

THE NATIONAL ACADEMY OF SCIENCES, INDIA (NASI)

(The Oldest Science Academy of India)



NASI building at Prayagraj



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THE ACADEMY



“...the main function of the Academy should be towards cultural improvement by contribution to human knowledge”....Prof. Meghnad Saha, Founder President, NASI

An Introduction

India can justly feel proud for its unique contributions to science in the ancient past. Western science attracted Indian intelligentsia after the establishment of the western system of education and the universities; despite many constraints, the country could produce giants like Prof. J.C. Bose, Prof. S.N. Bose, Prof. Meghnad Saha, Prof. C.V. Raman, Srinivasa Ramanujan and Acharya Prafulla Chandra Ray.

The 1st World War and the world-wide economic depression caused a setback to scientific research globally - much more so in India whose scientists found it difficult even to publish their research work since they had to be almost entirely dependent on foreign journals. The post World War India also saw the rise of the *freedom movement* which incidentally also drew attention to the numerous problems of the Indian people like poverty, hunger, diseases, recurrent floods, droughts, famines etc. Patriotic scientists felt deeply concerned with these.

It was in this background that **the idea of establishing a forum for scientists, which would bring them together to discuss and find scientific solutions to the problems of the country, was mooted by Prof. Meghnad Saha**, a great scientist, patriot and the then Professor of Physics at Allahabad University in 1929. His views were published in December 1929 issue of the Allahabad University magazine in an article entitled '**A Plea for an Academy of Sciences**'.

Thus, the National Academy of Sciences, India (NASI) was founded in the year 1930, with the objectives to provide a national forum for the publication of research work carried out by Indian scientists; and to provide opportunities for exchange of views among them.

The Memorandum of Association was signed by **seven distinguished and patriotic scientists** namely **Prof. Meghnad Saha, Prof. K.N. Bahl, Prof. D.R. Bhattacharya, Prof. P.C. MacMohan, Prof. A.C. Banerji, Prof. Ch. Wali Mohammad and Prof. N.R. Dhar**. Of these, Prof. N.R. Dhar was so closely associated that he donated a piece of land to the Academy on which the Academy building stands today.

The Rules and Regulations of the Academy were based on those of the Royal Society of England and the Asiatic Society of Bengal. These have since been revised and updated to meet the emerging challenges. **Prof. Meghnad Saha was elected its first President**. In the Inaugural address, Prof. Saha Said: **“An Academy of Science can do a great deal by educating public opinion, undertaking particular problems, and bringing out scientific workers in various fields for discussion and cooperative research. But the main function of the Academy should be towards cultural improvement by contributions to human knowledge**. Since then, the Academy has crossed many milestones, successfully serving the **“Science & Society”**.

The Academy is financially supported by the Department of Science & Technology, Ministry of Science & Technology, Govt. of India; and it is also recognized as the Scientific and Industrial Research Organisation (SIRO) by the DSIR, Govt. of India as well as by the University Grants Commission as a premier scientific body.

NASI - envisions the cultivation and promotion of Science & Technology in all its branches through -

- (a) promoting scientific and technological research related to the problems of societal welfare.
- (b) publication of proceedings, journals, memoirs, transactions and other works as may be considered desirable.
- (c) organising meetings and hold discussions on scientific and technological problems.
- (d) undertaking, through properly constituted committees and bodies, the scientific work(s) of technological or public importance.
- (e) cooperating with other organizations in India and abroad having similar objects, and to appoint representatives of the Academy to act on national and international bodies.
- (f) securing and managing funds and endowments for the promotion of science and technology.
- (g) organising a science library.

- (h) performing all other acts, matters and things that may assist in, conduce to, or be necessary for the fulfillment of the above mentioned aims and objects of the Academy.
- (i) creating an adequate impact of the Academy all over the country by opening Chapters of the Academy in other cities in the country, where reasonable number of Fellows and Members are available.

Milestones:

▪ The Silver Jubilee Session (Dec.26-28,1955) at Lucknow

Dr. Sampurnand, Hon'ble Chief Minister of Uttar Pradesh inaugurated the Session and in the Presidential Address, Prof. P.L.Srivastava acknowledged the sincere support of world renowned scientists as Prof. Einstein, Lord Rutherford, Prof. Sommerfeld, Prof. Eddington, Prof. Milikan, Prof. Siegbahn, Prof. Goldschmidt, Prof. Goodrich, Sir J.C.Bose, Sir C. V. Raman, Sir P. C. Ray and Sir James Walker. **Prof. Saha also emphasized the role of the Academies in developing human scientific resources.**



Prof. Meghnad Saha addressing the Silver Jubilee Session at University of Lucknow;
Dr. Sampurnand Chief Guest is seated in the centre.

