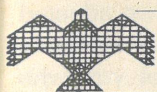
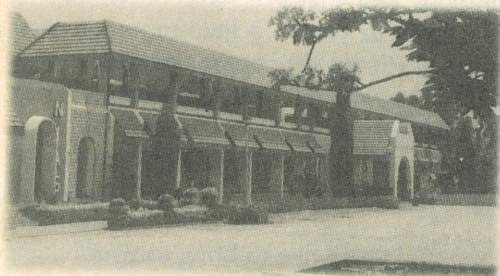


# NIAS NEWS



Vol 9 No 2

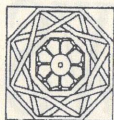
April 2000



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## *Editors' Note*

This issue of the newsletter continues with the new physical format that we adopted last time. We would like to sincerely express our gratitude to all of you who called and wrote in to say that they like the new look of the newsletter. It was therefore extremely encouraging to know that our experiments have served their purpose and that we have been able to reach out to you in a little more effective manner. Please do continue to provide us with your valuable support, and do write in with your comments – whether they concern the structure or the contents of the newsletter.

We would also like to bring to your notice some mistakes that inadvertently crept in into our last issue – Volume 9, Number 1, January 2000.

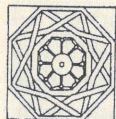
**Prof Bimal Krishna Matilal passed away in 1991, and not in 1994, as was reported in that issue (page 4).**

**The project on “South Asian Women in International Security: Building Co-operative Networks” is being run by the International and Strategic Studies Unit of the Institute and not by the Gender Studies Unit as mentioned (page 17).**

**The workshop on “Draft Indian Nuclear Doctrine” was not a regional one – the word ‘regional’ was inadvertently included in describing the meeting (page 34).**

We would like to sincerely apologise for these errors.

**Anindya Sinha, Hamsa Kalyani and  
A Devaraju,**  
Editors, April 2000



## *From the Director's Desk*



I am gratified by the response we have received to NIAS News in its new format; it has generally been welcomed all round. We will therefore stay with this format till we find something better, but I expect we will keep making such refinements and improvements as seem worthwhile. I will always be happy to hear any suggestions that readers may have in this regard.

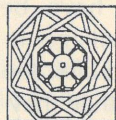
Early in January we ran the 14th Course for Senior Executives, this time on the theme of Globalization. A selected set of lectures presented at this Course will before long be available as a document from NIAS.

My colleagues at the Gender Studies Unit, led by Dr Shantha Mohan, have been busy studying the Panchayat elections in Karnataka. They have been talking to people in several villages in three Districts, before, during and after the elections. The first conclusions that they reached were presented at a meeting held at NIAS on 8 March 2000. I was very happy that we had as participants in the meeting, on the one hand Mr M Y Ghorpade, Minister for Rural Development and Panchayati Raj, and on the other, some thirty newly elected members of the Panchayat (about half of them women). As may be expected there were detailed discussions of the conclusions of the NIAS team, and we were happy that the Minister – who has had a long-time commitment to the cause of introducing and promoting panchayati raj in the State – patiently listened to all the complaints, suggestions and proposals that were made during the meeting. A more detailed account of this encounter as well as the findings of the NIAS research work should shortly be available.

Following the discussions we had on 14 December 1999 on the IT Bill 1999 that the Union Ministry of Information Technology has placed before Parliament, a second discussion meeting was organized on 11 March 2000. As part of this meeting a new draft Bill, prepared by Mr Rahul Matthan, following the earlier meeting, was discussed at length. This new draft bill is chiefly confined to e-commerce. I expect that the outcome of the second meeting will also be available shortly as a document from NIAS.

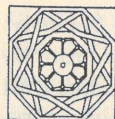
I have pleasure in acknowledging the kind gift that the Institute has received from Dr R Sunder of BiSS Research, Bangalore.

**R Narasimha**



### **EIGHTH MEETING OF THE ACADEMIC COUNCIL OF NIAS**

The eighth Academic Council of the Institute met to discuss the past academic achievements and the future plans and programmes of the Institute on 21 March, 2000. The members of the Council, who were present in this meeting, included Prof R Narasimha (Chairman), Prof O Siddiqi, Mr T R Satish Chandran, Prof A Madhavan, Prof S Rajagopal, Prof Dilip Ahuja and Major-General M K Paul (Secretary). Dr N Shantha Mohan and Dr Anindya Sinha attended the meeting by invitation.



## *Research Programmes*



The principal areas of research that faculty members of the Institute are currently involved in include consciousness studies, conservation biology, energy policy and renewable energy, environmental toxicology, epigraphy, fluid dynamics and atmospheric sciences, gender studies, international and strategic studies, mathematical modelling in non-traditional areas, philosophy of science, primate cognition, science and technology policy, sociology and social anthropology, and theory of numbers.

More specifically, during the preceding period, a project entitled **Dimensions of Nuclear Deterrence in the Indian Context** has been initiated by the **International and Strategic Studies Unit** and will be carried out jointly with Col Prakash Menon of the Defence Services Staff College, Wellington.

The first phase of the project on **Gender and Decentralised Governance**, being run by the **Gender Studies Unit** has been completed. As part of a longitudinal study, this phase aimed at studying the transition from the previous to the new panchayats; the pre-election processes from the time of announcement of the Gram Panchayat elections to nominations, campaigns, elections and the dynamics that operate on the basis of caste/class and gender. As the elections were announced and held simultaneously in three districts of Karnataka, namely Koppal, Udupi and Mysore, all the members of the Unit, irrespective of the projects they were associated with, participated in the study. The findings of the study were shared in a meeting organised on the 8 March, 2000. The first phase of the project on **South**

**Asian Women in International Security: Building Co-operative Networks**, run by the **International and Strategic Studies Unit** and funded by the Ford Foundation, New Delhi, has been completed. The project will terminate by November 2000.

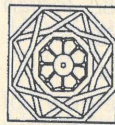
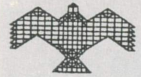
The first phase of the collaborative project on **An Indo-US Programme on Electric Power Technology Assessment**, between Carnegie Mellon University, USA, and the **International and Strategic Studies Unit** has been successfully completed. A review meeting to finalise the report was organised on 17 March, 2000 and the report will be released shortly.

The **International and Strategic Studies Unit** has also successfully completed the project on **Issues on Non-Proliferation and Total Elimination of Weapons of Mass Destruction**, funded by the Rockefeller Foundation, USA.

The project on **Fissile Material Cut-off Treaty and Options for India**, conducted by the **International and Strategic Studies Unit** and funded by the Board of Research in Nuclear Sciences of the Department of Atomic Energy, Government of India, has been completed and a working paper published.

