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NATIONAL INSTITUTE OF ADVANCED STUDIES  
Bangalore  
was set up  
1983  
under the Act of 1982.



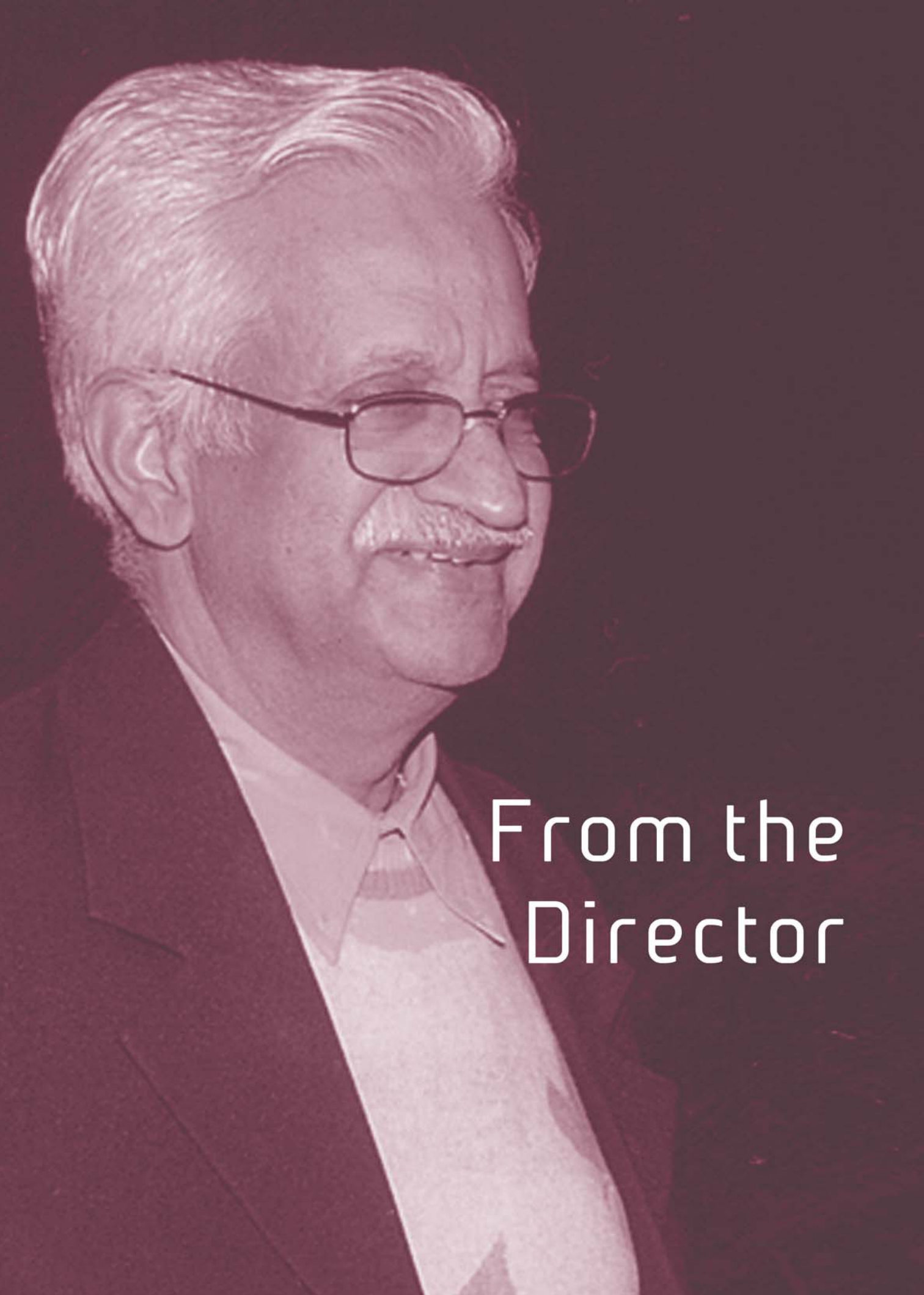
NATIONAL INSTITUTE OF ADVANCED STUDIES  
ANNUAL REPORT • 2011 - 2012

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From the  
Director

The year 2011-12 for NIAS is one of consolidation. The present tranche of annual grants from the Sir Dorabji Tata Trust is based on a proposal from NIAS that also included a bouquet of research programs on areas of national importance such as education, energy, environment, water, urban habitat etc. While the faculty had the required core strengths, their experience in implementing such multidisciplinary research programs were limited. Often, new faculty with the required expertise had to be inducted. I am happy to say that due to sustained efforts during these years, not only considerable progress has been achieved on most of the programs but also generated substantial external funding. A number of publications have also come out of these programs. The journey was not without pains. A lot of clarity has also emerged and we are indeed ready to chalk out a more general perspective plan. The perspective plan organizes all research programs under four clusters- The Foundations Cluster, The Science, Technology and Culture Cluster, The Social Transformations Cluster and Security and Conflict Cluster. The research programs under the different clusters will evolve dynamically depending on the needs of the society.

An important development during the year 2011 is the external review of NIAS by a two member team consisting of Professors Vivek Bhandari and Ajay Dhandekar. The review was commissioned by the Tata Trust. Leaving aside the details, the committee had rightly identified lack of financial stability of the Institute as a major impediment for the realization of the full potential of the Institute and had recommended the creation of a corpus. We are in the process of preparing a Road Map that we will place before the Trust while approaching them for future support.

June 20, 1988 was the day on which the NIAS Society came into existence. NIAS will be moving into its twenty fifth year in 2012-13 making it the Silver Jubilee year of NIAS. We plan to celebrate the occasion in a befitting manner with a bouquet of academic activities starting with a public lecture on June 20, 2012.



School of

# Humanities

Prof Sangeetha Menon, *Professor*

Prof Sharada Srinivasan, *Professor*

Prof S Ranganathan, *Homi Bhabha Visiting Professor*

Prof Malavika Kapur, *Visiting Professor*

Prof S Settar, *Visiting Professor*

Prof BV Sreekantan, *Visiting Professor*

Dr Rajesh Kasturirangan, *Associate Professor*

Dr MG Narasimhan, *Deputy Programme Coordinator*

Dr Smriti Haricharan, *Post-doctoral Associate*

Dr Samir Karmakar, *Post-doctoral Associate (till April 2011)*

Dr MB Rajani, *Post-doctoral Associate (till October 2011)*

Dr Shankar Rajaraman, *Research Associate*

Mr Rajarshi Sengupta, *Junior Research Fellow*

Mr Praveen P Johnson, *Project Assistant*

Ms K Sheela, *Project Assistant*

Ms Nagashri, *Project Assistant*



The School of Humanities is engaged in research in the broad areas of philosophy, psychology, literature, fine arts, and culture. Research in the School currently focuses on philosophical foundations of sciences; cognitive sciences; scientific and philosophical studies of consciousness; Indian psychology and philosophy; history and philosophy of biology; archaeometallurgy and analysis of ancient metals; and translations of literary classics in Kannada into English.

## PROGRAMMES

### a. COGNITION

The Cognition Programme at NIAS is an integrative programme that seeks to combine philosophy, theory, mathematical modelling and experiments in the service of understanding cognition in humans and other species.

In 2011-2012, they made substantial progress in fulfilling these above objectives. They have presented their work in all its variations – philosophical work, mathematical models, empirical studies of humans and other species and social science applications in the form of written papers, both as papers written for journals and as papers presented in international conferences. A core team of two faculty members, one postdoctoral associate and six graduate students has been together for almost two years and they have a thriving research group. One postdoctoral associate left NIAS for a faculty position at the newly constituted Azim Premji University.

The work made significant progress along three lines that have now been established over the past three years:

The philosophical and theoretical foundations of cognition.  
The study of language, gesture and communication in humans.  
The study of mental organization in non-human species.

A brief description of the work in these areas is given below:

#### **Philosophical and Theoretical Foundations of Cognition**

Cognitive Science lies at the intersection of the natural sciences and the humanities. As a consequence, some of the best work in cognitive science has come from taking philosophical problems seriously and then adding a scientific perspective to these philosophical problems. Not surprisingly, the most cognitive science research presupposes the dominant positions of western philosophy. However, many cognitive scientists are

#### **Members:**

Dr Rajesh Kasturirangan,  
*Anchor*  
Prof Anindya Sinha

#### **Post-doctoral Fellow (DST-CSI Initiative):**

Dr VV Binoy

#### **Doctoral Students:**

Ms Samiksha Bajpai  
Ms Rolla Das  
Mr Sartaj Ghuman  
Ms Shreejata Gupta  
Mr Naresh Keerthi

#### **Junior Research Fellow:**

Mr Nishant Seth

aware that these philosophical approaches, while important are nevertheless limited. In recent years, cognitive science is in a theoretical ferment. For example, cognitive linguistics, roboticists, perception scientists and neurophenomenologists have all shown how the mind is embodied in concrete spatiotemporal structures.

The work at NIAS has always tried to bring philosophical conceptions of the mind in contact with scientific research in the mind sciences. In particular, an abiding interest of the group has been the relevance of Indian philosophical themes and ideas to current cognitive science. There is great scope for a creative interface between theories of consciousness, language and perception in Indian Philosophy and current scientific investigations of these topics. This work has been and continues to be done in collaboration with Prof Chakravarthi Ram-Prasad of the University of Lancaster in England. The work in this area was presented at the Mind and Life conference and other prestigious conferences.

### **The Study of Language, Gesture and Communication in Humans**

This topic is the most intensively researched topic in a group, involving three students, one postdoctoral associate (who has now left NIAS) and one faculty member. They want to explain how language helps communicate the thoughts and to understand how conceptualization and communication are assembled using a combination of verbal, non-verbal and bodily capacities. They have researched this issue with an emphasis on spatial and temporal perspectives in serial and compound verb constructions using language data primarily from Bengali. They have also worked on the cognitive basis of compound verbs in Hindi. They are also investigating game theoretic models of suggestion (which also ties to their work in Indian Philosophy) and the relation between knowledge and non-literal conceptual mappings such as metaphors and metonymes. They want to understand the cognitive functions of different kinds of gestures in conceptualization and communication and investigate different kinds of gestures forms. The work on language, gesture and communication has led to several publications and presentations at international venues this year, including the annual meetings of the Cognitive Science Society and the International Society for Gesture Studies.

### **Mental Organization in Non-human Species**

They continued the study of generativity in cognitive networks within social groups of non-human primates have involved the bonnet macaque *Macaca radiata*, an endemic cercopithecine species in peninsular India. They have been able to establish the importance of social knowledge-based decision-making and tactical deception as two novel and unique examples of cognitive networks that have never before been systematically explored in any primate. They have also been able to document an unparalleled level of phenotypic flexibility among individual bonnet macaques – a phenomenon that exemplifies a system of distributed cognition in primates that has never been investigated before.

The studies of cognition in non-primate species such as fish also continue. The study of numerosity, inference and conspecific recognition are beginning to bear fruit. The first publications in this project will be coming out soon.

On the theoretical front, they are developing a new framework called regularity theory that seeks to understand information flow in biology and they are beginning to study the life world of macaques from the regularity theory perspective.

### **Courses**

**Prof Anindya Sinha** taught a three-lecture module on Primate Social Cognition, as part of a three-credit course on Introduction to Neuroscience, for doctoral degree students of the Centre for Neuroscience, Indian Institute of Science, Bangalore, November – December 2011.

**Dr Rajesh Kasturirangan** taught a two lecture module on Human Cognition in the same course.

Dr Rajesh Kasturirangan taught a course on Regularity Theory to NIAS and non-NIAS students from August to November 2011.

Dr Rajesh Kasturirangan organized and taught five sessions in a two week summer school on Thought and Communication at NIAS.

## b. CONSCIOUSNESS STUDIES & PHILOSOPHICAL FOUNDATIONS

Research work during the last academic year was guided by two broad questions. The two questions are considered central to understanding the complex nature of conscious experience. The first is how do neural functions that are discrete, quantitative and physical produce or represent a subjective, unitary and qualitative conscious experience? The second is how and where does the self reside in the brain, so as to make adaptive changes in one's personality corresponding to neural changes? These two questions conjointly are expected to decipher the mysteries of the unitary behaviour, and the self-organising capacity of the brain together resulting in self-experiences. The mandate of NIAS Consciousness Studies Programme is inspired by these two primary questions.

A major event of the Programme was the international conference focusing on three themes, held from January 5 to 7, 2012. A brief report of the conference follows:

### **A Report on the International Conference Looking Within: Interdisciplinary Approaches to Consciousness** (January 5 to 7, 2012)

*Looking Within: Interdisciplinary Approaches to Consciousness* was the fifth Conference organized by the NIAS Consciousness Studies Programme. Over 175 registered participants and students attended the Conference. This included teachers, academicians, students, researchers, engineers, technologists and the public. The registered participants and students represented 70 institutions and 9 countries such as Canada, France, Finland, Germany, India, Japan, New Zealand, UK and USA. . As in the past, for this Conference too, we were keen that the delegates of the Conference benefit as much as possible from interactions and discussions that will ensue during the three days. Towards fulfilling this goal a pre-Conference Reader with exhaustive information and academic material was printed. This document with a collection of information pertaining to the Conference such as focal theme notes, lecture abstracts, poster abstracts, addresses, etc. facilitated the participants with the work and profile of fellow participants and speakers in advance.

The Conference was co-organised by the Mani Bhaumik Foundation, Calcutta and co-sponsored by Department of Science and Technology, Government of India, New Delhi, Indo-US Science & Technology Forum, New Delhi, Board of Research in Nuclear Sciences (BRNS), Mumbai, Council of Scientific and Industrial Research, New Delhi, Defence Research & Development Organisation and Department of Biotechnology.

*Looking Within: Interdisciplinary Approaches to Consciousness* was inspired by our mandate to bring to discussion the challenging questions in the broad areas of consciousness covering neurophysics, animal cognition and self. The Conference focused on three Themes and dedicated one day each for the three Focal Themes. These Focus Themes were: Neurophysics, Quantum Mechanics, Artificial Intelligence; Animal Consciousness and Cognitive Neuroscience; and, Self in Neuropsychiatry, Neurophenomenology and Neurophilosophy

#### **Members:**

Prof Sangeetha Menon,  
*Anchor*  
Prof Anindya Sinha  
Prof BV Sreekantan

#### **Doctoral Students:**

Ms Namitha Kumar  
Ms K Lakshmi  
Ms Deepthi Rajagopalan  
Iyer

#### **Research Associate:**

Dr Shankar Rajaraman



*Neurophysics, Quantum Mechanics, Artificial Intelligence*

*Lead and Concept note: BV Sreekantan*

Considerable progress has been made over the past few decades in delineating in enormous detail the physio-chemical processes going on in the brain and its accessories, the neural networks and sensors through the use of laser and tomographic techniques. While these have helped the neurosurgeons, the neurophysicians and the psychologists in treating more effectively the brain disorders compared to older days, it is fair to say that the ontological and mechanistic aspects of consciousness remain far from a satisfactory explanation. The so-called "hard problem" remains as hard as ever. Towards a solution of this problem new lines of approach based on the applications of the current theoretical ideas on quantum processes, quantum entanglement, quantum coherence, quantum vacuum and its manifestations have come into vogue and are receiving serious attention. Information theories have also been evoked; new lines of experimental investigation are also proposed and are in progress.

*Cognition to Consciousness*

*Lead and Concept note: Anindya Sinha*

Empirical and observational studies of animal cognition will truly benefit if different behavioural manifestations of higher cognitive processes can be defined functionally. This is vitally important because, when studying animals, cognition has to necessarily manifest in behaviour for it to be tractable, and the performance of such behaviour, in turn, needs to be unambiguously ascribed to an effect of particular cognitive processes. One theoretical framework to investigate cognition in animals in terms of mentalistic notions is that of the intentional stance, which assumes that each individual is an intentional system capable of mental states like beliefs, desires and emotions. To attribute such mental states to both oneself and to others is to have what has been termed a theory of mind. Social animals appear to be knowledgeable about one another's behaviour to different extents. But do they know as much about one another's beliefs and intentions? Are they adept at recognising the similarities and differences between their own and others' states of mind? Behavioural decision-making processes need to be analysed carefully in order to ascertain whether true higher-order intentionality can indeed be invoked as underlying mechanisms governing these acts. The alternative perspective of distributed cognition, however, disregards the ability of an individual to have observationally invisible mental states and only recognises communicative interactions and the behavioural dynamics within the entire group as manifestation of the socio-cognitive complexity that individuals are alone capable of displaying. We hope to explore some of these theoretical and philosophical issues in animal cognitive psychology, ranging from mental representation to distributed cognition, ultimately leading to our understanding of the current status of animal consciousness, during this meeting.

*Self in Neuropsychiatry, Neurophenomenology and Neurophilosophy*

*Lead and Concept note: Sangeetha Menon*

A theme that runs through the major discussions in neuropsychiatry, neurophenomenology and neurophilosophy is the place, nature, and origin of self. The theories and debates on self have moved from an abstract object to a living subject whose personhood is challenged and framed by neural disposition. Neural disorders that change self-perceptions indicate how delicate the thin neural divide between normalcy and disorder is. It is also exciting that the challenge is not one way, but two ways. The subjective self through her experiences, values, attitudes and self-perceptions can alter or influence neural changes to bring in qualitative progress in life. In a way, the brain challenges the self, and the self challenges the brain. The renewed interest in values of antiquity such as empathy and compassion, and their biological foundations in mirror neurons invite us to think about the phasing out stark divisions between 'me' and the 'other', and to include more of the 'other' in 'me'. This would also bring in studies in cultural neuroscience, social emotions, and autism. Another important topic of interest in contemporary brain research is the concept of body itself. Brain is a continuously map-making mechanism. Our brains allow us to extend our self from just the arm's length, to the tool we

hold, to the person we relate to, to the world we extend to. Our peripersonal spaces show intriguing neural formulations that underlie personal identities and body perceptions. An enquiry into the self and its relation with consciousness is one of the most exciting topics today, given the varied studies we do in neuropsychiatry, neurophenomenology, neurophilosophy and cultural neuroscience.

Conference Coorganiser was Mani Bhaumik Foundation, Calcutta, and the Conference Sponsors were: Dept of Science and Technology, Government of India; Department of Biotechnology, Government of India; Council of Scientific and Industrial Research; Department of Atomic Energy, Government of India; Department of Research Development and Organisation; and Indo-US Forum.

### **Conference International Advisory Committee**

#### ***Chairman***

Mani L Bhaumik, MBEF, Kolkata

#### ***Members***

Max Velmans, University of London, UK  
Jonathan Shear, Virginia Commonwealth University, US  
Philip Clayton, Claremont Graduate University, US  
R Narasimha, JNCASR, Bangalore  
K Ramakrishna Rao, ICPR, Delhi

### **Conference National Organizing Committee**

#### ***Chairperson***

Sangeetha Menon, NIAS

#### ***Members***

BV Sreekantan, NIAS  
Anindya Sinha, NIAS  
Vijayalakshmi Ravindranath, Centre for Neuroscience, IISc  
Rajesh Kasturirangan, NIAS  
S Ranganathan, NIAS  
Sharada Srinivasan, NIAS  
MG Narasimhan, NIAS

### **Institutional Representation and the Audience**

The Conference was attended by over two hundred participants (including the speakers and registered participants) There were thirty Poster presentations, over twenty invited lectures, and three panel discussions. The invited speakers for the conference represented various institutions and countries from all over the world.

### **Institutions Represented by Invited Speakers**

Banaras Hindu University, Varanasi, INDIA  
Claremont Lincoln University, USA  
Emory University, Atlanta, USA  
Indian Institute of Science, Bangalore, INDIA  
Indian Institute of Science Education and Research, Pune, INDIA  
Indian Statistical Institute, Kolkata, INDIA  
Kyoto University, Aichi, JAPAN  
Max Planck Institute for Evolutionary Anthropology, Leipzig, Sachsen, GERMANY  
National Institute of Advanced Studies (NIAS), Bangalore, INDIA  
National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, INDIA  
Poornaprajna Institute of Scientific Research, Bangalore, INDIA  
Simon Fraser University, CANADA  
University of Arizona, Tuscon, . Arizona, USA  
University of Calcutta, Kolkata, INDIA  
University of California, Los Angeles, USA  
University of London, London, UK

University of Rouen, FRANCE  
University of Sussex, Brighton, UK  
Virginia Commonwealth University, Richmond, USA  
Washington University, St. Louis, USA  
World Association of Social Psychiatry (WASP)

**Institutions Represented by Registered Participants**

Cornell University, New York, USA  
Edinburgh Napier University, Edinburgh, SCOTLAND  
J. Kelper Institute of Astronomy, POLAND  
Ministry of Education-Special Education, NEW ZEALAND  
Primate Research Institute, Kyoto, JAPAN  
University of Edinburgh, SCOTLAND  
University of Toronto, CANADA  
Amity University, Jaipur, INDIA  
Amity University, Noida, INDIA  
APL Global School, Chennai, INDIA  
Asha Foundation, Bangalore, INDIA  
Banaras Hindu University, Varanasi, INDIA  
Blind People's Association, Ahmedabad, INDIA  
CMR Centre for Management Studies, Bangalore, INDIA  
Cochin University of Science and Technology, INDIA  
Current Science Association, Bangalore, INDIA  
Dayalbagh Educational Institute, Agra, INDIA  
Girindra Sekhar Institute of Psychological Education and Research, Kolkata, INDIA  
GROUP DYNAMIX Management Training & Organisation Development, Kolkata, INDIA  
Hindustan College of Science and Technology, Mathura, INDIA  
Human Dynamic Centre, Bangalore, INDIA  
Indian Institute of Astrophysics, Bangalore, INDIA  
Indian Institute of Science Education and Research, Kolkata, INDIA  
Indian Institute of Science, Bangalore, INDIA  
Institute of Distance Education, Madras University, INDIA  
Jain University, Bangalore, INDIA  
Jawaharlal Nehru University, New Delhi, INDIA  
Karnataka Government Secretariat, Karnataka, INDIA  
Kerala Forest Research Institute, Thrissur, Kerala, INDIA  
Madras Christian College, Chennai, INDIA  
Mahatma Gandhi Mission College of Engineering and Technology, Virat, INDIA  
Mallya Aditi International School, Bangalore, INDIA  
MGM College of Engineering and Technology, Navi Mumbai, INDIA  
MS University, Baroda, Gujarat, INDIA  
National Brain Research Centre (NBRC), Manesar, Gurgaon, INDIA  
National Degree College, Bangalore, INDIA  
National Institute of Advanced Studies (NIAS), Bangalore, INDIA  
National Institute of Mental Health and Neurosciences, Bangalore, INDIA  
Netaji Subhas Institute of Technology, Delhi University, Delhi, INDIA  
Punjabi University, Patiala, INDIA  
Regional Institute of Education, Mysore, INDIA  
Richmond Fellowship P. G. College for Psychological Rehabilitation, Bangalore, INDIA  
Sri Siddhartha Medical College, Tumkur, INDIA  
Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, INDIA  
Symbiosis Centre of Distance Learning, Pune, INDIA  
Tata Institute of Fundamental Research, Mumbai, INDIA  
University of Allahabad, INDIA  
University of Calicut, Kerala, INDIA  
University of Delhi, INDIA  
West Bengal State University, Kolkata, INDIA

Following the Conference, the videos of the lectures have been published as webcast in the NIAS Website.

<http://nias.res.in/research-schools-humanities-consciousnessstudies-international-conf-2012-videos.php>

A Report has also appeared in the Current Science.

URL: <http://cs-test.ias.ac.in/cs/Volumes/102/05/0662.pdf>

**Prof Sangeetha Menon's** focus of research continued to self-brain interrelations and ensuing philosophical and psychological challenges. The renewed contemporary interest in values of antiquity such as empathy and compassion, and their biological foundations in mirror neurons and brain-maps, invite us to ask questions such as: How much of the Self-sense is embodied? Is the Self-sense separable from body-schema and its proprioceptive capabilities? What is the role of ownership and agency in binding the Self-sense to the body-sense? What is the nature of the Self-sense in people with acute impairments in movement and touch senses? Is the Self-sense primarily a meaning-making mechanism that overrides bodily limits and disabilities?

Two courses for doctoral students were offered with the above theme in focus. Four papers, three introductory essays, four concept notes and two book reviews were published. Manuscript for one chapter has been submitted. A Conference Reader was published as an inhouse publication in connection with the international conference during January 5 and 7, 2012. Ten lectures were delivered at conferences and workshops. Three courses were offered, one workshop organized and one course lecture delivered.

The courses were: *Guided Reading and Writing Course on Philosophy of Psychology- Part 1& 2*; and, *Signs of Self*. She also reviewed two doctoral theses during this period.

An ICPR sponsored project study on *Philosophical Foundations of Self in Neuropsychiatry* (with focus on Indian texts on emotions) is ongoing with Dr Shankar Rajaraman as Research Associate. Six chapters have been completed.

Prof Menon continued to guide four doctoral students.

Ms Lakshmi K on *Self and Wellbeing: A Qualitative Focus on the Mahabharata and A Character Study* (4th year)

Ms Namitha Kumar on *Subjectivity, Selfhood and Identity In the Context of Disability: A Critical Theoretical, Psychoanalytic and Psychological Approach* (2nd year)

Ms Deepthy Iyer on *Personal Identity and Construction of Meaning: A Study on Literary Madness* (1st year, and concept being developed)

Ms Aneasha Sharma on *The Phenomenon of 'Letting Go' in Artists and Designers* with Industrial Design Centre, Indian Institute of Technology – Mumbai (thesis being finalized).

During this period two Summer Research interns worked with the Consciousness Studies programme, under the guidance of Prof Menon. Mr Peter John from Jindal Global Law School worked on *Metaphysics, Altruism and Law*. And, Ms Divya Subramanian from Cornell University, worked on *Emotions and Aesthetics*.

**Prof BV Sreekantan** is continuing his efforts at writing the book provisionally titled *Reality, Oneness and Consciousness* in which he is trying to correlate the current ideas on consciousness projected by neuroscientists, with the recent developments in the field of physics, astrophysics and astronomy, on

fundamental issues related to the very fabric of cosmos – the quantum mechanical vacuum. He expects to complete this book writing by the end of this year. His views on the future of scientific research in the field of consciousness studies were spelled out in the paper presented at the international seminar on *Looking Within: Interdisciplinary Approaches to Consciousness* held at NIAS in January this year.

The final proofs of the book *Foundations of Sciences* (with 780 printed pages and contributions from 33 authors), which Prof Sreekantan edited were received in batches during the year 2011-12 for final approval from the publishers on Pearson Longman. It is expected that the book will be published early this year.

Over the last several months, based on Prof Sreekantan's 40 years of experience of carrying out a variety of large scale experiments (1951-1991) in the Kolar Gold Field, Prof Sreekantan examined the feasibility and desirability of locating future nuclear power reactors underground. In this endeavour he was greatly helped by Prof BN Karkera, (formally of BARC). This exercise led to the idea that the most suitable sites would be cavities 100 to 200 meters below ground dug in hills next to existing, or potential Hydel Power Stations. This proposal was discussed in a meeting held at NIAS on February 10, 2012 attended by scientists from various institutions. A detailed report is under preparation.

Prof Sreekantan continues to be the Chairman of the Ph.D. Committee of NIAS. He has been serving on several selection committees for recruiting academic staff to the various projects in NIAS.

He reviewed the book entitled *The Wonders of Consciousness* by Harold Langsam, Professor of Philosophy at University of Virginia, for Current Science.