▪ The Golden Jubilee Session (Oct.23-27,1980) at Allahabad

Shrimati Indira Gandhi, Hon'ble Prime Minister of India inaugurated the session. Sri Vishwanath Pratap Singh, Hon'ble Chief Minister of Uttar Pradesh welcomed the Prime Minister. The session was also addressed by Hon'ble Sri C.P.Singh, Governor of U.P., Sri Nurul Hasan, Vice-President, CSIR; Prof. MGK Menon, Secretary, DST and Dr. Hari Narain, President of the Academy. **Shrimati Gandhi stressed that science should not be confined to the laboratories.**



Sitting (L→R) Prof.B.Ramchandra Rao, Prof.U.N.Singh, Sri V.P.Singh (Chief Minister, UP), Dr.Hari Narain (President, NASI), Smt.Indira Gandhi (Prime Minister of India), Sri CPN Singh (Governer, UP), Prof.S.Nurul Hasan (VP, CSIR), Prof. MGK Menon (Secretary, DST), Prof. J.P.Thapliyal and Prof. N.R.Dhar.

▪ **The Diamond Jubilee Session (Feb.13-14,1991) at New Delhi.**

The inaugural address was delivered by Sri R. Venkataraman, **Hon'ble President of India, who explained the importance of science in relating to the lives of the people.** The session was also graced by the presence of Sri Yashwant Sinha, Hon'ble Minister of Finance, Govt. of India; Sri Mohan Dharia, Deputy Chairman of the Planning Commission; Sri Vikramaditya Pandey, Minister of State for S & T, Govt. of U.P. The memorial lectures were delivered by Prof.M.S.Swaminathan, Prof. A.P.Mitra, Prof. R.C.Mehrotra, Prof. V.G.Bhide and Prof. V.P.Sharma.



L→R: Sri Mohan Dharia, Sri R.Venkataraman, Hon'ble President of India, Prof. M.S.Swaminathan, Hon.Sri Yashwant Sinha, Prof. MGK Menon, Dr.T.N.Khoshoo and Prof.U.S.Srivastava

The second part of the Diamond Jubilee Session was held on May 3-4, 1991 at Allahabad. The symposium on “Science & Technology in 2000 A.D. and Beyond” was held under the Presidentship of Prof. A. P. Mitra. Sri Chandra Shekhar, Hon’ble Prime Minister of India was to inaugurate the symposium but, could not come; his address was read out by Dr.(Mrs.) Manju Sharma. Prof. MGK Menon in his keynote address stressed the need of spreading scientific awareness among the society and said, “.....this will call for the creation of linkages and inter-connections that will enable the scientific capabilities of the country to be related to the real life problems encountered at grass root levels”. The Who’s Who of Indian Science & Technology graced the occasion including Prof.U.R.Rao, Dr.V.S.Arunachalam, Dr.V.K.Gaur, Prof.S.K.Joshi, Prof.Yash Pal, Prof. P.N.Tandon, Dr.N.Seshagiri, Dr.P.Rama Rao, Dr.B.N.Dhawan, Dr.P.K.Iyengar, Dr.S.K.Rangarajan, Prof.B.K. Bachhawat and several others.

▪ The Platinum Jubilee Session

✚ (Inaugural Session held on Oct.6,2005 at Allahabad)

✚ (Concluding Function held on Oct.6,2006 at Mumbai)

The Platinum Jubilee Celebrations and the Symposium on ‘Excitement of Science’ were inaugurated by the Hon’ble President of India, Dr. A.P.J. Abdul Kalam. In the inaugural address, Hon’ble President appreciated “.....the Academy has left no stone unturned in pursuing its aim and objectives”. Dr. Kalam praised the role of the Academy in boosting the zeal of the budding scientists, who could do better in future with such support and endeavour.

Shri T.V. Rajeswar, Hon’ble Governor of Uttar Pradesh; Shri Mulayam Singh Yadav, Chief Minister of Uttar Pradesh; Prof. MGK Menon, Chairman, Advisory Committee, Platinum Jubilee Celebrations and Past President of the Academy; Hon’ble Prof. Murli Manohar Joshi, Honorary Fellow of the Academy; Shri Mukesh Ambani, Chairman & Managing Director, Reliance Industries Ltd.; Past Presidents, Fellows and Members of the Academy and other distinguished guests were also present on this historic occasion.



