel and technology to India. I am confident that we can now plan for an accelerated nuclear power development programme.

We have also decided to launch a Jawaharlal Nehru National Solar Mission for the establishment of 20,000 MW of solar generation capacity by the year 2020. The mission provides an opportunity to our indigenous scientific institutions to contribute in this important area. I am very happy that a PAN IIT programme for Solar Energy Research has been launched by our Ministry of Science and Technology to drive down the costs of solar energy technology options through R&D-led innovations. The Ministry has also launched joint development programmes with knowledge networks of EU and the United Kingdom on solar energy research with investments of 5 million Euro and 5 million UK pounds respectively on each side.

We live in an increasingly complex world with growing interdependence among different sectors of our economy. Every solution to a particular problem has consequences in other areas. Take forests for instance. When we thought of forests as an economic resource the focus of forest planning was almost exclusively on growing the stock of timber and other commercially valuable forest products. This led to decisions about the choice of tree species and planting practices that we now know were sub optimal because they did not pay sufficient regard to other functions of forests like controlling water run off or for the protection of bio-diversity.

A single-minded focus on carbon reduction could lead to a similar distortion if forestry choices are based solely on how good they are in sequestering carbon. Mitigation of greenhouse gas emissions is no doubt an important goal. But it must co-exist with other equally important goals.

Water resource management is a very important area for us given the fact that per capita availability of water is declining as our population increases. The urgency of action in this area increases all the more because of the threat of climate change. The scientific input in evolving an adaptation strategy is therefore very important. I am happy that the Ministry of Science and Technology has initiated a Technology Mission for Winning, Augmentation and Renovation (WAR) of our water resources. Technology solutions for 25 different water related challenges are being found through pilot trials under real field conditions in about 60 locations covering all our 20 river basin systems. These solutions will then be applied to 100,000 population clusters to study their financial viability and location neutral applications. If the project completes successfully by 2011, it will have an important demonstration effect of the virtues of investment in scientific solutions to economic and social problems.

Strengthening food security is another important area of emphasis in our scientific and technological efforts. Better weather forecasting is critical for sound agricultural management. A Geo-spatial Technology Applications Mission to provide crop planning and monitoring as well as flood management has recently been mounted.

Developments in biotechnology present us the prospect of greatly improving yields in our major crops by increasing resistance to pests and also to moisture stress. BT Cotton has been well accepted in the country and has made a great difference to the production of cotton. The technology of genetic modification is also being extended to food crops though this raises legitimate questions of safety. These must be given full weightage, with appropriate regulatory control based on strictly scientific criteria. Subject to these caveats, we should pursue all possible leads that biotechnology provides that might increase our food security as we go through climate related stress.

Providing affordable health care and improving the quality of life of our elderly population is yet another major challenge facing us in the 21st century. It is a matter of pride that scientists of the Council of Scientific and Industrial Research have recently succeeded in mapping the genome of an Indian through a collaborative national research effort. I also commend the DRDO for developing a new and rapid diagnostic method for detecting the H1N1 virus. We need to build our scientific capabilities in a way that they can respond in real time to problems such as pandemics.

Scientific capability depends critically on our S&T education and research infrastructure. I am happy to say that our efforts to improve this base are progressing well. Since I last addressed this Congress, there has been progress on a number of initiatives.

Under the Innovation in Science Pursuit for Inspired Research or INSPIRE scheme, we will soon be announcing the name of at least one science awardee per school in the age group of 10-15 in the entire country.

Our Government is considering the revision of the value of doctoral and post-doctoral fellowships as well as the formulation of schemes that would cover all research scholars with some funding support.

We are keen to make our science education outreach inclusive and also affordable. Last year I had announced a special package for the North Eastern Region. We have since started implementing a similar package for the Science & Technology sector in Jammu and Kashmir. We are planning similar investments in other regions of our country like Bihar to bridge asymmetries.

One of the imbalances in our scientific resource pool is the under representation of our women. We should redouble our efforts to attract many more talented young women to take up careers in science. A step in this direction is a new scheme now available for women's universities named Consolidation of University Research, Innovation and Excellence (CURIE). This scheme provides financial help for complete upgradation of facilities in these universities.

I am happy to announce that the National Science and Engineering Research Board will start functioning before March 2010. A National Policy for Data Sharing and Accessibility has also been formulated. The Protection of Intellectual Property Bill, focusing on sharing revenue from intellectual properties with researchers will be taken up for discussion in parliament very soon.

All Indians felt proud that an Indian origin scientist, who earned his early spurs in India, was a recipient of this year's Nobel Prize in Chemistry. I salute Dr. Venkatraman Ramakrishnan for his creativity, his talent and for his deep commitment to good science. I have also noted Dr. Ramakrishnan's recent comment on the need for greater "autonomy from red tape and local politics" for Indian scientists.

It is unfortunately true that red tape, political interference and lack of proper recognition of good work have all contributed to a regression in Indian science in some sectors from the days of Dr. C V Raman, Meghnad Saha, J C Bose, Homi Bhabha, Vikram Sarabhai, Satish Dhawan and other great pioneers of Indian science.

I urge all our scientific institutions to introspect and to propose mechanisms for greater autonomy, including autonomy from the government, which could help to improve standards for research and development. We must make a special effort to encourage scientists of Indian origin currently working abroad to return to our country including coming to our universities or scientific institutions for a short period. In this way we can, convert the "brain drain" of the past into a "brain gain" for the future. This will require special incentives. We need to think creatively on how this can be done so that high quality minds are attracted to teaching and research in our country.

Much of what we have to do to improve science requires money but this is only one part of what is needed. It also requires a change in mindset, including, if I may say so, the mindset of senior faculty and university administration. Sometimes that is the hardest thing to do.

I invite you all to explore all these issues and engage with the Government so that we can do what is needed to liberate Indian science from the shackles and deadweight of bureaucratism and in-house favouritism. Only then we can unleash the latent talent and creative energies of our vast scientists and engineers too.

Our Government has declared 2010-2020 as the “Decade of Innovations”. We need new solutions in many areas to achieve our goals of inclusive and sustainable growth – in healthcare, in energy, in urban infrastructure, in water management, in transportation, to name only a few. We cannot continue with business as usual. Solutions from developed countries available are also not applicable all the time. They are often too costly and at times not sustainable.

The country must develop an Innovation Eco-system to stimulate innovations. Innovators must be challenged to produce solutions our society needs. And innovative solutions with potential must be nurtured and rapidly applied.

Our scientific establishments must be central to the Innovation Eco-system. But this system must include industry, and providers of venture funds, as well as regulators who set high standards of performance for their products. We also need to think creatively on how to increase private investment in R&D. Some innovative policy readjustments may be required to build vibrant Public-Private Partnerships in the Science & Technology Sector.

Our elite institutions such as the IITs must do more to address the technological challenges of the 21st Century. Their research goals and the expectations of the industrial and social sectors must be better aligned.

The Planning Commission has recently set up an Expert Group to strengthen the Innovation Eco-system in the country and also to point to areas where innovations are required to meet our country’s goals of more rapid, more inclusive, and sustainable growth.

I have said the Indian scientific establishment is a vital component of the Innovation Eco-system. But to fulfill its role, it should have a strong outward orientation. It must work in partnership with industry. We need to concentrate on strengthening the linkages between academic institutions, research institutions and industry. Today each operates within its own silo. Unless we close those gaps, our research and development sector may report high performance in terms of published papers but our challenges of the 21st century may still remain unsolved.

Lastly, Indian science should have a strong outward orientation. Our science establishments should step up global alliances that will expose our scientists to the best in the world and enhance our competitiveness.

The time has come to give a new boost to science and technology in India. I hope the 97th Indian Science Congress will come forward with specific proposals to this end. I hope each one of you will return to your laboratories and class rooms re-energised to do good science, and do it for the good of our people, and for the good of humanity at large.

In conclusion, I wish you all a very happy, prosperous, purposive and peaceful New Year and I wish your proceedings all success.”

Keynote address of

SHRI PRITHVIRAJ CHAVAN

Hon'ble Minister of State (Independent Charge) for
Science and Technology and Earth Sciences;
Hon'ble Minister of State in the Prime Minister's Office;
Personnel, Public Grievances and Pensions and
Parliamentary Affairs
Government of India

Dr. Manmohan Singh, Hon'ble Prime Minister of India; Shri R.S.Gawai, Hon'ble Governor of Kerala; Shri V.S. Achuthanandan, Hon'ble Chief Minister of Kerala; Shri Vayalar Ravi, Hon'ble Union Minister for Overseas Affairs; Shri M.A. Baby, Hon'ble Education Minister, Government of Kerala; Shri Shashi Tharoor, Hon'ble Minister of State for External Affairs; Dr. G. Madhavan Nair, the President of Indian Science Congress Association, Professor C.N.R.Rao, Chairman, PM's Scientific Advisory Council; Dr. T.Ramasami, Secretary, Department of Science & Technology; other distinguished dignitaries on the dais, awardees, delegates, guests, representatives of the media, ladies and gentlemen....

A very good morning to all of you. Let me also wish you and your families a very happy new year in 2010.

1. The Indian Science Congress has been convened for the 97th time, here at Thiruvananthapuram. Let me congratulate Dr Nair, the Indian Space Research Organization, University of Kerala and the Indian Science Congress Association for organizing the annual session at this venue. The annual session provides an opportunity for the scientists, policy makers and the political leaders to meet at a common platform, review and plan the way forward for the Indian science sector. We met last time in the Himalayan setting of Shillong. We are now meeting at the shores of Arabian Sea here at Thiruvananthapuram.
2. Although the Indian economy has done reasonably well in spite of the global recessionary trends, these are challenging times for the world as a whole and the Indian science sector is no exception. The world leadership is also seized of the issues related to the impact of global warming and looks upon the scientific community to help understand the phenomenon and to find solutions.
3. Since the last meeting in Shillong, there have been some important developments in the country. Our Government has been re-elected with a more decisive mandate and carries a burden of enlarged expectations from people. These pose new challenges which we must face. But let us first take stock of few new initiatives taken in some key areas of science and technology in recent years and also where we stand globally in terms of S&T outputs.
4. Last annual session of the Indian science congress had its focal theme as "Science Education and Attraction of Talent for Excellence in Research". The session had discussed India's plan in addressing the challenge of attracting best brain to science. Department of Science & Technology's initiative to attract best students known as INSPIRE (Innovation in Science Pursuit for Inspired Research), launched by the Hon'ble Prime Minister in December 2008, has been received with enthusiasm by the educational system and the youth. Early indications are highly favorable. We

will accelerate the implementation of this programme. Number of candidates receiving NET (National Eligibility Test) Fellowship has been doubled during the last two years. Special schemes to attract talent to science have been mounted by almost all departments of science and technology in their respective knowledge domains. Scientific departments have embarked upon plans to pool their resources and work towards a target of increasing the combined annual PhD output in science, engineering, technology, medicine, agriculture and veterinary sciences to 10,000 within the next four years. Our science ministries have been able to establish as many as 12 new research institutions and set up seven types of new fellowship schemes during the last few years.

5. Synergy has been built between Government research institutions and the universities with a focus on rejuvenation of research in the academic sector. FIST (Fund for Infrastructure Strengthening) programme has been reoriented and a large percentage of investments have been made to support research in three major initiatives viz., (a) Special packages for J&K and North Eastern Region, (b) PURSE (Promotion of University Research and Scientific Excellence) and (c) CURIE (Consolidation of University Research and Innovation and Excellence) for women. Department of Biotechnology and Department of Atomic Energy have initiated special flagship programmes for rejuvenating research in the universities. Department of Space has established a Space university and CSIR has made a proposal to establish an Academy to award post graduate and PhD degrees. These initiatives will go a long way in enhancing the engagement of academic sector in frontline research.
6. With rapid increase in number of Institutions of higher education in the country, we are facing serious shortage of faculty. We need creative solutions for addressing this challenge. We could encourage reentry programmes for our women scientists and return of Indian Diaspora. Global partnerships could be another method to increase our capacity to meet the faculty shortage.
7. There has been considerable improvement in quantitative output of the Indian science research due to initiatives taken in recent years. 'Global Research Report-India' by Thompson Reuters released in October, 2009, indicates positive trends with respect to scientific publications. India's research output has increased substantially since 1998. Annual growth rate of scientific publications in the world is currently about 4% while the average Indian growth rate during the last five years is about 12%. Our ranking in output of scientific publications has improved from 15th position in 2002 to 10th position in 2008. According to Scopus data base, India will emerge as the ninth important country in scientific publications by 2010 ahead of Spain. With increase in number of PhDs in science, there will be further improvement in the growth rate of scientific publications.
8. Relative ranking of India as source of IPR in terms of patents filed and granted in the USA has improved from 25 in 2000 to 19 in 2006. However, there is still a room for significant improvement in the generation of intellectual property. Although there are positive trends in patenting culture in the country, the significance of a large share of patents filed by foreign nationals in India needs to be understood. Currently, the ratio of patents filed and granted in India to foreign nationals as compared to Indian nationals is about 2:1. This is an indication of India emerging as a market for products manufactured through IPR protected technologies

in competitive global economy. Engagement of private sector in generation of intellectual property will be essential for improving the global competitiveness of India. I am happy to inform that the TKDL (Traditional Knowledge Digital Library) developed by our scientists will not only protect our traditional knowledge but it will be used by the European Patent Office and the US Patent and Trade Organisation for prevention of grant of patents based on traditional Indian knowledge.

9. CSIR with a large network of 37 labs, has spearheaded industrial research in India. Development of technologies in aero space sector as well as R&D on photovoltaics and solar energy has been strengthened. Prototypes for several pro-poor innovations have started flowing from our laboratories. Technologies for biomedical devices and Nanotechnology based ceramic filters for safe drinking water have gained acceptance for commercialization. We are proud of the achievement of our young scientists who have placed India in the Global Genome Map by fully sequencing genome of an Indian. National Biotechnology Development Strategy was approved by the Government in 2007. Department of Biotechnology has already put in place 90% of the deliverables laid down in the strategy well ahead of time. This is expected to ensure a sustained growth rate of 20-30% in bio-technology industry which would provide favorable environment for promoting research-industry collaborations in the future. Research in Agrobiotechnology sector has important implications for India's food security. Initiatives in health sector have resulted in India becoming a global hub for development and manufacturing of affordable vaccines. Several initiatives to promote translational research and innovations in biotechnology and life science areas have been taken. BIPP (Biotechnology Industry Partnership Programme), BIRAC (Biotechnology Industry Research Advisory Council), SIBRI (Small Business Research Innovation) and NMITLI (New Millennium Indian Technology Leadership Initiative) are some major schemes promoting R&D in Biotechnology Sector, which have become very popular in industry. Ministry of Earth Sciences has been making concerted efforts to modernize earth observation system in the country. Establishment of a state of art "Tsunami Warning Centre", Ocean observation system, weather observation and modeling capabilities, and Atmospheric Physics are some of our priorities. A Multi parametric seismological observation capability has been developed. Possibility of earthquake prediction is being seriously explored.
10. International Cooperation in the field of S&T of India has grown several fold during the last few years. Large projects developed on the principle of shared objectives, co-investments for co-generation of values, built on reciprocity and parity, are being jointly funded. We have cooperation agreements with over 80 countries. Technology focused initiatives like Science Bridges with UK have opened up new possibilities and mechanisms to forge academyindustry alliances and partnerships.
11. But there is no room to be complacent. Challenges are enormous. Science of the 19th century was primarily scholarship driven and focused on understanding nature and natural phenomena. Passion, curiosity and pursuit of knowledge were driving factors of global science. During the 20th Century, market forces started to influence science. Technology is now mostly market driven. GERD (Gross Expenditure on Research and Development) has emerged as one of the important

parameters for assessing the technology and innovation status of Nations. During the last quarter of the 20th century, global investments into R&D scaled new heights reaching more than a trillion dollars. Share of technology-led growth in GDP increased to as much as 25-50% in several countries.

12. World wars propelled large investments into science and technology which enabled United States of America and USSR to emerge as major global powers during the middle of twentieth century. Their capacity to dominate the world was strongly related to their strength in science and technology. However, during the twenty first century, resurgence of major Asian economies will usher into a new world order. It is widely believed that 21st century will belong to China and India on account of strength of their economies and human resources. Since the next wealth creation opportunity will undoubtedly depend on science, technology and innovation, a major challenge in 21st century will be in relating the knowledge to economic outcomes and ability of science and technology system to innovate at affordable costs. Governance systems for promotion of innovations will face hitherto unknown challenges and would require new approaches.
13. The science, technology and innovation has to play a key role in two distinct areas. These are : (a) to provide improved quality of life and opportunities to each citizen of the country and (b) to step up achievements in different pursuits of science which can take India to leadership position in world science. The objective of providing improved quality of life and opportunities to every citizen of the country would entail addressing the following grand challenges :
 - Energy security
 - Food security
 - Water
 - Affordable Healthcare for all
 - Terrorism and Internal security .
14. There is congruence between the global concern for climate change and India's concern for energy security. Answers to both lie in building capacities for alternate energy sources like solar, wind and nuclear. A PAN-IIT initiative in solar energy research and joint network programme with EPSRC (Engineering and Physical Sciences Research Council) of UK on Solar PV has been set up. National laboratories under CSIR have stepped up R&D for solar energy based technologies. As India has abundant supply of coal, it is not possible to give up coal based option for energy production in the near future. Therefore, research on clean coal technology would remain crucial for the country.
15. To address the challenges of food security, geospatial data inputs for crop planning and monitoring using special algorithms have been developed and made available to several states. New cultivars, prototypes for a low cost tractor (*Krishi Shakti*) and several other agriculture implements, indigenous technologies for potash, seed quality assessment systems and agrobiotechnology initiatives for increasing the crop productivity are some important leads from the Ministry of Science and Technology. Ministry of Earth Sciences has launched a major modernization programme for enhancing the capabilities for weather forecasting. Also a district-level agro-meteorological advisory service started last year, is now being expanded to reach

- out to farmers at sub-district levels. The service helps the farmers to increase productivity in the face of uncertain weather.
16. Science ministries have taken up several initiatives to address the challenge of water security. A Technology Mission on “Winning, Augmentation and Renovation” for Water has been mounted by the Department of Science and Technology with an outlay of Rs 145 crore over 2 year period. Ministry of Earth Sciences has set up two desalination plants one for producing 1 lakh litre per day and the other for 1 million litre per day of clean drinking water using Low Temperature Thermal Desalination Technology in Lakshadweep and Chennai respectively. CSIR has developed Thin Film Composite (TFC) reverse osmosis (RO) high flux membrane which helps to recover process water from domestic sewage through tertiary treatment. A one million liters/day capacity plant has been successfully operating at Chennai for over three years. Arsenic/iron removal technology based on ceramic membrane for the production of safe drinking water (conforms to WHO standards) from contaminated ground water has been transferred to industry.
 17. Our NAPCC (National Action Plan on Climate Change) has enunciated eight national missions. These missions require affordable solutions to problems of water, efficient energy use, transportation, green agriculture, sustainable habitats, strategic knowledge and sustaining Himalayan ecosystem including glaciers. The Indian S&T sector should gear itself to engage in the research dimensions of NAPCC.
 18. In the area of affordable health care for all, CSIR has mounted OSDD (Open Source Drug Discovery) for infectious diseases with global participation which has identified new molecular entities for a number of therapeutic targets. A new anti-Tuberculosis drug based on CSIR technology has now been launched. Number of new initiatives and programmes on affordable health care have been mounted by the Government of India. Ministry of Earth Sciences has strengthened research on drugs from Sea and polar region. Research on low cost biomedical devices are being actively supported.
 19. India enjoys significant advantage of high return per dollar invested into research and development. This could be leveraged by the Indian science and Technology sector as an opportunity at a time when the global economic crisis has diminished the Global Gross Expenditure on Research and Development. The comparative strength of the Indian R&D sector could be converted into competitive advantage through strategic actions and timely investments into R&D.
 20. The Government of India has unambiguously stated national priorities through the address of the President of India to the Houses of Parliament. A “Decade of Innovations” has been articulated as the National policy. The Indian R&D sector should gear itself to fulfill the promise and deliver innovative technology solutions rather than technologies. Private sector would have to play a major role in this endeavour.
 21. Technology solutions complete with business and revenue models for applications in enterprises as well as community based interventions offer vast opportunities on account of growing market for consumer goods and developmental requirements. Indian market is a highly differentiated market. “Reaching the un-reached” itself demands innovations of marketing. Whereas the majority of the global innovation systems are focused primarily on process of innovations, there

is a unique opportunity for the Indian R&D sector to address the challenges of innovations for inclusive growth.

22. In the global assessment of innovation index, Indian position is not favorable. There is a need to develop a suitable Science, Technology and Innovation policy framework since India's current Science and Technology policy was enunciated in 2003.
23. Global Economic crisis has affected the global investments into science, technology and innovations. With slowing down of the Global economic growth rates, importance and essentiality of International S&T cooperation are being widely recognized. Thompson Reuters's report on India specifically comments about the need for G8 countries to invest in building S&T relationship with India. India must therefore develop appropriate global strategic alliances.
24. Successful implementation of the Eleventh Plan for Science and Technology will result in :
 - a. Larger investment into R&D as a percentage of GDP,
 - b. Enlarged R&D base,
 - c. Larger enrollment of youth into scientific careers,
 - d. Improved competitiveness of India as evidenced by S&T outputs indicators,
 - e. Improved participation of Indian industry into R&D and
 - f. An enabling innovation ecosystem which connects knowledge to wealth creation.
25. At the end of the eleventh plan, India might need a strategy to assess and measure the economic impact of R&D and technology-led GDP growth and prepare a road map for adequate investments into the Science, Technology and Innovation during the Twelfth Plan. It is known that Gross Investments into Research and Development form an important indicator of global competitiveness. Past investments have laid the foundation for further strengthening the R&D base of the country. Directions of growth are in the right direction. Hon'ble Prime Minister has expressed his commitment to increase the National outlay for Research and Development to 2% of Gross Domestic Product from current level of about 1%. This would require an increase of R&D expenditure by at least 20-25% annually. It is now equally important that we increase the ability of the sector to absorb the additional resources.
26. Our future strategy should serve to a) enhance synergy among academy, research and industry, b) build new strategies for development of private-public partnerships in R&D and c) step-up global alliances developed during the Eleventh Plan and d) aim at acceleration of the pace of conversion of scientific outputs to targeted socio-economic and developmental outcomes.
27. In conclusion, I must say that Global challenges of 21st century for science and technology are tougher than those of earlier centuries. Technologies and lifestyles of 19th and 20th centuries may have caused global warming problems. Technologies of 21st century should find solutions and enable reversal of the problem. National Decade of Innovation having been enunciated, the Indian science and technology sector must emerge as the innovation hub of the world. We would need a new policy framework and new approaches to planning and implementation. We should work with cohesion and synergy. We should seek collaborative rather than competitive excellence. Our goals must focus on India of the 21st century. There is an opportunity waiting for us to make a difference to the life of the common man. Let us live upto his expectations.

Jai Hind!

PRESIDENTIAL ADDRESS BY DR. G. MADHAVAN NAIR, GENERAL PRESIDENT.

Hon'ble Prime Minister of India Dr. Manmohansinghji, His Excellency the Governor of Kerala Shri RS Gavaiji, Hon'ble Chief Minister of Kerala Shri VS Achutanandan, Hon'ble minister for Overseas Indian affairs Shri Vayalar Ravi, Hon'ble Minister of State for Science and Technology Shri Prithviraj Chavan, Hon. Minister of State for External Affairs Dr. Shashi Tharoor, Hon. Minister for Education for Kerala Shri MA Baby, the Chairman of the Scientific Advisory Council to the Prime Minister Prof. CNR Rao, My Esteemed Colleagues on the dais, our guests from India and Abroad, Distinguished Delegates, Representatives from the Media, Students, Ladies and Gentlemen.

I deem it a great privilege to address the august gathering of the 97th session of Indian Science Congress. At the outset, I would like to thank the Hon'ble Prime Minister, Dr. Manmohan Singhji whose very presence here today is symbolic of the deep rooted interest and faith that he has in science as a tool for national development. I have great pleasure in extending a warm welcome to you sir. It is with great pleasure that I am welcoming all of you to Kerala- God's own country and to the picturesque Thiruvananthapuram, the venue of the 97th session of the Indian Science Congress. The Indian Science Congress is being held in the Capital of Kerala for the first time. This is a red-letter day in the history of Thiruvanthapuram and for the scientific community of Kerala. I wish to acknowledge the excellent support provided by the Government of Kerala and the Chief Minister in this regard. The Education Minister has taken personal interest in ensuring success of the congress with his wholehearted support which I gratefully acknowledge. I wish to sincerely thank all of you for making this event possible and for your esteemed participation. I extend a warm welcome to all the delegates especially those from abroad who have taken pains to join us at this prestigious 97th session of the Indian Science Congress. The students, the academic staff and other officials of University of Kerala and personnel from ISRO and its centre at Thiruvananthapuram deserve special appreciation, as they have spared no effort to ensure the success of the congress. I extend a warm welcome to all of you too.

The theme for this congress—'Science and Technology Challenges of the 21st Century—A National Perspective', chosen after extensive deliberations and discussions with the Indian Scientific Community, clearly defines the goal of the congress. Plenary sessions with the participation of eminent scientists have been arranged. Besides the theme session, sessions on energy, food and nutritional security, weather, climate and environment, bio-medical research, biotechnology, nano-technology, bio-diversity and sustainable development and information technology will also be in focus. The highlights of the congress are the space summit with the participation of major space faring nations, university meet, vigyan sancharak sammelan and a children's science congress.

Science and technology has been in the forefront in the transformation of the social structure of India, helping it to evolve as a globally competitive economic power. With the available scientific manpower- which is the third largest in the world- the Indian science and technology is bound to assume a significant role in rearing the status of the country to that of a developed nation by 2020. To this end, this 97th session of the Indian Science Congress is going to play a significant role.

I would now like to high-light some of the challenges in the Science and Technology sector in our country.

