

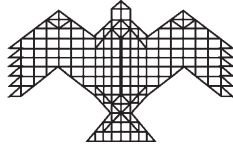


NATIONAL INSTITUTE OF ADVANCED STUDIES

Bangalore, India



ANNUAL REPORT
2013 – 2014

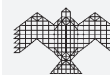


NATIONAL INSTITUTE OF ADVANCED STUDIES
Bangalore, India



ANNUAL REPORT
2013 - 2014

From the Director	3
Schools	5
Clusters and Programmes	7
<i>Cluster – Foundations</i>	8
Cognition	9
Complex Systems	13
Consciousness Studies	17
 <i>Cluster – Science, Technology and Culture</i>	26
Agroecology and Biosecurity	27
Ecology, Behaviour and Conservation	32
Energy and Environment Policy	44
Heritage Science and Society	53
RBI Programme on Interdisciplinary Approaches to Economic Issues	64
 <i>Cluster – Strategy, Security and Conflicts</i>	73
Conflict Resolution	74
International Strategic and Security Studies Programme	76
Water Sharing and Conflicts	90
 <i>Cluster – Social Transformations</i>	93
Education Portfolio	94
Mobility and Transnationalism	103
Invited Visiting Chair Professors	109
NIAS Training Programmes	111
NIAS Doctoral Programme	115
Intangible Histories: A Collaborative Research Programme in Archaeology and Drama between NIAS and Exeter University, UK	118
NIAS Silver Jubilee Year Celebration	120
NIAS Annual Memorial Lectures	120
NIAS Public Lectures and Programmes	122
NIAS Wednesday Discussion Meetings	124
NIAS Associates’ Programme	126
NIAS Literary, Arts and Heritage Forum	127
NIAS Library	128
Publications	130
NIAS Administration	139
NIAS Financial Reports	141
NIAS Council of Management	146
NIAS Society	147
NIAS Staff	148
NIAS Adjunct Faculty	150



FROM THE DIRECTOR



In this page, it is customary for the Director to highlight the significant achievements of the Institute during the year. I have chosen to deviate from this practice this time. I will be completing my tenure of five years as Director NIAS on August 31, 2014 and as such, this will be the last Annual Report carrying my message as the Director. I will like to take this opportunity to look back and assess the performance of NIAS during these five years.

Let me begin by recalling the foundational mandate of NIAS as visualised by its founding Chairman, Mr. JRD Tata - an institution that would bring together persons from different streams of national life to address the challenges facing India without being shackled by disciplinary boundaries. The Institute was expected to use multidisciplinary research to gain fresh insights into issues affecting India and to use those insights to both transform policies as well as to improve the quality of popular discourse.

In the pursuit of this goal, over the last twenty-five years, NIAS has moved from a stage where multidisciplinary research was dependent on individual preferences to a Programme oriented approach that institutionalizes such research as well as the mechanisms through which they influence policy and public discourse. The last five years, in particular, have seen a clear Programme led direction given to the Institute, driven by an institutional support grant from the Tata Trust.

The proposal to the Tata Trust that resulted in the financial support for five years beginning in 2009 focused on 6 Programmes: the International Strategic and Security Studies Programme, the Cognition Programme, the Conflict Resolution Programme, the Education Programme, the Water Programme, and Agro-ecology and Biosecurity Programme. While implementing these Programmes, efforts were also made to extend the Programme led approach to the rest of the Institute as well. This led to the emergence of 14 Programmes. This spread of Programmes met two specific short-term objectives. First, it resulted in a Programme-led approach covering the entire Institute and not just a part of it. This Programme-led approach also allowed for research to be focused on specific issues affecting the country rather than in terms of individual disciplines. It enabled those seeking answers for specific questions to tap resources from multiple disciplines. With this approach being extended across the Institute it strengthened the multidisciplinary character of NIAS. Second, by allowing Programmes to emerge from the skill sets that were available at NIAS, rather than confining the effort to a set of Programmes imposed from above, it was possible to explore the inherent strengths of the Institute.

I will like to recall some of the significant achievements of NIAS during these five years.

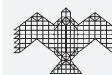
1. The NIAS proposal to realign the Indian Standard Time (IST) to GMT+6:00 hrs instead of the present GMT+5:30 hrs is in an advanced stage of consideration by the Government. This will be an one time measure that will lead not only to a better utilization of day light by the NE states but also to reduced peak demands and net energy saving across the country.
2. NIAS has emerged as a unique platform where the country's strategic and security concerns are viewed through a Science and Technology lens. NIAS has not only built up a comprehensive data base on the nuclear and missile arsenals of Pakistan, China, Iran and North Korea but has also augmented the same with their capabilities in the space domain. NIAS's study of how China Integrates its Technological Developments and Capabilities into its National Strategy is a unique attempt.
3. In collaboration with Delhi University and Agasthya Foundation, NIAS has been implementing a Programme on Gifted Education with a focus on developing parameters and tools for identifying gifted children in the age group 3-15 years. Several resource materials in the area of gifted education have been developed and disseminated widely. Several sensitization Programmes including parents training, teachers training and outreach initiatives have been implemented. NIAS has indeed emerged as the focal point of gifted education in the country.
4. The Policy Paper on Crop Protection Stewardship published by NIAS is being extensively referred to both nationally and internationally.
5. The NIAS reports on the working of the MGNREGS and the JNNURM in Karnataka established the mechanisms through which local realities could distort the working of national strategies. The extension of this argument to the proposal to replace the Public Distribution System with cash transfers led to interesting debates at the national level.
6. A significant achievement of the Conflict Resolution Programme has been its contribution to easing the knowledge deficits about conflicts in different parts of the country, especially in popular discourse. The NIAS backgrounders about specific conflicts, particularly in the northeast and on interstate river water disputes, have been well received. I am happy to draw your attention to a recent NIAS monograph "River Water Sharing: Transboundary Conflict and Cooperation in India" edited by Dr. Shantha Mohan that has been recommended by MIT for supplementary reading in a course entitled "Water in Planning, Policy and Design: A Multi-Scale Approach" offered for Spring 2013.

Sustaining this approach over the long term is however not without its limitations, the most important of which is that of the Institute spreading its resources too thinly thereby creating Programmes that are sub-optimal in size. There is obviously a need to consolidate the Programmes in a way that takes the multidisciplinary research at NIAS to the next stage. This process of consolidation includes bringing together Programmes that in practice have shown a convergence.

The current pattern of NIAS finances has played a critical role in enabling the Institute to bring its Programmes to their current levels. Despite the multiple sources of funds that NIAS has endeavored to develop, the reliance on the Tata Trust is still quite substantial at over a third of the revenue in 2013-14. This support may not be sustainable in the long run even if the Institute continues at its current level of activity and growth.

There is a clear need to work towards an alternative model for financing the Institute. When working towards an alternative model, it is necessary to keep three imperatives in mind. First, there is a need to further diversify the sources of funds. The overall expansion in the activities of the Institute that is being proposed may require funding on a scale that no single source may be willing to provide. Equally important, the concerns of each Programme may appeal to different sources of funding. Second, in order to tap multiple sources more effectively, there is a need to recognise the multiple levels at which funds could be sought. In addition to funding the Institute as a whole, as well as funding individual Programmes, other opportunities like generating sustained funds for individual professorships, also need to be explored. Third, it is important to develop a system where fund givers are given due recognition without compromising the overall character of the Institute.

I am thankful to the Tata Trust and to the NIAS Management Council for the unstinting support that I received during the last 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 (till December 31, 2013)*

SCHOOL OF NATURAL AND ENGINEERING SCIENCES

Members

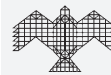
Prof Dilip R Ahuja, *ISRO Professor of S&T Policy*
Prof PK Shetty, *Professor*
Prof Anindya Sinha, *Professor and Dean, Academic Affairs*
Mr Pallava Bagla, *Shri TV Raman Pai Visiting Professor*
Prof S Chandrashekar, *JRD Tata Visiting Professor*
Prof S Gopal, *Sir Ashutosh Mukherjee Visiting Professor (till April 30, 2013)*
Prof DP Sen Gupta, *Visiting Professor*
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 Nabeel A Mancheri, *Assistant Professor (till September 30, 2013)*
 Dr M Mayilvaganan, *Assistant Professor*
 Dr Hippu Salk Kristle Nathan, *Assistant Professor*
 Dr Arun Vishwanathan, *Assistant Professor*
 Dr VV Binoy, *Post-doctoral Associate*
 Dr Shoibal Chakravarty, *Research Consultant*

SCHOOL OF SOCIAL SCIENCES

Members

Prof Anitha Kurup, *Professor*
 Prof Narendar Pani, *Professor*
 Prof Carol Upadhy, *Professor*
 Prof SS Meenakshisundaram, *Visiting Professor*
 Prof N Shantha Mohan, *Visiting Professor*
 Dr Anshuman Behera, *Assistant Professor*
 Dr Chidambaran G Iyer, *Assistant Professor*
 Dr M Amarjeet Singh, *Assistant Professor (till July 12, 2013)*
 Dr Shivali Tukdeo, *Assistant Professor*
 Dr Durba Biswas, *Post-doctoral Associate (till May 24, 2013)*
 Dr Khalid Wasim Hassan, *Post-doctoral Associate (From July 9, 2013 to August 11, 2013)*
 Dr V Jayasree, *Post-doctoral Associate (till November 30, 2013)*
 Dr Leah M Koskimaki, *Research Fellow (till December 31, 2013)*



CLUSTERS AND 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 and Culture Cluster

Strategy, Security and Conflicts Cluster, and

Social Transformations Cluster

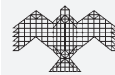
We believe that the Cluster approach outlined above has the ability to bring diversity to the common cause of addressing specific problems while allowing the different Programmes within each Cluster to benefit from each other even as all of them can fall back on the Foundation Cluster to ensure that the new multidisciplinary insights are based on strong academic foundations.



CLUSTER - FOUNDATIONS

Programmes

- Cognition
- Complex Systems
- Consciousness Studies



COGNITION PROGRAMME

Introduction

The Cognition Programme at NIAS pursues an interdisciplinary approach to the study of the mind in humans and in other species. We conduct empirical studies of linguistic, communicative and neural phenomena and combine those with philosophical and theoretical analysis derived from Indian philosophy, embodied cognition and cognitive linguistics.

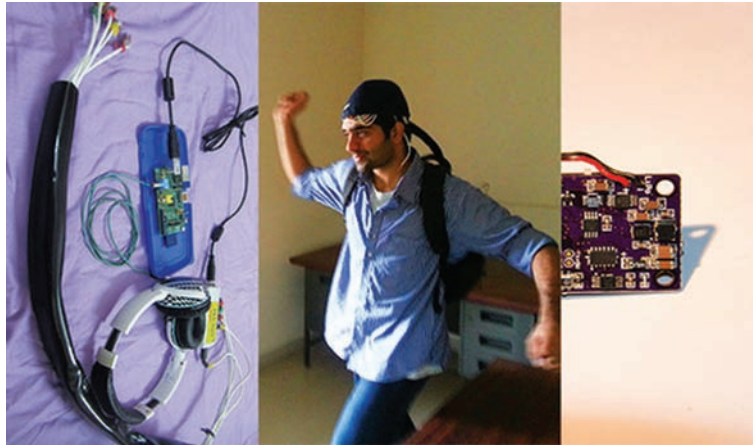
The combination of theoretical and empirical research has led us to study the mind in non-traditional ways. For example, we have looked at aspects of Indian languages such as response tokens and compound verbs through a new lens. We have also developed new technological tools to study human experience 'in the wild' that is beginning to give us insight into the relationship between the brain and experience.

Throughout, our goal has been to shed light on human and non-human experience using a diverse range of tools. While we can't claim to have understood this most elusive of subjects, we believe that we are at the beginning of an era that brings the sciences and the humanities together in this quest.

Updates and Progress

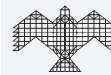
This year saw continuities as well as shifts in the focus of our research. Our work on language and gesture progressed considerably. We are in the final phase of the investigation of gesture and language in Bengali, finishing our work on cognitive polysemy in Sanskrit and new experiments on the processing of compound verbs. This work shows convincingly that there's continuity between linguistic phenomena such as polysemy and homologous phenomena in gesture such as polysemiosis. We believe that this continuity is tied to the bodily nature of all our cognitive capabilities. That hypothesis is being investigated actively using a framework called "rational embodiment." If shown to be valid, our work will show that the mind is a system whose behaviour derives from common principles across sensory, motor and linguistic modalities. While grounded in science, our work in this area has a strong humanistic component. We are applying our work to the study of literary texts from the Sanskrit and other Indian traditions.

In our pursuit of these common principles, we are also beginning to extend our work from concepts and their communicative correlates in language and gesture to multimodal cognition (i.e. cognition that involves visual, auditory and other sensory modalities) in a project that extends the study of cognition to non-traditional phenomena such as the visual media. This work is being initiated in collaboration with colleagues at UCLA and Case Western. We are beginning to explore how the visual media - the news for example - use cognitive techniques of blended joint attention to achieve their communicative aims. This project also introduces big data techniques into the study of multimodal cognition. Finally, we have begun work in neurophenomenology and the cognitive humanities. Our work on using off the shelf EEG technology led to the development of the BrainTone device and we are beginning to collect data on how humans perform sensory substitution tasks.



Outreach

This year, we did not conduct much outreach since the programme anchor was on leave. The main outreach event was a workshop on off the shelf neural technology that was held on August 24, 2013 that was attended by about a hundred people from across Bangalore.



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 NIAS on: May 1, 2006

Major Research Contribution for the Academic Year

For the past few years, I have been interested in the study of big data techniques. This year, that interest came to fruition in work that extends my study of concepts to the study of multimedia in collaboration with colleagues at UCLA and Case Western. My UCLA colleague has built the world's largest archive of news media and we are beginning to apply the theoretical work I have on concepts to the extraction of patterns in this multimedia dataset.

About

I have always believed that the mind is both an object to be studied using the tools of the natural sciences and a subject to be understood using the tools of the humanities. Mental phenomena are both events in our brains and experiences in our minds. My goal throughout has been to bring these two perspectives together in the study of the mind. The naturalistic study has led me in the direction of theoretical and mathematical modeling and more recently, toward the building of sensory augmentation devices. The humanistic study has led me towards linguistics and philosophy, especially cognitive linguistics and Indian philosophy.

From my engagement with Indian philosophy, I have learned that the space of options in the universe of embodied cognition is much greater than what's been explored in embodied cognition as it is being researched today. So far, embodied cognition has focused on specific cognitive and perceptual phenomena even as it looks to go beyond a modular approach; the modular methodology continues to have influence even as its theoretical basis is disputed. I believe that in order to truly test the embodied approach empirically, we need an integrative method that doesn't look at language alone or perception alone, but a parallel investigation of these phenomena. That integrative investigation of language, gesture, perception and motor action has been the focus of my work.

Lectures

- a. Indian Philosophy and Embodied Cognition, Mind and Life Institute, January 18, 2014.
- b. Embodiment, Flourishing and Education, Azim Premji University, September 2, 2013.
- c. Rational Embodiment, UCLA, June 12, 2013.

Doctoral Students of the Cognition Programme



Rolla Das

She has produced a very interesting and comprehensive body of work on gestures in Bangla, the first such research in an Indian language. We have three papers in the pipeline. Two of them were submitted this year and we are in the process of revising and resubmitting them and a third paper will round off her thesis. She is expected to finish this year.

Naresh Keerthi

He has been working on the interface between embodiment and polysemy. The first two papers from that research are being completed. We will be submitting them in the next two months. Naresh's work is closely tied to the literary traditions in Sanskrit and that aspect of his work will also feed into the Cognitive Humanities project.



HR Meera

Her progress has been impeded due to major health problems, but she is getting back on track. Her first paper is being submitted.

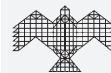
Samiksha Bajpai

Her work on compound verbs is maturing. Our experimental paper on the psycholinguistics of Hindi compound verbs was well received in the association for cognitive science conference in Delhi and we are submitting it as a paper. She is conducting experimental research at the University of Hyderabad and we will soon be starting a collaboration with Prof Soma Paul of IIIT Hyderabad on extending our work on Hindi to Bangla.



Nishant Seth

His work on sensory substitution and neurophenomenology is maturing. He has led the development of the BrainTone device and our first paper is being submitted to Frontiers in Human Neuroscience.



