

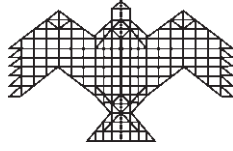
NATIONAL INSTITUTE OF ADVANCED STUDIES

Bangalore, India

*Silver Jubilee*  
★ 25 ★  
*Years*

ANNUAL REPORT  
2012 – 2013





**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
*Bangalore, India*



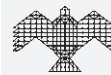
**ANNUAL REPORT**  
**2012 – 2013**

*Editor*  
**Sangeetha Menon**

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## FROM THE DIRECTOR



NIAS is celebrating its Silver Jubilee, completing twenty-five years that saw different phases of academic development, achievements and progress. A year-long series of events that we have planned to mark this significant point in the timeline of NIAS's history commenced with the inaugural event on June 20, 2012, when Dr Isher Judge Ahluwalia, Chairperson of the Board of Governors of the Indian Council for Research on Economic Relations spoke on the "Challenges of Urbanization in India". A special Volume with a collection of twenty-five selected lectures by NIAS Faculty and guest speakers titled "Dialogues across Disciplines" was also released that evening.

NIAS and its faculty are inspired by multidisciplinary and interdisciplinary research. While almost all faculty members work in the interface of at least two disciplines, they are grounded in specific disciplinary expertise. Last year we were able to introduce the 'Cluster' system of organizing our research programmes which highlights both cross-disciplinary work and contemporary areas of national and social interest. With this new structure in hand, we have outlined a perspective plan and road map for the next five years with emphasis on areas of research focus. We have presented to the Trust these documents which also project the support needed.

Within the umbrella of the four Clusters: Foundations; Science, Technology and Culture; Strategy, Security and Conflicts; and Social Transformations, our faculty members have filtered and extended their focus so as to emphasize: outreach interest, publications and mentoring doctoral and post-doctoral scholars. A wide-range of academic and training courses were offered and coordinated covering areas of core research and programmes, research methodology, leadership, resources and development, technology assessment and management, urban development etc.

NIAS doctoral programme is gaining wider national and international attention that during last year we saw a record number of applications from students. While our doctoral students work on complex and original research problems with their Supervisors they are also exposed to a rare academic environment where imagination and open enquiry are encouraged. During the past academic year three students submitted their doctoral theses, and two were awarded the doctoral degree. A collaborative research programme in archaeology and drama between NIAS and Exeter University which started a year before has also brought in the possibility for joint supervision of doctoral students and interactive exchange between faculty members.

NIAS is poised on a very important juncture, as we see today. We have kept ourselves steadfast on our mandate for original and interdisciplinary research that has relevance for intervention in social, national and policy levels. While we complete twenty-five years of our work this June, we also look forward to extend our dream and efforts to implement our planned activities for the next five years.

## SCHOOLS

Each faculty member belongs to one of the three Schools, School of Humanities, School of Natural and Engineering Sciences and School of Social Sciences, by virtue of his or her academic background.

The School of Humanities is engaged in research in the broad areas of philosophy, psychology, literature, fine arts, and culture. Various Programmes of 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.

The School of Natural and Engineering Sciences 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; and international and strategic studies; energy and environment policy.

The School of Social Sciences consolidates 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.

### SCHOOL OF HUMANITIES

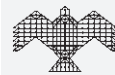
#### Members

Prof Sangeetha Menon, *Professor*  
Prof Sharada Srinivasan, *Professor*  
Prof S Ranganathan, *Homi Bhabha Visiting Professor*  
Prof Malavika Kapur, *Visiting Professor*  
Prof S Settar, *Honorary Visiting Professor*  
Prof BV Sreekantan, *Honorary Visiting Professor*  
Dr Rajesh Kasturirangan, *Associate Professor*  
Dr Smriti Haricharan, *Post-doctoral Associate*  
Dr MG Narasimhan, *Deputy Programme Coordinator*

### SCHOOL OF NATURAL AND ENGINEERING SCIENCES

#### Members

Prof Dilip R Ahuja, *ISRO Professor of S&T Policy*  
*Dean, Academic Affairs (till February 17, 2013)*  
Prof PK Shetty, *Professor*  
Prof Anindya Sinha, *Professor*  
*Dean, Academic Affairs (from February 18, 2013)*  
Prof S Chandrashekar, *JRD Tata Visiting Professor*  
Prof S Gopal, *Sir Ashutosh Mukherjee Visiting Professor*  
Prof DP Sen Gupta, *Visiting Professor*  
Ambassador Saurabh Kumar (Retd), *Visiting Professor (till December 31, 2012)*  
Prof Rajaram Nagappa, *Visiting Professor*



Prof N Ramani, *Visiting Professor*  
Prof Lalitha Sundaresan, *Visiting Professor*  
Dr Janaki Balakrishnan, *Associate Professor*  
Dr Sindhu Radhakrishna, *Associate Professor*  
Dr Manabrata Guha, *Assistant Professor (till August 13, 2012)*  
Dr Nabeel A Mancheri, *Assistant Professor*  
Dr M Mayilvaganan, *Assistant Professor*  
Dr M Murugan, *Assistant Professor (till September 30, 2012)*  
Dr Arun Vishwanathan, *Assistant Professor*  
Dr VV Binoy, *Post-doctoral Associate*  
Dr K Manorama, *Post-doctoral Associate (from September 28, 2012 to March 27, 2013)*  
Dr Hippu Salk Kristle Nathan, *Post-doctoral Associate*

## **SCHOOL OF SOCIAL SCIENCES**

### **Members**

Prof Narendar Pani, *Professor*  
Prof Carol Upadhyay, *Professor*  
Prof Anitha Kurup, *Professor*  
Prof SS Meenakshisundaram, *Visiting Professor*  
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 (till October 31, 2012)*  
Dr Durba Biswas, *Post-doctoral Associate*  
Dr V Jayasree, *Post-doctoral Associate*  
Dr Leah M Koskimaki, *Research Fellow*

# CLUSTERS & PROGRAMMES

Most of the research activities of NIAS are currently organized into Research Programmes, each coordinated and headed by one faculty member, the “Anchor” of the Programme. Although each faculty member belongs to one of the three Schools, School of Humanities, School of Natural and Engineering Sciences and School of Social Sciences, by virtue of his or her academic background, everyone can participate in the activities of more than one Programme, often anchored by faculty members belonging to other Schools. This structure has enabled the multidisciplinary character of the different Programmes. On the other hand, Research Programmes in NIAS are expected to be dynamic based both on the changing needs and priorities of the country and on the expertise available among the faculty.

The ongoing Programmes are included in one or another of these Clusters.

*Foundations Cluster*

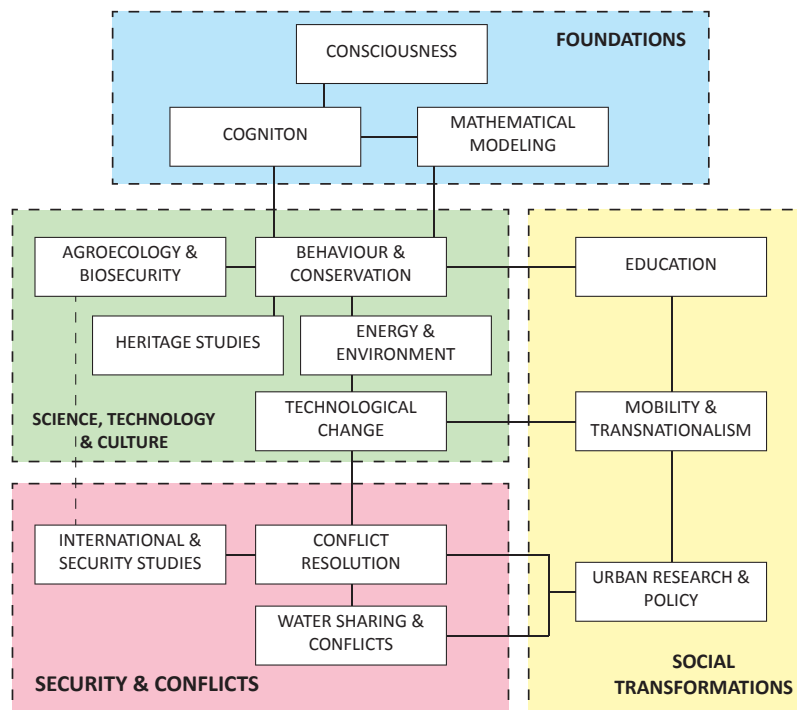
*Science, Technology & Culture Cluster*

*Strategy, Security & Conflicts Cluster, and*

*Social Transformations Cluster*

The Figure below shows the interconnections not only among the Clusters but also among the existing Programmes. We believe that the Cluster approach outlined above has the ability to bring diversity to the common cause of addressing specific problems while allowing the different Programmes within each cluster to benefit from each other even as all of them can fall back on the Foundation cluster to ensure that the new multidisciplinary insights are based on strong academic foundations.

**Figure 2: Organization of NIAS Research Programmes and Areas of Interest**



(Figure Courtesy: Dilip R Ahuja)





# CLUSTER - FOUNDATIONS

## Programmes

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- Cognition
- Complex Systems & Mathematical Modelling
- Consciousness Studies

# COGNITION PROGRAMME

## Programme Update

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. The Cognition Programme at NIAS is a multidisciplinary programme that combines philosophy, theory, mathematical modelling and experiments in the service of understanding cognition in humans and other species. We work on problems as varied as transitive inference in fishes, rational models of gestures and interjections to building sensor devices for understanding perception. We also recognise that India with its rich heritage has something unique to offer to this area of research. This uniquely Indian perspective should be treated as a strength of this country rather than a weakness. At NIAS, we have always stressed the links between cognitive science and allied disciplines in the humanities and social sciences. This interdisciplinary work has the capacity to influence a range of disciplines, since it is now recognized that Cognitive Science has a vital role to play not only in some traditional areas such as Computer Technology but also in socially important areas such as Education and Mental Health.

This year, we conducted several studies at the intersection of thought, language and gesture. Our goal is to explain how language helps communicate our thoughts, make connection with other senses such as vision and to understand how conceptualization and communication are assembled using a combination of verbal, non-verbal and bodily capacities. We have researched this issue in several ways, including the cognitive basis of compound verbs in Hindi, game theoretic models of suggestion (which also ties to our work in Indian Philosophy), the investigation of conceptual polysemy and degree phenomenon in Sanskrit and the cognitive functions of different kinds of gestures in conceptualization and communication and investigate different kinds of gestures forms.

Our 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, the International Society for Gesture Studies and the International Cognitive Linguistic Conference. This work involves two faculty members - Dr Rajesh Kasturirangan and Prof Anindya Sinha - as well as five PhD students - Rolla Das, HR Meera, Samiksha Bajpai, Naresh Keerthi and Nishant Seth.

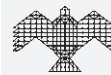
We are beginning to explore the use of Bayesian and other computational techniques in the study of cognition, with the intent of showing that even non-literal and seemingly non-rational uses of thought such as poetic and everyday metaphor have a rational core that can be understood using ideas of inductive reasoning.

We are also looking at cognition in non-human species, in order to understand if human capacities for perceiving and conceiving continuous with other species. Furthermore, one would also like to be able to study animal behaviour for its own sake, so that we have a better grasp of how other species come to know their environment. Here, our work is collaborative, involving both Dr Rajesh Kasturirangan and Prof Anindya Sinha of NIAS as well as a postdoctoral associate, Dr VV Binoy. Our work started with a study of deception in macaques. In parallel, with Dr Binoy, who is a postdoctoral associate at NIAS, has set up a laboratory to study the cognitive abilities of fishes. The study of numerosity, inference and conspecific recognition are beginning to bear fruit.

## Outreach

The Cognition Programme conducted a two-week long summer school in cognition in July 2012, attended by a hundred students from across India. We also conducted an open course on Thinking with Data from August 2012 to November 2012 with over 50 students at NIAS and several hundred students following the course online.





## Members of the Cognition Programme



*Rajesh Kasturirangan (Anchor)*

*Anindya Sinha*

Doctoral Students: Rolla Das, Naresh Keerthi, HR Meera,  
Samiksha Bajpai, Nishant Seth

**Rajesh Kasturirangan**  
Associate Professor  
School of Humanities

Room No. S 04  
Tel: 080-2218 5148  
Fax: 080-2218 5028  
Email: rkasturi@  
gmail.com

**Joined IAS on:** May 1, 2006

### **Major research contribution for the year:**

This year was the beginning of the culmination of several years of effort on bringing two important strands of cognitive science together: the first strand is embodied cognition, the idea that the body constrains the mind in crucial ways, and the second strand is (broadly) rational approaches to the mind, i.e., what would traditionally come under computational theories of mind and cognition, as well as more modern approaches such as Bayesian techniques. We have developed a theory called rational embodiment that brings the two strands together and we are now beginning to show how that approach illuminates cognitive phenomena across modalities – from gestures and interjections to the rational core of figurative language and the role of the body in syntactic phenomena such as compound verbs.

### **About**

The study of the mind is at a stage similar to chemistry in the late nineteenth century – on the one hand large amounts of new data are being collected that point to underlying principles, and on the other hand conceptual problems are being raised about the relationship between the mind and other natural entities. A tremendous amount of new data is being generated from neuroscience and cognitive science experiments as well related social science disciplines like economics. However, at the same time, conceptual problems (such as that of intentionality and consciousness) are being raised about how to reconcile these phenomena with what we know of the physical world. Both qualitative and quantitative breakthroughs in the mind sciences require that we integrate these two trends: the ability to generate and analyse large data sets and to bring conceptual, philosophical and theoretical frameworks to bear on these data sets. An important research goal of mine is to accomplish that integration.

At the same time, I also believe that the mind – i.e., cognition, consciousness, subjectivity - like mathematics or philosophy, is a universal concept, in that anything can be looked at from the point of view of mind and cognition. In other words, cognition should be studied using a synthetic, multi-level approach that includes everything from cells to societies in its scope and should be studied by bringing together the humanities – philosophy and linguistics for example- and the natural sciences – mathematics and biology for example – in one research programme.

### **Lectures**

- a. Three lectures: Rational Embodiment, The Embodiment of Concepts, The Cognitive Bourbaki Project, at Indian Institute of Technology, Kanpur, March 2013.

- b. Mind and Life XXVI. Mathematics and the Mind, January 2013.
- c. The Embodiment of Concepts, Centre for Behavioural and Cognitive Science, Allahabad, October 2012.

### Academic Courses

- a. Coordinated the Research Methods Course in the first half of 2012 and taught a course on Thinking with Data in the second half of 2012.
- b. Organized and taught a substantial portion of the third NIAS Cognition Summer School in July 2012.

### Awards and Memberships

- a. Continue to be on the research council of Azim Premji University and a Senior Fellow of the Mind and Life Institute.

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## Doctoral Students of the Cognition Programme

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### **Rolla Das**



Doctoral Thesis: There are two stages to her work: the first stage lays out the current understanding of multimodal construals as used in online discourse and analyses how our conceptualization of Embodied Relevance improves our current understanding of multimodal discourse. The second stage takes certain important moments in discourse and analyses how the lexical choice, their multimodal construals, the temporal sequence of these units inform us about dynamic cognitive structuring of discourse in a shared public environment. This work further reveals the cognitive constraints of use of specific lexical units at turn moments. The work which we have been doing for the last two years has been consolidated and submitted as manuscripts to journals and at present we are awaiting their responses.

Supervisor: Rajesh Kasturirangan

Co-Supervisor: Anindya Sinha

### **Naresh Keerthi**

Doctoral Thesis: By looking at the semantic fields of sensory adjectives in Sanskrit and English, his work tries to understand the relation between bodily experiences and our conceptual categories. The systematic patterns in the various 'senses' of these adjectives in the two languages indicate that there are certain patterns of semantic generalisation and extension that prevail similarly in most linguistic cultures.

Supervisor: Rajesh Kasturirangan



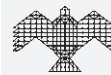
### **HR Meera**



Doctoral Thesis: Her work explores the phenomenon of suggested meaning (*dhvani/vyangya* as has been defined in works of poetics in Sanskrit) from the perspective of Cognitive Linguistics. The non-literal sense explored in the contemporary fields of Pragmatics and Cognitive linguistics are also analysed alongside in an attempt to find the overlaps amongst them. The advantages of considering the Indian classification of the types of *vyangya* are explored as well.

Supervisor: Rajesh Kasturirangan





***Samiksha Bajpai***

Doctoral Thesis: She is working on the cognitive content in compound verbs, with specific reference to Hindi. She looks at compound verbs as an attentional construction employed by languages, and is also exploring their embodied content.

Supervisor: Rajesh Kasturirangan

***Nishant Seth***

He is in the first year and the process of completing the course work.



# COMPLEX SYSTEMS & MATHEMATICAL MODELLING PROGRAMME

## Programme Update

The Complex Systems and Mathematical Modelling Programme aims to understand and model the dynamics and behaviour of complex systems. The study of complex systems deals with the study of how diverse individual elements constituting a system give rise through differing mutual interactions and couplings to macroscopic collective behaviour exhibited by the whole system; the behaviour can be predictable, and in most cases unexpected. Complex systems are inherently nonlinear; linear systems show simple behaviour.

Systems as varied as social systems, econodynamics, interactions between communities, ecosystems, geodynamics, celestial motion, fluid dynamics, neuronal activity, cellular processes, morphogenesis, mechanics of structural stability of buildings, pattern formation, climate dynamics, etc. can be studied using appropriate mathematical models to derive useful information enabling one to determine how one could achieve control over the system's behaviour.

The work of the group deals with the dynamical behaviour of both flows (i.e. continuous systems) as well as maps (discrete systems). Problems having immediate practical use in industry and biomedical applications as also theoretical problems in frontier areas such as neurodynamics, sensor development technologies, etc. having potential for practical use are targeted.

Our research focus is presently on five distinct fields. One field is the study of bubble dynamics in fluids and acoustic (inertial) cavitation.

A second focal point of research is modelling of sensory processes in living systems, for example, the mechanism of hearing by sensory cells in the inner ear. Third, we are interested in the behaviour of certain class of maps, known as  $q$ -deformed maps, for possible practical applications. Next, we are making some comprehensive studies of a certain kind of interesting bursting oscillation in coupled Josephson junctions and a possible application of this behaviour in living systems has been identified. A fifth area is on modelling the influence of environmental conditions on agricultural output using real data.

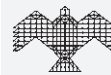
## Acoustic Cavitation and Bubble Dynamics

The dynamical behaviour of charged micron-sized gas bubbles in a fluid which is subjected to ultrasonic forcing was studied. The system has several important applications -- ultrasound as a diagnostic tool in humans, in sonochemistry, lithotripsy, ultrasonic cleaning of materials, waste water treatment, focussed energy weapons, etc. Under certain conditions like high forcing amplitudes, high energy cavitation events produced by implosion of the microbubbles occur causing extensive damage to surfaces vibrating in fluids, pumps & submarine propellers. It becomes important to predict these events.

We obtain certain critical pressure thresholds for the charged bubble and introduce a new non-dimensional quantity which enables quick identification of the Blake threshold and the upper transient pressure threshold. Scaling relations are obtained for the charge on a bubble, ambient radius and temperature analytically and supported numerically, as also an analytic relation (numerically supported) between the driving frequency & bubble radial velocity and bifurcation diagrams for the dynamics of the charged bubble. Two manuscripts have been submitted. Collaborators for this study include Dr B Ashok (IIIT-B), and Mr Thotreithem Hongray (University of Hyderabad).

## Stability of Q-deformed Maps

$Q$ -deformed discrete maps inspired by Tsallis' non-extensivity parameter  $q$  are analysed for their stability. It is found that they exhibit interesting bifurcation structures. Possible applications of these are being studied currently. Collaborators for this study include Ms Sudharsana V Iyengar (University of Hyderabad).



### **Bursting Behaviour in Coupled Systems**

A peculiar kind of bursting behaviour observed in diffusively coupled Josephson junctions is sought to be theoretically modeled & reproduced. The results so far obtained of this study are being used to understand a certain kind of neuronal signalling activity experimentally observed. Collaborators for this study include Prof Syamal K Dana (IICB, Kolkata) and Mr Thotreithem Hongray (University of Hyderabad).

### **Earlier Works**

#### **Understanding Sound Detection by the Ear**

In an earlier work a generic model was used to mimic experimentally observed behaviour of the mechanotransducer inner hair cell of the ear which detects sound. Various inadequately understood issues remain in hearing research which we wish to address. Collaborators on different aspects are Dr B Ashok (IIIT-B) and Prof N Kumar (RRI, Bangalore).

#### **Modelling Environmental Influence on Crop Yield**

The influence of environmental conditions on agricultural output is sought to be captured through a physical model, using data measured in a certain region in southern India. Collaborators for this study included Dr B Ashok (IIIT-B), and Dr M Murugan, Cardamom Research Station, Kerala Agriculture University.

#### **Extracting Dynamics from Raw Data**

ECG signals are modelled mathematically employing a set of affine transformations empirically determined from data to predict the future course of signals. Recurrences in the time series are used to understand the underlying dynamics & to make predictions. The results are consistent with the known result that low RR variability of the ECG wave could be catastrophic. This study was led by Prof Prabhakar G Vaidya and Ms Sajini Anand.

#### **Dynamics from Data Using Nonlinear SVD**

A method of estimating the embedding dimension of a manifold is proposed using a nonlinear generalization of singular value decomposition for a nonlinear dynamical system from available data. A better understanding of the dynamics underlying a given time series data is achieved. This study was led by Prof Prabhakar G Vaidya and Ms Sajini Anand.

## Members of the Complex Systems & Mathematical Modelling Programme



*Janaki Balakrishnan (Anchor)*

Doctoral Students: *Sajini Anand, Kishor G Bhat, Swarnali Majumdar, Thotreithem Hongray, Sudharsana V Iyengar*

**Janaki Balakrishnan**  
Associate Professor  
School of Natural and  
Engineering Sciences

Room No. S 20  
Tel: 080-2218 5122  
Fax: 080-2218 5028  
Email: janaki05@  
gmail.com

**Joined NIAS on:** July 10, 2012

### **Major research contribution for the year:**

This year we contributed to new findings on cavitation and dynamics of charged gas bubbles suspended in fluids & subjected to ultrasonic forcing. We have obtained a number of analytic functional relations and scaling relations between various quantities under the extreme conditions which prevail during implosion & Rayleigh collapse of the gas bubble. Our work would be a useful contribution for acoustic cavitation studies.

### **About**

I am a theoretical physicist. I obtained PhD in theoretical high energy physics from the University of Delhi and subsequently worked and published in a wide range of areas covering many diverse areas of physics, ranging from quantum field theory in curved space and theoretical high energy physics to dynamical systems theory and biological physics. I was an Associate Professor of Physics at the Central University of Hyderabad until recently, before moving to Bangalore. My recent research interests and contributions are in the following areas: bubble dynamics and cavitation, nonlinear oscillations, generic nonlinear models of sensory processes, application of techniques of dynamical systems theory in modelling physical, biological and other complex phenomena.

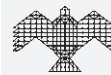
### **Lectures**

- a. Instabilities in Sensory Processes, Workshop on Application of Physics, Mathematics to Cognition and Consciousness, NIAS, March 11, 2013.
- b. Innovation and Technology with Complex Systems, 10<sup>th</sup> Annual NIAS-DST Training Programme on Multidisciplinary Perspectives on Science and Technology on the theme Technology, Innovation and Development, October 4, 2012.
- c. Sound and the Micromechanics of Hearing – How Does the Ear Hear?, Nightingales Elders Enrichment Centre, Malleshwaram, Bangalore, September 14, 2012.

### **Academic Courses**

- a. Mathematical Methods – (Reading Course, January-April, 2013 semester).
- b. Dynamics and Cognition (Reading course offered for the Dynamics part of the course, during July to December 2012).





## Other Info

*Referee for the following journals:*

Physical Review Letters (published by the American Physical Society)

Physical Review E (published by the American Physical Society)

Physical Review D (published by the American Physical Society)

Journal of Physics A: Mathematical & Theoretical published by the Institute of Physics Publishing, Bristol, UK)

Physics Letters A (published by Elsevier)

Pramana: Journal of Physics (published by Indian Academy of Sciences, INSA and Indian Physics, Association in collaboration with Springer Publishing Co.)

Radiation Effects and Defects in Solids (published by Taylor & Francis).

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## Doctoral Students of the Complex Systems and Mathematical Modelling Programme

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### **PS Sajini Anand**

Doctoral Thesis: She has been working on numerical methods to extract dynamics from raw data. A recent work employs the notion of recurrences in the nonlinear time series to make predictions and model ECG signals. Another work uses a nonlinear generalization of singular value decomposition to estimate the embedding dimension of a manifold. She is expected to complete her doctoral work soon under Supervisor: Prabhakar G Vaidya

### **Kishor G Bhat**

Doctoral Thesis *Games in the Garden of Numbers*

Kishor G Bhat completed his doctoral research work. His PhD viva-voce examination will be held on April 16, 2013.

Supervisors: (late) Prof K Ramachandra and Prof Prabhakar G Vaidya.



### **Swarnali Majumdar**

Doctoral Thesis Title: *Application of Topology in Inverse Problem: Getting Equations from ECG and Sound Data*

She was awarded the degree of Doctor of Philosophy by Manipal University in February, 2013 for her dissertation done under the guidance of Prof Prabhakar G Vaidya.

**Thotreithem Hongray** (PhD student at the University of Hyderabad, School of Physics) has done some studies of the dynamics of a charged gas bubble in a fluid which is ultrasonically forced. Several analytical & numerical results have been obtained and 2 manuscripts have been submitted. Other work he has been doing is on studies of certain bursting behavior seen in coupled Josephson junctions. He is expected to finish his PhD work in the next few months.

**Sudharsana V Iyengar** (PhD student at the University of Hyderabad, School of Physics) has been doing some studies on q-deformed discrete maps. She has considered Tsallis deformations on the Tinkerbell map, Duffing map, Ikeda map, Henon map and the Mandelbrot set. Applications of this work are being considered now. Ms Sudharsana's CSIR Junior Research Fellowship was upgraded to a Senior Research Fellowship after she was interviewed and assessed in January 2013 by an External Expert Committee.

# CONSCIOUSNESS STUDIES PROGRAMME

## Programme Update

Consciousness studies have implications in varied planes of human interactions questioning our fundamental assumptions about origins of life, nature of subjective experiences, and human wellbeing. The complex nature of conscious experience, to begin with, poses two questions. The first is how do neural functions that are discrete, quantitative and physical produce or represent a subjective, unitary and qualitative self? The second is how and where does the self reside in the brain (or does it), so as to make adaptive changes in one's personality corresponding to neural changes? We believe that these two questions conjointly are expected to guide quantum mechanics, neuropsychiatry, philosophy and cognitive sciences towards deciphering the unitary behaviour, and the self-organising capacity of the brain together resulting in self-experiences. The Programme on Consciousness Studies at NIAS, adopts a larger framework grounded in humanities, neurosciences, neuropsychology and neuropsychiatry, to achieve its research objectives.

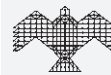
The interest in consciousness studies, at NIAS, commenced from its inception itself. A wide range of activities centred on mental health, creativity, quantum mechanics, Indian philosophy and neuropsychiatry were carried out in the early nineties. From late nineties onward focused work commenced on consciousness and animal cognition. The very first national conference in India on scientific and philosophical studies on consciousness organized at NIAS in 1999 brought in scholars from various backgrounds, working on specific aspect of consciousness and mind, from different parts of the country.

This conference was the first attempt in India to initiate an interdisciplinary discussion on consciousness particularly between humanities and the life and physical sciences. Following this event several national and international conferences were organized all focusing on the interdisciplinary and multidisciplinary nature of consciousness. These conferences time and again brought serious philosophers, psychologists, artists and scientists to ask fundamental questions in an open but rigorous manner.

The latest international gathering of scholars in consciousness studies at NIAS was in 2012 in connection with the international conference that devoted three days with three thematic focuses on consciousness such as neurophysics, animal cognition and the self. Some of the eminent scientists and scholars from around the world, who have visited us in the recent past, were Charles Townes, Roger Penrose, Jane Goodall, Stuart Hameroff, Max Velmans, Natalie Depraz, and R Balasubramaniam. NIAS has published four books from the proceedings of the conferences.

Currently, Prof Sreekantan is continuing efforts at writing the book provisionally titled "Reality, Oneness and Consciousness" based on current





information from the relevant fields of modern physics, astrophysics, cosmology and neurosciences. The main theme of the book is that at the most fundamental level there is increasing realization that there is a deep connection between these topics since they perhaps all reduce to quantum processes of just one substratum, namely “vacuum”, though details have to be worked out. It is interesting that there have been similar insights in some of the ancient philosophies, also be discussed in the book.

Prof Sreekantan organized a National Workshop at IAS during March 11 and 12, 2013 on ‘Applications of Physics, and Mathematics to Cognition and Consciousness’. Objectives of the conference were: to what extent biological processes, in particular cognition, consciousness and memory are explainable in terms of physics (classical, statistical and quantum mechanical.);

In as much as twentieth century developments in physics are leading to Quantum Field Theory of “vacuum” as the most likely theory to explain all physical contents and processes of the universe is it likely that in the 21<sup>st</sup> century similar developments will take place in the field of quantum biology as is being projected by some scientists?; With all the developments in biology and in Artificial Intelligence (AI), is it possible to answer the age old question: Does mathematics exist independent of human brain? Sixteen invited speakers and seventeen post docs and senior graduate students participated.

In specific, the research mandate of the Programme is contextualised within what we believe as three fundamental areas in consciousness studies. These are:

- a. *Self-challenged Brain and Brain-challenged Self*
- b. *Signs of Self: Situating Self in Culture and its Philosophy*
- c. *Brain-maps, Body-sense and Self-sense*

With the conceptualisation of these three areas as vital in presenting consciousness we have brought to focus the importance of the ‘self’ in theorising consciousness, its experiential and transformative nature.

In the past academic year we made significant progress in our work through five doctoral studies which are at various stages of its progress, a project that focused on emotions in Indian psychology, and two book drafts.

Of the two book manuscripts that have been submitted to an international publisher (and positively reviewed and accepted) one is a single-authored work that argues for the centrality of a ‘core-self’ as essential to distinguish between the body-sense and the self-sense, and thereby to consider the non-embodied and non-intentional nature of consciousness. The second book is an edited volume (eds. Menon, Sinha & Sreekantan) that features essays from accomplished authors and young



scholars from around the world on the interdisciplinary nature of self and consciousness. Both the titles are expected to be published in 2014.

Among the doctoral students, in 2012, Aneesha Sharma submitted her thesis to the Indian Institute of Technology-Mumbai and was awarded the doctoral degree. Her thesis is the first attempt in the field to document and conceptualise the experience of 'letting go' in creative artists and designers. Her work argues for the interrelations between self-transcendence and creative excellence, while the phenomenon of 'letting go' is placed in the order of experiences similar to 'flow'.

Lakshmi Kuchibotla is in the final year of her doctoral work on self and its implications for wellbeing, with a focus on psychological phenomena such as desire, grief and conflict. Her study which analyses select five characters in the Mahabharata with the help of Indian and Rogerian psychology, and Indian philosophy, argues for self-transformation as dependent on self-wellbeing nexus.

Namitha Kumar's research work has already attracted interest and appreciation from India and other parts of the world, as she heralds in for an original contribution to disability studies bringing in a new concept of 'adapted self'. Her study with a theoretical approach on subjectivity and selfhood in the context of subjects with physical disabilities aims to depsychologize disability and place it in a larger context of societal and transformative space of the self.