The hallmark of development of any nation is the state of advancement it has made in Science and Technology. The western world took a lead, post the industrial revolution and exploited modern technology for providing products and service to improve the quality of life of humankind. The lead taken by these countries enabled them to capture global markets whereas in India the real effort in furthering scientific research and development has taken place only after independence. In this short time span the achievements made by the Indian scientific community is commendable. Developments in the fields of agriculture, atomic energy, space research, Information technology, bio technology etc speak volumes about the capabilities of the Indian Scientific community and can match international standards at all levels.

While achieving excellence in the past century, the need of the hour is to ensure that we focus on new scientific initiatives and their applications to meet the needs of society especially the rural masses, that constitute the majority of the Indian population. We need to find solutions to ensure security of food and energy, potable water, modern health care and quality education to all strata of society irrespective of their means and wherewithal.

The first green revolution in the 60s has ensured the availability of food-grains to all the people in the country. However, there is still scope for considerable improvements in the productivity and use of natural resources. Our population is still growing at about 2% per year and to meet the requirements of the people by year 2020, the production of food-grains has to be enhanced to 250 million tonnes/year from the current level of 220 million tonnes/year. This can be achieved only by enhancing agriculture productivity from 1.7 to at least 2 tonnes per hectore by 2020. Improving the quality of the seeds by appropriate bio engineering techniques, use of sophisticated fertilizers using the advance of nano-technology and developing plants which can survive under harsh climatic conditions are some of the requirements.

Energy is the prime factor that drives economic growth. Per capita energy consumption in the country is less than 1/10th of some of the developed nations. As the national development programme is implemented and the quality of the life of the people improve, the energy consumption also will go up considerably. On the one side there is a need for enhancing the electricity production using conventional methods; but on the other side we need to consider the fast depletion of hydro carbon fuels and alleviate problems of environment pollution by cutting down the levels of emissions. There is strong need for developing alternate sources of energy. Even today nearly 40% of energy requirement especially in the rural areas are met from fire wood, crop residue, animal waste, etc. Improving the quality of generating energy from such natural products in one of the challenges.

For a vast country like India, one needs to device cost effective means to tap wind a solar energy. Alternate and renewable sources of energy will have to play a major role in meeting the demands of growing population. Among these, the wind and solar energy are major sources and R&D efforts in these areas needs to be strengthened. Towards harnessing wind energy, the knowledge if aerodynamics and structures will have to be synthesized, to arrive at large capacity wind turbines with higher efficiency and operations over large dynamic range of winds.

The basic technology for realization of solar cells with higher efficiencies demand basic research in material technologies related to gallium arsenide, silicon and polymers. It is not only sufficient that these processes are developed in laboratories but the basic equipments for mass production also need to be conceived and realized. Using the advances in polymer and nano-materials, there are possibilities of realizing solar electric converter which could achieve 50% efficiency.

Hydrogen is going to be the fuel of the future. Hydrogen today is available as a by-product from chemical processes. However, the ideal solution could be deriving hydrogen using solar energy through the concept of solar concentrators with catalytic decomposition of water. Hydrogen thus produced could be burnt for driving turbo electric generators. A more efficient way of utilizing hydrogen is with fuel cells which can find wide variety of application starting from automobiles to domestic applications. Investment in the development of low cost and high efficiency fuel cells can pay rich dividends in the long run.

Nano-technology is yet another area which can contribute to revolutionize the future demands of agriculture, healthcare and high strength materials. While the technology itself is evolving at a fast rate, it promises diverse and revolutionary applications. Biological gadgets that monitor activities, at all level, miniaturized computers, materials with improved properties and self healing capability are some example for future.

The bio science and genome research are going to revolutionize applications related to human health and environment security. Of particular interest is the unveiling of the whole sequence of the human genome and the efforts to analysis the genomes of plants and other organisms that have an important bearing on diverse aspects of human well being. A spectrum of technological capabilities unfolded by bio sciences include ability to splice genetic material, transfer genes and genetic engineering and cell fusion technology, bio process technology, etc. Research in this area can lead to major achievements including work on transgenic crops with disease resistant capabilities, nitrogen fixation and production of vaccine, enzymes and recombinant proteins.

The life style of modern human being is totally revamped by the information technology. Already, applications of information technology extend to several fields such as agriculture, health, education, human resources development, industrial systems for production and marketing, management, etc. Conceiving application programmes to model physical phenomena, chemical process, bio evaluation, etc. will demand lot of efforts form young scientists and IT professionals.

The monitoring of climate and environment is another major area of both national and global concern and needs to be addressed adequately. To evolve appropriate sensors both space borne and ground-based for monitoring the atmospheric pollutants, depletion of ozone layer, assessment of green house gases, etc are priority areas. Modeling the influence of various atmospheric constituents on the short term and long term weather is multi-disciplinary challenge for the young generation demanding basic understanding and broad vision.

Advances in Medical sciences and immunization are absolutely a major priority for the highly populous India, which has an ambitious quest in prevention, early diagnosis and treatment of various diseases that affect the population, particularly the poorer sections. India also has ambitious targets for total eradication and control of diseases like polio, leprosy, kalazar and lymphatic filariasis, and to achieve zero growth of HIV/ AIDS.

One of the greatest advances of medical sciences during the last century is the discovery and use of vaccines that played a major role in prevention of infectious diseases. Several deadly diseases that afflicted large populations such as small pox could be obliterated at a global level and several others like measles, polio myelitis are targeted for a total eradication. Recent advances suggest that apart from their role in the control of infectious diseases, vaccines can also assist in tackling other problems such as carcinogenesis and auto immunity. The developments in recombinant DNA technology, genetic sequencing and other techniques such as a tissue culture make it possible to generate vaccines that contribute to Food security through DNA and transgenic plant vaccines. Coupled with the understanding of the microbial transmission in populations, vaccines' role in future immunization and prevention is going to be critical.

Research and development in almost all branches of Science and Technology need a major thrust in the coming decades. But there are many hurdles to be overcome. As it can be seen, research and development in number of institutions in the country under the universities, IITs, IISc's, etc., and National laboratories under DST, CSIR, DRDO, DAE and DOS are funded by the government.

The innovation and challenges in technology required to solve the societal problems are quite complex and demanding. In addition to massive investment in terms of infrastructure, there is a strong need for the development and identification of scientific talents. We may have to make radical changes in our educational system and our approach to scientific research. Initiation of young generation has to start right from school stage onwards. Adequate lab facilities at schools and colleges are to be provided for exposing them to challenges of experimentation and scientific pursuit. Kindling scientific spirit and explorative spirit in young minds also requires equally talented scientific communicators and teachers.

While encouraging the youngsters to pursue advanced research schemes, there is a need for creating a cadre of scientific managers. Today the country is willing to invest more funds in R & D areas. It demands, synergised efforts of various scientific groups and streamlined processes and procedures which will enable speedy acquisition of equipments and facilities to enable scientific groups to keep pace with the fast changing outside world.

It is clear that a major thrust is required in research and development in almost all branches of science and Technology. The main problem, however, is that the fabric of Indian science presently is not in tune with the requirements of modern research. It needs to be less hierarchical, less bureaucratic and more participatory. In all the leading research centres of the world there is a well established tradition of synergic interaction not only between the laboratories and the universities, but also among the members of the scientific community which is very much lacking. Here most of the laboratories operate in isolation. Whatever little innovative research done in these laboratories, seldom finds any takers in the market, as a result, such research rarely get translated into technologies for industrial production. Leading industrial houses should be invited to adopt such of the laboratories which are useful to their operations. Laboratories engaged in significant areas of research should be constituted into autonomous corporations or trusts, managed by professional and independent boards of governors. Only with such restructuring would it be possible to make optimum use of these assets, provide adequate finances for scientific research, as also foster a culture free from the constraints of seniority and hierarchy.

In all the developed countries, the universities act as the prime movers of scientific research and serve as feeders to the specialised laboratories. Unless we create proper facilities and environment for research in the universities, truly innovative work at the cutting edge of science and technology will not get done. No doubt lack of better work culture and living standards also are factors that drive a lot of talents out our country.

It is not very difficult to analyze and say that the IT revolution in the country is the result of the basic strength in mathematics and science in our schools acquired in the 1950 s and 1960s. Most of the Nobel laureates started with a solid foundation in the basic sciences and later applied their knowledge and skill to solve the societal issues. Our research laboratories have to get into that mode. Hence it is not a surprise that the post independence era has seen very few Indian Nobel laureates. We are finding more of technologists who can find solutions to immediate problems rather than scientists who can pursue challenges of basic science and exploration of nature and its phenomena.

Major achievements in science can be made only with proper synthesis of science and technology. This also needs a multidisciplinary approach. We need a truly interdisciplinary form of science education which allows free flow of knowledge and ideas that migrate from one area to another. Students and researchers must be taught to relate what is taught in classes with real life situations early enough, from their primary classes, so to speak.

We should not become a nation that produces only job seekers, who feel no passion about what they study or whoes commitment to knowledge acquisition is only so far as the future career prospects. I am sure during the Science Congress detailed deliberations will take place on many of these issues.

In this session of the Science Congress, fourteen sessions are being organized to be convened in parallel by sectional topics which will also have detailed individual discussions. I am sure this will lead to meaningful recommendations at the end of the congress and will be followed up in the true spirit in which the Science Congress is constituted.

Once again I would like to extend a warm welcome to all the delegates from the national and international scientific community, and wish a pleasant stay in Trivandrum, in this part of God's own country as well as with successful deliberations in their respective sessions.

I conclude with the famous Sanskrit quote '*Sarva saastra prayojanam aatma darshanam...*' the purpose of all scientific endeavour is to know your own self. . .It has no prejudices, it assumes nothing, it takes you wherever it leads you, to the ultimate truth of things.

Thank you

PUBLIC LECTURES AND PLENARY/PANEL SESSIONS

Special Session on the Focal Theme

The first event was a special session on the focal theme of the Congress namely *Science & Technology Challenges of 21st Century - National Perspective*, featuring Dr. Kasturirangan, Dr. S Banerjee and Dr. MS Swaminathan, among others.

Dr. Kasturirangan, Member (Science), Planning Commission, called for the Twelfth Five Year Plan to focus on increasing the role of science and technology. He introduced two terms *Solution Science* and *Discovery Science*. The former aims for developing scientific solutions for socially relevant problems to improve the living standard of the people, while the latter focuses in making scientific discoveries in order to gain leadership positions in the realm of science and technology.

Dr. Kasturirangan highlighted Water, Food and Energy Security as our major national challenges in the 21st century and pointed out low availability, poor quality and indiscriminate use as the causes of water scarcity in India.

“The contribution of nuclear energy should increase from the amount of three percent to ten percent by 2032” said Dr. S Banerjee, Secretary, Department of Atomic Energy. He pointed out that the capital cost of producing nuclear energy in indigenous reactors is 30-50% less than the international cost and urged that India should utilize its large deposits of Thorium instead of Uranium. Dr. Banerjee also described the working principle of a Pressurized Heavy Water Reactor (PHWR).

“Even a 10 deg C rise in global temperatures will reduce the wheat production in India by 6 million tonnes/year which is \$1.3 billion at current prices” warned Dr. M S. Swaminathan while presenting a paper on the topic *Sustainable food security in an era of climate change*. He suggested giving assured and remunerative prices to farmers and the practice of mixed farming which will provide at least one crop in case of a change in the weather pattern. He called for the establishment of 50 modern grain storage facilities of 1 million ton capacity each at different parts of the country to face the scarcity of food crops due to droughts or floods. He advised agriculturists to study the *Kuttanad style of farming*, where rice is cultivated 2.6 m below sea level. This is to enable us to face the challenges in food production due to rise in sea levels by global warming.

Dr. VS Hegde, Scientific Secretary, ISRO HQ., was the coordinator of the session.

Special Session on Science Programme for the Country

This session conducted on 3rd January was chaired by Shri M A Baby, Hon Minister for Education, Govt of Kerala. Secretaries of Government Departments and Director Generals of National Organisations were the speakers. Dr. M.S. Swaminathan, father of the *Green Revolution* in India, graced the occasion with his presence.

Dr. T. Ramasami, Secretary, Dept. of Science and Technology (DST) elaborated on the recent developments in the field of Science and Technology in the country, as well as the directional changes in DST. He touched upon new initiatives like PURSE (Promotion of University Research for Scientific Excellence), Innovation Clusters and WAR (Winning, Augmentation and Renovation) mission for water and hoped for expansion in the role of DST.

Dr. K. Radhakrishnan, Secretary, Dept. of Space and Chairman, ISRO spoke on *Space for National Development : A Roadmap for the Future*. He pointed out that space science is a significant player in the socio-economic development of the country. Studies have validated the economic viability of the Indian Space Programme. The commendable achievements by ISRO in the last 45 years as well as the future projects envisaged were elaborated. Space based services and applications in food and

water security, weather and climate, environment and ecology, education and healthcare, skill development, rural communication, disaster management and infrastructure development will go a long way towards providing services to the common man.

Dr. Shailesh Nayak, Secretary, Ministry of Earth Sciences (MoES), spoke on *Earth System Science Programmes*. The aims and services provided MoES were elaborated. These include understanding climate change, improving climate, exploring ocean resources, disaster support, ocean mineral resources, deep ocean mining technology, hatchery technology etc. The future activities include monsoon mission, High Altitude Cloud Physics Lab, Mountain Meteorology for Himalayas, Integrated development of Islands and training schools for Climate Development.

Dr. Sreekumar Banerjee, Secretary, Dept. of Atomic Energy (DoAE), spoke on challenging issues like Reprocessing Spent Fuel, Thorium technology and Reverse Osmosis for providing clean drinking water. He announced that many programmes were on the anvil for energy production including setting up a second research centre at Vizag dedicated to Environment and Energy.

Dr. V. K. Saraswat, Director General, DRDO, spoke on *Defense Science and Technologies*. He pointed out the mission of DRDO as the design, development and production of state-of-art defense systems and technologies. Details of combat aircrafts, Unmanned Air systems like Lakshya, Nishant, Rustom, and Kaveri engine for aircraft propulsion, and main battle-tank Arjun and Arjun Mk-2 were presented. He also elaborated on the electronic warfare systems for the army (*Samyukta*) and the navy (*Sangraha*). Some of the future missions planned were also specified including Endo and Exo atmospheric ballistic missile defense: at altitudes of 15 km and 150 km.

Dr. Samir K. Brahmachari, Director General, CSIR, spoke about the years of innovation carried out by CSIR. He described the wide reach of CSIR through its many labs and outreach centers across the country and its contributions to the country like the indelible ink we use during voting, baby food from buffalo milk, India's first parallel computer Flosolver, provisions for educational scholarships etc.

Dr. V. M. Katoch, Director General, ICMR, elaborated on the aims of the Dept of Health Research namely - bringing modern health technologies to the common man, and promoting innovation in diagnosis and treatment techniques.

Shri M. A. Baby, quoting Goethe, said *Science and Art break all barriers* and concluded the session with the message that when we develop science, we have to develop a scientific temperament as well.

Dr. Kamal K Dwivedi, Advisor, International Division, DST, coordinated the session.

Space Summit

The special session on Space, the lead event on 4th January, the second day of 97th ISC, was chaired by Dr. K Radhakrishnan, Chairman, ISRO. Eminent scientists representing many of the space-faring nations of the world participated.

Prof. U R Rao, former Chairman, ISRO, predicted the next 50 years of space as being *spectacular*. Delivering a lecture on *Challenges in Space*, he named nine challenges namely food security, energy security, resource security, space security, environmental security, space transportation, search for life, exploration of the universe and colonisation of Mars. New areas for the application of space technology were listed including initiating a new green revolution, better meteorological forecasting for mitigation of disasters, better utilisation of energy resources to cope with India's energy deficit and study of the effects of global warming and carbon-dioxide emission. He envisaged a *Vision for Space Exploration*, which includes Chandrayaan-2 and manned missions. Activities like hunting for extra terrestrial life or intelligence and extending human presence across solar system are also for the future.

Dr. John C. Mather, Nobel Prize winning astrophysicist and Senior Project Scientist, James Webb Space Centre, elaborated on the projects taken up to study the origin of universe like Cosmic Background Explorer Satellite (COBE) in 1989, Wilkinson's Microwave Anisotropy Probe (WMAP) in 2001 and Planck in 2009. Speaking on the topic *From the big bang to life and the end of Universe*, he shared the details of James Webb telescope, a deployable infrared-optimised space telescope to be launched in 2014. He said that the universe is expanding and the rate of expansion has increased in the last five billion years due to an unknown phenomenon called *dark energy* and added that more needs to be learned in this regard.

Dr. Lars Parhm, Director General, EUMETSAT, talked about the application of space technology in weather forecasting and disaster management and listed the collaborative activities undertaken by space faring agencies across the globe for this purpose. He also talked about the areas of cooperation between ISRO and EUMETSAT.

Dr. C G Krishnadas Nair, Chairman, Cochin International Airport Limited (CIAL) said that a mission oriented Research & Development is needed for the future development of Indian Aviation and predicted that aviation requirements in India, both civilian and military, will increase sharply by 2020. He added that the future of R&D in military aviation is going to be exciting with many new technologies waiting in line for development. Dr. Nair expressed concern on the lack of private investment in aviation R&D in India and said that it is the right time for private players to enter the fray.

Dr. Marc Pirtcher, Director of CNES, the French Space Agency, clarified that the European Space Agency will not be jumping into the human space program bandwagon. He gave an overview of the French Space Program, mentioning the details of Ariane and Vega launch vehicles and about Indo-French missions such as Meghatropiques and Altika-Saral. Dr. Pritcher warned that the easy part of science in space has already been done. What is left is expensive and there is a need for all nations to come together for projects like manned exploration to Mars and other planets.

Shri S. Ramakrishnan, Director (Projects), VSSC, reminded that space industry is interdisciplinary and there is equal opportunity there for all students of science and engineering. He provided a comprehensive description of the Indian Space Transportation Systems from the sounding rockets of 1963 to the future Reusable Launch Vehicle (RLV). He explained that the Human Spaceflight Programme (HSP) will open up new technical avenues for the Indian industry and will inspire youngsters to dream about space and to bring global recognition to the country. Shri Ramakrishnan termed HSP as the next logical step for a country like India which has become self sufficient in Launch Vehicle Technology.

Smt D.R. Suma, ISRO HQ, co-ordinated *Space Summit*, which was rich in participation and attendance by the delegates.

Plenary Sessions

A total of eight plenary sessions were conducted during January 4 to 7, on wide-ranging topics. Eminent scientists who are experts in each of the fields participated. The erudite discussions helped bring out a set of concrete recommendations to be pursued in the coming days.

Plenary : Food and Nutritional Security

The first plenary session on *Food and Nutritional Security* was conducted on 4 January, coordinated by Dr. YVN Krishnamurthy, ISRO HQ. Dr. MS Swaminathan chaired the session.

Dr. V Prakash, CFTRI, presented a paper on *Food and Nutritional Insecurity in the changing Scenario of Global Warming and Economic Recession*. It was observed that "One degree centigrade temperature rise cause rise in several degrees of impatience in hospitals". Statistical evidence of global food price inflation leading to rise in malnutrition and child mortality shows a dangerous

dimension of the condition of recession. Measures like skill up-gradation, small agricultural grid clusters and prevention of food loss by linking farmers and micro industries were put forth in order to improve the status of Food and Nutrition in the country.

Dr. Malavika Vinodkumar presented a paper on ***Combating Micro nutrient Hunger-The Great Challenge***. She highlighted the crucial micronutrient deficiency among children, adults and workmen leading to a depression in productivity that in turn results in a huge reduction in the Gross National Product.

Dr. Malavika observed that “*Proper birth weight is a bigger right of the individual than freedom because children with low birth weight are children who have lost their childhood*”. She put forward dietary diversification, fortification and supplementation as the ways to combat the challenge of micronutrient deficiency. She concluded the session by asserting that “*with strong political will and adequate financial support, hidden-hunger free India is not a mere dream.*”

Plenary : Health - Current Issues in Biomedical Research Studies

The plenary session on *Health*, conducted on 6 January, was a unique experience for all the delegates since a wide range of topics covering biomedical research was discussed. The session urged for development of newer drugs and for the spirit of professionalism among doctors.

Dr. H. David Wilson, Dean, School of Medicine, University of Kansas, speaking on the topic of the session, *Current Issues in Biomedical Research Studies*, pointed out the present shift in medical education - from being merely a lecture based training programme to a problem based patient-centered learning process using simulators and computers as aids. He spoke on past and present trends in medical education in USA and outlined the history of medical education starting from the *Flexner report* of 1910, which reviewed the quality of medical education in USA. He said that Flexner’s vision of an ideal medical school required properly equipped modern labs, faculty teaching, appropriate funding, qualified students and a vigorous University culture. He stressed the need for professionalism in doctors and the importance of integrating medical education into the healthcare system of a country.

Dr. Surendra Parmar, Vice President, Continuing Medical Education and Professor of Physiology, who was co-chairman of the session, spoke on the many factors controlling medical education across the world. He reiterated that impetus should be given to the discovery of new drugs, which are safe, less toxic and which produce less interaction with commonly used medicines.

Chairman of the session, Dr. Irving Zucker, Dept. of Cellular & Integrative Physiology, University of Nebraska Medical Centre, talked about the techniques used to treat brain and heart failure. He urged for the use of new drugs which are effective in ameliorating diseases and enhancing survival.

Dr. Gary Sieck, President, American Physiological Society, spoke on the topic *Targeting BDNF Signaling to promote functional recovery after cervical spinal cord injury*. He pointed out that mortality rates due to cervical spinal cord injury are getting higher. Incidence of the illness is in about 2000 Americans every year. He elaborated on spontaneous recovery of rhythmic diaphragm muscle activity after injuries to spinal cord.

Dr. Harish Panth spoke about neurodegenerative diseases. Dr. Krishnan Dromraju elaborated on Human Genetic Research. Dr. ON Paramasivan talked about advances in the techniques for prosthetic surgery and the benefits. Prof. Indrajit Ray talked about the need to pursue research as part of medical education. Prof. PR Sudhakaran from University of Kerala, observed that benefits of the revolution in health sector have not *Speakers at the Plenary Session on Health* reached the Common man. Research on basic sciences is needed to improve the quality of existing vaccines, to develop life saving drugs and to invent genetic modifications needed to cope up with lifestyle diseases.

Dr. Krishna Agarwal, who was supposed to speak in the session, had passed away in an unfortunate accident. The session was coordinated by Dr. T.K Bose, Department of Forensic and State Medicine, NRS Medical College.

Plenary : Weather, Climate & Environment

The plenary session, held at the Golden Jubilee Hall on 6 January, saw the stalwarts of weather and climate research dwell on the current day climate scenario and on improving our understanding and predictability of weather and climate.

Prof. Roddam Narasimha, Chairman, Engineering Mechanics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, who chaired the session, provided an overview of the issues connected with climate change. He said that today, the issue of climate change has been accepted globally.

Dr. C. B. S. Dutt, Programme Director, ISRO-GBP, ISRO HQ was the coordinator of the session.

Sea Level Rise

Sea levels rose globally at an average rate of 1.8 mm per year over 1961 to 2003, said Dr. Shailesh Nayak, Secretary, Ministry of Earth Sciences, Government of India, while speaking on the topic ***Earth System Science : A Perspective***. He said that the rate of increase has been faster during 1993 - 2003 and has become 3.1mm. Sea Level Rise (SLR), in the Indian Ocean, during 2004-08 was about 9 mm. Mr. Nayak pointed out that absorption of heat by oceans lead to **SLR**. The presence of chlorophyll plays an important role in the biological productivity of oceans and produces an impact on climate. Answers are required about how much phytoplankton the oceans contain, where they are located, how their distribution is changing with time and how much photosynthesis they perform. Dr. Nayak stressed the role Indian Ocean plays in producing seasonal variability in monsoons, monsoon currents, cyclones and ocean circulations which are warming trends from the 1970s onwards. The frequency of heavy precipitation, amount of atmospheric water vapour as well as the frequency of intense draughts has increased since the 1970s, particularly in the tropical and subtropical regions. The need of the hour is an improved monitoring and understanding of the regional impacts of climate change, especially in the monsoons. Dr. Nayak called for developing reliable scenarios of climate change for India in order to develop better capability to deal with them.

Dr. R. Krishnan from Indian Institute of Tropical Meteorology, Pune, spoke on monsoon and its predictability in the Indian context. He gave an overview of monsoon variability, and anomalous features. The role of models and observational data in making a sufficiently good forecast of short and long duration weather events was highlighted. Answering questions from the audience, he said that the monsoon phenomenon in the Indian context is quite unique and thus the task of predicting the onset of monsoon, droughts, and rainfall is very challenging.

Dr. G. Bala of Divecha Centre for Climate Change, CAOS, HSc, Bangalore, spoke on ***The Global Carbon Cycle***. Issues about modeling, prediction / forecasting and observations on weather were also dealt with by the speakers of this session.

Plenary : Nano Technology and Education

The plenary session on nanotechnology conducted on 6 January, unraveled a plethora of developments and applications that have taken place in the field. The session commenced with the introductory remarks by the coordinator, Dr. KN Ninan, Former Deputy Director, VSSC, who said that nanotechnology is the future of our country as it plays an important role in solving the major challenges faced by the country viz. ensuring food security, energy security and safe surroundings.

Dr. G Sundararajan, Director, ARCI, Hyderabad, who chaired the session, pinpointed the charm of nanotechnology as the possibility to scale down all designs, cutting across disciplines, down to nano-sizes.

Prof D. Bahadur elaborated on the interface of Chemistry and Biology in Nanomaterials. He explained the novel methods to specifically target tumors using magnetic nanomaterials. Prof. V Ramgopal Rao spoke about Nano Electromechanical Sensors (NEMS). Explaining about a NEMS biological sensor used for the diagnosis of myocardial infarctions, called *iSens*, he said that it is a very effective, rugged and smart lab-on-chip system. For the diagnosis of heart ailments, just a drop of blood has to be put on the slide shaped sensor. New generation sensors are also available for detection of explosives like RDX and TNT, acting like an *electronic dog* at airports.