L→R: Dr.S.Z.Kasim, Prof.MGK Menon, Dr.A.P.Mitra, Prof.P.N.Tandon, Dr.J.P.Mittal, Dr.APJ Abdul Kalam, President of India, Dr.V.P.Kamboj, Prof.S.K.Joshi, Dr.(Mrs) Manju sharma, Dr.V.P.Sharma

The concluding function of the Platinum Jubilee Celebrations and Symposium on “Science & Technology in the Service of Society” were inaugurated by Dr.Manmohan Singh, Hon’ble Prime Minister of India, on Oct.06, 2006, at IIT, Mumbai. Dr. Singh said, “.....the link between the teaching and research must be restored to make science and technology instrumental in socio-economic transformation”. The function was also graced by Shri S.M.Krishna, Hon’ble Governor of Maharashtra; Shri Vilasrao Deshmukh, Hon’ble Chief Minister of Maharashtra; Shri Chauhan, Hon’ble Minister of State, Govt. of India. The function was attended by Prof. MGK Menon, Prof.P.N.Tandon, Prof.(Mrs.) Manju Sharma, Prof.J.P.Mittal, Prof.R.Chidambaram, Dr.Anil Kakodkar, Dr.H.N.Sethna and a number of Fellows and Members of the Academy including distinguished academicians and industrialists as Shri N.R.Narayana Murthy, Shri Rahul Bajaj, Shri Ajay Piramal, Shri Hitel Meshwani and so.

Activities of NASI (in a nutshell):

The Academy, with the broad base of more than 3500 Fellows and Members from all the areas of Science & Society, has always acted as ‘think tank’ to provide solutions to the socio-scientific problems. The Academy undertakes several ‘Science & Society’ programs under the guidance of its President, Past Presidents and Fellows. The Past

Presidents, who are very distinguished scientists like Prof.M.S. Swaminathan, Prof.(Mrs.) Manju Sharma, Prof.P.N. Tandon, Prof.Jai Pal Mittal, Prof.V.P. Kamboj, Prof.Ashok Misra, Prof.Asis Datta, Dr.K. Kasturirangan, Prof.Akhilesh K. Tyagi and Prof.Anil Kakodkar are keenly associated with the Academy and contributing enormously to its development. It is worth mentioning that a few other Past Presidents (unfortunately who are not with us now), as Prof. MGK Menon, Prof.A.K. Sharma, Dr.V.P. Sharma, Prof.S.K. Joshi, Dr.T.N. Khoshoo, Prof.U.S. Srivastava, Dr.A.P. Mitra and Dr.S.Z. Qasim also contributed a lot to the development of science in general and the Academy in particular, in the recent past.

NASI organized various activities under the Presidentship of **Professor G. Padmanaban**, former Director, Indian Institute of Science, Bangalore, during the year 2019-20.

Science Communication Activities

- The Academy regularly organizes Children Science Meets, Summer & Winter Schools, Teachers' Training Workshops, Scientific Writing Contests, Vigyan, Jal & Health Chaupals, Seminars, and celebrations of the National Technology Day, the National Science Day, the National Constitution Day, the National Mathematics Day, the World Environment Day and the International Yoga Day etc.
- **NASI's 21 Chapters** spread all across India, organizes numerous science communication activities in and around their respective regions throughout the year.
- **A series of Workshops on Scientific Paper Writing** are being organized by the Academy (since 2012) to train the young researchers in the art and ethics of scientific writing and expressions. So far, 16 such workshops have been organized at various places in India, e.g. Varanasi, Lucknow, NASI HQs at Prayagraj, Udaipur, Mumbai, Dehradun, Pune, Amrawati, Nainital, Rishikesh and Mahendragarh (Haryana).

Activities under Scheduled Tribe Sub-Plan Programme

An innovative programme was launched under this head for improving the socio-economic status of the Scheduled Tribes of about 21 regions of the country (details are available on www.nasi.nic.in). The programme is aimed towards:

- **Bioeconomy for the Scheduled Tribes:** Emphasis has been given on bioresources and biodiversity development, conservation and utilization as well as value addition.

- **S&T Interventions:** For ensuring Safe Water and Sanitation, eradicating Malnutrition, Malaria and other communicable diseases, etc.
- **Imparting training to the scheduled tribes on:**
 - Tissue culture for large scale cultivation; Agro technology packages and Bioprocessing and product development etc.
 - Medicinal and Aromatic plants cultivation and commercialization
 - Mushroom Cultivation, Vermi composting etc.
- **Data accumulation, analysis and utilization:** Specially, on the vast knowledge bank of ethnic medical practices and ethos as well as the widespread biodiversity of the tribal areas.

Fellowship / Membership

To recognize the outstanding scientific contributions of the scientists, the Academy awards every year the prestigious Fellowship/Membership about 100 scientists working in different areas of Science & Technology from all across the country. It also gives a few Foreign Fellowships to scientists who are working in different countries and have collaborated with scientists from India.