## PSYCHOLOGY

**Prof Malavika Kapur** organised a brainstorming Seminar on Public Risk Perception of a multidisciplinary nature. The two-day seminar was held at NIAS on September 29 and 30, 2011. The theme was on Public Risk Perception of adverse outcomes on health, quality of life and that of the environment. It was examined multiple vantage points of economics, energy, health, education and psychosocial parameters. The presentations and discussions examined were issues surrounding risk perception, assessment and intervention – especially with regard to philosophical and psychosocial aspects. Risk communication with regard to specific topics such as alcohol abuse, cell phone use, GM crops, climate change and nuclear energy were covered. The seminar aimed at developing a covered methodology for public risk perception, assessment and intervention.



Panel Discussion during "Brainstorming on Public Risk Perception" (September 30, 2011)

## HISTORY AND PHILOSOPHY OF SCIENCE

**Dr MG Narasimhan** has been working in the area of History and Philosophy of Biology with special focus on the theory of evolution both in terms of its structure, dynamics and applications. In the latter area he has examined the application of evolution in Philosophy and Social Sciences. Work being done in areas like Evolutionary Epistemology and Evolutionary Archaeology are good examples in this regard. In addition he has been examining various developments in the field of Nano Ethics and Risk Studies with specific interest in Risk Communication.

### c. HERITAGE STUDIES

#### **Collaborating Institutions:**

Indian Institute of Science, Bangalore; Tata Institute of Fundamental Research,(TIFR) Archaeological Survey of India; IGCAR, Kalpakkam, SNLSA College, Dharmapuri; Kerala Council for Historical Research, Karnatak University, Dharwar; Deccan College, Pune, Manipal University.

Exeter University, UK; University of Chicago, USA; University of Michigan, USA; British Museum, Toyoma University, Japan.

#### **Research Themes:**

Archaeological Sciences; Materials Heritage; Archaeometallurgy Ethnoarchaeology and craft documentation; Experimental archaeology; Art-Science interface; Digital Heritage; Epigraphy; Languages, classics.

#### **Grants Already Secured:**

British Council funded UKIERI-II Awards for Split-site PhDs with Exeter University in Archaeology and Drama (2012). In particular the programme envisages PhDs in areas that overlap these themes concerning 'Intangible Histories' (Chair, Archaeology: **Prof Sharada Srinivasan**, Chair, Drama: **Prof Anindya Sinha**).

British Council funded UKIERI Award for project *Pioneering Metallurgy: Origins of Iron and Steel Making in the Southern Indian Subcontinent* (2009-2011), as a collaboration between NIAS and Exeter University. This was an major and wide ranging inter-disciplinary project executed through numerous staff and student exchanges across NIAS and Exeter (involving some 2 dozen personnel) that applied archaeometallurgical and archaeogeological research, laboratory characterization of metal artefacts using techniques such as electron probe microanalysis and texture analysis, innovative use of geospatial techniques, GPS and GIS systems for landscape mapping and for mapping intangible heritage and artisan traditions of blacksmiths. (Prof Sharada Srinivasan, Lead Investigator, and **Prof S Ranganathan**, Core investigator, NIAS with Dr Gill Juleff, Lead investigator, Exeter University).

DST funded *India Digital Heritage Project* (From 2011 for three years)

This project is concerned with the use of digital technologies in mapping, documenting heritage and the experimental and educational aspects especially with respect to Hampi and is a collaboration of over a dozen cultural bodies, NGOs and technical institutions such as IITs (Prof Ranganathan, **Prof S Settar**, Prof Sharada Srinivasan)

Three year project on *Vijayanagara Bronzes: Analytical-cum-digital Approaches*, Prof Sharada Srinivasan (PI), Prof Ranganathan (Co-PI)

#### **Members:**

Prof Sharada Srinivasan,  
*Anchor*  
Prof S Ranganathan,  
*Co-Anchor*

#### **Post-doctoral Associate:**

Dr Smriti Haricharan

#### **Research Team Members:**

Prof S Settar  
Prof BV Sreekantan  
Prof Sangeetha Menon  
Prof Narendar Pani  
Prof Carol Upadhy  
Prof Anindya Sinha  
Prof Malavika Kapur  
Dr MB Rajani (till October 2011)  
Mr Rajarshi Sengupta  
Mr Praveen Johnson

#### **Doctoral Students:**

Ms NS Nalini  
Ms Hema Thakur  
Ms Shatarupa Bhattacharya

Hampi IDH Coordination Project (Prof Ranganathan, PI)

ISRO Projects on *Remote Sensing Applied to Archaeology (RESPOND) and (RISAT)*

These projects are concerned with use of geospatial techniques in documenting heritage sites and related aspects of landscape studies and heritage management. Prof Ranganathan (PI), Prof Sharada Srinivasan and Prof Settar (Co-PIs) and **Dr Smriti Haricharan** (Post-doctoral Researcher).

Other grants/support for activities or forthcoming events.

Royal Society-DST grant (NIAS applicant/PI Prof Sharada Srinivasan) for India-UK Scientific seminar in March, for early and mid-career scientists on theme of *Indian iron and steel – developing interdisciplinary applications in archaeometallurgy and geospatial archaeology*, NIAS & Exeter University (Indian co-organiser Prof Sharada Srinivasan).

Prof Ranganathan, invited by Prof Nagata, University of Arts Tokyo, for a one year period from April 2012 to teach a course in Conservation.

Prof Sharada Srinivasan: Charles Wallace Indian Trust award for conservation scientists for in-UK visit costs for 3-4 weeks to be undertaken in March 2012 especially to study collections related to the south Indian metals heritage in the British Museum, UK and Victoria and Albert Museum, UK.

Dr Smriti Haricharan: Nehru Trust grant for UK visit for 2 months to Exeter University to work on Portable Antiquities Scheme (undertaken in November – December 2012).

Grant under processing through DST for IDH project on Digital Hampi Heritage on Hampi Knowledge bank and related data acquisition with Prof Settar as PI, Prof Vijay Chandru as Co-PI and Prof Sharada Srinivasan, Dr TB Dinesh and Prof Ranganathan as investigators.

#### **Programme Findings and Fulfilment of Objectives:**

The Heritage Studies Programme in many ways is a unique programme in the overall educational milieu in the country because it seeks to locate the aspect of tangible and intangible heritage, materials heritage and surviving craft practices (and related technological dimensions), within its proper place not only within the educational discourses in social sciences and humanities but also making the linkages to science and society and science and civilisation. For example the UKEIRI project on Pioneering Metallurgy project involved for the first time the use of a range of inter-disciplinary techniques from archaeometallurgical survey, use of GIS methods and geospatial techniques in mapping landscapes not only of archaeometallurgical significance but also marking sites of intangible heritage and of ethnographic interest such as blacksmith villages and traditions, materials characterization using high end laboratory techniques of the iron and steel finds both in IISc, Bangalore and in Exeter, and the creation of a database that could serve the purpose of a wide range of disciplinary concerns and heritage resource development. The mechanism of making high-grade steel which predated other parts of the world was thus brought to light. The related UKIERI dissemination seminar awarded to NIAS as a flagship project drew in leading academics from around the world including UK, USA, Japan, Africa and Sri Lanka. The interim report of this project was released in November 2011 and has been well received.

This programme brings together history, archaeology and scientific studies of heritage in the context of documentation, preservation and conservation of both tangible and intangible cultural heritage. At NIAS the major emphasis is in bringing to bear to the study of cultural heritage modern scientific methods from metallurgy, geology, remote sensing, and computer and information technologies. In this capacity NIAS is playing a very significant role in terms of acting as a bridge between the scientific and cultural aspects in the study and documentation of heritage and in contributing to the building up

of human resources and research infrastructure in this area which is not very widely supported in India, especially in the area of heritage science. This programme is also fostering many major international collaborations and generating a lot of momentum, interest and support from the international and national bodies of museums and archaeological specialists and academic institutions such as a major British Council funded Indo-UK project under the UKIERI scheme. The Heritage Studies programme at NIAS is working in collaboration with major institutions such as IISc. They have also been invited to partner the Tata Institute of Fundamental Research in a major effort to invigorate the study of archaeological sciences in India.

Topics of research include archaeological sciences and the applications of scientific techniques in the study of archaeological artefacts, art objects and heritage and the study of materials heritage. The heritage of iron and steel production and bronze casting are especially explored. Ethnographic, ethno-archaeological and social anthropological studies on traditional metal crafts are attempted keeping in mind also the broader issues of sustainability. The use of space-based applications in the study and documentation of archaeological and heritage sites forms another significant theme. The implications of the use of digital technologies in heritage studies have been recently initiated.

The major areas being currently explored under this programme include:

1. Archaeo-metallurgy, ethno-archaeology and crafts history: A major Indo-British collaborative project supported under the British Council's UKIERI scheme, on the origins of early steel making in the southern India, together with Exeter University. Other projects have included the study of megalithic iron and steel from Kadabakele in collaboration with University of Chicago; studies in bronze metallurgy in collaboration with Toyoma University.
3. Digital Heritage: NIAS has been charged with the coordination of a major initiative of DST for creating the digital Heritage of Hampi and using in-house expertise in creating a major knowledge bank.
4. Space Applications in Archaeology: Under this topic the application of space science in archaeology have been explored including remote sensing, digital elevation modelling, use of satellite imagery.
5. Paleography of Dravidian languages and study of classics in Kannada and Tamil and the related historical aspects and aspects of script development.
6. Proposed research on Digital image processing for understanding Dravidian scripts which have some of the most extensive numbers of inscriptions and to bring scientific approaches to bear on palaeographic and epigraphic studies.

#### **Fulfilment of Objectives:**

The heritage studies programme has formally been initiated in its present form only since 2009 in a fledgling way, but it drew together strands of research that had been going on in NIAS previously for some years. Thereafter, in the past few years, this programme has been given much more concrete shape and direction and seen much growth and activities. In fact it has been a great success and has grown enormously in strength as testified by the diverse and prestigious international and national projects and growing visibility and the interest generated in media the range of institutions interested in collaboration both nationally and internationally who have come forward. Through the support of projects, it has been possible to greatly expand the range of personnel involved in various activities and the critical mass of people engaged in this programme. It has been found too that at various times the demand from people to join and enhance such a programme is much greater than the resources at hand, reflecting the fact that there are not enough avenues for people interested in such subject area, and resources need to be generated to keep up that momentum and interest.

#### **Design and Implementation – Outputs:**

This section details outputs of the Heritage Studies Programme such as Workshops and Conferences



organized, Reports and Papers published during March 2010-2011. The dissemination activities are described in the following section on Capacity Building.

#### **Workshops and Conferences April 2011 to March 2012**

1. Royal Society-DST sponsored India-UK Scientific seminar, held at Exeter University on *Archaeometallurgical and Geospatial Techniques in the Study of Metal Production and Iron Metallurgy* from March 7 to 9, 2012 and there were 15 participants. NIAS Coordinator: Prof Sharada Srinivasan
2. UKIERI-I (NIAS-Exeter) international dissemination seminar on *Pioneering Metallurgy*, funded by British Council, CSTEP, Jindal Foundation, ISRO and others was held at NIAS from November 16 to 18, 2011. The number of participants was 100. NIAS Coordinators: Prof Ranganathan and Prof Sharada Srinivasan.
3. NIAS High Level Delegation to Exeter University, accompanied by Director, NIAS and received by Exeter Vice-Chancellor and NIAS-Exeter research seminars on Archaeology and Drama and visit to Oxford Research Laboratory for History of Art and Archaeology; supported by UKIERI (British Council) and Exeter University and British Deputy High Commission, from June 6 to 11, 2011. Delegation included Profs VS Ramamurthy, S Settar, S Ranganathan and Sharada Srinivasan. NIAS Coordinators: Profs Sharada Srinivasan and S Ranganathan.
4. IDH Review meeting of PAC, DST with participation by Prof Ranganathan (NIAS coordinator) and Prof Sharada Srinivasan in January 2012.
5. UKIERI-II NIAS-Exeter workshop on Intangible Histories project and concerning joint Split-site PhD programme was held from February 8 to 10, 2012.

#### **External Lectures Organised:**

Lecture by Richard Blurton, Curator, British Museum, held at National Gallery of Modern Art, (NGMA, Bangalore) under aegis of NIAS Heritage Studies Programme, Nov 15th, 2011

#### **Courses Taught to Doctoral Students:**

Lectures by Prof Settar, Prof Ranganathan and Dr Sharada Srinivasan have been included as part of the Foundation Course and also as part of the Humanities Course. Prof Ranganathan has been teaching a Humanities course to undergraduates at Indian Institute of Science also drawing on some of the areas of interest of the Heritage programme in materials and civilisation. Prof Sharada Srinivasan is taking a course for NIAS PhD students on *Archaeological Landscapes, Archaeomaterials and Archaeology*. Prof Ranganathan is taking a course on 'Materials and Civilisation and S&T applications in Heritage Management'.

#### **Impact:**

The impact of these various activities this year has been very significant both locally and globally and going far beyond its actual size or resources. The UKIERI project is a major international collaborative effort which has undertaken an archaeo-metallurgical survey in Telangana, an area of the country that has been not much studied before, but which had one of the most advanced pre-industrial iron and steel making enterprises in the world which had been renowned for supplying the high grade wootz steel used for making the celebrated Damascus blades traded all over Asia. Further insights were gained into this rich pre-industrial tradition but there is also great concern that the related heritage is rapidly being destroyed and there is no efforts and preservation and the need to engage in sustainable heritage management which can also benefit the stakeholders such as the local artisanal communities.

NIAS has been handed the responsibility of the coordination of a major initiative of DST for creating the digital Heritage of Hampi. This involves 11 technology teams from the IITs and 10 cultural groups.

The Heritage Studies Programme will set up a knowledge bank. The Vijayanagara bronzes will be captured in digital 3D and the evolution of the shapes of bronzes will be explored from Pallava times through the ages. In collaboration with Microsoft.

Research a short pioneering Digital Narratives on Hampi was produced.

In collaboration with ISRO they have developed specialised skills in the use of GIS and geospatial techniques and remote sensing applications and the setting up of a lab which can fulfil such roles in a range of activities including archaeological and heritage management amongst others. These skills have also been brought to bear to other projects and interests at NIAS ranging from education to gender studies and urban studies.

The range of collaborators who have reached out to this programme is unprecedented. There has also been an aspect of impacting national debate/policy matters to the extent of key faculty being inducted to various important national committees such as of the ASI, Ministry of Culture, IGNOU etc. The impact on the international stage can be gauged by the fact that the recent UKIERI dissemination seminar was an important one through which it was able to further cement important engagement with leading institutions such as the British Museum, Oxford Research Laboratory for History of Art and Archaeology and several others. The importance of NIAS efforts in terms of engaging at the highest levels in these areas are reflected by the fact that the activities have seen the attendance of high level delegations including UK Minister for Science & Technology, DG-ASI, Head, Education, British Council, DST officials, top academics and several others. They are part of a major effort of the leading scientific institution of TIFR to create a nationwide mechanism for supporting and nurturing archaeological sciences including generation of laboratory spaces, teaching and education through courses and others. This programme with the right impetus has the potential to fulfil a major nationwide and international role as an important institution and networking and resource base in this area.

### **Dissemination and Capacity Building**

#### **A. Training Programmes**

1. UKIERI (NIAS-Exeter) dissemination seminar on Pioneering Metallurgy, Exhibition on Telangana Archaeometaterials, November 16 to 18, 2011.
2. IISc Open Day, Exhibition on Materials Heritage, curated by Prof Sharada Srinivasan and Prof S Ranganathan, March 2 and 3, 2012.

### **Staff and students exchanges to give exposure to international best practices**

In terms of capacity building the Heritage studies programme through the UKIERI-I and UKIERI-II schemes is contributing significantly to capacity building also through the window it has provided to increased exposure to international best practices through the UK-India exchanges of the UKIERI scheme with Exeter University, summer schools etc, for a range of staff at NIAS from students, post-doctoral fellows, to mid level and senior faculty, which is an effort without previous precedent at NIAS.

### **Signing of MOUs**

The signing of important MOU's have taken place, one with Exeter University, which is in the top ten ranking Universities in the UK and one of the top in the world in Humanities and related interfaces with science and society, which took place in the presence of the UK Minister for Science and Technology and British Deputy High Commissioner. Another important MOU has been signed with the Kerala Council for Historical Research who have undertaken major excavations at the Indo-Roman trading port of Patainam.

## OUTREACH AND OTHER ACTIVITIES

**Prof Malavika Kapur** was President of the Indian Association of Clinical Psychologists – 2010 to January 2012. She was invited by the CSIR, New Delhi to be a member of the CSIR/DSIR working group for framing the development guidelines for the 12th Five Year Plan. She attended two meetings on April 5, 2011 and July 25, 2011. She was also invited by the Navajbai Ratan Tata Trust to be the member of the panel of subject experts for screening of project proposals at the Community Health Cell, Bangalore, August 5, 2011. She was appointed member of project for two years Advisory Committee of the Centre for the Study of Developmental Disability, DRS-I Special Assistance Programme of the UGC in the Department of Psychology, Kolkata and attended the meeting on December 26, 2011. She evaluated four project reports for the ICSSR 2011-2012.

Prof Malavika Kapur was Member of the International Advisory Group of the WHO on Classification of Child and Adolescent Mental Disorders, on ICD – 11th revision and attended two meetings, in London in May 2011 and Helsinki in November 2011. She was invited to represent India as member of the International Working Group on Licensure, Certification and Credentialing in Psychology to host symposiums/round table discussions in Cape Town, South Africa, during the International Congress of Psychology in July 2012 and Stockholm in July 2013.

Prof Malavika Kapur runs a free Child Guidance Clinic and trains volunteers in Child Counselling at Prasanna Counselling Centre, Bangalore for the last eight years. She conducts outreach School Mental Health and Child Development projects in rural/tribal Schools in HD Kote, since the last two years, also conducts workshops for Sensitizing Leaders/Parents. She speaks on public fora, radio and television about Child Mental Health and Child Development.

**Prof Sangeetha Menon** organised an international conference titled *Looking Within: Interdisciplinary Approaches to Consciousness* during January 5 and 7, 2012, along with **Prof BV Sreekantan** and **Prof Anindya Sinha**. She chaired a panel session on Self and Wellbeing, at the conference, and introduced the theme of Self in Neuropsychiatry, Neurophenomenology and Neurophilosophy. Prof Menon also designed a workshop on *Communication, Communicating an Idea, Communicating an Image*, which was organized during September 6 and 7, 2011. She continued to be a Board Member of International Association for Transpersonal Psychology, and Asia Consciousness Society, Hong Kong; a Nominated Member, International Society for Science and Religion, Cambridge; Member, Membership Committee, International Society for Science and Religion, Cambridge; Contributing Editor, International Society for Science and Religion, Cambridge; Adjunct Faculty, Gitam University, Vishakhapatnam; Academic Advisory Committee Member, Centre for Traditional Knowledge Systems – IGNOU, Delhi. She continues to be a Member of the Institutional Ethics Committee of Indian Institute of Science, Bangalore.

**Ms MB Rajani** and **Ms Anu Joy** organised Summer Holiday Workshop for High School Children on *Mapping* from April 12, 2011 to May 12, 2011 at NIAS.

**Prof BV Sreekantan** coordinated the first day of the conference *Looking Within: Interdisciplinary Approaches to Consciousness* with the theme *Neurophysics, Quantum Mechanics, Artificial Intelligence*, January 5, 2012.

School of

# Natural and Engineering Sciences

Prof Dilip R Ahuja, *ISRO Professor of S&T Policy & Dean (Academic Affairs)*

Prof PK Shetty, *Professor*

Prof Anindya Sinha, *Professor*

Prof Prabhakar G Vaidya, *Professor (till December 31, 2011)*

Prof G Balachandran, *Shri TV Raman Pai Visiting Professor (August 1 to 13, 2011)*

Prof S Chandrashekar, *JRD Tata Visiting Professor*

Prof S Gopal, *Sir Ashutosh Mukherjee Visiting Professor*

Prof DP Sen Gupta, *Visiting Professor*

Prof Saurabh Kumar, *Visiting Professor*

Prof Rajaram Nagappa, *Visiting Professor*

Prof N Ramani, *Visiting Professor*

Prof Lalitha Sundaresan, *Visiting Professor*

Dr Sindhu Radhakrishna, *Associate Professor*

Dr Manabrata Guha, *Assistant Professor*

Dr M Mayilvaganan, *Assistant Professor*

Dr M Murugan, *Assistant Professor*

Dr VV Binoy, *Post-doctoral Fellow (DST-CSI Initiative)*

Dr Kshama Lakshman, *Post-doctoral Associate (till April 30, 2011)*

Dr Nabeel A Mancheri, *Post-doctoral Associate*

Dr Hippu Salk Kristle Nathan, *Post-doctoral Associate*

Mr Gautam Narasimhan, *Research Consultant*

Dr Arun Vishwanathan, *Consultant*

Mr Subhajit Saha, *Junior Research Fellow*

Mr Nishant Seth, *Junior Research Fellow*

Ms Shruthi Shivabasavaiah, *Research Associate*

Mr Sanket S Kulkarni, *Research Assistant*

Ms Aiyasha GF, *Research Assistant*

Mr Varun Bhaskar, *Research Assistant*

Ms G Jayashree, *Research Assistant*

Ms Chetana B Purushotham, *Research Assistant*





Prof VS Ramamurthy, His Excellency Mr MK Narayanan and Ambassador CV Ranganathan, during the National Seminar on "Rise of China: Indian Perspectives" (December 20, 2011)

This School covers research in the field of engineering and mathematics, biosecurity, agriculture, ecology, energy, environment and conservation biology. Current research interest of the faculty members include various aspects of signal and image processing; cryptography; number theory; mathematical modelling of complex chaotic systems; studies on agro-ecology and plant and animal biosecurity; pesticide and environmental stewardship; conservation of wildlife; primate behaviour; energy and environment policy; and international and strategic studies.

## PROGRAMMES

### Members:

Prof PK Shetty, Anchor  
Dr M Murugan  
Ms Aiyasha GF

### Doctoral Students:

Ms KG Sreeja  
Ms Priya Gupta  
Ms Geetanjali Yadav

### a. AGROECOLOGY AND BIOSECURITY

Agroecology and Biosecurity Programme (ABP) was initiated in the NIAS during the late 1992. The ABP focuses on the research and collaborative dialogues that are of societal significance and policy implications mainly through the cutting edge research on the ecological agriculture, sustainable livelihoods and food security, innovations in agriculture, sustainable development, conservation of natural resources, crop protection stewardship, environmental stewardship, agrarian studies, bioremediation, phytoremediation, agrobiodiversity, agroclimatology, agroforestry, plant biosecurity. The research programmes develop innovative approaches for solving problems through realistic situational case studies and the participation of various stakeholders for enhancing socio-economic and environmental wellbeing of the country.

The ABP has successfully completed 9 research projects of societal importance covering the above areas both at regional and national levels. The group has reported the original work on these areas, which includes a unique bioremediation work that identified an efficient micro organism capable of degrading the toxic molecule "endosulfan" through oxidative and hydrolytic pathways. Developed for the first time – the software aided database on pesticide usage in different agro ecological regions of the country, and further carried out farmer's field survey on crop protection stewardship practices in 28 districts covering 12 Indian States. In another study they examined the connections between the reported agrarian distress and socio-economic and ecological crisis in the north Karnataka region. The ABP has been organizing regularly discussion meetings, seminars, lectures pertaining to the important aspects on the above research areas involving various stakeholders including experts, policy planners, representatives from government and non-governmental organizations.

### **Studies on Climate Change, Forests and Agriculture**

In this study they analyzed climate and crop yields data from Indian cardamom hills in the period 1978–2007 to investigate whether there were significant changes in weather elements, and if such changes have had significant impact on the production of spices and plantation crops. Spatial and temporal variations in air temperatures (maximum and minimum), rainfall and relative humidity were evident across stations. The mean air temperature increased significantly in the last 30 years; the greatest increase and the largest significant upward trend was observed in the daily temperature. The highest increase in minimum temperature was registered for June (0.37°C/18 years) at the Myladumpara station. December and January months showed greater warming in all three stations. Rainfall during the main monsoon months (June–September) showed a downward trend. Relative humidity showed increasing and decreasing trends, respectively, at the cardamom and tea growing tracts. The warming trend coupled with frequent wet and dry spells during the summer is likely to have a favorable effect on insect pests and disease causing organisms thereby pesticide consumption can go up both during excess rainfall and drought years. The incidence of many minor pest insects and disease pathogens has increased in the recent years of the study along with warming. Significant and slight increases in the yield of small cardamom (*Elettaria cardamomum* M) and coffee (*Coffea arabica*), respectively, were noticed in the recent years. However the improvement of yield in tea (*Thea sinensis*) and black pepper (*Piper nigrum* L) has not been seen in the analysis.

### **Pesticide Use and Farmer's Health Externalities**

The use of pesticides in Indian agriculture, although beneficial in reducing crop loss both before and after harvest, it has strongly associated with threats to human health often due to the misuse of these toxic chemicals. This study was an initial attempt to explore health externalities of farmers and agricultural laborers in the pesticide use predominant districts (28) in 12 Indian states. Doctors, pesticide vendors and agricultural officers of the select districts were interviewed to collect information on the health externalities due to pesticide use. Also data were collected through pre-tested schedules by trained field investigators and from the stake holders of pesticides which totalled 1577 samples.

The analysis of the samples revealed a steady decrease in the overall consumption of pesticides since 1990. About 19.4% of the respondents had experienced negative side effects on health after handling pesticides. The symptoms include headache, weakness, dizziness, fever, blurred vision, and nausea/vomiting. Most of the respondents were aware of pesticide-related symptoms and possible routes of absorption, during the application of pesticides. Farmers make only short-term assessments of pesticides and spray these chemicals without taking proper protective clothing and measures. Records on the serious pesticide poisoning cases were available only in a few government hospitals, but such details were not even accessible from private hospitals as pesticide poisoning incidences were subjected to medico-legal cases. Training for agricultural and health workers in safety measures, recognition, and management of pesticide-related ill health is a matter of exigency. There is a tremendous scope for agricultural extension activity through which pesticide stewardship can be achieved in India.

### **Phytoremediation Studies**

In modern agriculture pesticides have become an inevitable input, and constitute an integral part of crop production system. Today, the indiscriminate and improper uses of toxic pesticides to control the insect pests and diseases are of serious health and environmental concerns in all agroecosystems in the country. Once these toxic chemicals are released into the environment they are subjected to various types of degradations and broken into their respective residues. Pesticide degradation commonly refers to the breaking down of toxic chemicals into nontoxic compounds. The breakdown of these chemicals can occur through volatilization, photo degradation or exposure to ultra-violet (UV) radiation,

sometimes they undergo chemical degradation, absorption and desorption by soil particles and components, lost through runoff and leaching. The ABP interested in two important areas of research in pesticide degradation, one is bioremediation or microbial degradation and the second is the phytoremediation meaning the use of plant systems to take up or metabolize these toxic compounds.

Phytoremediation is a proven technology for degradation of organophosphate pesticides. Rhizofiltration, soil microorganisms and rhizosphere play an important role in phytoremediation. Therefore, experiments were carried out to study the pesticide uptake by plants and soil under laboratory and field conditions. Organophosphate pesticide binds to both organic matter and antibiotic streptomycin. Streptomycin inhibits the activity of the enzyme (p-nitrophenol 4-hydroxylase) extracted from root and shoot. The results of UV-visible spectrophotometer studies were confirmed by HPLC analysis. Wheat plants enhanced the uptake/degradation of methyl parathion, p-nitrophenol and hydroquinone in unsterilized soil by 64.85%, 94.7% and 55.8% respectively. Methyl parathion hydrolyzes to p-nitrophenol, which is further metabolized to hydroquinone with release of nitrite. The enzyme p-nitrophenol 4-hydroxylase is active as evidenced by release of nitrite by leaf and root extracts and also by the appearance of hydroquinone in the reaction mixture.