Prof. Sundara Ramaprabhu spoke on *Energy related applications of Nanomaterials* like batteries, solar cells, fuel cells, super capacitors etc.

“Lotus is offered to deities because it is considered pure. It is the nanoscale characteristics that make it hydrophobic” said Prof Ashwini Agarwal. The same nanostructure can be replicated to develop self-cleaning fabrics. He also shed light on the numerous areas of research progressing in the field of textile technology. Dr. Shanti Nair talked about anti-bacterial nanomaterial coating on doorknobs and pointed out that nanotechnology allows one to deal with biological problems at the cellular level. Dr. Swaminathan Sethuraman spoke on the topic *Applications of Nanomedicine : An Indian perspective*. The session concluded with a talk by Dr. George Thomas.

Plenary : Biotechnology

The plenary session on Biotechnology held on 6 January was chaired by Prof. G. M. Nair, Head, Department of Biotechnology, University of Kerala. In his address, Prof. Nair outlined the contributions of Biotechnology in improving living standards, in bringing about the green revolution, providing value addition to existing agricultural practices, global food security and improved medical facilities. However, Biotechnology or Genetic Engineering should be administered depending on the need and bio-safety should be adequately regulated to protect the environment. He emphasized the role of NGOs and the media to support the scientists by bringing out correct perspectives of the latest developments in science to the masses.

Dr. Ajay Parida, Executive Director, M. S. Swaminathan Research Foundation, Chennai, delivered the lead talk titled *Ensuring and Enhancing Crop Productivity in Response to Emerging Stress Conditions*. Introducing the concept of Hybridization Technology, he said that precision breeding, mutation breeding and selective hybridization are some of the techniques leading to a revolution in agricultural practices. Bursting the myth of Biotechnology (commonly referred to as “BT”) as being harmful for human beings, he said that any tool can be used constructively or destructively. BT is just a tool to be used to solve the problem of lack of quality products. He stressed that BT breeding methods are much more regulated compared to others and there is no scientific basis in the arguments about the harmful consequences of BT.

Dr. Parida outlined the challenges facing Indian agriculture like loss of cultivable land, decline in water resources, loss of bio-diversity and forests, climate change and invasion of trans-boundary pests and pointed out that BT can bring an answer to these. Citing an example of the challenge of food security, he said that India, where pulses originated, today imports 50% of its pulse requirements from Australia. In such a scenario, BT holds the key to bio-fortification and food security and it is a wake-up call for researchers and policy makers in this area. The M. S. Swaminathan Research Foundation has already taken up an “*Anticipatory Research Programme*” for ensuring genetic efficiency with genetic diversity

in agriculture. Transgenic plants are capable of withstanding most of the adverse conditions like salinity, drought and undesirable metal content in the soil as well as enhancing the nutrient content and yield. For an agrarian nation like India, agriculture has to be managed comprehensively to face the demographic, technological, ethical and equity based challenges. Dr. Parida emphasized that Government, the Civil Society and the Educational and Research Institutes need to work hand in hand to bring the benefits of BT to the common man.

The talk was followed by a vibrant interactive session and a panel discussion on issues ranging from “*Organic vs Transgenic*” to “*Role of Biotechnologists in building a resurgent and secure India*”.

Plenary : Biodiversity Sustainable Development

The plenary session on Biodiversity & Sustainable Development on the last day of the Congress, January 7, was attended by a congregation of the top scientists of the field and heads of associated organizations. Dr. G. Madhavan Nair was the Guest of Honour in the session.

Releasing a compendium on *Biodiversity Conservation*, Dr. Madhavan Nair pointed out the significance of Biosciences to the country since conservation of biodiversity and plans for sustainable development are quite essential. He informed that the biodiversity of India has been mapped using satellites as well as ground data and it is planned to be updated every two years to keep the information up-to-date.

Chairman of the session, Dr. R. S. Panda, explained that realizing the need for conservation of biodiversity, the General Assembly of United Nations has declared 2010 as the “*International Year of Biodiversity*”. He said biodiversity in general and Agro-Biodiversity in particular needs to be used for the benefit of mankind. India being a major centre of biodiversity has to take the leadership in this area. The richness of India in terms of her biodiversity resources should be used and conserved and not simply studied and documented. India has *National Biodiversity Act* and *Protection of Plant Variety and Farmers’ Protection Act*. However, strong public awareness and rapid policy formation by our leaders are essential for meaningful utilization of the biodiversity heritage of India. Collaboration among Universities, institutions and the Government is needed as the first step. He remarked “*Conservation doesn’t mean not to exchange, Genetic resources should be freely exchanged while taking care of the protection of rights*”.

Dr. Sujata Arora, Director, Ministry of Environment & Forests, Govt. of India, elaborated on ***Biodiversity and its value*** : stating that conservation of diversity in genetics, species and the ecosystem constitute three equally important branches of biodiversity conservation. Biodiversity not only maintains ecological balance but also continues the evolutionary processes. Emphasizing that biodiversity is today imperfectly mapped and improperly used, she pointed out that scientists have a better idea of the number of stars in the galaxy but not the number of species on earth.

Speaking on ***The Economics of Biodiversity***, Dr. A K Ghosh, Head, Centre for Environment Development, took a strong opposition to the thought that *Biological Sciences are soft sciences whereas Physical Sciences are the real sciences*. He pointed out that out of the 12 items exported by India, 9 are from biological resources. As \$12 billion is contributed by Nature Tourism to Global Economy, the value of biodiversity cannot be undermined.

Dr. Ramakrishnan, Director, Zoological Survey of India, spoke on ***Biodiversity Conservation***. Zoological Survey of India, which is as old as the Asiatic Society Forum, has been playing a significant role in the mapping, documentation and conservation of the zoological resources of India since its formative days. He elaborated on the fauna on India: public awareness and more taxonomists are needed to map and conserve the vast and rich bio-reserves of India.

Dr. Sanjappa, Director, Botanical Survey of India, gave a broad overview of the status of Botanical explorations in India while talking on the topic *Contribution of the Botanical Society of India in Biodiversity Documentation & Conservation*. He said that today the floral and fauna resources are under great threat - about 10% of the floral species in India has been classified as threatened. Unless adequate steps are taken, the biodiversity reserve of India will be in jeopardy.

The other speakers dealt with a wide variety of issues in the Indian context. The session arrived at the general understanding that conservation of biodiversity is a hot issue today and researchers, scientists, decision makers and the common man have to come together in evolving a concerted plan to conserve our biodiversity heritage, for sustainable development.

Dr. P. L. Gautam coordinated the proceedings.

Plenary : Energy

“Challenges in the energy sector are Indian; nobody is going to solve the problem for us” remarked Dr. Anil Kakodkar, former Chairman, AEC, who chaired the plenary session on energy. The nuclear scientist, in his commentary on the theme for the plenary, noted that thorium and solar power would be the energy sources for the future. He called upon the scientific community to embark upon research on innovative solutions for the problems in the energy sector. He also spoke on the importance of developing environment- friendly techniques to extract energy from fossil fuels.

Dr. S K Chopra, Advisor, New and Renewable Energy Ministry who coordinated the session, quoting Jules Verne said that *‘Water is the coal of future’*. He *Dr. Anil Kakodkar addressing the plenary session on Energy* hailed the process of dissociation of water into hydrogen and oxygen as the ‘Holy Grail’ in renewable energy research due to the high amount of untapped energy in Hydrogen. He added that R&D on hydrogen fuels is marching into the ‘Valley of Death’ as *“we are extremely slow in converting R&D to products”*. He elaborated on the tremendous challenges in production, storage and transportation in hydrogen power generation. He added that the Jawaharlal Nehru National Solar Mission launched in 2009 plans to increase the solar power generation to 20,000 MW by 2022.

“Fast Breeder Reactors are the banks that offer higher rates of interest”, remarked Dr. R K Sinha, BARC, during his talk on *Leapfrogging towards the goal of energy independence*. He spoke about using plutonium based metallic fuel obtained from Pressurised Heavy Water Reactor (PHWR) as the fuel in Fast Breeder Reactors (FBR).

FBRs create nuclear fuel along with power generation, producing less nuclear waste. He urged for India not to depend on any imported source of energy and listed achieving rapid growth, large volume of deployment, managing nuclear waste and meeting non-electricity requirements as the major challenges in the Indian Nuclear Power Sector.

Dr. B N Bankapur, Director (Refineries), IOCL, said that all stakeholders should see to it that the strategies adopted for reducing global warming have a solid scientific base. He called for more research on algae based bio-fuels and ethanol from lignocellulose waste to reduce the dependence on fossil fuels. He said that a paradigm shift in both mind and practice is the only way to reduce the carbon footprint.

“Asia is the largest consumer of coal and in India, 55% of power generation is done by burning coal” said Dr. P S Bhattacharya, Chairman, Coal India Ltd (CIL). He said that CIL supplies 45% of the energy consumed in India. He talked about *‘mining with a human face’* and apprised about the technology of *‘high wall mining’* where coal is mined without much disturbance to the land.

Dr. H.S. Brahma, Secretary, Ministry of Power spoke on *Sustainable energy security in the electricity sector*. He elaborated on the measures to make power available at affordable prices at all places without compromising on the quality. Dr. Brahma warned that though the energy demands of our country are growing at the rate of 10% per annum, the growth in electricity generation is barely 6%. Measures like change in energy mix, use of super critical technologies and smart grids were cited as new strategies to ensure proper utilization of electric power.

Plenary : Information Technology

The plenary session on Information Technology (IT), held on 7 January, focused mainly on the state of IT and *IT enabled services*, relevance in the current economic scenario, challenges and future trends. Shri Ajay Kumar, Secretary, IT, Government of Kerala, who chaired the session, stressed on the increasing importance of investment in IT and pointed out that in order to unleash the potential of the Indian IT industry, we should work towards more inclusiveness and innovation.

Dr. Shraddha V. Ingale, ISCA, talked about *fuzzy logic and its applications*. Fuzzy logic is a form of multi-valued logic derived from fuzzy set theory and uses approximate rather than precise reasoning to apply to problems having vague and imprecise solutions. Dr. Ingale elaborated on the use of fuzzy logic in drug modeling, nuclear research and the emerging application of fuzzy technology namely infusion pump.

Dr. L.M Patnaik, Director, DIAT, Pune, spoke on *the changing paradigms in IT, wireless technology and computational intelligence*. He talked about the evolution in computing from parallel to grid and cloud computing, from graphical user interface to brain computer interface and from artificial intelligence to computational intelligence. He said that the main challenges of mobile computing are energy conservation, mobility and connectivity. He also listed the potential applications of wireless sensing in the conservation of environment and collection of statistics.

Shri G. Vijayaraghavan, Member, Planning Board, Kerala, spoke on *the trends, challenges and future in outsourcing*. The software industry is the most globalized industry, running on the backbone of universally compatible hardware, telecommunication infrastructure and education. India has great scope in the outsourcing industry thanks to the vast pool of engineering and science talent available. He pointed out that India needs to cope up with the challenges posed by China and the Latin American countries by improving its infrastructure, taking comprehensive measures to protect IPR etc.

Dr. Venkataraman, Vice Chancellor, Amrita University, Coimbatore, spoke about the lacunae in University Education in India and the inability to chum out students interested in research. He noted that university education is severely handicapped because of poorly qualified faculty, insufficient infrastructure and outdated curricula.

The last lecture was on *High Performance Computing* by Shri Goldi Mishra, CDAC, Pune, who predicted an increase in computing capability from a mere 1 flops in 1941 to 1 megaflops by 2016-2018. The potential and challenges in computing in the 21st century were also elaborated. The session concluded with an interactive session. Shri S. Gopakumar, Group Director, Computational Infrastructure & Campus Network Group, VSSC, coordinated the session.

ACTIVITIES IN SECTIONS

Deliberations in the 14 sections commenced with the addresses of Sectional Presidents (Annexure-I) followed by Platinum Jubilee Lectures (Annexure-II) in each section. Symposia on special topics (Annexure-III) and a large number of Invited /Special Lectures were organised by the Sectional Presidents which formed an integral part of the technical programme of the Science Congress.

ISCA Young Scientists' Programme

Presentation of papers under ISCA Young Scientists' Programme in the sections were arranged on October 27, 2009. This year fifteen young scientists received awards under this programme in recognition of their contributions in respective areas of research. ISCA Young Scientist Awards (Certificate and Cash Award of Rs.25,000/-) were presented by **Dr. A. P. J. Abdul Kalam**, Former President of India on January 5, 2010. Names of those young scientists and titles of their papers are given in Annexure-IV.

Presentation of Contributed Papers (Poster/Oral)

Most of the contributed papers accepted on the basis of screening done by the Sectional Presidents, Local Sectional Secretaries and Experts were presented by way of Posters during January 5-6, 2010. The names of judged for Best Poster presenter during the 97th Indian Science Congress in different sections are given in Annexure-V. Oral presentations of some selected contributed papers were also made in the sections.

ISCA ENDOWMENT LECTURES

The following ISCA Endowment Lectures were delivered during the 97th Indian Science Congress in different Sections :

Name of the Award	Speaker	Title
Pran Vohra Award	Anirban Roy Kolkata	Emergence of New Recombinant Begomovirus Complexes Case Study with Bast Fibre Crop
Prof. K.P.Rode Memorial Lecture	Satyananda Acharya , Bhubaneswar	Banded Iron Formations and Associated Manganese Formations of S.E. India and Their Related Iron and Manganese Deposits.
Dr. Sushil Kumar Mukherjee Commemoration Lecture	Dr. A.K.Singh New Delhi	Exploiting water-nutrient synergy for sustainable rice production
Prof. S.S.Katiyar Endowment Lecture	Dr. Sudhir K. Sopory New Delhi	Functional validation of novel genes for abiotic stress tolerance in Rice
Prof. Hiralal Chakravarty Award	Dr. Gitanjali Yadav New Delhi	Computational Analysis of Plant Lectin Domains

CHILDREN SCIENCE CONGRESS

Rashriya Kishore Vaisyanik Sammelan or Children's Science Congress (CSC) is organized every year along with the Indian Science Congress with the aim of popularizing science amongst students and teachers. CSC provides a platform for children across the country to interact with eminent scientists and to exchange ideas. The aim is to encourage the children and teachers to visualize the future of the nation and to help them pursue their natural curiosity: thus unleashing a wave of creativity and scientific temper.

CSC-2010 was spread over three days during 4-6 January and was attended by more than 3500 selected children in the age group of 12-17 along with their science teachers from all over India. There were about 500 permanent delegates and 3000 floating delegates. The permanent delegates included two prize-winners for projects each from the 34 educational states/Union territories of India, Winners of *Nehru Science Model making competition* from each state, National winners in competitions on *Initiatives in Research and innovation in Science*, selected "gifted children" from schools of Kerala and toppers of HSE, VHSE, CBSE and ICSE schools of Kerala. Winners of a special essay competition conducted by CSC and winners of competitions during World Space Week were also among the participants. Every day, about 500 children from Thiruvananthapuram district and about 500 children from other districts of Kerala participated as floating delegates.

Smt. J. Geetha, VSSC, was the Chairperson of CSC Organizing Committee.

CSC : Inauguration

CSC was inaugurated by Dr. APJ Abdul Kalam on 4 January in a colorful ceremony. The function commenced with Presidential Address by Dr. G Madhavan Nair who stressed the "need to have passion for science cultivated from a very young age". He exhorted the youngsters to pursue science, learn and observe nature, solve the mysteries of science and improve the quality of life. Shri P.S. Veeraraghavan, Director, VSSC captivated the young minds with his stories and humorous anecdotes. He said, "*// there is a better India, you are the ones to dream it, plan it and realize it*". Prof A. Jayakrishnan, Vice-Chancellor, Kerala University asked the students to be more inquisitive and urged them to ask questions without any fear and said that *it is the spirit of enquiry that ultimately leads to great discoveries*.

Dr. A.P.J. Abdul Kalam, in his inaugural address, talked about how science empowers the nation. He recounted his experiences while working with great scientists like Dr. Vikram Sarabhai, Prof. Brahma Prakash and Prof. Satish Dhawan in his initial years and how that helped him in assimilating the basic qualities of a scientist. He said that the impact of developments in science on the life of the common man is well reflected by the fact that today even a farmer or fisherman has access to mobile phones and power. He asked the youngsters to learn the fundamentals, work hard, read books, discuss with teachers and friends and thus overcome the obstacles in their path.

Dr. Kalam asked the youngsters think about the great words by Patanjali "*When you are inspired by some great purpose, some extraordinary project, then all your thoughts break their bounds*". He concluded by asking the students to take an oath to pursue science as a lifetime mission and not to be disheartened by failures.

The address was followed by an interactive session during which the eager students asked questions on diverse topics like *how science can be utilised for the improvement of humanity, climate change, future challenges and opportunities for the young* and so on.

CSC : Sessions and Activities

During the days that followed, the student delegates interacted with Prof R Ramamurthy, Former Vice Chancellor, Sri Venkateshwara University, Andhra Pradesh and Dr. G Madhavan Nair, Former Chairman, ISRO. The students presented papers on select topics. Talks on career guidance were delivered by Dr. Unnikrishnan Nair, Professor, USER, Dr. G. M Nair, Professor and Head, Department of Biotechnology, University of Kerala and Prof. Mathai, Department of Mathematics.

A special feature of CSC was an exhibition of 80 prize-winning projects by the children, open to the public, organized at the venue. This provided an opportunity for the student scientists to communicate with educationists, policymakers, foreign dignitaries, officials, representatives of the media and other students. The exhibition was inaugurated by Dr. K. Radhakrishnan, Chairman, ISRO.

The students were taken for visits to the Space Museum at VSSC and witnessed the launch of a sounding rocket. The children also attended a Magic Show by renowned magician Shri Gopinath Muthukad, specially arranged for them.

CSC : Valedictory Function

CSC drew to a close on January 6 at the special CSC Pandal. Former Chairman of ISRO, Dr. G Madhavan Nair was present to interact with the child delegates.

Dr. Tresa Radhakrishnan, Member, CSC Organising Committee and Head of Department, Aquatic Biology, University of Kerala, welcomed the audience. Participants of Students' Exhibition had their share of fun with a photo session with Dr. Nair.

The valedictory address was given by Dr. B. N. Suresh, Director, IIST. He exhorted the children to follow their dreams and to work for the good of the nation. He also presented the awards for the essay competition.

Dr. DK. Pandey, Senior Scientific Officer, Department of Science and Technology handed over the five *ISCA-Infosys Travel awards* to the student delegates for the best papers presented. Dr. Amit Krishna De, Executive Secretary, ISCA delivered a vote of thanks, and ceremony drew to a close with the National Anthem.

3RD VIGYAN SANCHARAK SAMMELAN

3rd Vigyan Sancharak Sammelan (Science Communicators Meet) was organised during January 4-5, 2010 in concurrence with 97th Indian Science Congress (ISC 97) at Thiruvananthapuram, Kerala. This is a forum for science communicators and journalists to exchange their views, expertise and experience in the field of science communication through media, press etc., The focal theme of the sammelan was *Advances in Science Journalism – Role of Space Science and Technology*. This is the third in the series with the last two having been very successful.

Inaugural Session

In his inaugural address, Dr. G Madhavan Nair expressed the importance of Science Communication. He stressed that Science communicators should focus more on work within the laboratories where the real development of science is going on. He added that science communicators should convey the achievements of science to the common people. These days many awards are given to scientists, which indicates that the people have started recognizing the contribution and the significance of science.

In the presidential address, Prof A Jayakrishnan, Vice Chancellor, University of Kerala stressed upon the qualities of Science Communications.

General Sessions

There were five general sessions and one student session. Each session had a lead paper by the expertise followed by 5-6 presentations. The major topics covered under the general sessions were around the focal theme, *Advances in Science Journalism – Role of Space Science and Technology*. Overview of Satellite Communication, Need for Science Communication, Role of Space Science and Technology in Science Journalism, Science Communication and Emerging Challenges, Issues of Science Communication, Shortcomings in the present system, Recognitions of Science Journalism, Science Communication through various Media, Modern tools like Internet, Blogging, Online News etc., Importance of Space Technology, Contents of Science News, Trends in Science Journalism starting from ancient, medieval to modern era and Vision for the future Science Journalism etc., were discussed in detail.

Students' Session

The students' session chaired by the Head of Department, Communication and Journalism, University of Kerala, as part of the science communicator's meet gave a good opportunity for the students to discuss on various topics connected with science/space journalism.

3rd VSS was funded by DST through Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad and co-ordinated by Ms. Padmavathy A S, Scientist, ISRO.

EXHIBITION : *PRIDE OF INDIA*

A major exhibition named *Pride of India* was organized at the venue of 97th ISC. Spanning an area of 5500 sq m, it featured the great strides made by the nation in the field of Science and Technology. The expo focused on India's development, especially on the country's recent emergence as a major space power. About 90 institutions participated including R&D Institutions, Public and Private sector units and Government organizations. The participating organizations included SAIL, DRDO, Coal India, BSNL, ISRO, BEL, Videocon, LET, Mahindra & Mahindra, Tea Board, Coffee Board, NHAI, IGNOU and University of Kerala.

The exhibition was inaugurated on 3 January, by Hon Minister of State, Science & Technology, Shri. Prithviraj Chavan. Shri Chavan was accompanied by Dr. G. Madhavan Nair, Dr. M.S Swaminathan, Dr. K. Radhakrishnan, Dr. V.K Saraswat and other dignitaries.

The expo also featured special programmes in addition to the stalls. A lighted flame representing knowledge, *Vigyan Jyoti* was lighted at Bangalore and brought to Trivandrum passing through Kannur, Calicut and Cochin and was kept near the exhibition stalls. *Genesis IX* - a one day symposium on '*Indian Space : Emerging Technologies : Infinite Opportunities*' was held on 4 January.

The Hall of Pride, featuring the life of eminent personalities who have contributed to the progress of the country, was dedicated to Prof. Satish Dhawan, a stalwart of the Indian Space Programme.

The exhibition was open to the public and lakhs of people - mainly students - thronged the pavilions.

Kerala Gramam Exhibition

Kerala Gramam exhibition was another highlight of 97th ISC, showcasing typical Kerala tribal village life, skills of artisans and grass-root inventors. The exhibition at the venue of 97th ISC was inaugurated by Hon Minister for Sports and Parliamentary affairs, Shri M Vijayakumar.

Spread over an area of 2 acres behind the campus library, the re-created tribal village featured many facets of rural life including the cuisine, agriculture, cultural forms and martial arts. The village displayed a library, well, botanical garden and earthenware pots. *Kalaripayattu* and different forms of tribal dances were performed daily at the venue. The exhibition was open to the public, who visited in large numbers.

VALEDICTORY SESSION

The 97th Indian Science Congress came to a close at the *Main Pandal* of Karyavattom campus, University of Kerala, on 7 January. The day marked the end of five days of fruitful and brainstorming technical discussions, exhibitions and fun-filled cultural evenings.

Dr. A. Jayakrishnan, Vice Chancellor, University of Kerala, delivered the welcome address at the valedictory function, and said that he was delighted at the way the entire Congress had been conducted. The general impression from the delegates was that the Congress was a rich and rewarding experience. He termed 97th ISC as a *mega-event*.

Dr. G Madhavan Nair, General President, ISCA, presented awards for the best Poster in each section. Organiser of *Pride of India* expo, M/s MM Active, expressed amazement at the huge audience that the exhibition drew, and announced the awards for *Most Innovative stall*, *Most Interactive Stall*, *Best Design*, *Best State*, *Most Informative stall* and *Special Recognition* awards. *The Exhibitor of the Year* award was given to DRDO.

The *Vigyan Jyoti*, symbolically kept lighted at the exhibition venue during the Congress, was handed over to the General President of 98th ISC, Prof K. C. Pandey by Dr. G. Madhavan Nair, symbolising the onward journey of the light of knowledge. Prof K. C. Pandey spoke about the determination to carry on the tradition of the Indian Science Congress during 98th ISC, proposed to be held in 2011 at SRM University, Chennai.

Dr. G. Madhavan Nair expressed happiness with the way 97th ISC had been conducted. He described the event as a huge success, expressed confidence that the Congress had been a useful experience for the delegates and congratulated all the organisers and volunteers for the good work.

Certificates were presented to Conveners of Volunteer Pool Committee and Cultural Programme Committee. The formal vote of thanks was proposed by Dr. Ashok K. Saxena, General Secretary (Out-station), ISCA.

The function concluded with the National Anthem, bringing the curtains down on the 5-day mega event.

MAJOR RECOMMENDATIONS
EMANATING FROM THE
97TH INDIAN SCIENCE CONGRESS

**Recommendation from the Address of the
Hon'ble Prime Minister Dr. Manmohan Singh**

“Liberate Science from shackles of bureaucratism”

1. India must chalk out strategies to achieve greater energy efficiency and a shift to renewable energy. We should plan to be among the leaders in the development of science and technology related to mitigation and also adaptation and market it to the whole world. We must plan for an accelerated nuclear power development programme.
2. It was decided to launch a Jawaharlal Nehru National Solar Mission for establishment of 20,000 MW of solar generation capacity by 2020, which provides an opportunity to the indigenous scientific institutions to contribute.
3. Water resource management is a very important area since per capita availability of water is declining as population has increased. The Ministry of Science and Technology has initiated a Technology Mission for Winning, Augmentation and Renovation (WAR) of water.
4. Strengthening food security through scientific efforts like better weather forecasting for agricultural management, Geo-spatial Technology Applications Mission to provide crop planning and monitoring as well as flood management. Developments in biotechnology present us the prospect of improving yields in our major crops by increasing resistance to pests and also to moisture stress.
5. Providing affordable health care and improving the quality of life of the elderly is another major challenge of the 21st century. We must build our scientific capabilities in a way that they can respond in real time to problems such as pandemics.
6. Revision of the value of doctoral and post-doctoral fellowships as well as the formulation of schemes that would cover all research scholars with some funding support in order to make science education outreach inclusive and affordable.
7. Redouble our efforts to attract many more talented young women to take up careers in science. A step in this direction is a new scheme available for women's universities named Consolidation of University Research, Innovation and Excellence (CURIE) which provides financial help for complete upgradation of facilities in such universities.
8. The National Science and Engineering Research Board to start functioning before March 2010. A National Policy for Data Sharing and Accessibility has been formulated. The Protection of Intellectual Property Bill, focused on sharing revenue from intellectual properties with researchers will be taken up soon.
9. Conversion of the “brain drain” of the past into a “brain gain” for the future - special effort to encourage scientists of Indian origin currently working abroad to return to India.
10. The decade 2010-2020 has been declared as the “Decade of Innovations”. We need new solutions in many areas to achieve our goals of inclusive and sustainable growth - in healthcare, energy, urban infrastructure, water, and transportation, etc.,

11. The country must develop an Innovation Eco-system to stimulate innovations. Innovators must work in partnership with industry. We need to concentrate on strengthening the linkages between academia, research and industry.
12. Indian science should have a strong outward orientation; our science establishments should step up global alliances that will expose our scientists to the best in the world and enhance our competitiveness.