Shankar Rajaraman, who is a medical doctor with a degree in psychiatry has commenced his doctoral work on a fringe area that is currently gaining central attention in emotion studies – 'self-conscious emotions'. His work focuses on three self-conscious emotions, with the help of Indian aesthetic literature. He foresees immense contribution to be made through his work to develop alternate models of the self and its emotions in psychology and psychiatry.

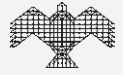
Sabina Sweta Sen, who is an Odissi dancer, through her work, traces the idea of 'sense' and 'essence' in this classical dance, its practises and contemporary forms. She brings in semiosis of senses and the composite nature of somatic and cultural self to understand the dancer's body, kinesthesia, and embodiment with the help of the classical, literary and performance approaches to the Odissi dance form.

## Outreach

Video webcasts of the lectures by the invited speakers of the 2012 international conference titled "Looking within" are now made available for public viewing through Youtube. The URL is <http://www.youtube.com/user/ConsciousnessNIAS> with over four hundred views for Natalie Depraz's lecture, and over two thousand seven hundred views for Stuart Hameroff's lecture.







The Facebook Blog on 'Brain, self and consciousness'; and the Facebook groups on 'Idealogues', and 'Research writing and Research communication', continued with interactive participation from researchers and the interested public across the globe.

During the past academic year Sangeetha Menon continued to participate in the Indian Council of Philosophical Research, and International Board for Transpersonal Psychology meetings as its Council/Board member.

Sangeetha Menon was a plenary speaker at the *Toward a Science of Consciousness* Tucson conference series organised in India (in Agra) in March 2013. Among other outreach events she was invited to give public/invited lectures at: Indian Institute of Technology, Chennai; an international Workshop on healing and counselling at Jain University Bangalore; a national symposium on 'cognition' at National Institute of Mental Health and Neurosciences, Bangalore; a one day Workshop on 'happiness' at Institute for Social and Economic Change Bangalore; and, a national Refresher course for teachers in Christ University Bangalore. She was also invited as an expert for a brain-storming meeting on the formation of a new centre on biologically inspired systems sciences in IIT-Rajasthan. Sangeetha Menon during the past academic year also reviewed a book on consciousness for Sage Publishers, and wrote endorsements for an anthology titled *Psychology and the Perennial Philosophy: Studies in Comparative Religion*, to be published by World Wisdom, compiled and edited by Samuel Bendeck Sotillos.

Among other events, a student from IIT-Kanpur did a summer internship in our Programme in 2012. Lakshmi K presented a paper on catharsis and healing at Christ University. Namitha Kumar participated in an International Conference on *Disability Equality and Accessibility* at Infosys in Dec 2012; and made a presentation on *biopsychological tattooing and Jungian archetypes*, at the NIAS student colloquium in November, 2012. Shankar Rajaraman translated two Sanskrit works along with Venetia Kotamraju and these were published by Rasala publishers (Kokila-sandeha by Uddanda Shastra, a 16th century messenger poem from Kerala; and Madhura-vijayam by Gangadevi, a 14th century Mahakavya by a poetess from Karnataka). He was conferred the Best Sanskrit poet of the year award by Karnataka Sanskrit University for the work Devidanaviyam belonging to the genre of Chitrakavya or figurative poetry.

## Members of the Consciousness Studies Programme



*Sangeetha Menon (Anchor)*

*BV Sreekantan*

*Anindya Sinha*

Research Associate: *Shankar Rajaraman (till May 31, 2012)*

Doctoral Students: *Lakshmi Kuchibotla, Namitha Kumar, Shankar Rajaraman, Aneesha Sharma, Sabina Sweta Sen*

**Sangeetha Menon**  
Professor  
School of Humanities

Room No. F 06  
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Fax: 080-2218 5028  
Email: prajnanata@gmail.com

**Joined NIAS on:** January 8, 1996

### **Major research contribution for the academic year:**

In the past academic year, I developed a concept of 'core-self' as distinct from the 'body-sense' and the 'self-sense'. I present and argue for such a concept in the book manuscript on 'Brain, Self and Consciousness', of which the first draft is completed.

### **About**

My academic studies started with biology, and subsequently philosophy and psychology. All through, my keen interest has been to understand what constitutes 'life' and its fundamental structures. In due course, I came to realize that 'life' is but another name for the intractable mystery of all times, namely 'consciousness'! And perhaps in studying 'consciousness' lies the best answer for the question what life is.

Over the period of last sixteen years at NIAS our work in consciousness studies has contributed to bring in some radical shifts in approaches to analysing the problem, and also in helping students and young scholars to identify untrodden multidisciplinary areas for their research. One of our major contributions to the field is the emphasis on the centrality of the 'self' in explaining the experiential nature of consciousness. To this end, we bring in biology, philosophy and psychology to a common space, and thereby attempt to argue for a 'humanities approach' to situate the essential feature

of consciousness, which is its experiential primacy and transformative possibility. Currently, to a certain extent, we see that theories and debates on consciousness move forward from studying an abstract object to a living subject whose personhood is challenged and framed by neural and mental disposition. Our published work highlights the importance of understanding the nature of complex experiences in the light of global humanistic values such as altruism, wellbeing and self-transformation. Currently, my work and my students' work focus on comparative study of emotions, self in disability, self-wellbeing nexus, self-body-movement interrelations, and distinguishing a core-self from the self-sense and the body-sense.

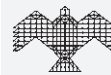
My website is [consciousnessshop.com](http://consciousnessshop.com)

### **Lectures**

- Brain, Being and Consciousness: A discussion in neuroscience and neurophilosophy, Public Lecture, as part of the Lecture series on 'Being in



Prof Sangeetha Menon gives the Plenary Lecture at the Tucson series of "Toward a Science of Consciousness" conference in Dayalbagh, Agra on 5 March 2013. Among the audience are Prof Stuart Hameroff *et.al.*



- Philosophy' organized by Indian Institute of Technology-Chennai, and Sri Vishnu Mohan Foundation, Chennai, March 25, 2013.
- b. Why 'She' is 'Me'? A comparative discussion on the Body and the Self, Plenary Lecture, International Conference, Tucson Toward a Science of Consciousness series, Dayalbagh Educational Institute, Agra, March 5, 2013.
  - c. Creativity and Wellbeing, Resource person's Lecture (with Lakshmi K), National Workshop on Positive Psychology, Mount Carmel College, Bangalore, February 7 and 8, 2013.
  - d. Desire, Self, and Healing: Arjuna's predicament, and choice-making, in the Bhagavad Gita, Invited Lecture, International Workshop on Healing, Counselling and Therapy, Jain University Global campus, Bangalore, December 13 to 15, 2012.
  - e. Wellbeing, Happiness and Contentment, Invited Lecture at Institute for Social and Economic Change, Bangalore, November 9, 2012.
  - f. Self: Where is it? Who knows!, Invited Lecture, Symposium on Neurobiology of Cognition, National Institute of Mental Health and Neurosciences, Bangalore, November 1 and 2, 2012.
  - g. Consciousness: A Biologically inspired system science, Discussion Initiative Brief, at the Brain-storming Session for a new 'Centre on Biologically-inspired System Sciences', IIT-Rajasthan, Jodhpur, September 29, 2012.
  - h. Signs of Self, Foundation Course Lecture for Doctoral Students, NIAS, September 27, 2012.
  - i. Body and Consciousness: Basics of Experience, 3<sup>rd</sup> Summer School on Cognition, NIAS, July 12, 2012.
  - j. Consciousness and the Humanities, Invited Lecture, Refresher Course for Teachers, Christ University, Bangalore, May 1, 2012.

### **Academic Courses**

- a. Guided Writing Course on "*Self, Subjectivity and its Affect*"  
First Semester 2013, at NIAS.
- b. Guided Writing Course on "*Body and Self in Disability Studies*"  
Second Semester 2012, at NIAS.
- c. Contributed to the 'Foundation Course' at NIAS.

### **Awards and Memberships**

- a. Council Member, Indian Council of Philosophical Research, Government of India (2012 to date)
- b. Honorary University Fellow, University of Exeter, UK (2012 to date)
- c. Adjunct Faculty, Gitam University, Andhra Pradesh (2011 to date)
- d. Board Member, International Association for Transpersonal Psychology (2009 to date)
- e. Board Member, Asia Consciousness Society, Hong Kong (2010 to current)
- f. Nominated Member, International Society for Science and Religion, Cambridge (2009 to date)
- g. Member, International Membership Committee, International Society for Science and Religion, Cambridge (2011 to date).
- h. Member, Indigenous Psychology International Task group (2012 to date).
- i. Member, Institutional Ethics Committee, Indian Institute of Science, Bangalore (2010 to date).
- j. Academic Advisory Committee Member, Centre for Traditional Knowledge Systems – IGNOU, Delhi (2010 to date).
- k. Member, Selection Committee towards appointing Faculty for the Department of Humanities and Social Sciences, IIT-Rajasthan, Jodhpur (2013 to date).



**BV Sreekantan**  
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gmail.com

**Joined NIAS on:** August 6, 1992

### About

BV Sreekantan continues as the Chairman of the PhD Committee of NIAS. He has also continued as the Chairman of the Gandhi Centre of Science and Human Values of the Bharatiya Vidya Bhavan, Bangalore. The centre has brought out large numbers of books (both in Kannada and English) on science, mathematics and biographies of leading personalities like S Chandrasekhar, Ramanujan etc. at the level suitable for college students.

### Lectures

- a. Motivation and Objective of the Workshop, Workshop on Applications of Physics, Mathematics to Consciousness and Cognition, NIAS, March 11, 2013.
- b. The Different Phases of Cosmic Ray Research in the 20<sup>th</sup> Century: Their Role in High Energy Physics and Astrophysics, The Hess Symposium, Tata Institute of Fundamental Research, Mumbai, December 14, 2012.
- c. Emergence of the Higgs Boson and its Implications, 10<sup>th</sup> NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society on the theme Technology, Innovation and Development, September 29, 2012.
- d. Some Aspects of Cosmic Ray Research in India, Hess Symposium talk at Bose Institute, Kolkata, September 17, 2012.
- e. Science, Spirituality and Consciousness. 7<sup>th</sup> All India Students Conference on Science and Spiritual Quest, JN Tata Auditorium, Indian Institute of Science; Organizer: Bhaktivedanta Institute, Kolkata, September 1, 2012.
- f. The Discovery of the Higgs Boson – Its Implication to Physics, Astrophysics, Cosmology and Philosophy. Public Lecture, NIAS, July 19, 2012.

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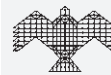
## Doctoral Students of Consciousness Studies Programme

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### Shankar Rajaraman

Doctoral Thesis: *Self-conscious emotions in Sanskrit aesthetics and Indian psychology*  
He is in the first year, and has completed the course work and awaiting the Qualifier exam. He is currently modifying his research proposal. Shankar Rajaraman is a medical doctor with specialisation in psychiatry. He is also a poet and Sanskrit scholar and has translated works from Sanskrit to English.  
Supervisor: Sangeetha Menon



### **Lakshmi Kuchibotla**

Doctoral Thesis: *Self and well-being: A qualitative approach with focus on the Mahabharata*

Currently she is analysing a target set of characters in the Mahabharata and their primary life incidents in an attempt to understand the psychological and experiential facets of self, well-being, and nature of desire, conflict, and grief. The interrelations between self and well-being and their implications for counselling, as well as continued research in the areas of health and well-being is another important concern in the study. She is in the final year of her research work and is currently writing her thesis.

Supervisor: Sangeetha Menon



### **Namitha Kumar**

Doctoral Thesis: *A Study of Subjectivity and Selfhood in the Context of Subjects with Physical Disabilities: A Theoretical Approach*

She has completed proposal presentation at NIAS and provisional/final registration at the Psychology Department, Mysore University. Her study is now nearing completion of III year in August 2013. A literature review in the interdisciplinary field of disability studies was completed through a guided reading and writing course on disability; and Literature review in subjectivity is in progress via a guided reading and writing course on subjectivity. Field work that included 25 field interviews of people with disabilities was completed in Dec 2012. Public response surveys are to be completed in May 2013. She will begin analysis and writing in Aug 2013. The research hopes to de-psychologize disability as an individual medicalized issue and locate the attendant oppression in the larger public psyche. The study is expected to impact human development by highlighting disability as one of the indices.

Supervisor: Sangeetha Menon



### **Sabina Sweta Sen**

Doctoral Thesis: *Seeking the essence of Odissi: Retracing the semiosis of senses in Odissi dance practice*

Her study is an interdisciplinary research primarily investigating the significance of senses and questioning the notion of essence in Odissi dance. In the first year she developed the literature review, revised proposal and methodology, conducted a 1.5 month initial ethnographic fieldwork in Orissa, Kolkata, Pondicherry and Bangalore. Currently she is re-writing a chapter for her thesis. She is a doctoral student registered with Dept of Performance Studies in Exeter University.

Supervisor: Sangeetha Menon



### **Aneesha Sharma**


Doctoral Thesis: *Phenomenon of Letting go in Visual Arts and Design: An exploration into self-transformative creative experiences*

The phenomenon of letting go is an experiential event within the act of creation, which results in a radical transformation into the work of art and the creator. The research defined the phenomenon of letting go and identified the various facets that make it distinct from other creative experiences. The study created a vocabulary to articulate deep-private experiences of artists/designers to thereby understand the experiential events that are at play during the process of creation. Aneesha Sharma submitted her thesis in 2012 to Indian Institute of Technology-Mumbai (Department of Industrial Design Centre) and was awarded the doctoral degree in 2013.

Supervisor: Sangeetha Menon





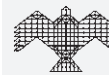


# CLUSTER - SCIENCE TECHNOLOGY & CULTURE

## Programmes

- Agroecology & Biosecurity
- Ecology, Behaviour & Conservation
- Energy & Environment Policy
- Heritage Studies
- RBI Programme on Interdisciplinary Approaches to Economic Issues





# AGROECOLOGY & BIOSECURITY PROGRAMME

## Programme Update

Agroecology and Biosecurity Programme (ABP) focuses on 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 nine research projects of societal importance covering the above areas both at regional and national levels. The group has reported the original work on the above 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. The ABP carried out research in multi-disciplinary areas and published numerous peer-reviewed papers in both national and international journals that are of societal significance and policy implications, including a highly cited policy paper on *Crop Protection Stewardship in India: Wanted or Unwanted*. And also brought out three publications in multi-disciplinary areas a) *Biosecurity*, b) *Innovations in Rice Production*, c) *Grid Security and Management*. 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.



## Climate Change and Its Implications on Cardamom Production and Sustainability

This study examined the interactions between climate parameters, cardamom capsule yield and its sustainability in Indian cardamom hills. Climate warming was significant in the recent decades in the Indian Cardamom Hills, which is recognized as one of the ecologically sensitive and biologically diverse areas. Considerable and significant spatial and temporal variations have occurred in the main climatic elements like air temperature, rainfall and relative humidity in the hill region. Significant positive trend in day-night time temperature has been observed and the trend differed from one station to another. Significant increasing trend was also observed for minimum temperature than maximum temperature and this had caused decline in diurnal temperature. The sustainable yield of cardamom may be possible only when the winter and summer rainfall variabilities were minimal. Increasing trend of soil temperature from 0-10 cm depth was recorded, which was significant at 5 cm depth and can cause considerable negative implications for sustainable cardamom production both in terms of reduced soil moisture availability and altered pest population dynamics.

## Agricultural Intensification - Effect of Nutrient and Heavy Metal Uptake in Soils

Indian cardamom hill soils were studied to understand nutrient and heavy metal uptake and consequent fertility level changes. Extensive cultivation of cardamom and conversion of forest land to cardamom agriculture resulted in decline of OM and lower pH. Application of chemical fertilizers in the recent past helped enhance the available

phosphorus (P). This is surprisingly contrary to the general observation of low P fertility and availability of tropical humid forest soils. Available nutrient concentrations with respect to potassium (K), magnesium (Mg) and sulphur (S) were low in cardamom soils while micronutrient concentrations were well above the proposed critical limits. Agricultural intensification through use of mercurial fungicides and other pesticides in Indian cardamom hill soils has resulted in continuous loading of heavy metals in leaves, seeds and rinds. Such a situation could soon lead to a level sufficient to cause serious fertility and environmental problems.

### **Inclusive Spaces in IRBM: Discerning Multiple Boundaries of Resource Relations**

The existence of multilayered boundaries and networks in a river basin redefines the river basin geographies and concepts and poses extreme challenges to centralized notions of Integrated River Basin Management (IRBM). The paper traces various boundaries that exist due to the physical peculiarities, political situations, resource transfer scenarios and socio-economic networks in one of the most exploited river basins in the highly populated biodiversity hotspot of the Southern Western Ghats in India and analyses the implications for IRBM. The coexistence of multiple, dynamic and often overlapping boundaries existing within and beyond the hydrological boundary encompasses an inclusive region of resource engagement coined as 'inclusive basin' which embeds in it various communities of interests. The governance in such an 'inclusive basin', heavily mediated by the power gradients of the boundaries involved, can be envisaged as an issue-based polycentric approach which incorporates these interest group domains at multiple scales. This study attempts a critical examination of the multilayered boundaries that connect the natural hydrographic basin to its physical, social and political settings and their influence on natural resources management, conservation and conflict resolution, especially in the light of the National River Linking Project.

### **Outreach**

The Agroecology and Biosecurity Programme organized the following events:

- a. *International Conference on Increasing Agricultural Productivity and Sustainability in India: The Future We Want during January 8 and 9, 2013.* This conference was jointly organized by NIAS and MS Swaminathan Research Foundation, Chennai.



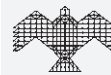
The two day conference was a dynamic and interactive event specially designed to demonstrate positive action in support of increasing agricultural productivity and sustainability in India. More than 200 delegates participated in this conference, including leading policy makers, distinguished scientists, industry representatives, academia, students and other stakeholders from around the world.

- b. *National Seminar on The Present Situation and Prospects of Rice Production in India on August 3, 2012.* The main theme of the seminar was to review the past, present and future of rice production and productivity in India with reference to the research, policy and institutional dynamics.

Many invited experts and policy makers from important institutions in India participated in this seminar including Central Rice Research Institute, Cuttack; Directorate of Rice Research, Hyderabad; University of Agricultural Sciences, Bangalore; Institute for Social and Economic Change, Bangalore; Tamil Nadu Rice Research, Madurai; representatives from Government of Karnataka, Government of India etc.

- c. *National Workshop on Innovation in Agricultural Policies/Schemes/Programmes in India on August 10, 2012.*

The main theme of the workshop was to review the Innovation in Agricultural Policies/Schemes/Programmes in India. Many invited experts, policy makers and other stakeholders from important institutions in India participated in this workshop.



## Members of the Agroecology & Biosecurity Programme



*PK Shetty (Anchor)*

Post-doctoral Associate: *K Manorama (from September 28, 2012 to March 27, 2013)*

Junior Research Fellow: *Thomas K Varghese*

Research Assistant: *GF Aiyasha*

Doctoral Students: *KG Sreeja, Priya Gupta, Nimisha Agarwal*

### **PK Shetty**

Professor

School of Natural and Engineering Sciences

Room No. S 21

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Fax: 080-2218 5028

Email: [pkshetty17@gmail.com](mailto:pkshetty17@gmail.com)

**Joined NIAS on:** August 6, 1992

### **Major research contribution for the year:**

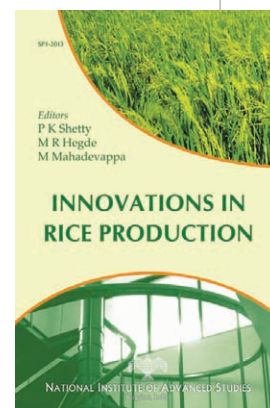
During this year we carried out research in multi-disciplinary areas and published three peer-reviewed research papers in international journals. We filed two patents, brought out a unique publication in agriculture sector titled *Innovations in Rice Production*, which covers past, present and future of rice production and productivity in India with special reference to the research, policy and institutional dynamics. In addition to this, we organized an international conference, a national seminar, a national workshop and a project related workshop.

### **About**

PK Shetty has more than twenty years of research, teaching and administrative experience. Earlier, he was Head of the Environmental Studies Unit, the Dean (Administration) and the Dean (School of Natural and Engineering Sciences) at NIAS and also an Independent Director, Power Grid Corporation of India Limited, Government of India. Prof Shetty received his PhD from Indian Agricultural Research Institute, New Delhi (1992).

He carried out research and in-depth analysis in the multidisciplinary areas such as Agriculture, Ecology, Crop Protection/Environmental Stewardship, Plant Biosecurity, Science and Technology Policy Studies etc. Prof Shetty has successfully completed many externally aided research projects of societal significance and policy implications. He has reported several original works and published numerous highly cited peer-reviewed research papers in internationally reputed journals, also published many books, book chapters and popular articles. Prof Shetty has served on many Boards and Committees of the Government of India and the Government of Karnataka mainly in the areas of Agriculture, Forest and Environment, Power Sector, Labour and Municipal Administration. He was research guide for several PhD, MPhil and MSc Students.

Prof Shetty is associated with many national and international organisations including the Scientific Advisory Board of a Journal of Springer on Philosophy and Technology. He has conducted several India-centric seminars, conferences and discussion meetings in areas of agriculture and also advances in science and technology. He has received several awards in recognition of his work including the prestigious Karnataka State Rajyostava Award (2007) by the Government



of Karnataka, Kempe Gowda Award (2011) by the Bruhat Bangalore Mahanagara Palike, Government of Karnataka, and Pratibha Puraskar Award (2012) by the Karnataka Rajya Vokkaligara Directory, Bangalore.

### Lectures

- Concerns on Biosafety, Biosecurity and Bioethics, Nightingales Centre, Bangalore, November 30, 2012.
- Leadership in Banking Sectors, Chief Guest Lecture at the inauguration of Karur Vysya Bank branch at RT Nagar, Bangalore, November 26, 2012.
- Technological Interventions in Complex Biological Systems, Foundation Course, NIAS, November 22, 2012.
- Keynote Address, Workshop on Bioterrorism, BMS College of Engineering, Bangalore, April 28, 2012.

### Academic Courses

- An advanced course on Research Methods in Agro Climatology (number of credits: 300), which includes lecture and guided reading. The period of course is between January 2013 and May 2013.
- An advanced course on Climate Change and Agriculture (number of credits: 300), which included lecture and guided reading. The period of course was between August and December 2012.

### Awards and Memberships

- Appointed as a Member of BBMP Ward Committee (Ward No.33), by the Commissioner, Bruhat Bangalore Mahanagara Palike (BBMP), Government of Karnataka, February 9, 2013.
- Appointed as a Member, Advisory Committee, Centre for Environment and Sustainable Development, Bangalore, December 3, 2012.
- Received Pratibha Puraskar Award for the year 2012 by Karnataka Rajya Vokkaligara Directory for the contribution to the agricultural research and outreach activities, April 12, 2012.
- Appointed as a Member of Advisory Board for R&D of POWERGRID, Government of India. August 3, 2011 – till now.
- Appointed as a Member of the Scientific Advisory Board of a Journal of Springer on Philosophy and Technology, January 8, 2010 – till now.
- A Member of nomination council of the Infosys Prize, Infosys Science Foundation, 2009 – till now.
- Appointed as a Member of Technical Committee for the implementation of Solid Waste Management Programme in Karnataka, Directorate of Municipal Administration, Government of Karnataka, December 2008 – till now.

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## Doctoral Students of Agroecology & Biosecurity Programme

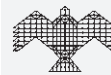
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### KG Sreeja



Doctoral Thesis: She works on the processes of change in the use of land and water in the agricultural landscape of a river basin. The basin therefore is visualized as an ecological and socioeconomic entity focusing on the inter-linkages of resource use, and the social relations of resource use that link the basin to the non-basin area. Her work is contextualized in the recent surge of interest in the ecological role of agriculture in the preservation of landscapes and in understanding the ways in which ecological stewardship concerns in agrarian landscapes are raised and addressed in developing countries. The Chalakudy river basin in the Western Ghats of Kerala has been taken up as a case study.

Supervisor: PK Shetty



### **Priya Gupta**

Doctoral Thesis: Her broad research interest is to understand the human-nature relationship focusing primarily on adivasis and the issues they face with regards to their livelihood generation and their association with land and forests. She is looking at the process of displacement of people from forest areas because of the exclusionary nature of conservation policies (like setting up Protected Areas) while also examining the implementation of counter legislation's like Forest Rights Act. And also trying to understand how these two processes of displacement and granting of rights on forest land, interplay each other at the ground level in and around a conservation space.

Supervisor: PK Shetty



### **Nimisha Agarwal**

Doctoral Thesis: She works in the field of Climate change and agriculture. In her research she plans to understand Farmer's perception of climatic changes in Rice-Wheat Cropping systems in Indo Gangetic Plains in India. In her research she would try to look at the factors which affect farmer's understanding and perception, their adaptive strategies and whether these strategies can be used in farm to farm transfer of technology. Her research would also look at importance of bottom-top approach in building the understanding climate policy in case of India.

Supervisor: PK Shetty



# ECOLOGY, BEHAVIOUR & CONSERVATION PROGRAMME

## Programme Update

The Ecology, Behaviour and Conservation Programme (EBCP) of the School of Natural and Engineering Sciences, led by Anindya Sinha, Professor and Sindhu Radhakrishna, Associate Professor, has, over the last sixteen 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 six research scholars, a post-doctoral fellow and several collaborators from two Schools in NIAS and from eight institutions across India and Australia, 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 800 individually identified animals continuously over thirteen 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.



Figure 1 - Bonnet Macaques;  
Credit - TR Shankar Raman



Figure 2 - Bonnet Macaques;  
Credit - TR Shankar Raman



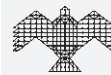
Figure 3 - Assamese Macaques;  
Credit - Narayan Sharma

Over the last year, our Programme has examined the morphology, demography and life history strategies of identified individuals in selected troops of the two subspecies of bonnet macaques, one of our endemic primates, in two protected areas – Bandipur National Park and Kalakad-Mundanthurai Tiger Reserve. This investigation 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 (**Figure 1**).

We have also been continuing a long-term field project, unique in the country, investigating the demographic structure, population dynamics and socioecology of a population of wild bonnet macaques in the Bandipur National Park – Mudumalai Wildlife Sanctuary. During this work, we have been able to document the influence of the tourist traffic through these sanctuaries on the evolution of a novel unimale form of social organisation in this species, characterised by certain unique demographic and behavioural features (**Figure 2**).

During the last year, we completed our research 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 (**Figure 3**). This project aimed to evaluate the survival status of these endangered primates





and devise conservation strategies for the endangered populations of these species.

Our project on the Bengal slow loris, has, till now, 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 (**Figure 4**). 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.

Primates comprise 25-40% of the frugivore biomass of most tropical forests and are considered important agents of seed dispersal for a broad range of tree species. We have, therefore, just initiated a study that proposes to investigate seed dispersal by rhesus macaques in the forests of northern West Bengal and thereby shed light on the role of this species in sustaining fragile ecosystems across its entire geographic range (**Figure 5**).

Gestures are discreet, contextual bodily acts that appear to be intentional and form an intrinsic part of our non-verbal language system. Over the last year, we have attempted to analyse and understand the conceptual complexity of gestures as a medium of communication and 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, both in human and nonhuman primates.

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. We are currently conducting a project that is testing 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 we are examining 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.

A unique project in collaboration with the National Centre for Biological Sciences in Bangalore has been exploring the molecular phylogeny of the *sinica* group of macaques, including the Arunachal macaque species complex and the bonnet macaque. We have already determined the exact phylogenetic position of the Arunachal macaque and the macaques of central Arunachal Pradesh within this species group. Over the last two years, we have employed species-specific microsatellite DNA sequence probes to investigate the population genetic structure of the Arunachal macaque, the macaques of central Arunachal Pradesh, the Uttarakhand macaque, and the molecular population genetics of bonnet macaques over its entire distribution range in peninsular India.



Figure 4 - Slow Loris; Credit - Vicky Lakshman



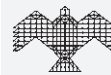
Figure 5 - Rhesus Macaque; Credit - Narayan Sharma



Figure 6 - Elephants; Credit - Nishant M Srinivasaiah

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. Over the last year, more specifically, we conducted three projects that explored different dimensions of human-wildlife relationships, with an ultimate objective of understanding and evaluating possible conflict mitigation strategies and developing conservation plans for the species concerned: human-primate conflict in northeastern India, human-elephant conflict in southern Karnataka state (**Figure 6**), and Irrawaddy dolphin-human cooperation in the Chilika Lagoon of Odisha state.

Finally, 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 our biological resources is, however, not an easy task. As a step towards realising the goal of integrating conservation education into science education in schools, we have embarked upon a project of developing conservation education through citizen science in the states of Kerala and Karnataka. The more specific aims of our project are to improve students' understanding of biodiversity and raise awareness about threats to biodiversity.



# Members of the Ecology, Behaviour and Conservation Programme



**Anindya Sinha**  
Professor  
School of Natural and Engineering Sciences

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*Anindya Sinha* (Anchor)  
*Sindhu Radhakrishna*  
Post-doctoral Associate: *VV Binoy*  
Doctoral Students: *Narayan Sharma, Mayukh Chatterjee, Asmita Sengupta, Shreejata Gupta, Rolla Das*  
Project Assistant: *Daniel Sequiera*  
Summer Student: *Aniket Bhattacharya*  
Collaborators: *Anitha Kurup, NIAS, Rajesh Kasturirangan, NIAS, MD Madhusudan, Nature Conservation Foundation, Mysore, Rohan Arthur, Nature Conservation Foundation, Mysore, Debapriyo Chakraborty, Nature Conservation Foundation, Mysore, Uma Ramakrishnan, National Centre for Biological Sciences, Bangalore, Ajith Kumar, National Centre for Biological Sciences, Bangalore, Nishant M Srinivasaiah, National Centre for Biological Sciences, Bangalore, Suman R Jumani, National Centre for Biological Sciences, Bangalore, Uddipana Kalita, National Centre for Biological Sciences, Bangalore, Salam Nungshi Devi, Forest Research Institute, Dehradun, Bhagyashree Ingle, College of Fisheries, Mangalore, Sitabhra Sinha, Institute of Mathematical Sciences, Chennai, Srinivas Vaidyanathan, Foundation for Ecological Research, Advocacy and Learning, Puducherry, Amit Sengupta, Hindustan Computers Limited, Bangalore, Coralie D'Lima, James Cook University, Townsville, Australia, Helene Marsh, James Cook University, Townsville, Australia, Kakoli Mukhopadhyay, Independent Researcher, Bangalore*

**Joined NIAS on:** November 15, 1996

## **Major research contribution for the academic year:**

Our major research contributions over the last year have been in the fields of wildlife conservation and human-wildlife conflict. First, we have documented the trends in extinction and persistence of diurnal primates in the fragmented lowland rainforests of the upper Brahmaputra valley in northeastern India. Second, we have explored the anthropogenic processes that have shaped the socioecology and undermined the survival of a bonnet macaque population, at the level of the society and the individual, in the deciduous forests of southern India. Finally, we have examined decision-making by Asian elephants at two levels, that of the population and, more importantly, the individual. We have also developed models based on decisions made by individual elephants that have the potential to predict conflict in fragmented landscapes, aid in mitigating human-elephant conflict and better manage this threatened species, particularly in human-dominated landscapes.

## **About**

My wide-ranging research interests, especially over the last decade, have been in the areas of behavioural ecology, cognitive psychology, evolutionary biology and conservation biology, particularly of primates, and the philosophy of biology. Our group has specifically studied wild primates at different levels of organisation, ranging from multispecies community structures to single species biology, collective behaviour in social organisations to individual life-history strategies, and has probed into the individual mind and its cognitive manifestations. In recent years, we have been particularly interested in social knowledge, tactical deception, and tool manufacture in wild bonnet macaques, and this research has led to a significant understanding of the mechanisms underlying primate social and mechanical cognition.