COMPLEX SYSTEMS PROGRAMME

Introduction

In the Complex Systems Programme, we aim to understand the dynamics underlying complex phenomena observed in Nature and in daily life. Nonlinearities in a system give rise to complex behaviour – different kinds of nonlinearities produce different varieties of complex dynamics. How do individual elements constituting a system interact with each other via mutual interactions and couplings to produce collective behaviour exhibited by the whole system? Often, systems behave in a completely unpredictable and unexpected way. Is it possible to understand why systems behave the way they do and is it possible to gain control over their dynamics? In the Complex Systems Group, we seek to address these questions. The dynamics of flows (systems described by equations evolving continuously in time) as well as maps (discrete systems) are investigated in physical as well as biological systems. Subjects as varied as fluid dynamics, celestial motion, structural stability of buildings, climate dynamics, geodynamics, econodynamics, neurodynamics, morphogenesis, cellular processes, pattern formation, etc. can be studied using tools and techniques of dynamical systems theory.

In the group, we are currently studying theoretical problems having potential for immediate use in biomedical applications, industrial applications, technology development of useful gadgets, etc. We have been focusing on the following areas of work, all distinct from the other, in recent times. One area of work concerns the modelling of population cycles in ecological systems. Another area of work is in the area of bubble dynamics and acoustic (inertial) cavitation which has industrial and biomedical applications. A third area of work is in understanding some unusual kind of bursting oscillations observed in certain electronic circuits which have applications in living systems. We are also pursuing theoretical work on modelling sensory processes in living systems on the one hand, and modelling the influence of environmental conditions on crop yield using real data on the other.

Updates and Progress

Studies of Q-deformed Maps

Studies of the stability of some q-deformed discrete maps have been done. One application of such deformed maps has been identified in studies of population dynamics in ecological systems. Collaborators for this study include Ms Sudharsana V Iyengar (University of Hyderabad).

Studies of Dynamics of Ecological Systems

We have used the concept of q-deformation of numbers to improve and modify a tritrophic model of defoliation of coniferous forests due to insect outbreaks. In particular, the dynamics of the population of the larch bud-moth, an insect responsible for rapid defoliation of larch trees has been studied, incorporating effects of the observed parasitoid infestation of the bud-moths, and possible environmental effects for variation of the larch needle lengths. Our results are in qualitative agreement with observed data spanning 50 years and the plant quality index (larch needle lengths), bud-moth population and parasitoid populations are all cyclic with a periodicity of 9 years, in complete agreement with experimental observations. The resulting publications are mentioned below. Collaborators for this study include Ms Sudharsana V Iyengar (University of Hyderabad).

Studies of Nonlinear Bubble Oscillations and Acoustic Cavitation

We investigated in detail, the implosion of micron-sized bubbles bearing constant surface electric charge, suspended in liquids, forced into violent oscillations by ultrasound. Various physical bounds such as the Blake pressure threshold, the upper transient pressure threshold, and the maximal amount of charge a bubble of a particular radius could bear, were obtained. Since micron-sized bubbles in the blood and tissues of living organisms actually are electrically charged, we believe our results are of great importance to medical applications of ultrasound, besides being relevant for use of ultrasonics in the industry, and for propellers and machinery vibrating in fluids, since acoustic cavitation is reckoned to be a key cause of wear in materials. The resulting

publications are mentioned below. Collaborators for this study include Dr B Ashok (IIIT-B) and Mr Thotreithem Hongray (University of Hyderabad).

Studies of Unusual Nonlinear Oscillatory Behaviour Observed in Certain Real Systems

We have identified the nature of the dynamics underlying an unusual oscillatory bursting behaviour in diffusively coupled Josephson junctions. This has in turn enabled us to understand in part similar bursting activity observed in coupled pyramidal neurons in living systems. Collaborators for this study include Prof Syamal K Dana (IICB, Kolkata) and Mr Thotreithem Hongray (University of Hyderabad).

Modelling Sensory Systems

Work on aspects of sound detection by the inner ear, and on signalling activity by coupled neurons is being continued. Collaborators on some these different aspects are Dr B Ashok (IIIT-B) and Prof N Kumar (Raman Research Institute).

Modelling Environmental Influence on Crop Yield

The object of this collaborative effort, started sometime back, is to model the influence of environmental conditions on agricultural output, using data measured in a region of southern India. The work is yet in progress, pending awaited data. Collaborators for this study include Dr B Ashok (IIIT-B) and Dr M Murugan (Cardamom Research Station, Kerala Agriculture University).

Outreach

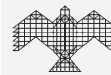
Mentorship for Student Summer Project

Dr J Balakrishnan acted as the mentor for DST-Inspire Scholar Mr Anindya Pattanayak (6th semester student of five year Integrated M.Sc. Programme, Visva-Bharati, Santiniketan) for his summer project (June 6 to August 5, 2013) on Behaviour of a Spring Mass Oscillator with Variable Mass.

Publication of an Edited Volume

A book edited by J Balakrishnan and BV Sreekantan, entitled *Nature's Longest Threads: New Frontiers in the Mathematics and Physics of Information in Biology* is being published by World Scientific Publishing Co. Pte. Ltd, Singapore (2014) (currently, in press). The edited volume is an effort to bring to focus diverse viewpoints and developments in the area of information transfer in biology. The book includes contributions from different Cluster areas at NIAS, showcasing how different approaches all contribute to understanding nature. The volume includes also lectures given at the workshop on Application of Physics, Mathematics to Cognition and Consciousness, held at NIAS on March 11 and 12, 2013.

Participation of Ph.D. students Ms Sudharsana V Iyengar and Mr Thotreithem Hongray in the ICTP-ICTS Winter School on Quantitative Systems Biology, December 9 to 20, 2013, held in IISc, Bangalore.



Members of the Complex Systems Programme



Janaki Balakrishnan, *Anchor*

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 Academic Year

- a. Q-deformation of numbers and functions, though long-known (Euler (1748), Heine (1878), FH Jackson (1904)), had thus far been mostly of academic interest rather than of practical use. We have proposed an ecological model using q-deformed numbers and functions based on a modified form of a known tritrophic model, for explaining population cycles of the larch bud-moth insect which is responsible for large scale destruction of coniferous forests at high altitudes. Our results are in excellent agreement with actual observations and correctly reproduce the 9-year periodicities seen both in bud-moth populations as well as in larch needle-lengths.

We give a physical interpretation of the q-deformation parameter, not known so far, in the context of the model.

- b. Our work on bubble dynamics and acoustic cavitation is the first in the literature giving actual pressure and charge thresholds for a charged microbubble in a fluid subjected to ultrasound. This is useful in medical diagnostics & for industrial applications as typically, bubbles in fluids carry negative surface charge that is not accounted for.

About

Janaki Balakrishnan is a theoretical physicist. She obtained her Ph.D. in theoretical high energy physics from the University of Delhi. She has 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. She was an Associate Professor of Physics at the Central University of Hyderabad until recently, before moving to Bangalore. At NIAS, she anchors the Complex Systems Programme in the School of Natural and Engineering Sciences. Her 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.

Academic Course

Mathematical Methods in Course 201: Research Methodology Course (January-April, 2014).

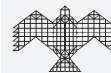
Training Course

Mentor for DST-Inspire Scholar Mr Anindya Pattanayak (6th semester student of 5 year Integrated M.Sc. Programme, Visva-Bharati, Santiniketan) for his summer project (June 6 to August 5, 2013) on Behaviour of a Spring Mass Oscillator with Variable Mass.

Other Information

Referee for the following journals:

- a. Physical Review Letters (Published by the American Physical Society)
- b. Physical Review E (Published by the American Physical Society)
- c. Physical Review D (Published by the American Physical Society)
- d. Journal of Physics A: Mathematical and Theoretical (Published by the Institute of Physics Publishing, Bristol, UK)
- e. Physics Letters A, (Published by Elsevier)
- f. Pramana: Journal of Physics (Published by Indian Academy of Sciences, INSA and Indian Physics Association in collaboration with Springer Publishing Company)



CONSCIOUSNESS STUDIES PROGRAMME

Introduction

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 Programme on Consciousness Studies at NIAS, adopts a larger framework grounded in humanities, neurosciences, neurophysics, neuropsychology and neuropsychiatry, to achieve its research objectives.

Updates and Progress

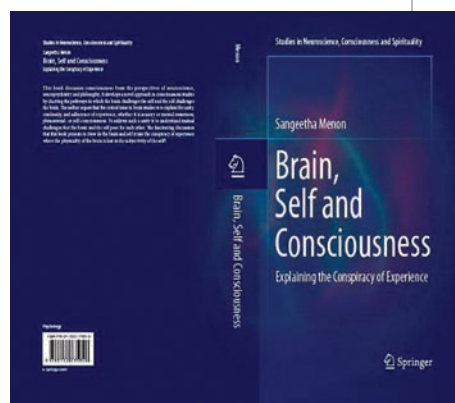
Over the period of last sixteen years at NIAS our work in Consciousness Studies has contributed to bring in some radical shifts in approaches to conceptualising and analysing the problem, and also in helping students and young scholars to identify untrodden multidisciplinary areas for their research.

Currently, Sangeetha Menon's and her doctoral students' work focus on comparative study of emotions, self indissolubility, self-wellbeing nexus, self-body-movement interrelations, and distinguishing a core-self from the self-sense and the body-sense. While Anindya Sinha continues his studies exploring cognition, consciousness and self in non-human primates, BV Sreekantan is interested in the nexus between physics, and functions and origins of consciousness.

Specifically, the major achievements of the Programme during 2013-2014 were the publication of two books, and one seminar.

One of the research works by Sangeetha Menon, during the last five years, focused on distinguishing (or finding out if and how such a distinction is possible) the body-sense and the self-sense. This study asked questions such as: What essentially constitutes the self-sense? How the self-sense is impaired due to deafferentation? How does the brain represent and map the self-and body-sense distinctly? The findings of this work are published in the book commissioned by Springer, in 2014 - *Brain, Self and Consciousness: Explaining the Conspiracy of Experience*.

Brain, Self and Consciousness discusses consciousness from the perspectives of neuroscience, neuropsychiatry and philosophy. Sangeetha Menon argues that the central issue in brain studies is to explain the unity, continuity, and adherence of experience, whether it is sensory or mental awareness, phenomenal- or self-consciousness. The fascinating discussion that this book presents is: How do the brain and the self create the conspiracy of experience where the physicality of the brain is lost in the subjectivity of the self?



Excerpts of Reviews on Brain, Self and Consciousness are the following:

Sangeetha Menon's well-documented work is underpinned by the (too often underrated) observation that a knower is presupposed by anything known, including the known brain. It is extended to a study of agency and responsibility that gives practical ground to the challenged notion of a self. By weaving the lived and the observed into a synthetic picture of the mind-brain, the author also succeeds in making sense of the task of self-transformation, which a purely reductionist stance would just deflate into neural fitness. A very clear and exhaustive presentation of a complex yet interconnected web of topics, from the cognitive neuroscience to the analytic philosophy of mind and the Upanishads.

- **Michel Bitbol**, Directeur de Recherche
Archives Husserl CNRS, Paris

This is an amazingly rigorous cross-disciplinary work with a strong contention about the core-self as deep, organic, inclusive and extended beyond any reductionist or even minimal fleeting self: a great challenge for both the scientific community and the philosophical world! An urgent invitation for both to mutually look closer into the lived embodied consciousness and into the brain web!

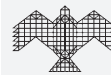
- **Natalie Depraz**, Professor of Philosophy
University of Rouen

[Menon has] addressed a 'blind spot' in consciousness research, the 'core self'. This was arrived at through going beyond the binary thinking of body self and self sense. Sangeetha has presented a fascinating multi-disciplinary approach to the study of self. She penetrates deeply into the phenomenology of the body self, self sense and the core self. Most importantly, she suggests the core self to be equivalent to the space of consciousness.

- **James Barrell**, Professor of Psychology and
author of *Inner Experience and Neuroscience*, The MIT Press

The second book that was published in 2014 (Springer) is an edited volume titled *Interdisciplinary Perspectives on Consciousness and the Self* (Editors: Sangeetha Menon, Anindya Sinha and BV Sreekantan) which is a collection of essays in the context of the emerging discipline of consciousness studies with particular focus on the concept of self. The book presents cutting edge and original work from well-known authors and scholars from around the world, covering disciplines such as philosophy, psychiatry, behavioural sciences, and physics.

Through a set of twenty-three interdisciplinary essays two larger questions are addressed: what is the place of the self in the lives of human and non-human primates; and, what are the interrelations between self and consciousness which contributes to the understanding of cognitive functions, awareness, freewill, nature of reality, and the complex experiential and behavioural attributes that are constituent of consciousness. The primary concern of the book is to argue that to understand consciousness

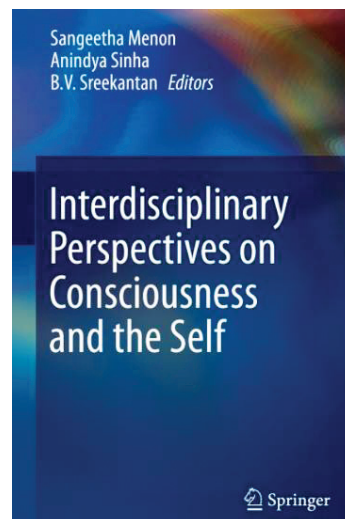


is to understand the self that beholds consciousness. *Interdisciplinary Perspectives on Consciousness and the Self* will be a pioneering attempt to present to the reader multiple ways of conceptualising and thus understanding the relation between consciousness and self in a nuanced manner, and with an open mind. Such an approach is expected to also bring in the unavoidable significance of interdisciplinarity in conceiving the fundamental challenges in understanding the century's most fascinating phenomenon namely 'consciousness'.

Interdisciplinary Perspectives on Consciousness and the Self offers a single portal for the budding researcher, an advanced scholar, as well as a curious lay mind to dive deep into the physical, philosophical and biological mechanisms that underlie our everyday life experiences.

Outreach

Sangeetha Menon during her sabbatical - 2013-2014 – travelled in India and the United States to give introductory lectures on her book *Brain, Self and Consciousness*. She was invited to be a Visiting Professor for a short term at Indian Institute of Advanced Study, Shimla, in 2013. Using social media for outreach, the Programme started two Facebook groups: *Brain, Self and Consciousness*, and *Evening Philosophy Cha* with about two hundred members.



Members of the Consciousness Studies Programme



Sangeetha Menon, *Anchor*

BV Sreekantan

Anindya Sinha

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

Sangeetha Menon

Professor

School of Humanities

Room No. F 06

Tel: 080-2218 5090

Fax: 080-2218 5028

Email: prajnanata@gmail.com

Joined NIAS on: January 8, 1996

Major Research Contribution for the Academic Year

My research work has contributed to the following five major areas for the Consciousness Studies Programme at NIAS, and is evidenced by the enlisted publications, seminars and conference lectures.

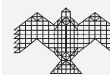
- a. Brain-Self Interrelations and the Core-Self
- b. Interdisciplinary Contributions to Self and Consciousness
- c. Culture, Senses and Emotions
- d. Self, Character and Psychological Wellbeing
- e. Body, Disability and the Adapted Self

In specific, a single authored book, and one edited volume was published during 2013-2014. The new area of work that was started during 2013 focuses on the psychological and philosophical nature of 'desire' and its implications for self and consciousness.

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 to the question what life is.

At NIAS, the broad area of my research work is 'consciousness studies', and the specific focus is the experiential self. I try and focus in all my studies (i) the implications of experience, (ii) the place of emotions, self-identity and self-transformation, and (iii) the possible interdisciplinary dialogues that promote psychological and deeper well-being. Since my doctoral studies I have been closely following the area of consciousness studies and the interdisciplinary dialogues that are neurological, psychological and philosophical in nature. I try to examine the role of subjectivity and subjective experience so as to defend an irreducible core-self that underlies consciousness. I have been particularly looking at the importance of the 'experiencer', which I term as the 'harder problem of consciousness' in order to understand the intractable relationship between physical mechanisms and subjective experiences. The 'hard problem' of consciousness has caused a major change in the methodology for understanding consciousness by questioning the qualitative nature of consciousness. I believe that the 'harder problem' of consciousness will help shift the focus to the subjective and binding components and will resolve the 'hard problem' to a greater extent.



Since my first paper that suggests and introduces the 'harder problem' (JICPR, 2001) of consciousness, my efforts have been to distinguish between the body-sense and the self-sense; and reinforce an irreducible core-self citing a wide variety of experiences that include spiritual, aesthetic and psychological components. My recent work, primarily in the last five years, made an extension to the 'harder problem' by suggesting that the qualitative nature of the self is best understood by examining the brain-self interrelations and the challenges that the brain and self give each other.