**Recommendation from the Address of the Hon'ble Minister of State (Independent Charge) for Science and Technology and Earth Sciences;
Hon'ble Minister of State in the Prime Minister's Office; Personnel, Public Grievances and Pensions and Parliamentary Affairs,
Shri Prithviraj Chavan**

1. Acceleration of implementation of Innovation in Science Pursuit for Inspired Research (INSPIRE) launched by the Hon'ble Prime Minister in December 2008 in order to attract the best students to science.
2. Encourage re-entry programmes for women scientists and return of Indian Diaspora in order to fill the gap of faculty in higher education Institutions.
3. Traditional Knowledge Digital Library (TKDL) will not only protect our traditional knowledge but it will be used by the European Patent Office and the US Patent and Trade Organisation for prevention of grant of patents based on traditional Indian knowledge.
4. Establishment of a state of art "Tsunami Warning Centre", Ocean observation system, weather observation and modeling capabilities, and atmospheric physics modelling.
5. International Co-operation in the field of S&T of India has grown several fold. Technology focused initiatives like Science Bridges with UK have opened up new possibilities and mechanisms to forge Academy Industry alliances and partnerships.
6. It is widely believed that 21st century will belong to China and India on account of strength of their economies and human resources. Since the next wealth creation opportunity will undoubtedly depend on science, technology and innovation, a major challenge in 21st century will be in relating the knowledge to economic outcomes and ability of science and technology system to innovate at affordable costs.
7. The grand challenges ahead are in the area of Energy security, Food security, Water, Affordable Healthcare for all and Terrorism and Internal security.
8. There is congruence between the global concern for climate change and India's concern for energy security. Answers to both lie in building capacities for alternate energy sources like solar, wind and nuclear. Also, research on clean coal technology would remain crucial for the country.
9. To address the challenges of food security, geospatial data inputs for crop planning and monitoring using special algorithms have been developed and made available to several states.
10. Science ministries have taken up several initiatives to address the challenge of water security. A Technology Mission on "Winning, Augmentation and Renovation" (WAR) for Water has been mounted by the Department of Science and Technology.
11. The Indian S&T sector should gear itself to engage in the research dimensions of National Action Plan on Climate Change (NAPCC).

12. In the area of affordable health care for all, CSIR has mounted Open Source Drug Discovery (OSDD) for infectious diseases with global participation which has identified new molecular entities for a number of therapeutic targets.
13. A “Decade of Innovations” has been articulated as the National policy. The Indian R&D sector should gear itself to fulfill the promise and deliver *innovative technology* solutions rather than *technologies*.
14. There is a need to develop a suitable Science, Technology and Innovation policy framework in order to get a favorable position in global assessment of innovation industry.
15. At the end of the eleventh plan, India might need a strategy to assess and measure the economic impact of R&D and technology-led GDP growth and prepare a road map for adequate investments into the Science, Technology and Innovation during the Twelfth Plan.
16. Our future strategy should serve to :
 - a. Enhance synergy among academy, research and industry
 - b. Build new strategies for development of private-public partnerships in R&D and
 - c. Step-up global alliances developed during the Eleventh Plan and
 - d. Aim at acceleration of the pace of conversion of scientific outputs to targeted socio-economic and developmental outcomes.

**Recommendations from the Presidential Address of Dr. G. Madhavan Nair,
General President, Indian Science Congress Association 2009-2010**

1. With the available scientific manpower in the country (which is the third largest in the world), the Indian Science and Technology (S&T) is bound to assume a significant role in rearing the status of the country to that of a developed nation by 2020.
2. Developments in the fields of agriculture, atomic energy, space research, Information technology, biotechnology etc., speak volumes about the capabilities of the Indian scientific community and can match international standards at all levels.
3. Enhancing agriculture productivity from 1.7 to at least 2 tonnes per hectare in order to meet the requirements of the people by year 2020.
4. There is a strong need for developing alternate sources of energy. Improving the quality of generating energy from natural products is one of the challenges.
5. We need to devise cost effective means to tap wind and solar energy and R&D efforts in these areas needs to be strengthened.
6. Nano-technology is yet another area which can contribute to revolutionize the future demands of agriculture, healthcare and high strength materials.
7. Emphasis on bio-science and genome research which are going to revolutionize applications related to human health and environment security. The research in this area can lead to major achievements including work on transgenic crops with disease resistant capabilities, nitrogen fixation and production of vaccine, enzymes and recombinant proteins.
8. Conceive application programmes in the area of information technology to model physical phenomena, chemical processes, bio evaluation, etc which demand lot of efforts from young scientists and IT professionals.

9. The monitoring of climate and environment is another major area of both national and global concern and needs to be addressed adequately.
10. Advances in Medical sciences and immunization are absolutely a major priority for the highly populous India, which has an ambitious quest in prevention, early diagnosis and treatment of various diseases that affect the population, particularly the poorer sections.
11. The innovation and challenges in technology required to solve the societal problems are quite complex and demanding. In addition to massive investment in terms of infrastructure, there is a strong need for the development and identification of scientific talents.
12. Kindling scientific spirit and explorative spirit in young minds also requires equally talented scientific communicators and teachers.
13. While encouraging the youngsters to pursue advanced research schemes, there is a need for creating a cadre of scientific managers.
14. There is a need to create proper facilities and environment for research in the universities in order to do innovative work at the cutting edge of S&T as the universities act as the prime movers of scientific research and serve as feeders to the specialized laboratories.
15. Need for interdisciplinary form of science education which allows free flow of knowledge and ideas that migrate from one area to another. Students and researchers must be taught to relate what is taught in classes with real life situations early enough, from their primary classes, so to speak.

Recommendation from Public lectures

Future of Science in India

Prof. CNR Rao said that science and technology should be treated as different subjects, where technology is simply the application of science. He urged to take up study of pure sciences. He pointed out that the status in science education in India is dismal even compared to other Asian developing countries like Japan, China and South Korea.

He remarked that the educational institutions should play a constructive role in promoting science studies and scientific research.

Keep your mind open to nature : Roger Tsien

The Nobel Laureate, Prof. Roger Tsien, in his public lecture at the 97th Indian Science congress, advised young students and researchers to keep their mind open to the beats of nature.

Prof Tsien is renowned for revolutionizing the fields of cell biology and neurobiology by allowing scientists to peer inside living cells and watch the behavior of molecules in real time.

Prof Tsien stressed on teamwork by mentioning the collaboration behind his Nobel Prize winning work.

It can be done : Dr. Kalam

Dr. Kalam in his public lecture said that Indian scientists should look forward to celebrate the socio-economic development of India in 2020. He then proposed his vision of transition of Indian Science from 2020 to 2050 saying that the vision for 2050 is one of dynamic growth.

Terming Science as borderless, Dr. Kalam put forth his visualization of Global Human Civilization for 2050.

In context of Indian perspective, he said proper water management, sustainable agriculture development using organic farming practices, energy consumption and sustainability, customized healthcare for promoting enhanced longevity, balancing the greenhouse gas budget and emergence of new global leaders focusing on multi-disciplinary action are some of the key points of his visualization. He added that scientists should start considering earth, moon and mars as an economic complex for future habitat expansion of human beings.

Demystifying the Large Hadron Collider : Mr. Atul Gurtu

Mr. Atul Gurtu of TIFR unraveled the mystery surrounding the Large Hadron Collider (LHC). The eminent physicist who is India's chief spokesman of the LHC said that LHC is hailed the mother of all experiments would usher in a new era of particle cosmology.

Mr. Gurtu explained about India's involvement in this mammoth experiment. LHC will attempt to simulate the birth of the Universe by colliding protons having near light speed in a tunnel of 27km in circumference. It also hopes to find the existence of the hypothetical "Gods particle" called Higgs Boson.

Dr. MGK Menon's talk explained about the birth of meson physics.

Recommendations from Children Science Congress

1. Children Science Congress was organized with the objective to stimulate creativity and create interest in science in the young minds.
2. The Congress encourages children and teachers to visualize the future of the nation and to pursue their natural curiosity, thus unleashing a wave of creativity and scientific temper.
3. CSC provides a platform for children across the country to interact with eminent scientists and enhance their knowledge and ideas.
4. Dr. G Madhavan Nair, General president, ISCA presided over the function. In his address, Dr. Madhavan Nair stressed the "need to have passion for science cultivated from very young age". He exhorted the youngsters to pursue science, learn and observe the nature and thus solve the mysteries of science and thereby improve the quality of life of the fellow beings. He urged the students to derive inspiration from great scientists like Sir C.V Raman who were deeply committed to science.
5. Dr. A P J Abdul Kalam, former President of India inaugurated CSC – 2010 on January 4, 2010. In his inaugural address, Dr. Abdul Kalam said that Earth, which was rapidly exhausting its resources, would not remain an independent entity in the future, but form a 'single economic entity' with the Moon and Mars as a single economic and strategic entity. This will be possible by developing scientific knowledge in a very unique solution to the crisis of water, energy, infrastructure faced by humanity in different parts of the world. Detection of evidences of water on the Moon for the first time through the Chandrayaan-1 mission, ISRO had found an answer to an issue that was evading the collective scientific wisdom of all the space-faring nations for the last five decades. He urged the CSC delegates to follow the example and use science to prove other impossible things possible.

Eight point Oath

1. Science is a lifetime mission. I will work, work and work and succeed.
2. Wherever I am, a thought will always come to my mind. That is what I can innovate, invent or discover.
3. I will always remember that "Let not my winged days, be spent in vain".

4. I realize I have to set a great scientific goal that will lead me to think high, work and persevere to realize the goal.
5. My greatest friends will be great scientific minds, great teachers and great books.
6. I firmly believe that no problem can defeat me; I will become the captain of the problem, defeat the problem and succeed.
7. I will work and work for removing the problems faced by planet earth in the areas of water, energy, habitat, waste management and environment through the application of science and technology.
8. My National Flag flies in my heart and I will bring glory to my nation.

Recommendations from Science Communicators Meet

The Sammelan made the following general observations :

- Much of scientific knowledge is confined to a small minority of scientists. Regular science coverage in the media is absent and only occasional and sensational science news appears in print and electronic media.
- Science and technology journalism has progressively developing in India, in terms of quality and quantity, but is still far behind the desired level, (estimated around 3 % against a desired level of 15%.)
- Department of Science and Technology (DST) through Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad has supported the Vigyan Sancharak Sammelan through the Indian Science Congress. The support is strongly recommended in future also since it has provided a platform for students, journalists and researchers to share their research. This inter-disciplinary field needs recognition by researchers in traditional areas of science. ISCA Chapter Conveners need to be continually sensitised about the theme and the selection process.

Following recommendations were considered and approved at the plenary :

- Teacher educators have the potential to spread awareness and literacy among the next generation. Schemes to enhance their skills may be developed and introduced.
- Research scholars may be encouraged to give presentations about their research in third year to scholars from other disciplines. This would develop an appreciation about the research in other disciplines and would improve communication skills of the scholars. Universities can introduce this with internal resources.
- Plagiarism in science communication or in any type of serious communication should be avoided.
- Case studies elaborating research methodologies in science communication should be presented.
- Science communicators should be more committed and sincere about the news they disseminate; wrong or incomplete scientific information should not be communicated through that could mislead the viewer or reader. Proper checks and balances need to be provided by the science communicators through responsible journalistic principles.
- Developing countries should upload more than they download from the Internet. Social participation and successful local/regional development stories involving science and technology need to be brought to the forefront.
- Use of local language and idiom to reach larger populations is recommended.
- Students had put good efforts in their presentation. However, they need to concentrate on accuracy, brevity and language skills. It is suggested to continue the student session in future too; however, it was recommended to invite the science journalism students from all over the country.

Recommendation of Sectional Committees

Recommendations as received from Sectional Presidents

Agricultural and Forestry Sciences

Indian agriculture is facing the tremendous challenges of reduced farmers' income, water scarcity and labour shortage. Climate change has added another dimension to the already complex challenge. Problem of drought, flood, abrupt rise in temperature and events of heavy rainfall have intensified in recent years. To face these challenges, Indian agriculture has to be reoriented and rejuvenated. It needs to be diversified and made income-oriented for food and nutritional security of the emerging India. The following research and policy strategies need to be adopted for achieving the goal.

- **Climate change mitigation and adaptation :** Greenhouse gas emission from agriculture can be mitigated by adopting technologies such as growing aerobic, direct-seeded rice and use of nitrification inhibitors. Technologies such as conservation agriculture and crop diversification will be very useful for adaptation. Sequestration of carbon in soil would provide a good opportunity for climate change mitigation and adaptation. Government should promote these technologies and provide incentives to farmers adopting the same.
- **Crop improvement :** Crop cultivars for tolerance to biotic (pest and diseases) and abiotic (drought, flood, nutrient) stresses for different agro-climatic zones of the country using biotechnology and molecular tools should be developed. Recently developed flood tolerant (Swarna sub1, sub2) and drought resistance varieties should be promoted.
- **Crop management :** Conservation agriculture including the technologies of laser-aided land leveling and zero tillage is useful for increasing input-use efficiency. Alternate cropping and crop diversification (cereal-legume, agro-forestry, rice-fish culture) should be developed, refined and promoted in different agro-climatic zones.
- **Soil management :** Site-specific nutrient management using soil testing, remote sensing and GIS tools will be required for increasing crop yield and combating micronutrient deficiencies. Research on soil biotechnology and nanotechnology should be encouraged for enhancing nutrient use efficiency.
- **Water management :** Water scarcity is the biggest problem for the farmers. It is going to be more severe because of climate change. Promotion of water harvesting and water-saving technologies (drip and sprinkler, laser-aided land leveling, bed planting) should be given high priority.
- **Crop protection :** Technologies for identification and control of existing and emerging pests and diseases using molecular tools should be developed. Surveillance system and simulation models should be developed for forecasting pest outbreak and their timely control. Integrated pest management strategies should be promoted.
- **Promotion of new, unconventional crops :** High value, low volume crops including medicinal and essential oil bearing crops should be promoted. Some of these crops can be grown even in waste and marginal lands with minimum input and maximum income.
- **Micronutrient fortified crops :** For eradicating nutrient deficiencies and malnutrition, nutraceuticals should be developed introducing molecular tools and efficient management of micronutrients.
- **Utilization of agri-residues for energy :** Technologies should be developed for utilization of crop residues and agricultural wastes for energy generation. Efficient strains of crops such as sweet sorghum should be developed for bio-fuel.
- **Increasing research fund :** More funds should be allocated for agricultural research to address the problem faced by the farmers constituting 65% of Indian population.
- **Upgrading agricultural education :** Students and young researchers to be encouraged to take up agricultural research as their career through providing fellowship, research grants and more job opportunities.

Animal, Veterinary and Fishery Sciences

- With a view to conserve biodiversity emphasis on strengthening of Classical Zoology in the syllabus of under graduate (UG) and post graduate (PG) programmes be given, as it is not reflected in the new UGC syllabus.
- Bioresources are the wonderful gift of the nature to the mankind, whose sustainability can be effectively linked to rural livelihood and economic development, so science education should aim at attracting talent for proper management and sustainable utilization of bioresources.
- Ensuing dangers of climatic changes to biodiversity be recognized and mitigating measures be undertaken on priority.
- Premier institutions dealing with research on animals, veterinary and fishery should be linked academically for collaborative utilization and sharing infrastructure facilities, expertise and experience for bioprospecting the food security, rural development and economy.
- Programmes needed to be initiated for the exploration of other less known potential varieties of life forms with a view to ensure livelihood and food and financial safety.
- Multivoltine race of silkworm *Bombyx mori* should be tested under different agro climatic zones of India for proper evaluation of their improved efficiency.
- Through selective breeding, sex limited yellow colour cocoon can be achieved in silkworm breed M12W which will reduce the production cost of the fibre.
- Various disease problems in Aquaculture and their management measures are to be worked out in detail to ensure safety of highly nutritious food resources.
- Mangroves, important shelters of marine animals of high food values and source of livelihood of coastal people, should be declared as Natural Reserves. Interactive group should be established involving Animal Science, Fisheries, Agricultural Science (mainly Soil Science) to ensure Mangrove Conservation.
- Ecosystem approach should be used for holistic and sustainable development of Fisheries production.
- Application of molecular tools for wildlife (endangered species) conservation, and nanotechnological tools in rural health and livelihood be given importance.
- National funding agency should provide sufficient funding for research on Animal Taxonomy. Classical taxonomy has gone on backfoot during last 2 decades and proper identification of species of biodiversity importance has become a problem for young researchers.
- Biotechnological tools should be used for the conservation and management of habitats.
- Injudicious use of Pesticides affects the aquatic and terrestrial environment and animal resources. Efforts should be made through Public-Private partnership to mitigate these problems. Also eco-friendly remedial measures should be developed.
- 100% eradication of dengue causing *Aedes* mosquito is possible with the introduction of zooplankton, cyclopoid copepods. Its utilization can be introduced with some precaution. Culture of Makhana (a wetland cash crop which increases zooplankton density) be encouraged which can be utilized for freshwater culture in the wetlands of Bihar.
- Ecological and Molecular Parasitology of Helminths should be incorporated in the university curriculum and researchers should be encouraged to take up research in the frontier areas of Helminthology.

- New tools in molecular endocrinology should be applied to activate the specific resistant genes so as to combat the changing scenario of climate for aquaculture boost.

Earth System Sciences

- Reorganization of India's Earth Sciences institutions is needed.
- India, process of geophysical surveys has to be enhanced substantially.
- Mineralization potential of the Deccan Trap and Himalayan belt needs very serious reassessment.
- India's Uranium potential needs reassessment of intensive exploration. The meeting enclosed with vote of thanks the chair.

Engineering Sciences

- Green technology should be encouraged. Program on harnessing of solar energy should gather more momentum on priority basis.
- System should design and encourage modern comfortable Public Transport system.
- Energy efficient technology has to be developed. Emphasis must be given to the design of devices which will reduce energy consumption yet be efficiently functional to do a given job.
- Outsourcing concept should be phased out step by step with genuine assessment of the actual requirements.
- Adequate attention has to be paid on the Scientific Storage system of food grains and edible. Mere increase in production of agricultural items cannot go on increasing because of the shrinking of agricultural land due to industrialization.
- Awareness should be created to discourage wastage of resources like electricity and water encourage the culture of cleanliness of ambience. Emphasis should be given on the culture of Waste management. This is important not only for aesthetic cause but also for economic benefit.
- Science & Engineering community have contributed more than other professionals but paradoxically the contributions of the real Scientists and Engineers are not visible in the society due to lack of due recognition. And that is why Young students are now-a-days opting for subjects devoid of science and Engineering to build up career. Mere distribution of few fellowships will not solve the problem unless the science and engineering profession is respected socially.

Environmental Sciences

- It has been realized that different institutions should come together and a system be received to share the knowledge.
- On each subject area, concerned Central and State Government Department should make position to receive findings of various researchers and utilize them appropriately.

Information and Communication science and Technology (including Computer Sciences)

- Focus of ICT should be switched to mobile phone technology so as to widen up the scope of the field and make it reachable for common men. More and more applications related to mobile concepts should be encouraged.
- Thrust on research to be aligned with the millennium challenges for solving the 'famous' unsolved problems.
- The scope of science should be cinemascope so as to reach everybody. The popularity generating outlook should be expanded to cover the non-science community of the country.

- Sectional programs should be more centric towards the applicability and sustainability of the subject.
- Plenary sessions may be well publicized to the local people, specially in the academic and industrial communities.
- Research scholars have to be given a special platform with a view to generate more inter-disciplinary interest to be nurtured.
- A separate track for the presentation of research scholars who have recently (in the last one year) submitted their Ph.D. thesis selected through a review process.
- An award also could be given to best Ph.D. thesis.

Materials Science

- Materials Science community must reorganize its resources, manpower and focus on development of materials for energy (traditional and alternative), health (drug delivery, prosthesis, body-implants), green technology (environment, structure, effluent treatment) and efficient use of the natural resources (coal, minerals, water). A national level initiative is absolutely essential to harness solar, wind and atomic energy and develop commercially viable and portable devices (photovoltaic and fuel cells). A similar effort is also required to develop a policy document for production of key engineering materials like steel, cement, petroleum, rayon, fibre, etc.
- While funding for new or novel material development (synthesis and characterization) is needed, unambiguous focus and commitment on the true scope of application, realistic prediction of feasibility and success (milestones, targets), and well defined targets and deliverables with quantifiable index are essential for achieving breakthroughs in Materials Science and Technology.
- Reallocation of funds and manpower is desired to boost research to above threshold level and achieve landmark success (plant, product, machine, device) in material and technology development in key (automobile, micro-electronic, sensor) and strategic (energy, space, defence, water) sectors.
- While applied research will bring accountability, fundamental research should not be ignored but pursued in centres of excellence of proven credentials.
- Research in Materials Science and Technology must receive a boost with larger number of fellowships, research projects, pilot plant level (start up) grants, and incentives for mentors or supervisors. Number of doctorates in India is far too low in India than that in China, Japan or USA. The country also faces an acute shortage of technical manpower to run sophisticated equipments, processors, devices and facilities. We should extend grants and encouragements to private institutions with proven credentials and should not be confined only to Government Institutions. Above all, appointment of fresh and young scientists and engineers should be promoted instead of ad-hoc appointments of retired personnel.
- Sponsored projects must be properly and routinely monitored and evaluated. Continuation must be linked to transparent and objective assessment in reasonable intervals.
- Characterization and testing of materials is a major bottleneck for larger participation of research community in high-end and strategic areas of research. Sophisticated equipments, gadgets or facilities are prohibitively expensive both in terms of capital investment and maintenance. As a results, these privileges lie only with large and major institutions (IISc, IITs, Central Universities and National Laboratories), and that too, only to certain groups and individuals. For larger participation and contributions from the entire research community, we need to create central and

regional centres for characterization and testing of materials and components. These facilities must be manned by trained and paid technicians and not scientists with active career interests. The users must pay booking charges and the equipments must be run, manned and maintained from such booking charges. The Regional Instrumentation Centres created in the past were mooted with this very objective, but they have failed to live up to the desired level. The Government must take a fresh look at this problem.

- Indiscriminate proliferation of institutes and courses in the garb of advanced materials, nano-technology or materials science should not be allowed, Instead, a nation wide exercise is needed to develop a common curriculum on Materials Science and Engineering with room for specialization through electives and minor subjects so that both traditional sectors like steel, aerospace, plastics and semiconductors, as well as advanced areas like nanotechnology, bio-technology or energy science can be equally addressed and served.
- Career in Materials Science and Technology should be as attractive as that in banking, finance and information technology areas so that the best students willing to pursue career in Materials Science do not leave their academic pursuit or research career prematurely or in between.
- The key components or challenges that the materials community should immediately address in right earnestness are solar and fuel cells, sensors, light weight composites, auto grade steels, advanced ceramics, etc.

Mathematical Sciences (including Statistics)

- Because of better facilities and no retirement age a large number of Indian Mathematicians is settled abroad. The credit of their research contributions goes to other countries and not to India. This is not good in the national perspective. To curb this menace the following are suggested.
 - a. As at the entry level NET clearance is required, similarly at the age of 55-66, there should be a national level screening and based on the academic record one should be granted further extension irrespective of the affiliation (Universities/central universities/IITs).
 - b. To prevent senior mathematicians from settling abroad, Research Professorships with reduce teaching load should be created. This will also benefit the young researchers as their supervisors will be able to give more time to them.
- Clearance of at least two advance courses after M.Sc. (Called Pre-Ph.D. courses) and at least two publications in refereed journals should be made mandatory for the submission of the Ph.D. thesis.
- The infrastructure facilities, expertise and experience available at mathematics research centers like TIFR, Mumbai, MATSCIENCE, Chennai and HRI, Allahabad should be shared and utilized by a wider section of the mathematics community. For this sabbatical leave rules should be liberalized.
- Industry/Government should provide more research opportunities to attract the young talents.
- Steps (such as training from primary level) should be taken to improve the performance of the Indian team in the International Mathematics Olympiad.
- In the CSIR-UGC NET scheme for JRF and Lectureship ‘Statistics’ is made a part of ‘Mathematical Sciences’, while ‘Computer Science and Applications’ enjoys independent stature. In the question papers there are more questions from mathematics and very few questions from statistics. There is a lot of freedom of choice for the students with basic degree in mathematics but NOT for those who have degrees in Statistics. It is therefore recommended that as in the UPSC list of subjects for Civil Services Examination where statistics and mathematics figure as different

subjects, similarly in the JRF and Lectureship Mathematics and Statistics should be considered as two different subjects.

- Ramanujan Birthday (December 22) should be declared as a “National Mathematics Day” programmes like seminars, paper presentations, quiz competitions should be held in all Mathematics Research Institutes/Universities/Colleges on this day.