We have also extensively studied the behavioural ecology of several Indian macaques and were responsible for the relatively recent discovery of the Arunachal macaque in the high altitudes of western Arunachal Pradesh. In addition to addressing the conservation problems faced by many of these endemic, but severely endangered, primate species, our current research has extensively documented anthropogenic changes in the distribution and the ensuing conservation problems faced by commoner species such as the bonnet macaque.

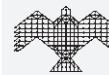
In the year 2000, my team and I began a twenty-year study on the population dynamics and individual life-history strategies of a large population of bonnet macaques, currently comprising over 800 individually identified animals, in the Bandipur National Park – Mudumalai Wildlife Sanctuary of southern India. During this study, we have discovered a process of social evolution, driven by ecology, leading to the development of a unique form of social organisation in the species and the existence of complex behavioural inheritance and cultural traditions among different populations leading to the possibility of cultural evolution and gene-culture co-evolution in the species.

We have recently initiated collaborative studies on the molecular, population and behavioural genetics of macaques of northeastern and southern India and have already completed an investigation into the phylogenetic history of the *sinica* group of macaques as well as a preliminary study on the genetics of social behaviour in this taxon.

Finally, our group has been exploring the problem of intentionality, self-awareness and consciousness in primates in general. We have also been involved in documenting the abnormal behavioural profiles displayed by macaques in captivity and in understanding their implications for primate welfare under these conditions. In addition to primatology, our other academic interests include the evolutionary biology of human consciousness, memetics and gene-meme coevolution, and the history and philosophy of cognitive ethology.

## Lectures

- a. A Rolling Stone Does Gather Some Moss: Reflections on a Primate Life, Young Investigators' Meeting 2013, Jodhpur, February 12, 2013.
- b. Positive Psychology: The Journey Within, Inaugural Talk, National Seminar on Positive Psychology and its Application in the Areas of Education, Healthcare and Industry, Mount Carmel College, Bangalore, February 7, 2013.
- c. Primate Worlds: Ecology, Demography, Behaviour and Conservation of Indian Primates, INSPIRE Internship Camp, Indian Institute of Science Education and Research, December 10 to 14, 2012.
- d. Social Cognition and Traditions in Wild Bonnet Macaques, Inaugural and Plenary Lecture, National Conference on Perspectives in Ethology, Stella Maris College, Chennai, November 30, 2012.
- e. The Monkey in the Mirror! Social and Cultural Evolution in Wild Bonnet Macaques, Plenary Lecture, 36<sup>th</sup> Annual Conference of the Ethological Society of India and National Symposium on Live Organisms and Their Expression in the Environment, Kolkata, November 27, 2012.
- f. The Monkey and the Elephant: Social Networks in Wild Mammalian Populations and Their Conservation, Symposium on Ecological Networks from Species to Landscapes, Biodiversity Asia 2012: Science, Policy and Governance, the 2<sup>nd</sup> Asia Regional Conference of the Society for Conservation Biology – Asia Section, Bangalore, August 10, 2012.
- g. A Beautiful Mind! Social Cognition in Wild Bonnet Macaques, ASET Colloquium, Tata Institute of Fundamental Research, Mumbai, August 10, 2012.
- h. Face to Face: Towards an Ethical Code for Field Primatologists, Panel Discussion on Wildlife Research Ethics and Compassionate Conservation, Students' Conference on Conservation Science, Bangalore, August 2, 2012.
- i. Research Ethics in Field Primatology, Panel Discussion on Ethical Considerations in the Conduct of Research, NIAS, August 1, 2012.



- j. Unapologies for Not Being a Conservationist, Annual Meeting, Nature Conservation Foundation, Mysore, July 26, 2012.

### **Academic Courses**

- a. A three-credit course on *Animal Behavioural Ecology*, consisting of lectures, field methods, paper presentations and discussion sessions for Master's degree students of the Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bangalore, March 2013.
- b. A two-lecture module on *Methods in the Natural Sciences* as part of a three-credit course on *Research Methodologies* for NIAS doctoral students, February 2013.
- c. A two-lecture module on *Foundations of Biological Sciences* as part of a three-credit course on *Foundations* for NIAS doctoral students, October 2012.

### **Conferences and Meetings Organized**

- a. National Seminar on Positive Psychology and its Application in the Areas of Education, Healthcare and Industry (in collaboration with Mount Carmel College), Bangalore, February 7 and 8, 2013.
- b. Biodiversity Asia 2012: Science, Policy and Governance, the 2<sup>nd</sup> Asia Regional Conference of the Society for Conservation Biology – Asia Section (in collaboration with the Ashoka Trust for Research in Ecology and the Environment), Bangalore, August 7 to 11, 2012.

### **Awards and Memberships**

- a. Member, IUCN/SSC Primate Specialist Group and South Asia Group, Species Survival Commission of the International Union for the Conservation of Nature, Gland, Switzerland, March 2013 to March 2016.
- b. Inaugural Talk, National Seminar on Positive Psychology and its Application in the Areas of Education, Healthcare and Industry, Mount Carmel College, Bangalore, February 7, 2013.
- c. Inaugural and Plenary Lecture, National Conference on Perspectives in Ethology, Stella Maris College, Chennai, November 30, 2012.
- d. Plenary Lecture, 36<sup>th</sup> Annual Conference of the Ethological Society of India and National Symposium on Live Organisms and Their Expression in the Environment, Kolkata, November 27, 2012.
- e. Scientific Advisor and Research Coordinator, Dhole's Den Research Foundation, Bandipur National Park, October 1, 2012 onwards.
- f. Honorary Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 15, 2012 onwards.
- g. ASET Colloquium, Tata Institute of Fundamental Research, Mumbai, August 10, 2012.
- h. Member, International Sub-Jury, Twenty-Third International Biology Olympiad, Singapore, July 4 to 14, 2012.





**Sindhu Radhakrishna**  
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**Joined NIAS on:** September 1, 2002

**Major research contribution for the academic year:**

New insights into the behavioural variation and social flexibility of a nocturnal primate species, the slender loris. There are very few long-term behavioural studies on the slender loris, and my work provides an unusual perspective into the ecological plasticity of this species.

**About**

Sindhu Radhakrishna has been with NIAS for over 10 years now. She has a Masters degree in Psychology and a PhD in Animal Behaviour and describes herself as a wildlife biologist with research interests in the areas of primatology, particularly the social behaviour of nocturnal primates, human-wildlife conflict, animal studies and environmental education.

**Lectures**

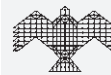
- a. Borderland human-wildlife conflicts: The case of the rhesus macaque in India, Chandrashekar Memorial Meeting, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, January 10, 2013.
- b. Coming into the Light?: Ecology and Behaviour of Nocturnal Primates, paper presented at the National Conference on Perspectives in Ethology, Stella Maris College, Chennai, December 1, 2012.
- c. Living with Primates in Northeastern India: Culture, Conflict and Conservation. paper presented at the 24<sup>th</sup> Congress of the International Primatological Society, Cancun, Mexico, August 14, 2012.

**Academic Courses**

- a. Along with Anitha Kurup, conducted a workshop for faculty members titled Research: Cornerstone of Excellence in Higher Education in Stella Maris College, Chennai, March, 2013.
- b. Taught a module in the Foundation Course, NIAS Doctoral Programme, September 2012.

**Awards and Memberships**

- a. DST International Travel Grant, 2012
- b. INSA International Travel Grant, 2012
- c. India-Sri Lanka Foundation Grant, 2012

**VV Binoy**

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**Joined NIAS on:** September 2, 2010

**Major research contribution for the academic year:**

The behavioural research conducted during the past year has largely investigated the remarkable intra- and inter-population variation exhibited by a freshwater fish, the climbing perch, in its social and cognitive decision-making processes, especially when these populations inhabit strikingly different ecosystems. We have also been exploring the contributions made by personality traits such as boldness to inter-individual relationships and shoal fidelity in this species. Finally, given the seriousness of threats faced by the indigenous Indian fish fauna from ever-increasing populations of invasive, exotic species, this research has examined the impact that familiarisation with an exotic fish, the tilapia, has had on the decision-making processes of the indigenous climbing perch.

**About**

Binoy aims to develop strategies for the management and conservation of aquatic resources by converging knowledge from cognitive psychology, behavioural ecology and limnology. He studies inter and intra population variation present in the behavioural phenotypes and cognitive abilities in fishes, the key stone species in aquatic ecosystems, as well as the impact of alien invasive piscine species on the native fishes. Earlier he worked on the artificial propagation and reintroduction of endangered fishes also. He is also analyzing attitude of different communities toward water resources, efficacy of citizen science programmes in creating awareness about water and biodiversity conservation and environmental decision making in school children. He has been the recipient of Cognitive Science Research Initiative (CSI) Post-doctoral Fellowship and Young Scientist (Fast Track), Department of Science and Technology, Government of India and holds a doctoral degree in zoology.

**Lectures**

- a. Can Humans Love Unconditionally: The Perspectives of an Abandoned Pet, People for Animal Welfare Services (PAWS), Thrissur, March 2, 2013.
- b. Animal Rights, People for Animal Welfare Services (PAWS), Thrissur, November 5, 2012.
- c. Fish Behaviour and Cognition: New Horizons. Department of Marine Biology, Microbiology and Biochemistry, School of Marine Sciences, Cochin University of Science and Technology, Kochi, September 27, 2012.
- d. Is Homo sapiens Matchless? Cognition Summer-School. NIAS, July 10, 2012.
- e. "Not Like Us – Like Us – Not Like Us" Cognition in non human species. Cognition Summer School. National Institute of Advanced Studies Bangalore, July 9, 2012.

## Awards and Memberships

- Young Scientist (Fast Track), Department of Science and Technology, Government of India.
- Freshwater Fish Specialist Group South Asia (FFSG-SA).
- Freshwater Fish Conservation Network of South Asia (FFCN-SA).

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## Doctoral Students of Ecology, Behaviour and Conservation Programme

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### Narayan Sharma

Doctoral Thesis: *Primates on the edge: Ecology and conservation of primate assemblages in the fragmented lowland rainforests of the upper Brahmaputra valley, northeastern India*

He submitted his doctoral thesis to the Manipal University in December 2012  
Supervisor: Anindya Sinha

### Mayukh Chatterjee

Doctoral Thesis: *An uncommon performing monkey: Behavioural flexibility and social diversity in the northern bonnet macaque *Macaca radiata radiata**

He completed doctoral thesis and obtained degree from the Manipal University in 2012

Supervisor: Anindya Sinha

Co-Supervisor: Sindhu Radhakrishna



### Asmita Sengupta

Doctoral Thesis: *The role of rhesus macaques as effective seed dispersers in the tropical forests of the Buxa Tiger Reserve in northern West Bengal.*

Her principal explorations in the past year have concerned the determination of the number and types of plant species dispersed by a non-provisioned macaque troop, the effectiveness of rhesus macaques as seed dispersers, and the effect of gut passage and mouth processing of seeds on their germination.

Supervisor: Sindhu Radhakrishna

Co-Supervisor: Anindya Sinha

### Shreejata Gupta

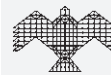
Doctoral Thesis: *The development of gestural communication and its integration with vocal communication in three social groups of wild bonnet macaques, a common primate species restricted to peninsular India, in the Bandipur National Park of southern Karnataka.*

Her current research questions involve the contributions made by the behavioural profile and the social relationships of juvenile individuals to the diversity of their gestural repertoires and the rates at which these repertoires are acquired.

Supervisor: Anindya Sinha



**Debapriyo Chakraborty** (*Genes in space and time: Population genetic structure and demographic history of two primate species, the Arunachal macaque *Macaca munzala* and bonnet macaque *Macaca radiata**) completed his doctoral research under the joint guidance of Anindya Sinha and Uma Ramakrishnan and submitted his thesis to Manipal University in December 2012. **Salam Nungshi Devi** (*To identify the presence of primates and various factors affecting their occurrence in Manipur, Environmental Management*) worked under the guidance of Sindhu



Radhakrishna while **Suman R Jumaní** (*Dry season ranging and foraging behaviour of Asian elephants *Elephas maximus* in a critical habitat, the Sigur Plateau, southern India, Wildlife Biology and Conservation*) and **Uddipana Kalita** (*Diet selection by capped langur *Trachypithecus pileatus* in Hollongapar Gibbon Wildlife Sanctuary, Assam, northeastern India, Wildlife Biology and Conservation*) conducted their research under Anindya Sinha. This apart, last year, three students completed their Master's degree dissertations under the aegis of the Ecology, Behaviour and Conservation Programme.

# ENERGY & ENVIRONMENT POLICY PROGRAMME

## Programme Update

The Programme for Research on Energy and Environment Policy (EPPP) is devoted to exploring and finding solutions to some of India's vexing problems that also exacerbate environmental problems, including climate change. The Programme is 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 we could tap have their own constraints to rapid growth.

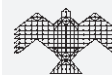
India has the dual problem that while providing clean, reliable and affordable energy services for continued economic growth to those with access, it has the obligation to provide similar services to hundreds of millions currently unserved. In order to sustain its current economic growth rate, India 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.

The EPPP had earlier proposed advancing Indian Standard Time (IST) to GMT+6:00 as a way of saving peaking energy in the evenings that the utilities struggle to supply. In subsequent work, we found this option of advancing IST yields the highest amount of energy savings as compared to the corresponding proposals for introducing daylight saving time (DST) and introducing two time zones in the country. These analyses were carried out using regional load curves for 2008 and 2009. Because data on regional load demand were obtained from a summation of state-level electricity load demands, and because sunset times were different in different states, we had postulated we would obtain higher electricity savings if the same analyses were conducted on the basis of state-level data. The problem with state data is that they tend to be "noisier". We had also pointed out that one adverse consequence of advancing IST would be on north-western states in the form of later sunrises, which could cause inconvenience to their populations for a few winter weeks. Potential electricity savings as a result of advancing the IST by half hour for thirteen states that together account for over 83% of the annual all-India electricity consumption were estimated. We computed energy savings from the evening portion of the curve from daily state load curves for the year 2009. Although the average daily savings when compared to the average daily electricity consumption for a state are modest (0.2% to 0.7%), they are significant fractions of the evening peaking energy demand. We also have calculated the postponement of the latest dawns in winters in the capital cities of these states.

The Indian policy on photovoltaic systems has hitherto focused on grid-connected utility scale systems and rural off-grid systems, but evidence from other countries suggests that distributed grid-tied from small PV systems mounted on rooftops can make significant contribution. The maximum potential for solar rooftop photovoltaic systems is a function of the available commercial and residential roof area and the current solar PV technology. Preliminary modelling results indicate that the potential for installed capacity for such system lies in the tens of gigawatts. Model results suggest that while rooftop PV systems offer the potential for significant





generation close to urban centers of demand with reductions in transmission and distribution losses, uptake will be greatly hampered in the absence of suitable incentives and easily implementable interconnections.

Remote villages have only the option of electrification through renewable energy powered stand alone micro-grid or home lighting systems, as conventional grid-extension to these villages is neither feasible nor cost-effective. Field visits of some of the implementation sites of RVE in Odisha (the state having the largest number of villages considered remote) shows problems of lack of maintenance on account of supply chain constraints and want of technical skills in rural areas. The projects are likely to be unviable once the support (provided for five years) is withdrawn.

## Outreach

We continued efforts to publicize our research on the energy savings that would accrue to the country from advancing Indian Standard time. We published a popular article in *The Hindu*: Sen Gupta, DP and Dilip R Ahuja: *Advance Indian Standard Time by Half an Hour, May 16, 2012.*

We also continued to present the results to policy makers. The importance given to this work is indicated by the fact that both the Principal Scientific Advisor to the Government of India, and the DST Secretary travelled to Bangalore to receive a briefing on the work. As shown in the Table below, we made four such presentations during the year. We will continue to push for the adoption of this recommendation by the Government because we are convinced it will prove beneficial to the country.

Presentation Made To	Other Institutions Represented	Date	Venue
Principal Scientific Advisor to the Government of India	--	May 10, 2012	NIAS
Secretary, Department of Science and Technology	National Physical Laboratory, Department of North-East Region, Railways	June 19, 2012	NIAS
Ministry of Power, Government of India	Indian Meteorological Department, The Energy and Resources Institute	August 9, 2012	Shram Shakti Bhawan, New Delhi
The Scientific Advisory Committee to the Cabinet	--	November 22, 2012	Vigyan Bhawan Annexe, New Delhi

We also drafted the consensus Recommendations of the Bangalore Round Table: Developing an Indian Working Response to the Decisions adopted by the Durban Platform for Enhanced Action, NIAS, May 28, 2012. This was widely circulated to policy makers associated with India's negotiators on Climate Change.

## Members of the Energy and Environment Policy Programme



*Dilip Ahuja (Anchor)*

*DP Sen Gupta*

Post-doctoral Associate: *Hippu Salk Kristle Nathan*

Research Consultant: *Gautam Narasimhan*

Doctoral Students: *Neesha Dutt, Priyam Laxmi Borgohain*

Junior Research Fellow: *Ila Gupta*

### **Dilip Ahuja**

Professor

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**Joined NIAS on:** December 13, 1999

### **Major research contribution for the academic year:**

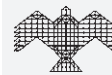
We have shown that all major energy consuming states in India that together account for over 83% of the annual all-India electricity consumption will save electricity if IST is advanced from GMT+5:30 to GMT+6:00. Although the average daily savings when compared to the average daily electricity consumption for a state are modest (0.2% to 0.7%), they are significant fractions of the evening peaking energy demand. These estimates have been made for the first time in the country.

### **About**

Dilip R Ahuja has contributed to three Reports of the Inter Governmental Panel on Climate Change. In 2007-08, he was a Senior Policy Advisor to the Global Leadership for Climate Action at the UN Foundation in Washington, DC. He was a Special Advisor to the Inter Academy Council's study titled *Lighting the Way: Toward a Sustainable Energy Future*. Earlier, Prof Ahuja worked as a Senior Environmental Specialist at the Global Environment Facility Secretariat in Washington, DC. He has carried out research at USEPA, TERI, and the Harvard School of Public Health. He obtained a PhD from the University of Virginia at Charlottesville and a BTech in Electrical Engineering from IIT, Bombay. His research has included estimating global warming potentials of greenhouse gases, energy savings from plausible changes in Indian Standard Time, emission factors from small-scale biomass burning and national inventories of greenhouse gases.

### **Lectures**

- a. Addressing the Energy Gaps in Developing Countries through Capacity Building and Knowledge Sharing at the Expert Consultation on Knowledge and Capacity Needs for Sustainable Development in Post Rio Era, Incheon, South Korea, March 6 to 8, 2013.
- b. Conference on Equity, Adaptation and Sustainable Development, Chair a Session on Constructing Low Carbon Pathways—Approaches, Methods and Results, Tata Institute of Social Sciences, Mumbai, February 22, 2013.
- c. International Dialogue Forum on Low carbon Development and Poverty Reduction, Indian Statistical Institute, New Delhi, Discussant for a Round Table Discussion on Low Carbon Development and Poverty Reduction, February 21, 2013.
- d. The Climate Mitigation Challenge, at the Divecha Centre-Grantham Institute (IISc-Imperial College), Workshop on Understanding Climate Change, January 11, 2013.



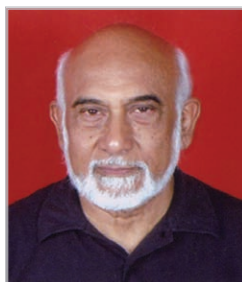
- e. Challenges for Sustainable Energy Development in India, invited paper presented at the IGIDR Silver Jubilee Conference on Development: Successes and Challenges--Achieving Economic, Social and Sustainable Progress, Mumbai, December 2, 2012.
- f. International Conference on Energy Security and Development—The Changing Global Context, IGIDR, Mumbai, October 25 to 27, 2012, Chaired a Special Plenary Session on October 26, 2012.

### Academic Courses

- a. Chaired a Panel Discussion on Research Ethics in the Research Methodology Course, March 25, 2013.

### Training Courses

- a. The flagship NIAS Programme for Senior Executives was successfully conducted for the 27<sup>th</sup> time with the theme of Managing Change. The Senior Executives Course received an overall average rating of 4.53 (out of a maximum of 5.0) and 14 out of the 15 speakers received average scores of between 4.13 and 4.93.



**DP Sen Gupta**  
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**Joined NIAS on:** October 1, 2009

### About

An Honours graduate in Physics from Calcutta Presidency College and in Electrical Engineering from I.I.T, Kharagpur, Sen Gupta took his PhD from Liverpool University where he taught for five years before he joined the Indian Institute of Science (IISc), Bangalore and carried out teaching and research for about three decades. He received awards for teaching excellence at both Liverpool University and IISc where he was awarded a special chair for Energy Studies. He had research links with a number of British Universities, particularly with the University of Liverpool and Cavendish Laboratory, Cambridge, and the University of Illinois, Urbana Champaign. He is an Emeritus Fellow at the IISc. He has co-authored books published by Butterworths, McMillan, Alpha International, London and recently by IISc Press and World Scientific. He has published a number of books for children.

### Lectures

- a. Sir JC Bose, The Man, His Time and His Discoveries, Evening Lecture in an International Conference arranged by IEEE, CONECCCT, Bangalore, January 18, 2013.
- b. Bengal Renaissance and Jagadish Chandra, Invited Lecture at Calcutta Presidency College, on the occasion of IEEE installing a plaque, September 15, 2012.

- c. Presentations at the 10<sup>th</sup> Annual NIAS-DST Course on Multidisciplinary Perspectives on Science, Technology and Society, October 3, 2012 and at the NIAS-DST Programme on Future Challenges to Society, February 14, 2013.



**Hippu Salk Kristle Nathan**

Post-doctoral  
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**Joined NIAS on:** February 24, 2012

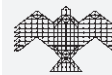
### About

Hippu Salk Kristle Nathan has an MTech in Thermal Engineering from IIT Delhi, and a PhD in Development Studies from Indira Gandhi Institute of Development Research, Mumbai. Earlier, he worked as software professional at Infosys Limited, Bangalore and Geometric Global, Mumbai. Dr Nathan's research interests include energy, economic measurement, human development, disarmament, world peace, socio-political reform, and sustainable use of resources. 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.

### Lectures

- a. 'Frameworks for Measuring Sustainability' and 'Indicators of Sustainability' under the course Managing Technology for Sustainability at Department of Management Studies, Indian Institute of Science, Bangalore in March to April, 2012 and in March, 2013.
- b. Indicator Development – Frameworks and Methods, invited lecture at workshop by ResRA (RRA network) at Center for Economic and Social Studies (CESS), Hyderabad, January 25, 2013.
- c. Pipeline Politics – A case study of India's cross border gas projects, presented at the Odisha Environment Congress – 2012 — Energy and Environment – Issues, Challenges and Potentials for Odisha, Regional Museum of Natural History, Bhubaneswar, December 21, 2012 (along with Mr Sanket S Kulkurni and Prof Dilip R Ahuja).
- d. India's Power Poverty: Poverty of Ideas, Mechanical Engineering Department, Sahyadri College of Engineering and Management, Mangalore, November 11, 2012.
- e. Technology: Diffusion, Sustainability, and Human Development, lecture at Management School, Sahyadri College of Engineering and Management, Mangalore, November 11, 2012.
- f. Can India Go Nuclear Energy Free — the Pathways and Aftermaths, at the 3<sup>rd</sup> National Research Conference on Climate Change, Bangalore, November 4, 2012.

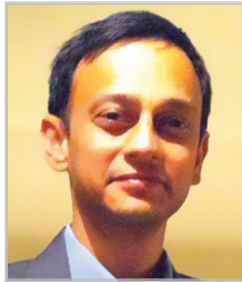




- g. Assessment of Electrification Projects where Grid-extension is infeasible, at the 3<sup>rd</sup> National Research Conference on Climate Change, Bangalore, November 4, 2012 (along with Prof DP Sen Gupta and Prof Dilip R Ahuja).
- h. Measuring Poverty – Do We Need to Cut the Cake in Two Haves? Presented at the International Conference on Public Policy and Governance - 2012, Department of Management Studies, Indian Institute of Science, Bangalore, September 4, 2012.
- i. China's Path towards Democracy: Prospects and Challenges, presented at Inside China, Second Annual Conference – 2012, India Habitat Centre in New Delhi, by Institute of Peace and Conflict Studies (IPCS), New Delhi, September 8, 2012.
- j. World Government for World Peace: A Gandhian agenda for research and activism, presented at the National Seminar on Contemporary Nonviolent Movements in India and Abroad – 2012, School of Gandhian Thought and Development Studies, Mahatma Gandhi University, Kottayam, Kerala, August 24, 2012.
- k. Pipeline Politics – A case study of India's cross border gas projects, presented at the International Conference on Energy Security and Development—The Changing Global Context, IGIDR, Mumbai, October 26, 2012 (along with Mr Sanket S Kulkurni and Prof Dilip R Ahuja).
- l. Towards a Set of Urban Biodiversity Indicators for Indian Cities, presented at UR BIO-2012 (Urban Biodiversity Conference – 2012), Indian Institute of Technology, Bombay, October 11, 2012.
- m. Urban Water Bodies - Tale of Two Cities, presented at UR BIO-2012 (Urban Biodiversity Conference – 2012), Indian Institute of Technology (IIT), Bombay, October 10, 2012 (along with Ms Priyam Laxmi Borgohain and Mr K Jafar).
- n. Food Security in Context of Urban Biodiversity: An Indian Dimension, presented at UR BIO-2012 (Urban Biodiversity Conference – 2012), Indian Institute of Technology (IIT), Bombay, October 10, 2012 (along with Ms Geetanjali Yadav and Ms NS Nalini).

### **Awards and Memberships**

- a. Awarded the Young Scientist Award at the Third Odisha Environment Congress held at Regional Museum of Natural History in Bhubaneswar during December 20 to 22, 2012 for his presentation of the paper entitled Pipeline Politics - A Study of India's Cross Border Gas Projects.



**Gautam Narasimhan**  
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**Joined NIAS on:** January 2, 2012

### About

Gautam Narasimhan's efforts over the past year were largely on renewable energy and climate change policy. Subsequent to last year's Round Table following the Durban Climate Change Negotiations, he drafted and helped obtain consensus for the recommendations from the March 2012 NIAS Round Table on the Durban Climate Change talks. He modelled the extent to which small distributed rooftop solar photovoltaic systems can contribute to India's energy mix; interim results of which were presented at the National Climate Change conference. He is currently engaged in assessing the extent to which renewable energy can address Karnataka's future energy supply.

### Lectures

- a. The Potential for Urban Solar Rooftop PV Systems to Mitigate Carbon Emissions, at the 3<sup>rd</sup> National Research Conference on Climate Change, Bangalore, November 4, 2012 (along with Ms Ila Gupta, Dr Hippu Salk Kristle Nathan, Prof DP Sen Gupta and Prof Dilip R Ahuja).

### Awards and Memberships

- a. The Third Annual National Climate Change Conference held at IISc, Bangalore on November 3 and 4, 2012 awarded the best poster in the Climate Change - Mitigation category, the first and lead author for the EEPP poster presentation entitled The Potential for Grid-tied Solar Rooftop PV Systems in India.

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## Doctoral Students of the Energy and Environment Policy Programme

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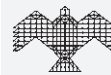
### Neesha Dutt

Doctoral Thesis: *Urban Greens: Ecological Impacts and Socio-Economic Drivers of Turf-Grass Eco-Systems*



She is in the third year of research work. Two of the chief agents of global land transformation are 'urbanization' and 'globalization'. Both are closely linked to the 'restructuring of city space'. Post-1990 IT revolution, Bangalore has been catapulted into a development path with many world city projects, which partly caters to the idea of acquiring a 'global' image. Many of these architectural structures harbour a turf-grass lawn as part of the landscaping. This study investigates a) ecological impact of high maintenance lawns in terms of whether they act as a source or sink of greenhouse gas emissions, and b) socio-economic factors influencing lawn establishment and management.

Supervisor: Dilip R Ahuja



**Priyam Laxmi Borgohain**

Doctoral Thesis: *Downstream Environmental and Socio-Economic Impacts of Hydropower Projects in Northeast India.*

She is in the second year of research work. While upstream environmental and socio-economic impacts of dams have been extensively studied and documented, the nature and extent of downstream socio-economic impacts that potentially arise from bio-physical changes or impacts on riverine ecosystems have often been overlooked and understudied. In Northeast India, where major dam-building has been witnessed in recent times, there is specially a need to assess these potential dam-induced downstream ecosystem impacts, whose ultimate consequences are borne by downstream river-dependent populations who depend upon the goods and services of the riverine ecosystem for their livelihood security.

Supervisor: Dilip R Ahuja



# HERITAGE STUDIES PROGRAMME

## Programme Update

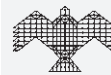
The Heritage Studies and Material Cultural Programme while being essentially part of the disciplines of history, archaeology, art history and anthropology, reaches beyond by seeking to locate the aspects of tangible and intangible heritage, materials culture, and surviving craft practices within the broader educational discourses in the humanities, natural sciences and social sciences, especially by exploring the related technological dimensions and by making linkages between science, society and civilization. This inter-disciplinary programme proposes to bring together archaeology, art history and scientific studies in the context of documentation, preservation and conservation of heritage. The fields of archaeological sciences, archaeometallurgy, archaeomaterials and geoarchaeology and ethnoarchaeology and crafts ethnology are explored as well as the connections between art, science and culture, including links with performing arts traditions and drama. 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 science, digital and information technologies. On the one hand, the use of high-end laboratory techniques is brought to bear to explore materials characterization such as metallography, SEM-EDS, lead isotope analysis and others. On the other hand, the grass root documentation of declining crafts traditions and fieldwork related activities of surveying sites related to ancient mining and mineralogical or metal extraction of archaeological excavations and sites is undertaken while also integrating such site based information using geospatial and GIS techniques. In addition the programme has a strong foundation in studies in history, art history and archaeology, and research in all these areas pertaining to prehistory and medieval history, art history, and history of languages, while at the same time encouraging programmes that reach out to other disciplines in humanities, social sciences and natural sciences.



Under the umbrella of the IDH project and cultural groups coordinated by Prof S Ranganathan a new project has been sanctioned in the field of creation of a knowledge bank with Prof S Settar as Principal Investigator. The IDH Hampi project related to study of Vijayanagara bronzes and sculpture with Prof Sharada Srinivasan as Principal Investigator and Prof Ranganathan as Co-Principal Investigator which combines methodologies from science and art, and is focused on the study, documentation and presentation of Vijayanagara period art (14<sup>th</sup> to 16<sup>th</sup> century). Aspects of modelling and iconography of sculpture, literature survey, overall development of art and culture during photo documentation of some of the relevant artworks at collections including Kamalapuram museum and Chandragiri museum have been attempted.

The project has initiated been with an aim to disseminate the gathered information to larger audience by putting them into a digital archive including aspects such as 3-D visualisation and virtual museum. The RESPOND project which has Prof Ranganathan as Principal Investigator and Prof Sharada Srinivasan as Co-Principal Investigator has usefully explored the possibilities of using satellite imagery in a range of contexts including gaining insights on locations of iron and steel in Telangana going back to data generated from UKIERI-I project, and problems in varied archaeological contexts from Paleolithic, to early historic in the case of Tanjavur area, and currently images have been acquired to explore further the aspect of heritage in an urbanising context, with respect to Kanchipuram, with its many temples and tanks and falling in the broader vicinity of Chennai.