Finally, the research project on **Community – School Interlinks**, conducted by the **Sociology and Social Anthropology Unit** for the Government of Karnataka (DPEP) has been completed. The study focussed on identifying community-specific problems related to primary education in the districts of Mysore, Kolar, Bijapur, Belgaum and Bangalore Rural in Karnataka. The study has identified the following problems: lack of synchrony between local economic activities and the school schedule, gender discrimination against girl-children

especially in the context of domestic chores and early/child marriages, the absorption of children as labourers by the new income-generation schemes, and administrative biases against communities of religious minorities. A copy of the final report will be submitted to the Government of Karnataka and Kannada versions of the report will be disseminated at the district level within the state.



## *Publications*

### **NIAS PUBLICATIONS**

*Copies of the below-mentioned NIAS publication can be purchased from the Institute. Please contact the **Controller**, NIAS, for more details.*

#### **I. NIAS SPECIAL PUBLICATIONS**

6-99 Report on the Workshop on the Information Technology Bill 1999

#### **PAPERS**

Balasubramanian, R, **Ramachandra, K**, Sankaranarayanan, A and Srinivas, K. 1999. Notes on the Riemann zeta-function III. *Hardy-Ramanujan Journal* 22: 23-33.

Balasubramanian, R., **Ramachandra, K**, Sankaranarayanan, A and Srinivas, K. 1999. Notes on the Riemann zeta-function IV. *Hardy-Ramanujan Journal* 22: 34-41.

**Ramachandra, K**. 1999. Notes on the Riemann zeta-function II. *Acta Arithmetica XCI*: 351- 365.

**Ramachandra, K**. 2000. Notes on the prime number theorem I. In: *Number Theory*

(eds. R P Bambha, H Gill and V C Dumin), INSA and HBA Publications, New Delhi, pp 351-370.

**Sarukkai, S.** 2000. Remembering M N Srinivas. *Economic and Political Weekly* 35: 431-432.

**Vasavi, A R.** 1999. Book review of "Village voices: Forty years of rural transformation in south India" by S Epstein, A P Suryanarayana and T Thimmegowda. Sage Publications, New Delhi, 1998. *Indian Social Science Review* 1: 379-380.

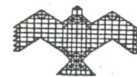
**Vasavi, A R.** 1999. Book review of "Universities and globalization: Critical perspectives" by J Currie and J Newson (eds). Sage Publications, California, 1998. *Journal of Educational Planning and Administration* 13: 487-511.

Two papers – **Understanding the 'what' and 'where' of consciousness: Revisiting the Bhagavad Gita to ask a few more questions** by **Sangeetha Menon** and **Scientific explanations and consciousness** by **B V Sreekantan** have appeared in the NIAS Special Publication (5-99, 1999) entitled *Scientific and Philosophical Studies on Consciousness*, edited by S Menon, M G Narasimhan, A Sinha and B V Sreekantan (see Nias News, Volume 9, Number 1, January 2000, for details). These papers have, however, also been published earlier as NIAS Lecture L4-99 and NIAS Report R7-99, respectively.

## REPORTS

**Shantha Mohan, N, Ramesh, A, Antony, P** and Geetha Devi, M P. 2000. Alternative report to CEDAW on Articles 7 and 8 pertaining to "Women in Politics and Public Life", NAWO, New Delhi.

**Shantha Mohan, N, Ramesh, A, Antony, P, Anitha, B K** and ADITHI. 2000. Alternative report to CEDAW on Article 10 pertaining to "Education", NAWO, New Delhi.

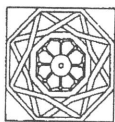


## ARTICLES

**Anitha, B K.** A plural approach. Book review of "Culture, socialisation and human development" by T S Saraswathi (ed). Sage Publications, New Delhi, 1999. *Deccan Herald*, 13 February, 2000.

**Devaraju, A.** Light in darkness. *Deccan Herald*, 25 February, 2000.

**Devaraju, A.** M N Srinivas: The man to be remembered. *March of Karnataka*, 30 November, 2000.



## Commentary

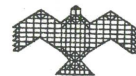
*This section of NIAS NEWS, introduced in the last issue, will provide a succinct overview of some of the important publications authored by the faculty of NIAS.*

### ATOMIC ENERGY IN INDIA – 50 YEARS

**C V Sundaram**

This book, authored by C V Sundaram, L V Krishnan and T S Iyengar, was published by the Department of Atomic Energy, Government of India, Bombay, in 1998. It consists of 277 pages of text, together with several colour plate photographs.

Among the developing countries in the world, India is today recognised as well advanced, and unique to have established a comprehensive and self-reliant science and technology base in the field of atomic energy development. The programme which started in a modest way in the mid-1940's has now grown to large dimensions with activities distributed all over the country. Following the experience gained with the designing and building of research reactors, a nuclear power programme was launched in the early 1960's and nuclear power stations have been built and are in operation in the states of Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, Gujarat, and Karnataka. Side by side, a multidisciplinary programme has been organised and implemented to develop and supply nuclear fuel and other special materials, the various items of special equipment and machinery, the control instruments, etc, partly through activities within the Department, and with substantial participation of the Indian industry. In this



entire development, the Department has attached the highest importance to safety in design and operation of nuclear installations, and has maintained a good safety record. Starting from a stage when there was very little by way of industrial infrastructure in the country how has it been possible to build and grow such an activity in an advanced field of science and technology? Telling this story in a logical sequence that would appeal to the general reader has been the objective of this book "Atomic Energy in India – 50 years", published by the Department of Atomic Energy, Government of India, on August 10, 1998, to commemorate the Golden Jubilee of the constitution of the first Atomic Energy Commission (in 1948). The book is structured in 15 chapters to present the growth of this programme on various fronts.

For gathering authentic information on the progressive growth of the programme from the early stages, the authors had met and recorded interviews with many of the pioneers who had joined Dr Homi Jehangir Bhabha in the early years – as also with scientists and engineers of the present generation, in order to obtain first-hand accounts of their experiences, and also their impressions of the growth over the years. In addition to the large volume of published information in the form of scientific papers and technical reports, the authors also had access to records of discussions at senior level committee meetings, when important decisions had been taken.

#### Early years

The Atomic Energy Programme in India had started as just as an idea in the mind of Dr Bhabha when he had written a letter to the Sir Dorabji Tata Trust in 1944

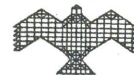
proposing the foundation of an institute devoted to fundamental research in some of the emerging areas in physics, which in course of time could develop into a school of physics comparable to the best in the world. This institute, which came to be set up in Bombay in 1945 as the Tata Institute of Fundamental Research, became the nursery for growing the Atomic Energy Programme in the early years, and for building a team of experts.

When the first Atomic Energy Commission was set up in August 1948, with Bhabha as the chairman, and S.S.Bhatnagar and K S Krishnan as the other members, the immediate objectives were to survey the country for essential raw materials, to take steps to develop these materials industrially, to set up a nuclear reactor for experimental purposes within five years and to promote fundamental research in its laboratories. These were modest objectives to start with.