Medical Sciences (including Physiology)

- More emphasis on Research on Basic Medical Sciences
- Improvement of science by Public Private Partnership (PPP) model and setting of uniform rules & controlling body.
- Accommodate and acclimatization of impact of Globalization issue on health sector.
- Stoppage of Medical Scientist migration and encourage the persons who has been migrated to come back i.e., brain drain to brain gain.
- Evidence based learning – provisions & budgetary allocations.
- To gain trust towards a torture free world.

New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)

- Launch New Biology Initiative to
 1. Accelerate the growth of the New Biology
 2. Achieve solutions to societal challenges in food, energy, environment, and health
- Develop interdisciplinary curricula, graduate training and educator training to create and support New Biology
- Develop the information sciences and technologies that will be critical to the success of the New Biology
- Develop Entrepreneurs by
 1. setting up more technology incubators in universities and research institutions
 2. encouraging partnership with industry
 3. setting up funds at state level to support and nurture new ideas for commercialization for societal benefit

Physical Sciences

- It was resolved that the National sensor laboratory may be established, especially in under developed areas of the country (e.g. Bihar), as the work on different sensors is reported from the various physics departments of Universities in Bihar.
- The number of young scientist prizes and poster awards may be increased.
- Steps should be taken to attract good students for graduate and postgraduate courses in Physics.

Plant Sciences

- Priority should be given to document the plant wealth of the Hot Spots of the Country.
- Documentation of Indigenous knowledge and use of Botanicals, their validation and value addition for shaping them into medicines should be given emphasis so as to make plant sciences much more attractive and valuable to the Society. Interface between Biotechnology, Molecular Biology and Pharmacology can be created to achieve this goal.
- Plant Science learning and teaching should be made more attractive through unified syllabi and curricula both at the Graduate and Post-Graduate levels.

OTHER ACTIVITIES

ISCA Chapters

The Association started organizing popular science lectures in different centers in India from 1962-63. This scheme envisaged constructive work for the popularisation and advancement of science throughout the year. Till 1985-86 these lectures were delivered at seventeen centers spread over the country. These activities were restructured with the formation of Regional Chapters.

One of the major objectives of the ISCA is to inculcate scientific temper among people and to encourage young scientists to develop steadily by involving them in the programmes relevant to fundamental, experimental and operational activities. To further these objectives ISCA started Chapters from 1986-87 in different places in India. In 2009-2010, there were 21 ISCA Chapters at Allahabad, Amravati, Banasthali, Bangalore, Baroda, Bhopal, Bhubaneswar, Chennai, Coimbatore, Delhi, Guwahati, Hyderabad, Jaipur, Jammu, Kanpur, Karnal, Kolkata, Mumbai, Nagpur, Shillong and Visakhapatnam.

Observation of Hindi Week

The Hindi Week of ISCA was celebrated from 14.09.2009 to 18.09.2009 and especially the Hindi Day, 14th Sept, 2009 was celebrated in collaboration with The Paschim Banga Rashtra Bhasa Prachar Sabha at ISCA auditorium. Mr. Satish Kumar Pandey, Translation cum Training Officer, Central Translation Bureau, Kolkata was the Chief Guest. Dr. Ashok Kumar Saxena, General Secretary (Outstation), ISCA presided over the programme.

PUBLICATIONS

Proceedings of the Ninety-sixth Annual Session of the Indian Science Congress Association were published. The bi-monthly journal Everyman's Science (Vol. XLIV Nos. 1-6) was brought out.

Other publications brought out were : ISCA Directory : 2009-2010, Annual Report : 2008-2009, List of Office-Bearers & Sectional Committees for 2009-2010, Honorary Member, Donor & Life Members for 2009-2010, Members (With Voting Right) for 2009-2010, Synopsis of the Presentations of ISCA Young Scientist Awardees for 97th ISC, proceeding (containing Presidential Address, abstracts of Platinum Jubilee Lecture, Awards Lecture, papers presented and invited lectures of different sections etc.

LIBRARY SERVICE

During the year under report, the Library of the Indian Science Congress Association received the following journals/newsletters in exchange of the Association's journal "Everyman's Science" :

Chemecology	Indian Science Cruiser
CSIR News	Indian Spices
DRDO News	JIMA
Environmental Awareness	Natural History (Bombay)
Environmental Health Perspectives	S & T Post
Gana Darpan	Science & Culture
Gyan Bigyan	Spices India
IASSI News	University News
INSA News	UNESCO News
ICSSR Newsletter	WMO Bulletin
Indian Journal of Physics	WISTA

The Library is open to all category of members of the Association as well as school, college and university teachers on all weekdays (except Saturday, Sunday and Public holidays) from 10.00 a.m. to 5.30 p.m.

OTHER ITEMS

ISCA MEETINGS

Following meetings of different bodies were held during the year 2009-2010 :

Name of the Body	Meetings held on
<i>Council</i>	May 1, 2009 October 28, 2009 and January 2, 2010 (adjourned to January 7, 2010)
<i>Executive Committee</i>	May 1, 2009, July 20, 2009 (Emergency Meeting, October 28, 2009) January 2, 2010 (adjourned to January 7, 2010) February 11, 2010 & March 29, 2010 (Additional Meetings)
<i>Advisory Committee</i>	April 20, 2009
<i>Finance Committee</i>	April 30, 2009 and October 27, 2009
<i>Establishment Committee</i>	April 30, 2009, October 27, 2009 and January 2, 2010
<i>Standing Committee on Science and Society</i>	April 30, 2009
<i>Endowment Committee</i>	January 2, 2010
<i>Assesment Committee</i>	September 14, 2009
<i>General Body</i>	January 7, 2010

Besides, two meetings of the General President with Sectional Presidents of 97th Indian Science Congress were held on April 30, 2009 and October 28, 2009. Also, meeting of Conveners of ISCA Chapters were held on January 2, 2010.

ISCA Representation in other Organizations during 2009-2010

Indian National Science Academy, New Delhi :

Dr. Ganesh Pandey, Head & Scientist - G, Division of Organic Chemistry, National Chemical Laboratory, Pune-411 008, Maharashtra (from January 1, 2009 to December 31, 2009)

Prof. S.S. Katiyar, former General President, Former Vice-Chancellor, Chhatrapati Shahu Ji Maharaj University, Kanpur, 7/111, Swaroop Nagar, Kanpur-208 002 (from 1st January 2010 to December 31, 2011)

Post Graduate Institute of Medical Education and Research, Chandigarh :

Prof. B.P.Chatterjee, former General Secretary (Headquarters), ISCA, Emeritus Fellow, AICTE and Emeritus Professor, West Bengal University of Technology, Sector - I, BF - Block, Salt Lake, Kolkata-700 064

Indian National Academy of Engineers, New Delhi :

Dr. P.Rama Rao, Past General President, ISCA, Chairman, Governing Council, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Balapur P.O., Hyderabad-500 005

Sri Lanka Association for the Advancement of Science (SLAAS)

Dr. Dhyanendra Kumar, Arrah, Member, Executive Committee represented the Indian Science Congress Association (ISCA) in the 65th Annual Session of Sri Lanka Association for the Advancement of Science (SLAAS) held at University of Kelaniya, Sri Lanka

JIPMER, Puducherry

Prof. Avijit Banerji, General Secretary (Hqrs.), ISCA, Programme Coordinator, Centre of Advanced Studies, Department of Chemistry, University Colleges of Science and Technology, 92, Acharya Prafulla Chandra Road, Kolkata-700 009.

All India Institute of Medical Sciences, New Delhi :

Prof K.C.Pandey, General President (Elected), Department of Zoology, Lucknow University, B1-240-A, Sector G, Jankipuram, Lucknow, (from January, to December 31, 2010).

MEMBERSHIP

The trend in Membership of different categories during the last three years can be observed from the following table :

	95 th Session (2007-2008)	96 th Session (2008-2009)	97 th Session (2009-2010)
Life Member	13,188	14,236	15,635
Annual Member	6,113	5,321	6,684
Sessional Member	639	609	2,748
Student Member	485	337	608
Individual Donor	13	13	13
Institutional Donor	29	29	29
Institutional Member	12	11	17
Total	20,479.00	20,556.00	25,734.00

ORGANIZATIONAL SET-UP*

The composition of GB/GC/FC :

The composition of **General Body** of ISCA consists of all the Members (with voting right) and Honorary Members of the Association.

The **Council** consists of (i) Members of Executive Committee, (ii) all such Members or Honorary Members of the Association who have held office as General President, General Secretary or Treasurer, (iii) Sectional Presidents, (iv) seven members of the Association elected by the General Body, (v) one

* In accordance with the suggestion given by DST in its letter No.AI/AR/004/2007 dated 31-03-2007 the above materials on organizational set-up are also furnished.

member to be nominated by The Kolkata Municipal Corporation, (vi) Co-opted members of the Finance and Establishment Committee, (vii) Editor-in-Chief of Everyman's Science, and (viii) a nominee of Indian National Science Academy (INSA) Council who is a member of ISCA.

The **Executive Committee** consists of the General President, the Immediate Past General President, the General President-Elect, the two General Secretaries, the Treasurer, ten members elected by the General Body, and Secretary or his nominee, Department of Science and Technology, Government of India and two local Secretaries of the ensuing session.

ISCA has six **Statutory Committees viz** : (i) Advisory Committee (ii) Finance Committee (iii) Establishment Committee (iv) Publication Committee (v) Endowment Committee and (vi) Standing Committee on Science and Society.

Staff Welfare measures :

No staff welfare matters was taken during the year under report.

Implementation of reservation policy :

The Association is following the policy of the Government of India in the matter of recruitment of its staff members. The roster showing the reservation of the post for SC/ST is under preparation.

A Special Recruitment drive was carried out for filling up the following posts during the year :

1. Group II(3) (Office & Supporting Technical Staff) – One post for Physically Challenged (process initiated from 2008-2009)
2. Group II(1) (Office & Supporting Technical Staff) – One post for S.C.

Implementation of the Official Languages Policy :

Steps to implement the provisions of Official Languages Policy as adopted by the Government of India from time to time, have been taken by the Association by way of printing of letterheads, title headings in different registers, name plates of different sections, membership forms, annual report, etc. in bi-lingual forms. A Hindi Translator is looking after the above work.

Right to Information Act :

As per Right to Information Act a Public Information Officer has been identified from the existing Officers and her name has been displayed in the ISCA Website. Any enquiry received regarding R.T.I. is taken care of by the concerned Officer.

Public Grievances Redress Mechanism :

There is no separate cell to take care of Public Grievances, Generally the General Secretaries and Executive Secretary take necessary action on complaints received from the members of the Association. There is also a Vigilance Officer whose name has been displayed in the ISCA Website.

Citizen's Charter :

Reservation Policy under the Corporate Social Responsibility :

The Association is following the Reservation Policy of the Government of India in respect of SC/ST/OBC in the matter of recruitment of its staff members and a roster is maintained in this regard.

ACKNOWLEDGEMENTS

The Executive Committee of the Indian Science Congress Association (ISCA) is grateful to the Department of Science & Technology, Government of India, for the generous grant-in-aid to the Association. The Committee would also like to record its deep appreciation of the continued help and cooperation received from officers and staff of DST.

The Executive Committee records its great appreciation of the personal interest for hosting and organizing the 97th Indian Science Congress by Prof. A. Jayakrishnan, Vice-Chancellor, University of Kerala. Sincere thanks are also due to the Local Secretaries, Vice-Chancellor and their associates, for their untiring efforts to make the 97th Indian Science Congress a grand success.

The Executive Committee also expresses its indebtedness to the Council and the members of the General Body as also Members of different Committees and Sub-Committees, Sectional Presidents, Sectional Recorders, Local Sectional Secretaries, Chapter Conveners and members of the Sectional Committees for their guidance and advice. In referring to the success achieved at the 97th Session, it is a pleasure for the Committee to record its gratefulness to the General President, Dr. G.Madhavan Nair for all his efforts to make the 97th Indian Science Congress a great success and memorable one.

Last but not least, no record of acknowledgement could be complete without expressing the deep appreciation of the work done by the staff of the Association throughout the year.

TITLE OF ADDRESSES OF SECTIONAL PRESIDENTS OF 97TH SESSION

Section	President	Title
1. <i>Agriculture and Forestry Sciences</i>	Dr. D.D. Patra	Crop Diversification : Scope and Strategies
2. <i>Animal, Veterinary and Fishery Sciences</i>	Dr. G.K. Kulkarni	Crustaceans as a Source of Food Security for Rural Livelihood
3. <i>Anthropological and Behavioural Sciences (Including Archaeology, Psychology and Educational Sciences and Military Sciences)</i>	Dr. Avneesh Singh	Role of Behavioural Sciences in 21 st Century : National Perspective
4. <i>Chemical Sciences</i>	Dr. J.S. Yadav	Green Chemistry
5. <i>Earth System Sciences</i>	Prof. H. S. Sharma	Climate Change, Desertification and Water Resource Management in India
6. <i>Engineering Sciences</i>	Dr. G.S. Mukherjee	Emerging Challenges and Opportunities Through Nano and Macromolecular Technologies
7. <i>Environmental Sciences</i>	Prof. S.P. Gautam	Prevention and Control of Pollution : Challenges, Issues and Tasks Ahead
8. <i>Information and Communication Science & Technology (including Computer Sciences)</i>	Prof. Mrs. Shraddha V.Ingale	Role of ICT in Socio-Economic Development
9. <i>Materials Science</i>	Prof. Indranil Manna	Development of a New Class Of Age Hardenable Aluminum Alloys with Nanometric Intermetallic Precipitates in Amorphous Matrix
10. <i>Mathematical Sciences (including Statistics)</i>	Prof. A.K. Agarwal	Ramanujan's Last Discovery- The Mock Theta Functions
11. <i>Medical Sciences (including Physiology)</i>	Prof. T.K. Bose	Torture Historial, Social and Legal Aspects with changing Scenario
12. <i>New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)</i>	Prof. P.K. Seth	New Biology and Environmental Health
13. <i>Physical Sciences</i>	Prof. S.H. Behere	Advances in Experimental and Theoretical spectroscopy of Diatomic Molecules
14. <i>Plant Science</i>	Prof. Pramod Tandon	Plant Diversity : Perspectives of Conservation and Value Addition

97th SESSION – PLATINUM JUBILEE LECTURES

Section	Speaker	Title
<i>Agriculture and Forestry Development Sciences</i>	C.D. Mayee Chairman, Agricultural Scientists Recruitment Board, New Delhi-110012	Biotechnology and Agriculture in India : Strategies and Challenges
<i>Animal, Veterinary and Interaction Fishery Sciences</i>	Neelima Gupta Department of Animal Sciences, Mjp Rohilkhand University, Bareilly-243006	Life within the Blood : Action Vs
<i>Anthropological and Behavioural Sciences (including Archaeology, Psychology and Educational Sciences and Military Sciences)</i>	Absent	
<i>Chemical Sciences Synthesis</i>	G.D. Yadav Director and R.T.Mody Professor, Institute of Chemical Technology, (Deemed University) Matunga, Mumbai-400 019	Insight into Catalyst Design and for Development of Green Processes
<i>Earth System Sciences</i>	Rana Pratap Formerly Professor & Head, Department of Geography, Dean Faculty of Science, Magadh University, Bodhgaya	Impact Study of the Climate change on the Agriculture System of the Middle Ganga Plain Region of Bihar
<i>Engineering Sciences</i>	D.V. Khakhar Department of Chemical Engineering Indian Institute of Technology- Bombay, Powai, Bombay-400 076	Polymerization of Rodlike Polymers
<i>Environmental Sciences</i>	S.M. Paul Khurana Rani Durgavati Vishwavidyalaya, Jabalpur-482 001 (M.P.)	The Environmental Hazards of Plastic Wastes in India and Prospects for Replacing Conventional Plastics with the New Generation Bioplastics

Section	Speaker	Title
<i>Information and Communication & Technology (including Computer Sciences)</i>	S.B.Nimse Vice-Chancellor, SRTM University, Nanded-431606 (Maharrashtra)	The P Verses NP Problem when Science Fail !
<i>Materials Science</i>	Atul H. Chokshi Dept. of Materials Engineering, Indian Institute of Science, Bangalore-560 012	Grain Boundary Processes in the Behavior of Materials
<i>Mathematical Sciences (including Statistics)</i>	Anand P. Singh Department of Mathematics, University of Jammu, Jammu-180 006	Complex Dynamics : An Overview
<i>Medical Sciences (including Physiology)</i>	Indrajit Ray Pro-Vice Chancellor West Bengal University of Health Sciences, Kolkata.	Health and Globalization
<i>New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)</i>	Amit Sharma Group Leader, Structural and Computational Biology Group, International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi.	Structural Biology of Malaria Parasite Proteins : Insights and Implications for Drug Discovery
<i>Physical Sciences</i>	B.N. Jagatap Laser & Plasma Technology Division, Homi Bhabha National Institute, Bhabha Atomic Research Centre, Mumbai-4 00 085	Atoms, Molecules and Photons : From Precision Measurements to Quantum Control
<i>Plant Sciences</i>	Jitendra P. Khurana Department of Plant Molecular Biology, University of Delhi South Campus, New Delhi-110 021	Genes Controlling Flowering in Arabidopsis and Rice

**TITLE OF SYMPOSIA ON SPECIALISED TOPICS
ORGANISED BY THE SECTIONS OF 97TH SESSION**

Section	Topic(s)
1. <i>Agriculture and Forestry Sciences</i>	Diversifying Cropping Systems for Sustaining Productivity and Rural Upliftment
2. <i>Animal, Veterinary and Fishery Sciences</i>	Bio-resources as a tool for food security and rural livelihood – Challenges of 21 st Century
3. <i>Anthropological and Behavioural Sciences (Including Archaeology, Psychology and Educational Sciences and Military Sciences)</i>	Emerging Behavioural Strategies : National Perspective
4. <i>Chemical Sciences</i>	Conference on Sustainable Chemistry
5. <i>Earth System Sciences</i>	Paradigm in 21 st Century : Vision for climate change adaptation, natural disaster resilience and development of alternate energy resources
6. <i>Engineering Sciences</i>	Engineering/Science & Technologies : Nano and Macromolecules
7. <i>Environmental Sciences</i>	Pollution Abatement – Issues and Options
8. <i>Information and Communication Sciences & Technology (including Computer Sciences)</i>	Integrating ICT with Socio-Economic Development
9. <i>Materials Science</i>	Materials Challenges in Space Technologies
10. <i>Mathematical Sciences (including Statistics)</i>	Recent trends in Discrete Mathematics
11. <i>Medical Sciences (including Physiology)</i>	New Technologies in Medical Science with Impact on Society
12. <i>New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)</i>	Advances in New Biology and their Applications in Health and Diseases
13. <i>Physical Sciences</i>	Spectroscopic Techniques : From Astrophysics to Nano-science
14. <i>Plant Sciences</i>	Plant Diversity : Perspectives of Conservation and Value Addition.

LIST OF YOUNG SCIENTIST AWARDEES FOR 2009-2010

Section	Name of the Awardee	Title of Paper(s)
<i>Agriculture and Forestry Sciences</i>	M.P. Raghavendra Department of Studies in Botany University of Mysore Manasagangotri, Mysore-570 006	A Novel Botanical Fungicide Julifloravizole Isolated from <i>Prosopis juliflora</i> (Sw.) DC. for
<i>Animal, Veterinary and</i>	Mahua Gupta Choudhury Department of Zoology North-Eastern Hill University Shillong-793 022	Influence of Environmental Ammonia on Production of Nitric Oxide and Expression of
<i>Anthropological and Behavioural Sciences (including Archaeology and Psychology & Educational Sciences and Military Sciences)</i>	Priyanka Singh Department of Anthropology Dr. Hari Singh Gour University Sagar, M.P.	Somatoscopic Observations on Human External Ear – Its Application in Biometrics
<i>Chemical Sciences</i>	I. Ravikumar Department of Inorganic Chemistry Indian Association for the Cultivation of Science, Jadavpur Kolkata-700 032	Recognition, Selectivity and Sensing Studies of Tetrahedral and Linear Anions
<i>Earth System Sciences</i>	Chandrani Singh National Geophysical Research Unit Uppal Road Hyderabad-500 606	Quantification of Substratum Response to Two M>4.5 Earthquakes in the Koyna- Warna Region During 2005
<i>Engineering Sciences</i>	Subimal Ghosh Department of Civil Engineering Indian Institute of Technology Bombay, Powai, Mumbai.	SVM-PGSL Coupled Approach for Prediction of Rainfall using GCM Outputs incorporating Impacts of Climate Change
<i>Environmental Sciences</i>	Divya Bajpai Mycological Research Laboratory Department of Biological Sciences R.D. University Jabalpur-482 001	Isolation Purification and Preliminary Characterization of phytotoxin from <i>Streptomyces</i> sp.Div-57 for the management of invasive weed <i>Parthenium</i> <i>hysterophorus</i> L.
<i>Information and Communication Sciences & Technology (including Computer Sciences)</i>	Gaurav Gupta Directorate of Forensic Science New Delhi, MHA, GOI	Development of methodology for detection and fixing of physical devices for security and forensic applications

Section	Name of the Awardee	Title of Paper(s)
Materials Science	Kantesh Balani Department of Materials and Metallurgical Engineering Laboratory Biomaterials Indian Institute of Technology Kanpur-208 016	Interfacial Bonding and Biocompatibility of Carbon Nanotube Reinforced Hydroxyapatite Nanocomposite
Mathematical Sciences (Including Statistics)	Arabin Kumar Dey Dept. of Mathematics & Statistics Indian Institute of Technology Kanpur-208 016	Discriminating Between the Bivariate Generalized Exponential and Bivariate Weibull
Medical Sciences (including Physiology)	Debasis Pore Division of Pathophysiology National Institute of Cholera and Enteric Diseases (ICMR) P-33, CIT Road, Scheme XM, Kolkata-700 010	An Approach Towards the Development of a Candidate <i>Shigella Vaccine</i>
New Biology (Including Bio-chemistry, Biophysics & Molecular Biology and Biotechnology)	Suneel Kateriya Department of Biochemistry University of Delhi New Delhi-110021	Development of Light Sensitive Protein Tools for Clinical Application
Physical Sciences	Sunil Kumar Singh Laser and Spectroscopy Laboratory, Department of Physics Banaras Hindu University Varanasi-221005	Er ³⁺ - Yb ³⁺ codoped Gd ₂ O ₃ nanocrystalline phosphor : Synthesis, Characterization and multifunctional applications
Plant Sciences	Siddharth Tiwari Plant Molecular Biology and Genetic Engg.Division National Botanical Rresearch Institute, Rana Pratap Marg, Lucknow-226 001	Expression of d-endotoxin cry 1EC from inducible promoter imparts insect protection in peanut (<i>Arachis hypogaea L.</i>) plants
	Sangram Keshari Lenka National Research Centre on Plant Biotechnology Indian Agricultural Research Institute New Delhi-110012	Expression Profiling and Characterization of Abiotic Stress Responsive Transcription Factor Genes from <i>Oryza sativa L</i>

**LIST OF AWARDEES JUDGED AS BEST POSTER PRESENTED
DURING THE 97TH INDIAN SCIENCE CONGRESS-2010**

Sections	Name of the Awardee(s)
<i>Agriculture and Forestry Sciences</i>	<ol style="list-style-type: none"> 1. Kalpana P. Department of Microbiology/ Food Science Technology, GITAM Insitute of Science, Visakhapatnam 2. Mini Abraham Agronomy Research Station, Kerala Agricultural University, Chalakudy
<i>Animal, Veterinary and Fishery Sciences</i>	<ol style="list-style-type: none"> 1. K. Ramachandran Department of Zoology, University of Kerala, Thiruvananthapuram. 2. P.S. Kudnar Department of Zoology, Dr. Dadasaheb Ambedkar Marathawada University, Aurangabad
<i>Anthropological and Behavioural Sciences (including Archaeology and Psychology & Educational Sciences and Military Sciences)</i>	<ol style="list-style-type: none"> 1. Roshna C.R. St.Mary's College, Manarcand, Kottyam (Kerala), 2. Abhiyam Viplan Amity University, Noida.
<i>Chemical Sciences</i>	<ol style="list-style-type: none"> 1. Kalpana Chaturvedi Department of Chemistry Agra College, Agra. 2. Santosh Kumar Varma School of Studies in Chemistry, Pt.R.S.University, Raipur
<i>Earth System Sciences</i>	<ol style="list-style-type: none"> 1. Sinam Reena Chanu Departtment of Earth Sciences, Manipur University, Imphal 2. R.K. Chinga Khei Department of Earth Sciences, Mani University, Imphal

Sections	Name of the Awardee(s)
<i>Engineering Sciences</i>	<ol style="list-style-type: none"> 1. Ranjit G. Nair Department of Energy, Tezpur University, Tezpur 2. V.K. Sharma Institute for System Studies & Analysis, RADO, Metcalfe House, New Delhi
<i>Environmental Sciences</i>	<ol style="list-style-type: none"> 1. Ruchi Gupta Sriram Institute for Industrial Research, Delhi 2. S.H. Basavarajappa University of Mysore, Mysore
<i>Information and Communication Science and Technology (including Computer Sciences)</i>	<ol style="list-style-type: none"> 1. Arun Gangrade New Arts, Commerce & Science College, Ahmednagar (M.S.) 2. Ranjana Zinjore Department of Computer Sciences, North Maharashtra University, Jalgaon (M.S.)
<i>Materials Science</i>	<ol style="list-style-type: none"> 1. Anna Dilfi K.F. Department of Polymer Sciences & Technology, CUSAT, Kochi 2. S.K. Sinha Metall & Mater Engineering Department. Indian Institute of Technology, Kharagpur
<i>Mathematical Sciences (including Statistics)</i>	<ol style="list-style-type: none"> 1. A.K. Singh Department of Applied Mathematics, Indian Institute of Mines, Dhanbad 2. H.S. Ramananda Department of Mathetics, Mangalore University, Managlagangotri (Karnataka)