Prof Ranganathan through his Professorship in Japan has played the important role of a cultural and scientific ambassador to further cement Indo-Japanese links in academia and culture and to familiarise himself



with the top international practices of the Japanese in heritage management and of scientific heritage such as the Tatar iron and steel making practices and the Sado gold mines and to turn the interest of the Japanese scholars such as the Tokyo University in collaborating on aspects such as the digital mural heritage of Hampi and mining heritage. Prof Settar as one of the foremost experts in the area of Kannada and classics area built important bridges with the broader scientific communities interested in digital archiving of heritage such as the MS Ramaiah College of Engineering and such like. Prof Settar has also edited a very important series of works on one of the most celebrated literary figures of Karnataka and India Prof UR Ananthamurthy. He served as a member of the National Level Selection Committee for Rabindranath Tagore National Professorship, Ministry of Culture, Government of India was a keynote speaker at important lectures such as the Chitrakala Parishat Aryamurthy Memorial Special Lecture on Hoysala Artists.

### Outreach

The Heritage Programme has had good impact attracting high-profile projects, such as - DST sponsored India Digital Heritage project which include IITs and cultural organizations, and coveted Indo-British Award schemes such as the UKIERI-II PhD scheme, following UKIERI-I and the Royal Society-DST scheme. The faculty bagged prestigious distinctions, such for Prof Sharada Srinivasan, the Dr Kalpana Chawla Award for Young Women Scientist (given by the Karnataka Council for Science and Technology and Government of Karnataka) and the Charles Wallace Award, Prof S Ranganathan who was felicitated with the Lifetime Achievement Award, Ministry of Steel, Government of India at the annual NMD meeting, Prof Settar who was conferred the Kannada Sahitya Parishat Award 2013 for his contributions to Jaina Literature, and the Indo-UK Nehru Trust award for Dr Smriti Haricharan. International links were forged with UK, Taiwan, Sri Lanka and Japan. Prof Sharada Srinivasan was invited to do public outreach events at Lyon Planetarium, France, Bangalore International Centre, and conference on Centenary of Cosmic Rays, TIFR and participated in a seminar on Deccan Archaeometallurgy organised by NIAS Adjunct Faculty Dr Jaikishan in Dharmapuri, Telanagana drawing in local audiences. Prof Ranganathan was leader of a nine member Indian Delegation for an India-Taiwan Bilateral Symposium on Technology for Preservation and Restoration of Heritage Artefacts and Architecture Design, supported by DST and CII, Taichung, Taiwan, June 4 to 8, 2012 and gave lectures such as on Hampi for 60 years of Indo-Japanese relations, the Golden Reunion event of 1962 of IISc metallurgy department related to metallurgy as human experience. Prof Settar was involved in a National Seminar on Usage of Kannada Language in the Vachanas', organised by Department of Kannada and Culture and gave the keynote address for a seminar on digitizing inscriptions sponsored by AICTE at MSRIT and was chief guest for Mysore University foundation Day. The NIAS IDH project took part in Lepakshi festival at Lepakshi (Andhra Pradesh, 2012) to create heritage awareness at the grassroots. The collaborative efforts of three institutions, NIAS, IIACD and NID (including PIs of NIAS faculty Profs Sharada Srinivasan and S Ranganathan, NIAS Adjunct Faculty, Vijay Chandru, and NID faculty Mamata Rao) created an informative and lively IDH stall at Lepakshi that proved to be extremely popular with more than 1000 visitors ranging from local students to bureaucrats. As part of the IISc Open Day exhibitions and following the successful organization in 2010, 2011 and 2012 Prof S Ranganathan and Prof Sharada Srinivasan from NIAS and Prof Atul Chokshi and Prof S Satyam Suwaas of the Materials Engineering Department of IISc curated the fourth edition of Materials Heritage of India and Future Mining with a display of materials, informative posters and video. Posters on Urban Mining and Asteroid Mining attracted interest while videos were screened on the making of Swamimalai bronzes and Aranmula mirror making with Prof Sharada Srinivasan's on site commentaries. Dr Smriti Haricharan has explored urban heritage issues related to Mysore concerning JNNURM. Ms S Padhma Priya assisted in the IASC's annual conference on conservation at Salar Jung Museum, Hyderabad. Mr Rajarshi Sengupta had a solo art exhibition at Sumukha Art Gallery exploring Kalamkari from scholarly and artistic perspectives.

*Materials Heritage and Future Mining exhibit at the Indian Institute of Science, Bangalore, Open Day Event*





## Members of the Heritage Studies Programme



*Sharada Srinivasan (Anchor)*

*S Ranganathan (Anchor – till December 2012)*

Post-doctoral Associate: *Smriti Haricharan*

Doctoral Students: *Hema Thakur, Sumitra Sundar, Brice Girbal, Tathagatha Neogi, Marc Cox, Alice Lawson*

Junior Research Fellows: *Rajarshi Sengupta, S Padhma Priya, NS Nalini*

Project Assistants: *Praveen Johnson, Sheela Karunakaran, Nagabhushan, Nagashree Shriraksha*

**Sharada Srinivasan**  
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**Joined NIAS on:** June 10, 2001

Archaeometallurgical and lead isotope analysis of South Indian and Chola bronzes, identification of high-carbon steels and high-tin bronzes from Indian antiquity, early mining and metallurgy in southern India and metal crafts.

### About

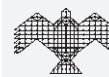
Sharada Srinivasan has research interests ranging from archaeological science, metallurgy and materials characterisations of ancient artifacts and the implications for history of arts and crafts to performing arts. She has a PhD in archaeometallurgy from University College, London; MA from SOAS, London and BTech in engineering Physics from IIT, Mumbai. She is a recipient of the Dr Kalpana Chawla Young Women Scientists Award 2011 and fellow of the Royal Asiatic society and World Academy of Art and Science. Her awards include the Indian Institute of Metals Certificate of Excellence (2007), Materials Research Society of India Medal (2006), Malti Nagar Ethnoarchaeology Award (2005), Materials Research Society Graduate Student Award, USA, (1997), Flinders Petrie Prize and Medal, London University (1989) and also the Homi Bhabha Fellowship (1996-8) and the Forbes Smithsonian Research Associateship (1999). She was Lead Investigator from the Indian side for a UK-India UKIERI Standard Research Award (2009-2011) on 'Pioneering metallurgy: origins of steel making in the southern Indian subcontinent', between NIAS and Exeter University. She is also Chair for the Archaeology programme on a UKIERI-II

Award with Exeter University for Split-site PhDs and overall co-coordinator for this Intangible Histories programme covering Archaeology and Drama. In 2012 she has been a Charles Wallace Trust Awardee in 2012 and a co-recipient of a Royal Society-DST NIAS-Exeter scientific seminar grant for 2012. She is Principal Investigator on a project with Prof Ranganathan as Co- Principal Investigator on digital modelling and Vijayanagara bronzes under the India Digital Heritage scheme which is exploring iconometric aspects in sculpture and the implications for digital modelling. She is Co-Principal Investigator on a RESPOND project on satellite imagery in heritage management with Prof S



Dr Kalpana Chawla Young Women Scientists Award 2011

Ranganathan as PI and Dr Smriti Haricharan as Post-doctoral Research Associate on the project. Sharada Srinivasan had a fruitful visit to a conference commemorating Ananda Coomaraswamy in Sri Lanka, Organized by SAARC one of the subcontinents' best known arts and crafts historians who made seminal contributions to the field of archaeology. She was also invited to give important lectures such as the 50 Years of National Metallurgist Day, the Tippu series lecture celebrating 250 years of Archaeological Survey of India, the Mysore Dussehra lecture on Indian contributions to science and the conference at the CP



Ramaswamy Aiyar Foundation etc. She is an acclaimed Bharata Natyam dancer and has given lecture-performances linking aspects of science and culture such as recently at the Lyon planetarium and Santa Barbara Museum of Art.

### **Lectures**

- a. Wootz and the Damascus Blade: Metallurgy in the 18th Century, Centre for Public History in association with the Visvesvaraya Industrial & Technological Museum to commemorate the 150<sup>th</sup> Anniversary of the Archaeological Survey of India, Bangalore, January 29, 2013.
- b. The Dance of Siva: The Nataraja Bronze, Coomaraswamy's Legacy and Archaeometallurgical and Stylistic Insights, Bangalore International Centre, December 14, 2012.
- c. Indian Wootz Steel: Some Archaeometallurgical Insights on Production Mechanisms, National Metallurgists Day, 50 years, Inaugural session, NMD conference organised by Tata Steel and IIM, Jamshedpur, November 14, 2012.
- d. Kallum Kavi Paadum, Kaal Sadhangaiyum Gaganam Kaakkum, Presentation on Chola sculpture in stone, bronze and related iconography by Prof Sharada Srinivasan and Prof Kudavayil Balasubramaniam, October 21, 2012.
- e. Indian Contribution to Metallurgy, Seminar on Indian Contribution to the World, Mysore Dussehra Seminar, Kaveri Auditorium, KSOU, Mysore, October 18, 2012.
- f. Perspectives on Technology in Ancient India, 10<sup>th</sup> NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society on the theme Technology, Innovation and Development, October 1, 2012.
- g. Metallurgy and Materials Characterisation of Ancient Artisans and Commercial Utilization, organized by Karnataka Council for Science and Technology, Golden Jubilee Seminar Hall, Department of Civil Engineering, Indian Institute of Science, Bangalore, September 13, 2012.
- h. Under the Hampi Skies, Archaeoastronomy and Lyon Planetarium, France, May 10, 2012.

### **Academic Courses**

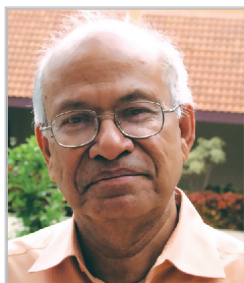
- a. Contributed to Foundations Course of the NIAS doctoral programme with a further module on Archaeological Landscapes and Archaeomaterials.
- b. In March 2013, a lecture was given to the NIAS-Exeter cohort on 'Intangible Histories: Archaeology and Performance' which sought to bring to light the inter-connected aspects in the study of intangible and tangible heritage and the intertwinings when looking at an artefact from different aspects including the historical, the scientific, cultural and the issue of spectatorship in art which also draws upon the aspect of performance studies.

### **Training Course**

- a. Lecture given for the course on Multi-disciplinary perspectives on Science and Technology, October 1, 2012, on Ancient Technology which explored the contributions in Indian antiquity to technological developments including metallurgy.

### **Awards and Memberships**

- a. Dr Kalpana Chawla Young Women's Scientist Award 2011
- b. GCC International Women's Day Award from Garden City College, Bangalore, 2013
- c. Honorary Research Fellow, Exeter University
- d. Member, Advisory Committee, Centre for Traditional Knowledge Systems, Indira Gandhi National Open University, IGNOU, New Delhi since 2011
- e. Standing Committee Member, International Conference of the Beginning of Use of Metals and Alloys, (BUMA) (since 2009)
- f. Member, Board, Institute of Archaeometallurgical Studies, Institute of Archaeology, London



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**Joined NIAS on:** July 2, 2004

### About

S Ranganathan, after an outstanding academic record in Loyola College, Chennai and the Indian Institute of Science, Bangalore obtained his PhD from Cambridge University, UK in 1965. His academic career as an educator and researcher in metallurgy for the past four decades has been outstanding. His seminal research contributions have advanced our understanding of the structure of metals through 300 publications including books on Wootz Steel and New Geometries. He is currently Emeritus Professor at the Indian Institute of Science and Honorary Professor at the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. His contributions have been recognized by Fellowships to five academies and numerous awards. His interests at NIAS include Materials Heritage of India and Japan, the Interface between the Arts and the Sciences, History of Indian Metallurgy and the Societal Impact of Nanotechnology.

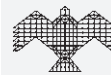
### Archaeological Site Visits

During his stay in Japan Prof Ranganathan studied the materials heritage of Japan. Prof E Izawa arranged for visits to Sado City Gold Mining sites in Nishimikawa and Sado Gold-Silver mines in Aikawa Town, July 18 to 22, 2012. Iwami Silver Mines World Heritage Site, September 2012 and Naganobori Copper Mines, September, 2012.

Prof K Nagsata arranged for two visits: Tatata furnaces in Izumo, September 2012 and January 2013 and Swordsmith Factory, January 2013. In December 2012 the visit of Prof Izawa together with two colleagues from Niihata prefecture was arranged for visits to Bangalore, Kolar, Pulicat, Puducherry, Cuddalore, and Cochin. This is a new effort to probe the connected histories of Japan, Holland and India. The rise of the Dutch East India Company led to the trading of Japanese Koban gold coins in exchange for cotton textiles from the Coromandel Coast in India.

### Lectures

- a. New Geometries for New Materials, WPI Advanced Institute of Materials Research, Tohoku University, Sendai, March 11, 2013.
- b. Scientific Insights into Indian Bronzes A Continuing Tradition from Ancient to Modern Times, Faculty of Fine Arts, Department of Conservation Science, Tokyo University of the Arts, October 25, 2012.
- c. Hampi: A Spectacular Example of Indian Cultural Heritage, India Study, Celebrating 60 Years of India-Japan Diplomacy, Tokyo University of the Arts. Japan, August 29, 2012.



- d. Icosahedral Order - The Link between Structurally Complex Intermetallics, Quasicrystals and Metallic Glasses, Global Center of Excellence for Mechanical Systems Innovation, Tokyo University, July 11, 2012.

### Academic Courses

- a. On assignment as Guest Professor at the Tokyo University of the Arts, Japan Prof Ranganathan delivered 50 lectures on History, Heritage and Conservation and their links to Materials Science. The course won appreciation of the Japanese Students. Culture is intangible but is made tangible by the material artefacts left behind by the past. This materiality of culture was explored in all its dimensions. This course was built on the Inaugural Humanities course on Science and Civilization of India taught in 2011 at the Indian Institute of Science, Bangalore.

### Awards and Memberships

- a. Lifetime Achievement Award, Ministry of Steel, Govt of India, November 2012.
- b. Honorary International Chair Professor, The National Taipei University of Technology, Taiwan.
- c. Guest Professor, Tokyo University of the Arts, Japan, 2012 – 2013.
- d. Editorial Board, Encyclopaedia of Iron and Steel, Taylor and Francis, UK.
- e. Journal of Iron and Steel Institute of Japan, Japan.



### S Settar

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**Joined NIAS on:** August 5, 2002

### About

S Settar has been conducting research in the fields of Indian archaeology, art-history, history of religions and philosophy as well as classical literature during the last four decades. Works under his personal authorship comprise four volumes on history of art, two on religion and philosophy, one on human civilisation and four on historiography. He has been Professor of History and Archaeology (1970-96), Director of the Institute of Indian Art History (1978-96) at Karnatak University, Dharwad, and Chairman, Indian Council of Historical Research, New Delhi, (1996-1999).

### Lectures

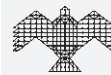
- a. Inaugural and Keynote Address at the International Seminar on Art Society and Patronage in Early India, Department of Ancient Indian History and Culture, University of Calcutta, February 27, 2013.
- b. Inaugural Address at the 9<sup>th</sup> Conference on Karnataka Ancient Manuscripts-2013, Kannada University, Hampi, February 16, 2013.

- c. Release of a Book – Sri Lakshmeesha Tholpadi's Betta Mahamadana Balige Baradiddare, Kannada Sahitya Parishat, Bangalore, January 30, 2013.
- d. Inaugural Address at the National Seminar on Kannada Language of the Vachana Literature, Central Institute of Indian Languages, Mysore, Ministry of Human Resource Development, Government of India, December 21, 2012.
- e. Inaugural Address at the 150<sup>th</sup> Year Celebration of the Archaeological Survey of India Conference, Bangalore, December 19, 2012.
- f. Release of book authored by Devanur Mahadeva's Edege Bidda Akshara, Kannada Sahitya Parishat, Bangalore, December 14, 2012.
- g. Keynote address at the Tamil Sangham, Bangalore on the occasion of the 57<sup>th</sup> Karnataka Rajyothsava Celebration, November 30, 2012.
- h. Kannada Nadu Nudiya Chintane: Ittichina Hosa Shodhagalu (Recent Researches in Kannada language and Script), Jilla Kannada Sahitya Parishath- Manthana Mantapa, Samvahana Trust, JSS College, Mysore, November 18, 2012.
- i. Release of Three Books published by Navakarnataka Prakashana, Bangalore, at Indian Institute of World Culture, Bangalore, November 11, 2012.
- j. Karnatakadalli Puratatva Adhyayanagal, Venkatappa Art Gallery, Bangalore, after releasing a book Ithihasa Darpana, a quarterly journal, November 9, 2012.
- k. Hoysala Artists, Late Sri M Aryamurthy Memorial Special Lecture, Karnataka Chitrakala Parishat, Bangalore, October 8, 2012.
- l. Kannada Script. Scribes, and the Art of Writing, Kannada Bhasha Kammata, Department of Kannada and Culture, Government of Karnataka, October 5, 2012.
- m. Convocation Address at the Graduation Day of Sheshandripuram College, Bangalore, September 30, 2012.
- n. Chief Guest and Foundation Day Lecture, Foundation Day Celebration, Mysore University, July 27, 2012.
- o. Hampi - A UNESCO Heritage Site, Indo-Taiwan Bilateral Workshop, Taipei, June, 2012.
- p. History of Writing in India and Role of Inscriptions, AICTE sponsored Staff Development Programme on Heritage and Inscriptions Document Processing, Department of Information, Science and Engineering, MSRIT, Bangalore, May 28, 2012.
- q. Inauguration of celebration of Shivapura Dhvaja Satyagraha, Maddur, April 11, 2012.

### **Awards and Memberships**

- a. National Level Selection Committee, Member, Ravindranath Tagore National Professorship, Ministry of Culture, Government of India.





**Smriti Haricharan**  
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**Joined NIAS on:** June 1, 2010

### About

Smriti Haricharan's main research interest is in the area of early historical-iron age "megalithic" burials of southern India, with specific interest in using geoarchaeological techniques. Her doctoral dissertation work focused on understanding the spatial and temporal patterns of these burials. She has been working as a Post Doctoral Associate at NIAS since January 2011. Initially she worked as a part of a large-scale 'pioneering metallurgy' project funded by UKIERI on iron production, in northern Andhra Pradesh, India. Subsequently she has been working on creating a collaborative research project to better understand the early historic-iron age landscape of Telangana, using burials and habitation sites as the main aspects. She also works as a member of a project which is funded by ISRO and lead by Prof S Ranganathan and Prof Sharada Srinivasan, which deals with the use of satellite imagery to understand the archaeological landscape in southern India.

She has also been recently working on projects related to understanding the concept of heritage in conjunction with archaeological antiquities, sites and the urban space. In a collaborative effort with Exeter University, UK, she was awarded the UK visiting fellowship, Nehru Trust for the Indian Collections at the Victoria & Albert Museum, to research the viability of adapting the UK model of Portable Antiquities Scheme (PAS) to the Indian context. As an outcome of this pilot study, a PhD student from the University of Exeter-NIAS split site PhD program under the UKIERI II scheme will be working on understanding portable antiquities and their biographies. Another project she is currently working on is headed by Prof Narendar Pani and on the JNNURM scheme. She will be analysing the heritage component of this scheme and how the system has worked in Mysore.

### Lectures

- a. Addressing Current Concerns in the Recording and Reporting of Portable Antiquities, poster presentation in conference conducted by European Association of South Asian archaeology and art, in Paris (along with Dr Lowson A and Dr Wooten D), July 6, 2012.

### Academic Courses

- a. Worked as Co-coordinator of Foundation Course and has also contributed to the course with a session titled Archaeology and Migration.

### Training Courses

- a. Conducted a workshop as part of the Advanced Exploration Training Programme

for the PGDA students (Batch 2011-2013) of Institute of Archaeology, ASI, Delhi jointly organized by the Excavation Branch-VI, Mysore and Institute of Archaeology, Delhi at Sree Kumareshwar Yatrivas, Shivayogamanidara at Badami, February 27, 2013.

### Awards and Memberships

- a. Completed two month UK Visiting Fellowship in January 2012, from Nehru Trust for the Indian Collections at the Victoria and Albert Museum titled The Viability of Adjusting the Portable Antiquity Scheme in the Indian Context.
- b. Received two years Research Project Grant from the Indian Council of Historical Research for in March 2013 titled Archaeological Exploration of Early Historic culture in Karimnagar District, Telangana, as Co-Principal Investigator.

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## Doctoral Students of the Heritage Studies Programme

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### Hema Thakur

Doctoral Thesis: *Emergence of Urban Centres in North Karnataka - c.300 BCE-c.300 CE, Sannati - a case study*  
Supervisor: Sharada Srinivasan

### Sumitra Sundar

Doctoral Thesis: *Arts Collectives in Bangalore*  
Supervisor: Sharada Srinivasan



### UKIERI-II NIAS-Exeter jointly supervised PhD Students (Archaeology)

Brice Girbal

Doctoral Thesis: *Legend of Telangana Wootz*

Supervisors: Gill Juleff, Sharada Srinivasan

Tathagatha Neogi

Doctoral Thesis: *Ethnography of Iron Production*

Supervisors: Gill Juleff, Sharada Srinivasan

Marc Cox

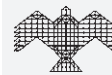
Doctoral Thesis: *Reconstruction of Metalworking Practices*

Supervisors: Gill Juleff, Sharada Srinivasan

Alice Lawson

Doctoral Thesis: *Portable Antiquities*

Supervisors: Gill Juleff, Smriti Haricharan



# RBI PROGRAMME ON INTERDISCIPLINARY APPROACHES TO ECONOMIC ISSUES

## Programme Update

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 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. 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.

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 years the programme has worked on numerous issues in globalization, rural issues, urbanization and, science and technology. In the past few years, the programme's work on women and globalization used concepts from a variety of disciplines including sociology and political science to understand what is often seen as an economic issue. The exploration of issues related to the Mahatma Gandhi National Rural Employment Guarantee Scheme in Karnataka also provided ample scope for the programme to use concepts from a variety of disciplines to understand an issue that is essentially from the domain of rural economics.

During the year the programme continued working towards using a multidisciplinary approach to understand various issues of public policy. In a paper titled *The Situational Dimension of Cash Transfers: The Inflationary and Differentiated Effects of the Proposed Changes in Food Subsidies in India* Prof Narendar Pani argued that the debate on cash transfers has tended to focus on the means of subsidizing the poor, particularly the possibility of reducing leakages in the Public Distribution System (PDS). Following the capabilities approach, this paper focused on the ends of the policy, looking at cash transfers in terms of the impact on individuals in households. Through a formal statement of the proposed shift in India from a system of food subsidies embodied in the price of a commodity to one of cash transfers, the paper identified the macroeconomic dimensions of this shift as well as the diverse impacts on households facing different realities. The macroeconomic effects include inflationary pressure, the possibility of a worsening of the crisis of under-nutrition, and increased risk for farmers hurting the long-term prospects for food security. And the varied effects across different poor households also raised the distinct possibility of the poorest being the most adversely affected by the shift to cash transfers.

In another paper Prof VS Ramamurthy and Prof Narendar Pani looked at energy issues in sustainable development. Based on the understanding that development is sustainable only when it does not take more from the environment than nature can replenish, the paper argued that the only development option available to countries that are not at the top of the economic hierarchy today is one based on sustainable consumption of natural resources, sustainable management of waste (nature does not produce any waste), and sustainable strategies for the resolution of social, cultural, and economic conflicts.

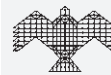
There are also two on-going studies in the public policy domain. The first study, *Evaluation of the Processes in the Jawaharlal Nehru National Urban Renewal Mission in Karnataka* intends to evaluate the processes of the JNNURM, which was started in 2005 to encourage reforms and fast track planned development of identified cities. This study intends to evaluate the JNNURM with a selection of cities and towns that are likely to capture both the processes of urbanization as well as operation of the JNNURM in Karnataka. The second study, 'Preparation of District Human Development Report of Bangalore Urban District' is being undertaken with an aim

to capture variations in the status of human development at the district level. This would enable government to take a holistic view of the State's development outside the normal governmental functioning and; assess the strengths and weaknesses of existing departmental policies.

Given the debate of foreign direct investment in the pharmaceutical industry, a recently published paper by Dr Chidambaran G Iyer looked at the externalities generated in the Indian pharmaceutical industry by Indian and foreign multinationals. This study found that there is difference in the externalities generated, and that there could have been movement of R&D labour from domestic pharma firms to foreign multinationals.

### **Outreach**

An inception workshop on the study titled 'Evaluation of the Processes in the Jawaharlal Nehru National Urban Renewal Mission in Karnataka' was organized on December 10, 2012 at Conference Hall 2 in NIAS. The workshop benefitted from the experiences of experts from Karnataka as well as various parts of the country.



## Members of the RBI Programme on Interdisciplinary Approaches to Economic Issues



*Narendar Pani (Anchor)*

*Chidambaran G Iyer*

*VS Ramamurthy*

*Doctoral Students: K Jafar, KG Asha, NS Nalini, S Soundarya Iyer*

**Narendar Pani**  
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**Joined NIAS on:** April 9, 2007

### About

Narendar Pani is an economist by training, he has, over the last thirty years, written extensively on a variety of subjects. He is the author of *Inclusive Economics: Gandhian Method and Contemporary Policy*, *Redefining Conservatism: An Essay on the Bias of India's Economic Reform*, and *Reforms to Pre-empt Change: Land Legislation in Karnataka*. He has published a number of academic articles in India and abroad. He is also the author of an explainer on the WTO, two novels, a booklet on theatre and several hundred articles on the editorial pages of newspapers.

### Lectures

- A presentation 'Legislative and Institutional Impacts on Solid Waste Management Systems - Difference in Approach between Hyderabad and Austria' by Nivedita Rengarajan, Arizona State University, was organized by the RBI Programme on July 18, 2012 at NIAS.

*Prof Narendar Pani's presentation during the workshop on "Evaluation of the Processes in the Jawaharlal Nehru National Urban Renewal Mission in Karnataka" (December 10, 2012)*



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**Joined NIAS on:** June 7, 2010

### Major research contribution for the academic year:

Given the debate of foreign direct investment in the pharma industry, his recently published paper looked at the externalities generated in the Indian pharmaceutical industry by Indian and foreign multinationals. This study finds that there is a difference in the externalities generated and that there could have been movement of R&D labour from domestic pharma firms to foreign multinationals. In a recent empirical paper, which has been accepted for publication, an attempt has been



made to understand the impact of urbanization on the productivity of manufacturing industries in India. This study finds that there is variation in the effect of urbanization both within and across industries. Technology intensive and innovative industries seem to have benefitted more from the pattern of urbanization in the country.

### **About**

Chidambaran G Iyer's research interests cover policy oriented issues in Industrial Economics, Foreign Direct Investment and, Technology and Innovation. He is currently working on a paper, which through the experience of satellite technology in the field of education, tries to understand the process of technological change and its impact on society. In another ongoing work, he is trying to understand the innovation happening in the refining sector of the country. His recently published paper looked at the externalities generated in the Indian pharmaceutical industry by Indian and foreign multinationals. In a recent empirical paper, which has been accepted for publication, an attempt has been made to understand the impact of urbanization on the productivity of manufacturing industries in India.

At NIAS, he has worked on numerous projects. With Prof Narendar Pani, he has completed a project on the evaluation of the MGRNEGS in Karnataka. Currently he is working on two projects, one on the preparation of the human development report for Bangalore Urban District and, another on the evaluation of the JNNURM in Karnataka (with Prof Narendar Pani).

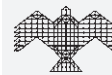
He did his PhD in Development Studies from the Indira Gandhi Institute of Development Research, Mumbai. He has also worked in the Indian Chemical Industry for a period of four years after completing his BTech in Chemical Engineering from Dr Babasaheb Ambedkar Technological University, Lonere, Maharashtra.

### **Academic Courses**

- a. 2 credit course on 'Economics for non-economists' during the first semester for the academic year 2012-13.
- b. Seven sessions in the Social Science core course during the first semester of the academic year 2012-13. The sessions were based on four issues: Indian state, Urban development, Poverty and inequality, and Margins and borderlands.
- c. A session in the module on 'Technology' of the Foundation course, during the first semester for the academic year 2012-13.

### **Other Info**

- a. Organized with Prof Narendar Pani, an inception workshop on the study titled 'Evaluation of the Processes in the Jawaharlal Nehru National Urban Renewal Mission in Karnataka', on December 10, 2012 at Conference Hall 2 in NIAS. The workshop benefitted from the experiences of experts from Karnataka as well as various parts of the country.
- b. As part of the Preparation of Human Development report project, attended a four day training program held by the Government of Karnataka, at Mysore from December 26 to 29, 2012.



**VS Ramamurthy**  
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**Joined NIAS on:** September 2, 2009

### About

Prof VS Ramamurthy is a nuclear scientist with a broad range of contributions from basic research to science administration. Prof Ramamurthy started his career in Bhabha Atomic Research Centre, Mumbai in the year 1963. He has made important research contributions, both experimental and theoretical, in many areas of nuclear fission and heavy ion reaction mechanisms, statistical and thermodynamic properties of nuclei, physics of atomic and molecular clusters and low energy accelerator applications. During the period 1995-2006, Prof Ramamurthy was fully involved in science promotion in India as Secretary to the Government of India, Department of Science & Technology (DST), New Delhi. He was also the Chairman of the IAEA Standing Advisory Group on Nuclear Applications for nearly a decade, Chairman, Board of Governors, Indian Institute of Technology, Delhi, Chairman, Recruitment & Assessment Board, Council of Scientific and Industrial Research and Member, National Security Advisory Board. After retirement from government service, Prof Ramamurthy, in addition to continuing research in Nuclear Physics in the Inter-University Accelerator Centre, New Delhi, has also been actively involved in human resource development in all aspects of nuclear research and applications. He is currently the Director, National Institute of Advanced Studies in Bangalore, Chairman, Board of Governors, National Institute of Technology, Hamirpur and Chairman, Board of Governors, Indian Institute of Technology, Ropar. In recognition of his services to the growth of Science and Technology in the country, Prof Ramamurthy was awarded one of the top civilian awards of the country, the Padma Bhushan, by the Government of India in 2005.

### Lectures

- a. Energizing Sustainable Development. NIAS-DST Training Programme for Women Scientists, February 15, 2013.
- b. Managing Technological Change – Perception and Acceptance of Public Risks. TEDX Conference, Narsee Monjee Institute of Management Studies (NMIMS), Bangalore, February 2, 2013.
- c. Managing Technological Change - Perception and Acceptance of Public Risks. 27<sup>th</sup> Annual Programme for Senior Executives on Managing Change, January 21, 2013.
- d. Mind to Marketplace: The Role of Innovation and Entrepreneurship in the Technology Transfer Chain. Fifth Annual KSTA Conference on Science and Technology for Societal Transformation, Karnataka Science and Technology Academy, Department of Science and Technology, Government of Karnataka, Bangalore, December 20, 2012.

- e. The Higgs Boson Discovery Story: Lessons in Managing Mega Science Research Projects, 10<sup>th</sup> NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society on the theme Technology, Innovation and Development, October 1, 2012.
- f. Higgs Boson Discovery – Lessons in Managing Mega Science/Technology Research Project. Valedictory address at Project Management Practitioners Conference, PMI Bangalore Chapter, Bangalore, September 15, 2012.
- g. 16<sup>th</sup> Annual Convocation at MS Ramaiah Institute of Management, Bangalore, July 14, 2012.
- h. Technology Intermediation. Vision Address: FICCI S&T/Innovation Knowledge Exchange Forum, Le Meridien, Bangalore, July 13, 2012.
- i. 5<sup>th</sup> Convocation Address at National Institute of Technology, Hamirpur, May 20, 2012.
- j. Perception and Acceptance of Public Risks. Bangalore International Centre, Bangalore, May 9, 2012.