The early work – that was concerned with nuclear physics, nuclear instrumentation, electronics, analytical chemistry, physical chemistry, chemical engineering, and metallurgy – was organised in temporary sheds in the city of Bombay. The regular laboratory buildings came up in Trombay only later.

Scientists and engineers who were attracted to this programme in the early stages included A S Rao and D Y Phadke (Electronics and Instrumentation), Raja Ramanna and P K Iyengar (Nuclear Physics and Reactor Physics), C Ambasankaran (Technical Physics) Jagdish Shankar (Chemistry), M V Ramaanaiah (Radio-chemistry), V K Iya (Radio-isotopes), Homi Sethna and S Fareeduddin (Chemical Engineering) Brahm Prakash and N K Rao (Metallurgy) N B Prasad and V N Meckoni (Reactor Engineering) A R Gopal Ayengar,

A Sreenivasan and K Sundaram (Biology, Biochemistry, and Medicine), A K Ganguly (Health Physics), and their colleagues. Most of them stayed on with the programme, and became group leaders in the multidisciplinary effort.



Atomic energy may be said to have arrived in India on August 4, 1956 when India's first nuclear research reactor Apsara was successfully commissioned at Trombay. It was a water-cooled swimming pool type of reactor, which had been designed and assembled by a team of Indian scientists and engineers under the leadership of Dr Bhabha.

The opening chapter in the book gives an account of the various initiatives that Bhabha took, starting with modest beginnings and progressively leading up to putting in place an all-round science and technology effort ultimately aimed towards nuclear power generation. In the mid-1950's, after a detailed analysis of India's energy resources, Bhabha had prepared a cogently argued case for nuclear electricity to meet the country's projected developmental needs. By the mid-1960's, Government approval had been obtained for establishing a 400 MW(e) Atomic Power Station based on US technology with two units of boiling water reactors at Tarapur in Maharashtra, and another station of similar capacity with two units of pressurised heavy water reactors (Canadian design) at Rawathbhata in Rajasthan.

### Research reactors

The Bhabha Atomic Research Centre, as it is today, is India's largest science and technology establishment in one campus, and it is directed to all aspects of atomic energy development. Following the success of Apsara, the construction of a larger

research reactor CIRUS, with a capacity 40 MW(t), was undertaken in 1956 with the collaboration offered by the Atomic Energy of Canada Ltd. Completed in 1960, this reactor has been a major experimental facility in Trombay. It has also been used for the production of radio-isotopes for diverse applications. Work on a larger research reactor, of capacity 100 MW(t) and entirely of Indian design, commenced in 1974 and was successfully completed by August 1985. Trombay has also been the location of a few other research reactor facilities of smaller size, particularly the Purnima series, for developing the utilisation of plutonium and uranium 233.

### **Nuclear fuel**

Over the years a wide-ranging science and technology capability in all disciplines connected with atomic energy development has been built up at Trombay. The laboratory and pilot plant work carried out at Trombay on nuclear fuel materials has led to the large-scale production programme for nuclear fuel elements and zirconium alloy components for power reactors at the Nuclear Fuel Complex, Hyderabad. Similarly, the work of the Electronics, Instrumentation and Control Divisions has led to the formation of the Electronics Corporation of India Ltd, also at Hyderabad, for the production of all nuclear instrumentation requirements for the power programme, and also other electronic components and equipment.

The prospecting efforts that have been pursued over the last 5 decades have revealed that the uranium ore resources in the country are rather limited whereas the thorium resources are abundant. And so it has been realised that for building a nuclear power programme of significant size, the programme has to be organised in three

stages, stage 1 – based on natural uranium-fuelled, water-cooled power reactors which will also produce plutonium, stage 2 – for the utilisation of plutonium and uranium – 238 in sodium-cooled fast breeder reactors and stage 3 – based on the uranium 233 – thorium cycle.

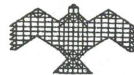
The supplies of uranium for the nuclear power programme have come from the uranium mine and mill at Jaduguda, Bihar, under the Uranium Corporation of India Ltd, which was formed in October 1967.

A major landmark achievement was the commissioning of the plutonium plant in 1964, in Trombay, for the reprocessing of discharged fuel from the CIRUS reactor, and the recovery of plutonium. It was an important link for the next stage of plutonium-fuelled fast breeder reactors, for the utilisation of the full energy potential in uranium and later, thorium.

A Reactor Research Centre (now known as the Indira Gandhi Centre for Atomic Research), dedicated to the science and technology of fast breeder reactors, was established at Kalpakkam, near Chennai, in 1971. The major project at the centre is the Fast Breeder Test Reactor, using plutonium as fuel. In the early 1980's, a third research centre, a Centre for Advanced Technology was set up at Indore to undertake large programmes relating to advanced accelerators and high power lasers.

### **Nuclear power**

One of the chapters in the book is devoted to nuclear power generation. Whereas the first atomic power station at Tarapur (Maharashtra) was a turnkey project executed by the International General Electric Company of USA, in the case of



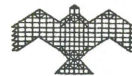


all other stations – of original Canadian design, using heavy water as moderator and coolant – the Indian Department of Atomic Energy has had the principal responsibility in adopting the designs, and in their construction and operation. Site-specific features of individual station design, and the attempts to progressively improve the design and maximizing the indigenous content are described in this chapter. In the case of the Madras Atomic Power Station (Kalpakkam) and the Narora Atomic Power Station (Uttar Pradesh), the project schedules have got delayed, on account of cancellation of equipment supplies from abroad following the Pokhran Test in 1974, and because it took time to develop indigenous capabilities. On the other hand, the construction schedules for the Kakrapar Atomic Power Station (Gujarat) have been close to projection. One unit of the Kaiga Atomic Power Station (Karnataka) and the third unit of the Rajasthan Atomic Power Station have been recently commissioned, during September and December, 1999, respectively.

Whether it be research reactors (like CIRUS, Dhruva or FBTR), or the power reactors, a wide variety of problems have been encountered during the construction, commissioning and operation of these reactors. The multidisciplinary scientific infrastructure that has been established within the department has however been effective in analyzing these problems systematically and finding satisfactory solutions.

Not including the recently commissioned reactors (Kaiga and Rajasthan), the operating capacity in the nuclear power stations is 1840 MW(e). In the last four years, the Nuclear Power Corporation has turned in a consistently good performance. India is now counted among the few

countries capable of designing nuclear power reactors on its own, and of undertaking remote inspection and replacement of core components.



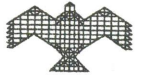
### **Production and application of radio-isotopes**

Next to the generation of nuclear electricity, an important component in the DAE programme has been the use of radiation and radio-isotopes in the fields of medicine, agriculture and industry.

