



## PRESIDENTIAL ADDRESS: Dr K. Kasturirangan, President, NASI

### **NASI-Entering into its 85<sup>th</sup> Year: A Tryst with Saha's Vision**

As everyone in this august gathering knows, the Founder of NASI was Prof. Meghnad Saha, an eminent scientist of the renaissance of Indian Science. However, it is equally interesting that very few people know about his social & patriotic endeavours, which made him so popular in those days that he fought and won the prestigious seat of Lok Sabha, with thumping majority. Actually, the social life of Saha became prominent at the school age, when he was forced to leave the school because of his participation in the **SWADESHI MOVEMENT**. Later on, after completing his schooling even while facing several challenges of life, Saha never missed an opportunity to learn as he entered into his college days, where among his classmates were Satyendranath Bose, of the Bose-Einstein Statistics fame; and Prasanta Chandra Mohalanobis, the founder of the Indian Statistical Institute, his senior by a year. His teachers included Prafulla Chandra Ray in chemistry and Jagadis Chandra Bose in physics. Saha passed his BSc Examination with Honours in Mathematics in 1913 and MSc (Applied Mathematics) Examination in 1915, standing second in order of merit in both the examinations. The first position in both cases went to S.N. Bose.

Thus, his early upbringing was in an environment which was very demanding, while at the same time, having the company of the then great academicians. All these experiences moulded his personality development in such a manner that science as well as patriotism became part & parcel of his attributes. After his return from abroad, Saha preferred to serve the humanity with his scientific endeavours. In 1923 he came to the University of Allahabad, where he taught for the next fifteen years. Confirmations and extensions of his theory brought him fame and he received a number of honors. He was elected president of the physics section of the Indian Science Congress Association in 1925, and two years later he was named a member of the Royal Society. During his fifteen years of stay in Allahabad (1923-1938) he built up a very active centre of research with the help of DS Kothari, RC Majumdar and PK Kichlu, among many others. **But quite apart from his research interests during this period, Saha became deeply involved in the problem of organising scientists as a corporate body** engaged not only in professional communication but in the more overtly political act of lobbying for resources and public support for scientific enterprises. Saha proposed the formation of an Indian Science Academy, which was to take over

the functions of the Indian Science Congress Association. He proposed that such an organisation should try to induce the state to form a National Research Committee in which academies should have a fair representation. Saha's initiative resulted in the establishment of the National Academy of Sciences, India (1930), National Institute of Sciences in India (later renamed the Indian National Science Academy) in Calcutta in 1935, and the Indian Association for the Cultivation of Science (1944). Not only these, Prof. Saha was the chief architect of river planning in India; and prepared the original plan for the Damodar Valley Project. His own observation with respect to his transition into government projects and political affairs was:

“Scientists are often accused of living in the “Ivory Tower” and not troubling their mind with realities and apart from my association with political movements in my juvenile years, I had lived in ivory tower up to 1930. But science and technology are as important for administration now-a-days as law and order. I have gradually glided into politics because I wanted to be of some use to the country in my own humble way.”

**Therefore, the true reflection of his sentiments and dedication was to pursue his goals; and we are proud that during the last 84 years, the Academy has established strong bond between its programmes and their impact on science & society, as per mandate envisioned by Saha .**

Keeping with the spirit of Saha's vision, the Academy very successfully established two galleries on the holy rivers (Ganga & Brahmaputra), with the pious aim of generating awareness for the conservation of these vast natural resources, under the guidance of Prof Manju Sharma, Past President of the Academy & formerly Secretary to the Govt. of India; and the third river gallery project is to be undertaken soon at Karnataka. Not only this, the water and sanitation projects undertaken under the leadership of Prof V P Sharma, are also the landmark, becoming the guiding principle for community scientists. And just before my taking over as the President, my predecessor Prof A K Sharma set up an example by creating a treasure of Indian Science (Books in eight volumes), covering the monumental works of our great Indian scientists. The Academy has already sent these volumes to the libraries of the Institutes & Universities of India.

Apart from all these, new initiatives have also been taken under the brilliant guidance of Prof M G K Menon, a legendary personality in Indian Science, to develop projects aimed towards attaining sustainable development in the areas of Water, Nutrition & Health, Conservation of our biodiversity resources etc. Actually, these new initiatives have been strengthened with the alliances and associations between Academia-industry and Academia-corporate ventures. The **Academia-industry and Academia-corporate** collaborations, developed in the recent past have become so

successful and fruitful, that several senior and young scientists have benefited from this endeavor; the **NASI-Reliance** and **NASI-SCOPUS** alliance are worth mentioning here, as about thirty senior and more than sixty young scientists bagged fabulous awards during last three years, **for innovations/initiatives in the field of science/ technology.**