The Academy while starting with 57 ordinary Members and 19 Fellows, has now 1811 Members and 1848 Fellows from all parts of the country including 17 Honorary Fellows and 106 Foreign Fellows from various disciplines of Science and Technology.

Recognition and Awards

The following awards are given by the Academy for recognition of the achievements of the outstanding scientists of the country.

- **NASI-Reliance Industries Platinum Jubilee Awards** by the contribution of the Reliance Industries Ltd., for the Application Oriented Innovations covering both Physical and Biological Sciences to six distinguished scientists.
- **NASI-Young Scientist Platinum Jubilee Awards** to about fifteen young scientists/researchers in the fields of Biological/Physical/Chemical Sciences.
- **NASI Scopus Awards** in collaboration with Elsevier to six young scientists/researchers.
- **NASI-ICAR Award** for Innovation and Research on Farm Implements.
- **NASI-Senior Scientist Platinum Jubilee Fellowships.**
- **Professor MGK Menon Memorial Award** for outstanding contribution to the Science & Society.

- **NASI - Swarna Jayanti Puruskars** for best paper presentation to four young scientists/researchers, during the Academy's Annual Session
- **NASI - Springer Awards** (in collaboration with the Springer India Pvt. Ltd.) for best paper presentation to two young scientists/researchers, during the Academy's Annual Session.
- **Memorial Lecture Awards** to about fifteen eminent scientists, every year.
- **NASI - Science Teacher Awards** by NASI HQ & Chapters to many motivated school (10+2 level) teachers of the country.

Annual Session

The Academy regularly organizes an Annual Session in a centre of excellence of the country at which research papers are presented and discussed; technical and popular lectures by the eminent scientists are delivered and a Symposium based on current socio-scientific issue is also organized. The recommendations of the Session are sent to the concerned departments/ministries and other scientific bodies of repute.

- The 88th Annual Session of NASI and a Symposium on 'Science, Technology and Ecosystem for Sustainable Rural Development' were jointly organized by Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya (MGCGV) & Deendayal Research Institute (DRI), Chitrakoot, Satna, M. P. on Dec.6-8, 2018, as a part of the celebration of 150th Birth Anniversaries of 'Ba & Bapu' and 125th Birth Anniversary of Prof. Meghnad Saha.
- The 89th Annual Session of NASI and a Symposium on 'Science and Technology based Entrepreneurship Development' was held at NAARM, Hyderabad on Dec.21-23, 2019. More than 600 researchers and scientists participated in each of these events.

Symposia/Seminars & Scientific Discussions

- Other seminars/symposia are also organised by NASI, as the Birth Centenary Celebration of Prof. Vikram A. Sarabhai was organized at I.I.Sc., Bangalore on Nov.16, 2019; attended by Dr. K. Sivan, Chairman, Space Commission, India four former Chairmen of the Sace Commission as well as several other distinguished scientists.

Science Education Programmes in joint collaboration with National Science Academies

NASI, together with other two Science Academies - Indian National Science Academy, New Delhi and Indian Academy of Sciences, Bangalore jointly sponsors the Summer/Winter Research Fellowship under the Joint Science

Education Panel to provide opportunities to bright UG and PG students and teachers to usefully spend their summer/winter vacations.

Sensitization Programmes for Women Researchers/Scientists

The Academy organized **32 workshops on Technological Empowerment of Women** in different parts of the country during the last seven years. More than 50,000 women scientists/researchers were sensitized under this programme. A **Vision Document-Report on Women in Science in India** published by the Academy was also released.

A **Mega Event on ‘Technological Empowerment of Women’** was held at Vigyan Bhavan, New Delhi on **March 8-9, 2018** to commemorate the **International Women’s Day**, with **Dr Harsh Vardhan, Hon’ble Minister for Science & Technology, Govt. of India**, as the **Chief Guest**; and thousands of women scientists, teachers and researchers from all across the country. The event was addressed by world famous scientists as **Prof. M. S. Swaminathan**, Father of Green Revolution in India, **Prof. Anil Kakodkar**, Nuclear Scientist & Former Chairman, AEC of India, **Prof. K. VijayRaghavan**, Principal Scientific Adviser to the Government of India, **Prof. Manju Sharma** (Convener), former Secretary to the Govt. of India, **Dr. Renu Swarup**, Secretary to the Govt. of India, Department of Biotechnology, **Prof. Balram Bhargava**, Secretary to the Govt. of India, Department of Health & Family Welfare, six foreign scientists from different countries and several others. The Proceedings of the Mega-event including significant recommendations was also published and sent to concerned departments and ministries.