Production and application of radio-isotopes commenced early in the Indian Atomic Energy Programme, with the commissioning of the Apsara Reactor in 1956. Production capacities for radio-isotopes, particularly for cobalt-60, could be expanded with the setting up of the larger reactor CIRUS in the early 1960's. Full fledged radiological laboratories for the processing of radio-isotopes were established at Trombay by 1970. A million curie cell was completed in 1974 enabling the production of high intensity cobalt-60 sources for a variety of applications.

An important step taken in 1970 was to set up with UNDP assistance a demonstration facility for radiation sterilisation of medical products. The ISOMED plant at Trombay has been in regular operation since 1974. The plant has now a 740-kilocurie Co-60 source, and, in 1998, processed a record 13660 cubic metres of material, with some 1500 customers using the facility. Similar facilities have been established in New Delhi, Bangalore and at Jodhpur.

With the steady growth of the isotope programme, an organisation called Board for Radiation and Isotope Technology (BRIT) started functioning from March 1, 1989.



BRIT now supplies annually 10,000 RIA kits to nearly 500 centres in the country and radio-pharmaceuticals to the extent of 32,000 cold kits to nearly 120 nuclear medicine centres. Two hundred tele-therapy and brachy-therapy centres are provided with high specific activity cobalt, and Ir-192, Cs-137 and Co-60, respectively. In all, a million patient investigations are carried out annually.

Improvement of crop plants using ionising radiation is a very important application of atomic energy. Genetic improvement of crop plants involving improved yields, better characteristics or disease resistance is a continuous endeavour. Radiation-induced mutations enhance the range of variability, from which plant breeders can select and combine desired characteristics to produce better crop plants. BARC has so far developed 22 varieties (10 of pulses, 8 of groundnut, 2 of mustard, 1 each of rice and jute) of improved crop plants and 21 have been released for commercial cultivation.

Extensive research carried out for more than three decades at BARC, and other laboratories in India has conclusively demonstrated the advantages of food preservation by irradiation. The Government of India has cleared radiation processing of several food items for domestic marketing and consumption. These include onions, potatoes, spices, rice, wheat products, dried fruits, mangoes, ginger, garlic, shallots, meat, chicken and its products.

### **Health and safety regulations**

The book describes in detail the efforts made by DAE, since its inception, in establishing and maintaining high standards of protection against ionising radiation and

in continuous monitoring of the site environment around various facilities. As the power programme progressed, prescription of safety regulations and their enforcement, which was an in-house activity earlier, was entrusted to a full-fledged organisation, the Atomic Energy Regulatory Body, in 1983, to function independently of the different units of DAE.

### **Nuclear explosives**

Indian interest in civilian use of nuclear explosives began in 1964. Panel meetings on possible applications for Peaceful Nuclear Explosions (PNE) were organised by IAEA beginning in 1971 and India participated in these meetings. The Soviet Union claimed to have carried out several experiments with PNE for creating artificial reservoirs, excavating canals, stimulating gas wells and putting out fires in oil wells.

India carried out an underground nuclear test in Pokhran in Rajasthan on May 18, 1974. The yield was estimated to be 12 kilotonnes, and there was no radioactive release. As a reaction to this test, both Canada and the US decided to discontinue nuclear cooperation with India.

After a gap of 24 years, in May 1998, India carried out five underground tests of a range of devices with varying yields. The yields from the fission and the two-stage thermo-nuclear devices were reported as 15 and 45 kilotonnes respectively, while the other three devices were in the sub-kilotonne range. These tests again were fully contained, and there was no radioactivity released.

In his statement to the Parliament in May, 1998, Prime Minister Atal Behari Vajpayee observed that "India is now a nuclear weapon state", indicating that India has now opted

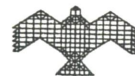
for introducing nuclear weapons in its defence. At the same time he went on to point out that "We do not intend to use this weapon for aggression. These are weapons of self-defence to ensure that India is not subjected to nuclear threats or coercion".

One chapter in the book is devoted to the Pokhran tests (1974 and 1998) to place them in a proper perspective. This chapter also includes an interview with Dr R Chidambaram, present Chairman, AEC, who had played an active role in both the tests. It should be pointed out that India was the first country to carry out its first nuclear test underground, and it is also the only state that has first established a wide-ranging and comprehensive peaceful programme. All the other nuclear weapon states had first developed their weapons capabilities before embarking on peaceful applications including nuclear power generation.

### Conclusion

The growth of the Atomic Energy Programme has been the result of a combination of many strategies: persuading the Government to recognise the importance of the programme for the national economy and national security, and securing sustained Government support; establishing linkages with scientists, institutions and organisations in the West to obtain the essential technology inputs in the early stages, with simultaneous emphasis on developing indigenous capabilities; capturing the imagination of young scientists and engineers to join the programme and having the faith to entrust them with large tasks, with progressively expanding goals; encouraging and supporting Indian industry to fabricate and supply equipment and machinery to match exacting nuclear standards; and creating an independent organisational and

administrative structure to match the requirements of an advanced science and technology programme.



Homi Bhabha was the author of the epigram – 'No power is costlier than no power' – implying that the pursuit of any form of energy is worth the cost and the effort, since being without power is the costlier option. We have learnt this to our cost, since today there is a large deficit in electric power supply as compared to its demand all over the country. Bhabha was one of the earliest to make an assessment of India's energy resources, and he came to the conclusion that to keep pace with the demands of development, sooner or later, the country would be compelled to import coal (and other forms of fossil fuels), the only other option being the development of nuclear energy, based on our uranium and thorium resources. Perhaps he was a bit too optimistic about the pace at which nuclear power stations can be established in different parts of the country. But it has now been demonstrated that in the regions far removed from coalfields, where the nuclear power stations have been located, the cost of generation of nuclear power is competitive with that of coal power.

### DOCTORAL PROGRAMME IN NIAS

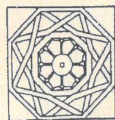
NIAS is a unique institution that conducts advanced research in multidisciplinary areas that bridge the gap between the natural sciences, technology and the social sciences. Complementing its research programmes, NIAS also offers courses in different areas of research, development and policy for different groups of professionals including teachers, bureaucrats, and executives.

One constraint that NIAS has functioned under so far has been the lack of a doctoral programme whereby young students are

trained in the research areas that the Institute has traditionally been interested in. There is, however, an urgent need for such a programme for two principal reasons. First, the unique multidisciplinary academic culture that NIAS has so carefully been building up over the past years has to be nurtured and not allowed to dissipate with the passage of time. This would require that young, talented, and committed students are identified and absorbed into the organisation – they would then serve as torchbearers into the future. Second, much of the research being conducted in the Institute, being of an interdisciplinary nature, requires cooperation between a number of specialists. Large groups such as these would definitely benefit from young researchers of different disciplines who can actively contribute to the progress of the group in their respective areas of expertise.