Sections	Name of the Awardee(s)
<i>Medical Sciences (including Physiology)</i>	<ol style="list-style-type: none"> Rejiya C.S. Department of Bio-chemistry, University of Kerala, Thiruvananthapuram. Rosy Mondal Department of Bio-technology, Assam
<i>New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)</i>	<ol style="list-style-type: none"> S. Arunima Department of Biochemistry, University of Kerala, Thiruvananthapuram. S. Binu Department of Biochemistry, University of Kerala, Thiruvanthapuram. Bhavna Devey Central Forensic Science Laboratory, Kolkata (Joint Prize).
<i>Physical Sciences</i>	<ol style="list-style-type: none"> Hubert Joe Centre for Molecular & Biophysics Research, Mar Lvanios College, Thiruvananthapuram T.V. Padmakumar Mankuzhy House, Panagappa P.O., Thiruvananthapuram
<i>Plant Sciences</i>	<ol style="list-style-type: none"> Jeremy Dkhar Centre for Advanced Studies in Botany. North Eastern Hill University, Shillong. Mariet Jose Rajiv Gandhi Centre for Biotechnology, Trivandrum

MEMBERS OF THE COUNCIL FOR 2009-2010

General President

Dr. G. Madhavan Nair, Bangalore

Immediate Past General President

Dr. T. Ramasami, New Delhi

General President-Elect

Prof. K.C. Pandey, Lucknow

General Secretary (Outstation)

Dr. Ashok K. Saxena, Kanpur
(Additional charges of the duties
of General Secretary, Head Quarters)

Treasurer

Prof. B.P. Chatterjee, Kolkata

Elected Members of the Executive Committee

Prof. S.S. Katiyar, Kanpur
Dr. (Mrs.) Vijay Laxmi Saxena, Kanpur
Mr. Gauravendra Swarup, Kanpur
Prof. R. Ramamurthi, Tirupati
Prof. Gangadhar, Bangalore
Dr. P.P. Mathur, Puducherry
Dr. M. Aruchami, Coimbatore
Prof. Santosh Kumar, Bhopal
Dr. Dhyanendra Kumar, Arrah
Prof. Aditya Shastri, Banasthali

Representative of Department of Science & Technology, Government of India

Dr. B. Hari Gopal, New Delhi

Local Secretaries

Smt. T.S. Ramadevi, Thiruvananthapuram
Prof. T. Rajamohan, Thiruvananthapuram

Past General Presidents

Prof. M.S. Swaminathan, Chennai
Dr. H.N. Sethna, Mumbai
Prof. A.K. Sharma, Kolkata
Prof. M.G.K. Menon, New Delhi
Prof. R.P. Bambah, Chandigarh
Prof. C.N.R. Rao, Bangalore
Prof. Yash Pal, Noida
Prof. D.K. Sinha, Kolkata
Dr. Vasant Gowariker, Pune
Dr. S.Z. Qasim, New Delhi
Prof. P.N. Srivastava, Gurgaon
Dr. S.C. Pakrashi, Kolkata
Prof. U.R. Rao, Bangalore
Prof. S.K. Joshi, New Delhi
Dr. P. Rama Rao, Hyderabad
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Editor-in-Chief of Everyman's Science

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Shri Nilangshu Bhusan Basu, Kolkata

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Staff Car Driver

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Mr. Gopal Nath

Mr. Dipesh Chandra Ghosh

* Superannuated on 31.01.2010

**THE PAST GENERAL PRESIDENTS OF
INDIAN SCIENCE CONGRESS ASSOCIATION**

<i>Session</i>	<i>Year</i>	<i>Place</i>	<i>Name</i>	<i>Title of the Presidential Address</i>
1st	1914	Calcutta	Hon. Justice Sir Asutosh Mookerjee	About Science Congress
2 nd	1915	Madras	Hon. Surgeon-General Dr. W.B. Bannermann	The Importance of Knowledge of Biology to Medical, Sanitary and Scientific Men Working in the Tropics
3 rd	1916	Lucknow	Colonel Sir Syndey Burrard	The Plains of Northern India and their Relationship to the Himalayan Moutains
4 th	1917	Bangalore	Sir Alfred Gibbs Bourne	On Scientific Research
5 th	1918	Lahore	Dr. Gilbert T.Walker	On Teaching of Science
6 th	1919	Bombay	Lt. Colonel Sir Leonard Rogers	Researches on Cholera
7 th	1920	Nagpur	Acharya Prafulla Chandra Ray	Dawn of Science in Modern India
8 th	1921	Calcutta	Sir Rajendra Nath Mookerjee	On Science and Industry
9 th	1922	Madras	Mr. C.S. Middlemiss	Relativity
10 th	1923	Lucknow	Sir M. Visvesvaraya	Scientific Institutions and Scientists
11 th	1924	Bangalore	Dr. T.N. Annandale	Evolution Convergent and Divergent
12 th	1925	Banaras	Dr. M.O. Forster	On Experimental Training
13 th	1926	Bombay	Mr. Albert Howard	Agriculture and Science
14 th	1927	Lahore	Sir J.C. Bose	The Unity of Life
15 th	1928	Calcutta	Dr. J.L. Simonsen	On Chemistry of Natural Products
16 th	1929	Madras	Professor C.V. Raman	On Raman Effect
17 th	1930	Allahabad	Col. S.R. Christophers	The Science and Disease
18 th	1931	Nagpur	Lt. Col. R.B. Seymour- Sewell	The Problem of Evolution - Experimental Modification of Bodily Structure
19 th	1932	Bangalore	Rai Bahadur Lal Shiv Ram Kashyap	Some Aspects of the Alpine Vegetation of the Himalaya and Tibet
20 th	1933	Patna	Sir Lewis L.Fermor	The Place of Geology in the Life of a Nation

<i>Session</i>	<i>Year</i>	<i>Place</i>	<i>Name</i>	<i>Title of the Presidential Address</i>
21 st	1934	Bombay	Professor M.N. Saha	Fundamental Cosmological Problems
22 nd	1935	Calcutta	Dr. J.H. Hutton	Anthropology and India
23 rd	1936	Indore	Sir U.N. Brahmachari	The Role of Science in the Recent Progress of Medicine
24 th	1937	Hyderabad	Rao Bahadur T.S. Venkatraman	The Indian Village – its Past, Present and Future
25 th	1938	Calcutta	Sir James H. Jeans (Lord Rutherford of Nelson died prematurely)	Researches in India and in Great Britain
26 th	1939	Lahore	Professor J.C. Ghosh	On Research in Chemistry in India
27 th	1940	Madras	Professor B. Sahni	The Deccan Traps : An Episode of the Tertiary Era
28 th	1941	Banaras	Sir Ardeshir Dalal	Science and Industry
29 th	1942	Baroda	Dr. D.N. Wadia	The Making of India
30 th	1943	Calcutta	Dr. D.N. Wadia	Minerals' Share in the War
31 st	1944	Delhi	Professor S.N. Bose	The Classical Determinism and the Quantum Theory
32 nd	1945	Nagpur	Sir Shanti S. Bhatnagar	Give Science a Chance
33 rd	1946	Bangalore	Professor M. Afzal Husain	The Food Problem of India
34 th	1947	Delhi	Pandit Jawaharlal Nehru	Science in the Service of the Nation
35 th	1948	Patna	Colonel Sir Ram Nath Chopra	Rationalisation of Medicine in India
36 th	1949	Allahabad	Sir K.S. Krishnan	—
37 th	1950	Poona	Professor P.C. Mahalanobis	Why Statistics?
38 th	1951	Bangalore	Dr. H.J. Bhabha	The Present Concept of the Physical World
39 th	1952	Calcutta	Dr. J.N. Mukherjee	Science and Our Problems
40 th	1953	Lucknow	Dr. D.M. Bose	The Living and the Non-living
41 st	1954	Hyderabad	Dr. S.L. Hora	Give Scientists a Chance
42 nd	1955	Baroda	Professor S.K. Mitra	Science and Progress
43 rd	1956	Agra	Dr. M.S. Krishnan	Mineral Resources and Their Problems

<i>Session</i>	<i>Year</i>	<i>Place</i>	<i>Name</i>	<i>Title of the Presidential Address</i>
44 th	1957	Calcutta	Dr. B.C. Roy	On Science for Human Welfare and Development of the Country
45 th	1958	Madras	Prof. M.S. Thacker	Grammar of Scientific Development
46 th	1959	Delhi	Dr. A.L. Mudaliar	Tribute to Basic Sciences
47 th	1960	Bombay	Professor P. Parija	Impact of Society on Science
48 th	1961	Roorkee	Professor N.R. Dhar	Nitrogen Problem
49 th	1962	Cuttack	Dr. B. Mukerji	Impact of Life Sciences on Man
50 th	1963	Delhi	Professor D.S. Kothari	Science and the Universities
51 st / 52 nd	1964/ 1965	Calcutta	Professor Humayun Kabir	Science and the State
53 rd	1966	Chandigarh	Professor B.N. Prasad	Science in India
54 th	1967	Hyderabad	Professor T.R. Seshadri	Science and National Welfare
55 th	1968	Varanasi	Dr. Atma Ram	Science in India – Some Aspects
56 th	1969	Bombay	Dr. A.C. Joshi (Prof. A.C. Banerjee died prematurely)	A Breathing Spell : Plant Sciences in the Service of Man
57 th	1970	Kharagpur	Dr. L.C. Verman	Standardization : A Triple Point Discipline
58 th	1971	Bangalore	Dr. B.P. Pal	Agricultural Science and Human Welfare
59 th	1972	Calcutta	Professor W.D. West	Geology in the Service of India
60 th	1973	Chandigarh	Dr. S. Bhagavantam	Sixty Years of Science in India
61 st	1974	Nagpur	Professor R.S. Mishra	Mathematics – Queen or Handmaiden
62 nd	1975	Delhi	Professor (Mrs.) Asima Chatterjee	Science and Technology in India : Present and Future
63 rd	1976	Waltair	Dr. M.S. Swaminathan	Science and Integrated Rural Development
64 th	1977	Bhubaneswar	Dr. H.N. Sethna	Survey, Conservation and Utilisation of Resources
65 th	1978	Ahmedabad	Dr. S.M. Sircar	Science Education and Rural Development
66 th	1979	Hyderabad	Professor R.C. Mehrotra	Science and Technology in India During the Coming Decade(s)
67 th	1980	Jadavpur	Professor A.K. Saha	Energy Strategies for India
68 th	1981	Varanasi	Professor A.K. Sharma	Impact of the Development of Science and Technology on Environment

<i>Session</i>	<i>Year</i>	<i>Place</i>	<i>Name</i>	<i>Title of the Presidential Address</i>
69 th	1982	Mysore	Professor M.G.K. Menon	Basic Research as an Integral Component of Self-reliant Base of Science and Technology
70 th	1983	Tirupati	Professor B. Ramachandra Rao	Man and the Ocean – Resource and Development
71 st	1984	Ranchi	Professor R.P. Bambah	Quality Science in India – Ends and Means
72 nd	1985	Lucknow	Professor A.S. Paintal	High Altitude Studies
73 rd	1986	Delhi	Dr. T.N. Khoshoo	Role of Science and Technology in Environmental Management
74 th	1987	Bangalore	Professor (Mrs.) Archana Sharma	Resources and Human Well-being – Inputs from Science and Technology
75 th	1988	Pune	Professor C.N.R. Rao	Frontiers in Science & Technology
76 th	1989	Madurai	Dr. A.P. Mitra	Science & Technology in India : Technology Missions
77 th	1990	Cochin	Professor Yash Pal	Science in Society
78 th	1991	Indore	Professor D.K. Sinha	Coping with Natural Disaster : An Integrated Approach
79 th	1992	Baroda	Dr. Vasant Gowariker	Science, Population and Development
80 th	1993	Goa	Dr. S.Z. Qasim	Science and Quality of Life
81 st	1994	Jaipur	Professor P.N. Srivastava	Science in India : Excellence and Accountability
82 nd	1995	Calcutta	Dr. S.C. Pakrashi	Science, Technology and Industrial Development in India
83 rd	1996	Patiala	Professor U.R. Rao	Science and Technology for Achieving Food, Economic and Healthy Security
84 th	1997	Delhi	Dr. S.K. Joshi	Frontiers in Science & Engineering and Their Relevance to National Development
85 th	1998	Hyderabad	Professor P. Rama Rao	Science & Technology in Independent India : Retrospect and Prospect
86 th	1999	Chennai	Dr. (Mrs.) Manju Sharma	New Bioscience : Opportunities and Challenges as we Move into the Next Millennium
87 th	2000	Pune	Dr. R.A. Mashelkar	Indian S & T into the Next Millennium

<i>Session</i>	<i>Year</i>	<i>Place</i>	<i>Name</i>	<i>Title of the Presidential Address</i>
88 th	2001	New Delhi	Dr. R.S. Paroda	Food, Nutrition and Environmental Security
89 th	2002	Lucknow	Professor S.S. Katiyar	Health Care, Education and Information Technology
90 th	2003	Bangalore	Dr. K. Kasturirangan	Frontier Science and Cutting-Edge Technologies
91 st	2004	Chandigarh	Professor Asis Datta	Science and Society in the Twenty First Century : Quest for Excellence
92 nd	2005	Ahmedabad	Professor N.K. Ganguly	Health Technology as Fulcrum of Development for the Nation
93 rd	2006	Hyderabad	Dr. I.V. Subba Rao	Integrated Rural Development : Science and Technology
94 th	2007	Annamalainagar	Prof. Harsh Gupta	Planet Earth
95 th	2008	Visakhapatnam	Prof. R. Ramamurthi	Knowledge based Society using Environmentally Sustainable Science and Technology
96 th	2009	Shillong	Dr. T. Ramasami	Science Education and Attraction of Talent for Excellence in Research
97 th	2010	Thiruvananthapuram	Dr. G. Madhavan Nair	Science & Technology Challenges of 21st Century - National Perspective

**THE PAST GENERAL SECRETARIES OF
INDIAN SCIENCE CONGRESS ASSOCIATION**

<i>Year</i>	<i>Name</i>	<i>Year</i>	<i>Name</i>
1913-14	Mr. D. Hooper	1968-71	Prof. R.S. Mishra
1914-26	Dr. J.L. Simonsen	1970-73	Prof. (Mrs.) Asima Chatterjee
1914-20	Mr. P.S. Macmahon	1971-74	Prof. Ram Chand Paul
1920-25	Dr. C.V. Raman	1973-76	Dr. S.M. Sircar
1924-35	Dr. S.P. Agharkar	1974-77	Prof. R.D. Tiwari
1926-30	Dr. Roland V. Norris	1976-79	Prof. A.K. Sharma
1930-32	Dr. H.B. Dunncliff	1977-80	Dr. B. Ramachandra Rao
1932-39	Mr. W.D. West	1979-82	Dr. D. Basu
1935-40	Prof. J.N. Mukherjee	1980-83	Prof. Arun K. Dey
1938-44	Prof. P. Parija	1982-85	Prof. (Mrs.) Archana Sharma
1939-45	Prof. S.K. Mitra	1983-86	Prof. M.K. Singal
1944-45	Prof. P.C. Mitter	1985-88	Prof. D.K. Sinha
1944-49	Prof. M. Qureshi	1986-89	Dr. (Miss) S.P. Arya
1945-48	Prof. P.C. Mahalanobis	1988-91	Dr. S.C. Pakrashi
1948-52	Dr. B. Mukerji	1989-92	Dr. (Mrs.) Gouri Ganguly
1948-52	Dr. B. Sanjiva Rao	1991-94	Prof. D.P. Chakraborty
1952-53	Dr. S.R. Sen Gupta	1992-95	Prof. H.P. Tiwari
1952-55	Dr. B.N. Prasad	1994-97	Prof. S.P. Mukherjee
1953-57	Dr. U.P. Basu	1995-98	Dr. (Mrs.) Yogini Pathak
1955-58	Dr. B.B. Joshi	1997-2000	Prof. A.S. Mukherjee
1957-60	Dr. A.K. Dey	1998-2001	Prof. Uma Kant
1958-61	Dr. B.N. Prasad	2000-2003	Prof. A.B. Banerjee
1960-62	Prof. B.C. Guha	2001-2004	Prof. B. Satyanarayana
1961-65	Prof. P.S. Gill	2003-2006	Prof. B.P. Chatterjee
1962-66	Dr. Atma Ram	2004-2007	Prof. S.P. Singh
1965-68	Prof. Chandra Sekhar Ghosh	2006-2009	Prof. Avijit Banerji
1966-70	Prof. A.K. Saha	2007-2010	Dr. Ashok K. Saxena

**THE PAST TREASURERS OF
INDIAN SCIENCE CONGRESS ASSOCIATION**

<i>Year</i>	<i>Name</i>	<i>Year</i>	<i>Name</i>
1913-14	Dr. R.D. Hooper	1960-65	Prof. P.K. Bose
1914-16	Dr. J.L. Simonsen	1965-68	Prof. (Mrs.) Asima Chatterjee
1916-19	Mr. R.D. Mehta	1968-71	Dr. S.M. Sircar
1919-20	Mr. D.R. Bhandarkar	1971-74	Prof. A.K. Saha
1920-21	Mr. W.W.K. Page	1974-76	Prof. A.K. Sharma
1920-21	Mr. Oswald Martin	1976-77	Prof. A.K. Saha
1921-22	Mr. A.H. Harley	1977-80	Prof. D.N. Kundu
1922-23	Mr. W.R.C. Brierley	1980-82	Prof. (Mrs.) A. Sharma
1923-24	Dr. C.V. Raman	1982-85	Prof. D.K. Sinha
1924-25	Dr. Bains Prashad	1985-86	Prof. Asok Ghosh
1925-26	Dr. S.L. Hora	1986-88	Dr. S. C. Pakrashi
	Dr. Bains Prashad	1988-89	Prof. D.K. Sinha
1930-31	Mr. K.C. Mahindra	1989-91	Prof. D.P. Chakraborty
1931-32	Mr. Jas Insch	1991-92	Dr. D. Basu
1932-34	Mr. K.C. Mahindra	1992-94	Prof. S.P. Mukherjee
1934-37	Dr. S.L. Hora	1994-95	Dr. D. Basu
1937-38	Rai Bahadur	1995-98	Dr. S.B. Mahato
	Dr. S.L. Hora	1998-2000	Prof. A.B. Banerjee
1938-39	Mr. Percy Brown	2000-2001	Prof. S.P. Mukherjee
1939-44	Prof. J.N. Mukherjee	2001-2003	Prof. B.P. Chatterjee
1944-49	Prof. P. Ray	2003-2004	Prof. A.B. Banerjee
1949-52	Prof. K.N. Bagchi	2004-2006	Prof. Avijit Banerji
1952-55	Prof. P.C. Mahalanabis	2006-2007	Prof. A.B. Banerjee
1955-58	Shri B.K. Sarkar	2007-2009	Prof. Col. Dr. R. Sen
1958-60	Prof. B.C. Guha	2009-2010	Prof. B.P. Chatterjee

THE INDIAN SCIENCE CONGRESS ASSOCIATION

**AUDIT REPORT
&
ACCOUNTS**

31st March, 2010

**AUDITORS' REPORT TO THE MEMBERS
OF
THE INDIAN SCIENCE CONGRESS ASSOCIATION**

1.0 We have audited the attached Balance Sheets of The Indian Science Congress Association and The Endowment Fund thereof as on 31st March, 2010 and also the Income and Expenditure Account of Plan, Non-Plan Grants and Endowment Fund and the Receipts & Payments Account for the year ended on that date annexed thereto. These financial statements are the responsibility of the management of The Indian Science Congress Association. Our responsibility is to express an opinion on these financial statements based on our audit.

We have conducted our audit in accordance with the auditing standards generally accepted in India. These Standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the over all financial statement presentation. We believe that our audit provide a reasonable basis for our opinion.

2.0 We enclose in the Annexure (Audit Observations), a statement on the matters observed by us in course of our audit.

3.0 On the basis of audit indicated in paragraph 1.0 & 2.0 above, we report that :

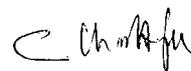
- i) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- ii) In our opinion, proper books of account as required by law have been maintained by the Association so far as appears from our examination of those books.
- iii) The Balance Sheet, Income & Expenditure Account and the Receipts & Payments Account dealt with by this report are in agreement with the books of account.
- iv) In our opinion the Balance Sheet and Income and Expenditure A/c dealt by this report, comply with the applicable Accounting Standards except AS12 and AS15 prescribed by the Institute of Chartered Accountants of India.

4.0 Attention is invited to the "Audit Observations" annexed to the Auditor's Report :

- i) Para No. 1.0 regarding Interest accrued on Investments in General Fund and other funds not routed through Income and Expenditure.

- ii) Para No. 2.0 regarding no system of reconciliation of Grants with respect to the receipts and utilization made thereof.
 - iii) Para No. 3.0 regarding current year depreciation on Non-Plan Fixed Asset not charged to Non-Plan Income and Expenditure A/c.
 - iv) Para No. 4.0 regarding Advance amounting to Rs. 5 lacs remaining unadjusted/unrecovered over a period of 6 months.
 - v) Para No. 5.0 regarding adjustment of Rs. 80,000/- based on a Utilisation Certificate without supporting documents.
 - vi) Para No. 6.0 regarding old Outstanding Liabilities for which immediate steps to be taken for write back/adjustment.
- 5.0 Further attention is drawn to the following paragraph Notes on Accounts (Sch 12, Part-B) enclosed to the Financial Statements :
- i) Para No. 1.0 regarding short provision of Gratuity.
 - ii) Para No. 2.0 regarding non provision of Leave Encashment.
 - iii) Para No. 4.2 regarding non provision of depreciation on “Plan Subscription of Journal” debited to Fixed Assets.
- 6.0 In our opinion and to the best of our information and according to the explanations given to us, the said accounts read with the schedules 1 to 12 enclosed thereto and subject to our comments in Para 4.0 & 5.0 above, give the information in the manner so required and give a true and fair view :
- i) In the case of the Balance Sheet, of the state of affairs of the Association, as at 31st March, 2010.
 - ii) In the case of the Income & Expenditure Account, of the surplus for the year ended on that date.

For **S. Ghose & Co.** (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

Place : Kolkata
Date : 29th Sept. 2010

ANNEXURE OF THE AUDITORS' REPORT

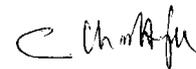
Audit Observations :

- 1.0 Interest accrued on Investments in General Fund and other Funds have not been routed through Income and Expenditure Account and credited to respective fund account as a part of prudent accounting practice.
- 2.0 The Institute has no system of Reconciliation of Grants with respect to the receipts and utilization made thereof.
- 3.0 Current year depreciation of Rs.13,551/- on Non Plan Fixed Asset has not been charged to Non Plan Income and Expenditure A/c. However the same has been clubbed with depreciation on Plan Fixed Assets and shown under Plan Income and Expenditure A/c.
- 4.0 Rs. 5 lacs advanced on 06.05.2009 (lying in Advance General A/c) remains unrecovered/unadjusted over 6 months.
- 5.0 Sum of Rs. 50,000/- and Rs. 30,000/- advanced to Prof. Dr. A.K. Saxena respectively on 26.05.2009 & 11.12.2009 were adjusted by way of a journal entry passed on 31.03.2010 based on Utilization Certificate submitted by Dr. Saxena without any supporting document.
6. Outstanding Liabilities (Schedule 3) includes following old Outstanding balances :

Sub-head under O/S	Amt. (Rs.)	Outstanding since
O/s Liabilities for Environmental Project	46,760/-	1984-85
O/s Liabilities for Programme Advisory Committee meeting	904/-	1990-91
O/s Liabilities for Office Automation Upgradation	27,490/-	2006-07
Excess of Income over Expenditure :		
Jt. Seminar on Science and Technology in India during coming decades	4151.66	1979-80
Environment Project A/c	10563.69	1984-85
Seminar on West Land in Eastern India :		
Status and Management	25.55	1986-87
Grant related to the 87th ISCA	13506.35	2000-01
Deposit from Oriental Carpet & Cleaning	2,000/-	2002-03

In our view, appropriate steps should be immediately taken to write back/adjust the above amounts lying under different subheads of Outstanding Liabilities (Sch. 3).