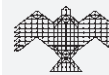
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**Joined NIAS on:** December 10, 2004

SS Meenakshisundaram chaired the Task Force meetings organized by the Department of Public Enterprises, Government of India to finalize memoranda of understanding between sixteen public sector units coming under the “Contracts and Consultancies” sector and the Government. He completed the mid-term evaluation on “The Government of India-UN Joint convergence programme” for the Planning Commission, Government of India, UNDP, UNICEF and UNIFPA. He undertook a review of the personnel management system in the Indian Institute of Science (IISc), Bangalore and submitted his report for improving the management pattern in the IISc. He also reviewed the status of panchayatiraj and activity mapping for panchayats and finalized a road map for panchayats in the State of Chhattisgarh for the Government of Chhattisgarh, European Commission and GIZ. His review of the book “Decentralization, Local Governance and Social Well being in India: Do Local Governments matter?” has been published by the University of British Columbia, Canada.

Prof Meenakshisundaram has been on the Board of Management of the Centre for Sustainable Development, Bangalore; Institute of Social and Economic Change; India Wash Forum, New Delhi; Institute of Social Sciences, New Delhi; Indian Institute of Public Administration, Karnataka Region; MYRADA and the institutions promoted by MYRADA.



He is the Chairman of the Results Framework Documentation group for rural Development and Panchayatiraj Department of the Government of Karnataka. He is also the Chairman of the Programme Coordinating Mechanism of the Global Sanitation Fund for India, New Delhi. He is a member of the Research Advisory Committee on Decentralization at the Centre for Development Studies, Thiruvananthapuram and the Advisory Committee of IDRC-NCEAR Project on Decentralization and Rural Development, located at NCEAR, New Delhi. He continues to be an Adjunct Faculty in the Gandhigram Rural University, Gandhigram, Tamil Nadu.

### Lectures

- a. Decentralized Governance: Challenges and Responses, Azim Premji University, Bangalore, March 6, 2013.
- b. Future of Indian Planning, 27<sup>th</sup> NIAS Course for Senior Executives on Managing Change, January 24, 2013.
- c. Decentralization: An Idea Whose Time Has Come? (For IAS Senior Officers Phase II), Tata Institute of Social Sciences (TISS) Mumbai, January 17, 2013.
- d. International Experiences on Decentralization, NCAER and IDRC Workshop at Kesroli Fort, Alwar, Rajasthan, December 17, 2012.
- e. What Can Make a Successful PM in the Indian Context?, Gandhigram Rural Institute, Deemed University, Gandhigram, December 12, 2012.
- f. Capacity Building on Decentralization for the Media, UNDP and Government of Odisha, Bhubaneswar, November 22, 2012.
- g. Changing Role of Civil Servants in a Developing Country (In the All India Foundation Course for IPS Officers), Administrative Training Institute, Mysore, September 28, 2012.
- h. Innovation in Self-Governance, 10<sup>th</sup> NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society on the theme Technology, Innovation and Development, September 27, 2012.
- i. Role of Politicians and Civil Servants in the Process of Policy Making, Centre for Research in Social Sciences and Education, Jain University, Bangalore, June 14, 2012.
- j. Learning from the Political Masters (For IAS and IPS Probationers of 2010 Batch), Institute for Social and Economic Change (ISEC) Bangalore, May 16, 2012.
- k. Rural Development for Panchayatiraj or Is It Vice-Versa? (For the PM's Rural Development Fellows), Mari Chenna Reddy Institute of Public Administration, Hyderabad, April 18, 2012.
- l. Decentralization in India---Vision and Stocktaking, Kerala Institute of Local Administration (KILA) Thrissur, April 16, 2012.

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### Doctoral Students of the RBI Programme on Interdisciplinary Approaches to Economic Issues

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#### **K Jafar**

Doctoral Thesis: *The Impact of Education-Led Growth on Human Development: A Case-Study of Malappuram District, Kerala*

He is in the final stages of his doctoral work and using the 'capabilities approach' his thesis tries to understand the dynamic role of education in migration, remittance-led growth and human development in Malappuram district.

Supervisor: Narendar Pani





**KG Asha**

Doctoral Thesis: *Dynamics of Labour Relations across Different Circuits of Globalisation*  
The geography of globalization contains dynamics of both centralization and dispersal. The dispersal of production has created circuits linking the command and control centres of globalization to the specific points that provide the resources for that circuit. Her study aims at understanding the dynamics of labour relations in three different global circuits in Kerala. With field work being completed and the writing of chapters in progress, this thesis is at an advanced stage.  
Supervisor: Narendar Pani

**NS Nalini**

Doctoral Thesis: *First Nature and Urbanization: Terrain and Urban Development of Bangalore, 1971-2011*  
It is known that elements of ‘first nature’ like geography, geology and availability of natural resources influence the initial process of city development. However, very little attention has been paid in the literature to the significance of ‘first nature’ in the current process of urbanization. Her research tries to understand the relevance of the ‘first nature’ in the urbanization process, using the experience of Bangalore. It plans to do so primarily by studying the influence of terrain on water, temperature and vegetation across three different phases of urbanization.  
Supervisor: Narendar Pani



**S Soundarya Iyer**



Doctoral Thesis: *Dynamics of Rural Transformation in Karnataka: A view from three villages*  
Her thesis will try to understand the dynamics of transformation in rural Karnataka across time. By providing an in-depth analysis of three villages in different regions of the state it hopes to gain insights into the interconnected processes of rural transformation in Karnataka over the last five decades. This will help bridge the gap between each major event in Karnataka’s rural history, and to understand the role of regional diversity in rural transformation.  
Supervisor: Narendar Pani





# CLUSTER - STRATEGY SECURITY & CONFLICTS

## Programmes

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- Conflict Resolution
- International Strategic & Security Studies
- Water Sharing & Conflicts

# CONFLICT RESOLUTION PROGRAMME

## Programme Update

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 we classify the work required to be done in the programme into three main categories – backgrounders, research and courses – the work done so far in the programme has been concentrated in the first two areas. During the year under review the backgrounders have continued to receive a positive response from administrators, media personnel and others seeking their first information on a particular conflict. The research carried out in a number of areas has also generated papers that have been published in books and international journals.

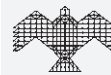
In short, the programme aims to build an inclusive knowledge base and then disseminate that knowledge in a way that influences both popular perceptions and policies aimed at conflict resolution. The breadth of the knowledge base is being built through developing backgrounders on individual conflicts. The depth is provided by research both into individual conflicts and the conceptualisation of social conflict and its resolution. The dissemination is to be carried out through courses on conflict resolution, targeted at all who could have to deal with social conflicts, whether they are in industry, government or civil society.

If we 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 added to the six backgrounders it had done earlier with a backgrounder on *The Naga Conflict* by Dr M Amarjeet Singh. Another backgrounder on the border dispute between Maharashtra and Karnataka is also in an advanced stage of preparation. 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 we 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 during the year also served to consolidate work in two areas and to enter a third area. The first area of consolidation was in the realm of reservations. Nine decades after reservations in government jobs were first introduced in India there is still considerable debate, and political action, over which castes should qualify for reservations. A part of the dissatisfaction in this process could be because the aggregate picture is an average of diverse realities and not a reflection of what exists in individual villages. Using data from villages in the south Indian state of Karnataka, a paper by Prof Narendar Pani and Ms S Soundarya Iyer analysed the differences between the caste hierarchies in individual villages and the picture that emerges when data from different villages are aggregated. It then went on to make a case for strengthening the element of location in the criteria for identifying backward castes.

The work on reservations was also extended to the debate on the Women's Reservation Bill. The long delay in the passing of the Women's Reservation Bill has contributed to a growing tendency to ask whether the existing Bill build around a 33 percent reservation for women is the best way forward. There has been a demand to consider dual-member constituencies as a way forward by academics as well as mass organizations like the National Alliance of People's Movements. In a report, Ms Akila RS, Ms Anamika Ajay and Prof Narendar Pani evaluated 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 arrived at a set of three criteria: the extent of reservation; the extent to which the proposed model minimized exclusion; and the impact it will have on the quality of representation in the polity as a whole.

Another area that has been the focus of research has been the peace and conflict in Northeast India. A wide range of work has been done in this area. In a paper titled *Has India's Response to Cross-Border Migration*



*been Effective?* Dr Amarjeet Singh analysed how illegal cross-border immigration from Bangladesh cause conflict in India. The paper argued that under pressure from the local residents, the India's central government took up several measures to control cross-border immigration. Ironically, these policies were implemented without taking in account the ties between the people of the two countries, and hence remain largely ineffective or counter-productive. But this failure has brought never challenges within India. The paper concluded that the government action did not consider the shared histories and geographies of the sending and the receiving places.

In another study *Politics of Peace: Peace accords in Northeast India* based on six peace accords Dr Amarjeet Singh analysed their impact in ending violent armed conflicts. The study offers some general lessons to those concerned with improving the policies of conflict resolution. It analysed how most peace accords, instead of leading towards resolution of conflict, have worsened the situation of armed conflicts. The study examined role of the government and infighting among armed groups themselves. It is also evident that there is no reason to assume that strategies that work in one conflict environment will work in another. Strategies will have to be worked out on a case-to-case basis. However, several lessons follow from this study. The study concluded that successful peace accords would also depend on the availability of popular leaders. If the leaders are weak their detractors can become spoilers. Rushing for peace accords without proper ground-work must be avoided. Monitoring of the implementation of peace accords also requires special attention.

### **Outreach**

A discussion meeting was held on *Politics of Belonging: The Communal Conflict in Assam's Bodoland Region* at NIAS on August 6, 2012. The lead speakers were Dr Bitasta Das and Dr Amarjeet Singh. This apart, Amarjeet Singh was interviewed by Brigitte Voykowitsch of Austrian Broadcasting Corporation at NIAS on the issue of identity politics in Northeast India, October 30, 2012. He also attended a training programme on Understanding Conflict and Conflict Analysis, United Nations Institute of Training and Research, New Delhi, June 25 to 29, 2012. The programme has also offered internships to individuals designed to generate information for backgrounders. To this end one intern from NUJS Kolkata is working on the social dimensions of the challenge of dealing with rape in India.

## Members of the Conflict Resolution Programme



Narendar Pani (Anchor)  
M Amarjeet Singh

**M Amarjeet Singh**  
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**Joined NIAS on:** October 1, 2009

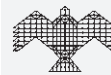
**Major research contribution for the academic year:**  
Peace accords in armed conflicts in India

### About

Amarjeet Singh has a doctorate degree in sociology from North Eastern Hill University. His research and teaching interests include conflict studies, identity politics, development and displacement, migration studies and India's "look east" policy. He has published widely on topics related to identity politics, conflict and migration. He is one of the associate editors of the *Eastern Quarterly*, a social science journal. He had previously worked at the Institute for Defence Studies and Analyses, New Delhi.

### Lectures

- a. Politics of Peace: Peace Accords in Northeast India, conference on Strengthening Peace and Development: Response to Insurgency in Northeast India, Rajiv Gandhi Institute for Contemporary Studies, New Delhi, March 1, 2013.
- b. Towards Strengthening Delivery and Accountability Frameworks for Public Services, seminar on Corruption Muthatsi Nttrabdi Eikhoi Mutlani, Manipur University, September 2, 2012.
- c. Migration, Identity and Conflict, Christ University, Bangalore, June 23, 2012.
- d. Politics of Belonging: Migration, Citizenships and Conflict in India, Fourth JTCDM International Roundtable Conference on Structuring Peace: The state and conflict transformation: Prospects and challenges in South Asia, Tata Institute of Social Sciences, Mumbai, April 16, 2012.



## INTERNATIONAL STRATEGIC & SECURITY STUDIES

The International Strategic and Security Studies Programme (ISSSP) at NIAS came into being in 1996. In the initial years the Programme had the benefit of being piloted by eminent people like Dr Raja Ramanna, Prof Roddam Narasimha, Prof CV Sundaram and Dr K Kasturirangan acquired significant capability in the nuclear domain. Post Pokhran II Prof Narasimha initiated the track-2 dialogue process with the Committee on International Security and Arms Control (CISAC) of the National Academy of Sciences. The first dialogue in 1999 essentially dealt with nuclear matters relating to India's security concerns and strategic requirements with the help of reasoned and balanced analysis. The dialogue process is continuing and latest in the series was held in October 2012.

While China and Pakistan continue to be the focus areas, but attention is expanding to include Iran, North Korea and the Indian Ocean Region. The programme is now staffed with a blend of people having science, technology and political science backgrounds. This combination provides a sound basis for providing multi-disciplinary in-depth analysis on topics of interest to the strategic and security community.

The Defence Research and Development Organisation is the main sponsor of the programme and a user of the research output. Other entities within the security establishment have also commissioned research studies some of which are ongoing.

India's vast coastline and the requirements of maritime security have prompted the taking up of three interlinked studies: a) in association with Boeing SD&E International, simulation of anti-ship ballistic missile operations involving the space, land and missile assets, this compliments the earlier study on China's Anti-Ship Ballistic Missile; b) war gaming a hypothetical scenario involving China, India, the United States and the principal littorals in the Eastern Ocean; and c) rising China and India's strategy in the Indian Ocean.

Based on our study of Rare Earths in China we have examined the implications of Rare Earth shortages for India. A report on a possible course of action that India could take has been prepared and sent to relevant parties within the government. Using open source satellite imagery an independent assessment of Pakistani stocks of fissile material has been carried out and compared with the available international assessments. Our analyses suggest that there is a gross overestimation of the stock of fissile materials in the international literature. Based on this assessment, Pakistani capabilities in plutonium based miniaturized weapons and their use in cruise missiles and battlefield weapons has been evaluated.

The pros and cons of the Pakistani battlefield tactical nuclear weapon NASR are being studied. The technical element, material availability and reliability issues and the implications of the use of such a weapon system from a game centric view point are examined.

The study on war under emergent condition was completed and a report *On the Transformation of force* was provided to DRDO.

Refinements in the missile trajectory analysis have been carried out. An integrated software simulation package overlaying the missile trajectory on Google Earth imagery is underway. The software has been used to simulate the DPRK launch vehicle Unha 3 flight trajectory using updated stage information gleaned from the recovered spent first stage by South Korea.

As a part of the ongoing study with Boeing an update on the YaoGan series of satellite has been prepared for the simulation of the operations scenario.



Time bound result reporting has been done for the ongoing projects sponsored by the Defence and Security Agencies. The output has been reviewed by the experts of the sponsoring agency who have expressed satisfaction with the results and released the relevant funds. CISAC-NIAS dialogue, the 10<sup>th</sup> in the series took place in October 2012 on the topic of *Technical Aspects of Civilian Nuclear Materials Security*.

### Outreach

A round table meeting on Iran: A War has Begun was held on May 31 and June 1, 2012 at NIAS. Vice Admiral Vijay Shankar, Dr LV Krishnan, Dr Arun Vishwanathan, Prof Rajaram Nagappa, Prof S Chandrashekar, Vice Admiral PJ Jacob, Dr Masoud Imani Kalesar, and Mr V Raghuraman were part of the panel of experts who discussed the Iran's nuclear programme.

International Strategic and Security Studies Programme (ISSSP) of NIAS signed a Memoranda of Understanding (MOU) with Bandaranaike Centre for International Studies (BCIS), Sri Lanka on July 30, 2012 at NIAS to collaborate in International Studies for mutual benefit of the two countries namely Democratic Socialist Republic of Sri Lanka and Republic of India.

The ISSSP organized second K Subrahmanyam Memorial lecture on Borders and National Security on September 6, 2012. Shri Jaswant Singh, Hon'ble Member of Parliament delivered memorial lecture at NIAS. The lecture focused on management of borders or frontiers; land; maritime; air, including spaces.

Dr John Alterman, Zbigniew Brzezinski Chair in Global Security and Geostrategy and Director of the Middle East Program at the Center for Strategic and International Studies (CSIS), Washington D.C., gave a lecture on The Middle East Policy of the Next U.S. Administration on September 10, 2012 at NIAS.

On October 29 to 31, 2012, a symposium with the title India-US Cooperation on Global Security: A Workshop on Technical Aspects of Civilian Nuclear Security was organized by NIAS and Committee on International Security and Arms Control (CISAC), National Academy of Science, Washington DC.

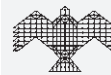
A Discussion Meeting with delegates from CISAC on Biological Safety and Biological Risk Management was organized at NIAS on January 17, 2013. James Le Duc (University of Texas Medical Branch, United States), David Franz (Independent Consultant, United States) and Benjamin J Rusek (U.S. National Academy of Sciences) were part of the CISAC panel.

National Security Advisor Mr Shivshankar Menon had a Meeting with the faculty of ISSSP on January 21, 2013 on various strategic



NIAS-BCIS MOU Signing in Ceremony





and security issues including Rare Earth Elements, North Korea's successful launching of a satellite and Terrorism.

A Round Table on Tactical Nuclear Weapons was organized with members from Centre for Land Warfare Studies (CLAWS) and Centre for Airpower Studies (CAPS) at NIAS on February 6, 2013.

Mr Bertil Lintner, former correspondent with the *Far Eastern Economic Review* and currently Asia correspondent for the Swedish daily *Svenska Dagbladet*, addressed NIAS faculty and scholars on Developments in Myanmar - Strategic Implications for India and South East Asia on February 14, 2013 at NIAS.

Dr MV Ramana with the Nuclear Futures Laboratory and the Program on Science and Global Security at the Woodrow Wilson School of Public and International Affairs, Princeton University gave a lecture on Nuclear Accidents and Learning: The Indian Experience' on February 15, 2013 at NIAS.

Prof Zhiyong Hu, Senior Fellow, Institute of Asia Pacific Studies, Shanghai Academy of Social Sciences and Director and Secretary-General, Shanghai Maritime Strategy Research Center was a visiting scholar at ISSSP, NIAS from March 4 to 14, 2013. During his visit he gave a public lecture on 'How to Improve India China Relations' on March 7, 2013 at NIAS.



## Members of the International Strategic and Security Studies Programme



*Rajaram Nagappa (Anchor)*

*S Chandrashekar, S Gopal, Saurabh Kumar, N Ramani, Lalitha Sundaresan, Nabeel A Mancheri, M Mayilvaganan, Arun Vishwanathan*

*Doctoral Students: Murali Murti, B R Guruprasad, Sanket S Kulkarni*

*Research Associate: Aditi Malhotra*

*Research Assistant: Jayashree G*

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**Joined NIAS on:** February 1, 2007

### **Major research contribution for the academic year:**

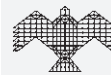
Critical technical assessment of the Pakistani Tactical Nuclear Weapon NASR/Hatf-IX was carried out and presented in a round table at the Centre for Land Warfare Studies, New Delhi. A paper has been written on the topic and submitted to CLAWS for inclusion in their overall report. Further research elements are being investigated and consolidated to bring out a NIAS report on the topic in 4-5 weeks' time. The other main contributions have been towards ongoing sponsored projects. A report giving updated status of the weapon delivery platforms along with payload and range capability has been completed for another sponsored project. Also he was invited by the European Space Policy Institute (ESPI) based in Vienna, Austria to contribute a chapter on "Space Security in India" to their forthcoming "Handbook of Space Security".

### **About**

Rajaram Nagappa has specialised in aerospace propulsion and has worked extensively in the design and development of solid propellant rockets. He has served in the Vikram Sarabhai Space Centre, ISRO as its Associate Director, and later was Pandalai Memorial Chair Professor at Anna University, Chennai. He has also taught at Technion-Israel Institute of Technology, Israel. He is a recipient of the Astronautical Society of India Award, Distinguished Alumnus Award of the Madras Institute of Technology, DRDO's Agni Award for Excellence in Self Reliance, Certificate of Appreciation of the International Astronautical Federation and the Honorary Fellowship of the High Energy Materials Society of India. With a background in aerospace engineering, disciplines related to missiles, missile defence and missile stability become areas of natural interest. He has been a participant in three round tables on this subject, where he has projected his views. His recent work includes an assessment of the Pakistani cruise missiles and an assessment of the Iranian satellite launch vehicle Safir. He has also traced the development of fighter aircraft in China as a part of a study on China's Science & Technology capability.

### **Lectures**

- a. Ballistic Missile Defence, Invited talk for the participants of the In-house Seminar for Young Scientists (INSYS), Gas Turbine Research Establishment, DRDO, Bangalore, March 2, 2013.
- b. Solid Propellant System Requirements, Plenary Talk at the High Energy Material Society of India Conference on Advances in Solid Propellant Processing at Solid Fuel Complex, DRDO, Jagdalpur, January 31, 2013.



- c. Panelist in the RTM on Ballistic Missile Defence, Centre for Joint Warfare Studies, Delhi, January 8, 2013.
- d. Panelist in the Round Table on Tactical Nuclear Weapons, Centre for Land Warfare Studies, Delhi, December 7, 2012.
- e. Overview of Pakistani and Chinese Missile Capabilities, Invited Talk, 25<sup>th</sup> Naval Higher Command Course, Naval War College, Goa, December 3, 2012.
- f. Dr Vikram Sarabhai Memorial Lecture, National Seminar on Expanding Frontiers in Aerospace Technologies—Challenges and Opportunities, Organized by the Institution of Engineers, AP State Centre, November 24, 2012.
- g. *Space Security*, Invited talk at the National Seminar on Revolution in Military Affairs and India's Integrated National Security in the 21st Century, Organized by India Development Council, Pune, November 3, 2012.
- h. Overview of Missile Capabilities in the Region and ASBM technologies, Invited lecture under Awareness Improvement Program, Centre for Leadership and Behavioural Studies, Southern Naval Command, Kochi, September 11, 2012.
- i. Panel Member, Strategic Stability in South Asia—Missile Transparency and Confidence Building, Organized by Institute of Peace & Conflict Studies and Lawrence Livermore National Laboratory, New Delhi, September 18, 2012.
- j. Presentation on Iran's Ballistic Missile Capability, Iran RTD organized by NIAS, May 31 to June 1, 2012.
- k. Chinese and Pakistani Missile Capabilities, Invited Lecture to the 24th Naval Higher Command Course, Naval War College, Goa, May 7, 2012.

#### **Awards and Memberships**

- a. Faculty Member, Programme on Contemporary Nuclear Discourses, Organized by Institute of Peace and Conflict Studies, New Delhi, November 18 and 19, 2012.
- b. Chairman, Preliminary and Critical Design Review of DRDO Propulsion Systems.
- c. Member, Failure Analysis Board, DRDO, 2012.
- d. Served as Chairman/Member in the Selection Boards of Recruitment and Assessment Centre, DRDO, 2012.



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**Joined NIAS on:** July 2, 2004

**Major research contribution for the academic year:**

Contributed to the ISSSP continuing work on China and Pakistan's Missile and Nuclear Weapons Programmes. Along with other colleagues analyzed two of North Korea's space launches for assessing their overall capabilities in Launch Vehicle Technology. Also contributed to the Groups work on "Understanding China" with a focus on Rare Earths and extending our earlier work on China's Anti-Ship Ballistic Missile. Currently involved with other colleagues in a study on using satellite imagery for identifying and locating uranium mines and mills.

**About**

S Chandrashekar is currently a Professor in the Corporate Strategy and Policy Area at the Indian Institute of Management Bangalore (IIMB). Prior to his joining IIMB he spent more than 20 years working at the Indian Space Research Organisation (ISRO). His work at ISRO covered all parts of the programme - satellite, rockets as well as the applications of space technology especially remote sensing. He was also involved with activities related to international co-operation and has represented and led Indian delegations to the United Nations Committee on the Peaceful Uses of Outer Space. His research interests at IIMB include technology and competitive advantage, national technology priorities and national technology policy, studies on innovation, telecommunications in the Indian context, national innovation systems, modelling complex systems and national security issues. His recent work includes a study of sensitive installations using open source satellite imagery. He has also been involved with other members of the group on a micro-level comparative case study of Chinese capabilities in one domain of technology related to the development of turbo-fan aircraft engine technology.

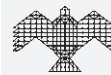
**Lectures**

- a. Delivered a series of lecture on Game Theory as Relevant to Strategic Thinking in the Indian Context, for the scholars of ISSSP at NIAS from November 2012 to March 2013. Through this approach hopes to enhance the skills needed to look at the strategies of two of India's most important neighbours China and Pakistan.

**Awards and Memberships**

- a. Invited to be on the Board of Trustees of the RBANMS Education Charities that runs a number of educational institutions in Bangalore set up by the late Rai Bahadur Arcot Narrainsawmy Mudaliar to further the cause of education for the underprivileged and the poor.





### **S Gopal**

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**Joined NIAS on:** May 1, 2010

#### **Major research contribution for the academic year:**

Co-edited a book titled Rise of China: Indian Perspectives with Dr Nabeel A Mancheri. The book examines the rise of china both militarily and economically and its implications for India. Also instrumental in shaping NIAS-BCIS MOU that was signed in July 30, 2012. He has also contributed a paper on Suicide Terrorism in Pakistan in the first decade of 21<sup>st</sup> century which is being published in the website of Centre for Land warfare Studies.

#### **About**

S Gopal retired from the Govt. of India after serving for more than three and a half decades during which he had wide experience in analysis of national and international security and strategic affairs. After retirement he along with some other retired colleagues was instrumental in starting a think tank - Institute of Contemporary Studies in Bangalore. His areas of research interest are terrorism and internal security.



### **Saurabh Kumar**

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**Joined NIAS on:** August 26, 2010

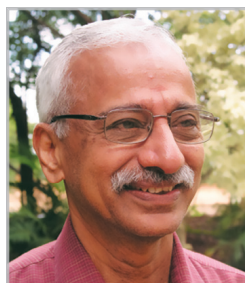
#### **About**

Saurabh Kumar retired from the Indian Foreign Service as Ambassador of India to the International Atomic Energy Agency, United Nations Industrial Development Organisation & the UN Offices in Vienna (Outer Space Affairs, Drugs and Crime) and to Austria in October 2009. Prior to this, he served as Ambassador to Ireland (2003-2007) and Vietnam (2000-2003). He also held other senior appointments in the Cabinet Secretariat and Ministry of External Affairs. His areas of specialisation during his tenure in the Government of India were nuclear, as well as disarmament and international security, issues. He was a member of the Indian delegation to the

Third Special Session of the UN General Assembly on Disarmament in 1988 and to the UN Conference on the Relationship between Disarmament and Development in 1987. Ambassador Saurabh Kumar speaks Chinese, having begun his diplomatic career in Hong Kong and Beijing in the mid-seventies under late President KR Narayanan, who was then the Ambassador to China. Apart from continuing professional interest in China (and nuclear, space and other strategic security issues and multilateral international affairs in general), his current academic interests include development economics and international economic relations, the negotiation process, physics and psychology. A Gold Medalist from Delhi University, Ambassador Saurabh Kumar taught (physics) at Ramjas College, University of Delhi prior to joining the Indian Foreign Service in 1973. He was a doctoral candidate (Fellows Programme in Management) in the Economics Area of the Indian Institute of Management, Ahmedabad during 1981-84, on leave from the IFS. Ambassador Saurabh Kumar was a member of the Informal Group on the 1988 Action Plan for a Nuclear Weapon Free and Non-violent World chaired by Hon'ble Shri Mani Shankar Aiyar, Member of Parliament, which was formed in December 2010 at the instance of the Prime Minister and which submitted its report to him in August 2011.

### Lectures

- a. Interview to The Tribune, Chandigarh – Shri Ashok Tuteja, August 21, 2012.
- b. Chaired and Introductory Remarks, at talk by Shri N Sathiya Moorthy, Director ORF Chennai Chapter on Strategic Developments In India's Southern Neighbourhood, Bangalore International Centre, August 13, 2012.
- c. Introductory Remarks, at talk by Prof Amit Bhaduri, Professor Emeritus, JNU on Climate Change: But of Another Kind, NIAS Wednesday Lecture Series, July 18, 2012.
- d. Introductory Remarks, at Talk by Ambassador KP Fabian on Indian Foreign Policy: The Big Picture, Bangalore International Centre, April 26, 2012.



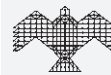
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**Joined NIAS on:** November 1, 2007

### About

N Ramani worked at the ISRO Satellite Centre in the areas of software development for spacecraft mission operations and in the establishment and management of the central computing facility. Led the activities relating to the design, development, testing and implementation of software for real time health monitoring and control of satellites. Pioneered the transition from main frame world of Fortran and assembler codes to distributed computing based on off-the-shelf systems with the best of breed Engineering Application Software packages. Worked on computer related issues that have overall impact on the organization; such as information security,



software reliability, man power attrition, open source, Y2K and HPC. With Prof R Narasimha, carried out the Indian Airlines AVRO HS748 fleet performance simulation for airworthiness assessment for the National Committee headed by Prof S Dhawan. Worked on several Government committees that enabled the computerization plans of ADA, CBDT, EPFO, IMD/MES and SBI.

### Awards and Memberships

- a. Member of project review panel on Information Security at the Department of Electronics and Information Technology (DietY), 2012.
- b. Member of project review panel on Information Security at the CDAC, Hyderabad, 2012.
- c. Member of project review panel on Information Security at the CDAC, Kharagpur, 2012.
- d. Chairman and Member of project review panel on Information Security at the IIT, Kharagpur, 2012.
- e. Member of project review panel on Information Security at the IIT, Patna, 2012.
- f. Chairman and Member of project review panel on Information Security at the Amrita Vishwa Vidyapeetham, Coimbatore, 2012.



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**Joined NIAS on:** May 14, 2008

### **Major research contribution for the academic year:**

Completed research study on terrorism attacks in urban India and results were published as NIAS report titled Pattern in terror Attacks in urban and Semi urban India - An empirical Investigation, July 2012, jointly with Dr G Vijayalakshmi and Prof S Chandrashekar.

### **About**

Lalitha Sundaresan has a doctoral degree from the Indian Statistical Institute, Kolkata. Before joining NIAS, she worked at the Indian Space Research organization (ISRO), Bangalore, Department of Science and Technology (DST), New Delhi. Prof Lalitha has also taught at secondary and tertiary levels. During her early career, she carried out systems studies to assess the usefulness of remote sensing for applications related to natural resources monitoring specifically for India. She has also been involved in the development of indigenous GIS software while at DST. She was involved with the setting up of Natural Resources Data Base Centres in all the districts of Karnataka. At NIAS she has been looking at the S & T capability of China in critical areas. Her recent works include the assessment of China's rise as a Rare

Earth Leader in the world. Her other studies include the analysis of measurement errors in missile images obtained from open sources and the resulting impact of these errors on missile performance. She has also studied the Chinese university / research institution network and collaboration on super alloys, as a critical part of the micro-level case study of Chinese capabilities in turbofan engine technology.

### Lectures

- a. Technological Review: China, NIAS-DST Training Programme for Women Scientists and Technologists, March 2, 2013.



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**Joined NIAS on:** November 15, 2010

### **Major research contribution for the academic year:**

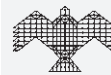
Completed research project on Chinese science and technology policy and rare earth strategy.

### **About**

Nabeel Mancheri is an economist by training with specialization in international trade, environmental economics and India's economic relations with East Asia and Australia. Dr Mancheri's research interests are in international political economy, economic and trade policies, energy and natural resource management, Chinese and Japanese studies. He is currently involved in projects related to science and technology dimensions of national security, analysing Chinese strategy of rare earth elements, Chinese strategic postures in Indian Ocean Region (IOR) and super computing capabilities of China and its dual use applications. He obtained his PhD and MPhil from the School of International Studies, JNU, New Delhi. Prior to joining NIAS, he has been a consultant to OECD Paris, ICRIER New Delhi and CUTS International on research related to trade issues. He was a recipient of the Australia-India Council (AIC) Fellowship of Department of Foreign Affairs and Trade, Australia for the year 2007-08 and been hosted by Australian National University. He was a visiting researcher at Graduate School of International Development and Cooperation (IDEC), Hiroshima University, Japan in 2008-09. He was a visiting fellow of the Chinese Academy of Social Sciences (CASS) in 2012. Recently he has been selected for the "Young Strategist" award by The International Institute for Strategic Studies (IISS) London and Paul H Nitze School of Advanced International Studies (SAIS), The Johns Hopkins University.