Dr. Harsh Vardhan, Hon’ble Minister for Science & Technology, Govt. of India, felicitating Dr. Karen Elizabeth Nelson, President, JCVI, USA; Prof. Ashutosh Sharma, Secretary, DST; Prof. Anil Kakodkar, President, NASI; Prof. (Mrs) Manju Sharma, Past President, NASI; Prof. Prof. Paramjit Khurana, General Secretary, NASI; Prof. Pramod Garg, Foreign Secretary, NASI during the Mega Event.

S&T Entrepreneurship development

- **Training programs for entrepreneurs** - to inculcate the spirit of entrepreneurship in the youth and in line with the **National Mission Programmes of Skill Development and Start Up India**, NASI organised programmes with 'Hands-on training' at **Lucknow, Mahendragarh and Satna** in year 2019-20. Several young, potential candidates interested in entrepreneurship were benefited from these programmes.
- **Awareness and Training** - on Nutrition, Safe drinking water, Health & hygiene etc. A mixed participation of rural and urban population was ensured. This was included in the spirit of **Swasth Bharat Mission** of Govt. of India.
- **Safe drinking water and pollution abatement** - especially, for the rural areas and municipal workers. This was included in the spirit of **Swachh Bharat Mission**. A Brainstorming on Safe Water & Sanitation was organised at MPCOST Bhopal in Sept. 2019; a large number of scientists, municipal workers, researchers and others attended the programme.

Publications

- NASI publishes the Proceedings of NASI, Sec. A & B, each in IV parts and National Academy Science Letters in VI parts, in collaboration with the Springer Nature.
- Two special publications were released on Oct. 5, 2019 at New Delhi on the occasion of the Closing Ceremony of the Anniversary Celebrations of 'Ba & Bapu' and 'Prof. Meghnad Saha'. These comprised the collection of the Lectures delivered (in the memory of these three great personalities of the world) by the distinguished persons in different parts of the country.
- An important Special Issue on 'Mathematical Biology' and a specific book on 'Vector Biology and Control' is ready to be published soon.
- A '**Festschrift**' dedicated to the legendary scientist Professor MGK Menon, was published by NASI and **released by the Dr. Harsh Vardhan, Hon'ble Minister for Science & Technology, Government of India** on August 27, 2016 at New Delhi. A copy of the same was later presented to the Hon'ble Prime Minister of India.



'Festschrift', dedicated to the legendary scientist Prof. MGK Menon, released by Dr. Harsh Vardhan, Hon'ble Minister, Science & Technology, Govt. of India (L); and presented to Sri Narendra Modi, Hon'ble Prime Minister of India, by Prof. Akhilesh K. Tyagi and Prof. Manju Sharma, Past Presidents, NASI (R).

Major and Unique National Facilities created

- **The Ganga gallery** established in the year 2011 at its Head Quarter at Prayagraj. IGNOU, New Delhi has included the gallery in its syllabus/projects; U.P.Tourism and Consortium of IITs have also included the gallery on their websites.

Recently, a prototype of the 'Ganga-gallery' was created at 'Pravasi Bharatiya Divas' on Jan.21-23 2019 at Varanasi and appreciated by several NRIs.

- **The Brahmaputra gallery** in Gowahati, Assam established in the year 2015; now being handed over to the Govt. of Assam.
- **The Cauvery gallery** has also been established recently at Mysuru, Karnataka with the major support from Govt. of Karnataka.
- **The library of the Academy** is serving our nation for nearly 90 years. The new Library Complex was opened in 1986, dedicated to the memory of Sir Lala Padampat Singhania. It includes more than 8,000 books and about 50 journals/magazines. The library is also connected to the National Knowledge Network (NKN) portal and having access of about 1,000 international journals from National Knowledge Resource Consortium (NKRC). Internet facility is being provided to the visiting students and research scholars, free of cost.
- **The Scientific Restoration of Baolies of 200 years ago (step wells)** was an important step for assuring safe water supply to the rural population of Bundelkhand.

- **The Chapters of the Academy-** In order to pursue the objectives of the Academy and create adequate impact all over the country, the Academy has opened 21 Chapters spread all across the country, viz. Ahmedabad, Bangalore, Bhopal, Chandigarh, Chennai, Delhi, Hyderabad, Jaipur, Jammu, Jharkhand, Kerla, Kharagpur, Kolkata, Lucknow, Mumbai, Assam, Odisha, Patna, Pune, Uttarakhand and Varanasi.

The Academy is grateful to its Fellows, Members and the Department of Science & Technolgy, Govt. of India for their continuous support.