For **S. Ghose & Co.** (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

Place : Kolkata
Date : 29th Sept. 2010

Auditors Observations and Reply

- | <p>1. Interest accrued on Investment in General Fund and other Funds have not been routed through Income and Expenditure Account and credited to respective fund account as a part of prudent accounting practice</p> | <p>Action to be taken accordingly</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------|---------|---------------------|--------|---------|--------------------|-----|---------|-------------------|--|--|-------------|--------|---------|---|--|--|---|----------|---------|---------------------|--------|---------|---|--|--|-------------------|-------|---------|--------------------------------|-----------|---------|---|-------|---------|---|
| <p>2. The Institute has no system of Reconciliation of Grants with respect to receipts and utilizations made thereof.</p> | <p>DST does not provide Grants under different heads. Hence, as per practice there is no system of reconciliation of Grants with respect of receipts and utilization made thereof.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. Current year depreciation of Rs. 13,551/- on Non Plan Fixed Assets has not been charges to Non Plan Income and Expenditure A/c. However the same has been clubbed with depreciation on Plan Fixed Assets and shown under Plan Income and Expenditure A/c.</p> | <p>Action to be taken accordingly.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4. Rs.5 lacs advanced on 06-05-2009 (lying in Advance General A/c) remains unrecovered/unadjusted over 6 months</p> | <p>Informed to concerned person who has agreed to submit the necessary supporting documents of expenditure very soon.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>5. Sum of Rs 50,000 and Rs.30,000 advanced to Prof Dr A.K.Saxena respectively on 26.05 and 11.12.2009 were adjusted by way of journal entry passed on 31.03.2010 based on Utilization Certificate submitted by Dr.Saxena without any supporting documents.</p> | <p>As per practice only utilisation certificate was required against advance taken. However, henceforth supporting documents are to be taken along with utilisation certificate. Informed to concerned person who has agreed to submit the necessary supporting documents of expenditure very soon.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>6. Outstanding Liabilities (Schedule 3)</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Sub Head</th> <th style="text-align: right;">Rs.</th> <th style="text-align: right;">O/S Bal</th> </tr> </thead> <tbody> <tr> <td>Environment Project</td> <td style="text-align: right;">46,760</td> <td style="text-align: right;">1984-85</td> </tr> <tr> <td>Advisory Committee</td> <td style="text-align: right;">904</td> <td style="text-align: right;">1990-91</td> </tr> <tr> <td>Office Automation</td> <td></td> <td></td> </tr> <tr> <td>Upgradation</td> <td style="text-align: right;">27,490</td> <td style="text-align: right;">2006-07</td> </tr> <tr> <td colspan="3"><u>Excess of Income Over Expenditure :</u></td> </tr> <tr> <td>Jt Seminar on Science and Technology in India</td> <td style="text-align: right;">4,151.66</td> <td style="text-align: right;">1979-80</td> </tr> <tr> <td>Environment Project</td> <td style="text-align: right;">10,563</td> <td style="text-align: right;">1984-85</td> </tr> <tr> <td colspan="3"><u>Seminar on West Land in Eastern India :</u></td> </tr> <tr> <td>Status Management</td> <td style="text-align: right;">25.55</td> <td style="text-align: right;">1986-87</td> </tr> <tr> <td>Grant Related to the 87th ISCA</td> <td style="text-align: right;">13,506.35</td> <td style="text-align: right;">2000-01</td> </tr> <tr> <td>Deposit from Oriental Carpet & Cleaning</td> <td style="text-align: right;">2,000</td> <td style="text-align: right;">2002-03</td> </tr> </tbody> </table> | Sub Head | Rs. | O/S Bal | Environment Project | 46,760 | 1984-85 | Advisory Committee | 904 | 1990-91 | Office Automation | | | Upgradation | 27,490 | 2006-07 | <u>Excess of Income Over Expenditure :</u> | | | Jt Seminar on Science and Technology in India | 4,151.66 | 1979-80 | Environment Project | 10,563 | 1984-85 | <u>Seminar on West Land in Eastern India :</u> | | | Status Management | 25.55 | 1986-87 | Grant Related to the 87th ISCA | 13,506.35 | 2000-01 | Deposit from Oriental Carpet & Cleaning | 2,000 | 2002-03 | <p>Necessary steps are being taken accordingly to writeback/adjust the above amounts lying under different subheads of Outstanding Liabilities.</p> |
| Sub Head | Rs. | O/S Bal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environment Project | 46,760 | 1984-85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advisory Committee | 904 | 1990-91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Office Automation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upgradation | 27,490 | 2006-07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>Excess of Income Over Expenditure :</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jt Seminar on Science and Technology in India | 4,151.66 | 1979-80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environment Project | 10,563 | 1984-85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>Seminar on West Land in Eastern India :</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status Management | 25.55 | 1986-87 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grant Related to the 87th ISCA | 13,506.35 | 2000-01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deposit from Oriental Carpet & Cleaning | 2,000 | 2002-03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

THE INDIAN SCIENCE CONGRESS ASSOCIATION

BALANCE SHEET AS AT 31ST MARCH, 2010

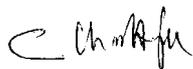
Particulars	Schedule	Current year		Previous year	
		Rs.	P.	Rs.	P.
<u>FUNDS & LIABILITIES</u>					
Fund Balances	1	47,878,489.06		47,123,925.18	
Grants	2	18,224,488.67		18,116,468.67	
Outstanding Liabilities	3	1,610,298.39		3,619,127.39	
Total :		67,713,276.12		68,859,521.24	
<u>PROPERTIES & ASSETS</u>					
Fixed Assets					
Net Block	4	16,167,646.83		16,114,155.75	
Capital Work-in-Progress		6,799,740.13		5,518,329.13	
Investments	5	38,431,078.32		38,619,873.47	
Current Assets, Loans & Advances	6	5,646,297.14		8,607,162.89	
Excess of Expenditure over Income (Deficit for the year 2009-2010)		668,513.70			
Total :		67,713,276.12		68,859,521.24	

Significant Accounting Policies and Notes on Account

12

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001



Manoj Kumar Chakrabarti
General Secretary (Membership Affairs)



N. B. Basu
Treasurer

Date : 29th September, 2010

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

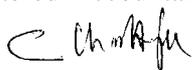
BALANCE SHEET OF ENDOWMENT FUNDS AS AT 31ST MARCH, 2010

Particulars	Schedule	Current year		Previous year	
		Rs.	P.	Rs.	P.
<u>LIABILITIES</u>					
Endowment Fund Balances	13	17,389,306.70		15,574,371.70	
	Total :	<u>17,389,306.70</u>		<u>15,574,371.70</u>	
<u>PROPERTIES & ASSETS</u>					
Endowment Investments	14	17,389,306.70		15,574,371.70	
	Total :	<u>17,389,306.70</u>		<u>15,574,371.70</u>	

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)

Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001

Date : 29th September, 2010

	
Manoj Kumar Chakrabarti	N. B. Basu
General Secretary (Membership Affairs)	Treasurer
<hr/>	
The Indian Science Congress Association	

THE INDIAN SCIENCE CONGRESS ASSOCIATION

PLAN INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2010

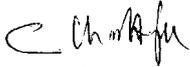
Particulars	Schedule	Current year		Previous year	
		Rs.	P.	Rs.	P.
INCOMES	7	27,503,022.97		29,467,211.58	
Total :		27,503,022.97		29,467,211.58	
EXPENDITURE					
Establishment		156,641.00		156,143.00	
Postage & Stationery for President		183,509.00		193,850.00	
Advertisement		223,675.00		174,859.00	
Electricity Charges		629,823.00		991,549.00	
Upgradation & Improvement of Existing Facilities		576,440.00		233,468.00	
General Printing		318,643.00		992,968.00	
Loss on Sale of Assets		—		9,543.50	
Expenses on Scientific Activities & Award	8	7,542,411.99		7,502,149.00	
Publication Expenses	9	3,763,478.30		2,000,972.21	
Depreciation	4	419,402.92		736,065.00	
Repairs & Maintenance :					
Other Operating Expenses	10	2,548,760.00		2,367,428.00	
		16,362,784.21		15,358,994.71	
Excess of Income over Expenditure for Plan		11,140,238.76		14,108,216.87	
Less : Deficit transferred from Non-Plan Account		11,808,752.46		8,989,402.90	
		(668,513.70)		5,118,813.97	

Significant Accounting Policies and Notes on Account

12

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001



Manoj Kumar Chakrabarti

General Secretary (Membership Affairs)



N. B. Basu

Treasurer

Date : 29th September, 2010

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

NON-PLAN INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2010

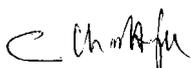
Particulars	Schedule	Current year		Previous year	
		Rs.	P.	Rs.	P.
<u>INCOMES</u>	11	4,618,597.00		4,036,131.00	
Total :		4,618,597.00		4,036,131.00	
<u>EXPENDITURE</u>					
Establishment		12,748,720.71		9,899,736.00	
Ad-hoc Bonus		88,933.00		105,978.00	
Contribution to Staff Provident Fund		152,806.00		111,434.00	
Contribution to Staff Gratuity Fund		1,000,000.00		1,000,000.00	
Contribution to Staff Pension Fund		894,329.00		560,725.00	
Leave Travel Concession		135,194.00		100,694.00	
Staff Liveries		—		1,000.00	
Telephone Expenses		85,782.00		132,206.00	
Transport Expenses		43,053.00		78,238.00	
Municipal Tax		725.00		725.00	
Security Guard Expenses		550,253.00		501,792.00	
Audit Fees		33,090.00		22,060.00	
Cleaning & Building Maintenance		459,393.85		275,311.00	
Guest House Expenses		—		45,353.00	
Operation & Maintenance of AC Plant		105,761.00		118,009.00	
Insurance		19,027.00		29,572.00	
Bank Charges		28,490.90		28,400.90	
ISCA Lecture Hall Expenses		—		14,300.00	
Re-imbusement of Children Educational Allowance		81,791.00		—	
Total :		16,427,349.46		13,025,533.90	
Deficit of Income over Expenditure for Non-Plan		11,808,752.46		8,989,402.90	
Deficit transferred to Plan Account		11,808,752.46		8,989,402.90	
Balance Carried to Balance Sheet		—		—	

Significant Accounting Policies and Notes on Account

12

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)
Partner
Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001



Manoj Kumar Chakrabarti
General Secretary (Membership Affairs)



N. B. Basu
Treasurer

Date : 29th September, 2010

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

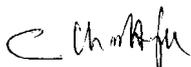
INCOME & EXPENDITURE ACCOUNT OF ENDOWMENT FUND FOR THE YEAR ENDED 31ST MARCH, 2010

Particulars	Schedule	Current year		Previous year	
		Rs.	P.	Rs.	P.
<u>INCOMES</u>	15	1,148,677		1,092,494	
Total :		1,148,677		1,092,494	
<u>EXPENDITURE</u>	15	333,742		528,142	
		333,742		528,142	
Excess of Income over Expenditure		814,935		564,352	
Less : Transferred to Respective Funds		814,935		564,352	
		—		—	

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)

Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

11, Old Post Office Street

Kolkata - 700 001

Date : 29th September, 2010



Manoj Kumar Chakrabarti
General Secretary (Membership Affairs)



N. B. Basu
Treasurer

The Indian Science Congress Association

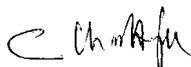
THE INDIAN SCIENCE CONGRESS ASSOCIATION

CONSOLIDATED STATEMENT OF RECEIPTS AND PAYMENT ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2010

RECEIPTS	NON-PLAN	PLAN	Total
Opening Cash & Bank Balances :			
Cash-in-hand	—	—	2,000.00
Cheques-in-hand	—	—	900,000.00
Cash at Bank :			
State Bank of India	—	—	1,507,213.33
Central Bank of India	—	—	5,137,123.06
Membership Subscription (All categories)	2,096,574.00	—	2,096,574.00
Travelling Expenses	—	—	—
Admission Fees	263,250.00	—	263,250.00
Life Membership Subscription	2,490,217.00	—	2,490,217.00
Government Grant	2,000,000.00	23,750,000.00	25,750,000.00
Government grant for visiting scientist	—	—	—
Grant Receivable from Government	—	—	—
Sale of Publications	2,474.00	—	2,474.00
Sale of Tender Paper	—	—	600.00
Journal Subscription (Non Members)	7,170.00	—	7,170.00
Misc Income	2,050.00	—	2,050.00
Journal Subscription	—	15,870.00	15,870.00
Membership Subscription Received in Advance	179,100.00	—	179,100.00
Admission Fees Received in Advance	—	—	—
Public Information Officer	110.00	—	110.00
Advance Realised :			
General	—	—	—
Festival	—	—	—
General Fund (Donation from Prof Arun Sharma)	—	5,000,000.00	5,000,000.00
Interest on TDR	—	145,144.00	145,144.00
Guest House Lodging Charges	50,300.00	—	50,300.00
Donation Received from Prof Arun Sharma	500,000.00	—	500,000.00
Donation Received from Prof M.K.Singhal	100,000.00	—	100,000.00
Deposit Account	5,000.00	—	5,000.00
Reimbursement of Service Charges for ISCA	211,600.00	—	211,600.00
Refund of Advance for Transport Agency	1,936.00	—	1,936.00
Establishment (Sale of Recruitment Form)	9,850.00	—	9,850.00
Stationery	49.00	—	49.00
Postage	—	111,190.00	111,190.00
Total			44,488,820.39

In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)

Partner

Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001

	
Manoj Kumar Chakrabarti	N. B. Basu
General Secretary (Membership Affairs)	Treasurer

Date : 29th September, 2010

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

CONSOLIDATED STATEMENT OF RECEIPTS AND PAYMENT ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2010

PAYMENTS	NON-PLAN	PLAN	Total
Establishment	12,681,179.81	144,563.00	12,825,742.81
Ad-hoc Bonus	88,933.00	—	88,933.00
Contribution to Staff Provident Fund I	152,806.00	—	152,806.00
Contribution to Staff Pension Fund	894,329.00	—	894,329.00
Electricity Charges	—	553,488.00	553,488.00
Telephone Charges	77,099.00	—	77,099.00
Transport Expenses	14,989.00	—	14,989.00
Municipal Taxes	724.00	—	724.00
Security Guard Expenses	550,253.00	—	550,253.00
Cleaning & Building Maintenance	409,923.85	—	409,923.85
Leave Travel Concession	126,093.00	—	126,093.00
Insurance	8,041.00	—	8,041.00
Guest House Expenses	4,500.00	—	4,500.00
Advertisement	—	223,675.00	223,675.00
Post. & Stn. For Sec. Pres. & Convenors	—	169,630.00	169,630.00
Upgrd. & Invro. Of Existing Facilities	—	522,059.00	522,059.00
General Printing	—	258,643.00	258,643.00
Sessional Publications	—	1,721,425.50	1,721,425.50
Publication of Proceedings	—	42,788.00	42,788.00
Publication of Journal	—	592,217.00	592,217.00
Re-imburement of Children Edu Allow	55,641.00	—	55,641.00
Printing Papers	—	697,793.00	697,793.00
Stationery Expenses	—	153,902.00	153,902.00
Postage	—	1,337,797.00	1,337,797.00
Contingency	—	255,619.00	255,619.00
Travelling Expenses	—	4,360,121.29	4,360,121.29
Expenses for Delegation to Meeting Abroad	—	60,387.00	60,387.00
ISCA Chapters	—	321,027.00	321,027.00
Subscription of Journals	—	1,920.00	1,920.00
Expenses for Organising Seminars, Symposia,	—	674,193.00	674,193.00
Expenses for Official Languages	—	13,452.00	13,452.00
Prepaid Insurance	10,788.00	—	10,788.00
Carried over	15,075,299.66	12,104,699.79	27,179,999.45

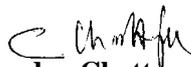
THE INDIAN SCIENCE CONGRESS ASSOCIATION

CONSOLIDATED STATEMENT OF RECEIPTS AND PAYMENT ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2010

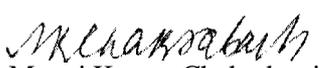
PAYMENTS	NON-PLAN	PLAN	Total
Brought forward	15,075,299.66	12,104,699.79	27,179,999.45
Honorarium to ISCA Platinum Jubilee Lecturers	—	130,000.00	130,000.00
Plan Construction of Building	—	1,030,173.90	1,030,173.90
Poster Presentation Awards	—	141,450.00	141,450.00
Cost of Gold Medals & Plaques	—	249,448.00	249,448.00
Subscription Membership (Payment)	—	8,500.00	8,500.00
Binding Charges for Periodicals	—	5,206.00	5,206.00
Legal Expenses	—	121,305.00	121,305.00
Young Scientists Awards	—	375,000.00	375,000.00
Young Scientists Travelling Expenses	—	276,130.00	276,130.00
Young Scientists Stationery Expenses	—	7,694.00	7,694.00
Young Scientists Contingency	—	7,000.00	7,000.00
Young Scientists Advertisement	—	5,000.00	5,000.00
Endowment Fund—(M.K.Singhal)	—	—	1,000,000.00
Operation & Maintenance of A.C.Plant	105,276.00	—	105,276.00
Transfer to Life Membership Subscription Fund	2,353,468.00	—	2,353,468.00
Transfer to Gratuity Fund	2,000,000.00	—	2,000,000.00
Transfer to Reserve Fund	25,000.00	—	25,000.00
Retention Money	—	77,979.00	77,979.00
Outstanding Liabilities	235,702.00	1,680,041.00	1,915,743.00
Equipment	—	9,990.00	9,990.00
EPBX Systems	74,210.00	—	74,210.00
Installation of Website	21,900.00	—	21,900.00
Plan Publication of Focal Theme	66,560.00	—	66,560.00
Reimb. of service charges of ISCA Lecture Hall	14,000.00	—	14,000.00
Bank Charges	—	29,732.90	29,732.90
Advances :	—	0.00	—
General	2,444,731.00	—	2,444,731.00
Festival	75,000.00	—	75,000.00
Transport Exp	30,000.00	—	30,000.00
Closing Cash & Bank Balances :	—	—	—
Cash-in-hand	2,000.00	—	2,000.00
Cash at Bank : State Bank of India	1,979,182.08	—	1,979,182.08
Central Bank of India	2,716,354.06	—	2,716,354.06
Total :			44,488,820.39

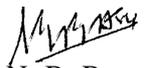
In terms of our report of even date annexed hereto.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants


(Chandan Chattopadhyay)
Partner
Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001


Manoj Kumar Chakrabarti
General Secretary (Membership Affairs)


N. B. Basu
Treasurer

Date : 29th September, 2010

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 1

FUND BALANCES

Particulars	Balance on 01.04.2009	Interest (Net)	Addition	Transfer from I & E Accounts	Payment	Transfer to Fund	Transfer to I & E Accounts	Balance on 31.03.2010
General Fund	1,161,313.43	128,462.52	600,000.00	—	—	101,500.00	—	1,788,275.95
Building Fund	723,715.24	28,736.55	—	—	—	—	—	752,451.79
Gratuity Fund	1,306,378.70	17,744.00	—	1,000,000.00	992,929.00	—	—	1,331,193.70
House Building Advance Fund	565,643.68	59,746.51	—	19,305.00	—	—	—	644,695.19
ISCA Development Fund	6,507,473.86	467,038.00	—	—	—	—	—	6,974,511.86
Life Membership Subscription	19,167,232.76	1,302,134.12	2,900,298.00	—	31,258.00	—	276,690.00	23,061,716.88
Pension Fund	3,996,013.25	241,687.85	894,329.00	—	1,070,720.00	—	865,357.00	3,195,953.10
Plan (Unspent Balance)	5,118,813.97	—	—	—	—	—	5,118,813.97	—
Reserve Fund	3,059,011.16	244,329.30	—	25,000.00	—	—	—	3,328,340.46
Plan Building Funds	5,518,329.13	—	1,281,411.00	—	—	—	—	6,799,740.13
Public Information Officer Fund	—	—	—	1,610.00	—	—	—	1,610.00
Total :	47,123,925.18	2,489,878.85	5,676,038.00	1,044,305.00	2,094,907.00	101,500.00	6,260,860.97	47,878,489.06

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 2

GRANTS

Particulars	Balance as on 31.03.2009	Addition	Written off during the year	Balance as on 31.03.2010
Garage Building Fund Grant	10,646.95	—	—	10,646.95
Non-Plan Non Recurring Fund Grant	150,689.20	84,200.00	—	234,889.20
Non-Plan Grant for Typewriter	7,150.05	—	—	7,150.05
Plan Upgradation & Automation				
Grant Fund	1,000,000.00	—	—	1,000,000.00
Plan Installment of Adhoc Fund Grant	91,956.40	—	—	91,956.40
Plan Office Car Fund Grant	468,031.70	—	—	468,031.70
Plan Grant for Refurbishing Office	6,901,030.32	—	—	6,901,030.32
Plant Grant for Subscription of Journals	4,777,784.46	1,920.00	—	4,779,704.46
Plan Non-Recurring Fund Grant :				
Airconditioning of Annexe Building	124,500.00	—	—	124,500.00
Airconditioning of Main Building	1,027,135.74	—	—	1,027,135.74
Computer Machines	697,577.99	—	—	697,577.99
Laptop	139,990.00	—	—	139,990.00
Construction of Boundry Wall	101,656.95	—	—	101,656.95
Digitisation of ISCA Old Proceedings	168,786.10	—	—	168,786.10
Equipment	44,010.00	—	—	44,010.00
Duplicating Machine	17,748.90	—	—	17,748.90
Email	13,500.00	—	—	13,500.00
Electronic Typewriter Machine	31,642.97	—	—	31,642.97
Fixture	35,755.75	—	—	35,755.75
Furniture & Fittings (General)	760,073.10	—	—	760,073.10
Furniture & Fittings (Guest House)	140,334.04	—	—	140,334.04
Installation of P.A.Systems	84,725.00	—	—	84,725.00
Installation of Website	24,000.00	21,900.00	—	45,900.00
Furniture & Fitting (Lecture Hall)	56,048.00	—	—	56,048.00
Modernization of ISCA				
Exhibition Board	188,849.00	—	—	188,849.00
Projector Machines	209,621.00	—	—	209,621.00
Type Writers	51,895.45	—	—	51,895.45
Xerox Machine	301,814.60	—	—	301,814.60
Non-Recurring Grant From				
89th Session	141,690.00	—	—	141,690.00
Non-Recurring Grant from :	—			
National Academy of				
Agricultural Sciences	247,825.00	—	—	247,825.00
Donation for Erecting Bust of				
Sir Ashutosh Mookherjee	100,000.00	—	—	100,000.00
GRAND TOTAL	18,116,468.67	108,020.00	—	18,224,488.67

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 3

CURRENT LIABILITIES

	<u>Current Year</u>		<u>Previous Year</u>	
	Rs.	P.	Rs.	P.
<u>Outstanding Liabilities</u>				
For Non Plan	278,083.92		460,890.92	
For Plan Retainment Money for Building		—	77,979.00	
For Plan	953,322.22		1,940,815.20	
For Environment Project	46,760.00		46,760.00	
For Donation from M.K.Sigal Memorial Trust		—	900,000.00	
For Meeting of the Programme Advisory Committee	904.00		904.00	
For Upgradation of Office Automation	27,490.00		27,490.00	
Total :	1,306,560.14		3,454,839.12	
<u>Deposits</u>				
As per Last Account	91,391.00		100,991.00	
Add : Addition	5,000.00		—	
Less : Refund		—	9,600.00	
Total :	96,391.00		91,391.00	
<u>Advances</u>				
Membership Subscription	179,100.00		44,000.00	
Admission Fees		—	650.00	
Total :	179,100.00		44,650.00	
<u>Excess of Income over Expenditure</u>				
(As last Account)				
Joint Seminar on Science & Technology in India During the Coming Decades	4,151.66		4,151.66	
Environment Project Account	10,563.69		10,563.69	
Seminar on Wastelands in Eastern India : Status & Management	25.55		25.55	
Grant related to 87th Indian Science Congress	13,506.35		13,506.35	
Total :	28,247.25		28,247.25	
Grand Total :	1,610,298.39		3,619,127.37	

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 4

EARMARKED FIXED ASSETS

Particulars	Original Cost Rate as on 01.04.09	Addition	Sale/ Adjustment	Total Cost as on 31.03.10	Depreciation upto 31.03.09	Depreciation for the year	Adjustment of Depreciation	Total Depreciation as on 31.03.10	Net Block as on 31.03.10	Net Block as on 31.03.09	Depreciation upto 31.03.2010 Not Considered
1) AGAINST BUILDING FUND											
Main Building	10	258,964.25	—	258,964.25	18,106.04	4,870.54	—	22,976.58	235,987.67	240,858.21	192,152.83
Annexe Building	10	64,191.61	—	64,191.61	4,496.55	1,209.79	—	5,706.34	58,485.27	59,695.06	47,597.14
Total:		323,155.86	—	323,155.86	22,602.59	6,080.33	—	28,682.92	294,472.94	300,553.27	239,749.97
2) AGAINST PLAN GRANT FOR REFURBISHING OFFICE											
i) Construction of Additional Building with Refurbishing	10	2,775,466.82	—	2,775,466.82	447,783.25	120,455.33	—	568,238.58	2,207,228.24	2,327,683.57	1,123,130.28
ii) Tubewell	10	467,573.12	—	467,573.12	12,197.76	3,281.09	—	15,478.85	452,094.27	455,375.36	422,564.50
iii) Air Conditioning of Lecture Hall	10	3,204,590.74	—	3,204,590.74	100,912.12	27,145.61	—	128,057.73	3,076,533.01	3,103,678.62	2,832,222.50
iv) Security Deposit with CESC	0	376,914.51	—	376,914.51	—	—	—	—	376,914.51	376,914.51	—
Total:		6,824,545.19	—	6,824,545.19	560,893.13	150,882.03	—	711,775.16	6,112,770.03	6,263,652.06	4,377,917.28
3) AGAINST NON-PLAN NON-RECURRING FUND GRANT											
i) Fax Machine	10	51,979.20	—	51,979.20	505.91	136.02	—	641.93	51,337.27	51,473.29	50,113.08
ii) EPABX Machine	10	98,710.00	74,210.00	172,920.00	1,348.80	3,941.05	—	5,289.85	167,630.15	97,361.20	93,734.15
Total:		150,689.20	74,210.00	224,899.20	1,854.71	4,077.07	—	5,931.78	218,967.42	148,834.49	143,847.23
4) AGAINST GARAGE BUILDING FUND GRANT											
Garage Building	10	10,701.95	—	10,701.95	893.73	240.36	—	1,134.09	9,567.86	9,808.22	7,404.66
Total:		10,701.95	—	10,701.95	893.73	240.36	—	1,134.09	9,567.86	9,808.22	7,404.66

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 4 (contd.)

EARMARKED FIXED ASSETS (CONTD.)