### **Lectures**

- a. India-China Relations in the 21<sup>st</sup> Century: Challenges and Opportunities, Invited Lecture, St. Joseph's College, Bangalore, January 24, 2013.



- b. Strategic Postures of China: Does It Portent the Discord with India, talk at China Institute of Contemporary International Relations (CICIR) Beijing, December 11, 2012.
- c. Science and Technology Policy of China and Moving-up in the Supply Chain: The Case of Rare Earth Industry, talk at China India Dialogue, Carnegie-Tsinghua Center, Tsinghua University, Beijing, December 7, 2012.
- d. Asia-Pacific Order: Political and Economic Regional Governance, Discussant in a session on Asia Pacific Regional Security, The 3<sup>rd</sup> Asia Research Forum, Institute of World Economics and Politics, CASS, Beijing, December 6, 2012.
- e. Networks, Coordination and Decision Making in Science and Technology Strategy of China: What Can India Learn, talk at Emerging Scholars Symposium on China- India Studies, Organized by the India China Institute, The New School, New York and the Centre for Policy Research, New Delhi, November 2 and 3, 2012.
- f. Export Controls, Pricing and Price Movements of China's Rare Earths: West can no more accept the crisis, Inside China: Second Annual Conference on Understanding Contemporary Issues, Challenges and Problems, Institute for Peace and Conflict Studies, University of Delhi, Jawaharlal Nehru University and the India International Centre (IIC) New Delhi, September 8, 2012.

### **Academic Courses**

- a. Contributed National Security - I (Internal Security) and National Security - II (India and International Security) along with Dr M Mayilvaganan and Dr Arun Vishwanthan for the students of ISSSP. Took class on 'mobility' as part of PhD foundation Course. Also offering course on Migration, Social Change and Security along with Dr M Mayilvaganan and Dr M Amarjeet Singh.

### **Awards and Memberships**

- a. Young Strategist Award-2013, The International Institute for Strategic Studies (IISS) London and School of Advanced International Studies (SAIS), Johns Hopkins University and membership of the IISS.
- b. Chinese Academy of Social Sciences (CASS) Visiting Fellowship 2012-2013
- c. Membership of Australia-India Interdisciplinary Research Network (AIIRN)





**M Mayilvaganan**  
Assistant Professor  
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**Joined NIAS on:** November 2, 2010

**Major research contribution for the academic year:**

Contributed research paper on Sri Lankan Army for the IDSA project on Armies in South Asia, which was also published by them. Analysed the Efficacy of Sri Lankan Counter Terrorism Strategy, which was presented in NIAS and other academic institutes.

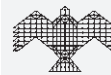
**About**

M Mayilvaganan was Senior Lecturer at Department of International and Strategic Studies, University of Malaya, based at Kuala Lumpur, Malaysia where he taught South Asia in International Relations, Modern Warfare and International Politics. His past positions include Associate Fellow at Institute for Defence Studies and Analyses (IDSA), New Delhi specializing Sri Lanka in particular and South Asia in general; Advocacy and Communication Officer at South Asian Research & Development Initiative (SARDI), New Delhi; Research Assistant in the Regional Centre for Strategic Studies (Colombo) project "Terrorism in India" at South Asian Studies, Jawaharlal Nehru University, New Delhi; Research Associate in the Institute of Peace and Conflict Studies (IPCS), New Delhi, specialized on Kashmir issues. His research interests include strategic and security issues of South Asia, China, US and Japan. He has published several articles and commentaries on a variety of topics related to South Asia and Sri Lanka in particular. He has also participated in various international and national seminars and given lectures at various institutes, besides appearing for various print and visual media interviews.

Dr Mayilvaganan's major research and teaching interests include strategic and security issues of South Asia, Terrorism, China's Foreign Policy and Defense Strategy; Climate Change, Migration, Conflict and Peace studies. Currently, he is working on two projects: Empirical Analysis of Terrorism in India: A Case Study of Maharashtra and Himachal Pradesh and Rising China and India's Strategy in the Indian Ocean.

**Lectures**

- a. Interview to Australian Radio's Special Broadcasting Service (SBS) on Recent Developments in Tamil Nadu and Sri Lanka, March 2013.
- b. India-Sri Lanka Relations: Contextualizing Free Trade Agreement, Invited Lecture, St Joseph College, Bangalore, January 23, 2013.
- c. Dynamics of Tamil Nadu Politics in the Sri Lankan Conflict, Invited Talk, School of Human Excellence, Loyolla College, Chennai, October 1, 2012.
- d. Innovative Tactics and Technology in Counter Terrorism: Sri Lankan Experience,



10<sup>th</sup> NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society on the theme Technology, Innovation and Development, September 27, 2012.

### Academic Courses

- a. Coordinated NIAS Foundation Course (along with Dr Shivali Tukdeo and Dr Smriti Haricharan) and contributed (taught) a section on Migration and Security.
- b. Offered, contributed (along with Dr Arun Vishwanathan and Dr Nabeel A Mancheri) and coordinating ISSSP core course *National Security - I* (Internal Security) and *National Security - II* (India and International Security) for the students of ISSSP.
- c. Offered (along with Dr Nabeel A Mancheri and Dr M Amarjeet Singh) and coordinating a second semester course on *Migration, Social Change and Security*.
- d. Coordinated 2012 NIAS PhD Entrance Exam Process along with Dr Shivali Tukdeo.

### Awards and Memberships

- a. Member of Board of Question Paper Setters for International Human Rights Course, Annamalai University, Chidambaram, India.
- b. Evaluator for Paper on International Relations, St Joseph College, Bangalore, India.
- c. Member, International Studies Association (ISA), Tucson, USA
- a. Member, Association for Asian Studies (AAS), Ann Arbor, USA
- b. Member, Australia-India Interdisciplinary Research Network (AIIRN)



**Arun Vishwanathan**  
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**Joined NIAS on:** October 3, 2011

### **Major research contribution for the academic year:**

Co-edited a book with Prof Rajaram Nagappa on the overall situation surrounding the Iranian nuclear programme. The book analyses Iranian energy resources, missile, military and asymmetric capabilities. It outlines the challenges to international order and implications for India's security as a result of a conflict in the region emanating from differences over the Iranian nuclear programme.

### **About**

Prior to joining NIAS, Arun Vishwanathan was Assistant Director at the National

Security Council Secretariat in the Prime Minister's Office. Before his stint in the government, he was Associate Fellow at the Indian Pugwash Society, IDSA Campus, New Delhi. He holds a doctorate from the Jawaharlal Nehru University, New Delhi. His doctoral thesis is a historical study of Indian nuclear programme and decision making. Dr Arun specialises on issues relating to nuclear deterrence, proliferation of nuclear weapons and technology, nuclear safeguards and export controls.

### Lectures

- India and the Nuclear Question, Invited Lecture, St. Joseph's College, Bangalore, January 18, 2013.
- Understanding India's Nuclear Policy, Invited Lecture, Institute of Foreign Policy Studies, University of Calcutta, Kolkata, July 5, 2012.
- Iran Nuclear Programme: An Overview, presented at the Round Table discussion, Iran: A War has Begun, National Institute of Advanced Studies, Bangalore, May 31 to June 1, 2012.

### Academic Courses

- Contributed to National Security - I (Internal Security) and National Security - II (India and International Security) for the students of ISSSP along with Dr M Mayilvaganan and Dr Nabeel A Mancheri.

### Awards and Memberships

- Invited to join as Editorial Board Member of the Global Research Journal on Humanities and Social Science (GRJHSS), an international peer reviewed journal since December 2012.
- Accepted as Full Member of the International Network of Emerging Nuclear Specialists (INENS), London, United Kingdom.

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## Doctoral Students of the International Strategic and Security Studies Programme

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### Murali Murti

Doctoral Thesis: *Innovation and Divergences in Economic and Technological Capabilities between India and China*



He is in the second year of research and after the completion of coursework he is now in the process of preparation of his thesis proposal. As part of the proposal drafting he is currently examining approximately ten detailed case studies of notable innovations, such as the photolithography industry, the Sony Trinitron, the integrated circuit, the telecommunications industry, and several others. He holds a BTech in Electrical Engineering from the Indian Institute of Technology, Bombay and a PGDM in Management from the Indian Institute of Management, Calcutta. His research interests are innovation, international trade, technology policy and development, and strategic analysis and management.

Supervisor: Arun Vishwanathan

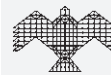
### BR Guruprasad

Doctoral Thesis: *Assessment of the Role of Foreign and Indigenous Technologies in the Development of the Indian Space Programme*

He is a second year doctoral student and makes efforts to understand the reasons for India's sustained progress in the domain of space despite the country's position as a developing economy with attendant limitations in terms of infrastructure and industrial development as part of the research. Guruprasad holds a Master's degree in Communications and Journalism. His areas of research interest include international cooperation in the domain of space, societal benefits from space as well as the history of Indian space programme.

Supervisor: M Mayilvaganan





**Sanket Sudhir Kulkarni**

Doctoral Thesis: *Examining India's Policy towards Cross Border Energy Pipelines - A Case Study of IPI and TAPI Gas Pipeline Project*

He is a first year doctoral student. In the past one year other than attending course work he has been associated with two projects of ISSSP, such as 'Mapping Pakistan's Science and Technological Capabilities' under the guidance of Prof Lalitha Sundaresan and 'Empirical Analysis of Terrorism in India: A Case study of Maharashtra' under the guidance of Dr M Mayilvaganan. Sanket is presently drafting his research proposal.

Supervisor: M Mayilvaganan

# WATER SHARING & CONFLICTS PROGRAMME

## Programme Update

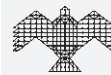
The main objectives of the Water Programme are to conduct research studies in the water sector, particularly in relation to conflicts and conflict resolution surrounding equitable water sharing. Additionally, we are engaged in research on the social and technological solutions to major drinking water problems under diverse natural and socio-economic contexts such as – extreme climatic conditions, pollution, conflict zones and scarcity. The research is being conducted in partnership with various institutions within a multidisciplinary framework across the country. In the South Zone, the research is in relation to Documenting Disappearing Water Bodies of Hyderabad City and providing Social and technological options for drinking water supply. In the East Zone Community based technological solution for providing safe drinking water to arsenic exposed population of Ganga-Meghna-Brahmaputra plains of East India is being researched. West Zone is looking into providing safe and adequate drinking water to Tribal Communities in the Central Indian Forest Heartlands. Drinking Water Security in Arid and Semi-arid Areas is being addressed in the North Zone. Socio-Technological study for safe drinking water in Manipur and Assam are being analysed in the Northeast Zone. In Jammu and Kashmir, the study looks at Drinking Water Supply in Sub-Zero Temperatures.

Overall, the programme aims at generating data and information adopting a multidisciplinary perspective; provide platforms for sharing the results of the research; facilitate multi stakeholder dialogues to influence policy; establish and strengthen networks; and facilitate the participation of partners in research, dialogue, advocacy and publications.

The DST supported project on social technological solutions to major water challenges facing India being located in geographically and socio-economically and culturally diverse regions of the country, it is a challenge to conduct research at equal pace across all zones. Therefore, our partners are at different stages of actualizing their research objectives. A national level workshop was conducted in April, 2012 to initiate the project and to finalize the concept notes, objectives, methodology and the time frame of research for our partners. Subsequently our partners initiated their research in their respective zones. Since December, 2012 the NIAS team has made field visits to three of the six zones, namely- the South, Northeast and North Zones- for first hand insights into the local specific water challenges faced by the zones. Furthermore, we have also had in-depth discussions and focus group meetings with various stakeholders to facilitate strengthening of research of our partners in these zones. There has established constant communication and discussions between us and our partners in relation to the progress, limitations and challenges faced in conducting research in the zones and the measures to address them.

NIAS in collaboration with the French Embassy has established the 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 everyone's activities, and to create a sustainable dialogue to capitalise on the synergies between them; promote the development of collaborations (academic, scientific, industrial, etc.) on the knowledge of the resource and its management, in 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 (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 publications. The steering committee comprising of Indian and French representatives has been constituted and the network formally launched. The activities of the network is being supported by CEFIPRA.





A training module on “Vulnerability and Impacts of Droughts” using IWRM approaches to drought management has been developed on as a part of a comprehensive training programme for water professionals titled Integrated Water Resources Management in Drought Risk Management. The module has been tested in training international water professionals in Nairobi, Kenya. This initiative is supported by The UNDP and Cap-Net.

Additionally, a book volume is being edited along with Dr Sailen Routray on Water Conflicts in India: The State, the People and the Future. The theme of the book is to address water and water conflicts from a broad thematic and sectorial focus. This project envisages achieving this 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 sector. The papers focus on issues relating to conflicts in the context of the federal nature of the Indian State, inter-sectorial 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.

A national level workshop was conducted in April, 2012 to initiate the project on “Social and Technological Solutions to Major Water Challenges in India” and to finalize the concept notes, objectives, methodology and the time frame of research for our partners. Meetings were being held in three zones, viz. North, South and Northeast with stakeholders and our partners to review progress and to make inputs for facilitation of their research.

NIAS being a partner with the French Embassy in establishing the Indo-French Network of Actors in the Water Sector, the network was formally launched in a meeting of the steering committee comprising of Indian and French representatives. The network was formally established by the Ambassador of France in New Delhi.

Being a member of the resource group meetings were held in Pretoria, South Africa to develop modules to train water professionals in managing droughts. The module Vulnerability and Impacts of Droughts was developed as part of the comprehensive training programme on IWRM approaches to Drought Risk Management, and tested in Nairobi, Kenya and will be further tested in Mexico in June, 2013. This initiative has been supported by UNDP and Capnet.

Dr VV Binoy, a Post-Doctoral Associate with the School of Natural and Engineering Sciences has been associated with the Water Programme since August, 2012. He has also been engaged in the assessment of the projects in the South Zone (Andhra Pradesh); the Northeast Zone (Manipur) and the North Zone (Rajasthan).



*Field Assessment Team in Rajasthan*

## Members of the Water Sharing and Conflicts Programme



*N Shantha Mohan (Anchor)*

*VV Binoy*

Post-doctoral Associates: *Durba Biswas, V Jayasree*

Doctoral Student: *Sailen Routray*

**N Shantha Mohan**  
Research Scientist  
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**Joined NIAS on:** November 3, 1997

### **Major research contribution for the academic year:**

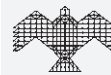
As member of an expert group participated and contributed to the Result Framework Documents review meetings for improving performance management of the departments concerned with Social Services (Women and Child Development, Scheduled Castes, Scheduled Tribes, Minorities and Backward Classes) of the Government of Karnataka, Bangalore.

### **About**

I am an educationist by training with specialization in the area of economics of education. I have been engaged in research, intervention and advocacy from a social justice and gender perspective on issues related to governance, violence against women and literacy. My interests also include the development of innovative methodologies and models for intervention and policy advocacy. My current research focuses on conflict and conflict resolution surrounding transboundary and inter-sectoral water sharing, evolving social and technological solutions to major water challenges facing the country adopting a multi-disciplinary and multi-stakeholder approach in a partnership mode. I have facilitated the establishment of Zonal Water Partnerships and strengthening networks across the country to address local specific concerns relating to the water sector.

### **Lectures**

- a. Participated in a consultative workshop on Water and Rural Livelihoods in Asia in Bangkok on March 26 and 27, 2013, organized by Food and Agriculture Organisation of the United Nations.
- b. Gave a lecture on "Gender and the Application of CEDAW" in the NIAS-DST training programme for women scientists and technologists on Future Challenges to Society with a thematic focus on Resources and Development: Scope and Challenges, on February 15, 2013.
- c. Made a presentation on the History of the Indo-French Water Network at the inaugural meeting of the Steering Committee of the network on February 5, 2013 in New Delhi organized by the French Embassy.
- d. Made a presentation on Vulnerability and Impacts of Droughts in the training programme on Integrated Water Resource Management in Drought Risk Management, in Nairobi, Kenya between September 10 and 14, 2012, jointly supported by UNDP, Capnet, Scan, REMERH. UNEP-DHI, University of Twente, Faculty of Geo-Information Science and Earth Observation. The programme aimed at strengthening the capacity to reduce impact of drought disasters



through enhancing IWRM knowledge and skills. The participants comprised of water professionals from Asia, Africa, and the Arab region and COMESA.

### **Training Courses**

- a. A NIAS-DST training programme for women scientists and technologists on Future Challenges to Society with a thematic focus on Resources and Development: Scope and Challenges was coordinated jointly with Dr Durba Biswas.

### **Awards and Memberships**

- a. Vice President of the South Asian Consortium for Interdisciplinary Water Resources Studies (SaciWaters), Hyderabad.
- b. Member of the Governing Board, India Water Partnership, New Delhi.
- c. Member of a team of international experts for developing a training module on Integrated Water Resources Management in Drought Risk Management for water professionals, UNDP and CapNet.



**Durba Biswas**  
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**Joined NIAS on:** December 3, 2012

### **About**

Apart from working with partners in various zones as stated above, Durba Biswas is also working independently on the issue of gender-water linkages in relation to drinking water using a feminist economics framework in Karnataka. During this period, she has made assessments of the projects in South Zone (Hyderabad, Andhra Pradesh) and the Northeast Zone (Imphal, Manipur). She also co-coordinated the NIAS-DST training programme for women scientists and technologists on Future Challenges to Society with a thematic focus on Resources and Development: Scope and Challenges in February, 2013.



**Jayasree  
Vaidyanathan**  
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**Joined NIAS on:** April 16, 2012

### **About**

Between April 2012 and March 2013, Jayasree Vaidyanathan has been engaged in co-coordinating the research with partners from all the six zones. She has also been a part of a three member multi-disciplinary team to make an assessment of the DST supported WAR for Water Project in relation to Water Treatment and Waste Water Treatment Plants in Mamsapuram and Thiruppattur in Tamil Nadu and Buja Buja in Andhra Pradesh. Additionally she is working independently to evaluate the extent of water challenge in a DST-identified village in Karnataka. In addition our partners across the country are engaged in research on local specific issues relating to water challenges in their respective zones. The zonal level teams comprise of three members representing the natural and social sciences and civil society. The anchors for the respective zones are Prof Vijay Paranjpaye, West Zone; Prof Rathore, North Zone; Dr Anjal Prakash, South Zone; Mr Bilal, Jammu and Kashmir; Mr Jelshyam Singh, Northeast and Prof Ashok Ghosh, East Zone. The project being located in geographically and socio-economically and culturally diverse regions of the country, the pace at which research is being carried out is varied.

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## Doctoral Student of the Water Sharing and Conflicts Programme

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### **Sailen Routray**

Doctoral Thesis: *Shifting Waterscapes: Tradition, Development and Change in Orissa*  
He was awarded doctoral degree by Manipal University in November 2012  
Supervisor: N Shantha Mohan





# CLUSTER - SOCIAL TRANSFORMATIONS

## Programmes

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- Education Portfolio
- Mobility & Transnationalism
- Urban Research & Policy





# EDUCATION PORTFOLIO PROGRAMME

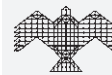
## Programme Update

For over a decade, the Education Programme at NIAS has been active in the areas of education research, teaching, advocacy and outreach. In particular, the programme has always focused on the issues that are not part of the mainstream work on education. Building on our previous work and strengths, this year we remained focused on areas that do not always find space in the contemporary research agenda on education. In our approach of “reaching the unreached”, we draw our attention to the education of gifted children, questions of gender in education and the education of Adivasi (Tribal) communities. The milestones this year include the nomination of Prof Anitha Kurup as a member of Board of Governors of the Institute for Social and Economic Change Bangalore [<http://www.isec.ac.in/>] for a period of 3 years starting 2013; development of a battery of tools for identification of gifted children in India; the development of curriculum for gifted and talented education for teacher educators as part of the revised DEd curriculum of the Karnataka state and the successful completion of the perspective report on Adivasi (tribal) education in the country.

At present, we have two full time faculty members in the programme, several international collaborators across a diverse institutions and many short-term visiting faculty. We have two full time doctoral students in the programme this year and six project research students. Our own, overall assessment of the programme is positive and we also recognize the areas that need attention, improvement and support. As we build on decades of fieldwork, research, teaching, advocacy and outreach, we hope to expand in order to make a mark nationwide. The education programme carries out its activities through three nodal initiatives: 1. Platform for Education Policy 2. Curriculum Exchange Network and 3. Research in Critical Areas of Education.

The following were some of our activities during the year 2012:

- Comprehensive perspective report on Adivasi education, submitted to UNICEF and the Ministry of Human Resource Development.
- Development of a national research initiative on gifted education.
- Participating in national conversations on education policy.
- Research carried out in the areas of higher education, gender, disability studies, teacher education, philosophy of education.
- Teaching doctoral seminar classes for students in NIAS.



## Members of the Education Portfolio Programme



*Anitha Kurup (Anchor)*

*Shivali Tukdeo*

Doctoral Students: *Maithreyi R, Chetan B Singai, Dhanwanti Nayak*

Research Assistants: *Amita Basu, Ajay Chandra, Parvathy Jayan M Kanthi*

### **Anitha Kurup**

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**Joined NIAS on:** January 2, 1995

### **About**

During the last year, Anitha Kurup has been engaged in the development of theoretical and conceptual understandings on women in science and engineering. In her attempt to understand this field, she has been examining women's participation in higher education in India and other countries particularly the US using a comparative perspective as a part of the Fulbright fellowship, where she spent over 10 months at the University of California, Davis.

Last year was also eventful in relation to the National project on gifted education. The team has developed a battery of tests that will help identify gifted children in science and maths. The tools developed are being standardized for Karnataka. Attempts are made to introduce the programme in Kerala and Assam. Collaborations with different groups working in the area of gifted children are developed to enable the programme to reach a national scale.

### **Lectures**

- a. Interdisciplinary Research: Challenges and Opportunities as a part of a Refresher Course titled Changing Paradigms in Social Science Research, Theory and Practice for College lecturers organized by Christ University, March 26, 2013.
- b. Inter-disciplinarity in Undergraduate Research: Challenges and Opportunities in a workshop titled Research: Cornerstone of Excellence in Higher Education, March 22, 2013.
- c. Research as a Profession: Personal reflections in a workshop titled Research: Cornerstone of Excellence in Higher Education, March 22, 2013.
- d. Presented a paper in the session on Overview of the Shared Challenges and Need for Identifying and Adopting Best Practices for Women in Science in the US-India Workshop on Best Practices for Women in Science, Gulmohar Hall, India Habitat Centre, New Delhi, December 10, 2012.
- e. Presented a paper on the Panel "Inclusive education in the light of RtE Act 2009, TKJ Memorial Lecture, Institute of World Culture, Bangalore, September 6, 2012.
- f. Reflections on Gender: A Personal Journey, Sproul 912, University of California, Davis, California, USA, April 18, 2012.



**Shivali Tukdeo**  
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**Joined NIAS on:** March 10, 2010

### **About**

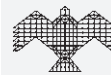
Shivali Tukdeo's scholarly engagements are rooted in diverse disciplinary interactions including education policy, critical social theory and sociology of education among others. Over the last few years, she has focused her research on the new policy regimes in education in India and their connections with international, supra-national policy orientations. Her current work includes education among the disadvantaged communities, ethnography of education and gender studies.

### **Lectures**

- a. Towards a Greater Gender Literacy: Sexual Violence and Possible Interventions, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, February 7, 2013.
- b. Our Rape/Their Rape: The Politics of Spectacle-Making, Mediating Modernity Conference, Bangalore, January 25, 2013.
- c. Transnational Mobility of Education, Panel on International Mobility, Transnational Flows, and Development in India held at the EPFL Summer School, August 2012.
- d. The Adivasi Question in Education UNICEF meeting on Education and Equality held in New Delhi, May 15, 2012.

### **Academic Courses**

- a. Understanding Gender: An Introductory Course (2013).
- b. Research Methodology (2013).
- c. Imagining Interdisciplinarity (2012) (Coordinated with Dr M Mayilvagnan and Dr Smriti Haricharan).
- d. Core Issues in Social Sciences (2010, 2012) (Coordinated by Prof Carol Upadhy).



**Malavika Kapur**  
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**Joined NIAS on:** May 1, 2003

### **About**

Malavika Kapur is a Visiting Professor at NIAS. Earlier she was the Professor and Head of the Department of Clinical Psychology at the National Institute of Mental Health and Neurosciences, Bangalore. She has a PhD in Clinical Psychology from Bangalore University and has twelve books and over 100 publications to her credit. She is a Fellow of the Indian Association of Clinical Psychologists and the Indian Association of Child and Adolescent Mental Health and the British Psychological Society. Recently she has been honoured by the National Academy of Psychology with the honorary fellowship and life time achievement award. She has been a consultant for organizations such as the WHO, UGC, NCERT, NIPCCD, ICMR and ICSSR. She has been twice awarded the scholar in residency at the Study and Conference Centre, at Bellagio in Italy, by the Rockefeller Foundation. She has been on the Advisory Group of the ICD Revision of Child Psychiatric Disorders at the WHO Mental Health and Substance Abuse Division, Geneva from March 2010.

Her areas of interest are Developmental Psychology, Community Mental Health Programmes for Children and Adolescents in Urban and Rural Schools, Primary Health Care and Anganawadi Workers. She has been involved in developing of tools of assessment and intervention packages the promotion of psycho social development and for psychological problems of children and adolescents in the Indian Context. Her main contribution is her work of developing integrated models of mental health service delivery for children and adolescents.

Her work is embedded in the cultural context as revealed in her study of child care in Ancient India based on Ayurveda. Currently she is working on the Child Care in the Indian Indigenous Systems of Medicine such as Tibetan, Siddha and Yonani. The mysteries of the human mind have always fascinated her as a psychologist and a creative writer. She has written several anthologies for adults and children. She is a prolific reader with deep interest in performing arts. She is an inveterate traveller and loves trekking in the Himalayan foothills.

### **Lectures**

- a. Learning in Children and Developmental Psychology, Bangalore Science Forum, Bangalore, March 27, 2013.
- b. Chaired a Psycho Award Session as the Past President of IACP Association of Clinical Psychologists, Delhi, February 2, 2013.
- c. Invited Speaker at the Symposium on School Mental Health in India at the

- National Annual Conference of the Indian Psychiatric Society, Bangalore, January 13, 2013.
- d. Indian Approach to temperament, St John's Medical College for Psychiatry Post Graduates, Bangalore, December 31, 2012.
  - e. Learning from Children: For Preschool Teachers, CBSC School Teachers Orientation, December 22, 2012.
  - f. Developmental Approach to Child Counselling, Department of Psychology, Calcutta University, December 16, 2012.
  - g. Pustaka, Parikshe and Percentage – Are We Playing with Our Future: Panelist Trend Setters India and Samajaseva Sangha, November 3, 2012.
  - h. Panelist on Risk in India, 7<sup>th</sup> International Annual Conference on Public Policy and Management, Bangalore, August 16, 2012.
  - i. Chief Guest and Keynote Speaker on Counselling NMAM Institute of Technology, NITTE, South Kanara, July 7, 2012.
  - j. Learning from Children What to Teach Them, Rastrohana Parishath, CBSC Teachers' Orientation Programme, Bangalore, May 16, 2012.
  - k. Mother, Child and Teacher, Shishushiksana Programme, Shishu Mandir, Bull Temple Road, Bangalore, May 12, 2012.

### Academic Courses

Lectured at the Foundation Course, September 25, 2012.

### Training Courses

Evaluation of Project reports for ICSSR – 10 Numbers.

Organised six sessions of workshops on Child Mental Health and Child Development at the Prasanna Counselling Centre, Bangalore, September to October, 2012.

Organised four sessions of workshops on Child Mental Health and Child Development over four weeks for 25 teachers for slum children in Bangalore, September/October 2012.

### Awards and Memberships

School Mental Health: Importance, Organisation and Evaluation Issues, MAAMHP Oration, Department of Psychiatry, KMC Manipal, South Kanara November 11, 2012.

Psychological Competences with Reference to South East Asian Nations. Invited Symposium Presentation, International Congress of Psychology, Cape Town, July 24, 2012.

Competence as a Common Language – Addressing Global Challenges: Invited Panelist for a Symposium, International Congress of Psychology, Cape Town, July 24, 2012.

Saugata Basu Memorial Oration - An Experiential Account of Positive, Developmental and Health Psychology in the Indian Context, Department of Psychology Calcutta University, March 12, 2013.

Attended the SAC meetings of the Disability Research Group at Calcutta University.

PAC Meeting of UGC Sponsored Disability Intervention, Calcutta University, December 16, 2012.

Management of Externalising and Internalising Disorders. Department of Psychology, Calcutta University, March 13, 2013.

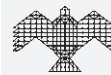
### Other Info

Panel Discussion on Ethical Considerations in the Conduct of Research, NIAS, August 1, 2012.

Panel Discussion on Ethical Considerations in the Conduct of Research, NIAS, March 5, 2013.

Running a Free Child Guidance Centre at Prasanna Counselling Centre: Number of trained volunteers – 30. Total cases seen – 182.





Ten Ashram Schools with 1000 children are adopted to develop programme promoting psychosocial development through play.

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## Doctoral Students of the Education Portfolio Programme

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### **Maithreyi R**

Doctoral Thesis: *Reconceptualizing Life Skill as Processes within Education: Development of a Process-Focused Curriculum*

Her work looks at the disconnect between the experiential philosophy and theory that informs life skills education and its practice through an ethnographic study of organizations and schools conducting life skills programmes in Bangalore. The study examines the social implications of the programmes by examining the links between middle class values and their transportation into government skills. Maithreyi is in the third year of her PhD. and is currently wrapping up her field work.

Supervisor: Anitha Kurup

### **Chetan B Singai**

Doctoral Thesis: *Higher Education and University Governance in India: A Case Study of Two Universities in Karnataka.*

He is a second year student and his work examines the aspect of institutional governance within the higher education system of the country. The study aims to investigate this aspect by analyzing the case studies of two universities (state and deemed-to-be-university) in the state of Karnataka. The course work in relation to his doctoral work is completed. He has successfully completed his qualifier exam. The proposal has been submitted to Manipal University after completing the presentation at NIAS.

Supervisor: Anitha Kurup



**Dhanwanti Nayak** is Anitha Kurup's external student registered with Manipal University in February 2011 and is in the third year. Her doctoral study is on "Mimesis in Indian art and culture: Implications for pedagogy". The thesis broadly looks at the concept of mimesis in education through the way different kinds of thinking is taught, with particular reference to communications and medical humanities. She has finished data collection, which involves largely visual work done by students at MU.

# MOBILITY & TRANSNATIONALISM PROGRAMME

Under 'Mobility and Transnational Studies' *Provincial Globalisation* is an international collaborative research programme of NIAS with the Amsterdam Institute for Social Science Research (AISSR), University of Amsterdam (UvA), funded by the Integrated Programme of WOTRO Science for Global Development, Netherlands.

## Members:

Co-Directors	:	<i>Carol Upadhy</i> (NIAS) <i>Mario Rutten</i> (AISSR)
Research Economist	:	<i>Puja Guha</i> (till September 2011)
Research Fellow	:	<i>Leah M Koskimaki</i>
Doctoral Students	:	<i>Sanam Roohi Reddy</i> (NIAS), <i>Sulagna Mustafi</i> (NIAS), <i>Sanderien Verstappen</i> (AISSR)
Consultant Researcher	:	<i>Jananie Kalyanaraman</i>



Many banks in Gujarat and elsewhere offer special savings schemes for NRIs to attract deposits

## Programme Update

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. This five-year research programme ('ProGlo') explores how these 'reverse' transnational flows are shaping development and socio-economic transformations in several regions of India. By comparing the transnational networks, mechanisms and destinations of resource transfers comparatively across three regions, the programme is providing region-specific as well as more general insights into the economic, social, political, and cultural impacts of migrant remittances, both material and immaterial. The 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 ProGlo programme was initiated in January 2010 and has now completed three years.