My latest book *Brain, Self and Consciousness: Explaining the Conspiracy of Experience* (2014, Springer) argues against a reductionist and minimalist approach to understanding consciousness, while positing a core-self that is conceptually distinct from the body-sense and self-sense.

As the anchor of the Consciousness Studies Programme, I travelled extensively during the last academic year to generate wide spread interest among students, researchers and scholars, on considering the importance of Self in the context of coping, adaptation and creating wellbeing. Also during the past academic year, me and my doctoral students continued our work, to identify and present the Self as a crucial concept in understanding mind, body and brain, with the help of publications, public lectures, social media, networking, and outreach visits. Our work also laid the foundation for the furtherance of two sub-disciplines in Indian academia: (i) Philosophy of Psychology and Psychiatry, and, (ii) Self in Consciousness Studies.

Lectures

- a. Brain-Consciousness Nexus: Where Science and Philosophy Meet, NIAS-DST Training Programme for Women Scientists, February 14, 2014.
- b. Consciousness, Self-transformation and Yoga-dharma, invited lecture at the international conference organized by Department of Religious Studies, University of Southern California, LA, October 20, 2013.
- c. Brain, Body and Consciousness: An Introduction to Interdisciplinary Dialogues in Consciousness Studies, invited lecture at Sambodh Centre for Human Excellence, Kalamazoo, Michigan, October 2, 2013.
- d. Self-Management and the Bhagavad Gita, invited lecture organised by National Institute of Personnel Management (Vishaka Chapter) at King Court Hall, Hotel Royal Forte, Vishakapatnam, July 19, 2013.
- e. Knowledge and Freedom, public lecture five for the series on The Psychology and Philosophy of the Bhagavad Gita for the staff and students of Gitam University, and the public, organised by Gitam University, Vishakapatnam, July 19, 2013.
- f. Body and Consciousness, public lecture four for the series on The Psychology and Philosophy of the Bhagavad Gita for the staff and students of Gitam University, and the public, organised by Gitam University, Vishakapatnam, July 18, 2013.
- g. Excellence in Learning, invited lecture and interactive session at the Sri Prakash Vidya Niketan School for 10th Grade students, Vishakapatnam, July 18, 2013.
- h. Agent and Action, public lecture three for the series titled on The Psychology and Philosophy of the Bhagavad Gita for the staff and students of Gitam University, and the public, organised by Gitam University, Vishakapatnam, July 17, 2013.
- i. Desire and its Discontent, public lecture two for the series on The Psychology and Philosophy of the Bhagavad Gita for the staff and students of Gitam University, and the public, organised by Gitam University, Vishakapatnam, July 16, 2013.
- j. Sorrow and Ironies of Life, public lecture one for the series on The Psychology and Philosophy of the Bhagavad Gita for the staff and students of Gitam University, and the public, organised by Gitam University, Vishakapatnam, July 15, 2013.
- k. Emotion, Embodiment and Neural Challenges: A discussion on neuropsychiatry and cognitive neurosciences, Visiting Professor's Lecture series, organised by Indian Institute of Advanced Study, Shimla, June 24, 2013.

- l. Brain and Self: Explaining Everyday Experiences, Visiting Professor's lecture series, organised by Indian Institute of Advanced Study, Shimla, June 18, 2013.
- m. Interdisciplinary Dialogues in Consciousness Studies: An introduction, Visiting Professor's lecture series, organised by Indian Institute of Advanced Study, Shimla, June 12, 2013.

Academic Courses

- a. Guided Reading and Writing Course on *Writing the Margin - A space for critically reflecting ethics and representation in disability, illness and writing* (2 credits), second semester 2013.
- b. Guided Reading and Writing Course on *Self and Self-conscious Emotions* (2 credits), second semester 2013, at NIAS.
- c. Guided Reading and Writing Course on *Self, Subjectivity and Its Affect* (2 credits), first semester 2013, at NIAS.
- d. Guided Reading and Writing Course on *Self, Emotions and Indian Psychology* (2 credits), first semester 2013, at NIAS.

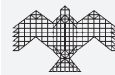
Training Course

Coordinated the NIAS-DST Training Programme on *Science for Progress in India: Innovations in Technologies*, February 10 to 14, 2014.

Awards, Memberships

Was invited to be a Visiting Professor at the Indian Institute of Advanced Study, Shimla in 2013 (May-June, 2013). The other memberships are as follows:

- 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
Honorary Visiting
Professor
School of Humanities

Room No. F 11
Tel: 080-2218 5082
Fax: 080-2218 5028
Email: bvsreekantan@gmail.com

Joined NIAS on: August 6, 1992

About

BV Sreekantan 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 number 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. He is serving on several selection committees for recruiting academic staff to the various projects in NIAS.

Update

Reality, Oneness and Consciousness – This is a topic of immense interest to philosophers and scientists for a long time. Developments in the fields of physics, astronomy, cosmology and neurosciences in the 20th century have brought new insights into the question of the origin of the universe in the Big Bang framework of creation, the role of “quantum vacuum” in the creations of all matter, radiation, forces and have focused attention on the possibility of all actions being in multiple higher dimensions whose projections in the 3+1 dimension which we are familiar being responsible for all the phenomena that we witness, and participate. In the book entitled Reality, Oneness and Consciousness these aspects will be discussed in the light of ancient in sights by philosophers both East and West of various vintage.

Lectures

- a. The Mysterious Universe, two-day workshop on Number Theory and Cryptology, Department of Mathematical and Computational Sciences, National Institute of Technology Karnataka, Surathkal, September 13, 2013.
- b. Role of Basic Sciences in Human Culture and Philosophy, seminar on Importance of Basic Sciences in Higher Education, Centre for Excellence in Basic Sciences, University of Bombay, Mumbai, April 23, 2013.

Honour

Honorary Fellow, Indian Institute of Astrophysics, Bangalore

Doctoral Students of Consciousness Studies Programme

The updates on the work of the doctoral students of the Programme are the following:



Lakshmi Kuchibotla

She 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. She presented the Final Colloquium of her thesis titled Self and Well-being: A Qualitative Approach with Focus on the Mahabharata, and is currently doing the revision of the chapters and bringing the thesis to its final form for submission by June 2014.

Her publications for this year are:

- a. Lakshmi, K. (2013). Altruism and dana: Impact on self and well-being. *Journal of Human Values*, 19 (1), 65-71. Sage Publications. (April 2013).
- b. Kuchibhotla, L. and Menon, S. (2014). Self and Empathy. In S. Menon, A.Sinha, and B.V. Sreekantan (eds.) *Interdisciplinary Perspectives on Consciousness and the Self*. Springer. (January 2014).
- c. Kuchibhotla, L. Self, Well-being, and the Mahabharata: A Qualitative Reading. Book chapter accepted for publication in A.K. Dalal and K. Ravi Priya (Eds.) *Qualitative Research on Illness, Well-Being and Self-Growth: Contemporary Indian Perspectives*. Routledge, India (Forthcoming June 2014).

Namitha Kumar

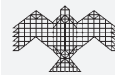
Her study with a theoretical approach on subjectivity and selfhood in the context of subjects with physical disabilities aims to depsychologize disability and place it in a larger context of societal and transformative space of the self.

The specifics of her work for this year are:

- a. Field data analysis reveals implicit social cognition as the process underlying implicit bias towards disability/people with disability. The outcome of the Cognitive Association Test (CAT-open IAT – Implicit Association Test) can be linked to levels and markers of social intelligence and can be used to put together a program on inclusive literacy.
- b. Corroborating the IAT and the field interviews, analysis indicates that though there is the social construction of disability in a vocabulary of disempowerment, the individual selves are able to transcend selfing affordances and exercise self-determination, autonomy, agency and free will. The concept of resisting stereotypes emerges from this data.
- c. The research shows that the much-accepted social model of disability does not hold true for the field data collected as adaptation and positive outlook is factored in through individual efforts regardless of the disadvantaged situations. Finally, the space of adaptation in disability emerges as a creative space challenging the singular norm of a normal-able body. What emerges is reimagining the body inventively and successfully negotiating the challenges of ableist spaces and cultures.



Her recent publication is: *Adapted Self in the Context of Disability: An Ecological, Embodied Perspective*, with Sangeetha Menon, In: *Interdisciplinary Perspectives on Consciousness and the Self*, Springer (2014). During this period she also reviewed Arthur Frank's *The Wounded Storyteller: Body, Illness, and Ethics* to be published in *Indian Anthropologist* journal.



During this year she attended the India Inclusion Summit held on November 29 and 30, 2013 at Ritz-Carlton, Bangalore, and gave the following lectures.

- a. Self and Subjectivity in People with Disabilities: Beyond Mainstream Psychology, NIAS student colloquium, NIAS, November 11, 2013.
- b. Disability and Gender, Shristi School of Art, Design and Technology, Bangalore, April 24, 2013.
- c. Disability and Gender, NIAS student presentation, NIAS, April 18, 2013.
- d. A brief overview of self and subjectivity in the context of disability, Research Forum, Bangalore University, April 10, 2013.



Shankar Rajaraman

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. Dr Shankar also received a M.Sc. degree in psychology under KSOU (Karnataka State Open University, Mysore) with a 1st class, in 2014.

The specifics for this academic year are the following:

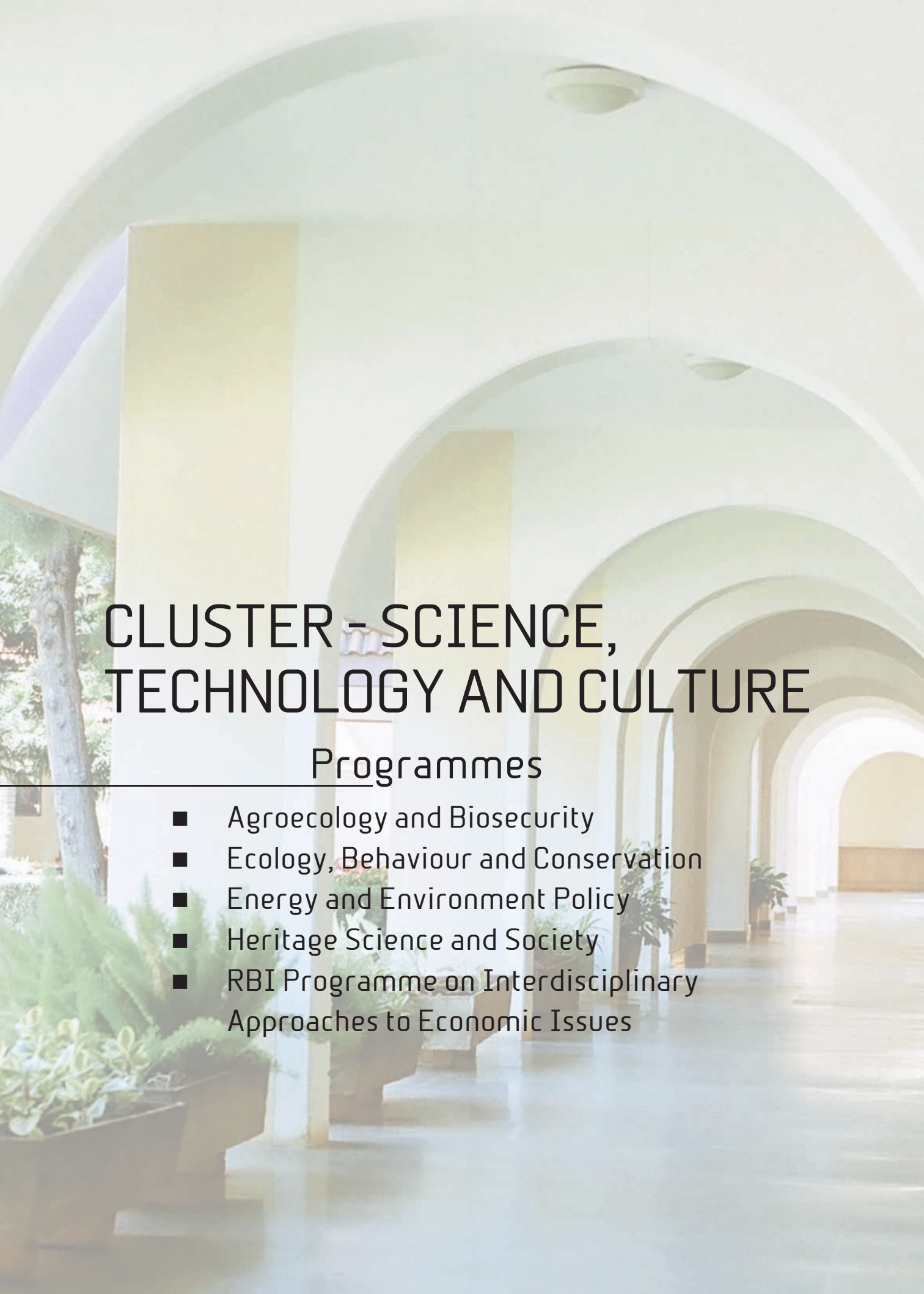
- a. Participated and gave a talk on his research topic in the Annual Colloquium held in November 2013. Finalized his Ad hoc and SAC Committees. Presented his research proposal titled A Qualitative Approach to the Psychology of Three Self-conscious Emotions from Sanskrit Poetics on March 26, 2014. Ongoing preparation for registering in the Department of Psychology, Mysore University. Completed analysis of two Sanskrit verses depicting garva.
- b. Was invited as a guest lecturer to NIMHANS to deliver a series of eight lectures on Indian Psychology to students of M.Phil. Psychology. The talk covered topics such as An Introduction to Indian Systems of Philosophy, The Concept of Mind in Indian Philosophy, Mental Processes such as Perception, Emotion, Motivation etc in Indian Tradition, Psychopathology in Ayurveda, The Concept of Purusharthas, Varnas and Ashramas, The Theory of Trigunas, etc. The lectures were scheduled between March and April 2014.

His publications include: An English translation of the 14th century Sanskrit work Madhuravijayam by Ganga Devi. The work was co-translated along with Venetia Kotamraju and published by Rasala publications.

Sabina Sweta Sen

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.





CLUSTER - SCIENCE, TECHNOLOGY AND CULTURE

Programmes

- Agroecology and Biosecurity
- Ecology, Behaviour and Conservation
- Energy and Environment Policy
- Heritage Science and Society
- RBI Programme on Interdisciplinary Approaches to Economic Issues



AGROECOLOGY AND BIOSECURITY PROGRAMME

Introduction

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

The ABP has successfully completed several externally aided research projects of societal importance covering the above areas both at regional and national levels. The group has reported several original works including, a) Initiated bioremediation studies and identified an efficient microbial strain (*Mucor thermohylospora*) capable of degrading the toxic insecticide molecule "endosulfan" through oxidative and hydrolytic pathways for the first time; b) Carried out in-depth field investigations on use (and misuse) of pesticides in 28 districts in 12 Indian states and interacted with more than 5000 stakeholders, including farmers, scientists, policy makers, NGOs, manufactures and vendors etc. Further designed and developed an unique software aided pesticide database for the first time; c) Examined the connections between the reported agrarian distress and socio-economic and ecological conditions in some parts of the country and also contributed immensely to the preparation of a scientific report on the agrarian crisis and possible remedial measures in Karnataka; d) One of the policy papers published in Current Science titled Crop Protection Stewardship in India: Wanted or Unwanted, has extensively referred in a global policy document mainly for IPM in developing countries; e) A distinctive policy document was prepared in power sector particularly in the areas of grid security and management, focusing on planning challenges, operational challenges, technological challenges, market design and implementation, societal and human concerns; f) Prepared an exceptional policy document on biosecurity involving regulatory/policy issues, technical issues and capacity building etc.

The ABP has been organizing regularly discussion meetings, workshops, conferences, lectures pertaining to the important aspects on the above research areas involving various stakeholders including experts, students, farmers, policy planners, representatives from government, industry and non-governmental organizations. So far the ABP successfully organized 10 national/international conferences relevant to the research areas of the Program.

Updates and Progress

We carried out research in the areas of ecological agriculture and also published a paper on organic farming in Indian Journal of Science and Technology. As we know, the organic farming relies on practices like crop rotation, use of green manure, biological pest control agents etc. This study was an initial attempt to know the status of organic farming in pesticide use predominant 28 districts in 12 Indian states. Doctors, pesticide vendors and agricultural officers of regions were interviewed to study the status of organic farming in the selected areas. Data were collected through pre-tested schedules by trained field investigators. A total of 1577 samples from 290 randomly selected villages were keyed in to Visual Basic front end in MS Access data base. In this study only 3% of the respondents across the country reported that they had practiced organic farming only, whereas 51% of respondents practiced chemical farming and 46% of respondents had taken up both organic and chemical farming. Appropriate research and extension services need to be developed to make available to farmers all the relevant information on organic farming.