### **Impacts of Planting of Ornamental Garden Plant- *Cycas***

Landscaping and garden designing are managed professionally by national and multinational companies. The residential and commercial landscaping brings aesthetically pleasing extension of indoor living to the outdoors. However, some of the traditionally grown plants are replaced with some evergreen exotic plants. Traditional wisdom of growing plants very near to the prayer halls, hospitals or residential area is not given importance. *Cycas* is traditionally not maintained as a household plant, but they see it in most of the gardens. It is even commercially grown in nurseries and marketed at Rs.500-1000 per plant. *Cycas* is a gymnosperm plant and its history can be traced back to Mesozoic era. It is called as a 'living fossil' as it looks like its fossil ancestor. It has practically not shown any modification during this long geological period. It is sluggish in its growth and is dioecious. *Cycas* is represented in species like *Cycas circinalis*, *Cycas revoluta*, *Cycas beddomei*, *Cycas rumphaii* and *Cycas pectinata*. Of these, *C. circinalis* and *C. revoluta* are cultivated as ornamental garden plants. The plant is, no doubt, good to look at with its evergreen leaves. When it starts producing cones (male cones are fairly big and compact), it has a number of microsporophylls which bear microsporangia on its abaxial (lower) surface in groups. Each microsporangium has thousands of spores which are boat shaped. Each cone produces pollen grains, microspores in billions. The plant is mainly wind pollinated. It emits most disagreeable smell. The spores affect the lungs, and are bad for asthma patients. Hence, it is not advisable to grow it in private gardens, hospitals, libraries or laboratory buildings.

### **A Discussion Meet**

A discussion meet on *Innovation in Agricultural Production System in India* was organised on February 14, 2012. The participants included representatives from the University of Agricultural Sciences (UAS), Bangalore, National Bureau of Agriculturally Important Insects (ICARs), Bangalore, the Indian Institute of Horticultural Research (IIHR), Bangalore, and the Department of Science and Technology (DST), New Delhi.

### **Research Grants**

Prof PK Shetty received a research grant of Rs.36.00 lakhs from the Department of Science and Technology, Government of India, for a research project titled *Agricultural Innovation Systems in India – An Analysis*.

## b. ECOLOGY, BEHAVIOUR AND CONSERVATION

Ecology, Behaviour and Conservation Programme (EBCP) led by **Prof Anindya Sinha** and **Dr Sindhu Radhakrishna** has, over the last fifteen years, specialised in studying the biology of primates and other animal species from a variety of perspectives including ecology, behaviour, cognition, genetics, and conservation through the use of a variety of observational, experimental, mathematical, computational and philosophical methods. Exceptional for the kind of research it has been conducting, the EBCP is also remarkable for several other reasons, the least of which is the enormous breadth of its research areas, despite its small size within the Institute. Currently consisting of eight research scholars, a post-doctoral fellow and several collaborators from two Schools in NIAS and from ten institutions across India, Australia, Japan and the United States of America, it is the only group in the country that is currently working in the area of social cognition, communication and culture in any animal species, the only group that has been monitoring a primate population and tracking the life-history strategies of more than 750 individually identified animals continuously over twelve years, one of the few groups in the world working on the behavioral ecology of nocturnal primates in the wild, and the only group in India that has been credited with the discovery of a new primate species.

The Programme has been implemented several projects over the last year. These are briefly described here.

### A. ECOLOGY, DEMOGRAPHY, BEHAVIOUR, GENETICS AND CONSERVATION OF SOUTHERN INDIAN DIURNAL PRIMATES

#### 1. **Distribution, Morphology, Behavioural Ecology and Phylogenetics of the Bonnet Macaque: A Comparative Account of the Two Subspecies**

The bonnet macaque, a ubiquitous but endemic primate of peninsular India, has been celebrated through art, sculpture and literature as an integral part of southern Indian culture for almost over two thousand years. And yet they know so little of this species, considered one of the most important agricultural pests. The bonnet macaque is believed to consist of two subspecies with subtle morphological differences, with the southern subspecies restricted to southeastern India.

Over the last year, they have examined the morphology, demography and life history strategies of identified individuals in selected troops of the two subspecies in two protected areas – Bandipur National Park and Kalakad-Mundanthurai Tiger Reserve – within their respective distributions. This investigation, the fieldwork for which was completed last year, thus aims to confirm the biological legitimacy of the two subspecies using several alternative empirical field and laboratory approaches, including geographical distribution, morphometric analysis and population genetic differentiation. The laboratory component of the analysis has also been finished. They propose to integrate all the findings and publish the complete results of the study in the coming year.

#### 2. **Demography, Ecology and Social Evolution in Wild Bonnet Macaques**

They have also been continuing a long-term field project, begun in 2000 and proposed to continue for twenty years, investigating the demographic structure, population dynamics and socioecology of a population of wild bonnet macaques in the Bandipur National Park – Mudumalai Wildlife Sanctuary complex in the states of Karnataka and Tamil Nadu.

#### **Members:**

Prof Anindya Sinha, *Anchor*  
Dr Sindhu Radhakrishna  
Dr VV Binoy,  
*Post-doctoral Fellow (DST-CSI Initiative)*  
Mr Subhajit Saha,  
*Junior Research Fellow*

#### **Programme Collaborators:**

Prof Anitha Kurup  
Dr Rajesh Kasturirangan  
Ms Rolla Das  
Mr Robin V Vijayan

#### **Doctoral Students:**

Mr Subhankar Chakraborty  
Mr Mayukh Chatterjee  
Mr Sartaj S Ghuman  
Ms Shreejata Gupta  
Mr Rishi Kumar  
Ms Asmita Sengupta  
Mr Narayan Sharma



During the last year, they have continued their demographic monitoring of twenty-two troops of the species and concluded quantitative observations on the socioecology of five of these groups. During this work, they have been able to document the influence of the tourist traffic through these sanctuaries on the evolution of a new unimale form of social organisation in this species, characterised by certain unique demographic and behavioural features. Their studies on the socioecology of selected multimale and unimale troops in this population have allowed them to evaluate the ecological and anthropogenic factors that may have influenced the trajectories of social change in this population.

### **3. Social Organisation and Social Relationships in Wild Bonnet and Rhesus Macaques**

They have also completed and begun to publish the results of a field study on the demography and socioecology of pure and mixed-species troops of rhesus and bonnet macaques in the states of Andhra Pradesh and Maharashtra. Two important accomplishments of this project include the delineation of the distribution boundary of rhesus and bonnet macaques in peninsular India, and studies on the behavioural ecology, demography and conservation status of the two species and their mixed troops in selected sites in western Maharashtra.

## **B. ECOLOGY, BEHAVIOUR AND CONSERVATION OF NORTHEAST INDIAN DIURNAL PRIMATES**

### **1. Community Ecology and Conservation of Primate Communities in the Lowland Rainforests of the Brahmaputra Valley, Assam State**

They are continuing their research project on the distribution and community ecology of four macaque species – the Assamese macaque, pigtailed macaque, rhesus macaque and the stump-tailed macaque, together with the hoolock gibbon and the capped langur – in the lowland rainforest fragments of the Upper Brahmaputra Valley in Assam.

Over the last year, they have completed a detailed observational study on the resource utilisation, competition and niche partitioning displayed by the above-mentioned primate community in the Hollongapar Gibbon Wildlife Sanctuary of upper Assam. This project is also evaluating the survival status of these endangered primates and devising conservation strategies for the endangered populations of these species. Local people – students, teachers, researchers, conservationists and forest management personnel – in upper Assam have been trained over the last five years in some basic methodologies to enable them to monitor specific macaque communities, identified as threatened, and implement appropriate management strategies for their conservation.

### **2. Distribution and Conservation Status of the Arunachal Macaque Species Complex in Arunachal Pradesh State**

They have been continuing their field surveys to document the distribution and conservation status of the recently discovered Arunachal macaque, with particular reference to its conflict with the local indigenous people, in central Arunachal Pradesh. Interview surveys were conducted in several districts of the state during last year in an effort to evaluate the conservation strategies that may need to be developed to protect this macaque in the future.

## **C. DISTRIBUTION AND CONSERVATION OF THE TWO NOCTURNAL INDIAN PROSIMIANS IN SOUTHERN AND NORTHEASTERN INDIA**

### **1. Distribution, Abundance and Conservation Status of the Slender Loris in the Eastern and Western Ghats, Southern India**

The studies on the slender loris has been continuing to explore the geographical range limits of the two Indian subspecies, the Mysore slender and the Malabar slender loris, their population densities, and factors affecting their abundance in southern India.

Apart from exploring the distribution patterns of the two subspecies, an important aim of the study has also been to examine the conservation status of the species, with particular reference to the effects of hunting and habitat degradation. Information collected during this study would also provide a broader perspective of differences in landscape and faunal assemblages in the Eastern and the Western Ghats. The study is thus not only directly relevant to the conservation of the slender loris, but would also enhance the understanding of biodiversity of the Eastern and the Western Ghats.

## **2. Population Survey of the Bengal Slow Loris in Northeastern India**

The project on the Bengal Slow Loris, initiated two years ago, surveyed forested areas in the state of Arunachal Pradesh in northeastern India, in order to estimate the population status of this highly endangered, though virtually completely unknown, species. The species is seriously threatened by hunting and deforestation in northeastern India and yet, due to a lack of information about its behaviour or ecology, stable conservation measures cannot be initiated to ensure its survival.

This study is part of a long-term effort to map the distribution of the species in all the states of northeastern India, determine critical conservation threats to its survival and study the socioecology of the species. Thus, the goal of this project is not only to achieve immediate management measures but also to work towards a long-term effort that will result in more enduring conservation strategies for the Bengal slow loris in the country.

## **D. INDIVIDUAL TEMPERAMENT, SOCIAL COGNITION AND COMMUNICATION IN NONHUMAN PRIMATES, HUMANS AND FISH**

### **1. Social Cognition, Communication and Culture in Wild Bonnet Macaques**

One of the long-term interests has been to investigate the social cognitive abilities of wild bonnet macaques, particularly from the perspective of both distributed and/or embodied cognition as well as individual internal processes such as theory of mind. The earlier studies had focused on specific behavioural processes including the acquisition of social knowledge and tactical deception in this species.

Over the last year, they have been continuing the exploration of these processes and their interactions in wild bonnet macaques, drawing upon inter-disciplinary approaches such as observational studies of behaviour, philosophical analyses and mathematical modelling. They have also continued to document behavioural transmission in this macaque and are currently investigating the cognitive processes underlying tactical deception in wild groups of this species.

### **2. Temperament and Personality in Wild Bonnet Macaques**

Personality, from an evolutionary perspective, represents a meta-category of the output of a suite of species-typical, relatively domain-specific, evolved psychological mechanisms designed possibly in response to the social adaptive problems recurrently faced by the primate ancestors.

Early last year, they initiated a study on the evolutionary reconceptualisation of the development, structure, and processes of human personality through a closer understanding of the nature of temperament/personality in nonhuman primates that live in complex social groups, often in changing environments. They are currently in the process of devising novel methodologies that could be employed to not only define but to gain deeper insights into several issues of personality in a nonhuman primate species, typically characterised by remarkable variation in individual life-history strategies. These include, but are not restricted to, consistency/variability in personality traits,

individual differences against the background of a ubiquitous species-typical nature, sex differences and similarities, age-graded and developmentally contingent personality phenomena, and the contextual determinants of personality.

### **3. Gestural Communication in Humans**

Gestures are discreet, contextual bodily acts that appear to be intentional and form an intrinsic part of the non-verbal language system. The project, the empirical component of which was initiated last year, is attempting to analyse and understand the conceptual complexity of gestures as a medium of communication, deeply embedded in a matrix of speech, gestures and sociocultural intercourse. They also hope to unravel the cognitive and neurobiological mechanisms underlying the creation and comprehension of different categories of gestures in accordance with differences in their encoding and function. Finally, they plan to characterise some of the Indian languages such as Bangla and Kannada in terms of their gesture richness and the frequency of use of such gestures by native speakers, and follow this up by analysing the patterns of gestural code switching across languages by Indian bi- and multilinguals in different linguistic contexts.

### **4. Mechanical and Social Cognition in the Climbing Perch**

Cognitive abilities had traditionally been thought to be a uniquely human capacity until several authors established the existence of cognitive capacities comparable to that in humans in many species of mammals, some birds and fish. The currently prevailing view in evolutionary cognitive psychology thus accepts the possible continuity of phylogenetically shared core systems from nonhuman species to that of their own. Recent investigations have claimed that fish, animals residing at the base of vertebrate evolution, are not 'organisms with a three-second memory' but also possess complex cognitive abilities and may even have culture and consciousness comparable to that in advanced vertebrates. A comparative analysis of the cognitive capacities of animals is essential not only to trace out the evolutionary biology of human cognition but also to unravel the fundamental difference in these abilities across different animal taxa.

Last year, they initiated a project that aims to test whether a freshwater fish, the climbing perch, possesses certain cognitive abilities and to examine the underlying mechanisms responsible for the execution of these phenomena. The abilities that they have begun to examine include visual recognition of conspecific and heterospecific individuals, use of numerical information to discriminate between small, discrete quantities, and the application of transitive inference or the deciphering of the relationship between pairs of non-adjacent elements through the ordering of known adjacent elements. They also propose to examine, to a limited extent, the ontogenetic and phylogenetic bases of these abilities in the climbing perch and closely related anabantid taxa.

## **E. MOLECULAR, POPULATION AND BEHAVIOURAL GENETICS OF INDIAN MACAQUES**

### **1. Phylogenetics and Phylogeography of Bonnet, Assamese and Arunachal Macaques**

This collaborative project has been exploring the molecular phylogeny of the *sinica* group of macaques, including the Arunachal macaque species complex, Assamese macaque and the bonnet macaque. They have already determined the exact phylogenetic position of the Arunachal macaque and the macaques of central Arunachal Pradesh within this species group.

During the last year, they have begun to employ species-specific microsatellite DNA sequence probes to investigate the population genetic structure of the Arunachal macaque, the macaques of central Arunachal Pradesh and the Uttarakhand macaque, and the molecular population genetics of bonnet

macaques over its entire distribution range in peninsular India. As mentioned earlier, they have also been exploring the subspecies status of the bonnet macaque using a molecular taxonomic approach. Their most noteworthy achievements over the last two years include a complete characterisation of about thirty bonnet macaque and Arunachal macaque microsatellite sequences and the successful isolation and amplification of both mitochondrial and nuclear DNA from faecal samples.

## F. THEORETICAL ANALYSIS AND COMPUTATIONAL MODELLING OF THE STRUCTURE AND DYNAMICS OF PRIMATE SOCIETIES

### 1. Social Network Analysis of Bonnet Macaque Societies

The research on primate societies has so far implicitly assumed that social complexity arises due to cognitively sophisticated decision-making processes exercised by each individual on the basis of individually acquired and processed information. Group-level dynamics of complex primate societies could, however, also be explained by more parsimonious, non-cognitive alternative hypotheses arising from general individual-based rules, as predicted by principles of self-organisation and chaos.

Last year, they initiated an investigation into appropriate agent-based models that could account for several emergent properties of the bonnet macaque social networks that they have earlier observed. They are interested in the role played by interactions between general rule-based behaviours and individual-specific cognitive behaviours in the emergence of social networks such as those of cercopithecine primates, which perhaps represent an intermediate stage between the simpler prosimian groups and the much more complex human societies.

### 2. Development of Statistical Methods and Computational Tools

This project, being conducted over the last two years, aims to explore the possibility of developing more robust statistical methods, computational tools and functional databases to organise and analyse long-term data on social dynamics and individual life-history strategies that are being collected on wild bonnet macaques over the last twelve years.

## G. ECOLOGY, BEHAVIOUR, GENETICS AND CONSERVATION OF BIRDS AND MAMMALS IN THE WESTERN GHATS MOUNTAINS, SOUTHERN INDIA

### 1. Demography, Ecology, Behaviour, Population Genetics and Conservation of an Endemic Bird, the White-Bellied Shortwing

The white-bellied shortwing is a threatened bird, which lives almost exclusively in the shola patches of the Western Ghats Mountains. They have been studying its ecology, demography, behaviour, genetics and conservation over the last six years, especially across isolated habitats exhibiting varying levels of ecological and anthropogenic disturbances.

Over the last year, they have completed the investigations into (1) the population dynamics, foraging ecology and vocal communication of populations in natural forests and along a disturbance gradient, and (2) the population genetic structure of the species and the molecular sexing of individuals. The results indicate that populations separated by appreciable geographical distances and/or severe anthropological disturbances are genetically distinct from each other to varying degrees; these populations thus represent 'sky-islands' in the high-altitude shola forest patches of the Western Ghats.

During the last year, they have also completed the examination of the breeding song variation across two isolated, genetically different populations of the bird and also between two genetically similar

populations in a single area separated by deforested lands. They have found that all three populations are significantly different from each other with most difference between the genetically different populations across the two isolated populations. They have also found that in each population there are individuals that sing songs that are typically of another population while some individuals sing only songs of its own type. The preliminary results thus imply cultural differences between populations isolated by fragmentation while corroborating accepted patterns of congruence between song and genetic divergence across isolated habitats.

## **2. Behavioural Ecology and Conservation of Flying Squirrels**

Flying squirrels are nocturnal, arboreal small mammals, distributed largely in the fast disappearing tropics of south and southeast Asia. India has upto eleven species of flying squirrels, and two of these are distributed in the Western Ghats: the endemic and vulnerable Travancore flying squirrel and the Indian giant flying squirrel.

During the last year, as part of the project on the behavioural ecology and conservation of these two species, they have completed the studies that explored whether the two species are sympatric across different forest types and altitudes, and to record their natural abundance levels in such habitats.

It is hoped that these detailed field studies will not only enable us to understand the field biology of these virtually unknown species of mammals and birds better but also allow us to frame conservation strategies for them as they continue to be highly endangered in their natural, often fragmented, habitats of the Western Ghats mountains of southern India.

## **H. HUMAN-WILDLIFE CONFLICT AND COOPERATION**

The interaction between humans and wildlife is also an important component of conservation. This relationship could range from conflict to co-existence and to co-operation, and is typically influenced by a number of factors. Attempts to understand human-wildlife interactions often tend to stereotype both human communities as well as wild species, when in reality, both are multidimensional in their makeup. Understanding the complex dynamic that drives this interaction can be vital in planning management strategies to deal with present or potential conflict.

They have recently completed one project (described last year) but have been continuing three others that are exploring different dimensions of human-wildlife conflict, with an ultimate objective of understanding and evaluating possible mitigation strategies and developing conservation plans for the species concerned.

### **1. Rhesus Macaque-Human Conflict in Northern India: Attitudes and Perceptions**

Primates occupy a unique place in Indian society and culture. Various viewed as pets, playfellows, deities, and pests, they serve to provide amusement and are even seen as objects of reverence and affection in some parts of rural and urban India while being reviled as scourges and 'simian terrorists', in other areas, especially when they raid cropfields and kitchens. Although primates have always coexisted with humans in India, often amicably enough, increasing populations and decreasing resources have turned this relationship more fraught over the past few decades. And this situation is, perhaps, most forcibly expressed in the case of the rhesus macaque in northern India.

The study, completed last year, has documented the nature of the rhesus macaque-human conflict in selected villages in the affected states of Himachal Pradesh in order to evaluate the attitudes and perceptions of the local agricultural community towards problem macaques. The specific objectives of

the study were thus to assess the nature of human-rhesus macaque conflict in these villages, evaluate the extent of crop-raiding by the macaques, assess the socio-economic impact of such crop-raiding, and evaluate the attitudes and perceptions of the local community towards the rhesus macaque and its conservation.

## **2. Human-Elephant Conflict around Bannerghata National Park, Karnataka State**

Human-elephant conflict has emerged as one of the pressing issues influencing prospects of long-term conservation of the Asian elephant in India. It has the capacity of turning the tide against elephant conservation and making decades of effort in protecting the species worthless. Such conflict is more pronounced in fragmented elephant habitats, the norm in human-dominated elephant range countries, and it is thus crucial that they understand the behavioural ecology of elephants in response to resource availability and human disturbance in such habitats.

Last year, they completed a preliminary study that attempted to estimate resource availability and human disturbance in the human-dominated elephant habitats around the Bannerghata National Park and evaluate the demographic, foraging, social and ranging behaviour of elephants in this area. The data thus collected are being currently analysed to assess the behavioural adaptations of elephants to the prevailing conditions of resource availability and human disturbance, the nature of interactions between humans and elephants, the possible temporal and spatial separation between the two species and to develop management strategies for the affected elephant population.

## **3. Irrawaddy Dolphin-Human Interactions at the Chilika Lagoon, Orissa State**

In this study, which was completed last year, they used the interaction between the Irrawaddy dolphin and fishers of Chilika lagoon as an example of a human-wild species relationship. The objectives of this study were to (a) understand the feeding behaviour of dolphins at fishing nets, (b) determine perceptions of fishing communities towards the Irrawaddy dolphin at Chilika Lagoon, and (c) explore the socio-economic, political, historical, ecological and cultural drivers of fisher attitudes towards dolphins.

The initial results from this project indicate that Irrawaddy dolphins are fairly dependant on fishers as they spend 60% of their time barrier foraging at stake nets. Fishers, on the other hand, are mostly positive to neutral in their attitude towards dolphins, with traditionalism and proximity to dolphins being important variables in influencing their dispositions. As preliminary studies indicate that the population of Irrawaddy dolphins at Chilika lagoon is low and decreasing, the importance of preserving the relationship between fishers and dolphins is apparent, especially as local stakeholders will have to actively participate in mitigating human-related dolphin mortality in the future.

## **I. CONSERVATION EDUCATION**

### **1. Conservation Education through Citizen Science: A Pilot Study in Malappuram District, Kerala State**

The need to implement stringent and decisive conservation measures in a populous and biodiversity-rich country like India is well acknowledged; the actual implementation of public education and awareness in order to protect the biological resources is, however, not an easy task. As a step towards realising the goal of integrating conservation education into science education in schools, they embarked upon a project of developing conservation education through citizen science. The more specific aims of the project are to improve students' understanding of biodiversity and raise awareness about threats to biodiversity.

In the pilot phase of the project initiated last year, they conducted a study in the Malappuram district of Kerala, involving students in the age group of 13-15 from 15-20 schools in the district. The study investigated school-children's knowledge of animal species and their attitudes towards animal conservation. Preliminary results from the study revealed that despite the lack of any stimulating resources within the formal process of teaching, children possessed significant knowledge regarding the identity wild animal animals. However, such knowledge was also fragmentary, underscoring the need for holism and a greater emphasis on the local in environmental teaching in biodiversity-rich regions. They propose to broaden the scope of the project by extending the study to other parts of India.

**Members:**

Prof Dilip R Ahuja, *Anchor*  
Prof DP Sen Gupta

**Post-doctoral Associate:**

Dr Hippu Salk Kristle Nathan

**Research Consultant:**

Mr Gautam Narasimhan

**Doctoral Students:**

Ms Neesha Dutt  
Ms Priyam Laxmi Borghian

c. ENERGY AND ENVIRONMENT POLICY PROGRAMME

The Programme for Research on Energy and Environment Policy at NIAS is devoted to exploring and finding solutions to some of India's vexing problems that also exacerbate environmental problems, including climate change. The Centre would be focused on policy relevant analysis useful for decision-making in the country. Its guiding principle is to suggest solutions that do not create or exacerbate a different set of problems while trying to solve one set. While the failure to provide adequate energy supplies will prove to be a damper on India's economic growth aspirations, each of the energy sources that they could tap have their own constraints to rapid growth.

India has the dual problem that while providing clean, reliable and affordable energy services for continued economic growth to those with access, it has the obligation to provide similar services to hundreds of millions currently unserved. In order to sustain its current economic growth rate, India has to increase its energy production capacity by 10,000 MW every year. In order for this to be socially sustainable, the production of energy has to pay increasing attention to adverse social impacts (e.g., displacement, resettlement and rehabilitation of people) and to be environmentally sustainable, to the adverse environmental impacts which at the global scale include climate change, air and water pollution at the regional scale and land degradation at the local level. To maintain reliability, the security of supplies has to be ensured.

The objective of the Programme is to recommend and help facilitate implementation of policies that not only mitigate adverse environmental impacts but also is aligned with the complementary goals of energy security, geopolitical risk reduction, and equitable development of society. To increase the odds of successful implementation, the Programme seeks to provide a forum for coordination between industry, government, researchers and civil society.

**Summary of Work Done:**

**Year-Round Daylight Saving Time Will Save More Energy in India than Corresponding DST or Time-Zones:**

Many countries have experimented with daylight saving time (DST) to save energy and to align human activities more closely to the daily cycle of light and darkness. Using a novel methodology, they estimated the year-round energy savings to be obtained from advancing Indian Standard Time (IST), from the introduction of DST, and from dividing the country into two time zones. They found that the option of advancing IST consistently saves more

energy than the corresponding DST option, which in turn saves more energy than the corresponding time zones option. This is because the energy benefits of advancing IST accrue for the entire year throughout the country, whereas the benefits of DST are confined to summer months and the benefits of two time zones are largely in the lower energy consuming eastern region. They recommend advancing IST by half-hour to being six hours ahead of UTC. This confers the advantages of DST and time zones without their disadvantages and is forecast to save more than 2 billion kWh of electricity every year during evening peaks that are difficult to supply. While these results are India-specific, similar exercises would be useful to many other countries.

#### **Bangalore Round Table on the Durban Platform for Enhanced Action:**

India is entering a new round of negotiations to decide the terms of a new global agreement on climate change. This round of negotiations is to conclude by 2015 with an agreement that will be implemented by 2020. Within this context, NIAS convened a Round Table on 31 March, 2012 consisting of representatives of government and academia to assess the areas of research and study required such that India can enter into the upcoming negotiations with robust and defensible positions. The outcome of this Round Table is a policy paper (currently undergoing review) that outlines the strategic and tactical elements that should be prioritized.

#### **d. INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME (ISSSP)**

The International Strategic and Security Studies Programme is engaged in research related to national and international security issues. The emphasis of research is towards integrating complex elements of science and technology with policy, organizational and institutional arrangements. Rapidly changing geo-political and technology adaptation scenarios affect the national and international strategic conditions and the research carried out in the Programme reflects this. Current and emerging scenarios relating to nuclear, missiles and space weapons, Terrorism and China are reflective of such an impact and have formed the core area of research. Notably, the importance and pivotal role of net-centric warfare was evident in the US engagements in the Gulf War. Concepts of future net-centric wars in the Indian context have become relevant and important aspects of study. Terrorism has become a major national security concern warranting critical study of the social, cultural and fundamental issues involved. In addition, the strategic and security studies programme facilitates exchange of views, information and knowledge among interested groups through conferences, workshops and round tables. There are informal collaborative arrangements with the King's College, London (Department of War Studies) and MIT, Boston (Program in Science, Technology and Society). The Programme's commitment to using knowledge to help improve understanding between countries is reflected in the continuing and ongoing track-two dialogue process with the Committee on International Security and Arms Control (CISAC) of the US National Academy of Sciences.

The mainstay of the Programme is the five year (2008-2013) DRDO sponsored study relating to "Science and Technology Dimensions of National Security". The principal objective of the project is to build up a science and technology focused multi-disciplinary capability in the field of strategic studies at NIAS. While the MOU with DRDO broadly outlines the parameters of the 5 year study, specific topics of study get outlined in the biannual review taken by DRDO. Mid-term review of the Project was done in March 2011 and the review committee expressed satisfaction over the results produced so far. The committee also

#### **Members:**

Prof Rajaram Nagappa, *Anchor*  
Prof S Chandrashekar  
Prof S Gopal  
Dr Manabrata Guha  
Prof Saurabh Kumar  
Dr Nabeel A Mancheri  
Dr M Mayilvaganan  
Prof N Ramani  
Prof Lalitha Sundaresan  
Dr Arun Vishwanathan

#### **Doctoral Students:**

Mr BR Guruprasad  
Mr Murali Murti  
Mr Toby Simon



recommended the priority areas of study that needs to be taken up in the second half of the project duration. In addition, new projects study on Future War under Emergent Conditions was approved by the DRDO authorities. The project will be of one year duration and the project funding of Rs.50 Lakhs will initially come from the on-going DRDO Project. The study is expected to identify areas of future exploration and it is likely that separate funding will be earmarked for later continuation. The second mid-term review by DRDO took place in December 2011.