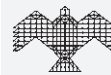


Gujaratis living overseas frequently donate to educational institutions in Gujarat

ProGlo 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 – in addition to research carried out by the programme Co-Directors, consultants, and MA and BA students from the University of Amsterdam. The PhD projects are intensive studies of the three selected regions, while the postdoctoral projects provide macro- and meso-level studies of transnational linkages and flows at the regional, state, and national levels. Taken together, the component research projects will provide comparative material on a broad range of 'reverse flows' and their local effects in the selected regions, including economic resources such as household remittances, investments in land or businesses, and financial support for NGOs; 'social remittances' such as flows of ideas and know-how; and cultural and religious transactions such as philanthropic donations.



In towns of Coastal Andhra, a number of educational institutions have been started by NRIs



We have made substantial progress in fulfilling the objectives laid out at the inception of the programme. The initial academic outputs of the programme have been circulated in the form of five Working Papers, which have also been submitted to international refereed academic journals, as well as six Research Reports and other outputs including publications. Preliminary findings of the component projects point to the complexity and regional variability of migrant resource flows and the difficulties in measuring them. These findings have major implications for development policy, research and planning. While much of the migration and development literature focuses on remittances, our studies show that resource flows between migrant communities and their home regions are multi-directional and multi-dimensional, often consisting of long-standing streams of people, money and ideas moving in both directions through transnational networks. The diversity in types and purposes of resource transfers that we have documented underlines the need to better understand these flows, especially migrant contributions for development purposes, and for closely examining their outcomes by contextualising diasporic relations within the specific socio-economic formations of the home regions. We have seen that migrant resources do not just flow in a straightforward way into development activities, but are shaped by local structures of power and hierarchy as well as by their embedding in social networks and migrants' aspirations for social mobility. Moreover, transnational flows are often implicated in conflicts over regional identity and development, which is revealed in the ways in which NRIs (Non-Resident Indians) engage with land investment, environmental issues, identity politics, or religious assertions in their home regions.

In addition to the PhD, post doc, and other projects, Professors Upadhyaya and Rutten have undertaken their own field research projects on migration and development, which are designed in part as restudies of regions that they had each worked in thirty years ago (Coastal Andhra Pradesh and Central Gujarat, respectively).

### Outreach

The ProGlo programme's website ([www.provglo.org](http://www.provglo.org)), launched in March 2011, has proved to be an effective way to inform the interested public about our activities and disseminate outputs. A new feature this year is a series of photo albums put together by team members from their fieldwork. Between April 1, 2012 and March 31, 2013 the website was viewed by more than 2200 people from across the world, with over 37 per cent of the visitors returning to the website and 62 per cent being new visitors. ProGlo's Facebook page serves as a forum for exchange of ideas with the programme's stakeholders as well as other researchers and the public: <https://www.facebook.com/pages/Provincial-Globalisation/164674226951228?sk=info>. This page has a growing set of followers, now numbering 75. The page receives views from several countries including Finland, the United States, and Germany.

Puja Guha was invited to author a paper for the Indian Council of Overseas Employment (ICOE), MOIA, as a part of the project titled Developing a Knowledge Base for Policy-Making on India-Europe Migration



*Gulf-based Mangaloreans collect money for scholarships distributed to poor students in their home town*



*NRI Cell in Guntur District, AP, uses donations from Telugus overseas to fund local development work*

(October 2012 - March 2013). Sanderien Verstappen's PhD research attracted considerable media coverage in Gujarat. She appeared in an item of the Gujarati news channel 'E-TV' on foreign students of Gujarati language (8 September 2012). Sanderien was also interviewed (in Gujarati language) by the local news channel Gujarat News (September 11, 2012) and in English by the Gujarati news channel 'E-TV', on her research project and studies of the Gujarati language (September 18, 2012).

Supplementing the ProGlo Working Paper Series in which five papers have been brought out, a Research Reports Series has been initiated. These reports include the work of BA and MA students from the University of Amsterdam who have carried out research projects under the auspices of this programme.



**Carol Upadhyia**  
Professor  
School of Social  
Sciences

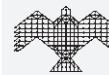
Room No. S 07  
Tel: 080-2218 5141  
Fax: 080-2218 5028  
Email: carol.upadhyia  
@gmail.com

**Joined NIAS on:** September 1, 2003

Carol Upadhyia's current research interests focus on capitalism, class formation, mobility, and transnationalism in contemporary India. She currently co-directs (with Prof. Mario Rutten, University of Amsterdam) the research programme, 'Provincial Globalisation: The Impact of Reverse Transnational Flows in India's Regional Towns', and anchors the Urban Research and Policy Programme at NIAS. Her publications have covered topics ranging from the Indian middle class to the social impact of the Indian IT industry; the history of sociology and anthropology in India; land rights and adivasi politics in Jharkhand; and regional capital in Coastal Andhra Pradesh. Prof Upadhyia is co-editor (with AR Vasavi) of *In an Outpost of the Global Economy: Work and Workers in India's Information Technology Industry* (Routledge, New Delhi, 2008), and (with Mario Rutten) of *Small Business Entrepreneurs in Asia and Europe: Towards a Comparative Perspective* (Sage Publications, New Delhi, 1997). She earlier taught sociology at SNDT Women's University in Mumbai. Prof Upadhyia is currently completing an ethnographic monograph on capital, work and culture in the Indian software industry.

### Lectures

- a. Mobilising Labour for India's Globalizing Cities, presentation to Conference on the 21<sup>st</sup> Century Indian City: Towns, Metros, and the Indian Economy, Organized by University of California, Berkeley and Indian Institute of Human Settlements, Bangalore, March 26 and 27, 2013.
- b. Shrink Wrapped Souls: Managing the Self in India's New Economy, presentation at Azim Premji University Colloquium Series, February 28, 2013.
- c. Migration, Transnational Flows, and Development at the Regional Level, presentation to the Second Annual Seminar on Migration and Development



- Organized by the Centre for Development Studies (Trivandrum) and the Gujarat Institute of Development Research (GIDR), Ahmedabad, November 23, 2012.
- d. Genealogies of Software Capital in India, presentation hosted by the Interdisciplinary Center for the Study of Global Change and the Departments of Sociology, Anthropology, and Geography, Environment and Society, University of Minnesota, Minneapolis (USA), October 5, 2012.
  - e. Shrink Wrapped Souls: Managing the Self in India's New Economy, paper presented at workshop Organized by the Interdisciplinary Center for the Study of Global Change, University of Minnesota (USA), October 5, 2012.
  - f. Migration and Development from a Regional Perspective, in panel discussion on International Mobility, Transnational Flows, and Development in India Organized for EPFL Bangalore Summer School, NIAS, August 27, 2012.

### **Other**

- a. Organized panel discussion on International Mobility, Transnational Flows, and Development in India for EPFL Bangalore Summer School, NIAS, August 27, 2012. Presentation: 'Migration and development from a regional perspective'.

### **Academic Courses**

- a. Seminar in Social-Cultural Anthropology (1<sup>st</sup> term, 2012-13)
- b. Seminar in Social Theory (2<sup>nd</sup> term, 2012-13)
- c. Coordinated and taught modules of Core Course in Social Sciences (1<sup>st</sup> term)
- d. Contributed to Foundation and Research Methodology courses

### **Awards and Memberships**

- a. Appointed as Member (representing NIAS), Governing Council, Centre for Research and Education for Social Transformation (CREST), Kerala.
- b. Member of Advisory Committee for WOTRO Science for Global Development (Netherlands) to review grant applications.
- c. Member, Editorial Advisory Board, *Contributions to Indian Sociology (N.S.)*

### **Lectures**

#### **Puja Guha (ISI, Bangalore)**

- a. International Remittances as a Source of External Finance: An Alternative Development Panacea? Paper presented to Conference on Macroeconomic Stabilization Policy in an Era of Low Growth, Delhi Economics Conclave, Indian Institute of Foreign Trade, New Delhi, December 18, 2012.
- b. 'Migrants' Private Giving and Development: A Study of Diasporic Relationships to Development in Central Gujarat, India. Conference on Diaspora and Development: South Asian Diaspora Engagement in South Asia, ISAS, National University of Singapore, September 27 and 28, 2012.
- c. Macroeconomic Impact of International Remittances: Revaluating Remittances as a Source of Development Finance. Paper presented to 14<sup>th</sup> Annual International Conference on Money and Finance, IGIDR, Mumbai, April 6 and 7, 2012.

#### **Mario Rutten (AISSR)**

- a. Reflections on Migration Through film: Screening of an Anthropological Documentary on Indian Youth in London, Institute of Rural Management (IRMA), Anand, Gujarat, February 11, 2013.
- b. Complexity of Reverse Flows of People: Circular and Return Migrants in Central Gujarat, India. International Conference on International Migration and Qiaoxiang Studies, Jiangmen City, Guangdong



Province, China, November 19 to 21, 2012.

- c. Living Abroad and Returning Home: Young Indian Migrants in London and Gujarat, Southampton University, ESRC Centre for Population Change, UK, May 17, 2012.

### **Sanderien Verstappen** (PhD Student, University of Amsterdam)

- a. Suspected Transnationalism: The Delicacy of Transnational Collaboration for Muslim charities in Central Gujarat (India), Moving Matters / Asia Club seminar, University of Amsterdam, February 28, 2013.
- b. Current migration Patterns of Muslims from Charotar, Gujarat Institute for Development Research, Ahmedabad, June 13, 2012.

### **Postdoctoral Projects**

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

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

### **Puja Guha**

Post-doctoral economist (now working with the Indian Statistical Institute, Bangalore), spearheaded a survey of migrant households in central Gujarat in cooperation with the Gujarat Institute of Development Studies, Ahmedabad, which was partially funded by the Government of Gujarat. The final survey report has been finalized and working papers based on the survey are under preparation. Dr Guha has presented several papers at international conferences based on her research under this programme.

### **Leah M Koskimaki**

Post-doctoral Anthropologist, carried out fieldwork in the Dakshina Kannada region as well as in the USA and UAE on Overseas Indians' involvement in development and environmental politics in the Mangalore region. In addition, a web-based research project entitled Dakshina Kannada in the Gulf: Community and Politics in a Transnational Virtual Space was carried out by Ms Jananie Kalyanaraman together with Dr Koskimaki, resulting in a ProGlo Research Report.

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## Doctoral Students of the Mobility and Transnationalism Programme

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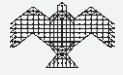
During the past year, the three PhD students (two Indian, one Dutch) completed their planned year of fieldwork in the target regions and are now engaged in data analysis and writing. Their work is progressing well and they are expected to complete their dissertations by the end of 2014.



### **Sanam Roohi Reddy**

Doctoral Thesis: *Provincial Diaspora, Philanthropy and Social Domination: A Study of Coastal Andhra Pradesh, India*

Supervisor: Carol Upadhya



**Sulagna Mustafi**

Doctoral Thesis: *Transnationalism and Muslim Identity in Dakshina Kannada, India*

Supervisor: Carol Upadhyia



**Sanderien Verstappen (AISSR)**

Doctoral Thesis: *Translocalism: Migration and Development among Muslims in Central Gujarat, India*

Supervisor: Carol Upadhyia

# URBAN RESEARCH & POLICY PROGRAMME

## Programme Update

The URPP at NIAS has a special significance in being located in Bangalore, a city that is usually portrayed in popular media as India's 'Silicon Valley'. Since the late nineties, Bangalore has been at the forefront of new experiments in urban governance and the site of several mega projects and infrastructure development initiatives in response to the city's rapid demographic and economic growth. The city therefore encapsulates several key issues confronting the Indian city today, including conflicts associated with the incorporation of peripheral areas into the metropolitan structure; the persistence of urban poverty and inequalities in access to resources and services; and serious contradictions between innovations in management and governance and social tensions resulting from land acquisition, proposals for water privatisation, the management of wetlands, 'slum' redevelopment, and urban renewal. The URPP is well positioned at NIAS, with its inter-disciplinary orientation, to address these myriad urban issues from a grounded and theoretically informed academic perspective as well as a practical policy-oriented one, drawing on research work carried out in other metro cities in addition to Bangalore. Projects carried out under the URPP have involved stakeholders at multiple levels, creating awareness among a larger audience about the pressing issues of urbanisation in contemporary India.

Between its inception in 2009 and the middle of 2011, the URPP was expanding and developing a range of activities, especially research and public engagements of various kinds. Although the URPP has not had a full-time faculty member to anchor the programme since June 2011, it has gone a long way in fulfilling its objectives during 2011-12 by bringing out publications and reports on important urban issues and organising dissemination activities and public interactions. Dr Ritajyoti Bandyopadhyay, who joined in November 2010 as Postdoctoral Associate, completed his fellowship in October 2012.

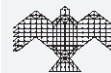
The URPP will continue to try to 'carve out a unique space for urban studies and action in India' (as stated in the original vision document), and to act as a 'creative initiative to foster innovative thinking on cities'. However, at this juncture we believe that an intellectual and philosophical reorientation is required in order to work towards this goal. We are debating how to develop a fresh approach to urban studies in India, one that fosters not just new thinking on cities but also critical and carefully produced knowledge about the social, economic, and political processes, structures, and transformations that mark towns and cities across India, in all their diversity. Such an agenda should draw on new theoretical perspectives and methodologies from a range of disciplines, especially social anthropology, sociology, and history, but also economics, environmental sciences, and geography. We hope that ongoing discussions will lead to a new research agenda and refurbished overarching philosophy for the programme and result in a reoriented and revitalised URPP in the coming year.

## Outreach

The URPP has organized or been engaged in a variety of public events, workshops, lectures, and consultations that have brought its name into the civic life of Bangalore and other cities of India.

The '**City in Question**' public lecture series has been well attended, throwing light on international urban issues as well as urban development in India. The following events were Organized by the URPP during the past year:

- Meena Menon (Vice President, GKSS [Mill Workers Action Committee]), 'Globalization and Challenges for Labour Movement Today', June 8, 2012.
- Public Lecture by Professor Amitabh Kundu (Jawaharlal Nehru University, New Delhi), 'Globalisation, Urbanisation and Migration: Facts and Artifacts, August 14, 2012.
- Public Lecture by Professor Smriti Srinivas (Dept. of Anthropology, University of California, Davis, USA), 'A Place for the Self: Religion and Urbanism in Contemporary India', September 7, 2012.
- Film screening, 'When Shankar Nag Comes Asking' and discussion with Sushma Veerappa, March 28, 2013.



Workshops Organized by the URPP on the UID and on the National Policy on Urban Street Vendors produced significant debates and outputs:

Digital Deliberations: A One Day Workshop on the UID Project and its Focus on Homelessness (co-Organized with Centre for the Study of Culture and Society), July 16, 2012. *Output:* CSCS-NIAS Workshop Report (pdf).

National Consultation: Debating the National Policy on Urban Street Vendors - A Trans-City Interrogation, August 13, 2012. *Outputs:* Consultation Report with recommendations to be forwarded to the Central Government. Prof Upadhya and Dr Bandyopadhyay are also working on a concept paper based on the workshop.

### **Prof Carol Upadhya Lecture**

Mobilising Labour for India's Globalizing Cities, Conference on the 21<sup>st</sup> Century Indian City: Towns, Metros, and the Indian Economy, Organized by University of California Berkeley and IIHS, Bangalore, March 26 and 27, 2013.

### **Postdoctoral Project Up Market and Down Market: Analysing the Possible Impact of FDI in Indian Retail**

(December 2011 - June 2012)

Principal Investigator: Dr Ritajyoti Bandyopadhyay

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

Objectives: The penetration of corporate capital into 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, this project explored the possible impacts of FDI on urban provisioning mechanisms. 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 purpose of the research project was 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 has been conducted along with archival-historical research to unravel the existing mechanisms of food provisioning in Calcutta. We have sought to understand the social and financial networks that mobilise the systems of urban provisioning.

Output: Provisioning Indian Cities: Speculations on the Question of FDI in Calcutta's Wholesale-Retail Network', NIAS URPP Report, by Ritajyoti Bandyopadhyay, with K Bhat, TVH Prathamesh, and N Pande, 2012.



Consultation on Debating the National Policy on Urban Street Vendors - A Trans-City Interrogation Organized by URPP (August 13, 2012)



Prof Carol Upadhya welcoming the participants to the Consultation on Debating the National Policy on Urban Street Vendors - A Trans-City Interrogation Organized by URPP (August 13, 2012)



Prof VS Ramamurthy, Dr Ritajyoti Bandyopadhyay, and Prof Carol Upadhya at the National Level Consultation on Debating the National Policy on Urban Street Vendors Organized by URPP (August 13, 2012)



## NIAS TRAINING PROGRAMMES



His Excellency Mr Shekhar Dutt, Governor of Chhattisgarh delivering the talk on "Statecraft and Security" during the 27<sup>th</sup> Programme for Senior Executives (January 21, 2013)



Dr E Sreedharan, formerly Managing Director of Delhi Metro and presently Principal Adviser Delhi Metro Rail Corporation after the talk on "Metros and the Challenge of Urban Transportation in India" for the In-service Training Programme for IAS Officers (November 20, 2012)



Dr Jayaprakash Narayan, President, Lok Satta Party delivering the talk on "Cleansing Indian Politics" during the 27th Programme for Senior Executives (January 25, 2013)

### 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 27<sup>th</sup> edition of this programme for senior executives on Managing Change was Organized between January 20 and 25, 2013. Inaugurated by Prof Ashok Jhunjhunwala, Telecom and Networks (TeNet) Group, Indian Institute of Technology, Chennai, the programme had 17 participants, including one woman. 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 VK Agrawal, Mr Bishan Singh Bedi, Ms Shashi Deshpande, His Excellency Mr Shekhar Dutt, Mr Shivshankar Menon, Dr Jayaprakash Narayan, Prof Trilochan Sastry, Dr Mihir Shah, Prof MS Sriram and Dr G Sundararajan. In addition there were also speakers from NIAS including the Director, Prof VS Ramamurthy and Prof SS Meenakshisundaram.

The cultural programme featured Hindustani Vocal by Pandit M Venkatesh Kumar. A visit was arranged to ISRO Satellite Centre (ISAC), Bangalore.

The valedictory address was given by Prof N Balakrishnan, Associate Director, Indian Institute of Science, Bangalore.

The programme was coordinated by Prof Dilip R Ahuja.

Participants of the 27th NIAS Programme for Senior Executives on "Managing Change" with the Director and the Faculty of NIAS (January 20 to 25, 2013)





## Training Programme for Women Scientists and Technologists

The NIAS-DST training programme for women scientists and technologists on Future Challenges to Society with thematic focus on Resources and Development: Scope and Challenges was organized between February 11 and 15, 2013. The focus of the workshop was to facilitate debates and knowledge addition to the discussion on resources and development. Broadly, resources are categorized as human resources, technological and infrastructural resources, natural resources and cultural resources. This course was designed to be interactive with presentation followed by lively discussions. This was being organized so as to create awareness of the enormous potential and prospect afforded by this new scientific and technological development. This course was to enable women to interact with various scientists and technologists and explore possibilities of increasing their own presence, visibility and entrepreneurial capabilities in Science and Technology. As the focus of the course is multidisciplinary, speakers will be drawn from various disciplines to speak on topics such ranging from Human Resources; Natural Resources; Nuclear Resources; Technology; Inclusive Development etc.

The programme was coordinated Dr N Shantha Mohan and Dr Durba Biswas.

## Technology Forecasting, Assessment and Management

The NIAS-DST training programme on Technology Forecasting, Assessment and Management was organized from December 17 to 21, 2012 for Senior Scientists, Technologists and Administrators. Twenty six participants including two women scientists drawn from various institutions, laboratories and departments in the country attended the programme.

The programme was inaugurated by Dr Baldev Raj, President, Indian National Academy of Engineering, New Delhi and President-Research, PSG Institutions, Coimbatore. Dr Raj addressed the participants on An Overview of Technology Forecasting, Assessment and Management. The valedictory address on Forecasting and Foresight in Technology Management was delivered by Prof YS Rajan, Vikram Sarabhai Distinguished Professor, Indian Space Research Organisation, Bangalore. The speakers in the context of the theme Technology Forecasting, Assessment and Management included Prof L Prakash Sai, Dr Soma Sen Roy, Dr Sudhir Kochhar, Dr SS Krishnan, Ms Hemalatha K, Prof Prajit Kumar Basu and Dr Ajit Kumar Behura. The other independent lectures on Non-destructive Evaluation: Some New Paradigms for Indian Industry, Aspects of Life-long Learning, Remote Sensing and GIS Applications, Foreign R&D Centres: Performance and Problems were delivered by Prof Krishnan Balasubramanyam, Dr R Natarajan, Dr BP Lakshmikanth and Dr N Mrinalini respectively. A Silver Jubilee lecture on Designing and Operating a Safe and Secure Cyber Space was delivered by Prof SV Raghavan, Scientific Secretary, Office of the Principal Scientific Adviser to the Government of India, New Delhi.



Participants of the NIAS-DST Training Programme for Women Scientists and Technologists on "Future Challenges to Society" with the Director and the Faculty of NIAS (February 11 and 15, 2013)

Participants of the NIAS-DST Training Programme on "Technology Forecasting, Assessment and Management" with the Director and the Faculty of NIAS (December 17 to 21, 2012)



Apart from the lectures sessions mentioned above, participants presentation session on Sharing of Experiences in different groups were arranged for the programme participants. The theme was on A Major Achievement or Improvement they experienced in their professional career. These presentations also gave an overview of the institutions represented by the participants.

As part of the programme, a visit to the Bharat Electronics Limited, Bangalore was organized to know what is happening on the technology front and a film titled A Bicycle Thief was screened.

The programme was coordinated by Dr MG Narasimhan.

### **In-service Training Programme for IAS Officers**

A one-week in-service training programme for IAS Officers for the year 2012-2013 on the theme Multidisciplinary Perspectives on Urban Development was conducted between November 19 and 23, 2012. The 28 participants in the training programme were middle to senior level IAS officers from various government departments from different States of the country. The training programme was inaugurated by Dr Aromar Revi, Director, Indian Institute of Human Settlement, Bangalore.

The speakers included Dr E Sridharan, Prof Geetam Tiwari, Mr Krishna Byre Gowda, Prof KC Sivaramakrishnan, Dr Gautam Bhan, Prof SL Rao, Dr S Vishwanath and Dr Vivek Kulkarni. The programme concluded with the valedictory address by Mr Ramesh Ramanathan. There were four afternoon sessions for Case Study based group discussions.

The programme was coordinated by Prof Narendar Pani.

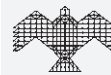
### **Multidisciplinary Perspectives on Science, Technology and Society**

The tenth NIAS-DST training programme on Multidisciplinary Perspectives on Science, Technology and Society was organized from September 24 to October 5, 2012 for Senior Scientists, Technologists and Administrators. The main theme of the programme was Technology, Innovation and Development. Twenty two participants including eight women scientists drawn from various institutions, laboratories and departments in the country attended the programme.

The Programme was inaugurated by Prof Anil K Gupta, Member, National Information Council and Professor, Center for Management in Agriculture, Indian Institute of Management Ahmedabad. Prof Gupta addressed the participants on Innovation: An Overview. The valedictory address on Forces behind Technology, Innovation and Development: A Critical Appraisal was delivered by Prof Rajan Gurukkal PM, Professor and Vice Chancellor, Mahatma Gandhi University, Kottayam. The speakers in the context of the theme Technology, Innovation and Development included Prof Rishikesh Krishna, Dr Soma Sen Roy, Dr M Mayilvaganan, Prof Rajeswari Sarala Raina, Prof Sharada Srinivasan, Prof C Shambu Prasad and Dr MG Narasimhan. The other speakers concerning the theme



Participants of the In-service Training Programme for IAS Officers on "Multidisciplinary Perspectives on Urban Development" with the Director and the Faculty of NIAS (November 19 and 23, 2012)



Multidisciplinary Perspectives on Science Technology and Society covering a wide range of topics from science education to philosophy included Prof Jayashree Ramadas, Dr Hina A Gokhale, Prof Sunil Mani, Prof Lopamudra Choudhury, Prof SS Meenakshisundaram, Prof Amita Chatterjee, Prof BV Sreekantan, Prof DP Sen Gupta, Prof Dilip R Ahuja, Dr Janaki Balakrishnan and Dr SWA Naqvi. A few of the independent topics as special evening lectures on Transport Planning and Traffic Safety, The Higs Boson's Discovery Story were delivered by Prof VS Ramamurthy and Prof Dinesh Mohan respectively including the NIAS Silver Jubilee lecture on 'The future of Cyber Security: Can We Stop It?' by Prof Benoit Morel, Associate Teaching Professor, Engineering and Public Policy and Physics, Carnegie Mellon University, USA.

Apart from the lectures sessions mentioned above, participants presentation session 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 Wheel and Axle Plant, an Unit of Ministry of Railways was organized on as to know what is happening on the heavy industry technology front and an outdoor visit to Hassan and related places of Tourism was arranged and conducted by Mr P Srinivasa Aithal, Head, Administration, NIAS. A Sitar Jugalbandi was organized by the Artistes, Ustad Rafique Khan and Ustad Ustad Shafique Khan from Karnataka.

The programme was coordinated by Dr MG Narasimhan.



Participants of the 10th NIAS-DST Training Programme on "Multidisciplinary Perspectives on Science, Technology and Society" with the Director and the Faculty of NIAS (September 24 to October 5, 2012)



**MG Narasimhan**  
Deputy Programme  
Coordinator  
School of Humanities

Room No. F 24  
Tel: 080-2218 5081  
Fax: 080-2218 5028  
Email:

**Joined NIAS on:** January 2, 1998

**Major research contribution for the academic year:**

Recently Dr MG Narasimhan has identified a new set of links between Evolutionary Biology, Evolutionary Archaeology and Evolutionary Economics based on the idea of Applied Darwinism which provides a generalized meta analytical framework for examining both specific and general issues in these areas.

**About**

Dr Narasimhan has undertaken research in Evolution Studies: Theory and Applications. He has been working in this area with special focus on examining applications of evolutionary concepts in social sciences.

Additionally he has pursued some work in the area of Risk Studies and Risk Communication. He has not been able to do any work in the areas of the Nanoethics and Emergence of Philosophy of Science in India.

As Deputy Programme Coordinator, coordinated with the Department of Science and Technology in conducting various training programmes for Scientists and Engineers drawn from various laboratories coming under the Department of Science and Technology, the Council of Scientific and Industrial Research and related institutions.

**Training Courses**

The 10<sup>th</sup> Annual NIAS–DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society. The main theme of the programme was Technology, Innovation and Development, September 24 to October 5, 2012.

NIAS–DST Programme on Technology Forecasting, Assessment and Management, December 17 to 21, 2012.

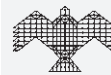
**Lectures**

Presentations made as a member of the Vision Group chaired by Prof CNR Rao. Programme organized by the Karnataka Rajya Vignana Parishad, Bangalore.

What is Science?, Agriculture College, Hittinahalli, Vijapura, February 24, 2013.

What is Science?, Vasavi Kalyana Mantapa, Kampli, Bellary District, February 26, 2013.

The talks were mainly addressed to high school and junior college students. Both talks were given in Kannada language.



# NIAS DOCTORAL PROGRAMME

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 PhD programme is interdisciplinary research, which is carried out within the broad framework of three schools: Humanities, Social Sciences, and Natural and Engineering Sciences. 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 2004-2005 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 which allowed NIAS to offer 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 fifty four students have been part of NIAS doctoral programme since its inception and nineteen students have successfully completed their PhD as of March 2013. Two students have submitted their thesis and are awaiting their defense. While twenty students have currently registered, thirteen are involved in the pre-registration, course work process.

At present thirty five students are enrolled in the doctoral programme at various stages.

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## SCHOOL OF HUMANITIES

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

**Mr Naresh Keerthi**, Cognitive Science  
*Cognitive Tropes – Beyond the Cognitive Metaphor*

**Ms Samiksha Bajpai**, Linguistics  
*A Cognitive Analysis of the Compound Verb in Hindi*

**Ms Namitha A Kumar**, Psychology  
*A Study of Subjectivity and Selfhood in the Context of Subjects with Physical Disabilities: A Theoretical Approach*

### Doctoral Committee

▼ Prof BV Sreekantan, *Chairman*  
Dr Shivali Tukdeo, *Academic Head*  
Dr Sindhu Radhakrishna, *Member*  
Dr Rajesh Kasturirangan, *Member*  
Dr M Mayilvaganan, *Member*



**Ms HR Meera**, Cognitive Science & Sanskrit  
*Language Game and the Role of Suggestion  
(Vyariigya) Therein*

**Ms Nalini NS**, Economics  
*In the process of registration*

**Ms Shatarupa Bhattacharyya**  
*In the process of registration*

**Mr Nishant Seth, Dr Shankar R and Ms Sumitra  
Sundar**  
*In the process of completing course work*

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## SCHOOL OF NATURAL AND ENGINEERING SCIENCES

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**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 Narayan Sharma**, Ecology, Behaviour and  
Conservation (thesis submitted)  
*Primates on the Edge: Ecology and Conservation of  
Primate Assemblages in the Fragmented Lowland  
Rainforests of the Upper Brahmaputra Valley,  
Northeastern India*

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

**Ms Neesha Dutt**, Energy and Environment  
*Urban Greens: Ecological Impacts and Socio-economic  
Drivers of Turfgrass Ecosystems*

**Ms Asmita Sengupta**, Behavioral Ecology  
*Seed Dispersal by Rhesus Macaque (Macaca Mulatta)*

**Ms Shreejata Gupta**, Behavioural Ecology  
*Development of Integrated Gestural and Vocal  
Communication Systems in Wild Bonnet Macaques  
Macaca Radiata*

**Ms Priya Gupta, Ms Priyam Laxmi Borgohain, Mr  
Murali Murti and Mr BR Guruprasad**  
*In the process of registration*

**Ms Nimisha Agarwal and Mr Sanket S Kulkarni**  
*In the process of completing course work*

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## SCHOOL OF SOCIAL SCIENCES

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**Mr K Jafar**, Economics  
*The Impact of Education-Led Growth on Human  
Development: A Case-Study of Malappuram District,  
Kerala*

**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*

**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*

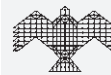
**Ms Sulagna Mustafi**, Anthropology  
*Transnationalism and Muslim identity in Dakshina  
Kannada, India*

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

**Ms S Soundarya Iyer**, Economics  
*Dynamics of Rural Transformation in Karnataka: A  
View from Three Villages*

**Mr Chetan B Singai**, Education  
*In the process of registration*

**Ms Rashmi M**  
*In the process of completing course work*



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GRADUATED STUDENTS – 2012-2013

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SCHOOL OF NATURAL AND  
ENGINEERING SCIENCES

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**Ms Swarnali Majumder**, Mathematics  
*Application of Topology in Inverse Problems: Getting  
Equations from ECG and Sound Data*

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

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School of Social Sciences

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**Ms Anu Joy**, Education  
*Children's Understanding of Scientific Concepts*

**Mr Sailen Routray**, Development Studies  
*Shifting Waterscapes: Tradition, Development and  
Change in Orissa*

# INTANGIBLE HISTORIES: A COLLABORATIVE RESEARCH PROGRAMME IN ARCHAEOLOGY & DRAMA BETWEEN NIAS & EXETER UNIVERSITY, UK



Coordinators: *Sharada Srinivasan, Smriti Haricharan and Anindya Sinha*

NIAS and the University of Exeter in UK were awarded funding for two projects, (under the British Council funded UKIERI-II open competition funding scheme) to run simultaneously from Autumn 2011 to Autumn 2013. These projects relate to the development of two closely associated split-site doctoral programmes, one in areas relating to Archaeology (coordinated by Sharada Srinivasan in NIAS) and the other relating to Drama (coordinated by Anindya Sinha). Moreover, as the programmes in Archaeology and Drama have both been envisaged as being inter-disciplinary in nature and significantly concerned with our intangible heritage, the two

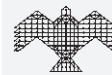
technically independent projects have, in practice, been brought together under an over-arching theme of *Intangible Histories*. Apart from the core strengths of each programme in Archaeology and Drama respectively, the programmes have also sought to engage with the disciplines of philosophy, cognitive studies, social sciences and urban studies in order to create new opportunities for thought and action.