Similarly, we carried out studies in different agro ecosystems in India understanding the adaptation of Integrated Pest Management (IPM) practices, which is one of the accepted strategies for managing crop pests

in India. During pre green revolution period, Indian agriculture largely followed cultural and manual mechanical practices for pest management. Whereas pesticide use dominated during green revolution era. IPM advocates the use of alternative methods to control crop pests and diseases in agro-ecosystems, mainly Genetic, Cultural, Chemical and Biological Control. In this study, we focused on IPM initiatives in different agro ecosystems in India. Currently, we are analyzing the data gathered from field visits.

During the last academic year, we published two important books in agriculture sector. The book on *Innovations in Agricultural Policy* (2013), edited by PK Shetty and MV Srinivasa Gowda, was published by NIAS. The book contains lead papers from distinguished scientists, agricultural economists and policy makers in the country. It has endeavoured to garner latest data on the changing structure of the Indian agriculture that includes cropping patterns and many other developments that have taken place over the last seventy years or so. It also highlights the major handicaps faced by farmers and also attempts to bring out the critical factors promoting or deterring the growth of agriculture. More particularly, it emphasizes the policy imperatives necessary for sustainable agricultural development and offers several points for an effective policy to achieve them.

The second book on *Climate Change and Sustainable Food Security* (2013), edited by PK Shetty, S Ayyappan and MS Swaminathan, was published by NIAS and Indian Council of Agricultural Sciences, New Delhi. The book contains lead papers from distinguished national and international experts, policy makers and dedicated researchers. Efforts are made to compile the latest information on present agricultural scenario in India in comparison with other developed and developing nations and also the major problems faced by Indian agriculture, types of innovations required in research, policy and institutional set up to meet the ever increasing demands for food and nutritional security. It also emphasizes the steps to be taken up by various stakeholders involved in the agricultural production scenario to make agriculture a profitable proposition, without causing much damage to the natural environment. It also covers the important measures to be adopted for creating interest among youth for agriculture and to improve their livelihood security through various interventions by public and private sectors.

One of the students of the ABP, Ms KG Sreeja's thesis on *Emergent Non-Agrarian Livelihoods and Resource Linkages in the Agro-Ecosystems of a River Basin: A Case Study of Chalakudy River Basin, Kerala* has been evaluated and she was awarded Ph.D. by the Manipal University (2014).

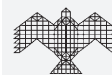
Outreach

A national seminar on *Relevance of Organic Farming on Indian Agriculture* was organised on February 3 and 4, 2014 at NIAS. The modern agricultural practices have helped in enhancing the crop production and productivity

in India, but there are concerns about environmental safety and sustainability of land productivity. With increasing hazards caused by the use of synthetic chemicals in agro ecosystems, organic farming provides an alternative option for sustaining the productivity of the crop and retaining soil health. However, there are various queries regarding its support to sustain the food security and nutritional quality, adoptability, organoleptic quality, certification, economic feasibility, resistant capacity towards pests and diseases etc. Keeping in view of some of these issues, the NIAS organized this seminar. More than 200 delegates were participated in this seminar, including leading policy makers, distinguished scientists, academia, students, and representatives from industry, farmers, NGOs etc and also other stake holders from different parts of the country.



Prof PK Shetty, Dr Claude Alvares, Prof VS Ramanurthy and Others during the National Seminar on Relevance of Organic Farming in India, February 3 and 4, 2014



Members of the Agroecology and Biosecurity Programme



PK Shetty *Anchor*

Shruti IS

Doctoral Students: Priya Gupta, Nimisha Agarwal

PK Shetty

Professor

School of Natural and Engineering Sciences

Room No. S 21

Tel: 080-2218 5120

Fax: 080-2218 5028

Email: pkshetty17@gmail.com

Joined NIAS on: August 6, 1992

Major Research Contribution for the Academic Year

During this academic year, I carried out research in multi-disciplinary areas and published one peer-reviewed research paper and two books; Organized one national seminar; offered one course for Ph.D. students; received the prestigious Pratibha Puraskara Award by Hebbala Vidhanasabha Kshetra Kannada Sahitya Parishath, Bangalore, for the contribution to the agricultural research and outreach activities; One of my students was awarded Ph.D. by the Manipal University. I carried out field studies at various locations in different agro climatic zones in the country. On July 16, 2013, in New Delhi, the President of India and Union Minister for Agriculture released one of our books – *Climate Change and Sustainable Food Security*.

About

PK Shetty is currently Professor in the School of Natural and Engineering Sciences. He has more than 20 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 Sciences and Engineering) at NIAS and also an Independent Director, Power Grid Corporation of India Limited, Government of India. Prof Shetty received his Ph.D. 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 several 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 six books, several 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 Ph.D., M.Phil. and M.Sc. Students.

Prof Shetty is associated with many national and international organizations including the Scientific Advisory Board of a Journal of Springer on Philosophy and Technology. He has conducted several India-centric seminars/conferences/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), Government of Karnataka and the Kempe Gowda

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

Lectures

- Invited as a chief guest and delivered a talk on Science and Technology for Sustainable Development, organized by SKY Trust, Bangalore, September 1, 2013.
- Invited as a chief guest and delivered a talk on Conservation of Biodiversity, organized by Eco-development Forum, Bangalore, June 5, 2013.
- Delivered a talk on Pesticide Stewardship in Indian Agriculture, organized by Agri-Innovation Foundation, Bangalore, May 27, 2013.

Academic Course

Course Title: Research Methods in Agro Climatology. It is an advanced course (number of credits: 300), which included lecture and guided reading. The period of course was between January 2013 and May 2013. This course was designed to review of research methodologies in the Rice-wheat cropping system (RWCS) in different agro-ecological zones in India and also statistical understanding of various climatological factors, short-term and long-term preparedness for climate change in RWCS.

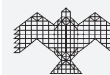
Awards, Memberships

- Received Pratibha Puraskara Award by Hebbala Vidhanasabha Kshetra Kannada Sahitya Parishath, Bangalore for the contribution to the agricultural research and outreach activities, May 25, 2013
- Member of BBMP Ward Committee (Ward No.33), by the Commissioner, Bruhat Bangalore Mahanagara Palike (BBMP), Government of Karnataka, February 9, 2013 – till date
- Member of Advisory Board for R&D of POWERGRID, Government of India, August 3, 2011 – till date
- Member of the Scientific Advisory Board of a Journal of Springer on Philosophy and Technology, January 8, 2010 – till date
- Member of nomination council of the Infosys Prize, Infosys Science Foundation, 2009 – till date
- Member of Technical Committee for the implementation of Solid Waste Management Programme in Karnataka, Directorate of Municipal Administration, Government of Karnataka, December 2008 – till date

Other Information

Brought out two unique publications/policy documents in Agriculture Sector. The book on *Innovations in Agricultural Policy* is a unique policy document that reviewed several previous states/Central Government's policies in agriculture and suggested key policy interventions required in various sectors in agriculture in India. The book on *Climate Change and Sustainable Food Security* covers key issues associated with policy, research and institutional set up to meet the ever increasing demands for food and nutritional security in India and also in other developed and developing nations.

Prof Shetty has been coordinating the Associates' Programme of NIAS for more than eighteen years and organized as many as 185 programmes.



Doctoral Students of the Agroecology and Biosecurity Programme



Priya Gupta

Her wider research interest is in understanding the socio-political dimensions of conservations. For her Ph.D. she is working on examining the interface between conservation policies and rights of communities in a protected area in India. The strict regulations and prohibitions set by the conservation policies which regulate these protected areas, in some extreme cases, have made relocation of people necessary. On the other hand the Forest Right Act of 2006 provides recognition of right to occupation and inhabitation to forest dwelling communities inside forests. With in focus, the study aims to explore and examine the interface of exclusionary conservation policies and Forest Rights Act in a protected area and how these policies influence the local communities.

Nimisha Agarwal

She is working on Assessment of Farmers' Perception of Climate Change and Local Adaptation Strategies for Rice and Wheat Cropping System in different vulnerability zones in Uttar Pradesh. Identifying Rice and wheat as the major food crops being sown in India, this predicted loss in productivity will directly affect the lives of cultivators. Considering predictions serious, it is then absolutely necessary to take a look at what cultivators understand of this phenomenon, supposed to affect their lives and livelihoods. A study on farmer's perception of climate change therefore, can locate the problem of climate change at the ground level. Decision making, specifically with regard to changes in cultivation practices, are affected by the differing priorities and interests of the 'Farmer'. This study aims at capturing the understanding of the global phenomenon of climate change, at a local level to determine whether or not it is a concern for those who are expected to be impacted.



ECOLOGY, BEHAVIOUR AND CONSERVATION PROGRAMME

Introduction

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 seventeen 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 four research scholars, a post-doctoral fellow and several collaborators from three Programmes in NIAS and from ten institutions across India, UK 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 1,500 individually identified animals continuously over fourteen 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.

Updates and Progress

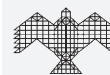
Over the last year, our Programme has been continuing a long-term field project, begun in 2000 and proposed to continue for twenty-five years, investigating the demographic structure, population dynamics and socioecology of a population of wild bonnet macaques, consisting of over 25 social groups and 1,500 individuals, in the Bandipur National Park – Mudumalai Wildlife Sanctuary complex in the states of Karnataka and Tamil Nadu.

We have just completed our research project on the distribution and community ecology of four macaque species – the Assamese macaque, pigtailed macaque, rhesus macaque and the stump-tailed macaque, together with the hoolock gibbon and the capped langur – in the lowland rainforest fragments of the Upper Brahmaputra Valley in Assam.

We have now also completed a detailed observational study on the resource utilisation, competition and niche partitioning displayed by the above-mentioned primate community in the Hollongapar Gibbon Wildlife Sanctuary of upper Assam. This project also aimed to evaluate the survival status of these endangered primates and devise conservation strategies for the endangered populations of these species. Local people – students, teachers, researchers, conservationists and forest management personnel – in upper Assam were trained over the last six years in some basic methodologies to enable them to monitor specific macaque communities,



Adult Female Bonnet Macaque with Infant, Bandipur; Credit - Abhiroop Ghosh Dastidar



identified as threatened, and implement appropriate management strategies for their conservation.

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. Although the role of several primate species as seed dispersers has been studied, there remain many whose seed dispersal effectiveness has not been determined. Macaques represent 'the youngest and most successful of the major evolutionary radiations of non-human primates.' 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.

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

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

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

Over the last year, we continued our exploration of these processes and their interactions in wild bonnet macaques, drawing upon interdisciplinary approaches such as observational studies of behaviour, philosophical analyses and mathematical modelling. We have also continued to document behavioural transmission in this macaque and have just completed a project investigating the cognitive processes underlying tactical deception in wild groups of this species.

Gestures are discreet, contextual bodily acts that appear to be intentional and form an intrinsic part of our non-verbal language system. Our project is attempting to analyse and understand the conceptual complexity of gestures as a medium of communication, deeply embedded in a matrix of speech, gestures and sociocultural intercourse. We also hope to unravel the cognitive and neurobiological mechanisms underlying the creation and comprehension of different categories of gestures in accordance with differences in their encoding and function.



Adult Female Bonnet Macaque with Infant, Mundanthurai; Credit - MD Madhusudan



Adult Male Elephants, Nagarahole;
Credit - Nishant Srinivasaiah

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

Three years ago, we initiated a project that aimed to test whether a freshwater fish, the climbing perch, possesses certain cognitive abilities and to examine the underlying mechanisms responsible for the execution of these phenomena. The abilities that 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. We also propose to examine, to a limited extent, the ontogenetic and phylogenetic bases of these abilities in the climbing perch and closely related anabantid taxa.

We have been conducting, over the last six years now, an unique collaborative project with the National Centre for Biological Sciences in Bangalore, which 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.



The Family, Bandipur; Credit -
Abhiroop Ghosh Dastidar

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

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, we conducted several projects that explored different dimensions of human-wildlife conflict, with an ultimate objective of understanding and evaluating possible mitigation strategies and developing conservation plans for the species concerned.

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

Human-elephant conflict, one of the pressing issues influencing prospects of long-term conservation of the Asian elephant in India, can potentially turn the tide against elephant conservation and render worthless all our efforts to protect the species. Such conflict is most pronounced in fragmented elephant habitats and it is crucial that we explore the behavioural ecology of elephants in response to resource availability and human disturbance in such habitats.

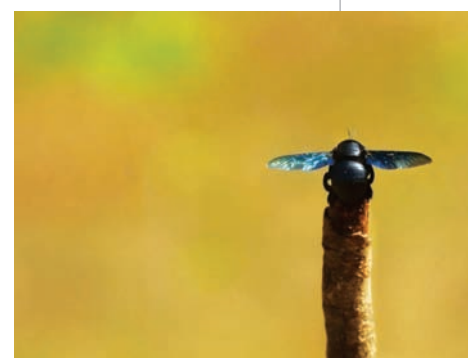
We recently completed a study that estimated resource availability and human disturbance in the human-dominated elephant habitats around the Bannerghata National Park and evaluated the foraging, social and ranging behaviour of elephants in this area. The data are being analysed to assess the behavioural adaptations of elephants to the prevailing ecological conditions, the nature of interactions between humans and elephants, and to develop management strategies for the affected elephant population.

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

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



The Stepear Herd, Valparai; Credit - Sreedhar Vijayakrishnan



Carpenter Bee, Bandipur; Credit - Aanantyo Anindya Kakoli

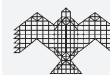
stakeholders will have to actively participate in mitigating human-related dolphin mortality in the future.

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 major project of developing conservation education through citizen science. The more specific aims of our project are to improve students' understanding of biodiversity and raise awareness about threats to biodiversity.

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



*Grass Hills;
Credit - Sreedhar Vijayakrishnan*



Members of the Ecology, Behaviour and Conservation Programme



Anindya Sinha
Professor
School of Natural and
Engineering Sciences

Room No. S 22
Tel: 080-2218 5117
Fax: 080-2218 5028
Email:
anindyanasinha@
yahoo.com

Anindya Sinha, *Anchor*

Sindhu Radhakrishna

Post-Doctoral Associate: VV Binoy

Doctoral Students: Narayan Sharma, Asmita Sengupta, Shreejata Gupta, Nishant M Srinivasaiah, Shaurabh Anand, Debanjan Mitra (Exeter University)

Collaborators: Anitha Kurup, NIAS, Rolla Das, NIAS, Rajesh Kasturirangan, NIAS, Debapriyo Chakraborty, Nature Conservation Foundation, Mysore, Madhusudan MD, Nature Conservation Foundation, Mysore, Yash Veer Bhatnagar, Nature Conservation Foundation, Mysore, Rohan Arthur, Nature Conservation Foundation, Mysore, Uma Ramakrishnan, National Centre for Biological Sciences, Bangalore, Sitabhra Sinha, Institute of Mathematical Sciences, Chennai, Honnavalli N Kumara, Salim Ali Centre for Ornithology and Natural History, Coimbatore, Srinivas Vaidyanathan, Foundation for Ecological Research, Advocacy and Learning, Puducherry, Prakash Sinha, Allahabad University, Allahabad, Amit Sengupta, Hindustan Computers Limited, Bangalore, Bruce A Bradley, Exeter University, Exeter, UK, 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.

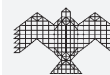
In the year 2000, my team and I began a twenty-five-year study on the population dynamics and individual life-history strategies of a large population of bonnet macaques, currently comprising more than 25 social groups and over 1,500 individually identified animals, in the Bandipur National Park – Mudumalai 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 Beautiful Mind: Social Cognition in Wild Bonnet Macaques, NIAS-DST Training Programme for Women Scientists, February 14, 2014.
- b. Games People and Monkeys Play, With Maitreesh Ghatak, London School of Economics, London, UK, Modern Academy of Continuing Education, Kolkata, January 2, 2014.
- c. The Jadavpur Lectures 2 – True Lies? Intentionality and Tactical Deception in a Nonhuman Primate, refresher course on Philosophy of Mind – Indian and Western, Department of Philosophy, Jadavpur University, Kolkata, November 22, 2013.
- d. The Jadavpur Lectures 1 – Know Thyself! Experience and Social Knowledge in a Nonhuman Primate, refresher course on Philosophy of Mind – Indian and Western, Department of Philosophy, Jadavpur University, Kolkata, November 22, 2013.
- e. Social Cognition and Experiential Knowledge in Nonhuman Primates, international workshop on the Evolution of the Human Mind, Indian Institute of Science Education and Research, Pune, November 18, 2013.
- f. The Monkey in the Town's Commons: An Anthropogenic History of the Bonnet Macaque, international meeting on Tropical Biodiversity and Conservation, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, September 13, 2013.
- g. The Primate Programme in NCF: An Overview, Annual Meeting, Nature Conservation Foundation, Mysore, July 25, 2013.
- h. Ethical Considerations in the Conduct of Research, with Carol Upadhy and Dilip Ahuja, NIAS, July 4, 2013.