The Programme also carries out studies specific to User defined needs of other institutions as well as on subjects of topical interest and two proposals are under active consideration of the sponsoring agencies.

### Topics of Study

- ✧ *Update of Chinese and Pakistani Ballistic Missiles*  
The performance of the missiles was updated using the in-house developed trajectory programme which includes the effect of earth rotation.
- ✧ *Missile Trajectory*  
The trajectory model has been modified to include terminal maneuver of the reentry vehicle. An excellent user interface has been developed for easy input and output handling. The typical plots are either, time vs specific performance parameter or one parameter vs other parameter. Significant ones are Latitude vs Longitude and Latitude vs Altitude plots. These can be done either on 2-D (Lat-Lon) or 3-D (Lat-Lon-Alt). The 2-D plots in a variety of projections are possible. The 3-D plot is interfaced to Google Earth.
- ✧ *Template for Innovation*  
Presented to the DRDO review team in October 2010. DRDO will examine the possibility of adopting the template.
- ✧ *Consolidation of Work on Single Crystal Turbine Blade Material Development and Application in China*  
Report has been prepared and published.
- ✧ *Terrorism Studies*  
Cataloguing of terrorism incidents, type of devices used, casualties have been collected and catalogued with an aim to examine if any patterns are discernible. Members made presentation in the Conference on Bioterrorism and its likely impact on Maritime Security conducted by Goa University in December 2011.
- ✧ *Study of Integrated Air Defence System*  
The study examines the critical design features of an ideal integrated air defence system. Case studies of Pakistan and China are included. The study is in progress taking additional parameters.
- ✧ *Nuclear Weapons in Relation to India's External Strategic Environment*  
Review of literature on all related issues, nuclear disarmament in particular and the changing politico-diplomatic equations in the Asia-Pacific region. A paper has been generated.
- ✧ *Analysis of Anti-Ship Ballistic Missile Feasibility*  
The scope of study includes issues of long range detection using over-the-horizon radar, detection uncertainties, complementary utilization of space assets, missile trajectory shaping

and warhead maneuvering requirements to target aircraft carriers. The study has been completed and report released.

- ✧ *Political Economy of India's Free Trade Agreements*  
The study analyses the economic, political and strategic motives behind Indian FTA's.
- ✧ *Indian Strategy in the Eastern Oceans*  
The study aims at examining India's stake in Indian Ocean and how does New Delhi perceive this region in terms of India's evolving strategic interests. The research also intent to building strategic-military scenarios.
- ✧ *Emerging Concepts of War*  
Research study on war under emergent conditions is taken up. The task is expected to be completed by mid-2012.
- ✧ *Environmental Impacts of Nuclear Weapons*  
A sponsored study on the environmental impact of nuclear exchange has been taken up. The first part of the report is under finalization
- ✧ *Study of Rare Earth Elements in China— Growth, Strategy and Implications*  
The study has explored the strategic dimensions of China's advance planning in the application rare earth elements in the hybrid automotive sector.
- ✧ *China S & T*  
The three studies listed above show the approaches China has taken in critical S&T elements. The single crystal turbine blade material development shows the non-utilisation of a technology successfully developed in the laboratory; the ASBM study shows the foresight and synergy among diverse players in policy forming, multiple technology development/ utilisation and coordination between policy, strategy and implementation; and the rare earth element study shows the critical technology application at the industrial level and China's approach in acquisition and transfer of manufacturing assets to China related to this field.
- ✧ *Pakistan's Science & Technology Capabilities*  
The study examines the capabilities of Pakistan in Science and Technology.
- ✧ *Development of NCW Centric Scenarios*  
Research involves a) developing net-centric warfare scenarios and b) elaboration and further development of a likely scenario.

### **Collaborations**

MOU with Center for Joint Warfare Studies (IDS HQ), New Delhi, December 2011.

MOU with Dr Antoine Bousquet, Birkbeck College, University of London, UK, January 2012.

### **OUTREACH AND OTHER ACTIVITIES**

#### **International Strategic and Security Studies Programme**

French Parliamentary Delegation on Space led by Mr Pierre Lasbordes MP, had discussion with members of ISSSP on space security issues on April 1, 2011. High level US delegation led by Dr Alan Rudolph,

Director of Chemical and Biological Technologies Directorate, Defense Threat Reduction Agency visited ISSSP on April 20, 2011 for discussions. Members of the China Institute of Contemporary International Relations (CICIR) visited ISSSP on April 23, 2011 for discussions. Members from Ecole de guerre visited on May 17, 2011. Discussion meeting with Dr Klaus Lange and Dr Klara Knappe of the Institute of Transnational Studies, Germany Studies of Terrorism in Europe was held on June 27, 2011. Dr S Panneerselvam, Visiting Professor, IIT Chennai (Former Associate Director, DRDL) had discussion on DF-21 re-entry vehicle maneuver requirements on July 15, 2011. A discussion meeting with Prof Bhupendra Jasani estimating uranium ore resources from Space was organised on July 18 and 19, 2011. Sri Radhavinod Raju, IPS (Retd), First Director General of National Investigation Agency gave a talk on *Terrorism in India* on September 6, 2011.

ISSSP organised a national seminar on *Rise of China - Indian Perspectives* on December 20 and 21, 2011. Prof Arabinda Acharya had discussion on *International Terrorism, Terror Financing and Networks* on February 21, 2012. Col S Sobti gave a talk on *Use of Space Based Technologies to Enhance Military Operational and Tactical Effectiveness*, February 24, 2012. ASBM workshop with DRDO and National Maritime Foundation (NMF), Delhi was organised on March 9, 2012. Informal discussion meeting with Mr Sven Jurchewsky was held on March 13, 2012.

**Dr M Mayilvaganan** gave interview to India Today (Tamil) on UN Report on Sri Lanka on April 28, 2011. He also gave interview to SBS *Australia radio* on UN Report on Human Rights Violation in Sri Lanka on, April 30, 2011.

**Mr Gautam Narasimhan** organised NIAS/TiE Earth Hour Event on March 31, 2012. This event was organised in conjunction with The Indus Entrepreneurs (TiE), a non-profit association dedicated to promoting entrepreneurship, NIAS held an event to showcase the opportunities and challenges faced in bringing products and services to help deal with climate change from universities and research labs into the commercial marketplace. Bringing together students, academics, and the private sector, the event featured exhibits, two panel discussions, and the opportunity to network. One panel focused on the personal experiences of those who have attempted to commercialize technologies originating in research labs. The second panel focused on the ecosystem required to successfully bring solutions to market. Speakers were drawn from the incubation cells of premier universities and institutes, policy advisors, venture capital, and representatives of international collaboration agencies.

**Dr Sindhu Radhakrishna** organised a three-credit course on *Basic Primatology*, for doctoral degree students, National Institute of Advanced Studies, Bangalore, February – March 2011.

Theses Guided - Master's Degree: A dissertation entitled "Distribution and conservation status of primate species in Manipur, northeastern India" by Salam Nungshi Devi, in partial fulfilment for a Master's degree, under the aegis of the Forest Research Institute, Dehradun, initiated in February 2012 and currently in progress.

**Prof Anindya Sinha** organised workshops on Asking Questions in Conservation Science (With Charudutt Mishra), Students' Conference on Conservation Science, Bangalore, September 14, 2011 and on Animal Behaviour, YETI 2011 – Young Ecologists Talk and Interact, Guwahati, December 14 and 15, 2011. He organised panel discussions on Research Ethics, YETI 2011 – Young Ecologists Talk and Interact, Guwahati, December 12, 2011; Open Data, YETI 2011 – Young Ecologists Talk and Interact, Guwahati, December 13, 2011 and Cognition to Consciousness, Animals to Humans, Looking Within: An International Conference on Multidisciplinary Approaches to Consciousness, Bangalore, January 6, 2012.

Prof Anindya Sinha coordinated the second day of the conference *Looking Within: Interdisciplinary Approaches to Consciousness* with the theme *Cognition to Consciousness*, January 6, 2012.

Prof Anindya Sinha organised a two-lecture module on *Methods in the Natural Sciences* as part of a three-credit course on *Research Methodologies* for doctoral degree students, National Institute of Advanced Studies, Bangalore, April 2011; A two-lecture module on Foundations of Biological Sciences as part of a three-credit course on Foundations for doctoral degree students, National Institute of Advanced Studies, Bangalore, October-November 2011.

Theses Guided - Doctoral Degree: A dissertation entitled "Distribution, demography and behavioural ecology of mixed species troops of bonnet macaques *Macaca radiata* and rhesus macaques *Macaca mulatta* in peninsular India" by Rishi Kumar, submitted in partial fulfilment for a doctoral degree, National Institute of Advanced Studies, Bangalore, under the aegis of Manipal University, Manipal, February 2011.

Master's Degree: A dissertation entitled "Diet selection by capped langur *Trachypithecus pileatus* in the Hologapar Gibbon Wildlife Sanctuary, upper Assam" by Uddipana Kalita, in partial fulfilment for a Master's degree, Postgraduate Program in Wildlife Biology and Conservation, under the aegis of National Centre for Biological Sciences, Bangalore, initiated in December 2011 and currently in progress. A dissertation entitled "Determinants of dry season-ranging behaviour by Asian elephants (*Elephas maximus*) in a fragmented landscape of the Sigur Plateau, Tamil Nadu, southern India" by Suman R Jumani, in partial fulfilment for a Master's degree, Postgraduate Program in Wildlife Biology and Conservation, under the aegis of National Centre for Biological Sciences, Bangalore, initiated in December 2011 and currently in progress.

Summer Project: A project entitled "Rapid assessment of road mortalities of wildlife species in the Valparai Plateau, Tamil Nadu, southern India", conducted by Abhinav Sur, National Institute of Science Education and Research, Bhubaneswar, May-June 2011.

## NEW STAFF

**Mr Gautam Narasimhan** joined NIAS as a Research Consultant in Energy and Climate Policy in January 2012. He led environmental engineering projects in the US for Malcolm Pirnie (now part of the Arcadis Group) prior to starting their operations in India. More recently, he worked for Shell's Downstream Strategy and Portfolio group in areas such as biofuels, low carbon services, organizational redesign, and new business model development. He holds bachelor's degrees in chemical engineering and public policy from Rice University, masters in environmental engineering from MIT and an MBA from INSEAD.

**Dr Hippu Salk Kristle Nathan** joined NIAS as Post Doctoral Associate as February 24, 2012. He is an Engineer-turned Development Researcher with an M.Tech. in Thermal Engineering from the Indian Institute of Technology (IIT), Delhi, and Ph.D. in Development Studies from Indira Gandhi Institute of Development Research (IGIDR), Mumbai. Prior to his Ph.D., he worked as a software professional at Infosys Limited, Bangalore and Geometric Global, Mumbai. As a part of Civil Society Interventions through Peoples Foundation for Scientific Socio Economic Development, he has been involved in education, health, and livelihood issues in urban slums and remote villages of Maharashtra, Odisha, and Uttar Pradesh. Dr Nathan's research interests include economic measurement, energy, human development, disarmament, world peace, socio-political reform, and sustainable use of resources.

**Dr Arun Vishwanathan** joined NIAS as Consultant on October 3, 2011. He was previously Assistant Director at National Security Council Secretariat (NSCS), Government of India from September 2008 to September 2011. Prior to NSCS he was Junior Research Fellow at Indian Pugwash Society, New Delhi from August 2005 to August 2008. Dr Arun obtained his Ph.D. from the School of International Studies (Diplomacy and Disarmament), Jawaharlal Nehru University (JNU), New Delhi in 2012. He has completed his M.A. in International Relations from JNU in 2004 and B.A. Political Science from Hindu College, University of Delhi in 2002. His research interests cover policy oriented issues in Disarmament and International Relations.

School of

# Social Sciences

Prof Anitha Kurup, *Professor*

Prof Narendar Pani, *Professor*

Prof Carol Upadhya, *Professor*

Prof AR Vasavi, *Professor (till April 30, 2011)*

Prof Lakshmi Subramanian, *Shri TV Raman Pai Visiting Professor  
(February 17 to March 31, 2012)*

Prof SS Meenakshisundaram, *Visiting Professor*

Dr Solomon Benjamin, *Associate Professor (till June 30, 2011)*

Dr Chidambaran G Iyer, *Assistant Professor*

Dr M Amarjeet Singh, *Assistant Professor*

Dr Shivali Tukdeo, *Assistant Professor*

Dr N Shantha Mohan, *Research Scientist*

Dr Ritajyoti Bandyopadhyay, *Post-doctoral Associate*

Dr Leah Koskimaki, *Research Fellow*

Ms Parvathy Jayan, *Research Associate*

Ms Amita Basu, *Research Assistant*

Mr Ajay Chandra, *Research Assistant*



Stakeholders Meeting held in Guntur, Andhra Pradesh as part of the Provincial Globalisation Programme (January 2012)

The School of Social Sciences consolidated its efforts to research problems facing India's economy, polity and society, and to disseminate the results to the bureaucracy, industry and civil society. In keeping with the overall thrust of the institute towards programmes, the school played a leading role in five programmes: water, urban studies, education, interdisciplinary approaches to economic issues, and conflict resolution.

## PROGRAMMES

### Members:

Prof Narendar Pani,  
*Anchor*  
Dr M Amarjeet Singh

### a. CONFLICT RESOLUTION PROGRAMME

The Conflict Resolution Programme was set up in 2009 with the aim to develop an inclusive knowledge base that would help effectively address major conflicts that affect India or have the potential to do so. If they classify the work required to be done in the programme into three main categories—backgrounders, research and courses, the work done so far has been concentrated in the first two areas. The programme has not so far been able to conduct any courses. The initial positive response to the backgrounders suggests that they are useful to administrators, media personnel and others seeking their first information on a particular conflict. It is also hoped that as the series grows it will act as an effective summary of scholarly information available on conflicts across the country. The backgrounders are targeted at the intelligent layperson who requires a quick and yet reliable account of a specific conflict. By their very nature these backgrounders attempt to provide a picture on which there is some measure of consensus among scholars. Even as they are quite aware that this is not always possible, a concerted effort is made to provide a view as close to the consensus as possible.

Research has been carried out in a number of areas of conflict:

#### **Identity Politics**

The issue of identity has been central to a large number of conflicts. At the core of understanding this feature is the concept of identity itself. Much of the literature on identity revolves around the debate on associating identity politics with affiliation to a singular identity. While supporters of singular affiliation argue for the dominance of the major identity, the critics focus on the fact that identities can be robustly plural, thereby implying limitations to identity politics based on singular affiliation. A study by **Prof Narendar Pani** using empirical evidence from Bangalore argued that it is possible, and indeed perfectly consistent, for a robustly plural society, with a variety of identities to choose from, to support forms of singular affiliation identity politics. A free multiparty

democracy can then exist even when its politicians are not committed to moderate ideological stances, because its people keep changing the choice of the identity they choose to emphasise.

In trying to understand the working of identity politics it is useful to use some of the tools Gandhi developed. The paradox of Gandhi being treated as an ivory-tower idealist despite being one of the most successful political leaders of the twentieth century, can be traced to his using a method to understand social processes that is fundamentally different from the dominant tendency to reduce reality to an underlying system. The fact that his method did not fit into the ideological systems that dominated the twentieth century contributed to it being ignored. A study by Prof Pani sought to revisit the Gandhian method by first identifying the limitations of viewing democracies entirely in terms of systems. It then went on to explore Gandhi's alternative view of reality as a mass of actions. It finally uses this philosophical method to understand a rather violent example of identity politics, namely the destruction of the Babri Masjid in Ayodhya.

The Gandhian method has also been used to explore the various dimensions of conflict. There is a growing recognition that water conflicts extend well beyond issues of water scarcity. Perceptions of scarcity are themselves based on assumptions of what is sufficient. And what is considered sufficient is in turn influenced by a number of social, economic and even political considerations. There is thus a need for a more inclusive method of understanding water conflicts and the institutions needed to address them. Among such alternative methods is the one used by Mohandas Karamchand Gandhi. Prof Pani adopted the Gandhian method to reinterpret the interstate dispute over the water of the south Indian river, Cauvery. It then used this more inclusive method to identify the conflict - easing and conflict - enhancing aspects of the dispute. In the process, the limitations of the existing institutions in addressing the conflict become evident.

Another arena for conflict between social groups is reservations. Caste-based reservations of government jobs and seats in educational institutions in India have been associated with bouts of sometimes intense social conflict. The debate on this conflict has been focused primarily on the case for and against reservations per se. Even when variations have been noticed in the degree of conflict generated by reservations across regions, the tendency has been to attribute the differences to local social conditions. Very little attention has been paid to the question of whether the type of reservations implemented in each region influences the nature and extent of conflict. This study by Prof Pani compared the Mandal Reservations with the reservations in princely Mysore in 1921, making the case to distinguish between reservations with exclusion and reservations without exclusion.

In another study on identity and conflict **Dr M Amarjeet Singh** argues that ethnic groups have the impression that adequate share of political power is essential for retaining their sociocultural identity and, more so, for their all round development. Such aspirations are absolutely legitimate, but are subject to some essential limitations, if the aspirations for sociocultural identity and development get necessarily connected with exclusive administrative boundaries for 'self-governance'. Given the extraordinary diversity of the Northeast India's ethnicscape, not only of the plurality but also of shared geographical and cultural spaces among those communities, such demand calls for serious reflection of viability. In other words, granting of autonomy based primarily on ethnic identities and exclusive divides has only added to ethnic polarisation, thus aggravates the appetite for such aggressive postures.

One of the larger platforms where identity politics tends to play out is the entire question of the reorganization of states. Prof Narendar Pani and Dr Amarjeet Singh initiated a study on States Reorganization in India, exploring the extent to which criteria used during the 1956 exercise remain relevant today. This study investigates the context in which reorganization of states was carried out in



1956, and the broad arguments underlying the reorganization of that year. The study then goes on to outline how the basis of these arguments has been altered over the last half a century. This study shows that ever since the reorganisation of states in 1956, the Central Government has reacted to the pressure for the creation of new states on a case-by-case basis, leading to the emergence of new states in fits and starts. But the resistance that is developing to the promise of new states like Telangana suggests that there is no guarantee that newly drawn inter-state boundaries will have universal acceptance. In order to explore ways out of this apparent stalemate this paper takes a closer look at the concept of territoriality. Taking a cue from the distinction made in the literature on globalisation between geographical territory and other aspects of territoriality, they examine the nature of territoriality that is implicit in the demands for redrawing state boundaries. This helps us identify dimensions of the pressure for new states that are not confined to geographical territory. They then argue that there are several dimensions of the pressure for new states that can be better addressed through institutions that focus on other dimensions of territoriality.

In association with the ActionAid, the Conflict Resolution Programme also carried out a study on 'Can dual member constituencies be the way forward for women's reservation?' The findings were thoroughly discussed at a national workshop held at NIAS on the 14th of December 2012. The workshop was attended by scholars, practitioners and activists of diverse conviction. The study seeks to evaluate the option of dual-member constituencies as a way forward for women's reservation, in comparison to the existing option based on one-third reservation of seats for women. In order to do so it first arrives at a set of three criteria: the extent of reservation; the extent to which the proposed model minimizes exclusion; and the impact it will have on the quality of representation in the polity as a whole.

#### **Accords and Other Peace Mechanisms**

Through his work on peace building through peace accords, Dr Amarjeet Singh offers some general lessons to those concerned with improving policies of conflict resolution. Rushing for any peace accords just for the sake of it without proper ground work is counterproductive. Since internal rivalry is common among the insurgent groups it is advisable to work out reconciliation first and then pursue negotiations. Monitoring of the implementation of the accords is another area that requires special attention at the highest level of the government.

In addition to specific accords there is also a role to be played by institutions that are created to resolve conflict. The enthusiasm in official circles for Tribunals to settle inter-state river water disputes has not been matched by that of the states involved in the disputes. There is some doubt about whether the awards of the Tribunals dealing with the more difficult tasks will be accepted by the states. This throws up a rather fundamental question: What role, if any, can Tribunals play in resolving inter-state river water disputes in India? In order to answer this question, Prof Pani sought an appropriate concept of institutions that would help us understand Tribunals. Based on this concept, he looked at the abstract case for Tribunals. He then went on to look at the issues that emerge in practice, before finally going on to argue that while the Tribunals have an essential role to play in addressing the technical and judicial aspects of inter-state river water disputes, there are other dimensions to these disputes that are equally important to address. Unfortunately, these fall well beyond the capabilities of even the best equipped Tribunal. Thus the effectiveness of a Tribunal depends not just on what it does, but also on what is done to address factors beyond its control.

At the other end of the spectrum from institutions seeking to reduce conflict are the institutions that use the enhancement of conflict to achieve specific ends. Dr Singh completed a study on insurgency and development, taking the case of Assam. Although insurgency cannot be given as an excuse for the lack of development, the study argues that insurgency and its related activities act as one of the principal hurdles to economic development. It concludes with the observation that, at least in India's

Northeast, the peaceful states (states unaffected by insurgency) have achieved faster as well as higher economic development compared to other states affected by prolonged insurgency.

### **Migration and Conflict**

In his work on Migration and Conflict, Dr Amarjeet Singh explored the gradual redefinition of migration as a problem and its instant prominence in the public mind, particularly in Northeast. It also examined how the Central Government responded to the anti-migration propaganda by devising migration control measures. This has been largely ineffective mainly because these measures have ignored the importance of the shared history, geography and economy of the sending and the destination places. Thus, a holistic approach which can safeguard the interests of both migrants and non-migrants has to be worked out.

The research papers have been published in national and international journals. The programme has brought out one backgrounder titled Conflict in Jammu and Kashmir by Dr Amarjeet Singh, and a report titled *Can Dual Member Constituencies Be the Way Forward For Women's Reservation?* by Ms Akila RS, Ms Anamika Ajay and Prof Narendar Pani.

Carrying out this volume of research and backgrounders with a small core group of just one professor and one assistant professor required us to tap knowledge and researchers from other institutions. This has been particularly successful in the case of backgrounders, with the authors of these documents being from both within the Institute and outside. This is a practice they hope to develop further. Ms Swathi Attavar, a graduate student of Cambridge University, during two-month long internship (August-September 2011) with the programme has done a backgrounder on the Bangalore-Mysore Infrastructure Corridor Project.

The programme also has a major outreach effort. The members of the programme have written in the media with one writing around 25 pieces a year in the editorial pages of national papers and magazines. They have also given lectures to various audiences outside NIAS.

### **b. EDUCATION PORTFOLIO PROGRAMME**

In many ways, the education programme at NIAS went through transition, re-organisation and rebuilding over the past year. The milestones this year include **Prof Anitha Kurup's** selection as Fulbright Scholar at the University of California, Davis; a successful completion of dissertation by two of the doctoral students; completion of a number of research reports by the programme; initiation of newer research themes, teaching and mentoring of students, to name a few. Building on decades of field work, the faculty in education have always designed their research work with a conscious effort to link it to wider audiences.

#### **Brief Background:**

The Education Portfolio comprises a wide range of programmes supported by the Sir Dorabji Tata Trust funds. Prof Anitha Kurup and **Dr Shivali Tukdeo** are full time faculty members, along with four researchers, six students and two visiting fellows who are also active members of the group. At the programme, the interlinking of research, advocacy and outreach is carried out through the following three nodal initiatives: 1) Platform for Education Policy 2) Curriculum Exchange Network 3) Research in Critical Areas of Education.

#### **Members:**

Prof Anitha Kurup, *Anchor*  
Dr Shivali Tukdeo

#### **Visiting Faculty:**

Dr Dana L Mitra

#### **Doctoral Students:**

Mr Chetan B Singai  
Ms R Maithreyi

The following are some of the activities during the year 2011-2012:

- ✧ Comprehensive perspective report on Adivasi education
- ✧ Development of a national research initiative on gifted education
- ✧ Formation of an international research network on Life Long Education
- ✧ Participating in national conversations on education policy
- ✧ Research carried out in the areas of higher education, gender, teacher education, philosophy of education
- ✧ Teaching doctoral seminar courses for students in NIAS

As mentioned above, the activities of the programme are carried out within three divisions. Information about each of the three divisions follows:

#### I. PLATFORM FOR EDUCATION POLICY (PEP)

To facilitate the review, reform, and re-formulation of educational policies in the nation, the EDUCATION PORTFOLIO team proposed to undertake reviews of select policies. Collaborating with various educationists and institutions, NIAS was to act as a 'platform' in which discussions, dialogues, and debates were to be undertaken. A key goal was to provide long-term reviews and inter-institutional mentoring and support through which new policies could be implemented and observed over a period of time. The following programmes and activities were conducted during this period:

##### **(a) National Consultation on Education Policy with Specific Focus on Adivasi Education (Anchor: Dr Shivali Tukdeo)**

NIAS in collaboration with Adivasi Academy, Tejgadh, Gujarat, organised a two-day consultation focusing on Adivasi education and alternative ways of policy making, curriculum development and teaching. The consultation was part of the current research and advocacy project of Adivasi education. Together with teachers, policy analysts, alternative educators and the community at large at the Academy, the meetings focused on various issues including administrative structures, institutional setups, policy patterns and community mobilisations in order to think about the challenges of education policy for marginalised groups. Discussions from these meetings will go a long way as NIAS gears up to launch a mentoring programme in the near future for students from disadvantaged communities.

##### **(b) Interactive discussion on the RTE Act: Questions, Review and Implementation (Dr Shivali Tukdeo, Ms R Maithreyi and Mr Chetan B Singai)**

On April 11, 2012 NIAS education programme organised an interactive discussion on the Right to Education (RTE) act. Bringing together scholars, teachers, teacher educators and groups involved in alternative education, the purpose of the discussion was to revisit the provisions of RTE in details, especially the contradictions and challenges that have resulted since the passage of the act. Part of the purpose of this discussion was also to create a network of local organisations and continue to build on collective work in education. A report based on the discussion is in progress.

##### **(c) Research Network on Higher Education**

This year, the education team at NIAS and Christ University, Bengaluru have come together in partnership to start a network of institutions in Karnataka around the pertinent issues in higher education. Following a series of meetings with institutional members, the network has planned its first seminar in March entitled "Transitions in Higher Education: Understanding Policy, Institutions and Impact". This network feeds into some of the other work the education programme including its connection with 'Emerging Directions in Global Education', a consortia of international institutions engaged in higher education. They hope that the institutional collaboration and network within the state of Karnataka will flourish in the years to come.

## II. CURRICULUM EXCHANGE NETWORK (CEN)

Linked to the Platform for Education Policy (PEP) and to some of the on-going innovative research and teaching programmes at NIAS, this initiative seeks to share, exchange, and engage with new curricula for a range of subjects and disciplines. In the past, they have organised meetings focusing on the status of Agrarian and Rural Studies, analysis of the curriculum of sociology in undergraduate levels and research on human genome to name a few. This year, NIAS organised a meeting focusing on the concept of 'Life Long Learning' and the ways in which it makes us rethink about traditional notions of curricula, instruction and student. Prof Soren Ehlers from Aarhus University Denmark was invited to NIAS in November when he delivered a public lecture entitled *From Policy to Practice: Education and Life Long Learning*.

## III. RESEARCH IN CRITICAL AREAS OF EDUCATION

The faculty working on education at NIAS have initiated research on a variety of areas with a conscious effort of linking the research to wider audiences. They have made sure that the research is part of the current knowledge base on education in India. Similarly, the research themes focus on education studies from diverse perspectives. For instance, the research in 2011-12 has concentrated on the following issues: (a) A Comparative Study of Loss of Trained Scientific Women: India US Experience (b) The Education Question From the Perspectives of Adivasis (c) Developing Methodologies for Identification of gifted Children in Science and mathematics in the age group 3-8 years (d) Theorising student-voice in classrooms.