It must also be noted that there has been, in recent times, increasing awareness and interest in issues relating to the interfaces between the natural sciences, technology and the social sciences among young Indian graduate students. Many of them, in fact, are becoming increasingly attracted to pursuing a research career in these interdisciplinary areas. Very few opportunities, however, exist for such students, who have dared to think differently, to pursue a career of their choice within the country. In collaboration with MAHE, an innovative leader among institutions imparting higher education in the basic and applied sciences in the country, NIAS has, therefore, begun a doctoral programme that would specifically award doctoral degrees to students interested to pursue independent research in the areas that NIAS specialises in. For more information, please contact Anindya Sinha ([asinha@nias.iisc.ernet.in](mailto:asinha@nias.iisc.ernet.in)).

**Anindya Sinha**



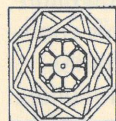
## *Distinctions for NIAS Faculty*

### **A Ramachandran**

Honoured with the Lifetime Achievement Award in Engineering by the Indian National Academy of Engineering, 24 February, 2000.

### **Dilip Ahuja**

Invited to be the Review Editor of Chapter 6 on **Policies, Measures and Instruments** of the IPCC (Intergovernmental Panel on Climate Change) Third Assessment Report. In connection with this assignment, he participated in the Lead Authors Meeting of Working Group III, IPCC, at Eisenach, Germany, 6 – 12 February, 2000.

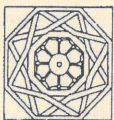


## *Courses Taught by the NIAS Faculty*

**Anindya Sinha** developed and conducted a three-week course, consisting of about 15 theory lectures and several field-work sessions, on **Behavioural Ecology** for the Masters' students in Wildlife Science at the Wildlife Institute of India, Dehradun, 15 February – 8 March, 2000.

**A R Vasavi** developed and taught a five-day course on **Perspectives on Indian Society** at the National Institute of Design, Ahmedabad, 21 – 25 February, 2000.





## Important Events

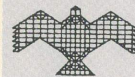
*Complementing its research programmes, IAS organises a variety of seminars, workshops, and academic courses each year. Some of the important events that were organised during the period from January to March 2000 included:*

### **FOURTEENTH IAS COURSE FOR SENIOR EXECUTIVES ON "GLOBALISATION AND DEVELOPMENT"**

**10 – 22 January, 2000**

The particular theme for this course was selected keeping in view that in the last few decades, a process of globalisation has spread across much of the world. This process is not just confined to business and trade, but covers science, art, culture, and, indeed, every facet of life. This course has addressed the whole complex of economic, social, political and cultural issues associated with globalisation. There were 21 participants in this course representing the Indian Space Research Organisation, Tata Steel, Ministry of Communications, Indian Army, Indian Navy, Ministry of Home Affairs, Department of Telecommunication, Defence Research and Development Organisation, Indian Council of Agricultural Research, Department of Agriculture and Co-operation, Council of Scientific and Industrial Research, Department of Atomic Energy and Defence Electronics Application Laboratory.

The course content included a wide spectrum of topics dealt by distinguished invited speakers, who command great respect, both nationally and internationally,



in their respective specialisations. There were 24 lectures and 2 panel discussions spread across two weeks. Apart from the IAS faculty, some of the many distinguished speakers at the course included Prof Ashok Jhunjhunwala, Indian Institute of Technology, Chennai; Ms Shashi Deshpande, the noted writer; Dr N L Mitra, Director, National Law School of India University, Bangalore; Dr P Ganguli, Hindustan Lever Ltd, Mumbai; Dr Narendar Pani, Senior Editor, Economic Times, Bangalore; Dr P V Shenoi, I.A.S. (Retd), Former Director, ISEC, Bangalore; Prof S Bisaliah, Vice Chancellor, University of Agricultural Sciences, Bangalore; Dr S K Sinha, Indian Agricultural Research Institute, New Delhi; Dr Raja Ramanna, Member of Parliament (Rajya Sabha); Prof V K Natraj, the noted sociologist; Dr B V Karanth, theatre personality, Bangalore; Dr V Siddhartha, Officer on Special Duty, Secretariat of Scientific Adviser to Raksha Mantri, New Delhi; Mr Y S Rajan, Senior Advisor (Technology), Confederation of Indian Industry, New Delhi; Prof Gita Sen, Indian Institute of Management, Bangalore; Mr Kiran Karnik, Managing Director, Discovery Communications India, New Delhi; Mr Vinay L Deshpande, Chairman, Ncore Technology Pvt Ltd, Bangalore; Lt Gen (Retd) Satish Nambiar, Director, United Service Institution of India, New Delhi; Mr M K Rasgotra, former Foreign Secretary, New Delhi; Prof N Balakrishnan, Chairman, Supercomputer Education & Research Centre, Indian Institute of Science, Bangalore; and Ms Kiran Majumdar, Biocon India Ltd, Bangalore.

The course was inaugurated by Mr Xerxes Desai, Vice Chairman and Managing Director, Titan Industries Ltd, Bangalore, who addressed the audience on "Globalisation and Development". The

Valedictory Address was given by Prof Roddam Narasimha, Director, NIAS.

In addition to regular lectures and panel discussions, the course was complemented by self-introduction sessions, where the participants talked briefly about their work and interests. The participants also worked on group projects, the themes of which were selected by the participants and the reports of which were presented during the latter part of the course. During the course, the participants visited the Super Computer Education and Research Centre, Indian Institute of Science, and Nriyagram - The Dance Village. Yoga was taught to the participants at an introductory level, in early morning sessions, as a mandatory component of the course.

**P K Shetty**

#### **ROUND TABLE MEETING ON "ENERGY SCENARIOS FOR KARNATAKA"**

**14 January, 2000**

This meeting, held at NIAS, was jointly organised with the Department of Energy, Government of Karnataka, to discuss some aspects of the energy scenarios in Karnataka. The objective of the meeting was to conduct a general discussion on energy demand projections, and the various options available for meeting the demand issues primarily connected with finance, and the environment. The participants of the meeting included energy experts, academics, representatives of industries, government and various NGOs. The inputs from the meeting were made available to the high-level committee of the Government of Karnataka concerned with these issues.

**S Rajagopal**

#### **DAE – TIFAC WORKSHOP ON "DRAFTING PATENTS PECIFICATIONS"**



**7 – 9 February, 2000**

This three-day workshop was jointly organized by the Patent Cell of the Department of Atomic Energy (DAE), Mumbai, and the Technology Information Forecasting and Assessment Council of the Department of Science and Technology, New Delhi, and co-sponsored by NIAS. The object of the workshop was to create awareness on IPR issues, and provide detailed information on various aspects to be addressed while preparing applications for patents in India and abroad. Apart from R Saha, Director, Patent Facilitation Cell, TIFAC, S V Raghavan, Convener, DAE Patent Cell, and V K Bali, Technical Director, National Informatics Centre, New Delhi, the faculty included experienced patent attorneys and specialists from New Delhi, Calcutta and Mumbai. The subjects covered included computers, drugs, chemicals, materials, mechanical and electrical engineering and electronics. The workshop was well-attended, with participation (around 30) of scientists and technologists from DAE Units (in Kalpakkam, Goribadanur, Bangalore and Mysore), Indian Space Research Organisation, National Aerospace Laboratories, Hindustan Machine Tools, National Centre for Biological Sciences, and a few private sector units.