Significant progress has been made in the last year towards the development of the programme with a number of key milestones having been met with respect to staff exchanges and the selection of doctoral students, who would register at Exeter University but work under the joint supervision of faculty from NIAS and Exeter University.

Select members of the NIAS faculty visited Exeter in May 2012 in order to hold interviews for the first cohort of students and to participate in supervisory development sessions. Six studentships were awarded: three in Archaeology and three in Drama. One student on an Exeter AHRC fellowship was also selected to be included in this cohort of students. A second group of NIAS faculty also visited Exeter in September 2012 in order to familiarise themselves with the programme and hold wide-ranging academic discussions with the Exeter faculty in Archaeology and Drama.

Three students in Archaeology from the first cohort, Tathagatha Neogi, Brice Girbal and Marc Cox, will be working on various aspects of the ethno-archaeological and archaeo-metallurgical studies in the Telangana region of Andhra Pradesh under the joint supervision of Sharada Srinivasan of NIAS and Gillian Juleff of Exeter University. It is noteworthy that these studies had already been initiated during the earlier joint UKIERI I research programme (conducted by Srinivasan and Juleff as lead investigators and with S Ranganathan as core investigator and S Jaikishan, Adjunct Faculty, NIAS as field survey leader and co-investigator). A fourth student, Alice Lowson, is investigating the comparative use and value of antiquities in southern India and southwestern England.

The three first-cohort students in Drama include Sabina Sweta Sen, who will work on the semiosis of senses in contemporary and historical Odissi practice under the supervision of Sangeetha Menon (NIAS) and Jerri Daboo (Exeter), Sharanya Murali on performing psycho-geographies of exile in post-Partition Delhi under Carol Upadhyia (NIAS) and Stephen Hodge (Exeter), and Swati Arora on urban intervention as participatory praxis during performances in public spaces in Delhi under Narendar Pani (NIAS) and Catherine Turner (Exeter).



## NIAS SILVER JUBILEE YEAR CELEBRATION

NIAS is celebrating the period from June 20, 2012 to June 20, 2013 as the Silver Jubilee Year of NIAS. A number of activities are planned for the year to highlight the unique mandate of NIAS. The formal event launching the Silver Jubilee Year was a lecture by Dr Isher Judge Ahluwalia, Chairperson of the Board of Governors of the Indian Council for Research on Economic Relations, New Delhi on the "Challenges of Urbanization in India" on June 20, 2012.

A special Volume with a collection of twenty-five selected lectures by NIAS Faculty and guest speakers titled "Dialogues across Disciplines" was released that evening. Earlier in the year, a NIAS Silver Jubilee Brochure was also published. During the day NIAS Faculty interacted with the members of the NIAS Council of Management, and briefed them on various Programmes and research activities, with Poster presentations.

The day concluded with a Jugalbandi music programme by Pandit Vinayak Torvi and Vidwan S Shankar, and was attended by NIAS Associates, invited guests, faculty and others.

Subsequently, the following NIAS Silver Jubilee year Lectures were organised with distinguished guests speaking at NIAS.

### **Prof Ashutosh Varshney**

Sol Goldman Professor of International Studies and the Social Sciences  
Director, Brown-India Initiative, Watson Institute of International  
Studies and Department of Political Science, Brown University, USA  
*Has Indian Federalism Succeeded?*  
July 16, 2012

### **Prof Madhav Gadgil**

Former Chairman, Western Ghats Ecology Expert Panel,  
Ministry of Environment and Forests, Government of  
India and Professor (Retd), Centre for Ecological  
Sciences, Indian Institute of Science  
*Nurturing the Western Ghats: Towards A New Paradigm*  
August 9, 2012

### **Dr Anil Kakodkar**

Chairman, Solar Energy Corporation of India  
Former Secretary, Department of Atomic Energy  
Government of India  
*Development of Solar Energy in India*  
August 20, 2012

### **Prof Benoit Morel**

*Professor in Engineering and Public Policy, Carnegie  
Mellon University, USA*  
*The Future of Cybersecurity: Can We Stop It?*  
September 28, 2012

### **Prof SV Raghavan**

Scientific Secretary, Office of Principal Scientific  
Advisor to Government of India  
*Designing and Operating a Safe and Secure Cyber  
Space*  
December 18, 2012

### **Prof SP Sukhatme**

Professor Emeritus, Department of Mechanical  
Engineering  
Indian Institute of Technology Bombay  
Can India's Future Needs of Electricity be met by  
Renewable Energy Sources?  
January 11, 2013

### **Mr Soli J Sorabjee**

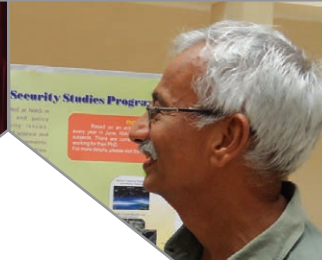
Former Attorney General of India  
*Judicial Activism Boon or Bane*  
March 22, 2013

# NIAS Silver Jubilee Year





# Celebration - A Photo-story



Silver Jubilee  
25  
Years

# NIAS ANNUAL MEMORIAL LECTURES

Four annual memorial lectures were organised – the Dr Raja Ramanna Memorial Lecture, Prof MN Srinivas Memorial Lecture, Dr K Subrahmanyam Memorial Lecture and Smt Lakshmi Nizamuddin Memorial Lecture.

## **Thirteenth MN Srinivas Memorial Lecture**

**Prof Arjun Appadurai**

Paulette Goddard Professor of Media, Culture and Communication  
New York University (USA)

*Corruption as Participation in Neo-Liberal India*

January 24, 2013



*MN Srinivas Memorial Lecture*

## **Eighth Raja Ramanna Memorial Lecture**

**Mr Shivshankar Menon**

National Security Advisor to the Prime Minister of India

*India's External and Internal Security*

January 21, 2013



*Raja Ramanna Memorial Lecture*

## **K Subrahmanyam Memorial Lecture**

**Mr Jaswant Singh**

Hon'ble Member of Parliament, New Delhi

*Borders and National Security*

September 6, 2012



*K Subrahmanyam Memorial Lecture*

## **Second Lakshmi Nizamuddin Memorial Lecture**

**Prof UR Ananthamurthy**

Eminent Litterateur

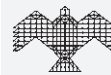
Bangalore

*India as a Nation and Society*

August 10, 2012



*Lakshmi Nizamuddin Memorial Lecture*



# NIAS PUBLIC LECTURES & PROGRAMMES

**Ms Sushma Veerappa**

Bangalore

*When Shankar Nag Comes Asking - Film Screening and Discussion*

March 28, 2013

**Mr Nishant M Srinivasaiah**

National Centre for Biological Sciences, Bangalore

*Of Elephants and Men: My Conversations with JK Dobi*

March 25, 2013

**Prof Zhiyong Hu**

Visiting Scholar, ISSSP, NIAS

Senior Fellow, Institute of Asia Pacific Studies, Shanghai Academy of Social Sciences, Director and Secretary-General, Shanghai Maritime Strategy Research Center

*How to Improve India-China Relations*

March 7, 2013

**Dr Elizabeth (Dori) Tunstall**

Associate Professor of Design Anthropology, Swinburne University of Technology, Melbourne, Australia

*Design Anthropology: Seven Principles of Respectful Designing*

February 19, 2013

**Ms Shashi Deshpande**

Bangalore

*Reducing Crimes Against Women*

January 22, 2013

**Dr Balmurli Natarajan**

Associate Professor, William Paterson University, New Jersey

*Culturalization or Ethnicization? Caste Associations and the Problem of Casteism in India*

December 27, 2012

**Dr S Ananth**

Independent Researcher, Hyderabad

*Culture of Business and Investment in Andhra Pradesh*

November 9, 2012

**Dr Anil Kakodkar**

Former Chairman, Atomic Energy Commission, Mumbai  
*Lowering Threats in Sustainable Development Using Nuclear Energy*

October 30, 2012

**Ustad Rafique Khan and Ustad Shafique Khan**

Karnataka

*Sitar Jugalbandi*

October 4, 2012

**Prof Dinesh Mohan**

Volvo Chair Professor Emeritus, Transportation Research & Injury Prevention Programme

Indian Institute of Technology, Delhi

*Transport Planning and Traffic Safety*

September 27, 2012

**Dr John Alterman**

Director, Middle East Program, Center for Strategic & International Studies (CSIS), Washington DC

*The Middle East Policy of the Next U.S. Administration*

September 10, 2012

**Prof Smriti Srinivas**

Department of Anthropology, University of California, Davis

*A Place for the Self: Religion and Urbanism in Contemporary India*

September 7, 2012

**Prof Amitabh Kundu**

Jawaharlal Nehru University, New Delhi

*Globalisation, Urbanisation and Migration: Facts and Artifacts*

August 14, 2012

**Dr Dipankar Basu and Dr Amit Basole**

University of Massachusetts, Amherst

*The Calorie Consumption Puzzle in India: An Empirical Investigation*

August 2, 2012

**Prof Holger Dalkmann**

Director, WRI's EMBARQ Programme, Washington DC

*Sustainable Transport, Urban Development and Its Impact on Climate Change*

July 24, 2012

**Prof B V Sreekantan**

Visiting Professor, NIAS

*The Discovery of the Higgs Boson – Its Implication to Physics, Astrophysics, Cosmology and Philosophy*

July 19, 2012

**Ms Nivedita Rengarajan**

Arizona State University

*Legislative and Institutional Impacts on Solid Waste Management Systems – Difference in Approach between Hyderabad and Austria*

July 18, 2012

**Prof Nandini Sundar**

Department of Sociology, Delhi University

*Litigating against Counterinsurgency: Reflections on the Judicial Process*

June 29, 2012

**Ms Meena Menon**

Vice President, GKSS (Mill Workers Action Committee), Mumbai

*Globalisation and Challenges for Labour Movement Today*

June 8, 2012

**Dr Helene Ilkjaer**

University of Copenhagen

*The Uncertainties of Return - Preliminary Findings from Fieldwork among Highly Skilled Indian Professionals in Bangalore*

May 21, 2012

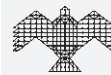
**Dr P V Ramana**

Institute for Defence Studies and Analyses, New Delhi

*India's Maoist Movement: Current Trends, Implications and Way Forward*

May 15, 2012





## NIAS WEDNESDAY DISCUSSION MEETINGS

NIAS Wednesday Discussion Meetings 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.

**Dr TS Gopi Rethinaraj**

*Revisiting Nuclear Reactor Safety: Lessons Learnt from Fukushima for India*  
March 27, 2013

**Dr Nayeem Ullah Khan**

*From Aristotle to Bertrand Russell: The Invariance of Human Thought*  
March 20, 2013

**Dr Hippu Salk Kristle Nathan**

*Measure of Human Development Index (HDI) – The Old, The New and The Elegant*  
March 13, 2013

**Prof Carol Upadhya**

*Developing Coastal Andhra – Notes and Queries from a Field Trip*  
March 6, 2013

**Dr Soumya Prasad**

*Seed Dispersal in Changing Landscapes*  
February 27, 2013

**Dr Brijesh Pazhayathodi**

*Role of RBI in Economic Development*  
February 20, 2013

**Ms Geetha Devi MP, Mr Suresh Babu, IPS (Retd) and Ms Donna Fernandes**

*Panel Discussion on Crimes against Women*  
February 13, 2013

**Dr Sriram Raghavan**

*Digital Forensics*  
February 6, 2013

**Prof Malavika Kapur**

*From Puttur to Timbaktu: A Travelogue*  
January 30, 2013

**Prof MS Sriram**

*The Legacy of Dr Kurien*  
January 23, 2013

**Mr Shivanand Kanavi**

*Indian Contribution to Digital Technology*  
January 16, 2013

**Mr Sunil Mohan and Ms Sumathi Murthy**

*Rape Laws in India-Examining the Experiences of Those Who Are Left Out*  
January 9, 2013

**Ms HT Chandrakala and Ms C Thanuja**

*Image Retrieval System for Kannada Document Images*  
January 2, 2013

**Dr Kumble R Subbaswamy**

*Higher Education in the US Today: An Overview of Challenges*  
December 26, 2012

**Dr N Mrinalini**

*Foreign R&D Centres-Performance and Problems*  
December 19, 2012

**Dr Arun Vishwanathan**

*What Will Deter Iran from Acquiring Nuclear Weapons?*  
December 12, 2012

**Mr KR Sridhara Murthi**

*Perspectives of a National GI Policy*  
November 28, 2012

**Mr Krishna Byre Gowda**

*Dynamics of City Politics*  
November 21, 2012

**Prof Padma M Sarangapani**

*Quality and Pedagogy: An Exploration of School Diversification in an Urban Area*  
November 7, 2012



**Ambassador Saurabh Kumar**

*Reading Tea Leaves: Chinese Politics on the Eve of the 18<sup>th</sup> Congress of the Communist Party of China*

October 24, 2012

**Prof Sharada Srinivasan**

*Old Gold and Copper Workings from Karnataka: Observations from Archaeometallurgical Field Visits of 1990-91*

October 17, 2012

**Dr Søren Ehlers**

*Competences and Learning Outcomes: The Impact of Transnational Policy Tools on National Education and Training Systems*

October 10, 2012

**Dr MG Narasimhan**

*Ethics and Innovation*

October 3, 2012

**Prof Sunil Mani**

*TRIPS Compliance of India's IPR Regime*

September 26, 2012

**Dr VV Binoy**

*Familiarity-Bred Shoaling Decisions in Climbing Perch – A Freshwater Fish*

September 12, 2012

**Dr Rajesh Kasturirangan**

*Knowledge Aggregation*

September 5, 2012

**Dr V Jayasree**

*Quenching the Thirst – The Tale of Bengaluru City*

August 22, 2012

**Prof Narendar Pani**

*Does Development Increase the Potential for Conflict?*

August 8, 2012

**Prof Anitha Kurup**

*A Comparative Study of Women Scientists and Engineers: Experiences in India and the US: Impressions from the Field*

July 25, 2012

**Prof Amit Bhaduri**

*Climate Change But of Another Kind*

July 18, 2012

**Dr MG Narasimhan**

*Some Thoughts on the Value of 'Meaningless' Research in Science*

July 11, 2012

**Dr Sindhu Radhakrishna**

*Songs on Monkeys: Representations of Macaques in Classical Tamil Poetry*

June 27, 2012

**Dr Shivali Tukdeo**

*Strange Burden, Weighing Us Down: Caste, Gender and the Anxieties of English Education*

June 13, 2012

**Dr Smriti Haricharan**

*From Dolmen to Dolmendid: Unraveling Burials in South India*

May 30, 2012

**Dr M Amarjeet Singh**

*States within a State: Demands for New States in India*

May 23, 2012

**Dr Chidambaran G Iyer**

*Urbanization in India and Productivity of Manufacturing Industries: An Empirical Study*

May 16, 2012

**Ms Venetia Kotamraju**

*Following in the Wing-Prints of a 15<sup>th</sup> Century Koel – Re-Tracing the Routes of Sandesha Kavyas with Special Reference to Uddanda Shastri's Kokila Sandesha*

May 9, 2012

**Ms Sushumna Kannan**

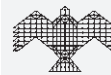
*Is Akka Mahadevi A Feminist? Re-Conceptualizing the Act of a Feminist Reading in the Context of the Indian Traditions*

May 2, 2012

**Dr Nabeel A Mancheri**

*Chinese Strategy on Rare Earth Elements*

April 25, 2012



## NIAS 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 135 distinguished personalities as our associates.

Prof S Settar is the Chairman and Prof PK Shetty is the Coordinator for Associates' Programme.

**Pandit M Venkatesh Kumar**

Dharwad

*Hindustani Vocal*

January 25, 2013

**Pandit Vinayak Torvi and Vidwan S Shankar**

Bangalore

*Jugalbandi*

June 20, 2012

In addition four Silver Jubilee Lectures and Second Lakshmi Nizamuddin Memorial Lecture was also Associates' Programme.



## NIAS LITERARY, ARTS & HERITAGE FORUM

The NIAS Literary, Arts 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.

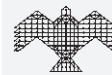
Prof Sharada Srinivasan and Prof Sangeetha Menon are the Coordinators of the NIAS Literary, Arts and Heritage Forum.

**Dr Avanthi Meduri**

Reader in Dance and Performance Studies,  
Roehampton University, London  
*Indian Heritage Arts in the Global World*  
January 4, 2013

**Dr MG Narasimhan**

Deputy Programme Coordinator, NIAS  
*Reading of the short story 'The Bet' authored by AP Chekhov*  
August 29, 2012



# NIAS LIBRARY

## Library Committee

Prof Anindya Sinha, *Chairman*  
Prof Narendar Pani  
Prof N Ramani  
Prof Sangeetha Menon  
Prof Sharada Srinivasan  
Dr Shivali Tukdeo  
Ms Hamsa Kalyani, *Convener*

## Collection

NIAS library continues to strive to meet all research and scholarship needs of its faculty and students. There has been a significant increase in the number of book acquisitions and journal subscriptions during the last four years. This expansion in library collection has been possible with the grant provided by the Jamsetji Tata Trust. The collection is comprehensive and up to date in focused disciplines pertaining to research programmes of the Institute. The library has acquired 640 books during the year taking the total collection to 14,760 books. In addition 27 books in Kannada language and 190 books donations were added to the collection.

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 through this consortium. Current subscriptions also include many individual journal titles published by reputed publishers such as Sage Publications, Wiley, MIT Press and so on, covering a wide range of disciplines. The total number of journal subscriptions is 2709. Access to full text content of 2673 journals as well as online catalogue of library resources is available on the intranet to readers from the library homepage.

Due to escalating journal prices and static library budgets, it became necessary to make journal cuts that least affects our researchers. An online journal usage survey was conducted to know the preferences of specific journal titles in order to make efficient allocation of the available budget for journals. Based on the results of the survey, subscription to 5 international journals and one database has been discontinued from 2013. However new Indian journals of repute will be included to the list of current subscriptions. In order to increase usage of electronic resources, the remote access facility to library subscriptions was introduced during the year via Athens.

The library has subscribed to easy-to-use plagiarism detection software – plagiarisma.net in order to assist faculty and students to scan their writings to avoid plagiarism.

## Library Resources

Sl No.	Library Resources	Numbers
1	Books	14760
2	Kannada Books	247
3	Donations	588
4	Theses	16
5	Current Subscriptions	2709
6	Bound Volumes	1983
7	Data CDs	262
8	CDs	202
9	Lectures on DVDs	342
10	Magazines	6
11	Newspapers	10
12	Audio Tapes and Videos	1300

## Service

### Alerting Services

Book arrival notices to the individual who has recommended the book as well as monthly list of acquisitions is circulated on regular basis. On an average, about 55 new books were displayed every month in the library throughout the year.

### *Circulation and Reference Services*

The number of documents issued during the year is 1651 and the total number of photocopies made and articles printed by library users is 26374 pages. NIAS library is an open reference library with a pleasant ambience and adequate facilities for study and library research. Therefore the library has attracted a number of serious scholars in the recent years. The library had 700 visitors during the year.

### *Interlibrary Loan Services (ILL)*

As no library can be self-sufficient, it is a common practice amongst Libraries to share resources. Interlibrary loan service which is a resource sharing activity provides library users access to materials needed for research but not available in the collections of NIAS library. NIAS library has arrangements for resource sharing with Libraries of institutions such Indian Institute of Science, Raman Research Institute, Indian Space Research Organisation, National Centre for Biological Sciences, Indian Institute of Astrophysics, National Aerospace Laboratories, and Institute for Social and Economic Change. NIAS is also institutional member of Indian Institute of Management Library. During the current year, NIAS library has initiated an ILL arrangement with Azim Premji University Library and Ashoka Trust for Research in Ecology and Environment Library.

### *Infrastructure*

The infrastructure includes two Linux servers used to run applications such as Libsys and eprints software, one Windows server connected to 5 thin clients used for browsing and desktop applications, one workstation to store databases, 3 personal computers as well as one printer-copier-scanner machine.

## **Outreach**

JSTOR is one of the world's most trusted sources for academic content and scholarship with more than 1600 academic journals. NIAS library continues its subscription to this resource and facilitated a JSTOR Regional Meet on 6<sup>th</sup> September 2012 along with INFLIBNET and JSTOR at NIAS to showcase the new resources and features of JSTOR for the benefit of Librarians. About 60 Librarians from Southern India participated in this meeting.



**Hamsa Kalyani**  
Deputy Librarian

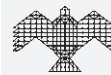
**Joined NIAS on:** May 1, 1992

### **Lectures**

Room No. G 01  
Tele: 080-2218 5022  
Fax: 080-2218 5028  
Email: hamsakalyani@  
yahoo.co.in

- a. Scholarly Communication and eScholarship, Training programme Organized by DESIDOC and INMAS-DRDO Libraries for the Future: Emerging Trends and Technologies in Collection, Competencies and Cooperation on December 3, 2012.
- b. E-Resources, NIAS Foundation Course, August 23, 2012.





# CONSOLIDATED LIST OF PUBLICATIONS

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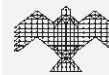
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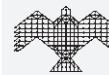
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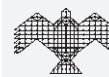
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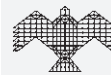
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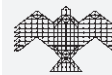
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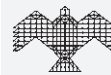
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# NIAS ADMINISTRATION



**P Srinivasa Aithal**  
Head, Administration  
& Finance

Room No. G 14  
Tele: 080-2218 5020  
Fax: 080-2218 5028  
Email: admin@nias.  
iisc.ernet.in

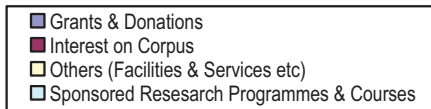
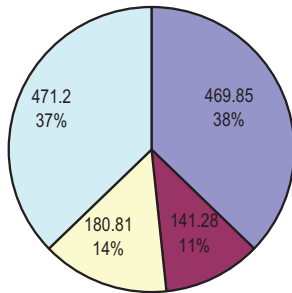
**Joined NIAS on:** November 1, 1995

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 fulfilment 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).

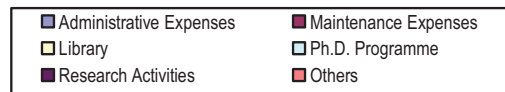
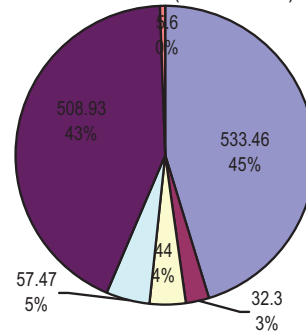
Besides management of all resources such as infrastructure, finance, human resources, estates etc. general administrative matters are also handled by Head (Admin. & Finance). Administration enables recruitment and deployment of staff, servicing their needs and empowering them to effectively contribute to the objectives of NIAS. It services the students programme in which twenty-five students work for their PhD 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 2012-13 is given below:

**Cash Inflow (Rs. in lakhs)**



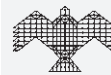
**Cash Outflow (Rs. in lakhs)**



NIAS has a specified investment of Rs.1809.22 lakhs (exclusive of project funds) as on March 31, 2013.

During the year, the Institute has received 5 new research projects with a total value of Rs.157.62 lakhs. Total value of projects handled during the year including the projects sanctioned in the earlier years was Rs.1425.67 lakhs. Foreign exchange component included in this sum was Rs.203.81 lakhs.

The Institute is happy to state that an Employees' Group Gratuity Fund has been instituted during the year 2012-13 with the LIC of India. The present value of past service liability amounting to Rs.112.32 lakhs have also been deposited out of the current year's revenue.



# FINANCIAL REPORTS

## AUDITOR'S REPORT

### The Members of National Institute of Advanced Studies

#### Report on the Financial Statements

We have audited the financial statements of the "NATIONAL INSTITUTE OF ADVANCED STUDIES", Indian Institute of Science Campus, Bangalore – 560 012, which comprise the Balance Sheet as at 31st March, 2013 and the Statement of Income and Expenditure Account for the year then ended and a summary of significant accounting policies and other explanatory information.

#### Management's Responsibility for the Financial Statements

Management is responsible for the preparation of the financial statements. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to express an opinion on the financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion and to the best of our information and according to the explanations given to us, the said accounts give the information required and give a true and fair view in conformity with the accounting principles generally accepted in India:

- 1) In the case of the Balance Sheet, of the state of affairs of National Institute of Advanced Studies as at 31<sup>st</sup> March, 2013.
- 2) In the case of the Income and Expenditure Account, of the Excess of Income over Expenditure for the year ended on that date.



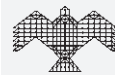
**We further report that:**

- a) The Balance Sheet and Income and Expenditure Account dealt with by this report, are in agreement with the books of accounts.
- b) In our opinion, proper books of account as required have been kept by the Institute so far as appears from our examination of those books.

for B.R.V. GOUD & CO.,  
Chartered Accountant  
FRN No. 000992S

Place: Bangalore  
Date: 20.06.2013

Sd/-  
(A.B.ShivaSubramanayam)  
Partner  
M No. 201108



## Balance Sheet

(Amount in Rupees)

Particulars	As at 31 March 2013	As at 31 March 2012
<b>Sources of Funds:</b>		
Capital Fund	77,299,030	77,299,030
Corpus Funds	33,500,000	33,500,000
Other Funds	178,192,264	182,726,710
	<b>288,991,294</b>	<b>293,525,740</b>
<b>Application of Funds:</b>		
<b>Fixed Assets</b>		
Gross Block	154,214,926	162,049,764
Less: Depreciation Block	91,360,593	91,898,957
Net Block	<b>62,854,333</b>	<b>70,150,807</b>
<b>Investments</b>	<b>221,842,445</b>	<b>210,791,445</b>
<b>Current Assets, Loans and Advances</b>		
Advances, Deposits & Receivables	1,243,598	2,320,550
Cash and bank balances	2,517,063	3,427,683
	<b>3,760,661</b>	<b>5,748,233</b>
<b>Less: Current Liabilities and Provisions</b>		
Current Liabilities	2,843,724	423,173
Provisions	1,172,723	1,770,906
	4,016,447	2,194,079
<b>Net Current Assets</b>	<b>(255,786)</b>	<b>3,554,154</b>
Excess of expenditure over income	4,550,302	9,029,334
	<b>288,991,294</b>	<b>293,525,740</b>

As per our report of even date,  
for B.R.V.GOULD & CO.,  
CHARTERED ACCOUNTANTS  
FRN 000992 S

Sd/-  
(PROF. V S RAMAMURTHY)  
DIRECTOR

PLACE: BANGALORE  
DATE : 20 JUNE 2013

Sd/-  
(A.B.SHIVA SUBRAMANYAM)  
PARTNER  
M.NO. 201108

Sd/-  
(P. SRINIVASA AITHAL)  
HEAD-ADMINISTRATION

## Income and Expenditure account

(Amount in Rupees)

Particulars	Year ended 31 March 2013	Year ended 31 March 2012
<b>Income:</b>		
Grants and Donations	46,984,600	44,300,000
Interest on Investments	18,002,930	14,097,622
Overhead & Administrative Charges	9,507,309	7,403,456
Miscellaneous Income	3,803,717	4,353,940
	<b>78,298,556</b>	<b>70,155,018</b>
<b>Expenditure:</b>		
Administrative Expenses	51,466,609	35,408,980
Repairs and Maintenance	3,230,494	2,842,152
Research, Symposia, etc.	2,588,434	742,165
Professorship	1,955,231	2,144,497
PhD Programme	5,746,507	4,736,997
Depreciation	8,832,249	9,599,728
	<b>73,819,524</b>	<b>55,474,519</b>
Surplus/(Deficit) for the year	4,479,032	14,680,499
<b>Less:</b> Prior period adjustment	0	21,106
<b>Add:</b> Balance in income and expenditure account brought forward	(9,029,334)	(23,688,727)
<b>Balance Carried forward to the balance sheet</b>	<b>(4,550,302)</b>	<b>(9,029,334)</b>

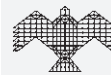
As per our report of even date,  
for B.R.V.GOULD & CO.,  
CHARTERED ACCOUNTANTS  
FRN 000992 S

Sd/-  
(PROF. V S RAMAMURTHY)  
DIRECTOR

Sd/-  
(A.B.SHIVA SUBRAMANYAM)  
PARTNER  
M.NO. 201108

PLACE: BANGALORE  
DATE : 20 JUNE 2013

Sd/-  
(P. SRINIVASA AITHAL)  
HEAD-ADMINISTRATION



Sponsored projects income and expenditure account (consolidated)

For the year ended 31st March, 2013

Particulars	Scientific Research 2012-13	Scientific Research 2011-12	Social Science Research 2012-13	Social Science Research 2011-12
	Rs.	Rs.	Rs.	Rs.
<b>A. INCOME:</b>				
Projects Receipts	36,024,097	39,189,571	11,048,939	10,186,147
<b>TOTAL (A) Rs.</b>	36,024,097	39,189,571	11,048,939	10,186,147
<b>B. EXPENDITURE:</b>				
Projects Expenditure	38,428,800	33,306,924	9,966,870	8,014,109
Depreciation	0	553,714	0	17,896
<b>TOTAL (B) Rs.</b>	38,428,800	33,860,638	9,966,870	8,032,005
<b>C. SURPLUS/(DEFICIT) FOR THE YEAR (A-B) TRANSFERRED TO PROJECTS FUND</b>	(2,404,703)	5,328,933	1,082,069	2,154,142

As per our report of even date,  
for B.R.V.GOUD & CO.,  
CHARTERED ACCOUNTANTS  
FRN 000992 S

Sd/-  
(PROF. V S RAMAMURTHY)  
DIRECTOR

Sd/-  
(A.B.SHIVA SUBRAMANYAM)  
PARTNER  
M.NO. 201108

PLACE: BANGALORE  
DATE : 20 JUNE 2013

Sd/-  
(P. SRINIVASA AITHAL)  
HEAD-ADMINISTRATION

# NIAS COUNCIL OF MANAGEMENT

**Prof MS Swaminathan (Chairman)**

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

**Prof P Balaram**

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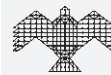
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Roddam Narasimha

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Visiting Professor*  
DP Sen Gupta  
S Gopal, *Sir Ashutosh Mukherjee  
Visiting Professor*  
Malavika Kapur  
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SS Meenakshisundaram  
Rajaram Nagappa  
N Ramani  
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Lalitha Sundaresan

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BV Sreekantan

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Carol Upadhya

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Sindhu Radhakrishna

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Chidambaran G Iyer  
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M Mayilvaganan  
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M Amarjeet Singh  
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Durba Biswas  
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Hippu Salk Kristle Nathan

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MG Narasimhan

## Deputy Librarian

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P Satish Bhat

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KS Rama Krishna  
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Gayathri N Lokhande

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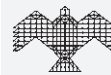
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Antoine Bousquet (*till October 2012*)  
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Vijay Chandru  
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Arundhati Ghose (*till April 2012*)  
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Kota Harinarayana  
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MR Hegde  
MB Hiremath  
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