### **(a) A Comparative Study of Loss of Trained Scientific Women: India US Perspective (Anchor: Prof Anitha Kurup)**

Building on her previous work on women scientists in India, this research is part of Prof Anitha's recent work (2011-12) at the University of California, Davis. The main impetus for this research comes from a fairly wide observation that although several women science students are sufficiently motivated to continue their scientific education up to a Ph. D. degree, the number of women pursuing a research based scientific career post-Ph.D. remains disproportionately low. Research studies both in India and the US have concentrated on the drop out of women in science and engineering at the school and undergraduate level paying very little attention to women who drop out from science after acquiring a doctorate degree. Though studies in the west have brought to fore the importance of organizational factors that are responsible for women dropping out of science, there needs to be a more nuanced understanding of how policies of inclusivity, organizational, societal and personal factors interplay to either include or exclude women and the disadvantaged population from formal spaces in science and engineering.

The modalities of data collections are being worked out in the US this year and the results will be disseminated through various forms after the completion of this project.

### **(b) The Education Question from the Perspective of Adivasis (Anchor: Dr Shivali Tukdeo and Prof AR Vasavi)**

For over a year, the NIAS team has engaged with the research and advocacy project focusing on Adivasi Education. This project is supported by UNICEF and it has included several regional meetings, fieldwork, discussions with the Ministry of Human Resources and the Ministry of Tribal Affairs, and meetings with experts to discuss the findings. On January 9, 2012, they presented the final findings at NIAS. The report was brought out in March 2012.

### **(c) Sadgunmanjari: Writing Gender/Caste through English (Dr Shivali Tukdeo and Dr Shefali Chandra)**

Dr Shivali Tukdeo, in collaboration with Dr Shefali Chandra (Washington University, St. Louis), has been working on writing and translating a book that focuses on gender, social reforms and education in

19th century Maharashtra. Conceptualised as *feminist roundtable*, the book will include translation of the original Marathi text Sadgunmajari (1890), with six scholars responding to the text. Translation of the text is complete and they now look forward to the response papers.

**(d) Identification of Gifted Children in Math and Science in India with Reference to the Age Group 3-15 Years (Anchor: Prof Anitha Kurup)**

Few studies in India have looked at identification of and programmes for gifted children. Recent studies in the fields of neuroscience and cognition have established the role of environment in early childhood in facilitating optimal neuronal connections and development. Hence, early identification of gifted children is essential. The project anchored at NIAS has three collaborators engaged in three pilot programs received to identify gifted children in rural and urban settings. This year, the NIAS team worked on consolidating classroom observations and case profiles. A teachers' workshop was organised in Kochi in January as a means to start a series of regional partnerships.

**(e) Theorising Student Voice (Dr Dana L Mitra)**

Much research exists on child participation with NGOs in India, but little focuses on such work within school walls—a concept called student voice. Yet recent Indian educational policy shows interest in activities compatible with student voice and available research highlights promising youth outcomes for those participating in student voice efforts. Dr Dana Mitra, who worked at NIAS as visiting fellow (December 2011 to June 2012) focused on the ways in which youth and adults conceptualize student voice in the various types of schools across Bangalore. Working with one school in depth and carrying out several short-term activities in several schools in the city, Dr Mitra's research looks at both, the elements of structure and participation in education

**Members:**

Prof Narendar Pani, *Anchor*  
Dr Chidambaran G Iyer

**Doctoral Students:**

Ms KG Asha  
Mr K Jafar  
Ms Soundarya Iyer

**c. RBI PROGRAMME ON INTERDISCIPLINARY APPROACHES TO ECONOMIC ISSUES**

**Summary**

The RBI Programme on Interdisciplinary Approaches to Economic Issues seeks to use the knowledge gained from a variety of disciplines to understand economic issues. During the year the programme made considerable progress towards using a multidisciplinary approach to understand rural issues as well as other issues of policy. In a detailed evaluation of the work on the Mahatma Gandhi National Rural Employment Guarantee Scheme in Karnataka used tools from a variety of social sciences to gain insights into the vast diversity in the impact of this programme. At a more theoretical level, the note on the inflationary potential of cash transfers pointed to the varied and sometimes negative impacts of shift from product subsidies to cash transfers.

**Background**

The RBI Programme on Interdisciplinary Approaches to Economic Issues seeks to use the knowledge gained from a variety of disciplines to understand economic issues. Unlike conventional interdisciplinary economics which takes the methods of economics to other areas, the RBI programme seeks to work in the opposite direction. Its effort is to enhance economic analysis by adding to established economic methods the perspectives gained from other disciplines. The programme is funded by interest from a corpus of Rs.75 lakhs. This amount was provided by the RBI in three annual instalments after evaluating the work done in each year.

### **Programme Findings**

During the year the programme made considerable progress towards using a multidisciplinary approach to understand both rural issues as well as other issues of public policy. Continuing its exploration of the rural experience the RBI programme launched an evaluation of the processes of the Mahatma Gandhi National Rural Employment Guarantee Scheme in Karnataka by **Prof Narendar Pani** and **Dr Chidamabaran G Iyer**. The study recognized that there were three perspectives of the scheme, that of the state government, that of the local functionaries, and that of those living in the villages that were supposed to benefit from the scheme. While the perspective of the state government was available from the data put out on the website, the other two perspectives required fresh data. The perspective of the local functionaries was explored through detailed qualitative surveys that captured, among other things, the operation of each of the 80 specific steps that were expected to be carried out by the local functionaries in the implementation of the scheme. The view from the village was captured through a stratified cluster sample spread across the five regions that the study divided Karnataka into. The study resulted in a report that provided specific recommendations to the state government.

The experience of the working of the Mahatma Gandhi National Rural Employment Guarantee Scheme in Karnataka information also allowed us to address larger issues of policy making. Despite sporadic attention paid to the case for 'shock therapy', the conceptualization of the implementation stage of policy making does not always get the attention it deserves. As a result there is inadequate understanding of the precise role this conceptualization plays in the transformation of a policy initiative into practice. Drawing on some of the insights of Amartya Sen, in another context, to identify different approaches to the conceptualization of the implementation of policy initiatives, Prof Narendar Pani and Dr Chidambaran Iyer explored in a paper that the consequences of using what they termed the Greenfield approach in a reality marked by diversity in social, economic and political relations.

The interest of the RBI programme on the shift from product subsidies to cash transfers follows several indication of the government moving in this direction. The Finance Minister announced such a move in his Budget Speech in 2011 and pilot projects were launched in selected districts. The case for this fundamental transformation is built around the widespread belief that corruption has eroded the Public Distribution System, and a major portion of current subsidies is wasted as the subsidized commodities don't reach the poor. It would then be more efficient if, instead of subsidizing the commodity, the money was directly transferred into the bank accounts of the poor. The note prepared by Prof Narendar Pani for the RBI programme pointed out that the simplicity of this argument hid several assumptions. Once the assumptions were made explicit it was clear that they were not realistic, and when they were dropped it was no longer certain that cash transfers would be better than the existing system.

### **Fulfilment of Objectives**

The main objective of the programme is to develop multidisciplinary perspectives that would help us gain a more comprehensive picture of economic issues. Over the year considerable progress was made in this direction. The MGNREGS study used a variety of tools from different social sciences to capture the economic, social and political dimensions of this major policy exercise.

### **Programme Design and Implementation**

The programme is designed to operate at two levels. At one level it consists of specific research projects carried out by the faculty associated with it. At another level it looks to provide opportunities through lectures for the public to interact with those functioning in the realm of ideas.

### **Workshops**

Two workshops were organized during the year as a part of the Evaluation of the Impact of Processes of the MGNREGS in Karnataka. The first workshop on March 28, 2011 at NIAS was based on the draft report

of the study. The participants included a variety of distinguished economists, members of civil society, and administrators Madhya Pradesh, Hyderabad, Delhi, and Bangalore. After the completion of the project a dissemination workshop was organized on June 24, 2011 at NIAS. The larger audience for this workshop included economists, administrators and media persons from across the country.

### **Capacity Building**

During the year the programme demonstrated a capacity to take on larger projects such as the evaluation of the MGNREGS. The programme also developed the ability to bring together leading intellectuals from different fields for intense discussions during workshops.

### **Programme Management**

The programme is run by one Professor and one Assistant Professor. They are subject to all the norms of evaluation that exist at the National Institute of Advanced Studies. As a part of such evaluation, presentations are made by individual faculty on their work during the year. In addition, there is an annual presentation on the programme. There is also considerable scope for informal exchange of ideas.

### **Impact**

The programme has had an impact at several levels. The Planning Commission has invited Prof Narendar Pani to join a panel to monitor the evaluation of the Mahatma Gandhi National Rural Employment Guarantee Scheme across the country. He was also invited to be a part of a committee set up by the Planning Commission to recommend changes in the Mahatma Gandhi National Rural Employment Guarantee Scheme. Dr Chidambaran Iyer presented the findings of the study on MGNREGS at the CEO's workshop organized by ANSSIRD, Mysore on June 27, 2011.

### **Overall Assessment**

The programme has had a very productive year in terms of output. It has also been a year when new initiatives have been launched.

#### **Members:**

Prof Carol Upadhya,  
*Programme Co-Director*  
Prof Mario Rutten (*AISSR, University of Amsterdam*),  
*Programme Co-Director*  
Dr Puja Guha,  
*Research Economist (till August 2011)*  
Dr Leah Koskimaki,  
*Research Fellow*  
Ms Jananie Kalyanaraman,  
*Consultant Researcher and Communications Specialist*

#### **Doctoral Students:**

Ms Sulagna Mustafi  
Ms Sanam Roohi

## **d. MOBILITY AND TRANSNATIONAL STUDIES**

The current project under the Mobility and Transnational Studies programme is entitled 'Provincial Globalisation: The Impact of Reverse Transnational Flows in India's Regional Towns' (ProGlo).

### **Background and Aims**

International migration from India has produced significant diasporic communities in different countries across the world, creating dense transnational networks that link Overseas Indians with their home regions or towns. These networks often serve as conduits through which a range of economic resources, social capital, ideas, and cultural products are transmitted back to India. The premise of this research programme is that such transnational flows are significantly shaping development and socio-economic transformations in several regions of India, especially those with significant patterns of out-migration.

In order to explore these processes comparatively across several regions of India, a five-year international collaborative research programme is being carried out at NIAS under the direction of **Prof Carol Upadhya**, in collaboration with Prof Mario Rutten of the Amsterdam Institute for Social Science Research (AISSR), University of Amsterdam. The programme,

entitled 'Provincial Globalisation: The Impact of Reverse Transnational Flows in India's Regional Towns' ('ProGlo'), is funded by WOTRO Science for Global Development (Netherlands) and was initiated in January 2010. The overall aim of this research programme is to examine the connections between international migration from India, the formation of transnational networks, and social transformations at the regional level. By mapping the flows of resources sent by migrants and diasporic communities to their regions of origin, the research will provide region-specific as well as more general insights into the economic, social, political, and cultural impacts of migrant remittances (both material and non-material).

The programme consists of five independent but interlinked research projects (three PhD and two postdoctoral) located in three different regions of India – central Gujarat, coastal Andhra Pradesh, and coastal Karnataka. Within each region the focus of research is on the key provincial towns and their rural hinterlands (Anand, Guntur, and Mangalore, respectively). The PhD projects are intensive studies of the selected regions while the postdoctoral projects provide macro- and meso-level studies of transnational linkages and flows at the regional, state, and national levels. The research programme incorporates several disciplinary perspectives, including sociology, social anthropology, economics, geography and history, and also draws on the interdisciplinary fields of migration studies and transnational studies. The research programme is expected to produce significant academic as well as policy outputs, contributing to national and international policy debates on migration, development, and the contributions of Overseas Indians to India's development.

Following are brief descriptions of the five component projects.

### **PhD Projects**

The three PhD students (two Indian, one Dutch) joined the programme in August 2010. After completing a year of required coursework (one semester at AISSR and one at NIAS), they submitted their research proposals to NIAS and to the AISSR in June 2011, which were approved. The students started their fieldwork in September 2011, which will continue till August 2012, and all the projects are making good progress. Below are brief abstracts of their research projects.

#### **1. Transnationalism and Beary Identity in Dakshina Kannada, India – Ms Sulagna Mustafi**

The research project is a sociological study of the Beary Muslim community of Dakshina Kannada District, Karnataka, focusing its migration, transnational links, and reverse flows of resources, and community identity formation. An intensifying pattern of labour migration as well as transnational business connections have created dense transnational connections and flows linking the Beary community to the Gulf. In addition to household remittances, an important element of the 'reverse flows' from migrants to Dakshina Kannada is support for community welfare and social development projects. These donations and welfare activities appear to be feeding into ongoing processes of community identity formation in the region. The research examines how the Beary community is using its transnational ties and greater access to resources stemming from migration to establish a more favourable position in the home region. Migrant-sponsored social welfare activities seek to enhance educational levels, livelihood standards, and women's welfare within the Beary community, as well as to assert a distinctive cultural and linguistic Beary identity. The research project seeks to understand why and how transnational networks are being formed, what kinds of resources are being transmitted to the Beary community through these networks from members living abroad, what are the implications of these transnational resources for building a strong and distinct Beary community, and how these transformations are altering inter-community relations in the region. The project includes ten months of fieldwork in Mangalore town and the surrounding region and two months in the UAE and adjacent Gulf states.



## **2. Provincial Diaspora, Philanthropy and the Emergence of a Transnational Class-Caste in Coastal Andhra Pradesh, India – Ms Sanam Roohi**

Guntur District historically has been an agriculturally rich region, and its headquarters Guntur town, a major trading hub, and much of the economic activity in the region has been dominated by the major landowning caste, the Kmmas. Guntur is also known as a major centre for education and health care, and its many medical and engineering colleges have produced a large group of high skilled professionals, many of whom are Kmmas. Kmmas have become highly transnationalised due the migration of professionals to the West, starting in the 1970s. This affluent regional diasporic group, located mainly in North America, is deeply engaged in social development oriented philanthropic projects, especially in the education, health and rural development sectors, in their home region. A transnational caste-class within the still predominantly agrarian Kamma caste has emerged through these cross-border connections and flows, including diaspora philanthropy in which both material and immaterial resources are circulating within a transnational social field. The project focuses on the ways in which caste connections and regional specificities shape the philanthropic activities of Non-Resident Telugus, and on how these practices in turn are shaping this transnationalised caste-class. The field research includes ten months in Guntur town and the surrounding region and two months with diasporic groups from the region in the US.

## **3. It Will Take Twenty Years To Come Up': International Migration and 'Community Upliftment' among Muslims in Central Gujarat, India – Ms Sanderien Verstappen (AIISR)**

It is often said that Charotar, the fertile strip of land between Ahmedabad and Baroda in Central Gujarat, became wealthy through tobacco and migration. Migration from the region has traditionally been associated with the locally dominant Patel caste, which started to migrate to British colonies more than 100 years ago. In recent years, however, middle class youngsters of minority communities (including Christians and Muslims) from this region are also increasingly going abroad. This project studies the significance of migration among Muslims of Anand town and surrounding villages in Central Gujarat, mapping the movement of people in relation to their social position in the region. In particular, it studies the mobilities and positioning of Vahoras, a regionally dominant social group within the minority Muslim community. The Vahoras have older links to Bombay and Karachi and more recently have started to send their youth to the USA, UK and Australia to study and to work. How have these movements been experienced, and how do these mobility patterns connect with individual and collective strategies of upward social mobility? The project includes ten months of fieldwork in Anand town and the surrounding region, and two months in London.

### **Postdoctoral Projects**

The two postdoctoral projects are designed to complement the region-specific field-based PhD projects by exploring the main research questions at the macro- and meso-levels and through comparative analysis. One project is being carried out by an economist and the other by a cultural anthropologist. Below are brief summaries of these projects.

## **1. Migration, Transnational Flows and Development in Provincial India: An Economic Perspective – Dr Puja Guha**

Most research on remittances in India has been carried out at the national level. Although India is the largest recipient of remittance in the world, there has been very little research examining the socio-economic impact of these flows in the local and regional economies which receive them. Moreover, evaluations of economic impacts usually focus on changes in consumption patterns of the receiving households. However, there is evidence that migrant remittances are increasingly channelled into different sectors of the economy such as education, health, and public infrastructure, and that such flows have significant social, political and religious associations. This project maps and documents

these flows and their economic outcomes at the regional and state levels through the use of secondary and primary quantitative data sources and statistical methods, both conventional and innovative.

The project also includes a primary household-level survey of migrant households on channels of remittance transfers and utilisation of remittances in two districts of Central Gujarat. The survey has been carried out in collaboration with the Gujarat Institute for Development Research (GIDR). An additional survey instrument was designed for an extra sample of migrant households in the study districts, supplementing the state-level survey being carried out by GIDR. The survey was completed in November 2011 and data analysis is under way.

## **2. (In)Visibilities: Mapping Development's Publics and Patrons in India's Coastal Regions - Dr Leah Koskimaki**

This project examines the complex relationship between transnational migration, development politics and contemporary forms of regionalism in small towns of coastal South India. It explores how transnational connections have influenced various claims, aspirations, protests and contestations regarding development in a region where local economies and livelihoods are dependent on coastal ecologies. Starting with Mangalore and Udupi in coastal Karnataka, and then moving to coastal Andhra Pradesh for comparison, the research will involve a series of interlinked micro-studies of the social and political changes brought on by, or instigating, circular flows of people and remittances. Theoretically, the research points to a reconfiguring of 'region' in the way these networks intersect as small town publics negotiate new forms of development and engage with the post-liberalisation state. For example, preliminary research has revealed conflicts over regional belonging in the ways in which NRIs and circular migrants engage with land investment, environmental issues, and party politics. Such debates over development will be analysed in a comparative light in the context of particular regional and town histories. 'Provincial' towns have historically been constructed as a marginal space in the development narrative and yet are emerging as a site of national influence and global assertion. The project will ethnographically map these transnational assemblages by untangling various visible and invisible connections that are shaping the political landscapes of the selected towns across the selected regions.

### **Other Research Activities**

In addition to the work of the core team, four MA students and three BA students from the University of Amsterdam (UvA) carried out their field research projects in collaboration with the ProGlo programme during the year. Two MA students completed their dissertations, while one MA student and three BA students completed their fieldwork during January-March 2012 and are writing their dissertations, to be submitted in June 2012. Following are the topics of their research:

- ✧ Ms Maudi Heerink (Master Contemporary Asian Studies, UvA), 'Connecting India: Virtual and Real Linkages between the Telugu Diaspora and their Home Region in Andhra Pradesh, India (June 2011). This thesis formed the basis of ProGlo Research Report 1.
- ✧ Ms Wanda van Kampen (Master Contemporary Asian Studies, UvA), 'Money to India: Transfer Channels for Remittances in the Guntur Region, Andhra Pradesh, India'. This thesis will form the basis of ProGlo Research Report 2.
- ✧ Ms Jasne Krooneman (Master Contemporary Asian Studies, UvA), 'Young Gujarati Return Migrants as 'Reverse Flow' in a Globalising World'.
- ✧ Ms Molly Fitzpatrick (Bachelor Anthropology, UvA), 'The Future Perspectives of Youth in Central Gujarat, India'.
- ✧ Ms Fieke Jagers (Bachelor Anthropology, UvA), 'Negotiating and Adapting: Young women living independently in Central Gujarat, India'.
- ✧ Mr Pieter Lagerwaard (Bachelor Anthropology, UvA), 'The Organization of Migration: Visa agents in Anand – Gujarat, India'.

Stakeholder Meetings were organised in the three field sites (Guntur, Anand, Mangalore) during January 2012. The interactions between diverse stakeholders of the PhD research projects and the project team members (including the Co-Directors, Profs Rutten and Upadhyaya) were very useful in helping us to include the interests and perspectives of local stakeholders in the ongoing research activities as well as in the final policy-related outputs.

A public website for the programme ([www.provglo.org](http://www.provglo.org)) was launched in March 2011, which is serving as a platform to publicize the programme's activities and disseminate the research findings. They have recorded page views over the last six months (till March 2012) from 116 cities across 44 different countries. In addition, a Facebook page has been created to serve as a forum for exchange of ideas with the stakeholders of the programme as well as interested researchers and the public.

**Members:**

Prof Carol Upadhyaya, *Anchor*

Dr Ritajyoti Bandyopadhyay,  
*Postdoctoral Associate*

e. URBAN RESEARCH AND POLICY PROGRAMME (URPP)

The Urban Research and Policy Programme (URPP) at NIAS has created a platform for scholars and others to think about the transformation of Indian cities and the urban experience in the postcolonial period. Studies carried out under the URPP seek to introduce a fresh approach to urban studies in India, one that fosters not just new thinking on the urban but critical and carefully produced knowledge of the social, economic, and political processes, structures, and transformations that mark towns and cities across India, in all their diversity. The research agenda draws on new theoretical perspectives and methodologies from a range of disciplines, especially social anthropology, sociology, and history, but also economics, environmental sciences, and geography.

Between April 2011 and March 2012 the URPP finished two internally funded projects, on street hawkers in Kolkata and on urban food provisioning in West Bengal. Both projects were marked by interdisciplinary methods and an orientation to theoretically tuned action research. Although the focus of this year's research was on Kolkata, the research findings transcend this specific context.

The URPP has carried out the following research projects during the year:

**1. Hawkers' Question in Kolkata: History, Governance, Politics; A Study of Major Street Crossings and Policy Recommendations** May 2011-July 2011.

*Principal Investigator:* Dr Ritajyoti Bandyopadhyay

*Co-Investigators:* Prof Joyashree Roy, Mr TVH Prathamesh, Dr Puja Guha, Ms Rimple Mehta, Ms Payal Sen, Mr Suman Dutta, Mr Chandan Roy, Ms Sonel Sen

*Partnering Institutions:* NIAS-URPP, Jadavpur University, Kolkata Municipal Corporation, Kolkata Hawker Sangram Committee, Kolkata Consumer Forum

*Summary:* The study has accomplished two tasks. First, it unravels the ways in which pavement hawking has spread in different parts of Kolkata and has been governed over the last four decades. Second, the study evaluates whether the implementation of zoning norms as promulgated by the National Policy on Urban Street Vendors, 2009 would actually facilitate faster traffic flow in the city.

*Output:* 'Hawkers' Question in Kolkata: History, Governance, Politics', NIAS URPP Report, available on NIAS website and in limited hard copies.

**2. Up Market and Down Market: Analysing the Possible Impact of FDI in Indian Retail** December 2011 – July 2012

*Principal Investigator:* Dr Ritajyoti Bandyopadhyay

*Co-investigators:* Mr Kishor G Bhat, Mr TVH Prathamesh, Mr Nilanjan Pande

*Objectives:* The penetration of corporate capital in the retail sector has been one of the most contentious political questions in the cities of the global South. In the context of the current debate on FDI in retail in India, the project explored the possible impacts of FDI on urban provisioning mechanisms. It tried to answer the following questions: Will FDI in wholesale-retail directly take control over food production and distribution, completely replacing the older structures of surplus extraction? Or, will FDI take over the existing processes of production by small producers and distribution by small players, without leading to any technical or organisational transformations? What are the possible ways in which different class interests would react to the corporatisation of retail? The project has attempted to answer these questions by delineating the existing mechanisms of the metamorphosis of food commodities from the green field to the kitchen of a consumer in Calcutta. A multi-sited ethnographic survey was conducted along with archival-historical research to unravel the existing mechanisms of food provisioning in Calcutta. They have sought to understand the social and financial networks that mobilize the systems of urban provisioning.

*Output:* The project report is under preparation, after completion of an internal review of and several presentations of the finding, including a NIAS Wednesday Lecture.

## f. WATER PROGRAMME

Water is a vital resource and is an area of both contention and conflict. The nature of these conflicts is diverse and methods adopted in addressing them are often constrained by the lack of objective and validated facts to facilitate rational discussion and decision-making among stakeholders. It is in this context that a multidisciplinary has been adopted to address issues in the water sector, comprising academics and researchers from the natural sciences, humanities and the social sciences. The active involvement of stakeholders from across the country has been central to the process. In addition to the academics, they also include the participation of representatives from the government, NGOs, policy makers, legal experts, civil society and farmer groups. The focus of research has been on issues surrounding inter-state transboundary water sharing, inter-sectoral conflicts and conflict resolution, and evolving social technological solutions to drinking water challenges facing the country. The main objectives of the programme are:

- ✧ Research for generating a data and information base and analysing them using a conceptual framework which adopts a multidisciplinary perspective.
- ✧ Provide platforms for sharing the results of the research and facilitate multi stakeholder dialogues to influence policy.
- ✧ Strengthen networks and facilitate the partnerships from the local to the global (Zonal Water Partnerships, Country Water Partnerships to Global Water Partnerships) in research, dialogue and advocacy activities.
- ✧ Documentation and publications.

**Social Technological Solutions to Major Water Challenges Facing India (Supported by the Department of Science and Technology, Jan. 2012 to Dec. 2013):** The main objective of the research is to suggest social technological that are local/region specific solutions based on assessments of interventions in the water sector, particularly in relation to drinking water, in terms of their technical feasibility, social acceptability, economic viability, sustainability and scalability adopting multi-disciplinary approaches.

**Members:**  
Dr N Shantha Mohan,  
*Anchor*

The research is being conducted in collaboration with zonal level partners from six different regions across the country representing diverse problems relating to equitable access to adequate and safe drinking water for all irrespective of their caste, class, religious and other denominations. A multi disciplinary team of three members representing experts from the fields of Science and Technology, Social Sciences and the civil society will be engaged in these studies. They are:

**South Zone:** Anchored by Dr Anjal Prakash, South Asia Consortium for Interdisciplinary Water Resources Studies (SaciWaters) Hyderabad will be carrying out the study on “Documenting Disappearing Water Bodies of Hyderabad City: Social Technological options for Drinking Water Supply”.

**East Zone:** Dr Ashok Kumar Ghosh, Department of Environment and Water Management, A.N. College, Patna, will be anchoring the study on Community Based Technological Solutions for providing Safe Drinking Water to Arsenic Exposed Populations of Ganga-Meghna-Brahmaputra Plains of East India.

**West Zone:** Quenching the Thirst of Tribal Communities in the Naxal affected areas of the Central Indian Forest Heartlands is anchored by Dr Vijay Paranjpye, Gomukh Environmental Trust For Sustainable Development, Pune.

**North Zone:** Dr Manohar Sinjh Rathore, Centre for Environment and Development Studies, Jaipur will anchor the study on Drinking Water Security in Arid and Semi-arid Areas of Rajasthan.

**Northeast Zone:** Socio-Technological study for Safe Drinking Water with special reference to two valley districts of Manipur and two districts of Assam is anchored by Mr L Jelshyam Singh, Wanging Women's and Girls' Society, Wanging, Manipur.

**Jammu and Kashmir:** Access to Water Supply in Sub-Zero Temperatures in Jammu and Kashmir is anchored by Bilal Ahmad Pandow, SAVAE, Srinagar, Jammu and Kashmir.

The NIAS team comprising of Dr Jayasree Vaidhyathan and **Dr N Shantha Mohan**, apart from facilitating the above studies will carry out impact assessments of DST sponsored interventions for supply of adequate and safe drinking water in two districts of Tamil Nadu.