**C V Sundaram**

## WORKSHOP ON "THE FEASIBILITY OF PRODUCING ELECTRIC POWER BY ENERGY TOWER"

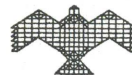
29 February, 2000

This one-day workshop to discuss the feasibility of producing electric power by Energy Tower was organised with the sponsorship of Department of Science and Technology and TIFAC, New Delhi.

After a brief introduction by Prof A Ramachandran, Honorary Professor, NIAS, and Mr Sreenivasa Setty, Officer on Special Duty, TIFAC, New Delhi, on the power situation prevailing in the country and the various forms of power generation, Prof Dan Zaslavsky explained the concepts involved, the technology details and the construction needs of power generation by Energy Tower. He devoted a major portion of the time for questions and discussions. The deliberations were lively and technically of high order, basically attributable to the constitution of participants drawn from academia, including experts in thermo-fluid mechanics, atmospheric sciences, structures, construction engineering, electrical engineering, and wind tunnel testing. Prof Zaslavsky dealt expansively with all the questions raised by the participants. Despite the fact that he described in such detail various aspects relating to energy, the participants felt that there were still some areas that needed more in-depth studies. It has hence been suggested that a task force consisting of specialists drawn from various disciplines be considered to initially make a pre-feasibility study and later proceed to make a Detailed Project Report (DPR) which should be discussed in-depth before a final decision can be taken to proceed with the pilot project.

**S Rajagopal**

## CONSULTATION ON "THE BEIJING PLUS FIVE: ASSESSING THE IMPACT OF THE PLATFORM FOR ACTION"



4 March, 2000

This one-day consultation was jointly organised by the Gender Studies Unit, NIAS and The National Alliance for Women. The purpose of the meeting was to share the Beijing Plus Five review that is scheduled for June, 2000, as well as the outcome of the initial reporting to the CEDAW Committee in January, 2000, by the Government of India and the participating NGOs. The unit has been actively participating by contributing to the writing of the Alternative Report to CEDAW.

**N Shantha Mohan**

## CONSULTATION MEETING ON "GENDER AND GOVERNANCE"

8 March, 2000

This was the first major meeting connected with the longitudinal research on "Women and Decentralised Governance", being conducted by the Gender Studies Unit. This study has been closely examining the pre-election as well the election day processes in Karnataka. The field insights obtained during this investigation were shared with a diverse audience comprising of the government, academics, NGOs, activists, media, researchers and the newly-elected gram panchayat members. The focus of the consultation was to create a forum for dialogue between the gram panchayat members and the Hon. Minister of Rural Development and Panchayat Raj, Mr M Y Ghorpade. The discussion centred around the issues of misinformation or the

lack of information, rotation of seats, the toilet rule, political intervention and the processes of exclusion due to caste, class and gender dynamics.

N Shantha Mohan

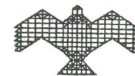
## SECOND MEETING ON IT BILL 1999

11 March, 2000

As part of a programme of the Forum for Entrepreneurship Development, a second meeting on IT Bill 1999 was organised at NIAS. Following the earlier meeting held on 14 December, 1999, and the reactions received from various leaders in the all the concerned professions and government, the second meeting considered a draft bill on e-commerce prepared by Mr Rahul Matthan of Matthan Law Offices. This bill was largely in the spirit of the recommendations that emerged from the December meeting, and significantly confined itself to e-commerce. It will be recalled that it was the general view at the December meeting that the present draft IT Bill before Parliament should be split into different bills, and that some of these (for example the part that deals with cyber crimes) should be separately prepared for detailed and comprehensive examination. I would welcome any comments on the draft e-commerce bill that was presented at this meeting. The draft is available on the web pages of NIAS. Comments on the bill may be sent to me at [roddam@caos.iisc.ernet.in](mailto:roddam@caos.iisc.ernet.in)

R Narasimha

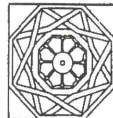
## REVIEW MEETING ON "AN INDO-US PROGRAMME ON ELECTRIC POWER TECHNOLOGY ASSESSMENT"



17 March, 2000

A small group meeting, consisting of 8 participants, was organised to review the meeting held at Warwick during 24 - 26 September, 1999, on the subject of "India's Electric Power Issues", which forms part of the collaborative project between Carnegie Mellon University, USA, and NIAS on "An Indo-US Programme on Electric Power Technology Assessment". It was agreed that the final report of these issues will be brought out shortly and would consist of two parts – one relating to the actual deliberations at Warwick and the other on the specific recommendations made.

S Rajagopal



## Associates' Programme

*The Institute maintains a strong outreach with its Associates Programme, organised by **PK Shetty**. The Associates of the Institute include prominent personalities from widely different backgrounds in the media, arts, policy-making and academia. Associates are invited to a monthly evening lecture series and other important events, and constitute a strong base of ongoing outside support and interactions.*

The Associates' Programmes during the period from January to March, 2000, included the following events:

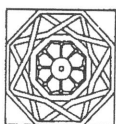


28 January Indo-US relations at the  
millenium  
*Dennis Kux*  
Ambassador  
The Middle East Institute  
Washington DC, USA

Ambassador Kux has had a long and distinguished career in the US Foreign Service. Having spent more than a dozen years living in or working on South Asia, Mr Kux has made a special study of US relations with South Asian countries and is the author of the well-known book *The Estranged Democracies, India and the United States – 1941-1991*, published in 1993. He is currently updating this book and is also writing a book on US relations with Pakistan.

**The Associates' dinner, following the programme, was organised at the Green House of the Institute and was held in honour and celebration of Dr Raja Ramanna's 75<sup>th</sup> birthday.**

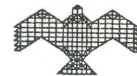
31 March The Saraswati that vanished  
*K S Valdiya*  
Jawaharlal Nehru Centre for  
Advanced Scientific Research  
Bangalore



### *Wednesday Discussion Meetings*

*The members of the Institute meet every Wednesday morning for informal academic discussions after a talk delivered by a member of the faculty. These Wednesday meetings, organised by **Sangeetha Menon**, also serve as a forum for invited guest speakers to deliver a lecture on a subject of their choice. The discussions then continue over the high tea that follows these talks!*

The Wednesday Discussion Meetings during the period from December 1999 to March 2000 have included:



- 22 December Ideas and ideology  
*Sundar Sarukkai*
- 29 December From one millenium to the next: NIAS, the nation and the world  
*C V Sundaram*
- 9 February Professional number theory and common sense  
*K Ramchandra*
- 16 February How America elects its presidents  
*Prabhakar Vaidya*
- 23 February Einstein and religion  
*B V Sreekantan*
- 1 March Future of Indo-US relations  
*Arvind Kumar*
- 22 March The wheel of misfortune  
*Dilip Ahuja*
- 29 March Unchanging answers and changing questions: On philosophical thinking  
*Sangeetha Menon*

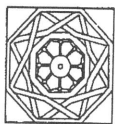
The **guest speaker** at the Institute during this period was:

- 15 March The two agri-cultures: A citizen-science perspective  
*Tom Wakeford*  
National Centre for  
Biological Sciences  
Bangalore

## THE NIAS LITERARY FORUM

A new forum, "The NIAS Literary Forum" has been established in the Institute to pursue and conduct literary activities such as play reading, reading of poetry (one's own or others') reading of short stories and so on. These activities are aimed at providing complementary support to the Institute's more regular work. The activities are open to all members of NIAS fraternity. Currently, this forum aims to meet on one Wednesday every month. For more details about its activities, please contact **M G Narasimhan**.