- i. A Rolling Stone Does Gather Some Moss: Reflections on a Primate Life, Young Investigators' Meeting 2013, Jodhpur, February 12, 2013.
- j. 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.

Academic Courses

Courses Organised

- a. The Doctoral Programme Course of the Nature Conservation Foundation, consisting of 13 independent modules, taught by 15 instructors, Mysore, July to October 2013.

Courses Taught

- a. A two-credit course on Philosophy of Biology, consisting of lectures and discussion sessions for Master's degree students of the Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bangalore, April 2013.
- b. 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, June 2013.
- c. A three-credit course on Evolutionary Ecology and Behaviour, consisting of lectures, paper presentations and discussion sessions for doctoral degree students of the Nature Conservation Foundation, Mysore, July-August 2013.
- d. A two-lecture module on Foundations of Biological Sciences as part of a three-credit course on Foundations for doctoral degree students, National Institute of Advanced Studies, Bangalore, September 2013.
- e. A three-credit course on Philosophy of Biology, consisting of lectures, paper presentations and discussion sessions for doctoral degree students, National Institute of Advanced Studies, Bangalore, October-December 2013 (with MG Narasimhan and Naresh Keerthi).
- f. A two-lecture module on Methods in the Natural Sciences as part of a three-credit course on Research Methodologies for doctoral degree students, National Institute of Advanced Studies, Bangalore, February 2014.

Training Course

The 28th NIAS Annual Programme for Senior Executives on *Leadership in Challenging Times*, January 19 to 25, 2014.

Honours and Appointments

- a. Member, International Sub-Jury, Twenty-Fourth International Biology Olympiad, Bern, Switzerland, July 10 to 21, 2013
- b. Resource Person, Indian Team, International Biology Olympiad, 2012-2013 and 2013-2014
- c. Honorary Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2012 – August 2015
- d. Scientific Advisor and Research Coordinator, Dhole's Den Research Foundation, Bandipur National Park, October 2012 onwards
- e. Dean, Academic Affairs, National Institute of Advanced Studies, Bangalore, India, February 2013 onwards
- f. 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 – March 2016



Sindhu Radhakrishna
Associate Professor
School of Natural and
Engineering Sciences

Room No. S 23
Tel: 080-2218 5115
Fax: 080-2218 5028
Email: sindhu.
radhakrishna@gmail.
com

Joined NIAS on: September 1, 2002

Major Research Contribution for the Academic Year

Sindhu Radhakrishna's research focuses on exploring behavioural variation and social flexibility in nocturnal primate species, and achieving deeper insights into the multiple dimensions that affect human-wildlife interactions. The primatological lens affords a very unique perspective into animal-human relations and my work uses this vantage point to gain a deeper understanding of the animal-human interface.

About

Sindhu Radhakrishna is an Associate Professor with the Ecology, Behaviour and Conservation group and has been with NIAS for over 10 years now. She has a Masters degree in Psychology and a Ph.D. in Animal Behaviour and describes herself as a wildlife biologist with research interests in the areas of primatology and animal studies, particularly the social behaviour of nocturnal primates, human-wildlife conflict, animal-human interactions and environmental conservation.

Lecture

Re-thinking Animal-human Boundaries: Musings of a Primatologist, Nehru Memorial Museum and Library, Teen Murti Bhavan, Delhi, July 2013.

Academic Course

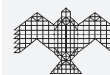
Co-ordinated and taught the Human-Environment Interactions Course, NIAS Doctoral Programme, September –December 2013

Training Course

Co-organiser for national conference on *Women in Higher Education and Research*, NIAS, June 2013.

Awards, Memberships

- a. SERB Women Excellence Award Research Grant, 2013
- b. SERB Women Excellence Award, 2013
- c. Member, Research Advisory Board, Nature Conservation Foundation, Mysore, 2013
- d. Member, Ethics Committee, Nature Conservation Foundation, Mysore, 2013
- e. Fulbright-Nehru Senior Research Fellowship, 2013-2014
- f. DST-SERB Extra Mural Research Grant, 2013.

**VV Binoy**

Post-doctoral
Associate
School of Natural and
Engineering Sciences

Room No. N 03
Tel: 080-2218 5106
Fax: 080-2218 5028
Email: vvbino@gmail.com

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. Dr Binoy has 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, Dr Binoy's 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

I aim to develop strategies for the management and conservation of aquatic resources by converging knowledge from cognitive psychology, behavioural ecology and limnology. I study 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 I worked on the artificial propagation and reintroduction of endangered fishes also. I am 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. I was 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 I hold a doctoral degree in zoology.

Lectures

- a. Understanding the Role of Knowledge and Attitude of School Children towards Mammalian Fauna in the Development of Effective Conservation Plans, national seminar on Conservation of Western Ghats, MES KVM College, Valanchery, Kerala, March 26, 2014.
- b. Big Science and Little Hands: Understanding the Knowledge and Attitude towards Mammals in School Children Using Student Networks, Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, Mumbai, October 18, 2013.

- c. Determinants of Shoaling Decision in Climbing Perch, a Freshwater Fish, Centre for Ecological Science, Indian Institute of Science, Bangalore, September 11, 2013.
- d. Can Behavioural Science Help Save Biodiversity?, Ashoka Trust for Research in Ecology and the Environment, Bangalore, June 19, 2013

Academic Courses

- a. Three-credit course on *Essentials of Comparative Cognition* for doctoral degree students of NIAS (with Anindya Sinha), January – April 2014.
- b. A three-credit course on *Human-Environment Interactions*, consisting of lectures, paper presentations and discussion sessions for doctoral degree students of NIAS (with Sindhu Radhakrishna), October – December 2013.
- c. Two-lecture module on *Laboratory and Field Methodologies*, as part of a three-credit course on Research Methodologies for doctoral degree students of NIAS, January – April 2014.

Membership in Professional Organisations

IUCN Freshwater Specialist Group – South Asia
 Freshwater Fish Conservation Network – South Asia
 Ethological Society of India
 Limnological Association of Kerala
 Centre for Fundamental Studies, Thrissur, Kerala

Doctoral Students of the Ecology, Behaviour and Conservation Programme



Narayan Sharma

He received his doctoral degree from the Manipal University in August 2013 under Prof Anindya Sinha's guidance.
 Title of Thesis: Primates on the Edge: Ecology and Conservation of Primate Assemblages in the Fragmented Lowland Rainforests of the Upper Brahmaputra Valley, Northeastern India

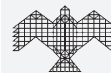
*Adult Female Hoolock Gibbon
 Grooming Narayan Sharma,
 Hollongapar; Credit - Dilip Boruah*



Asmita Sengupta

She has been investigating 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.



**Shreejata Gupta**

She has been exploring 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.

Nishant M Srinivasaiah

A first-year student, his primary research interests are in the areas of Asian elephant ecology and behaviour, human-elephant conflict and the management of elephant populations in anthropogenic landscapes.

**Shaurabh Anand**

A first-year student, his principal research interests are in the fields of ecosystem services, conservation biology and human-wildlife conflict.

ENERGY AND ENVIRONMENT POLICY PROGRAMME

Introduction

The Energy and Environment Policy Programme (EEPP) at NIAS is devoted to exploring and finding solutions to some of India's vexing energy 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 electricity 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 are also 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.

Updates and Progress

Advancing Indian Standard Time

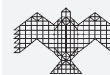
Earlier estimates of electricity savings from advancing Indian Standard Time (IST) to UTC+6:00 using regional load curves provided encouraging results of savings during evenings. This persuaded us to undertake a more accurate study involving 13 states that account for 85% of India's annual electricity consumption. As we expected, the savings obtained were higher than estimates from the five electrical regions of the country. Although advancing IST would benefit the north-eastern and eastern regions, there is an apprehension that later dawns may inconvenience people in the north-west. In response we calculated the postponement of the latest winter dawns in state capitals. We also reported for the first time the flattening of load curves in the six highest electricity consuming states in a publication in *Current Science*.

Extent to which Renewable Energy could meet Karnataka's Electricity Demand

On August 1, 2013 Power System Operation Corporation Ltd. (POSOCO) and NIAS entered into an MOU to collaborate on studies on the electricity sector. The first of these studies is titled: "The extent to which Karnataka's future electricity demand can be met with renewable energy without storage". Using data for daily load curves for 2013, we estimated that depending on the season, Karnataka's electricity sector could have absorbed 600-700 MW of additional wind capacity and 700-1400 MW of additional solar PV capacity. In Phase 2 of the project we extended the analyses for 2017 and 2022. Talks are on with POSOCO to extend the MOU.

Modelling the Impact of Large Events in Diffusion of Nuclear Power

Given concerns about climate change, some studies project an increase in global nuclear capacity by 2100 from 370 to about 4000 GW. Realistic projections of nuclear power must consider: One, the chance of nuclear accidents (observed rate: one major accident every 4000 reactor-years), and two, the observed response to



these accidents such as early retirement, a freeze in expansion or complete shutdown. Preliminary findings using integrated assessment models indicate that the nuclear deployment is sensitive to the accident rate. A 1 in million risk could allow unimpeded growth, one in a lakh risk could drop nuclear deployment by 50%; a one in ten thousand risk rate could severely limit its contribution to climate change mitigation.

Village Electrification in India through Solar Home Systems Assessment and Options

This is an ongoing study supported by the South Asian Network for Development and Environment Economics. The study assesses the losses of premature failure of solar home based systems, and tease out factors for its long term sustainability. It considers solar home lighting systems in state of Odisha and Karnataka installed by both government and private players. Apart from implementers, the study looks into scheme, technology/make, village, and household level variables.



*A Typical Solar Plate installed on Rural Home Roof Top
By Dr Hippu Salk Kristle Nathan during field visit to
Shettyhalli and Chitrashettyhalli Villages, Shimoga,
Karnataka (September 19, 2013)*

Cross Border Electricity Trade in South Asia and Regional Integration Potential Assessment, Underlying Factors and Policy Options

This study intends to estimate the potential in cross border electricity trade in the South Asian region and their impact on overall regional integration. It looks into the technical, economic, political, and strategic aspects of power trade in the region. The study is supported by the South Asian Network for Economic Institutes.

Outreach

We continued efforts to publicize our research on the benefits that would accrue to the country from advancing Indian Standard time and on the disadvantages of introducing two time zones. We were invited to submit an op-ed article for their readers by The Indian Express.

We also continued to present the results to policy makers. We were invited by the Planning Commission for a briefing Chaired by the Member for Energy at which several other Ministries were represented. The Planning Commission forwarded our recommendation to the Cabinet Secretariat, which is now soliciting views of different states in the country. We have also for the first time made outreach efforts to private sector organizations such as Chambers of Commerce and Industry. 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.

On the front of village electrification through solar systems, we presented a paper entitled *Solar PV Microgrid: Tragedy of Commons or Community Wisdom – A case study of electrification projects in Komna*, at the 4th National Research Conference on *Climate Change*, Indian Institute of Technology (IIT), Chennai. This conference was organized jointly by IIT, Delhi, IIT, Madras, IISc, Bangalore, and Centre of Science and Environment, New Delhi. In the same conference we also presented a poster highlighting the misplaced emphases in promoting solar PV in rural areas for mitigating climate change. We also shared our experience in the breakaway working group discussion on Institutional and Operational Challenges in Implementation of Decentralized Electricity Solutions at TERI (The Energy Research Institute) Workshop, held at Xavier Institute of Management, Bhubaneswar.

In the domain of regional energy cooperation in South Asia, we have collaborated with Mr Sanket S Kulkarni, who belongs to International Strategic Security Studies Programme and together we have published a research article on policy analysis of India's three proposed cross border gas projects, namely, Iran–Pakistan–India, Turkmenistan–Afghanistan–Pakistan–India, and Myanmar–Bangladesh–India. The study develops scenarios on

OUR EARTH AND OUR QUEST FOR ENERGY



D. P. SEN GUPTA



*Our Earth and Our Quest for
Energy A book by Prof DP Sen
Gupta, published by Prism Books
Pvt. Ltd., 2013*

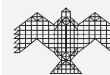
the basis of changing circumstances and discusses the security concerns, role of different actors, their positions, shifting goals, and strategies.

We have also endeavoured to take science to the youth. In this context, we may refer to the series of articles on 'our planet and the energy crisis we are confronted with' published for young readers in the Deccan Herald authored by Prof DP Sen Gupta. Based on these articles and suitable illustrations, he compiled a book, *Our Earth and Our Quest for Energy*. The book, which was published last year by Prism Books Pvt. Ltd., is primarily addressed to the young adults and to those who have general interest in science. Describing the five elements that the ancients believed constitute the world, the book focuses on energy (*Tej*) and describes the major inventions that turned the cavemen into modern men. Going through the ushering in of industrial revolutions that have now led to the massive depletion of fossil fuels, the author describes the introduction and hazards of nuclear fission, the principles of fusion reaction, and concludes that turning to the sun and wind may be our major choice, unless fusion or safe use of hydrogen become viable someday.

Other Information

Dr TS Gopi Rethinraj is joining the EEPP on June 1, 2014 as an Associate Professor. He is currently on the Faculty of the National University of Singapore. At NIAS, Dr Rethinraj is expected to work on the social and economic cost benefit analysis of India's energy options; the security aspects of India's energy supply; the technology and policy options for Nuclear Energy in India and continue working on his on-going Historical Energy Data Online Project.

Currently, EEPP has two Research Fellows. Ms Anitha Sampath, a Masters in Energy Systems, joined the programme in May 21, 2013, and currently is a Senior Research Fellow. Ms Anasuya Gangopadhyay, who joined us in December 16, 2013, has a Bachelors degree in Electrical Engineering and is a Research Associate. Both Ms Anitha and Ms Anasuya have been working on the study which assesses the extent to which renewable energy could meet Karnataka's electricity demand.



Members of the Energy and Environment Policy Programme



Dilip R Ahuja, *Anchor*
DP Sen Gupta
Hippu Salk Kristle Nathan
Research Fellows: Anitha Sampath, Anasuya Gangopadhyay
Doctoral Students: Neesha Dutt, Priyam Laxmi Borgohain, Mary Abraham

Dilip R Ahuja
Professor
School of Natural and Engineering Sciences

Room No. S 11
Tel: 080-2218 5135
Fax: 080-2218 5028
Email: drahuja@gmail.com

Joined NIAS on: December 13, 1999

Major Research Contribution for the Academic Year

The two major contributions from our research teams have been the estimation of energy savings from different states in India were Indian Standard Time to be advanced. We also reported for the first time that the load curves of the highest electricity consuming states are getting flatter. The other accomplishment pertains to the development of a methodology to estimate the potential for wind and solar energy in Karnataka using data for load curves.

About

Dilip R Ahuja is the ISRO Professor of Science and Technology Policy and Anchor of the Energy and Environment Policy Programme at NIAS. He 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 entitled *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 Ph.D. from the University of Virginia at Charlottesville and a B.Tech. in Electrical Engineering from IIT, Bombay. His research has included estimating global warming potentials of greenhouse gases, energy savings from changes in Indian Standard Time, emission factors from small-scale biomass burning, and national inventories of greenhouse gases.

Lectures

- a. Panel discussant for the sessions on Low Carbon and Development, and on Energy-Economy-Environment Modelling, at the 1st Climate Science and Policy Workshop, IIT Bombay, March 6 and 7, 2014.
- b. Changing Time for India's Benefit, DST Programme for Women Scientists, NIAS, February 13, 2014.
- c. Changing Time for India's Benefit, 28th Annual NIAS Programme for Senior Executives (with DP SenGupta), January 22, 2014.
- d. Discussant at the plenary discussion on How Can Higher Education Help Sustain India's Environment and Economic Growth throughout the 21st Century at the conference on The Future of Liberal Arts and Sciences in India, Bangalore, January 8, 2014.