#### **Water Conflicts in India: The State, the People and the Future:**

Based on the presentations made and papers generated by experts representing various stakeholders in a national consultation held at NIAS, an attempt is made in filling an important gap by taking a theoretical, methodological and empirical approach that is both collaborative and multidisciplinary so as to understand the complexities and the inter-connectedness of the different dimensions regarding the water sector in order to meet the needs of the country. It further attempts to understand conflicts in the context of the federal nature of the Indian State, inter-sectoral conflicts surrounding interstate river waters that impinge upon people's lives and livelihood, such as agriculture vs. industry, urban vs. rural and dalits vs. others and so on. The issues covered include the history of the interstate conflicts, a philosophical discourse on ownership of water and the states in India, case studies to understand the ways in which rivers play an important role in imagining Indian States and regionality, inter-sectoral conflicts surrounding water and their implications for the future of water conflicts in India. The papers are being edited for publication by Routledge Publishers, New Delhi.

**Establishment and Strengthening of Zonal Water Partnerships (ZWPs) in India:** Given the fact that India has a vast population with multiple identities of caste, race, religion and gender along with the constitutional state identities, the process of developing a plan for water management through the participation of several stakeholders is a complex process and calls for astute planning. In this regard, it was envisaged to consider India a region and establish ZWPs representing the North, South, East,

West, Jammu and Kashmir and the Northeast that have an independent geographical region that are extremely heterogeneous in terms of their water usage and requirements as well as the policy, governance and institutional structures that govern them. These ZWPs comprise as its members representing various stakeholders. The main aim of the ZWPs is to facilitate them in prioritising and addressing issues related to water that is specific to the zone, establishing equitable and effective zonal level governance structures that are both inclusive and participative, evolving mechanisms to represent themselves in decision making processes, strengthening networks within and between the zones, and the zones and the India Water Partnership and Global Water Partnership. They have developed their vision documents, action plans and are actively engaged in the DST supported project entitled "Social technological solutions to major water challenges facing India".

**Indo-French Network of Actors in the Water Sector:** The objectives of this network are to link the different French and Indian actors so that there is a better understanding of their activities, and to create a sustainable dialogue to capitalise on the synergies between these different actors; promote the development of collaborations of all kinds (academic, scientific, industrial, etc.) between French and Indian actors be it on the knowledge of the resource or its management, in an urban, rural or peri-urban contexts; promote research projects that are interdisciplinary/multidisciplinary, have a high value of technology transfer and include the social sciences; Support the transfer of innovative and practical solutions from research to targeted audiences, such as governments at different levels – national, state and local, industry, policy makers, legal experts, NGOs, civil society and communities; Ensure the visibility of the concerned actors and their current actions through multi-stakeholder consultations, documentation and publication. (Available on the website of the French Embassy).

**Fourth and Fifth Periodic Report on the Convention of Eliminating all forms of Discrimination against Women (CEDAW):** The Government of India ratified the United Nations Convention on the Elimination of All Forms of Discrimination against Women in 1993 as a consequence of which it is mandatory for the Government to report to the CEDAW Committee once in four years. As part of a two member team, I have been facilitating the preparation of the report in partnership with all the Ministries of the Government of India. The framework of substantive equality has been adopted. The CEDAW report has implications at the national level in fulfilling the obligation of the nation state in eliminating all forms of discrimination against women. The draft report is available on the website of the Ministry of women and Child Development, Government of India. The final report was submitted in December 2011.

## **OUTREACH AND OTHER ACTIVITIES**

**Dr Ritajyoti Bandyopadhyay** organised public lecture on Five Years of Special Economic Zones in India, Dr Partho Sarothi Ray, IISER Kolkata, June 27 2011.

**Dr Chidambaran G Iyer** floated a guided reading based discussion course "Economics for Non-economists", with two credits, during the first semester of the academic year 2011-2012. Based on a standard text, this course introduced various concepts of economics to students who had little background in economics. Take home exams in this course were given with an aim to make the students apply these economic concepts in their area of research. He lectured for three classes in Prof Narendar Pani's Development Economics course. These classes were on: Indian Plan Models, Land and Labour Markets, and Project Evaluation. He is committee member for the doctoral student Mr K Jafar. He is member in committee for selecting candidates for Post-doctoral/Assistant Professor positions in the Energy and Climate Policy Programme. He is also member in the School of Social Sciences Committee responsible for selecting doctoral students for the final general interview.

**Dr N Shantha Mohan** organised a two day seminar in collaboration with the French Embassy on the Indo-French Network of Actors in the Water Sector, November 2011. She made a presentation on the Indo-French Network of Actors in the Water Sector in CEFIPRA in February 2012. She facilitated the formation of an inter-ministerial committee at the national level. She provided trainings for the inter-ministerial committee members on CEDAW and its application. She participated as member of the government panel for sharing the CEDAW report with the civil society in November 2011.



# Courses





Participants of the 26<sup>th</sup> NIAS Programme for Senior Executives on "Managing Change" with the Director and the Faculty of NIAS (January 15 to 21, 2012)

## SENIOR EXECUTIVES PROGRAMME

The programme for senior executives is the cornerstone on which the National Institute of Advanced Studies builds its efforts to help develop an effective and sensitive leadership in India. First organized more than two decades ago in January 1989 with the involvement of Mr JRD Tata and Dr Raja Ramanna, the programme has developed a niche for itself over the years. It brings senior executives in touch with a variety of disciplines and experiences to help them evolve fresh perspectives of their own specialized fields. The programme does so through lectures, panel discussions, field visits and special sessions designed to help participants link their experiences to established analytical concepts.

The 26<sup>th</sup> edition of this programme for senior executives on *Managing Change* was organised between January 15 and 21, 2012. Inaugurated by Mr Gopalkrishna Gandhi, Former Governor of West Bengal, the programme had 20 participants, including two women. The participants were from government, various public and private sector companies, research institutions and armed forces.

The speakers invited to address the participants also came from backgrounds ranging from culture and media to information technology. They included Mr M Damodaran, Mr Mahesh Dattani, Dr Kota Harinarayana, Dr JJ Irani, Mr Mammen Mathew, Dr S Ramani, Ms V Latha Reddy, Ms Aruna Roy, Dr Suman Sahai and Ambassador Shyam Saran. In addition there were also speakers from NIAS including the Director, Prof VS Ramamurthy, Prof SS Meenakshisundaram, Prof DP Sen Gupta and Prof Dilip R Ahuja.

The cultural programme featured music concert by Mr Ambi Subramaniam. A visit was arranged to Aeronautical Development Agency, Bangalore.

The valedictory address was given by Mr N Vittal, Former Central Vigilance Commissioner.

The programme was coordinated by Prof Dilip R Ahuja.

## NEW TECHNOLOGIES AND THEIR IMPLICATIONS

Under the Women's Component Plan of the Department of Science and Technology, the NIAS-DST Training Programme for Women Scientists and Technologists on the theme *New Technologies and Their Implications* which is fourth in the series was organized during February 27 and March 2, 2012. Twenty three participants including one male scientist drawn from various parts of the country attended the programme.

The programme was inaugurated by Prof Rohini M Godbole, Professor, Centre for High Energy Physics, Indian Institute of Science, Bangalore. Prof Godbole addressed the participants on *Probing the Heart of Matter*. The valedictory address was delivered by Dr A



Mr Gopalkrishna Gandhi, Former Governor of West Bengal delivering the inaugural address for the 26<sup>th</sup> Programme for Senior Executives (January 16, 2012)

Participants of the NIAS-DST Training Programme on “New Technologies and Their Implications” with the Director and the Faculty of NIAS (February 27 to March 2, 2012)



Amudeswari, Director, Indo-French Centre for Promotion of Advanced Research, New Delhi on New Technologies and Their Implications. The main emphasis of the programme was on various technologies being used for women's advancement in the context of societal development. The eminent speakers included Dr Madhuri Dixit, Dr Kamini A Rao, Prof Malavika Kapur, Dr Vijay Chandru, Prof V Sanil. The speakers from NIAS pertaining to the general theme included Prof Dilip R Ahuja and Prof DP Sen Gupta and Prof Lalitha Sundaresan. Few independent topics and the speakers concerning the special evening lectures included Mr Mani Shankar Iyer and Prof S Sadagopan.

Apart from arranging the above lecture sessions, group presentations were organized for the participants as skill orientation exercise on Crisis Management. A visit to the Ceramic Division of Bharat Heavy Electricals Limited, Bangalore was organized. The cultural event on Mohiniattam: The Dance of Enchantment was arranged and presented by Dr Mythili Anoop, Jain University, Bangalore.

The programme was coordinated by Dr MG Narasimhan.

## PARADIGM SHIFT IN SCIENCE AND TECHNOLOGY

Department of Science and Technology sponsored training program for Directors of Science and Technology Institutes in India on *Paradigm Shift in Science and Technology* was organised during December 12 to 16, 2011.

The course was inaugurated by Dr Anil Kakodkar, Former Chairman, AEC, Mumbai with a talk on *Developing India through S & T: How Ready are We?* and the valedictory address was delivered by Prof VS Ramamurthy, Director, NIAS. Other speakers included Mr Aroon Raman, Lt Gen VJ Sundaram,



Participants of the DST sponsored Training Programme on “Paradigm Shift in Science and Technology” with the Director and the Faculty of NIAS (December 12 to 16, 2011)



Participants of the In-service Training Programme for IAS Officers on "Urban Management and Development" with the Director and the Faculty of NIAS (November 21 to 25, 2011)

Mr G Sundararajan, Dr YS Rajan, Dr R Vijayalakshmi, Prof Rajaram Nagappa, Prof S Chandrashekar, Dr KI Varaprasad Reddy, Dr Seyed E Hasnain, and Dr KR Kranthi.

The programme was coordinated by Prof Lalitha Sundaresan and Dr Nabeel A Mancheri.

## IN-SERVICE TRAINING PROGRAMME FOR IAS OFFICERS

A one-week in-service training programme for IAS Officers was conducted on the theme *Urban Management and Development* between November 21 and 25, 2011. The 28 participants in the training programme were middle to senior level IAS officers, including the Urban Development secretaries of several states. The training programme was inaugurated by Mr SV Ranganath, Chief Secretary to Government of Karnataka.

The speakers included Mr Krishna Byre Gowda, Prof SL Rao, Mr Abhijit Sengupta, Dr Vivek Kulkarni, Mr Samuel Paul, Prof PV Indiresan, Dr Kshitij Urs, Prof BV Sreekantan and Prof SS Meenakshisundaram. There were three afternoon sessions on Case Study based group discussions lead by Dr A Ravindra, Mr Ajai Kumar Singh and Mr S Krishna Kumar. A lecture by Dr Mukunda Rao on Spatial Technologies was followed by the participants visiting Karnataka State Remote Sensing Applications Centre, Department of Information Technology and Biotechnology, Government of Karnataka. A public lecture on *Future of Nuclear Power after Fukushima* by Prof MR Srinivasan, former Chairman of the Atomic Energy Commission generated widespread interest.

The course was coordinated by Prof Narendar Pani.

## MULTIDISCIPLINARY PERSPECTIVES ON SCIENCE, TECHNOLOGY AND SOCIETY

The Ninth NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society was organized from August 8 to 19, 2011 for Senior Scientists, Technologists and Administrators. The main theme of the Programme was Science and Technology Communication. Twenty four participants including nine women scientists drawn from various institutions, laboratories and departments in the country attended the programme.

The programme was inaugurated by Dr K Radhakrishnan, Chairman, Indian Space Research Organisation and Secretary, Department of Space, Bangalore. Dr Radhakrishnan addressed the participants on The Role of Space Technology in Linking Scientific and Societal Concerns – The Indian Experience. The valedictory address on Reflections in Science and Technology and Research and Development in India was delivered by Dr VK Aatre, former Adviser to Raksha Mantri. The speakers in the context of the theme Science and Technology Communication included Prof JV Vilanilam, Prof G Padmanabhan, Dr Vinay B Kamble, Dr Vijay Chandru, Dr MG Narasimhan, Dr R Ramachandran, Dr Baldev Raj, Mr Pallava Bagla and Prof Madhav Gadgil. The other speakers concerning the theme Multidisciplinary Perspectives on Science, Technology and Society, included Prof Anindya Sinha, Prof SS Meenakshisundaram, Prof Renee Borges, Prof S Ranganathan, Prof Jayant V Narlikar, Prof Vinod K

Gaur, Prof N Mukunda, Ms Indira Jaiprakash and Prof Vidyanand Najundiah. A few of the independent topics as special evening lectures delivered by the speakers were Prof BV Sreekantan, Dr G Balachandran, Dr S Chatterjee and Prof Dilip R Ahuja and Prof DP Sen Gupta including the first Ms Lakshmi Nizamuddin Memorial Lecture on Innovation by Dr Kiran Mazumdar-Shaw, Chairman and Managing Director, Biocon Limited, Bangalore.

Apart from the lectures sessions mentioned above, the skill orientation exercise on 'Sharing of Experiences' in different groups were arranged for the Course Participants. The common theme was on Crisis Management. These presentations also gave an overview of the institutions represented by the Participants.

As part of the Programme, a visit to the National Aeronautical Laboratory, a CSIR Lab was organized on as to what is happening and an outdoor visit to Hassan, Mysore and related places of Tourism was arranged and conducted by Mr P Srinivasa Aithal, Head, Administration, NIAS. The Hindustani vocal recital was organized and presented by Smt Jayadevi Jangamashetti and Dr Mruthunjay Shettar from Dharwad, Karnataka.



Participants of the 9<sup>th</sup> NIAS-DST Training Programme on “Multidisciplinary Perspectives on Science, Technology and Society” with the Director and the Faculty of NIAS (August 8 to 19, 2011)

## SUMMER SCHOOL ON CONCEPTS AND METHODS IN THE MIND AND BEHAVIOURAL SCIENCES

The second NIAS summer school on Concepts and Methods in the Mind and Behavioural Sciences was held at NIAS from July 18 to 29, 2011 on the theme of thought and communication. The school was attended by about a hundred students from various scientific disciplines and from all over India.

The programme was coordinated by Dr Rajesh Kasturirangan.



# Doctoral Programme

## Doctoral Committee

Prof BV Sreekantan, *Chairman*

Dr Rajesh Kasturirangan, *Academic Head*

Dr MG Narasimhan, *Member*

Dr Sindhu Radhakrishna, *Member*

Prof Anindya Sinha, *Member*

Prof Carol Upadhy, *Member*



The doctoral programme at NIAS draws on and is shaped by the various research themes that have been part of the institute in recent years. The overall orientation of the Ph.D. programme is interdisciplinary research, which is carried out within the broad framework of three schools: Humanities, Social Sciences, and Natural Sciences and Engineering. The broad-based structure of the programme is in tune with the very focus with which the institute was formed. As spelled out in the mission statement of NIAS, the confluence of different schools of inquiry needs to be explored in the spirit of understanding the complex nature of contemporary problems. In particular, the institute is committed to public education, collective knowledge creation, civic engagements and mentoring junior scholars.

The Doctoral Programme was initiated at the Institute in 1999 with the signing of a Memorandum of Understanding with the Manipal Academy of Higher Education (MAHE), instituting a NIAS-MAHE Doctoral Programme. It was agreed at that time that students guided by NIAS faculty (who were recognised as guides by MAHE) would be allowed to register with MAHE and would follow its rules for the doctoral programme. NIAS had no financial responsibility for students given that most students were supported by faculty research grants. Under this arrangement, five students registered with MAHE between 1999 and 2004. The doctoral programme entered a second phase in the year 2004-05 when it was expanded and regularised on the basis of financial support received from the Indian Space Research Organisation, the Department of Science and Technology and the Ministry of Earth Sciences in lieu of fellowships.

NIAS does not directly grant degrees but has received recognition as a research centre from several universities, including Manipal University, University of Mysore, and the Indira Gandhi National Open University (IGNOU). Students register with one among these universities and carry out their research at NIAS. Students go through a year of mandatory course work, followed by supervised guidance for four years. Information on the rules, course requirements and regulations governing the doctoral programme is available in the Student Handbook, which is revised and updated annually.

A total of 53 students have been part of NIAS doctoral programme since its inception and 15 students have successfully completed their Ph.D. as of March 2012. Four students have submitted their thesis, 15 have registered their Ph.D. and 19 students are carrying out pre-registration course work. As of March 2012, a total of 38 students are currently enrolled in the programme—16 in the School of Natural and Engineering Sciences, 12 in the School of Social Sciences and 10 in the School of Humanities.

A list of the students who have registered with a university and their dissertation topics is given below:

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**Ms Rolla Das**, Cognitive Science

*Understanding Communication through Semiotic Assemblies: A Study of Speech-Gesture Composites in Pragmatics*

**Ms K Lakshmi**, Psychology

*Self and Well-Being: A Qualitative Approach with Focus on the Mahabharata*

**Ms Hema Thakur**, Ancient History and Archaeology

*Material Culture and Social Formations in Northeast Karnataka (c.300BCE-c.300 CE)*

School of  
Humanities

School of  
Natural and  
Engineering  
Sciences

**Ms Samiksha Bajpai, Ms Namitha A Kumar, Ms HR Meera, Ms Deepthi Rajagopalan Iyer, Ms Shatarupa Bhattacharyya and MS NS Nalini**  
*In the process of completing course work*

**Ms PS Sajini Anand**, Mathematics  
*Nonlinear, Multidimensional Transformations and Its Applications to Signal Processing*

**Mr Kishor G Bhat**, Mathematics (thesis submitted)  
*Games in the Garden of Numbers*

**Mr Mayukh Chatterjee**, Ecology, Behaviour and Conservation  
*Social Behaviour, Ecology and Population. Dynamics of the Northern Bonnet Macaque (Macaca Radiata Radiate)*

**Ms Swarnali Majumder**, Mathematics (thesis submitted)  
*Theory and Practice of Inverse Problem: Finding Equation from ECG and Speech Data*

**Mr Narayan Sharma**, Ecology, Behaviour and Conservation  
*Behavioural Ecology and Conservation of Primate Communities in the Lowland Evergreen Forests of Upper Brahmaputra Valley, Assam*

**Ms KG Sreeja**, Environmental Science  
*Emergent Non-agrarian Livelihoods and Resource Linkages in the Agroecosystems of a River Basin: A Case Study of Chalakudy River Basin, Kerala*

**Ms Neesha Dutt, Mr Sartaj S Ghuman, Ms Asmita Sengupta, Ms Shreejata Gupta, Mr Toby Simon, Ms Priya Gupta, Ms Geetanjali Yadav, Ms Priyam Laxmi Borgohain, Mr Murali Murti and Mr BR Guruprasad**  
*In the process of completing course work*

School of  
Social Sciences

**Mr K Jafar**, Economics  
*The Impact of Education-Led Growth on Human Development: A case study of Malappuram*

**Ms Anu Joy**, Education (thesis submitted)  
*Children's Understanding of Scientific Concepts*

**Ms Leena Pascal**, Art Education  
*Pictorial Representation and Its Development in Children*

**Ms Sowjanya R Peddi**, Social Anthropology  
*Food Retail Practices in Bangalore: A Comparative Anthropological Study*

**Mr Sailen Routray**, Development Studies (thesis submitted)  
*Shifting Waterscapes: Tradition, Development and Change in Orissa*

**Ms KG Asha**, Economics  
*Dynamics of Labour Relations across Different Circuits of Globalization*

**Ms R Maithreyi**, Education  
*Reconceptualizing Life Skills as Essential Processes within School Learning: Development of a Process Focused Curriculum*

**Ms Sulagna Mustafi**, Anthropology  
*Transnationalism and Muslim Identity in Dakshina Kannada, India*

**Ms Sanam Roohi**, Anthropology  
*Provincial Diaspora, Philanthropy and Social Domination: A Study of Coastal Andhra Pradesh, India*

**Ms Reva Yunus, Ms Soundarya Iyer and Mr Chetan B Singai**  
*In the process of completing course work*

## GRADUATED STUDENTS - 2011-2012

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**Mr Muthuswamy Murugan**, Environmental Science  
*Factors and Patterns of Pesticide Usage and Sustainability of Cardamom (*Elettaria cardamomum* (L.) Maton) in Indian Cardamom Hills*

**Mr Rishi Kumar**, Ecology, Behaviour and Conservation  
*Distribution, Demography and Behavioural Ecology of Mixed Species Troops of The Bonnet Macaque (*Macaca Radiata*) And Rhesus Macaque (*M. Mulatta*) In Peninsular India*

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**Mr Rahul Mukhopadhyay**, Social Anthropology  
*Anthropology of the Education Bureaucracy*

**Ms Sahana Udupa**, Social Anthropology  
*Informing News: Information Revolution and the Transformation of News Media in Bangalore*

School of  
Natural and  
Engineering  
Sciences

School of  
Social Sciences





# Library

## **Library Committee**

Prof Anindya Sinha, *Chairman*

Prof Sangeetha Menon

Prof Narendar Pani

Prof Sharada Srinivasan

Prof N Ramani

Dr Shivali Tukdeo

Ms Hamsa Kalyani, *Convener*

Mr Gopalkrishna Gandhi inaugurates the book donation from International Society for Science and Religion (January 16, 2012)



The Library expansion activities continued during the year with acquisition of reading materials relevant to the teaching and research needs of the Institute with the grant provided by the Jamsetji Tata Trust. The library is in the fourth year of its systematic collection development programme. Acquisitions during the last three years have resulted in a well-balanced collection of reading materials across disciplines in which our faculty are engaged in research. Recommendations were solicited from all faculty and students by providing regular alerting services of new and forthcoming book titles. Contemporary readings as well as classical works in all disciplines were added to the collection throughout the year.

NIAS Library is an open reference Library and there were more 700 visitors during the year. The Library users with borrowing privileges are provided with bar coded Library ID cards.

**Table 1: Library Resources**

Sl No.	Resources	Numbers
1.	Books	14120
2.	Kannada Books	220
3.	Donated Books	174
4.	Current Subscriptions	1678
5.	Bound Volumes	1847
6.	Theses	14
7.	Data CDs	319
8.	CDs and DVDs	187
9.	Videos	19
10.	NIAS Lectures (Audio Tapes)	1450
11.	NIAS Lectures (DVDs)	280
12.	Audio Tapes and Videos	1300

The Library acquired 1122 books during the year taking the total book collection to 14120. Statistical data collection was updated by acquiring Census data and other government reports. In order to build an online resource collection, the Library has subscriptions to databases, archives and electronic journals. The Library continues to be a member of the UGC INFONET Digital Library Consortium managed by INFLIBNET and has online access to a

number of journals published by Oxford University Press, Cambridge University Press, Taylor and Francis as well as JSTOR as indicated in the table below.

**Table 2: UGC-Infonet Consortium**

Sl No.	Journal Collections	No. of Journals
1.	Oxford University Press	170
2.	Cambridge University Press	224
3.	Taylor and Francis Journals	1173
4.	JSTOR	1482
	Total	3049

In addition, the Library also subscribes to 111 individual journal titles published by reputed publishers covering a wide range of subjects. The new electronic subscriptions during the year included five journals and one digital archive in area of Psychoanalysis. The total number of journal subscriptions is 3160. The Library homepage serves as a gateway to Library resources and full text access to digital content of 3210 journals (including 50 journals from PEP archive) is available on the intranet to readers.

NIAS Library was selected an International Society for Science and Religion Library awardee in 2011 and received 224 books from the Society spanning all areas of the interface between science and spirituality. The subject areas of the books range from the sciences and social sciences to history, philosophy and the environment.

In order to showcase the intellectual outputs of NIAS and also to facilitate open access to its research publications, the Library has set up its open access interoperable institutional repository a few years ago. This repository has 289 records, and is being populated on a regular basis. The Library has also been responsible for maintaining and updating the Institute website for more than a decade.

Ms Hamsa Kalyani along with Dr Francis Jayakanth, NCSI, IISc was invited by Manipal University to set up an Interoperable Digital Repository of Manipal University. This funded project of six months duration was completed recently.



# Administration

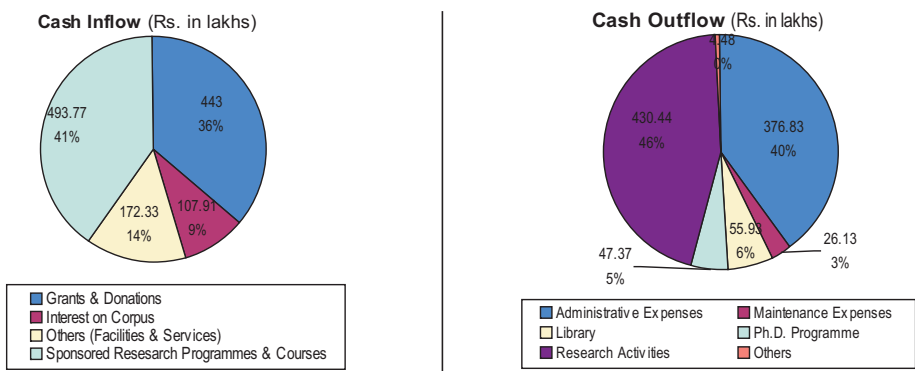


NIAS Campus

As a registered society, NIAS derives its administrative and financial authority through the society, represented by the general body. The Council of Management which is currently chaired by Prof MS Swaminathan, is vested with full power and authority to do all acts, deeds, etc which are necessary for the promotion and fulfillment of the objectives set out in the Memorandum of Association. The Director, presently Prof VS Ramamurthy is the chief executive and exercises general, administrative and financial control over the affairs of NIAS. The Director is assisted in the administrative and finance matters by Head (Admin. & Finance).

Besides management of all resources such as infrastructure, finance, human resources, estates etc., general administrative matters are also handled by Head (Admin. & Finance). Administration enables recruitment and deployment of staff, servicing their needs and empowering them to effectively contribute to the objectives of NIAS. It services the students programme in which twenty-five students work for their Ph.D. degrees. Administration also takes care of the campus, its facilities such as the Auditorium, lecture halls, meeting rooms, classrooms, guesthouse, dining halls, etc and all other infrastructure of NIAS. Administration also plays a unique role in conducting various programmes including training courses. Procurement of materials and consumables, maintenance of facilities, inventory control, etc are also done by Administration. Compliance with various statutory requirements such as Provident Fund, Income Tax, etc., is also taken care by Administration. The administrative set up consists of, in addition to the Head-Administration, an Office Manager, two Assistant Managers in the area of Administration and Accounts & Finance and other Secretarial / Office / Supporting Staff, in all numbering 30.

Finance management, accounting, auditing, resource mobilization and expenditure control are carried out systematically. An overview of finances for the year 2011-12 is given below:



NIAS has a specified investment of Rs.1809 lakhs (exclusive of project funds) as on March 31, 2012.

During the year, the Institute has received seven new research projects with a total value of Rs.333.05 lakhs. Total value of projects handled during the year including the projects sanctioned in the earlier years was Rs.1406.25 lakhs. Foreign exchange component included in this sum is Rs.64 lakhs.



# Visitors



Raja Ramanna Memorial Lecture



MN Srinivas Memorial Lecture



Lakshmi Nizamuddin Memorial Lecture

As in other years NIAS saw a stream of visitors in a variety of fields. These visitors play an important role in keeping the Institute and indeed the city of Bangalore in touch with the latest intellectual and other trends across the country.