The most recent event organised by the Forum was a reading of an English translation of the Malayalam short story "Summer Vacation", authored by the noted writer Kamala Das, by Sangeetha Menon on 2 February, 2000.



### *Meetings attended by NIAS Faculty*

#### **A Ramachandran**

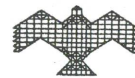
Delivered an address on **Global Sustainable Development in the 21<sup>st</sup> Century** at the inauguration of the Silver Jubilee celebrations of the Tata Energy Research Institute, 18 February, 2000.

Chaired a one-day workshop on the Feasibility of Producing Electric Power by Energy Tower, sponsored by TIFAC and the Department of Science and Technology, NIAS, Bangalore, 29 February, 2000.

#### **Asha Ramesh**

Participated in the Government of India meeting on the presentation of the Government of India's First Implementation Report on CEDAW, and presented a paper

on the Gender Studies Unit's contribution to the issue of **Women's Political Participation** in the Alternate NGO Report on CEDAW, New Delhi, 16 January, 2000.



Participated in a discussion on a Draft Legislation on Domestic Violence, presented by Supreme Court Advocate Indira Jaisingh at the National Law School of India University, Bangalore, 4 February, 2000.

Presented a paper on **Police Initiatives to Check Crimes Against Women** as a resource person at a meeting on Police Reforms, organised by the Commonwealth Human Rights Initiative, New Delhi, 10 February, 2000.

Served as a resource person for **Women and Panchayati Raj** at the National Mahila Samakhya Mela, New Delhi, 5 – 7 March, 2000.

Presentation a paper on the **Implementation of the Karnataka Panchayati Raj Act** at the one-day consultation on Gender and Governance, NIAS, 8 March, 2000.

#### **B K Anitha**

Conducted a critical review of the District Primary Education Programme (DPEP), Karnataka, supported by the World Bank, with a specific focus on the effectiveness of the satellite-based training programme for primary school teachers. This programme was based on a series of documentary films prepared to generate debate among practicing teachers on critical issues related to primary education. Some of the issues that these films deal with are the relevance of school education for the poor, local dialect versus standardised language, and representation of local knowledge in school textbooks amongst others. The report has been

submitted to the DPEP, Government of Karnataka in January, 2000.

Participated in the 13<sup>th</sup> All-India Conference of the Indian Association of Women's Studies, Hyderabad, 8 – 11 January, 2000.

Served in the consultative team to interact with World Bank representatives regarding a proposal to undertake a study on the education sector, in partnership with the World Bank, on 22 March, 2000. The issues discussed included financing of education, management and organisational framework role of the private sector, teacher education, linkage with the world of work and quality of infrastructure.

Participated in the Technical Committee meeting on Gender Audit, organised by Singamma Sreenivasan Foundation, 29 March, 2000.

#### **B V Sreekantan**

Delivered the Keynote Address on **Technology and Changing Perspective of Astronomy** at the National Space Symposium at Toshali Sands, Puri, 1 – 5 March, 2000.

#### **Dilip Ahuja**

Presented **GEF's Support for Renewable Energy** during a panel discussion on Bilateral and Multilateral Initiatives in Renewables at the conference on Renewables 21: Products and Markets, New Delhi, 16 – 17 February, 2000.

Participated as a panelist in the concluding session at the workshop on Capacity Building and Policy Dialogue on the Clean Development Mechanism, New Delhi. 29 February, 2000.

Invited to the workshop on Household Energy Use, Air Pollution and Health,

organised by the World Bank, New Delhi, 27 March, 2000.



#### **M G Narasimhan**

Delivered an invited lecture on **Reflections on the Growth of Scientific Knowledge** at the Refresher Course for Undergraduate Teachers in Physics, Bangalore, 29 March, 2000.

#### **N Shantha Mohan**

Participated in a workshop on "Global to Local: CEDAW Implementation and Monitoring" organised by the United Nations Development Fund for Women, New York, USA, 13 – 15 January, 2000.

Participated in the Review Session of the Committee for the Elimination of All Forms of Discrimination against Women, including that of India, United Nations, New York, USA, 17 – 26 January, 2000.

Participated and chaired a session at the International Conference on Domestic Violence, organised by International Centre for Research on Women, Lucknow, 20 – 22 February, 2000.

Presented a paper on **Problems of Women at the Workplace** at the National Conference of Women Managers, organised by the Bangalore Management Association, Bangalore, 3 March, 2000.

Presented a paper on **Outcome of the Review of the India Country Report by CEDAW** in the sharing meeting of the CEDAW review process and the preparation towards Beijing +5, Bangalore, 5 March, 2000.

Presented a paper on the **Educational Status of Women in Karnataka**, jointly organised by DSERT and Bangalore University, Bangalore, 6 March, 2000.

### **Piush Antony**

Participated in the 13<sup>th</sup> All-India Conference of the Indian Association of Women's Studies, Hyderabad, 8 – 11 January, 2000.

Participated in a discussion on a Draft Legislation on Domestic Violence, presented by Supreme Court Advocate Indira Jaisingh at the National Law School of India University, Bangalore, 4 February, 2000.

Participated in the training programme on Globalisation and Liberalisation: Challenges for NGOs, conducted by the Indian Institute of Management, Bangalore, 7 – 11 February, 2000.

Presented a paper on **Gram Panchayat Elections – Local Dynamics** at the one-day consultation on Gender and Governance, NIAS, 8 March, 2000.

### **Sangeetha Menon**

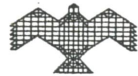
Presented an invited paper on **Structure of Mind and Structured Mind** at a national seminar on Dimensions of Mind, organised by the Indian Council of Philosophical Research, Jaipur, 28 February – 1 March, 2000.

### **S Rajagopal**

Participated in the panel discussion on The Draft Nuclear Doctrine, organised by Indian Scientists Against Nuclear Weapons (Bangalore Chapter), Bangalore, 22 January, 2000.