In the past few years, the country as well as the world witnessed several calamities or the natural disasters, which created panic & havoc all over the globe; resulting into reorientation of our attitude towards community living, industrialization, urbanization and planning, especially for judicious utilization of our natural resources. Therefore, year 2010 (International Year of Biodiversity) & 2011 (International Year of Forests), were focused on the conservation of our biodiversity; and in consonance with the idea and spirit of conservation of our natural resources, the Academy decided to organize several programmes. In the year 2010 a National Symposium on "Climate Change" was organized under the Presidentship of Prof Asis Datta; Prof. M.S. Swaminathan, father of Green Revolution, was its Chief Guest and Prof. (Mrs.) Manju Sharma coordinated the event as the Convener. The major topics of this symposium were decided in a meeting headed by Prof. M.G.K. Menon to give an emphasis on the adverse impact of the climate change on the planet earth in general, and the biodiversity, in particular. The recommendations of this symposium were sent to concerned governmental and non-governmental departments. Further, the Academy also organized a National Symposium on "Sustainable Management of Biodiversity using Science & Technology" on Nov. 24-26, 2011 at Trivandrum; with an aim to propagate the message to take concrete steps for conserving the biodiversity for Sustainable Development. The recommendations have already been sent to DST, New Delhi. By organizing these scientific meetings, the Academy tried to generate public opinion as well as to attract attention of the government on these vital issues.

Not only this, the Academy has also tried to keep pace with the advancements in science; and for this several scientific meetings were organized, as the Symposium on 'Nano-science & technology for mankind', at BHU, Varanasi, during its 82nd Annual Session on November 28- December 01, 2012, under the convener-ship of Prof Ashok Misra, Past President, NASI & formerly Director, IIT Bombay. The symposium was addressed by several world famous scientists on Nano-science & technology; the Proceedings of which are to be released just now. Last year, i.e. in 2013, the symposium on "Space for Human welfare" was held at NIO, Goa on December 5-7, 2013 under the joint auspices of University of Goa and NIO **in celebration of the successful flight test of GSLV-D5 and the injection of Mangalyan into the space trajectory.** The event was inaugurated by Hon'ble Bharat Vir Wanchoo, His Excellency, Governor of Goa and the chief guest was none other than the chairman of ISRO and Space Commission, Dr. K. Radhakrishnan. Prof. Menon delivered the keynote address, recalling his close association with Prof. Bhabha and Prof. Vikram Sarabhai. He also

narrated the history of the evolution of space-research in India and the outstanding contribution made by Prof. Sarabhai.

The other important activity of the Academy is the science communication/extension activities, **which have become the Academy's signature**. About 200-300 such programmes are organized throughout the year all across the country with the help of its 17 Chapters, as Capacity Building has always been a thrust area for the NASI. Similarly, the Technological empowerment of women at the grass roots (in rural areas) is a major project, involving the Fellows and Members. Special attention is also being paid to ensure inclusiveness of women scientists by generating training programmes and scholarships to bring more women in science; the recent assignment of conducting/organizing DISHA programme bestowed by the DST, N. Delhi on the Academy, is another feather in the Academy's success story. Through all these endeavours, this Academy is trying to make the Indian science popular among the common mass, as well as the stake holders of science.

The Academy has now taken a lead in organizing the **science awareness programmes for the welfare of Jawans**, in collaboration with Army. Also joint programme of NASI & ICAR on Farm Mechanization/ Implementation was started during the year. These steps are unique in the sense that realization of the drudgery associated with the working in difficult terrains/situations is in itself a humane consideration; and attempting to reduce the adverse impact is certainly a rational approach towards mitigating the problems of the jawans/kisans. By virtue of these, NASI has established a niche of its own in the area of science & society; and reaffirms its faith in the goal set-up by its founder, as described in his address in 1930, as- **"the main role of the Academy should be towards cultural improvement (through the scientific endeavours)."**

All these give us a sense of accomplishment; but we should not be complacent, as there are miles to go. This is not the end but the beginning. Yet, there are many evils/orthodoxy in the society prevailing and ruling the uneducated/illiterate mass, compelling them to live in an inhuman condition. Infant/child mortality (specially the girl child), hidden hunger, psychosomatic disorders, unsafe water & lack of sanitation, communicable diseases, emerging health issues such as obesity, diabetes, high blood pressure, cardiac malfunctioning etc. are the main cause of GDP loss and receding growth index; which must be tackled with multi-pronged approach of spreading scientific awareness, capacity building and ensuring good services/governance, where this Academy can take major steps. The 17 Chapters of the Academy are representing the different regions of the country; and have been activated to generate scientific awareness on many of these issues. I personally visited some of these Chapters, and established the latest (Jharkhand) Chapter. We also organized meetings with the Conveners of the Chapters, to invite their suggestions on broadening the programme base; the results of which are really encouraging, as more than half of the Chapters

tried to give impetus to their science-society programmes; and collaborated with governmental & non-governmental agencies for implementation aspects. In this regard, the role played by the remotely located Chapters like North-Eastern Chapter, Uttarakhand Chapter, Bundelkhand Extended Region Chapter and so, are worth praising; because not only the resources available are limited for these Chapters but also face extremes of climatic conditions, and other difficult environmental conditions.

There is a need of more concerted efforts in collaboration with governmental/non-governmental agencies, so that focused programmes be organized, especially for the have-nots of the society. The government has taken several steps to ensure all good things and deliverables; but the Academy and similar organizations should come forward to assist in these programmes with the help of its vast scientifically skilled human resource. In fact all three National Science Academies could make joint efforts in this direction, then only the pragmatic solutions to these societal problems could be ensured.

Let us join hand for this noble endeavour.

With all my good wishes to the Fellows & Members of the Academy and our scientific fraternity.  
Greetings for New Year.