## MEMORIAL LECTURES

### SEVENTH RAJA RAMANNA MEMORIAL LECTURE

Mr Mani Shankar Aiyar

Hon'ble Member of Parliament (Rajya Sabha)

*Reflections on the Rajiv Gandhi Action Plan for a Nuclear-Weapons-Free and Non-violent World Order*

February 27, 2012

### TWELFTH MN SRINIVAS MEMORIAL LECTURE

Mr Mammen Mathew

Chief Editor and Managing Director, Malayala Manorama

*The Role of Media*

January 19, 2012

### LAKSHMI NIZAMUDDIN MEMORIAL LECTURE

Dr Kiran Mazumdar-Shaw

Chairman & Managing Director, Biocon Limited, Bangalore

*Innovation*

August 12, 2011

### K SUBRAHMANYAM MEMORIAL LECTURE

Ambassador Arundhati Ghose

Distinguished Fellow, Institute for Peace and Conflict Studies, New Delhi

*Emerging India: Strategic Challenges and Opportunities*

April 13, 2011



K Subrahmanyam Memorial Lecture



Mr SV Ranganath, Chief Secretary, Government of Karnataka, delivering the inaugural address, in the IAS course on "Urban Management and Development" (November 21, 2011)



Mr N Vittal, Former Central Vigilance Commissioner, Chennai delivering the talk on "Ethics in Public Life" during the 26th Programme for Senior Executives (January 21, 2012)

## PUBLIC PROGRAMMES

### **Prof Bruno Latour**

Professor, Sciences Po, Paris  
*Social Theory and Digital Tools: New Approaches to the Micro/Macro Distinction*  
March 22, 2012  
(In collaboration with The Divecha Centre for Climate Change, IISc. and Sciences Po, Paris)

### **Dr Nandini Gooptu**

Oxford University  
*Urban Politics, Class Relations and the Construction of Poverty from the Late-Colonial Period to the Present*  
March 21, 2012

### **Dr Lakshmi Subramaniam**

Centre for Studies in Social Sciences, Calcutta, & Shri TV Raman Pai Chair Visiting Professor, NIAS  
*Culture and Community: Refracting Music and Its Histories at Home and in the Diaspora*  
March 20, 2012

### **Dr Mythili Anoop and Team**

Bangalore  
*Mohiniattam*  
March 1, 2012

### **Prof S Sadagopan**

Director, IIIT, Bangalore  
*Internet and Technology for Women*  
February 29, 2012

### **Dr Bhupendra Jasani**

King's College, London  
*Space Security*  
February 28, 2012

### **Book Release by Prof VS Ramamurthy**

Director, NIAS  
*Life is Fundamentally Management! (Authors: A Senthivel & Govind Babu)*  
February 22, 2012

### **Prof Søren Ehlers**

University of Aarhus, Denmark  
*From Policy to Practice: How Do Educators Deal With Competences?*  
February 16, 2012

### **Prof Meenakshi Thapan**

Delhi School of Economics, University of Delhi  
*Imagined Landscapes: Europe through the Gaze of Indian Youth*  
February 13, 2012

### **Dr Bernard O Barraqué**

Research Director, French National Science Centre, France  
*Valuing Water: The Economics of an Impure Public Good*  
February 9, 2012

### **Prof Michel Morange**

Director, Institute of History and Philosophy of Sciences and Techniques, Paris  
*What is Life?*  
January 23, 2012

### **Mr N Vittal**

Former Central Vigilance Commissioner, Chennai  
*Ethics in Public Life*  
January 21, 2012

### **Dr S Ramani**

Former Director, National Centre for Software Technology  
*Emerging Challenges Posed by Information Technology*  
January 16, 2012

### **Dr Viram Jasani**

Asian Music Circuit, UK  
*Relevance of Traditional Indian Music in the 21st Century*  
December 2, 2011

### **Prof Karen Fog Olwig**

University of Copenhagen, Denmark  
*Migrating for an Education: Family, Gender and Social Mobility among Caribbean Nurses in Britain*  
November 9, 2011



**Ms Asha KG**

Doctoral Student, IAS  
and

**Dr MB Rajani**

Post-doctoral Associate, IAS  
*Epicentres of Missing Daughters: Geo-Spatial  
Dimensions of the Child Sex Ratio in India*  
October 21, 2011

**Pandit Dr Mrithunjay G Shettar**

Jaipur-Atroiri Kirana and Gwalior Gharanas  
and

**Vidushi Smt Jayadevi Jangamashetti**

Jaipur Gwalior Gharana  
*Hindustani Vocal Concert*  
August 19, 2011

**Prof S Chatterjee**

Indian Institute of Astrophysics, Bangalore  
*The Life and Works of PC Ray*  
August 15, 2011

**Prof Jayant V Narlikar**

IUCAA, Pune  
*Building Scientific Institutions*  
August 12, 2011

**Prof BV Sreekantan**

NIAS  
*New Developments in the Frontiers of Physics  
and Astrophysics*  
August 9, 2011

**Dr Shailesh Nayak**

Secretary, Ministry of Earth Sciences,  
Government of India, New Delhi  
*Societal Benefits of Earth System Science*  
July 7, 2011

**Dr K Srinivasa Rao**

Srinivasa Ramanujan Academy of Maths Talent,  
Chennai  
*Can Creativity be Nurtured?*  
July 6, 2011

**Dr Partho Sarothi Ray**

IISER, Kolkata  
*Five Years of Special Economic Zones in India*  
June 27, 2011

**Prof VS Ramamurthy**

Director, IAS  
*Socio-Economics of Technology Options*  
May 11, 2011

**Vidushi Sushmita Banerjee**

Kolkata  
*Kathak Dance*  
April 28, 2011  
(In collaboration with SPICMACAY, Bangalore  
Chapter)

**WEDNESDAY DISCUSSION MEETINGS**

NIAS Wednesday Discussion Meeting is one of the outreach events that have continued since the inception of the Institute. The faculty of the Institute meets every Wednesday morning for semi-formal academic discussions after a lecture delivered by a member of the faculty. These Wednesday meetings also serve as a forum for invited guest speakers to deliver lectures on subjects of their choice.

Prof Sangeetha Menon is the Coordinator of Wednesday Discussion Meetings.

**Mr Balaji Kutty**

*Free Software Movement in India: Context and  
Questions*  
March 28, 2012

**Prof Anindya Sinha**

*Quo Vadis? Dual-sex Emigration among Wild  
Bonnet Macaques in the Bandipur National Park  
– Mudumalai Wildlife Sanctuary, Southern India*  
March 21, 2012

**Prof SS Meenakshisundaram**

*Ethics in Governance: Are We Expecting Too Much?*  
March 14, 2012

**Dr Ritajyoti Bandyopadhyay, Mr Kishor G Bhat  
and Mr TVH Prathamesh**

*Provisioning Indian Cities: Speculations on the  
Question of FDI in Calcutta's Wholesale-Retail  
Network*  
March 7, 2012

**Dr Kamini A Rao**

*Surrogacy*

February 29, 2012

**Dr Rajesh Kasturirangan**

*M-Theories: Mind, Mathematics and Metaphysics*

February 15, 2012

**Prof Carol Upadhya**

*Migrant Resource Flows and Regional Development in India*

February 8, 2012

**Dr Uday Balakrishnan**

*A Civilizing Force? The Struggle to De-West The Past*

February 1, 2012

**Prof Rajaram Nagappa**

*Project Management Evolution in ISRO*

January 25, 2011

**Dr Kota Harinarayana**

*Role of Aviation in Defence and Economic Development*

January 18, 2011

**Prof S Gopal**

*Left Wing Extremism - A National Security Challenge*

January 11, 2012

**Dr Mythili Anoop**

*Interpreting the Language of Mohiniattam (Lecture-Demonstration)*

December 28, 2011

**Prof YS Rajan**

*S & T in India: Economic Relevance and Social Acceptance*

December 14, 2011

**Dr Sharada Srinivasan**

*Pre-Industrial Iron and Steel Production in Northern Telangana: Exploring Scientific Methods of Characterization of Surface Finds*

December 7, 2011

**Prof Stuart Hameroff MD**

*Consciousness and the Universe: Current Status of the Penrose-Hameroff Orch OR Theory*

November 30, 2011

**Mr Abhijit Sengupta**

*Culture and the City*

November 23, 2011

**Dr M Mayilvaganan**

*Winning the Unwinnable War: How did the Sri Lankan Government Defeat LTTE*

November 9, 2011

**Prof Narendar Pani**

*Ideologies of Corruption*

October 19, 2011

**Ms Sowjanya R Peddi**

*Gift of / in South Asia*

October 12, 2011

**Dr Rajesh Kasturirangan**

*The Cognitive Synthesis*

October 5, 2011

**Prof PK Shetty**

*Innovations in Agriculture: A New Research Initiative of NIAS*

September 28, 2011

**Dr Avanti Mallapur**

*Restoring Native Habitats in the Western Ghats Rainforests*

September 21, 2011

**Dr Puja Guha**

*International Migration, Remittances, and Development: Disciplines at Cross Purposes?*

September 14, 2011

**Dr Lalitha Sundaresan**

*Terrorism Incidents in India (1993-2010) – A Perspective*

August 24, 2011

**Prof N Mukunda**

*Truth, Beauty and the Meaning of Understanding Nature*

August 17, 2011

**Prof BN Goswami**

*Why is the Indian Monsoon so Difficult to Predict?*

August 10, 2011

**Dr Vikas Kumar**

*State Secularism and Religious Establishment*  
August 3, 2011

**Prof Sangeetha Menon**

*Body-absence and Self-sense: The 'New Hard Problem' in Consciousness Studies*  
July 27, 2011

**Dr Manu V Mathai**

*Beyond Prometheus and Bakasura: Elements of an Alternative to Nuclear Power in India's Response to the Energy-Environment Crisis*  
July 20, 2011

**Prof Malavika Kapur**

*Footprints of Ancient Healers of Children: Gleanings from Kashyapa Samhita*  
July 13, 2011

**Mr Kishor G Bhat**

*The Best Election Money Can Buy: A Mathematical Treatment*  
July 6, 2011

**Dr Gillian Juleff**

*Technology and Evolution: A Root and Branch View of Asian Iron from First Millennium BC Sri Lanka to Japanese Steel*  
June 29, 2011

**Dr Chandra Kiran BK**

*The Distributional Impacts of Climate Change on Indian Agriculture: A Quantile Regression Approach*  
June 22, 2011

**Dr Mukund K Rao**

*Applications of GIS for Governance, Enterprises, Academia and Citizens*  
June 15, 2011

**Dr Vijay Chandru**

*Continued Leadership in Supplying Affordable Therapeutics for the World: Challenges for the Indian Bio-Pharmaceutical Industry*  
June 1, 2011

**Dr Ritajyoti Bandyopadhyay**

*This Urbanism and That Urbanism: New Geographies of Theory*  
May 25, 2011

**Prof DP Sen Gupta**

*Rabindranath Tagore and Bengal Renaissance*  
May 4, 2011

**Prof S Ranganathan**

*The Discovery of New Materials*  
April 27, 2011

**Prof Dilip R Ahuja**

*The First Law of Spinning*  
April 13, 2011

**Dr Anitha Kurup**

*Understanding Doctoral Trends is Fundamental for Success in a Knowledge-Based Economy*  
April 6, 2011

Lectures by Doctoral Students

**Ms Meera HR and Mr Naresh Keerthi**

*Memories of a Riverside Town*  
February 22, 2012

**Mr Subhankar Chakraborty**

*Stress in Nonhuman Primate Societies: A Framework for Understanding Variation in Individual Stress Responses as a Function of Personality Differences*  
April 20, 2011

## ASSOCIATES' PROGRAMME

NIAS shares its experiences, both intellectual and cultural, with a select group of distinguished persons. As Associates, they enjoy certain privileges, including access to the NIAS library, invitations to all major events and opportunities to dine with the NIAS faculty and distinguished visitors. As of now we have 130 distinguished personalities as our associates. Prof S Setter is the Chairman and Prof PK Shetty is the Coordinator for Associates' Programme.

### **Mr Ambi Subramaniam**

Son and disciple of Dr L Subramaniam,  
Bangalore

*Music Concert (Violin)*

January 20, 2012

### **Prof MR Srinivasan**

Member, Atomic Energy Commission, India

*Future of Nuclear Power after Fukushima*

November 22, 2011

### **Prof Kusala Rajendran**

Associate Professor, Centre for Earth Sciences,  
IISc.

*An Ocean in Turmoil*

and

### **Prof MR Srinivasan**

Member, Atomic Energy Commission, India

*Japanese Nuclear Disaster*

April 6, 2012

Two more talks listed under Memorial Lectures (Lakshmi Nizamuddin Memorial Lecture & Raja Ramanna Memorial Lecture)

## LITERARY, ARTS AND HERITAGE FORUM

The NIAS Literary, Art and Heritage Forum aims to facilitate the appreciation, promotion and study of these crucial cultural and artistic aspects. Apart from lectures and book readings the forum aims to hold screenings of films and to promote art appreciation related to exhibitions.

Dr Sharada Srinivasan and Prof Sangeetha Menon are the Coordinators of the NIAS Literary, Arts and Heritage Forum.

### **Dr Shankar Bhattacharya and Dr Deepak Paramashivan Kaundinya**

Maihar's Tryst with Mysore

*A Rare Jugalbandhi Concert of Sarod and Veena*

December 22, 2011

### **Mr Parvez Imam**

Freelance Film Maker, New Delhi

*The Waterfall (Film screening and discussion  
with the film maker)*

September 5, 2011

### **Prof Nick Kaye**

Dean of the College of Humanities, University  
of Exeter

*Acts of Presence: Live and Simulated  
Performance in Immersive Virtual Reality*

November 18, 2011

P. Veerbhadranaka  
Revathi Sampath Kumaran  
Shivalli Tukdeo  
A.R.Vasavi

03-2011

D. P. Sen Gupta  
Dilip R. Ahuja

'THE EDUCATION QUESTION' FROM THE  
PERSPECTIVE OF ADIVASIS:  
CONDITIONS, POLICIES AND STRUCTURES

Options for Adjusting  
Indian Standard Time  
for Saving Energy

Narendar Pani

A NOTE ON THE  
INFLATIONARY POTENTIAL OF CASH TRANSFERS

NATIONAL INSTITUTE OF ADVANCED STUDIES  
unicef

NATIONAL INSTITUTE OF ADVANCED STUDIES  
With support from  
BUREAU OF ENERGY EFFICIENCY

# Publications

12-2011

V.S. Ramamurthy

SOCIO-ECONOMICS OF  
TECHNOLOGY OPTIONS  
TECHNOLOGY DAY LECTURE  
May 11<sup>th</sup>, 2011

03-2011

Azad Azad-Shaw

INDIA'S INNOVATION CHALLENGE  
FOR INCLUSIVE DEVELOPMENT  
THE FIRST LAKSHMI NIZAMUDDIN MEMORIAL LECTURE  
12 August, 2011

Arundhati Ghose

EMERGING INDIA:  
STRATEGIC CHALLENGES AND  
OPPORTUNITIES  
K. SUBRAMANIAM MEMORIAL LECTURE

14-2012

V.S. Ramamurthy

Perception and  
Acceptance of Public Risks

NATIONAL INSTITUTE OF ADVANCED STUDIES

NATIONAL INSTITUTE OF ADVANCED STUDIES

NATIONAL INSTITUTE OF ADVANCED STUDIES

NATIONAL INSTITUTE OF ADVANCED STUDIES

Chandrashekar  
An (Retd.) R.N. Ganesh  
Raghunath  
Rajaram Nagappa  
Ramani  
Lalitha Sundaresan

04-11

S. Chandrashekar  
Rajaram Nagappa  
Lalitha Sundaresan  
N. Ramani

08-2012

Akila RS  
Anamika Ajay  
Narendar Pani

CHINA'S ANTI-SHIP BALLISTIC MISSILE  
GAME CHANGER IN THE PACIFIC OCEAN  
November 2011

TECHNOLOGY & INNOVATION IN CHINA  
A CASE STUDY OF SINGLE CRYSTAL SUPERALLOY  
DEVELOPMENT FOR AIRCRAFT TURBINE BLADES  
November 2011

CAN DUAL-MEMBER CONSTITUENCIES BE THE WAY  
FORWARD FOR WOMEN'S RESERVATION?

## BOOKS

**Pani Narendar and Nikky Singh** (2012) *Women at the Threshold of Globalization*, Routledge, New Delhi and London.

**Settar S** (2011) *Somanathapura (in Kannada and English). 2nd revised edition*. Bangalore: Abhinava imprint.

**Settar S** (2011) *Kappe Arabhattana Sasana: Hadimuru dasakagala samagra adhyayana*, Bangalore: Abhinava imprint.

**Settar S** (2011) *Aksaramēru's Kaliyuga Vipaṛitan: Earliest Tripadi Poetry in Indian Literature (c. 740 A D)*. Bangalore: Ruvāri.

## PAPERS

**Ahuja Dilip R and DP Sen Gupta** (2012) 'Year-round daylight saving time will save more energy in India than corresponding DST or time zones', *Energy Policy* 42: 657-669.

Bhadreenath S, H Achyuthan, S Haricharan and KP Mohandas (2011) 'Saluvankuppam coastal temple- excavation and application of soil micro morphology', *Current Science* 100 (7): 1071-1075.

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1. Power Behind Every Move
2. Our Lucky Star: How the Sun Works
3. The Earth's Tilt and the Reason for the Seasons
4. A Look Inside the Heart of the Earth
5. Earth is a Magnet and All is Right with the World
6. Under the Big Blue Sky
7. Water Water Everywhere
8. Where Does Wind Power Come From?
9. When the Wind Blows
10. Cave Tells Tale of Darkness and Light
11. The Trail Leads to Buried Light
12. The Mechanical Workhorse of the Industrial Revolution
13. Mumita and the Eternal Flame
14. The End of Oil is Closer Than You Think
15. Automobiles Tell Their Stories
16. Up in the Air
17. Getting All Charged Up
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19. The Amazing Power of Hydrogen and Oxygen
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23. Exploring Electrifying Fields
24. AC Won the War of Currents
25. Kaveri, the First Hydel Plant
26. Electricity: The Breath of Life
27. Do We Really Have a Chance?
28. Watch The Veins of a Leaf
29. Is There Light at the End of the Tunnel?
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# Lectures, Honours and Awards



The Faculty at NIAS reflects the multidisciplinary character of the Institute. Coming from specializations as diverse as satellite technology and heritage they are held together by their focus on multidisciplinary work, and a willingness to engage with the larger community. This is captured by this list of the lectures delivered, the papers presented in conferences, and awards received by them during the year.

## LECTURES

### **Prof VS Ramamurthy**, Director

Keynote Address in the Interactive Discussion on Transitions in Higher Education, Department of Sociology, Christ University, Bangalore, March 21, 2012.

*Perception and Acceptance of Public Risks?*, workshop on Meeting of Minds at the Interface of Science and Society, INSA, New Delhi, March 13, 2012.

*Challenge on Science Education*, National Science Day Celebration, Mysore University, Mysore, February 28, 2012.

*Science and Technology in China: Implications and Lessons for India: An Overview*, seminar on Science and Technology in China, Observer Research Foundation, New Delhi, February 3, 2012.

Convocation Address at Maulana Azad National Institute of Technology, Bhopal, January 25, 2012.

*Public Risk Perception and Public Risk Acceptance*, Brainstorming on Public Risk Perception, NIAS, September 29, 2011.

*Healthcare for All*, inaugural address for the 3<sup>rd</sup> international conference on Current Status and Future Perspective in Pharmaceutical Sciences, PES College of Pharmacy, Bangalore, August 19, 2011.

Keynote Address at Opening Ceremony of the World Education Summit, The Ashok, New Delhi organized by IGNOU, July 13, 2011.

Graduation Address at RV College of Engineering, Bangalore, July 10, 2011.

*Socio-Economics of Technology Options*, Technology Day Lecture, National Technology Day, NIAS, May 11, 2011.

Keynote Address at Dayanand Sagar College of Engineering, Bangalore, May 10, 2011.

*Technology Options in a Democratic World*, 38<sup>th</sup> Vikram Sarabhai Memorial Lecture, IETE 42<sup>nd</sup> Mid-Term Symposium, Bangalore, April 16, 2011.

### **Prof Dilip R Ahuja**

*Public Perception of the Seriousness of Climate Change as a Problem*, Brain-storming Seminar on Risk Perception, NIAS, September 30, 2011.

### **Dr Ritajyoti Bandyopadhyay**

*Securitizing Urban Futures*, workshop at MAKAIAS, Kolkata, February 14, 2012.

Discussant for the panel on Urban Mobilities in the international conference on *Subversive Niches: Tracking Mobility Studies in India and Bangladesh*, Kolkata, December 28 and 29, 2011.



Keynote speaker at workshop organized by Oak Foundation on the state of housing in Kolkata, Kolkata, November 15, 2011.

**Prof S Gopal**

*A Hypothetical Anthrax Attack on Bangalore* at the conference on Bioterrorism and Its Likely Impact on Maritime Security Strategy, Centre for Latin American Studies, Goa University, December 12, 2011 (along with Dr Kshama Lakshman).

*Terrorism and Left Wing Extremism*, at the international seminar on South Asian Dynamics-Aspects of Politics, Economics and Security at Bruneck in South Tyrol, Italy, December 4, 2011.

**Prof DP Sen Gupta**

*Alternative Energy* at the Asia Centre, Bangalore on March 24, 2012.

IEEE.PES Keynote Address on *Dynamic Stability of Power Systems*, February 27, 2012.

*Public Perception of the Seriousness of Cell Phones – Do They affect Our Brain?*, September 29, 2011 (with Dr Vani Santosh).

**Dr Smriti Haricharan**

*Megaliths in Tamil Nadu*, Royal Society-DST supported conference on Archaeometallurgical and Geospatial Techniques in the Study of Early Metal Production and Iron Production, Exeter University, March 7, 2012.

*Telangana Survey Database*, UKIERI NIAS-Exeter International Dissemination Seminar at NIAS, November 16, 2011.

**Prof Malavika Kapur**

*Specific Learning Disabilities in the Indian Context*, Department of Psychology, Christ University, Bangalore, March 13, 2012.

Keynote Address on *Code of Conduct for Counsellors*, National Conference on Child and Adolescent Psychology: Challenges and Issues, Department of Psychology, CMR Centre for Media and Management Studies, Bangalore, February 10, 2012.

Presidential Address on *How Do We Reach Out to All the Children*, 38<sup>th</sup> National Annual Conference of Indian Association of Clinical Psychologists, Pune, January 27, 2012.

*Kashyapa Samhita – A Text Book of Paediatrics in Ayurveda at Samvada* sponsored by the Department of Kannada and Culture, Bangalore, January 22, 2012.

Chief Guest at the inaugural session on Purnapranati Utsava, Bangalore, January 11, 2012.

Guest of honour for the inauguration of the Centre for Developmental Disability DRS I – Special Assistance Programme of the UGC, Department of Psychology, Calcutta University - conducted a workshop on Play Therapy, December 27, 2011.

*Qualitative Methods in Social Sciences*, State Level Interdisciplinary Research Methodology Workshop, Centre for Women's Studies, Bangalore University, September 20, 2011.

Keynote Address on *Essential Attributes of a Helping Profession*, national level workshop on Introduction to Therapeutic Counselling to Engineering Teachers, NMAM Institute of Technology, Nitte, South Kanara, July 27, 2011.

*Child Psychology and Art*, Theatre Workshop, National School of Drama, Bangalore Chapter, July 10, 2011.

Chaired a session on *Play Therapy* in the international conference on Disabilities / Autism, Convention Centre, National Institute of Mental Health and Neurosciences, Bangalore, May 19, 2011.

*Preparation to Face the Examination*, VVN Degree College, Bangalore, April 6, 2011.

**Dr Rajesh Kasturirangan**

*M-Theories: Mind, Metaphysics and Mathematics*, Indian Institute of Science Education and Research, Pune, March 28, 2012.

*The Enselved Mind* at the Looking Within: Interdisciplinary Approaches to Consciousness, international conference, NIAS, January 7, 2012.

*The New Anthropocentrism* at the Consciousness and Cosmology conference in Dharamsala, on December 17, 2012.

*Cognitivism*, First National Conference on Neuropsychology and Cognitive Neuroscience, Bangalore, November 26, 2011.

*Indian Philosophy and the Mind Sciences* at the Department of Psychology in the University of California, Davis, June 21, 2011.

**Prof Saurabh Kumar**

Chaired the Valedictory Session and participated in the Chennai Centre for China Studies Seminar on *India-China: The Way Forward*, March 16, 2012.

*India-Pakistan Nuclear Stand-off* at the Surendranath Bannerjea College, Kolkata Seminar, February 14, 2012.

Valedictory Address at the University of Madras - CCCS Seminar on Re-evaluating US Policy Towards Asia, January 9, 2012.

**Prof Anitha Kurup**

*Creativity among Women Scientists in India and the US*, Western State University of Connecticut, Danbury, USA, March 8, 2012.

*Challenges of Identification of Gifted Children in Maths and Science: Experiences from three contexts in India*, Western State University of Connecticut, Danbury, USA, March 7, 2012.

*Gifted Education in India: Work in Progress* at University of Connecticut, Storrs, USA, March 5, 2012.

*Gender and Education in India*, New Jersey College University, New Jersey, USA, February 29, 2012.

*Women Scientists and Engineers in India*, University of Southern California, Los Angeles, USA, February 24, 2012.

*Schooling in Developing Countries: The Indian story*, University of California, Davis, USA, February 16, 2012.

**Dr Chidambaran G Iyer**

*Evaluation of the Impact of Processes in the Mahatma Gandhi National Rural Employment Guarantee Scheme in Karnataka* at the CEOs workshop at ANSSIRD Mysore, June 27, 2011.

**Dr M Mayilvaganan**

*Understanding the Sri Lankan Government Strategy against the LTTE*, National College Weeklong Social Science Festival organized by The Bangalore Social Sciences Forum, December 12, 2011.

*Forced Migration in South Asia* during the workshop on Migration and Inequality organized by Sussex University and University of Colombo, Negombo, Sri Lanka, September 22, 2011.

**Prof Sangeetha Menon**

*Brain and Consciousness: A Discussion on the Body-sense and the Self-sense*, Resource Person's Lecture, The Brain Matters: Implications of Brain Research for Mental Health, national workshop at St Ann's College for Women, Hyderabad, March 16 and 17, 2012.

*Self and Its Wellbeing*, panel discussion, Looking Within: Interdisciplinary Approaches to Consciousness, international conference, NIAS, January 7, 2012.

*Self in Neuropsychiatry and Neurophilosophy*, concept introduction, Looking Within: Interdisciplinary Approaches to Consciousness, international conference, NIAS, January 5, 2012.

*Risk-perception and the Sense of Security: A Humanities Perspective*, Brain-storming Seminar on Risk Perception, NIAS, September 29, 2011.

*Consciousness Studies and Challenges in Neurobiology and Neuropsychiatry*, Kirloskar House, Bangalore, September 4, 2011.

*Current Trends and Challenges In Doing Philosophy*, resource person's perspectives, for the workshop on Problems Confronting Philosophy in Universities, Indian Council of Philosophical Research, Darshan Bhawan, New Delhi, August 11, 2011.

*Wellbeing and Its Implications for Brain and Consciousness Studies*, Plenary Keynote Address at the international conference on Positive Psychology Amity Institute of Behavioural and Allied Sciences, Jaipur, August 6, 2011

*Body-sense, Brain-maps and Consciousness: Exploring the Self*, public lecture organised by the Department of Humanities and Social Sciences, Indian Institute of Technology, Mumbai, July 21, 2011.

*Pathways to Excellence and the Road Ahead*, Chief Guest's Lecture at the Convocation Programme of the Presidency College, Bangalore, April 30, 2011.

**Prof Rajaram Nagappa**

*Development, Status and Role of Ballistic and Cruise Missile in South Asia*, paper presented at the ITS International Conference on South Asian Dynamics — Aspects of Politics, Economics and Security, Institute of Trans-national Studies, Bruneck, Italy, December 3, 2011.

*India's Space Policy and Law*, international workshop on Space Policies and Law in Asia, Institute of Policy Management, China Academy of Sciences and Secure World Foundation, Beijing, May 19, 2011.

*Foundations of Technology* to the PhD scholars, NIAS, November 15, 2011.

Talks on *Failures in Solid Rocket Motors* and *Ballistic and Cruise Missiles* to scientists of High Energy Materials Research Laboratory, DRDO, Pune, November 8, 2011.

Talks on *Ballistic Missiles in Our Region* and *Solid Propellant Service Life* to scientists of SFC, DRDO, Jagdalpur, June 22, 2011.