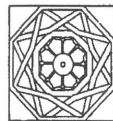
### **VISITORS TO THE INSTITUTE**

The participants of the 23<sup>rd</sup> and 24<sup>th</sup> Professional Course for Foreign Diplomats, organised by the Foreign Service Institute, Ministry of External Affairs, New Delhi, visited NIAS on 3 February and 15 March, 2000, respectively.



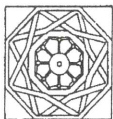
The diplomats included representatives from Albania, Barbados, Benin, Bhutan, Bolivia, Botswana, Bulgaria, Cambodia, Cuba, Czech Republic, Egypt, Ethiopia, Georgia, Guyana, Iraq, Jamaica, Kazakhstan, Lithuania, Madagascar, Maldives, Mauritania, Mexico, Micronesia, Morocco, Myanmar, Namibia, Nepal, Oman, Palestine, Papua New Guinea, Poland, Qatar, Rwanda, Seychelles, Sudan, Sri Lanka, Tanzania, Turkmenistan, Uganda, Uzbekistan, Vietnam, Yemen, Zambia and Zimbabwe.

On both these visits, different faculty members of NIAS briefed the diplomats about the academic activities of the Institute, while the diplomats introduced themselves and briefly discussed their work and interests.



### *Upcoming Events*

A second round of the **CISAC – NIAS Dialogue** is scheduled to be held between the delegates of the Committee on International Security and Arms Control (CISAC) of the National Academy of Sciences (NAS) representing USA and delegates from NIAS representing the Indian group during 22 – 24 May, 2000. The delegates from USA as well as India will assemble at NIAS to pursue the dialogue that began last year, during May 1999, in much greater depth and technical detail. For more information on this meeting, being organised by the **International and Strategic Studies Unit** of the Institute, please contact S Rajagopal ([rajagopal139@hotmail.com](mailto:rajagopal139@hotmail.com)).



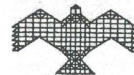
## *An Appeal for Funds*

*Building and sustaining the intellectual and social foundations of a transforming civilisation*

### **About NIAS**

India has several fine institutions, in the natural sciences, in engineering and technology, and in the social sciences. But these institutions harbour different cultures, and, indeed, are often worlds unto themselves. And there are too few bridges between and among them. The most interesting and challenging problems of the coming century probably lie in the interfaces between these cultures and disciplines – interfaces that are studied far too little in our country. It is in these no man's lands that I believe the future of NIAS lies – in subjects that do not belong to the tidy little pigeon holes that the current knowledge system of the world has created – artificially, and for technical or bureaucratic convenience, not because that is the way the world operates. How to build these bridges, how to bring different intellectual and social communities together, and how to look at the future of our nation and the world with the greatest possible intellectual integrity as well as public and social confidence – it is the pursuit of these aims that NIAS is taking up as its mission.

If we have to achieve these goals it is necessary for us to bring together the best in the natural and social sciences. The late JRD Tata, who conceived of this institution, saw the great need in India to form a new kind of leader – he envisioned an institution that could harness creativity and commitment, mathematics and



management. With my distinguished colleagues on the faculty of NIAS, and the eminent persons we count among our Associates, I am hopeful that we can carve a unique niche for ourselves in the public and intellectual life of this country and the world, moving in the direction that our founders so clearly saw as essential for the future health of our nation.

### **The appeal**

The pursuit of our goals demands a measure of autonomy. We need financial support from diverse sources to ensure and sustain that autonomy. The early generosity of the House of Tatas and the Government of Karnataka has given us some splendid facilities. We now need to build on this foundation, diversify our sources of income and carry out programmes that are sensitive, at one and the same time, to public and national needs as well as to the demands of uncompromising intellectual rigour.

We solicit your contributions to help us to realise our goals. Bequests can be made to the NIAS Endowment Fund in the manner described below.

**R Narasimha**

Director, NIAS, and  
Chairman, NIAS Endowment Committee

### *How to Make Contributions to the NIAS Endowment Fund*

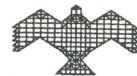
All contributions made to NIAS or its Endowment Fund are tax deductible under Section 35, Subsections (i) and (ii) of the Indian Income Tax Act of 1961.

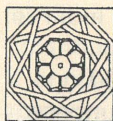
NIAS is registered under the Foreign Contributions (Regulation) Act, 1976, and is entitled to receive contributions from abroad directly (Register number 094420614, Account No. 0100005000200, State Bank of India, Indian Institute of Science, Bangalore 560 012). Contributions must be made by cheques drawn in favour of the National Institute of Advanced Studies; the cheques may be sent directly to NIAS, or credited to the State Bank of India account mentioned above with independent intimation to NIAS.

The Institute welcomes contributions of any amount. Typical sums and the purposes for which they can be used and the forms in which acknowledgements can be made are shown below.

1. *Books*  
Can be donated as books or as funds to be utilised for purchase of books  
Every book donated or purchased out of donation funds will carry a label indicating the name of the donor
2. *Objects of art* (paintings, sculpture etc.)  
Rs 10,000/ and above  
Will carry a small plaque indicating the name of the donor
3. *Annual Endowed Lecture* (speaker residing in India)  
Rs 2.5 lakhs or US \$ 6,000  
May be named with concurrence of donor
4. *New Office Space*  
Rs 5 lakhs per room  
Room will carry a plaque indicating the name of the donor

5. *Visiting Professor* (from India or abroad)  
Rs 10 lakhs or US \$ 25,000  
May be named with concurrence of donor
6. *Lecture Hall*  
Rs 20 lakhs or US \$ 50,000  
May be named with concurrence of donor
7. *East Wing, Main Building*  
Rs 40 lakhs or US \$ 100,000  
May be named with concurrence of donor
8. *West Wing, Main Building*  
Rs 50 lakhs or US \$ 125,000  
May be named with concurrence of donor
9. *Endowed Fellowship*  
Rs 30 lakhs or US \$ 70,000  
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10. *Endowed Professorship*  
Rs 40 lakhs or US \$ 90,000  
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11. *Endowed Research Unit*  
Rs 80 lakhs or US \$ 187,500  
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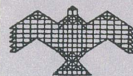
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The National Institute of Advanced Studies (NIAS) was conceived and initiated by the late Mr. J R D Tata, who sought to create an institution which would conduct advanced research in multidisciplinary areas, and also serve as a forum to bring together administrators and managers from industry and government, leaders in public affairs, eminent individuals in different walks of life, and the academic community in the natural and social sciences. The intent has thus been to nurture a broad base of scholars, managers and leaders who may contribute to tackling the complex problems facing contemporary India in a more informed and effective manner.

The philosophy underlying NIAS is given shape by its research teams, which are drawn from a variety of disciplines in the natural and social sciences. The Institute is unique in its integrated approach to the study of intersections between science and technology and social issues.



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