Particulars	Rate	Original Cost as on 01.04.09	Addition	Sale/ Adjustment	Total Cost as on 31.03.10	Depreciation upto 31.03.09	Depreciation for the year	Adjustment of Depreciation	Total Depreciation as on 31.03.10	Net Block as on 31.03.10	Net Block as on 31.03.09	Depreciation upto 31.03.2010 Not Considered
5) AGAINST NON-PLAN GRANT												
FORTYPEWRITER												
i) Typewriter	10	9,088.79	—	—	9,088.79	6.25	1.83	—	8.08	9,080.71	9,082.54	9,064.26
Total:		9,088.79	—	—	9,088.79	6.25	1.83	—	8.08	9,080.71	9,082.54	9,064.26
6) AGAINST PLAN NON-RECURRING												
FUND GRANT												
i) Typewriter	10	48,417.49	—	—	48,417.49	1,458.00	392.01	—	1,850.01	46,567.49	46,959.49	43,039.44
ii) Furniture												
General	10	740,663.81	—	—	740,663.81	64,876.63	29,842.07	—	94,718.70	645,945.11	675,787.18	377,366.51
Lecture Hall	10	56,048.00	—	—	56,048.00	11,088.66	3,365.29	—	14,453.95	41,594.05	44,959.34	11,306.40
Guest House	10	140,334.04	—	—	140,334.04	25,735.83	6,922.94	—	32,658.77	107,675.27	114,598.21	45,368.79
Air Conditioning of Main Building	10	1,027,125.49	—	—	1,027,125.49	63,506.01	53,006.01	—	116,512.02	910,613.47	963,619.48	433,559.37
iii) Air Conditioning of Annex Building	10	124,500.00	—	—	124,500.00	14,805.08	3,982.87	—	18,787.95	105,712.05	109,694.92	69,866.25
iv) Duplicating Machine	10	17,748.90	—	—	17,748.90	347.13	93.22	—	440.35	17,308.55	17,401.77	16,469.58
v) Fixture	10	35,755.75	—	—	35,755.75	1,037.73	279.26	—	1,316.99	34,438.76	34,718.02	31,925.46
vi) Electronic Typewriter	10	31,642.97	—	—	31,642.97	615.55	165.69	—	781.24	30,861.73	31,027.42	29,370.49
vii) Xerox Machine	10	74,880.00	—	—	74,880.00	3,744.00	7,113.60	—	10,857.60	64,022.40	71,136.00	—
viii) Computer	60	697,577.99	—	—	697,577.99	197,326.55	34,622.06	—	231,948.61	465,629.38	500,251.34	442,547.90
ix) Projectors	10	209,621.00	—	—	209,621.00	22,328.71	8,595.64	—	30,924.35	178,696.64	187,292.29	101,335.90
x) Construction of Boundary Wall	10	101,656.95	—	—	101,656.95	4,379.63	1,178.27	—	5,557.90	96,099.05	97,277.32	85,494.63
xi) Digitization of ISCA Old Proceedings	60	168,786.10	—	—	168,786.10	56,652.38	2,323.96	—	58,976.34	109,809.76	112,133.72	108,260.46
xii) Modernisation of ISCA Exhib Board	10	188,849.00	—	—	188,849.00	32,922.61	8,856.25	—	41,778.86	147,070.14	155,926.39	67,363.86
xiii) PA Systems	10	84,725.00	—	—	84,725.00	12,409.60	3,338.54	—	15,748.14	68,976.86	72,315.40	38,930.03
xiv) Email	60	13,500.00	—	—	13,500.00	306.00	—	—	306.00	13,194.00	13,194.00	13,194.00
xv) Office Car	15	468,031.70	—	—	468,031.70	78,583.16	18,765.64	—	97,348.80	370,682.90	389,448.54	264,344.30
xvi) Web Site	60	24,000.00	21,900.00	—	45,900.00	1,047.64	799.26	—	1,846.90	44,053.10	22,952.36	22,880.26
xvii) Laptop	60	139,990.00	—	—	139,990.00	109,192.00	18,478.80	—	127,670.80	12,319.20	30,798.00	—
Total:		4,393,854.19	21,900.00	—	4,415,754.19	702,362.90	202,121.37	—	904,484.27	3,511,269.91	3,691,491.19	2,202,623.63

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 4 (contd.)

EARMARKED FIXED ASSETS (CONTD.)

Particulars	Rate	Original Cost as on 01.04.09	Addition	Sale/ Adjustment	Total Cost as on 31.03.10	Depreciation upto 31.03.09	Depreciation for the year	Adjustment of Depreciation	Total Depreciation as on 31.03.10	Net Block as on 31.03.10	Net Block as on 31.03.09	Depreciation upto 31.03.2010 Not Considered
7) AGAINST NON-RECURRING GRANT FROM NATIONAL ACADEMY OF AGRICULTURAL SCIENCE DELHI												
Computer with Printer	60	286,825.00	—	—	286,825.00	12,413.90	509.36	—	12,923.26	273,901.74	274,411.10	273,562.17
Installation of Lan	60	50,500.00	—	—	50,500.00	2,205.28	90.51	—	2,295.79	48,204.21	48,294.72	48,143.87
Furniture	10	52,190.00	—	—	52,190.00	7,449.96	2,003.87	—	9,453.83	42,736.18	44,740.04	24,701.39
Total:		389,515.00	—	—	389,515.00	22,069.14	2,603.73	—	24,672.87	364,842.13	367,445.86	346,407.43
PLAN SUBSCRIPTION OF JOURNAL:												
	0	4,410,590.46	366,794.00	—	4,777,384.46	—	—	—	—	4,777,384.46	4,410,590.46	—
		4,410,590.46	366,794.00	—	4,777,384.46	—	—	—	—	4,777,384.46	4,410,590.46	—
8) AGAINST PLAN AD-HOC FUND GRANT												
Repair & Renovation	100	17,348.60	—	—	17,348.60	17,348.60	—	—	—	—	—	—
Airconditioning for Guest House	10	52,750.90	—	—	52,750.90	14,295.59	3,845.53	—	18,141.12	34,609.78	38,455.31	—
Electro Copier Machine	10	22,080.00	—	—	22,080.00	5,983.20	1,609.68	—	7,592.88	14,487.12	16,096.80	—
Total:		92,179.50	—	—	92,179.50	37,627.39	5,455.21	—	25,734.00	49,096.90	54,552.11	—
9) NON-EARMARKED FIXED ASSETS												
Furniture & Fixtures												
General	10	8,407.84	—	—	8,407.84	194.37	52.14	—	246.51	8,161.33	8,213.47	7,692.11
Library	10	8,153.95	—	—	8,153.95	2,209.90	594.41	—	2,804.31	5,349.65	5,944.05	—
Lecture Hall	10	41,454.45	—	—	41,454.45	11,233.95	3,022.05	—	14,256.00	27,198.45	30,220.50	—
Office & Record Room	10	23,228.54	—	—	23,228.54	6,294.65	1,693.39	—	7,988.04	15,240.50	16,933.89	—
Guest House	10	7,847.20	—	—	7,847.20	2,127.22	572.00	—	2,699.22	5,147.98	5,719.98	—
Equipment	10	44,010.00	9,990.00	—	54,000.00	9,830.60	3,538.37	—	13,368.97	40,631.03	34,179.40	—
Total :		133,101.98	9,990.00	—	143,091.98	31,890.69	9,472.35	—	41,363.04	101,728.94	101,211.29	7,692.11

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 4 (contd.)

EARMARKED FIXED ASSETS (CONTD.)

Particulars	Rate	Original Cost as on 01.04.09	Addition	Sale/ Adjustment	Total Cost as on 31.03.10	Depreciation upto 31.03.09	Depreciation for the year as on 31.03.10	Adjustment of Depreciation as on 31.03.10	Total Depreciation as on 31.03.10	Net Block as on 31.03.10 Not Considered	Net Block as on 31.03.09	Depreciation upto 31.03.2010
10) BUST OF ASHUTOSH MOOKERJEE	10	100,000.00	—	—	100,000.00	21,951.00	5,904.90	—	27,855.90	72,144.10	78,049.00	19,000.00
Total :		100,000.00	—	—	100,000.00	21,951.00	5,904.90	—	27,855.90	72,144.10	78,049.00	19,000.00
11) PLAN EXPENDITURE FROM GRANT OF UPGRADATION OF OFFICE AUTOMATION												
i) Computer with Printer	10	340,162.00	—	—	340,162.00	143,624.92	1,396.43	—	145,021.35	195,140.65	196,537.08	182,572.80
ii) Furniture	10	37,110.00	—	—	37,110.00	8,338.35	2,243.22	—	10,581.57	26,528.43	28,771.65	6,339.45
iii) Generator	10	163,844.00	—	—	163,844.00	30,983.54	8,334.49	—	39,318.03	124,525.97	132,860.46	49,515.60
iv) Xerox Machine	10	365,302.00	—	—	365,302.00	63,033.54	16,943.90	—	79,977.44	285,324.56	302,268.55	132,829.52
v) Fax Machine	10	16,500.00	—	—	16,500.00	2,850.68	766.80	—	3,617.48	12,882.52	13,649.22	5,981.25
vi) Software package for Accounts and Membership	60	74,970.00	—	—	74,970.00	70,171.80	2,878.92	—	73,050.72	1,919.28	4,798.20	—
Total :		997,888.00	—	—	997,888.00	319,002.83	32,563.75	—	351,566.58	646,321.42	678,885.16	377,238.62
12. BUILDING UNDER CONSTRUCTION :	0	—	—	—	—	—	—	—	—	—	—	—
Total :		—	—	—	—	—	—	—	—	—	—	—
Grand Total :		17,835,310.12	472,894.00	—	18,308,204.12	1,721,154.36	419,402.92	—	2,123,208.68	16,167,646.83	16,114,155.65	7,730,945.19

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 5

INVESTMENTS

Particulars	Current Year			Previous Year
	In Term Deposit	In Bank	Total	Amount
General Fund	29,843.20	—	29,843.20	5,046,524.68
Reserve Fund	3,117,269.99	186,070.47	3,303,340.46	3,034,011.16
Pension Fund	2,399,169.10	798,026.00	3,197,195.10	3,996,013.25
Building Fund	397,871.00	31,424.93	429,295.93	400,559.38
Life Membership Subscription Fund	21,618,542.17	902,460.71	22,521,002.88	18,763,268.76
Gratuity Fund	—	1,331,193.70	1,331,193.70	306,378.70
House Building Advance Fund	410,631.11	234,064.08	644,695.19	565,643.68
ISCA Development Fund	6,504,672.00	469,839.86	6,974,511.86	6,507,473.86
Total :	34,477,998.57	3,953,079.75	38,431,078.32	38,619,873.47

SCHEDULE - 6

CURRENT ASSETS, LOANS & ADVANCES

	Current Year		Previous Year	
	Amount		Amount	
Current Assets				
Stock of Printing Paper (As per Printer's Certificate)		91,053.00		603,465.50
Cash in Hand		2,000.00		2,000.00
Cheques in Hand		—		900,000.00
State Bank of India		1,979,182.08		1,507,213.33
Central Bank of India		2,716,354.06		5,137,123.06
Public Information Office Bank with SBI		1,500.00		—
Total :		4,790,089.14		8,149,801.89
Loans & Advances				
Plan Subscription of Journals	4,777,384.46		4,410,590.46	
Add : Addition	1,920.00		366,794.00	
	4,779,304.46		4,777,384.46	
Less : Transfer to Assets	4,777,384.46	1,920.00	4,410,590.46	366,794.00
Prepaid :				
Insurance	10,788.00		10,986.00	
Upgradation & Improvement of Existing Facilities		10,788.00	54,381.00	65,367.00
Advance :				
General	802,500.00		1,000.00	
Festival	30,000.00	832,500.00	13,200.00	14,200.00
Security Deposit with CESC Ltd		1,000.00		1,000.00
Security Deposit for Telex		10,000.00		10,000.00
Total :	856,208.00		457,361.00	
Grand Total :	5,646,297.14		8,607,162.89	

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 7

PLAN INCOMES

	<u>Current Year</u>		<u>Previous Year</u>	
	Rs.	P.	Rs.	P.
Grant from Government	23,750,000.00		22,200,000.00	
Add : Excess of Income Over Expenditure carry forward	5,118,813.97		12,297,969.82	
	28,868,813.97		34,497,969.82	
Less : Subscription to Journals	1,920.00		367,194.00	
	28,866,893.97		34,130,775.82	
Less : Transfer to Non-Recurring Fund Grant	106,100.00		657,143.00	
	28,760,793.97		33,473,632.82	
Less : Transfer to Construction to Building Fund	1,281,411.00		4,293,604.13	
	27,479,382.97		29,180,028.69	
Journal Subscription (Non Members)	23,040.00		24,245.00	
Interest on TDR			199,286.89	
Journal Advertisement			8,000.00	
Sale of Tender Paper	600.00		—	
Excess Provision written back			55,651.00	
	27,503,022.97		29,467,211.58	

SCHEDULE - 8

EXPENSES ON SCIENTIFIC ACTIVITIES & AWARD

Sessional Expenses	10,598.00	99,834.00
Travelling Expenses	5,153,362.29	5,032,200.00
ISCA Chapters	321,027.00	268,965.00
Seminars, Symposia, Discussion & Lectures	674,193.00	789,282.00
Honorarium to ISCA Platinum Jubilee Lectures	130,000.00	130,000.00
Pt. Jawarharlal Nehru Birth Centenary Awards	—	—
Pt. Jawarharlal Nehru Prize	—	100,000.00
Poster Presentation Award	141,450.00	136,350.00
Cost of Gold Medals & Plaques	249,448.00	158,585.00
Membership Subscription	8,500.00	7,500.00
Binding Charges for Periodicals	5,206.00	—
<u>Young Scientists :</u>		
Awards	375,000.00	350,000.00
Travelling Expenses	276,130.00	340,330.00
Publication	27,416.70	8,102.00
Stationery	7,694.00	4,092.00
Advertisement	15,000.00	44,200.00
Contingency	7,000.00	5,500.00
Expenses for Delegation to Meetings Abroad	140,387.00	18,529.00
Exhibition	—	8,680.00
	7,542,411.99	7,502,149.00

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 9

PUBLICATION EXPENSES

	<u>Current Year</u>		<u>Previous Year</u>	
	Rs.	P.	Rs.	P.
Sessional Publication	1,694,008.80		144,185.00	
Publication of Proceedings	42,788.00		136,134.50	
Publication of Journals	749,916.00		1,273,330.49	
Cost of Printing Paper	1,210,205.50		447,431.72	
Focal Theme Publication	66,560.00		—	
	<u>3,763,478.30</u>		<u>2,001,081.71</u>	

SCHEDULE - 10

OTHER OPERATION EXPENSES

Stationery Expenses	166,223.00	177,163.00
Postage	1,863,966.00	1,757,644.00
Contingencies	350,679.00	264,939.00
Repair & Renovation of Building	—	—
Legal Expenses	141,305.00	6,600.00
Contingency Expenses for Meeting with Official Language Committee	—	9,250.00
	26,587.00	151,832.00
	<u>2,548,760.00</u>	<u>2,367,428.00</u>

SCHEDULE - 11

NON-PLAN INCOME

Membership Subscription Received	1,863,883.00	1,374,525.00
Less : Transfer to Reserve Fund	25,000.00	25,000.00
	1,838,883.00	1,349,525.00
Add : Admission Fee	263,900.00	198,130.00
Add : Transfer from Life Membership Subscription Fund	276,690.00	205,552.00
Add : Advance of Previous Year	—	—
	2,379,473.00	1,753,207.00
Grant from Government	2,000,000.00	1,800,000.00
Guest House Lodging Charges	45,800.00	63,600.00
Reimbursement of Service Charges of ISCA Lecture Hall (Net)	188,800.00	412,700.00
Misc Income	2,050.00	2,809.00
Sale of Publications	2,474.00	3,815.00
	<u>4,618,597.00</u>	<u>4,036,131.00</u>

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 12

SIGNIFICANT ACCOUNTING POLICIES AND NOTES ON ACCOUNTS

Part - A

Significant Accounting Policies :

- 1.0 The accounts are prepared on Historical cost basis under going concern concept.
- 2.1 Income from Subscription, Government Grant and Interest on Investments are Accounted for on accrual basis.
- 2.2 Subscriptions received for the month of February and March are taken as pre-receipted subscription for the following year.
- 2.3 10% of life Membership fees are treated as income in the year of receipt and balance 90% is kept in life Membership Subscription Fund Account.
- 3.0 Fixed Assets (Plan and Non-Plan) in the Balance Sheet are taken at original cost less current year depreciation only. Thus arrears on depreciation on Fixed Assets upto 31.3.2008 totaling to Rs.77.31 Lacs are reduced from the cost of Fixed Assets to arrive at W.D.V. and to calculate depreciation on fixed asset for the current year at the rate prescribed by The Income Tax Act 1961.
- 4.0 Bifurcation of expenses between Plan and Non Plan Account has been done on the basis of budgetary allocation made by the Institute in respect of relevant expenditure.

Part - B

Notes on Accounts :

- 1.0 Gratuity Provision has been made for Rs. 13,31,194 till 31.03.2010 leaving an uncovered liability to the extent of Rs.43,84,806 (provision required as per actuarial valuation Rs. 57,16,000/-).
- 2.0 Encashment of leave (as a part of retirement benefit) is allowed on cash basis and no provision has been made in the accounts leaving an uncovered liability to the extent of Rs. 33,91,000 as per actuarial valuation.
- 3.0 Rs. 1,11,40,238.76 (P.Y. Rs. 1,41,08,216.87) has been transferred from surplus in Plan Account for meeting the current year deficit in Non Plan Account.

- 4.1 Current year depreciation Rs. 4.19 lacs has been charged to Income and Expenditure account.
- 4.2 No depreciation has been provided on Rs. 3,66,794/- being debited to Fixed Assets as Plan Subscription of Journal for the year 2009-10 (upto 2008-09 accumulated debit to Fixed Assets on account of Plan Subscription of Journal was Rs. 44,10,590/- for which no depreciation was provided earlier).
- 5.0 Rs. 5 lacs received from Prof. Arun/Archana Sharma in Feb' 2010 on account of Endowment Fund, pending opening of a separate account in scheduled bank, has been kept in General Fund A/c.
- 6.0 Figures of the previous year have been re grouped and re-arranged where necessary to make them comparable with the figures of the current year.

For S. Ghose & Co. (FRN 3021841E)
Chartered Accountants



(Chandan Chattopadhyay)
Partner

Membership No. 51254

11, Old Post Office Street
Kolkata - 700 001

Date : 29th September, 2010


Manoj Kumar Chakrabarti
General Secretary (Membership Affairs)


N. B. Basu
Treasurer

The Indian Science Congress Association

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 13

ENDOWMENT FUND BALANCES

Particulars	Balance as on 01.04.2009	Surplus(+)/Deficit(-) of Respective Fund	Donation Received	Balance as on 31.03.2010
1. B.C.Guha Memorial Fund	159,507.39	8,283.00	—	167,790.39
2. G.P.Chatterjee & Smt Suniti Chatterjee Fund	541,938.25	25,945.00	—	567,883.25
3. Prof Hiralal Chakraborty & Smt Toru Chakraborty	250,839.60	7,239.00	—	258,078.60
4. Prof K.P. Rode Memorial Lecture Fund	128,638.66	5,147.00	—	133,785.66
5. Pran Vohra Award Fund	490,731.13	12,334.00	—	503,065.13
6. Raj Kristo Dutta Memorial Award Fund	144,600.00	(1,332.00)	—	143,268.00
7. Prof Uma Kant Sinha Memorial Award Fund	247,769.81	7,268.00	—	255,037.81
8. Dr B.C.deb Memorial Award Fund	455,451.39	32,573.00	—	488,024.39
9. Prof R.C. Saha Memorial Award Fund	141,956.42	9,863.00	—	151,819.42
10. Prof R.C. Mehrotra Commemoration Award Fund	288,750.74	20,513.00	—	309,263.74
11. Prof S.K.Mukherjee Commemoration Award Fund	218,229.45	7,375.00	—	225,604.45
12. Prof (Mrs) Anima Sen Memorial Award Fund	121,199.00	20,370.00	—	141,569.00
13. Dr (Mrs) Gouri Ganguly Award Fund	239,854.15	14,853.00	—	254,707.15
14. Prof S.S. Katiyar Commemoration Lecture Fund	559,829.00	(11,227.00)	—	548,602.00
15. ISCA Ward Fund	5,787,689.66	284,703.00	—	6,072,392.66
16. ISCA Vikram Sarabhai Memorial Award Fund	1,013,220.29	37,746.00	—	1,050,966.29
17. ISCA Excellence in Science & Technology Award Fund	2,080,396.00	160,427.00	—	2,240,823.00
18. ISCA Royalty Fund	401,181.50	39,247.00	—	440,428.50
19. ISCA Infosys Foundation Travel Award Fund	595,361.26	16,920.00	—	612,281.26
20. Prof R.C.Mehrotra Memorial Life Time Achievement Award Fund	1,707,228.00	82,554.00	—	1,789,782.00
21. Prof M.K. Singal Memorial Award Fund	—	34,134.00	1,000,000.00	1,034,134.00
Total	15,574,371.70	814,935.00	1,000,000.00	17,389,306.70

SCHEDULE - 14

ENDOWMENT INVESTMENTS

Particulars	Current Year			Previous Year
	In Term Deposit	In Bank	Total	Amount
1. B.C. Guha Memorial Fund	125,000.00	42,790.39	167,790.39	159,507.39
2. G.P. Chatterjee & Smt Suniti Chatterjee Fund	420,000.00	147,883.25	567,883.25	541,938.25
3. Prof Hiralal Chakraborty & Smt Toru Chakraborty	225,000.00	33,078.60	258,078.60	250,839.60
4. Prof K.P. Rode Memorial Lecture Fund	95,000.00	38,785.66	133,785.66	128,638.66
5. Pran Vohra Award Fund	425,000.00	78,065.13	503,065.13	490,731.13
6. Raj Kristo Dutta Memorial Award Fund	100,000.00	43,268.00	143,268.00	144,600.00
7. Prof Uma Kant Sinha Memorial Award Fund	185,000.00	70,037.81	255,037.81	247,769.81
8. Dr B.C. Deb Memorial Award Fund	385,000.00	103,024.39	488,024.39	455,451.39
9. Prof R.C. Saha Memorial Award Fund	120,000.00	31,819.42	151,819.42	141,956.42
10. Prof R.C. Mehrotra Commemoration Award Fund	230,000.00	79,263.74	309,263.74	288,750.74
11. Prof S.K. Mukherjee Commemoration Award Fund	150,000.00	75,604.45	225,604.45	218,229.45
12. Prof (Mrs) Anima Sen Memorial Award Fund	100,000.00	41,569.00	141,569.00	121,199.00
13. Dr (Mrs) Gouri Ganguly Award Fund	200,000.00	54,707.15	254,707.15	239,854.15
14. Prof S.S. Katiyar Commemoration Lecture Fund	500,000.00	48,602.00	548,602.00	559,829.00
15. ISCA Award Fund	5,400,000.00	672,392.66	6,072,392.66	5,787,689.66
16. ISCA Vikram Sarabhai Memorial Award Fund	800,000.00	250,966.29	1,050,966.29	1,013,220.29
17. ISCA Excellence in Science & Technology Award Fund	2,000,000.00	240,823.00	2,240,823.00	2,080,396.00
18. ISCA Royalty Fund	300,000.00	140,428.50	440,428.50	401,181.50
19. ISCA Infosys Foundation Travel Award Fund	500,000.00	112,281.26	612,281.26	595,361.26
20. Prof R.C. Mehrotra Memorial Life Time Achievement Award Fund	1,500,000.00	289,782.00	1,789,782.00	1,707,228.00
21. Prof M.K. Singal Memorial Award Fund	1,000,000.00	34,134.00	1,034,134.00	—
Total	14,760,000.00	2,629,306.70	17,389,306.70	15,574,371.70

THE INDIAN SCIENCE CONGRESS ASSOCIATION

SCHEDULE - 15

INCOME, EXPENDITURE & SURPLUS/DEFICIT OF ENDOWMENT FUNDS

Name of Endowment Fund	Current Year			Previous Year		
	Income	Expenditure	Surplus(+)/Deficit(-) Transferred to Respective Fund	Income	Expenditure	Surplus(+)/Deficit(-) Transferred to Respective Fund
1. B.C. Guha Memorial Fund	11,283	3,000	8,283	11,441	4,935	6,506
2. G.P. Chatterjee & Smt Sumiti Chatterjee Fund	35,945	10,000	25,945	38,233	11,935	26,298
3. Prof Hiralal Chakraborty & Smt Toru Chakraborty	17,749	10,510	7,239	19,269	12,870	6,399
4. Prof K.P. Rode Memorial Lecture Fund	8,437	3,290	5,147	7,996	—	7,996
5. Pran Vohra Award Fund	34,094	21,760	12,334	37,063	23,941	13,122
6. Raj Kristo Dutta Memorial Award Fund	8,668	10,000	(1,332)	18,513	10,180	8,333
7. Prof Uma Kant Sinha Memorial Award Fund	16,113	8,845	7,268	17,253	4,810	12,443
8. Dr B.C. deb Memorial Award Fund	33,093	520	32,573	31,813	25,882	5,931
9. Prof R.C. Saha Memorial Award Fund	10,123	260	9,863	10,628	7,194	3,434
10. Prof R.C. Mehrotra Commemoration Award Fund	20,513	—	20,513	21,384	35,796	(14,412)
11. Prof S.K. Mukherjee Commemoration Award Fund	12,635	5,260	7,375	11,842	11,335	507
12. Prof (Mrs) Anima Sen Memorial Award Fund	20,370	—	20,370	1,070	10,726	(9,656)
13. Dr (Mrs) Gouri Ganguly Award Fund	15,113	260	14,853	13,907	10,519	3,388
14. Prof S.S. Katiyar Commemoration Lecture Fund	34,950	46,177	(11,227)	34,119	44,307	(10,188)
15. ISCA Award Fund	389,872	105,169	284,703	413,284	97,550	315,734
16. ISCA Vikram Sarabhai Memorial Award Fund	70,280	32,534	37,746	68,992	25,246	43,746
17. ISCA Excellence in Science & Technology Award Fund	160,923	496	160,427	159,018	120,575	38,443
18. ISCA Royalty Fund	39,247	—	39,247	34,462	28	34,434
19. ISCA Infosys Foundation Travel Award Fund	42,581	25,661	16,920	41,935	17,914	24,021
20. Prof R.C. Mehrotra Memorial Life Time Achievement Award Fund	132,554	50,000	82,554	100,272	52,399	47,873
21. Prof M.K. Singal Memorial Award Fund	34,134	—	34,134	—	—	—
Total :	1,148,677	333,742	814,935	1,092,494	528,142	564,352