**Dr MG Narasimhan**

*Role of Risk Communication in Risk Studies*, Brainstorming on Public Risk Perception, NIAS, September 29, 2011.

Two lectures on *Conflicts of Interest and Scientific Objectivity and Protection of Human Subjects and The Use of Animals in Research* at the Indian School of Mines in the training programme organized by the DST, Dhanbad, Jharkand, December 15, 2011.

**Dr Hippu Salk Kristle Nathan**

*Frameworks for Measuring Sustainability and Indicators of Sustainability*, Course on Managing Technology for Sustainability, Department of Management Studies, Indian Institute of Science, Bangalore, March 26 and 28, 2012.

**Prof Narendar Pani**

*The Budget and the Future of Economic Reform*, Annual CBPS Endorsement Lecture, Bangalore, March 10, 2012.

**Dr MB Rajani**

*Geospatial Techniques in Indian Archaeological Studies*, UKIERI NIAS-Exeter International Dissemination Seminar, NIAS, November 17, 2011.

**Prof S Ranganathan**

*Telangana Archaeomaterials: Analytical Perspectives*, Royal Society-DST supported conference on Archaeometallurgical and Geospatial Techniques in the Study of Early Metal Production and Iron Production, March 8, 2012 (with Prof Sharada Srinivasan).

*Archaeometallurgy and Materials Science*, UKIERI NIAS-Exeter International Dissemination Seminar at NIAS, November 16, 2011.

*Crucible Steel from India: A Major Metallurgical Accomplishment of Antiquity, Ancient and Pre-Modern Production of Iron and Non-Ferrous Metals*, ISIJ, Japan, September 22, 2011 (with Prof Sharada Srinivasan and Dr G Juleff).

*Telangana Project and Scientific Investigations*, at Exeter University, UK as part of NIAS high level delegation visit, June 8, 2011.

**Prof S Settar**

Inaugural Address at the Seminar on Kannada Classical Studies organized for Kannada Post-Graduate Teachers by the Department of Kannada and Culture, Government of Karnataka, March 3, 2012,

Inaugural Address *South India in the 18<sup>th</sup> Century*, UGC sponsored National Level Seminar, Sri Siddaganga College, Tumkur, February 24, 2012.

Opening Remarks on *Mauryan Artisans, Sessions and Practicals in Experimental Archaeology*, NIAS, February 2011.

*KS Behra Memorial Lecture*, 33<sup>rd</sup> Session of Orissa History Congress, Beharampur University, Beharampur, Orissa, January 22, 2012.

Felicitation Address *Nrupatunga Prashasti Puraskruta MM Kalburgi Sanmana*, Karnatak University, Dharwad, December 1, 2011.

*Mauryan Scripts and Stone Techniques*, UKIERI NIAS-Exeter International Dissemination Seminar, NIAS, November 17, 2011.

Inaugural Address at the National Level Sculptors Workshop, Kannada Vishva Vidyalaya, Hampi, October 31, 2011.

Inauguration and Keynote Address at the Golden Jubilee Celebration of Anthropological Survey of India- Sothern Centre, Mysore September 20, 2011.

Nidugallu Durgada Kathana - Book release, Kannada Bhavana, Bangalore, June 19, 2011.

*Folk Theatre of Bahurupis and The Metropolis of Hampi* at Exeter University, UK as part of NIAS high level delegation visit, June 8, 2011.

### **Prof PK Shetty**

*Science, Technology and Human Welfare*, HKS Education Society, Hassan, January 28, 2012.

*The Impact of Science on Society*, organized by MS Ramaiah Composite Pre-University College, Bangalore December 3, 2011.

*Leadership and Innovation in the Public Sector*, Chief Guest's lecture on the occasion of successful completion of a decade of service of Southern Region Transmission System-II, Powergrid Corporation of India, Bangalore, March 31, 2011.

### **Dr M Amarjeet Singh**

*Social Science Perspectives on Conflict*, National Consultation on Conflict Resolution, Loyola College, Chennai, December 12, 2011.

*Response to Insurgency*, Rajiv Gandhi Institute of Contemporary Studies, New Delhi, December 7, 2011.

*Migration, Identity and Conflict: An Explanation*, at an international seminar, Delhi School of Economic, University of Delhi, November 4, 2011.

### **Prof Anindya Sinha**

*The Monkey's New Mind! Cognitive Networks in Bonnet Macaques* at the workshop on Social Networks, Institute of Mathematical Sciences and Indian Institute of Technology Madras, Chennai, February 24, 2012.

*The Monkey in the Mirror! Sociocultural Networks in Bonnet Macaques* at the workshop on Social Networks, Institute of Mathematical Sciences and Indian Institute of Technology Madras, Chennai, February 24, 2012.

*The Monkey in the Mirror! Social and Cultural Evolution in Wild Bonnet Macaques* at the EOBUSymposium, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, January 19, 2012.

*Ecology Proposes, Behaviour Disposes: Variability in Social Organisation and Individual Behavioural Strategies among Wild Bonnet Macaques*, Plenary Talk, YETI 2011 – Young Ecologists Talk and Interact, Guwahati, December 14, 2011.

*True Lies! Patterns of Generalisation in Tactical Deception by Wild Bonnet Macaques Macaca Radiate* in the First National Conference on Neuropsychology and Cognitive Neuroscience, Bangalore, November 26, 2011.

*Spare the Genes and Spoil the Child? Genetic and Social Influences on Parenting in Primates*, Plenary Talk, Eleventh Biennial National Conference of the Indian Association for Child and Adolescent Mental Health, Bangalore, November 17, 2011.

*Social Cognition in Primates: From Mental Representation to Distributed Cognition I and II* during the Second NIAS Cognition Summer School on Thought and Communication, July 27, 2011.

*How Monkeys See the World: The Search for an Animal Mind* in the DST-INSPIRE School, International Institute of Information Technology, Pune, July 4, 2011.

*Of Monkeys and Men: Studying Primates in India*, Summer School for Higher Secondary Students, Indian Association for Cultivation in Science, Kolkata, May 30, 2011.

*Of Monkeys and Men: Studying Primates in India*, North-East Indian Students' Summer Training in Basic Sciences, Bose Institute, Darjeeling, May 25, 2011.

**Prof Sharada Srinivasan**

*Telangana Archaeomaterials: Analytical Perspectives*, Royal Society-DST supported conference on Archaeometallurgical and Geospatial Techniques in the Study of Early Metal Production and Iron Production, March 8, 2012 (with Prof S Ranganathan).

*Faces and Phases: Archaeometallurgical and Art Historical Insights on South Indian Bronzes*, 22<sup>nd</sup> Nabadurga Banerjee Endowment Lecture, Asiatic Society, Mumbai, January 12, 2012.

*High-Tin Bronzes from Ancient India and Surviving Practices*, Future of the Past: A conference on Laboratory Techniques in Archaeology, ICTS, TIFR supported conference, with Manipal University, Mangalore, November 23, 2011

*India's Legendary Wootz Steel and Telangana Materials Analysis*, UKIERI NIAS-Exeter International Dissemination Seminar at November 16, 2011.

*Chola Bronzes: Art Historical and Archaeometallurgical Studies*, Loyola Marymount University (LMU), Los Angeles, September 28, 2011.

*Cosmic Dance of Shiva: Art, Science, Dance perspectives on South Indian sculpture*, Santa Barbara Museum of Art, CA, September 24, 2011.

Keynote speaker at the inauguration of national conference on *Manuscript Preservation of National Manuscript Mission*, September 11, 2011.

*Analysis of Telangana Archaeomaterials*, 8<sup>th</sup> Exeter University, UK, June 8, 2011.

**Prof Lalitha Sundaresan**

*S & T Capabilities of China*, national conference on *Rise of China: Indian Perspectives* at NIAS, December 21, 2011.

**Dr Shivali Tukdeo**

*Between Global Economic Crisis and Domestic Political Pressures: An Analysis of India's Education Policy*, Global Studies Association, Chicago, May 2011.

*PESA, RTE and Adivasi Education*, conference on Participatory Public Policy, CSDS, New Delhi, January 2012.

*Thinking of Higher Education in India: Global Context, Issues and Questions*, Christ University, Bangalore, March 2012.

*Literacies of Power: Finding the Adivasi Voice in Education*, ISEC, Bangalore, March 2012.

**Prof Carol Upadhy**

Invited speaker on a panel of workshop on *India EU Engagement on Migration* organised by the Indian Council of Overseas Employment, Ministry of Overseas Indian Affairs, New Delhi, November 22, 2011.

**Dr Arun Vishvanathan**

*Iran, North Korea and Myanmar's Nuclear Programmes on the Basis of the Study* at SFC HQ in Delhi on February 8, 2012.

## PAPERS PRESENTED IN CONFERENCES

### **Prof Dilip R Ahuja**

*Ethical Implications of Geoengineering Projects*, Geoengineering: Science, Ethics, Politics and Governance, New Delhi, September 20, 2011.

*Policies for Mitigating Climate Change* at the workshop on Asian Climate Change and Variability, Divecha Centre, IISc, Bangalore, July 22, 2011.

### **Dr Ritajyoti Bandyopadhyay**

*Modes of Urbanization in Calcutta* at the international conference on Migration, Informal Work and Urban Poverty, Institute for Social and Economic Change, Bangalore, March 22, 2012.

*Hegelian Unconscious in Political Society* at the workshop on Doing Theory, University of Calcutta, March 15, 2012.

*Urban Informality Revisited* at the conference on The 21<sup>st</sup> Century Indian Metropolis, organized by the Department of Sociology, UC Berkeley, held at India International Centre, New Delhi, April 19, 2011.

### **Dr Puja Guha**

*Diasporic Relationships to Development: A Study of International Migration in Central Gujarat*, at the conference on Migration, Informal Work and Urban Poverty: Interdisciplinary Perspectives, Institute for Social and Economic Change, Bangalore, March 22 and 23, 2012.

ISI Kolkata Seminar, *Evaluating the Macroeconomic Impact of International Remittances: The Micro to Macro Level Adjustments*, March 16, 2012.

Presentation at Annual General Meeting (AGM) of Indian Statistical Institute, Karnataka Branch, *International Migration, Transnational Flows and Development: The Impact of Reverse Economic Flows in India's Regional Towns*, March 9, 2012.

*Reconciling the Dichotomy between Internal and International Migration in Migration-Development Nexus*, Asia Research Institute Conference on Crossing Borders, Traversing Boundaries, National University of Singapore, October 2011.

*'Migrants' Private Giving and Development: A Study of Diasporic Relationships to Development in Central Gujarat, India*. Paper selected for conference on Diaspora and Development: South Asian Diaspora Engagement in South Asia, ISAS, National University of Singapore, September 27 and 28, 2012.

### **Prof Anitha Kurup**

*Identification of Gifted Children in Math and Science: Outcomes from Three Contexts in India*, NAGC conference at New Orleans, November 4, 2011.

*Internationalisation of Higher Education: Indian Institute of Science and Manipal University*, AIEA conference, Washington DC, February 21, 2012.

*Identification and Mentoring of Gifted Children in India*, Connecticut State University, Faculty Research Conference, Connecticut, USA. (Joined on Skype), April 6, 2011 (along with Dr Marcy Delcourt and Dr Jyoti Sharma).

### **Dr Nabeel A Mancheri**

*Balancing Trade: The Mercantile VS Services in India- Australia Economic Relations* at the international conference on Public Diplomacy in Theory and Practice: Culture, Information and Interpretation in Australian-Indian Relations organized by University of Delhi and Alfred Deakin Research Institute (ADRI), Deakin University, Australia, April 8 and 9, 2011.

**Dr M Mayilvaganan**

*Conflict Resolution in Sri Lanka: Failures, Causes and Lessons* at the conference on Searching for Non-western Roots of Conflict Resolution Discourses, Norms and Case Studies, organized by Institute of foreign policy studies, University of Calcutta, January 31, 2012.

*Rise of China and the Indian Ocean: Concerns and Challenges for India* at the international conference on Ocean and Geopolitics, organized by university of Malaya, Malaysia, December 9, 2011.

*Crossing Borders, Traversing Boundaries: Bridging the Gap between International and Internal Migration Research and Theory*, paper accepted at the international conference organized by the Asia Research Institute, National University of Singapore, October 13, 2011.

**Prof Narendar Pani**

*Bilateral Economic and Investment Relations: Working towards a Mutually Beneficial Comprehensive Economic Cooperation Agreement*, at the seminar on Australia and India: An Emerging Partnership, Chennai, March 28, 2012.

**Prof Carol Upadhy**

*Genealogies of Software Capital in India* at the workshop on Rethinking Economic History: Circulation, Exchange and Enterprise in India, Nehru Memorial Museum and Library, New Delhi. March 14 and 15, 2012.

*Corporate Culture, New Publics and the Marketisation of Everyday Life* at the conference on Democracy, Pluralism and Justice; Challenges for India in a Changing World, School of Social Sciences, Jawaharlal Nehru University, New Delhi, February 29 to March 2, 2012.

*Shrink Wrapped Souls: Managing the Self in India's New Economy* at the conference on Enterprise Culture in Globalised India, University of Oxford, Department of International Development and School of Interdisciplinary Area Studies, September 26 and 27, 2011.

**CONFERENCES ATTENDED****Prof Dilip R Ahuja**

Infosys Science Foundation Panel Discussion on *How Indian Science & Research Can Rise and Shine*, Bangalore, December 28, 2011.

Panel Discussion on the Unethical Indian, IIM Bangalore, December 21, 2011.

Workshop on *Energy and Sustainable Development*, IIM Bangalore, November 28, 2011.

*20th Century History of Science* in India, CCS, IISc, October 15, 2011.

*Current and Future Priorities for Research in India*, organized by C-Step and Swissnex, Bangalore July 15, 2011.

**Prof Malavika Kapur**

International conference on *Indian Social Sciences in the Changing World: Roles, Responsibilities and Reforms*, ICSSR, New Delhi, February 6 and 7, 2012.

**Mr Gautam Narasimhan**

Workshop on *Energy Subsidies*, jointly organized by TERI (The Energy and Resources Institute) and IISD (International Institute of Sustainable Development) in Bangalore, March 30, 2012.

Workshop on *Controversy Mapping and Climate Change*, held at the Divecha Centre at the Indian Institute of Science, March 19 to 21, 2012.



**Dr Hippy Salk Kristle Nathan**

Workshop on *Energy Subsidies*, jointly organized by TERI (The Energy and Resources Institute) and IISD (International Institute of Sustainable Development) in Bangalore, March 30, 2012.

Workshop on *Controversy Mapping and Climate Change*, held at the Divecha Centre at the Indian Institute of Science, March 19 to 21, 2012.

**Dr M Amarjeet Singh**

Workshop on *Research Proposal Writing* organised by ESRC-DFID, held at ICSSR, New Delhi, July 22 and 23, 2011.

**Prof Anindya Sinha**

Workshop on *Social Networks*, Institute of Mathematical Sciences and Indian Institute of Technology Madras, Chennai, February 20 to 24, 2012.

*Looking Within: Interdisciplinary Approaches to Consciousness*, international conference, NIAS, January 5 to 7, 2012.

*YETI 2011 – Young Ecologists Talk and Interact*, Guwahati, December 12 to 15, 2011.

First National Conference on *Neuropsychology and Cognitive Neuroscience*, Bangalore, November 24 to 26, 2011

Eleventh Biennial National Conference of the Indian Association for Child and Adolescent Mental Health, Bangalore, November 17 to 19, 2011.

Students' Conference on *Conservation Science*, Bangalore, September 14 to 16, 2011.

*International Biology Olympiad*, Taipei, Taiwan, July 6 to 17, 2011.

HONOURS AND AWARDS

**Dr Manabrata Guha** was appointed as Honorary Research Fellow in the Department of Politics, School of Social Sciences, History and Philosophy, Birkbeck University of London from January 1, 2012 to December 31, 2013 and Honorary Distinguished Fellow at the Centre for Joint Warfare Studies (CENJOWS) for a period of one year from December 2011.

**Prof Malavika Kapur** was the President of the Indian Association of Clinical Psychologists from 2010 to January 2012.

**Dr Rajesh Kasturirangan** was selected a Fellow of the Mind and Life institute. He was also nominated to the Research Council of Azim Premji University. He also gave an institute colloquium at the Indian Institute of Science Education and Research in Pune.

**Prof Saurabh Kumar** served as Member of the Informal Group on the Rajiv Gandhi Action Plan chaired by Mr Mani Shankar Aiyar, 2011.

**Dr Shantha Mohan** is Core Group Member and Vice-President of the Executive Board, South Asia Consortium for Interdisciplinary Water Resources Studies, Hyderabad; Joint Secretary of India Water Partnership, New Delhi, India; Member of National Resource Group (NRG), Mahila Samakya, Ministry of Human Resource Development, Government of India; As part of the NRG was member of the selection committee for the positions of District Project Coordinators in Kerala; Member of the Governing Board, Best Practices Foundation, Bangalore; Member of the committee constituted for addressing Sexual Harassment of Women at the Workplace, ISAC, ISRO, Bangalore; Executive member of Mahila Samakya, Karnataka; Anchor of the network of the Indo-French Network of Actors in the Water Sector, India and

Adjunct Professor, Development Management, Human development Foundation School of Management, Bhubaneswar, Odisha.

**Prof Rajaram Nagappa** was selected as Member, Sectional Committee VII, Aerospace Engineering of the Indian National Academy of Engineering.

**Prof S Ranganathan** was elected by the RQ International Advisory Committee (IAC) to receive the RQ14 Distinguished Fellowship award to be conferred at the 14<sup>th</sup> International Conference on Rapidly Quenched and Metastable Materials at Salvador, BA, Brazil held between August 28 and September 2, 2011.

**Prof S Settar** received Prof SV Paramesvara Bhatta Memorial Award, Mangalore, 2012. He is the Selection Committee Member for Ravindranath Tagore National Professorship, Ministry of Culture, Government of India.

**Prof PK Shetty** received prestigious Kempegowda Award for the year 2011 by The Bruhat Bangalore Mahanagara Palike, Government of Karnataka, April 18, 2011. He was appointed as a Member of Advisory Board for R&D of POWERGRID, Government of India, August 3, 2011. He was also appointed as a Member of Sectorial Innovation Council on Simplification and Amalgamation of Labour Laws (this was formed under the National Innovation Council constituted by the Prime Minister to discuss, analyze and help implement strategies for inclusive innovation in India and prepare a Roadmap for Innovation 2010-2020), Ministry of Labour & Employment, Government of India, August 25, 2011.

**Dr M Amarjeet Singh** is Member, Advisory Group on the Response to Insurgency, Rajiv Gandhi Institute for Contemporary Studies, New Delhi.

**Prof Anindya Sinha** was offered the position of Adjunct Faculty at the Centre for Neuroscience, Indian Institute of Science, Bangalore.

**Prof Sharada Srinivasan** was appointed as Member of the National Committee on Archaeological Sciences constituted by the Archaeological Survey of India, Government of India.

**Prof Lalitha Sundaresan** was appointed as member of the Institute Ethics Committee of Rishi Valley Rural Health Centre, Rishi Valley School, Madanapalle, 2011.

**Prof Carol Upadhya** was appointed as a member of the Advisory Group on India EU Engagement on Migration Initiatives at the ICOE (Indian Council of Overseas Employment), Ministry of Overseas Indian Affairs, Government of India, New Delhi.

A photograph of two men sitting at a table, engaged in a discussion. The man on the left is wearing a light-colored striped shirt and glasses, pointing at a document. The man on the right is wearing a dark shirt and glasses, looking towards the first man. The table has a plate of cookies and a glass of water. The entire image has a reddish-pink tint.

# NIAS Council of Management

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3rd Cross Street, Taramani Institutional Area  
Chennai 600 113

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Director  
Indian Institute of Science  
Bangalore 560 012

**Prof André Béteille**

Professor Emeritus of Sociology, University of  
Delhi  
& National Research Professor  
69, Jorbagh  
New Delhi 110 003

**Mr Xerxes Desai**

41, 4th Cross  
Defence Colony  
Indiranagar  
Bangalore 560 038

**Dr JJ Irani**

7, Beldih Lake  
Northern Town  
Jamshedpur 831 001

**Dr Devaki Jain**

C II/41, Second Floor  
Safdarjung Development Area  
New Delhi 110 016

**Mr PK Misra**

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Ministry of Personnel, Public Grievances and  
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Government of India  
New Delhi 110 001

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Hosur Road, 3rd Cross, Electronic City  
Bangalore 561 229

**Mr LV Nagarajan**

Principal Secretary to the Government  
Finance Department  
Government of Karnataka  
Bangalore 560 001

**Dr Arcot Ramachandran**

No.3, Crescent Road  
Bangalore 560 001

**Prof VS Ramamurthy**

Director  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

**Dr T Ramasami**

Secretary  
Department of Science and Technology  
Government of India  
New Delhi 110 016

**Mr Siddaiah**

Secretary to the Government  
Higher Education Department  
Government of Karnataka  
Bangalore 560 001

**Mr AN Singh**

Managing Trustee  
Sir Dorabji Tata Trust  
Bombay House  
24, Homi Mody Street  
Mumbai 400 001

**Prof Narendar Pani (Secretary)**

Professor  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012



# NIAS Society

**Prof MS Swaminathan (Chairman)**

Chairman – M.S. Swaminathan Research  
Foundation  
3rd Cross Street, Taramani Institutional Area  
Chennai 600 113

**Prof P Balaram**

Director  
Indian Institute of Science  
Bangalore 560 012

**Prof André Béteille**

Professor Emeritus of Sociology, University of  
Delhi  
& National Research Professor  
69, Jorbagh  
New Delhi 110 003

**Mr Xerxes Desai**

41, 4th Cross  
Defence Colony  
Indiranagar  
Bangalore 560 038

**Dr JJ Irani**

7, Beldih Lake  
Northern Town  
Jamshedpur 831 001

**Dr Devaki Jain**

C II/41, Second Floor  
Safdarjung Development Area  
New Delhi 110 016

**Mr PK Misra**

Secretary  
Ministry of Personnel, Public Grievances and  
Pensions  
Government of India  
New Delhi 110 001

**Mr NR Narayana Murthy**

Chairman of the Board  
Infosys Technologies Limited  
Hosur Road, 3rd Cross, Electronic City  
Bangalore 561 229

**Mr LV Nagarajan**

Principal Secretary to the Government  
Finance Department  
Government of Karnataka  
Bangalore 560 001

**Dr Arcot Ramachandran**

No.3, Crescent Road  
Bangalore 560 001

**Prof VS Ramamurthy**

Director  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

**Dr T Ramasami**

Secretary  
Department of Science and Technology  
Government of India  
New Delhi 110 016

**Mr Siddaiah**

Secretary to the Government  
Higher Education Department  
Government of Karnataka  
Bangalore 560 001

**Mr AN Singh**

Managing Trustee  
Sir Dorabji Tata Trust  
Bombay House  
24, Homi Mody Street  
Mumbai 400 001

**Prof BV Sreekantan**

Visiting Professor  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

**Prof Narendar Pani (Secretary)**

Professor  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012



# Staff



**Director**

VS Ramamurthy

**Professors Emeritus**

K Kasturirangan  
Roddam Narasimha

**Visiting Professors**

G Balachandran, *TV Raman Pai Chair Professor*  
(August 1 to 13, 2011)  
S Chandrashekar, *JRD Tata Visiting Professor*  
DP Sen Gupta  
S Gopal, *Sir Ashutosh Mukherjee Visiting Professor*  
Malavika Kapur  
Saurabh Kumar  
SS Meenakshisundaram  
Rajaram Nagappa  
N Ramani  
S Ranganathan, *Homi Bhabha Visiting Professor*  
S Settar  
BV Sreekantan  
Lalitha Sundaresan  
Laxmi Subramanian, *TV Raman Pai Chair Professor*  
(February 17 to March 31, 2012)

**Professors**

Dilip R Ahuja, *ISRO Professor of S&T Policy Studies &*  
*Dean (Academic Affairs)*  
Anitha Kurup  
Sangeetha Menon  
Narendar Pani  
PK Shetty  
Sharada Srinivasan  
Anindya Sinha  
Carol Upadhyaya  
AR Vasavi (*till April 30, 2011*)  
Prabhakar G Vaidya (*till December 31, 2011*)

**Associate Professors**

Solomon Benjamin (*till June 30, 2011*)  
Rajesh Kasturirangan  
Sindhu Radhakrishna

**Assistant Professors**

Manabrata Guha  
Chidambaran G Iyer  
M Mayilvaganan  
M Murugan  
Amarjeet Singh  
Shivali Tukdeo

**Post Doctoral Associates**

VV Binoy  
Ritajyoti Bandyopadhyay  
Smriti Haricharan  
Nabeel Ajmal Mancheri  
Hippu Salk Kristle Nathan

**Research Scientist**

N Shantha Mohan

**Deputy Programme Coordinator**

MG Narasimhan

**Dy Librarian**

Ms Hamsa Kalyani

**Head (Administration & Finance)**

P Srinivasa Aithal

**Office Manager**

VA Joseph

**Assistant Manager (Administration)**

A Deva Raju

**Assistant Manager (Accounts & Finance)**

P Satish Bhat

**Senior Executive Assistants**

V Girija  
KS Rama Krishna  
S Lalitha  
Gayathri N Lokhande

**Executive Assistants**

JN Sandhya  
C Shashidharan  
AS Mary Stella  
R Vijayalakshmi

**Junior Executive Assistants**

VB Mariyammal  
VA Ramesh  
MS Shivakumar

**Support Staff**

Sukhdev Behra  
R Harish  
G Nagaraja  
Mujeeb Pasha  
N Rajesh  
N Ramesh  
SR Rathnam  
S Revanna  
S Sampath  
N Sathyamurthy  
B Shivanandappa  
V Srinivasa  
MV Sudhakara  
Mohammed Umar  
G Venugopal



**Adjunct Faculty**

Dr Solomon Benjamin  
Dr Antoine Bousquet  
Air Cmde (Retd) T Chand  
Dr Vijay Chandru  
Vice Admiral RN Ganesh  
Amb Arundhati Ghose  
Dr MV Srinivasa Gowda  
Shri PM Heblkar  
Dr MR Hegde  
Prof Subrata Ghoshroy  
Dr Kota Harinarayana  
Dr Michael A Huffman  
Dr S Jaikishan  
Dr Nayeem Ullah Khan  
Dr LV Krishnan  
Dr HN Kumara  
Prof Bhupendra Jasani  
Dr MD Madhusudhan  
Dr Kim R McConkey  
Mr KR Sridhar Murthi  
Dr Charmalie AD Nahallage  
Ms Meera Natampally  
Dr RR Navalgund  
Dr Baldev Raj  
Dr Mukund Rao  
Prof Gautam Sen  
Dr Jyoti Sharma  
Vice Admiral Vijay Shankar  
Dr Mewa Singh  
Dr Sitabhra Sinha  
Mr P Soma  
Prof KP Vijayalakshmi

The NIAS emblem can be traced back to a remarkable Sanskrit work called the *Sulva-Sutras*, literally 'The rules of the cord'. The text is a handbook of ritual geometry, and describes a series of geometric 'constructions' or procedures (using only strings and pegs) for the layout of fire altars of various shapes and dimensions, usually specified with extraordinary precision. To this day a cord is a part of the basic equipment carried by an Indian mason, to be used in surveying or in laying out a structure in any construction activity.

Scholars are not agreed on the precise dates of the *Sutras*, but the text clearly pre-dates Panini and must have been composed before the 6th century BC. The text acknowledges that the procedures it describes were even older.



## NATIONAL INSTITUTE OF ADVANCED STUDIES

IISc Campus, Bangalore 560 012, India

Tel: 91-80-22185000 Fax: 91-80-22185028

Email: [admin@nias.iisc.ernet.in](mailto:admin@nias.iisc.ernet.in) / [niasoff@nias.iisc.ernet.in](mailto:niasoff@nias.iisc.ernet.in)