- e. All States Stand to Save Electricity were IST to be Advanced, 4th National Research Conference on Climate Change (2013) at IIT, Chennai, October 27, 2013.
- f. Discussant at the panel on Opportunities and Challenges of a Low-Carbon Development Pathway in India at the workshop on India 2050: Low Carbon Pathways, organized by the Grantham Institute of Climate Change, Imperial College, at New Delhi, June 10, 2013.
- g. Factors Hindering Scientific Contributions of High Quality from India, NIAS, May 22, 2013.



DP Sen Gupta
Visiting Professor
School of Natural and
Engineering Sciences

Room No. G 13
Tel: 080-2218 5062
Fax: 080-2218 5028
Email: sengupta.dp@gmail.com

Joined NIAS on: October 1, 2009

Major Research Contribution for the Academic Year

The major contribution in the last year is two-fold. First is our intention to set up a roof top 100kW solar panel has taken shape with strong support from the Director Professor Ramamurthy and we expect the system to be operational soon, saving NIAS about 12,000 units of electricity every month. It is also our intention to present to the state Government in what way academic Institutions can be prevailed upon to set up solar panels on their respective rooftops, saving revenue and lighten the load on the grid when load shedding is rampant. The second contribution is a study where we have projected the Karnataka's power demand and supply for the year 2017 when no facilities for energy storage exist and in 2022 when pump-storage scheme is expected to have been installed. This exercise involved finding a seasonal pattern out of the apparently erratic wind flow pattern and developing a method for projecting future demands and likely deficits of power/energy in the target years and developing criteria which will enable cost effective allocation of solar power and wind power to reduce deficits (and therefore Load Shedding as far as possible.

About

An Honours graduate in Physics from Calcutta Presidency College and in Electrical Engineering from IIT, Kharagpur, Sen Gupta took his Ph.D. 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. His Bengali book Vijnaner Galgolpo received the Prof SN Bose award as the best popular science book for children under 18.

Other Information

Monograph submitted: Reports on the POSOCO project entitled The Extent to Which Karnataka's Future Electricity Demand can be met with Renewable Energy, have been submitted in two phases, the first one on December 16, 2013 and the second and the final one on March 31, 2014.



Hippy Salk Kristle Nathan

Assistant Professor
School of Natural and
Engineering Sciences

Room No: A 02
Tel: 080-2218 5052
Fax: 080-2218 5028
Email: happyhippu@gmail.com

Joined NIAS on: February 24, 2012

Major Research Contribution for the Academic Year

The highlight of the year 2013/2014 is the research studies which became instrumental in putting NIAS into three international research networks, namely, South Asian Network for Development and Environmental Economics (SANDEE), South Asian Network of Economic Research Institute (SANEI), and Global Development Network (GDN). The three research studies are on Remote Village Electrification in India through Solar Home Systems (supported by SANDEE), Cross Border Electricity Trade in South Asia (supported by SANEI), and Inclusiveness in Human Development in India (supported by GDN).

About

Hippy Salk Kristle Nathan has an M.Tech. in Thermal Engineering from IIT Delhi, and a Ph.D. 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 - guest lectures at Department of Management Studies, Indian Institute of Science, Bangalore, March 25 and 26, 2014.

- b. Is Roof Water Harvesting an Answer to Urban Water Crisis? – A Case Study of Bangalore, paper presented at international symposium Integrated Water Resource Management – 2014, organized by Center for Water Resource Development and Management, Calicut, February 19, 2014 (along with Jayashree Vaidyanathan and Binoy VV).
- c. Water and Sanitation Literacy through Women Self-Help Groups (SHGs) in Marginalized Areas – Enabling the Water Users to Water Entrepreneurs, paper presented at international symposium on Integrated Water Resource Management – 2014, organized by Center for Water Resource Development and Management, Calicut, February 19, 2014 (along with Jayashree Vaidyanathan).
- d. Towards Measuring RRA's Interventions in Rainfed Areas, invited lecture at the national seminar on Agricultural Risk Management: Challenges and Strategies in Making Small and Marginal Farm Holdings Sustainable and Profitable, jointly organized by National Institute of Rural development and Centre of Good Governance (CGG), held at CGG, Hyderabad, January 4, 2014 (along with Rajendra, Thiagu Ranganathan, and Srijit Mishra).
- e. Mini-Grid Development for Livelihood Generation Opportunities - Shared Experience in the Breakaway Working Group Discussion on Institutional and Operational Challenges in Implementation of Decentralized Electricity Solutions, organized by TERI, held at Xavier Institute of Management, Bhubaneswar, January 3, 2014.
- f. Solar PV Microgrid: Tragedy of Commons or Community Wisdom, A case study of electrification projects in Komna, paper presented at 4th National Research Conference on Climate Change – 2013, held at Indian Institute of Technology, Chennai, October 27, 2013.
- g. Solar PV for Rural Electricity – A Misplaced Emphasis for Mitigating Climate Change, research poster presented at 4th National Research Conference on Climate Change – 2013, held at Indian Institute of Technology, Chennai, October 26, 2013.
- h. Inclusiveness of Human Development in India, project idea presented at 14th Annual Global Development Conference of Global Development Network at Asian Development Bank Headquarters, Manila, Philippines, June 20, 2013 (the proposal was jointly developed with Dr Srijit Mishra).

Academic Course

Contributed with one lecture in the First semester Foundation Course in the theme Natural Resource and Social Question on the topic *Sustainable Resource Use and Human Development*, October 15, 2013.

Award

Outstanding Research in Development Award: Second Runner Up in Global Development and Medals Competition hosted by GDN at 14th Annual Global Development Conference at Asian Development Bank Headquarters, Manila, Philippines, June 19 to 21, 2013.

Other Information

Selected Conferences

- a. SANDEE Winter School (March 4 to 14, 2014, at Kathmandu, Nepal), SANDEE Cost Benefit Analysis Course (December 6 to 8, 2013, at Kathmandu, Nepal), and SANDEE Summer School (April 29 to May 17, 2013 at Bangkok, Thailand).
- b. IGIDR Silver Jubilee Conference - City and Sustainability (October 29 and 30, 2013) and Human Development (September 26 to 29, 2013) at Indira Gandhi Institute of Development and Research, Mumbai.
- c. MNRE Orientation Program for empanelled NGOs on September 16, 2013 at India Habitat Centre, New Delhi.
- d. Communications Surgery GDN finalists during June 17 to 18, 2013 at Asia Development Bank Headquarters, Manila, Philippines.



Report/Monograph Submitted

- a. SANDEE study grant report on Background Study on Remote Village Electrification Scheme of Ministry of New and Renewable Energy, Government of India – submitted in April, 2013.
- b. SANDEE progress report on Remote Village Electrification in India through Solar Home Systems Assessment and Options – submitted in December, 2013.
- c. Revitalizing Rainfed Areas (RRA) project consultancy report on Towards Measuring RRA Interventions in Rainfed Areas – submitted in December, 2013.

Work Presented by Co-authors

- a. Measuring Human Development Index: The Old, the New and the Elegant (along with Srijit Mishra), this joint paper was presented by my co-author during his visiting fellowship at the at the LSE (London School of Economics and Political Science) at the following four occasions – (i) at Development Studies Seminar Series, the University of Liverpool (on March 12, 2014), at Oxford Poverty and Human Development Initiative, the University of Oxford (on March 13, 2014), at CASE Social Exclusion Seminars, at the LSE (on March 19, 2014), and at the joint Development Economics Seminar Series, the University of Manchester (on March 25, 2014).
- b. Mumbai Public Road Transport at Crossroads: Will it Perish or Prosper? (along with Lakshmikanth Hari, Dhruv Sanghavi, and Arif Virani), this co-authored work was presented by Dhruv Sanghavi, and Arif Virani at IPE Golden Jubilee International Conference on Climate and Sustainable Development, organized at Institute of Public Enterprise, Hyderabad, on February 21, 2014. This paper was one among three papers which received the Best Paper Award in the conference.

Doctoral Students of the Energy and Environment Policy Programme

Neesha Dutt

Research Title: Urban Greens: Ecological Impacts and Socio-economic Drivers of Turfgrass Ecosystems

Bangalore's development-led growth has resulted in the intense reshaping of the urban landscape. Accordingly, the urban green space has also undergone transformation. This study focuses on 'turfgrass lawn ecosystems' which have slowly but surely made their way into Bangalore's development-led landscaping and greening strategies. Whether it is an office space, a residential community, or a mixed used development project; property developers offer services that promise 'world class' facilities in which lawns are a consistent feature in the green-scape offered. These spaces contribute to a 'global city image', yet the environmental implications of these chemical and water intensive lawns go un-noticed. The aim the study is to understand both environmental and social facets of lawn space production, consumption, and maintenance.

Specifically, this research investigates (a) ecological impact of high maintenance lawns in terms of whether they act as a source or sink of greenhouse gas emissions b) socio-economic factors influencing lawn establishment and management.



*Landscaped Lawns in an Institutional Campus
By Ms Neesha Dutt during field visit to landscaped sites in
Bangalore (February 2, 2014)*





Priyam Laxmi Borgohain

Research Title: Downstream Environmental and Socio-Economic Impacts of Hydropower Projects in Northeast India – Case Studies of Ranganadi and Lower Subansiri Hydroelectric Project

Downstream environmental and socio-economic impacts of dams, especially large dams, have often been overlooked and understudied as compared to their upstream impacts. These downstream environmental impacts primarily arise from dam-regulated alterations to natural river flows which further result in bio-physical changes of both the river and riparian ecosystems. Changes such as fish populations, floodplain ecosystem, sediment, and nutrient transport and deposition, have socio-economic impacts on the communities dependent on the downstream river. This study aims to assess and analyse potential downstream impacts of Northeast India's two hydropower projects, namely, the 405 MW Ranganadi and 2000 MW Lower Subansiri. The Ranganadi, the Dikrong, and the Subansiri are the three rivers affected by these two dams. Ongoing field work in the downstream villages of the Ranganadi River has revealed irregularities in the natural flood pattern, loss of property and crops due to occurrences of unprecedented flash floods and a sharp decline in riverine fish availability.

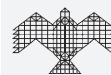
*405 MW Ranganadi Hydro Electric Plant, Yazali, Lower Subansiri District, Arunachal Pradesh
By Ms Priyam Laxmi Borgohain during her field visit (April 17, 2013)*



Mary Abraham

A first-year student, her research interest includes energy, environment and policy and is particularly interested in economic analysis of alternative energy options. She has over 14 years of research experience in development and policy studies.





HERITAGE SCIENCE AND SOCIETY PROGRAMME

Introduction

The Heritage, Science and Society Programme at NIAS is concerned with the study and documentation of archaeological artefacts, art objects, archaeological monuments and sites, not only from traditional historical approaches but also from innovative perspectives that explore the technological dimensions and linkages of science and technology with culture, society and civilisation. Apart from the core areas of history, art history and archaeology, the areas particularly covered include archaeological sciences, archaeometallurgy and archaeomaterials. Thus the application of scientific techniques is explored such as materials characterisation of metal artefacts ranging from ferrous to non-ferrous artefacts, geospatial and digital applications in the study of archaeological and archaeometallurgical sites and heritage of artefacts and cultural sites. The historical study of south Indian languages, classics, inscriptions and epigraphy and related art historical aspects and best practices in heritage and antiquities management are explored. The ramifications for preservation of tangible and intangible heritage including crafts, theatre and performance traditions, issues of sustainability and ways of influencing policies in the fields of education and culture are explored. The ongoing projects are supported by DST, ISRO, British Council through UKIERI-II and ICHR. The main faculty members include as the anchor and core faculty, archaeometallurgist and art historian Prof Sharada Srinivasan, as visiting professors, Prof S Ranganathan, and Prof S Settar, and archaeologist Dr Smriti Haricharan, as post-doctoral associate. The programme has an MoU with University of Exeter for the UKIERI-II supported Intangible Histories split site PhDs endeavour with unique and wide-ranging cross-disciplinary engagement at NIAS with faculty in various schools, coordinated by Prof Sharada Srinivasan, Prof Anindya Sinha and Dr Smriti Haricharan, and with Profs Sangeetha Menon, Carol Upadhyay, Narendar Pani and Dr Shivali Tukdeo additionally as supervisors.

Updates and Progress

The Heritage, Science and Society Programme activities have spanned areas ranging from digital and technical approaches in the presentation of the heritage of the world heritage site of Hampi and creation of a knowledge bank; materials science applications in the study of artefacts, archaeometallurgical studies of bronzes, iron and steel heritage, satellite imagery in the study of archaeometallurgical and archaeological sites, epigraphic and inscriptional studies in Kannada and south Indian languages; megalithic archaeology, heritage and portable antiquities, arts and crafts education.

The IDH programme on Digital Heritage of Hampi (Programme Coordinator Prof Ranganathan, Associate Coordinator Prof Sharada Srinivasan) is implemented with numerous technological and cultural groups such as the IITs, KCST, Hampi University, NID, Karnataka Crafts Council, ART, IIACD. The project on digital and analytical approaches in the study of bronzes of Vijayanagara has Prof Sharada Srinivasan as PI and Prof Ranganathan as Co-PI and research assistants have included Rajarshi, Padhma Priya and Praveen and currently Uma Kritika. Apart from photographic documentation, the application of digital technologies together with conventional art history is explored using laser scanning, 3-D modeling, re-construction, animation etc. For



Open Day at IISc co-curated by Heritage, Science and Society Programme [In view Prof S Ranganathan, Dr Smriti Haricharan, Mr Brice Girbal] (March 2014)

instance, iconometric studies were undertaken on a laser-scanned image of the Yoga Narasimha at Hampi and inputs were given concerning generation of ontologies and demo on the theme of Girija Kalyanam.

Under the RESPOND project with Dr Smriti Haricharan as Post-doctoral Research Associate and Prof Ranganathan as Principal Investigator, Prof Sharada Srinivasan as Co-Principal Investigator, various aspects of the applications of satellite imagery in the study heritage were explored. The project has concentrated on two areas, the first being Telangana. In this region the research is based on using satellite images and identifying their potential as a primary and secondary method of field survey. The archaeological sites here are metallurgical in nature, and currently the results are being prepared for publication. The second area of research is connected to the fortification system in Gangaikondacholapuram and Vallam in Thanjavur District. Identification of signatures of traces from early historic and medieval fortification is being investigated through satellite imagery. The field work for this has also been completed and currently is also being prepared for publication. The significant output from this project has been to underline the importance of using remote sensing in combination with ground verification based studies in order to optimize research outcome.

Epigraphical study by Prof Settar and study of classics in south Indian languages and inscriptions have yielded new insights, for example on the paleographic development of the Kannada script from the interesting Kannada inscriptions at Badami, by Aksarameru, poet and sculptor under the Badami Chalukyas who introduced Tripadi.

Outreach

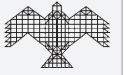
The NIAS Heritage Science and Society Programme have been engaged in several outreach activities in the past year including through the media. Prof S Settar held The World Rock Art Exhibition on behalf of the Indira Gandhi National Centre for Arts as Honorary Director at the National Gallery of Modern Art and ASI, for one month over December 2013 to January 2014 which reached out successfully also to educational institutions. Prof Sharada Srinivasan gave a half-an-hour interview on Sankara TV in Tamil/Kannada on the topic of Nataraja Bronze and Scientific Studies on Shivaratri day. Prof Ranganathan, was involved in the international ASM Landmark recognition for the Delhi Iron Pillar, and this plaque was unveiled in his presence at the NMD session at BHU in Nov 2013. Under the presidency of Prof Settar, the Central Institute of Indian Languages held a national seminar on Kannada Classical Literature an Hitherto Unnoticed Body of Literature, on March 15, 2013.



Prof Sharada Srinivasan at Bronze Casting Workshop of Radhakrishna Sthapathy of Swamimalai with Master Craftsman Mr Radhakrishna Sthapathy (January 2014)



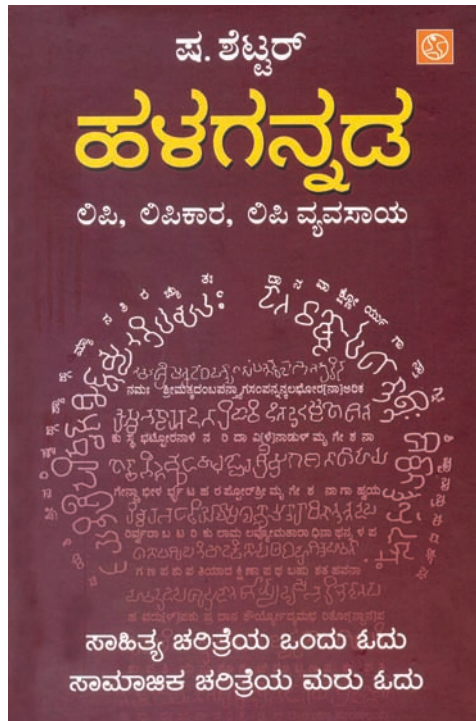
Prof S Settar and Prof UR Ananthamurthy looking at IGNCA World of Rock Art Exhibition in National Gallery of Modern Art (December 2013)



Prof S Settar's recent publication, *Halagannada*, running over 500 pages, examines more than 2,000 ancient Kannada edicts and constructs the history of Kannada "script, scribes and cultivation of letters" in the first millennium. The book, rich with illustrations of ancient texts, questions many of the received notions about language and knowledge production, including the nature of interaction between Sanskrit, Prakrit and Kannada. Prof Settar describes it as an effort at constructing "alternative picture of history" by drawing from Dravidian sources. A seminar organized at the National Institute of Advanced Studies, attracted 25 scholars including Girish Karnad, UR Ananthamurthy, G Venkatasubbaiah, MM Kalburgi, KV Narayan, Hampa Nagarajaiah, Basavaraj Kalgudi, Roddam Narasimha, Vivek Rai, Rajendra Chenni, KP Rao, Rahamat Tarikere and MV Vasu.



Conference on "Dimensions of the Classical Kannada Studies" (March 26, 2014)



"Halagannada" by Prof S Settar

Members of the Heritage Studies Programme



Sharada Srinivasan, *Anchor*

S Ranganathan

S Settar

Post-doctoral Associate: Smriti Haricharan

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

Junior Research Fellows: Rajarshi Sengupta (till May 2013), Padhma Priya (till July 15, 2013), NS Nalini (till July 31, 2013), Uma Kritika

Project Assistants: Praveen Johnson (till November 15, 2013), Sheela Karunakaran, Nagabhushan (till July 31, 2013), Nagashree Shriraksha

Sharada Srinivasan

Professor

School of Humanities

Room No. S 13

Tel: 080-2218 5125

Fax: 080-2218 5028

Email: sharasri@gmail.com

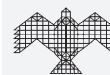
Joined NIAS on: June 10, 2001

Major Research Contribution for the Academic Year

Archaeometallurgical investigations and finger-printing using lead isotope analysis of South Indian bronzes and Chola bronzes for relative archaeometric dating and comparison with southeast Asian bronzes; identification of some of the earliest known alloys exploiting the properties of intermetallic compound phases of high-tin bronze for making vessels (beta bronze) going back to megalithic times and mirrors of delta bronze related ethnometallurgical and ethnoarchaeological studies into craft survivals; insights on past practices of extractive metallurgy of copper, bronze, lead and gold from studying old metallurgical workings and slag heaps, identification of early finds of high-grade higher carbon steels and production centres for wootz steel making from south Indian antiquity, copper-base metallurgy of the Harappan site of Dholavira, explorations into aesthetics and foundational aspects of science with respect to Indian metallurgical traditions, exploring the symbolism of the Nataraja bronze from art-science-dance perspectives, importance of heritage science and material culture studies in education

About

Sharada Srinivasan works in the areas of archaeological science, archaeometallurgy and materials characterisations of ancient artifacts and the implications for history of arts and crafts to performing arts. She has a Ph.D. in archaeometallurgy from University College, London; MA from SOAS, London and B.Tech. in engineering Physics from IIT, Mumbai. She anchors the Heritage Studies Programme at NIAS. 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 distinctions 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), Homi Bhabha Fellowship (1996-8) and the Forbes Smithsonian Research Associateship (1999). She was Co-Lead Investigator for a UK-India UKIERI-I Award (2009-2011) between NIAS and Exeter University on early iron and steel metallurgy. She is Co-Chair for the Intangible Histories programme under the UKIERI-II Award with Exeter University for Split-site PhDs covering Archaeology and Drama. She is Associate Coordinator since 2014 for the India Digital Heritage Hampi project and PI for the project on Vijayanagara bronzes. She has been Co-PI on a RESPOND project on satellite imagery in heritage management. She is co-author of the recent book India's Legendary Wootz Steel. She gave a paper at the Paul Scherrer Institute, Switzerland for the 'Bronzes 2013' conference in 2013 of the University of Zurich, on her work on finger-printing of south Indian bronzes using



techniques such as lead isotope analysis and visited their extensive X-ray tomography facilities used in the study of Roman bronzes.

Lectures

- a. Iconographic Trends in Rama Worship: Insights from Techno-Cultural Studies of Bronzes, conference on The Ramayana in Literature, Society and the Arts, CPR Institute of Indological Research, Chennai, February 2, 2014.
- b. Cultural Anthropology of Bronze Casting, Lalit Kala Akademi, New Delhi, January 22, 2014.
- c. Arguing for a Role for Scientific Cultural Anthropology in Contributing to Greater Societal Awareness. How can liberal arts and sciences help address some of the societal problems within India and promote equity in society, The Future of Liberal Arts in India, Yale-India Initiative and Raman Research Institute, Bangalore, January 9, 2014.
- d. Cultural and Artisanal Landscapes: Insights from the World Heritage Zones of Tanjavur and Kumbakonam, India International Centre, New Delhi, December 10, 2013.
- e. Indian Metallurgical Traditions, consultative meeting on Worldview of Viswakarmas, IGNC, New Delhi, November 29, 2013.
- f. Metallurgy in Archaeology, national seminar on South Indian Archaeology, World Heritage Week Celebrations, ASI and Christ University, Bangalore, November 26, 2013.
- g. Art history and Inter-disciplinary Interventions, Karnataka Chitrakala Parishat, Department of Art History, College of Fine Arts, Bangalore, October 7, 2013.
- h. Elements of Siva's Dance: Archaeometallurgical and Iconometric Approaches in the Study of Medieval South Indian Bronzes, Bronzes 2013, 18th International Congress on Ancient Bronzes, Zurich, September 6, 2013.
- i. Three lectures given as invited expert for international workshop and training programme on Personal Adornment from Pattanam and Beyond, organised by KCHR with British Museum and Pondicherry University, Pondicherry.
- j. Personal Adornment and South Indian Bronzes, August 19, 2013.
- k. Mirrors in Indian Antiquity, August 18, 2013.
- l. Indian Metal Sources and Technology, August 15, 2013.
- m. Metallurgical Analysis: Role of Chemistry in Archaeology, symposium on Application of Sciences in Archaeology, Indian Museum, Kolkata, August 6, 2013.

Academic Courses

Offered a course for the NIAS Ph.D. Programme on Archaeological, Anthropological and Scientific Approaches in the Study of Settlements and Material Culture, at an intermediate level of 2 credits, including guided reading, fieldwork and tutorials and illustrative case studies and interactive discussions. The course comprised of guided reading and fieldwork for students interested in understanding archaeological and anthropological approaches in relation to the study of settlements and material culture while also exploring scientific methods in such study. Field studies based on ethnographic documentation or study of artefacts in museums or collections were also be encouraged. Illustrative case studies would also be presented with interactive discussions. A lecture series that Prof Sharada Srinivasan collaborated with at Karnataka Chitrakala Parishat on Art History and Inter-disciplinary Interventions, October 7 to 9, 2013, also formed part of the coursework.

Training Courses

Collaborated in numerous training courses organised by various cultural and academic institutions, one as an invited expert and tutor for the international workshop and training programme on Personal Adornment from Pattanam and Beyond related to early historic archaeology, August 14 to 20, 2013, organised by Kerala Council of Historical Research with British Museum and Pondicherry University. Other training courses that she was part of included, the national seminar on South Indian Archaeology, organised by Christ University with ASI as part of World Heritage Week celebrations from November 26 to 28, 2013. She also contributed to training

programmes for students and interested public as a delegate at a public symposium on 'Application of sciences in Archaeology, Indian Museum, Kolkata, and in the international workshop on study of museum objects using XRF at the CSVMS Museum partnered by Courtauld Institute where she shared her expertise with other students and colleagues in analytical techniques. Prof Srinivasan has been able to meaningfully engage with the broader field of major stakeholders involved in training in the field of material culture and education in art, history and archaeology such as museums and educational institutes, with a pivotal role for NIAS in these engagements.

Awards, Memberships

- a. Honorary Exeter University Fellow
- b. Member, Board, Institute of Archaeometallurgical Studies, London
- c. Standing Committee Member, International Conference of the Beginning of the Use of Metals and Alloys
- d. Member, Editorial Board, Ethnoarchaeology Journal (published by Maney, USA)
- e. Member of Archaeological Sciences committee of ASI



S Ranganathan
Visiting Professor
School of Humanities

Room No. F 23
Tel: 080-2218 5073
Fax: 080-2218 5028
Email: rangu2001@yahoo.com

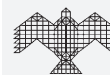
Joined NIAS on: July 2, 2004

Major Research Contribution for the Academic Year

New perspectives were presented on the Delhi Pillar, Gold, History of India through five objects and the Interplay between Arts and Technology. Experimental work brought further understanding on the thermo mechanical process of making Japanese Steel and Samurai swords. A note on the History of Alloys has been prepared in the context of multi component high-entropy alloys.

About

Srinivasa Ranganathan is Homi Bhabha Visiting Professor at NIAS, NASI Platinum Jubilee Fellow at the Indian Institute of Science and Honorary Professor at the Jawaharlal Nehru Centre for Advanced Scientific Research. His interests cover physical metallurgy, history of science and heritage science. He has co-authored a much acclaimed book on India's Legendary Wootz Steel: An advanced material of the ancient world. Elsevier is bringing out in 2014 his co-authored book on High-Entropy Alloys dealing with the renaissance in physical metallurgy. He has taught a course on Materials Heritage and Conservation at the Tokyo University of the Arts, Japan in 2012. He is a Fellow of four Indian Academies of Science and Engineering and the World Academy of Sciences (TWAS).



Lectures

- a. Interplay between the Arts and Technology in Ancient Indian Metallurgical Traditions, ISIJ International Session, Tokyo, Japan, March 23, 2014.
- b. The Magnificent Delhi Iron Pillar: Historical, Aesthetic and Metallurgical Aspects, Tokyo University of the Arts, Tokyo, Japan, March 14, 2014.
- c. Minerals and Materials Heritage of India, international conference on Ancient India's Contributions to World Progress, Maharani's Arts, Commerce and Management College for Women, Bangalore, February 25, 2014.
- d. Alloyed Pleasures: Multimetallurgical Cocktails, Asia Pacific Academy of Materials, IISc, Bangalore, February 11, 2014.
- e. The Glitter of Gold: Metallurgy as a Human Experience, NIAS-DST Training Programme on Science for Progress in India: Innovations in Technologies, February 11, 2014.
- f. Material Dreams – From Discovery to Design, NRC-M winter workshop on Integrated Computational Materials Engineering, Indian Institute of Science, Bangalore, December 23 to 27, 2013.
- g. Iron and Steel Heritage of India – Historical Perspectives, Science and Technology of Iron Making and Steel Making, Tata Steel, Jamshedpur, December 18 to 20, 2013.
- h. The Interplay between the Arts and Technology in Ancient Indian Metallurgical Traditions, IISER Public Lecture, Mohali, November 15, 2013.
- i. The Microstructural and Compositional Analysis of Japanese Samurai Blade Kitchen Knife, The 51st NMD and 67th Annual Technical Meeting of the Indian Institute of Metals, Banaras Hindu University, Varanasi, November 13 2013,
- j. The Century Long Quest for the Delhi Iron Pillar: Pioneering Contributions of Robert Hadfield and R Balasubramaniam, the 51st NMD and 67th Annual Technical Meeting of the Indian Institute of Metals, Banaras Hindu University, Varanasi, November 12, 2013.
- k. Materials at the Interface between the Arts and Science Fourth CV Sundaram Memorial lecture, Indian Institute of Metals, Mumbai, November 7, 2013.
- l. Interplay of the Arts and Technology in Indian Metallurgical Traditions, 150th Birth Anniversary of Pt. Madan Mohan Malaviya, National Convention of Sanskrit and Science, ISKCON, Bangalore, October 20, 2013.
- m. The Glitter of Gold: Metallurgy as a Human Experience CSIR - IMMT, Institute of Minerals and Materials Technology Foundation Day Lecture, Bhubaneswar, September 26, 2013.
- n. Microstructural Analysis of a Wootz Steel Blade from Southern India, BUMA VIII, Nara, Japan, September 10 to 15, 2013.
- o. Northern Telangana, An Iron and Crucible Steel Production Landscape in India, Pioneering Metallurgy Field Survey 2010, BUMA VIII, Nara, Japan, September 10 to 15, 2013.
- p. Thermographical Analysis of Continuing Tradition of Mirror Casting in Kerala, BUMA VIII, Nara, Japan, September 10 to 15, 2013.
- q. EMSI Lifetime Contributions Award Lecture 2013, A Journey across Time and Space: Fifty One Years of High Resolution Studies, XXXIV Annual Meeting of Electron Microscope Society of India, Kolkata, July 3 to 5, 2013.
- r. Imaging Molecules and Materials Across Time and Space The First Professor EG Ramachandran Distinguished Lecture, IIT Chennai, April 17, 2013.

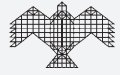
Training Courses

- a. Brahm Prakash Centennial Seminar, IISc, Bangalore, August 21, 2013. The centennial of Prof Brahm Prakash was commemorated with a retrospective with reminiscences from R Krishnan, VS Arunachalam, S Banerjee, M Narayana Rao and SC Sharma covering the contributions of Brahm Prakash to education, atomic energy, space and defence.

- b. BUMA 8 in Nara, Japan, September 2013: Leader of six members Indian delegation, inaugurated the event with Prof K Nagata, elected as member of International Advisory Committee.
- c. Structured session on the Delhi Iron Pillar November 12, 2013, BHU, Varanasi. Thanks to the initiative of Ranganathan and colleagues from the Indian Institute of Metals and the Indian National Academy of Engineering ASM International has recognized the pillar as a historical landmark the plaque was unveiled by Ranganathan during the Annual Meeting of the Indian Institute of Metals.
- d. NRC-M winter workshop on Integrated Computational Materials Engineering, IISc, December 23 to 27, 2013. Coordinator along with Prof TA Abinandanan of this emerging area in materials engineering
- e. Open Day at the Indian Institute of Science, March 1, 2014. Following the successful organization in 2010, 2011, 2012 and 2013 Prof S Ranganathan and Prof Sharada Srinivasan from NIAS and Prof Atul Chokshi and Prof S Satyam Suwas of the Materials Engineering Department of IISc curated an exhibition on Heritage of India with a display of materials, informative posters and video about the heritage of India. A special feature was the poster on Samurai sword making and another on map combining history, geography and materials. Another poster was on the Delhi Iron Pillar.

Memberships

- a. International Advisory Committee of the BUMA Conference series
- b. INSA National Commission for the History of Science
- c. DST Programme Advisory Committee on Indian Digital Heritage – Hampi
- d. International Advisory committee of the Asian Consortium on Computational Materials Science
- e. International Advisory Committee for 2014 Materials Education Symposia
- f. Visitor's Nominee, IIT Gandhinagar
- g. Board of Directors, CSTEP, Bangalore
- h. Editorial Board, Encyclopaedia on Iron and Steel, Taylor and Francis, UK
- i. Editorial Board, Iron and Steel Institute of Japan, Materials Transactions, Japan, Acta Materialia Sinica, China

**S Settar**

Honorary Visiting
Professor
School of Humanities

Room No. F 21
Tel: 080-2218 5069
Fax: 080-2218 5028
Email: ssetter@yahoo.
co.in

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 (1970-1996), Director of the Institute of Indian Art History at Karnatak University, Dharwad (1978-1996), Chairman, Indian Council of Historical Research, New Delhi, (1996-1999) and Director (Hon.), Indira Gandhi National Centre for the Arts, Southern Regional Centre, Bangalore (2005-2014).

Lectures

- a. General President of Bellary District Sahitya Sammelana held at Kampili, Bellary District, February 15 to 16, 2014.
- b. Dharwad Sahitya Sambhrama, an annual literary meet, participant in a panel on Trends in Recent Researches, January 17 to 19, 2014.
- c. Workshop on Hase Traditional Paintings, held in Sagara, December 29, 2013 to January 5, 2014.
- d. Held the World Rock Art Exhibition on behalf of the Indira Gandhi National Centre for the Arts, National Gallery of Modern Art and ASI, for one month, in National Museum of Modern Art Gallery, Bangalore, January 3, 2014.
- e. Inauguration and Keynote address on Classical Kannada Literature, Kannada Vedike, Kannada Sangha, Sheshadripuram College Bangalore, September 28, 2013.
- f. Two days seminar on Girish Karnad's plays at Rangashankara, Bangalore, Discussion on Current Theatres, as a panel member, September 26 to 27, 2013.
- g. Chief Guest for the national seminar on Study of Epigraphy in the Background of Kannada as a Classical Language, organised by Central Institute of Indian Languages, held at Mythic Society Hall, Bangalore, September 26, 2013.
- h. Inauguration and Keynote address at the seminar on Jainism organised by Kannada University, Hampi at Mysore University Campus, September 18, 2013.
- i. Release of book written by Kamaroopi (MS Prabhakar), Kannada Sahityaparishat, Bangalore, July 28, 2013.

Award and Membership

- a. Kannada Sahitya Parishat Award, Chavundaraya Prasasti, for the year 2013, for contribution to the Jaina Literature.
- b. Member of Research Advisory Board, Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Vidyagiri, Andhra Pradesh.



Smriti Haricharan
Post-doctoral
Associate
School of Humanities

Room No. A 01
Tel: 080-2218 5051
Fax: 080-2218 5028
Email: smriti.march.forth@gmail.com

Joined NIAS on: June 1, 2010

About

Smriti Haricharan is a Post-doctoral Associate on the RESPOND project. The project has generated useful data by exploring satellite imagery in context with archaeological landscapes in Tanjavur, Vallam and Gangaikondacholapuram in Tamilnadu and Telangana, with the support of Mr Nagabhooshan and Ms Nalini. Dr Haricharan was successful in getting two grants including from ICHR and Stein Arnold to continue with the field surveys in the Telangana region for megalithic burials and habitation sites i.e. the Iron Age-early historic landscape, with permits from ASI and in collaboration with Dr Jaikishan. She contributed significantly to the UKIERI-II NIAS-Exeter Split Site Ph.D. programme and monitoring student activities and progress, she is currently co-supervising one of the students from the programme. Dr Smriti Haricharan worked on a JNNRUM project to contribute from policy approaches to issues related to heritage of Mysore steered by Prof Narendar Pani of Social Sciences faculty. She is the recipient of the Fullbright-Nehru Postdoctoral Fellowship to conduct research in University of Chicago and University of Illinois, Urbana Champagne, both in the USA, for the year 2014-2015.

Doctoral Students and Other Associates of the Heritage Science and Society Programme



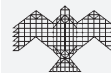
Hema Thakur

Registered with Mysore University and is in the writing-up stages of her Ph.D. work. Her doctoral thesis looks at the issue of emergence of urbanisation in northeast Karnataka in the early historic period and especially with respect to the Satavahana site of Sannati and related sites in the region.

Sumitra Sundar

Is working on the aspect of the role of collectives in the contemporary art of Karnataka which is being submitted to Manipal for registration.





KN Venkatesh

Is working on re-representations of popular icons from socio-cultural and socio-political perspectives.

Junior Research Fellows

Rajarshi Sengupta under the IDH project worked on iconography and art history, received a fully funded Ph.D. studentship at University of British Columbia. **Uma Kritika** who has currently joined the IDH project is looking at the aspect of Girija Kalyanam representations in Vijayanagara art, also in relation to the demo for the IDH project.

RBI PROGRAMME ON INTERDISCIPLINARY APPROACHES TO ECONOMIC ISSUES

Introduction

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

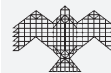
Updates and Progress

During the year the programme made considerable progress towards using a multidisciplinary approach to understand various public policy issues. Given India's growing young population and the importance of manufacturing sector as an employment generator, a NIAS report titled *Towards a Strategy for Manufacturing in Karnataka* by Narendar Pani, uses a theoretical framework from New Economic Geography to suggest policy initiatives to revive manufacturing in the state. The report argues that Karnataka's economic success has been disproportionately dependent on Bengaluru, which has led to concentration of resources in Bengaluru giving rise to a real estate spiral. The report discusses measures to deal with three issues: reducing Bengaluru-centricity; encouraging capital to move from real estate to manufacturing; and providing labour accessibility to training and jobs.

India's geography and uneven development, imparting quality education throughout the country is a difficult task. Since the early 1970s, India has made various efforts at utilising satellites for promoting access to education. A recent step in this direction was made by the Indian Space Research Organization (ISRO) in September 2004, when it launched an educational satellite "EduSat", built exclusively for serving the educational sector. Using the functions of innovations systems approach, a recently published paper by Chidambaran G Iyer tries to understand the use of satellites for access to education. This was done by analyzing the experience of IIT Bombay distance education network and the primary school network in the Hindi speaking states of India. In both of these networks the initial strong thrust could not be sustained. Though lack of resources was the main reason in the both the networks, the pre cursor for the lack of resources was different for each of the networks. IIT Bombay network was unable to provide connectivity fast enough for the rapidly growing demand across the country and had to find an alternative technology. With respect to primary school network, the key resource crunch was with respect to trained manpower and security personnel for the equipments deployed, and lack of support from softer institutions like culture.

The study, *Evaluation of the Processes in the Implementation of Jawaharlal Nehru National Urban Renewal Mission in Karnataka*, was completed in October 2013. This study which evaluated the processes of the JNNURM also stepped back and explored the process of urbanization in Karnataka and its influence on individual cities. Evaluation of the JNNURM proceeded with a selection of cities and towns where a large number of households were surveyed; officials of various government departments were also interviewed with a view to understand the processes of JNNURM. The study showed that in addition to Bengaluru and Mysore, Mangalore with its influence over the districts of Dakshina Kannada and Udupi is an urban centre that needs to be treated as an engine of growth. A city in the three contiguous districts of Dharwad, Bagalkot and Belgaum can also be treated as an engine of growth.

The study on the *Preparation of District Human Development Report of Bangalore Urban District*, which was undertaken last year with an aim to capture variations in the status of human development at the district level, will soon be complete.



Outreach

A consultation was organized on August 26, 2013 to discuss the findings of the study *Evaluation of the Processes in the Implementation of Jawaharlal Nehru National Urban Renewal Mission in Karnataka*. The consultation benefitted from the experiences of experts from Karnataka as well as various parts of the country. As part of the Preparation of Human Development report project, Chidambaran G Iyer attended a three-day training program held by the Government of Karnataka, at Mysore from July 23 to July 25, 2013. In collaboration with the Bangalore Urban Zilla Panchayat, workshops on the human development index were organized in Anekal taluk, Bangalore South taluk, Bangalore East taluk, and Bangalore North taluk. These workshops disseminated the concept of human development to the office bearers and members of taluk panchayats, gram panchayats, department officers, and students in the each of the taluks. During the course of the academic year, Prof Narendar Pani also wrote eight articles on various issues for The Hindu Business Line, he also spoke on urban issues in three forums – NIAS Wednesday Discussion Meeting, In-service Training Programme for IAS Officers, and the 28th NIAS Programme for Senior Executives.



JNNURM Consultation at NIAS (August 26, 2013)

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, S Soundarya Iyer, NS Nalini, Ankita Rathi

Narendar Pani

Professor

School of Social Sciences

Room No. S 08

Tel: 080-2218 5145

Fax: 080-2218 5028

Email: narendar.pani@gmail.com

Joined NIAS on: April 9, 2007

Major Research Contribution for the Academic Year

The major contribution during the year was to develop alternative perspectives of macro policies. The study of JnNURM helped capture the wide gap between the perspective of a national urban policy and how it is interpreted on the ground. The report on manufacturing recognized the importance of location in an effective strategy for urban growth.

About

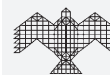
Narendar Pani is an economist by training who has moved towards developing a multidisciplinary approach to the social sciences. This approach has been conceptualized in his writings on methodology, particularly his book *Inclusive Economics: Gandhian Method and Contemporary Policy* which he published in 2001. On his way to developing this method he published two other books, *Redefining Conservatism: An Essay on the Bias of India's Economic Reform, and Reforms to Pre-empt Change: Land Legislation in Karnataka*. Since 2001 he has been using this method to understand aspects of Indian reality. In recent years this effort has tended to focus on urban issues. This has led to two other books. *Women at the Threshold of Globalization* (with Nikky Singh) studied the experience of garment workers in Bengaluru in dealing with globalization. *Bengaluru, Bangalore, Bengaluru: Imaginations and their Times* (co-edited with Sindhu Radhakrishna and Kishor G Bhat) used a variation of the method suggested by Giambattista Vico to trace the history of the city.

Over the last three and a half decades Prof Narendar Pani has published widely in academic journals in India and abroad. Over the same period he has also written several hundred articles in the editorial pages of national newspapers as well as in magazines. He is also the author of an explainer on the WTO, two novels and a monograph on theatre.

Among his administrative responsibilities is being the anchor of two programmes: the Conflict Resolution Programme, and the Programme on Interdisciplinary Approaches to Economic Issues. He is also the Secretary to the Council of Management of the institute.

Lecture

Historical Roots of Corruption in an Indian City: Mark Cubbon and the Gap Between Legality and Morality in Bangalore, Watson Institute for International Studies, Brown University, March 17, 2014.



Academic Courses

In addition to the contributions to both the core courses for Ph.D. students – the Foundation course and the one on Methodology – Narendar Pani also offered two other courses this year, one on *Development and Conflict*, and the other on *Understanding Indian Cities*.

The sessions in the course on *Development and Conflict* fell into three broad categories. The first set of sessions provided an overview of the theorization on conflict, with a focus on social conflict. The second set of sessions explored the theorization of the relationship between development and conflict. In the process it developed a model using the capabilities approach to bring out the scope for multiple types and levels of interaction between development and conflict. The final set of sessions used this approach to understand the relationship between development and specific conflicts in India.

The course on *Understanding Indian Cities* begins by providing an overview of theorizing on cities. In the process it points to the limitations of these theorizations in understanding Indian cities. It then builds a case for an alternative approach to cities centered round identities and autonomy. It does so by exploring the link between identities, autonomy and place, thereby setting the stage to understand migration and mobility.

Training Course

Coordinated a course for middle to senior level officers of the IAS and other central services on *Multidisciplinary Perspectives in Urban Development*, October 21 and 25, 2013.

Awards, Memberships

- a. Visiting Fellow of International Studies at the Watson Institute for International Studies, Brown University, Providence, USA.
- b. Member of the Steering Committee set up by the Planning Commission to review the functioning of the Mahatma Gandhi National Rural Employment Guarantee Act.
- c. Member of committee to evaluate targets set for the Revenue department of Government of Karnataka.
- d. Member of committee to evaluate targets set for the Food and Civil Supplies department of Government of Karnataka.



Chidambaran G Iyer
Assistant Professor
School of Social
Sciences

Room No. S 15
Tel: 080-2218 5131
Fax: 080-2218 5028
Email: chidambaran.
iyer@gmail.com

Joined NIAS on: June 7, 2010

Major Research Contribution for the Academic Year

The paper on the impact of satellite technology on education development was path breaking as there are relatively very few Indian academic papers that used a theoretical framework, in this case the functions of innovations systems approach, to understand the implications of technology on the society.

The District Human Development Report involved not only writing chapters but also computing 126 indicators for BBMP and four taluks in the district. The data required for the indicators involved coordinating with the Zilla Panchayat as well as numerous other departments of the government including BBMP. The 126 indicators were then used to compute the various indices required by the project. In addition to writing 14 chapters, the report also included completing four area specific studies.

About

Chidambaran G Iyer's research interests cover policy oriented issues in Industrial Economics, Foreign Direct Investment and, Technology and Innovation. He recently published 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.

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 and another project on the evaluation of the JNNURM in Karnataka. Currently he is working on the preparation of the Human Development Report for Bangalore Urban District.

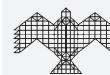
Chidambaran G Iyer did his Ph.D. in Development Studies from the Indira Gandhi Institute of Development Research, Mumbai. He has also worked in the Indian Chemical Industry for a period of four years after completing his B.Tech. in Chemical Engineering from Dr Babasaheb Ambedkar Technological University,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

Academic Course

Two sessions in the Social Science core course during the first semester of the academic year 2013-14.

Training Course

Assisted Prof Anindya Sinha in coordinating the 28th NIAS Programme for Senior Executives held in January 2014.



Membership

Invited as an expert for Working Group 1, constituted for the finalization of the contents of the chapter, Human Development Index in Karnataka, in the upcoming Karnataka State Human Development Report.

Other Information

- a. In association with Bangalore Urban Zilla Panchayat, four taluk level workshops have been completed, one each in Anekal taluk, Bangalore South taluk, Bangalore North taluk, and Bangalore East taluk.
- b. As part of the preparation of District Human Development Report, attended a three-day training programme held by the Government of Karnataka at ATI, Mysore from July 23 to July 25, 2013.
- c. Organized with Prof Narendar Pani, a consultation on The Evaluation of the Impact of Processes in the Jawaharlal Nehru National Urban Renewal Mission in Karnataka at NIAS on August 26, 2013. Leading experts from various parts of the country participated in the consultation.
- d. Committee member for the student Mr K Jafar, who was awarded his doctoral degree.
- e. Internal reviewer for the thesis proposal presentation of Mr Sanket Kulkarni and Mr B Guruprasad.
- f. External examiner for M.A. dissertations and presentations of students of Christ University, held in February 2014.



VS Ramamurthy
Director, NIAS

Room No. F 15
Tel: 080-2360 1969
Fax: 080-2218 5076
Email: vsramamurthy
@nias.iisc.ernet.in

Joined NIAS on: September 2, 2009

About

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 and 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, NIAS, 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. Sociology of Scientific Discoveries, Science Day, Karnataka University, Dharwad, March 28, 2014.
- b. The Discovery of Nuclear Fission – A Game Changer in the History of Scientific Research, Talk on Fission-75 Meeting, IGCAR, Kalpakkam, December 20, 2013.
- c. Sociology of Scientific Discoveries, INSYS Talk at Gas Turbine Research Establishment, Bangalore, November 9, 2013.
- d. Science, Technology and Sustainable Development, 9th special lecture on the occasion of Shri MV Rajasekaran's 86th Birthday Day, MVR Foundation, Bangalore, September 12, 2013.



SS Meenakshisundaram

Visiting Professor
School of Social
Sciences

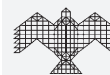
Room No. F 20
Tel: 080-2218 5070
Fax: 080-2218 5028
Email: meenakshi54@
hotmail.com

Joined NIAS on: December 10, 2004

About

SS Meenakshisundaram chaired the Task Force meetings organized by the Department of Public Enterprises, Government of India to finalize memoranda of understanding between eighteen public sector units coming under the 'Contracts and Consultancies' syndicate and the Government. He prepared the capacity development strategy document and a perspective plan for capacity building of the panchayatiraj institutions in Chhattisgarh and submitted to the Government of Chhattisgarh for consideration and implementation. As Chairman of the respective Committees, he finalized and submitted the report of (a) the Expert Committee for empanelment of National level Monitors for the Ministry of Rural Development, Government of India and (b) the Review Committee for Prime Minister's Rural Development Fellows Programme.

Prof Meenakshisundaram has been on the Board of Management of the Centre for Sustainable Development, Bangalore; Institute of Social and Economic Change, Bangalore; 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 was also member of the Results Framework Documentation Syndicate for Agriculture and Rural Development, Cabinet Secretariat, Government of India, New Delhi; Member of the Technical Advisory group for the World Bank assisted Land Governance Assessment Framework in six states of India; Member of the Executive Committee for RGPSA, Ministry of Panchayati Raj, Government of India; Member of the Academic Council of the Indira Gandhi National Open University, New Delhi; Chairman of the Results Framework Documentation group for Rural Development and Panchayati Raj Department of the Government of Karnataka, and Chairman of the Programme Coordinating Mechanism of the Global Sanitation Fund for India, New Delhi.

He continues to be an Adjunct Faculty in the Gandhigram Rural University, Gandhigram, Tamil Nadu.

Along with Prof Hari Nagarajan (NCAER) and Prof Hans Binswanger, he has completed the book on decentralization in India. The book will be published by the Cambridge University Press during 2014.

Lectures

- a. Policy Paralysis and Governance Deficit – What is the Way Out?, Tata Institute of Social Sciences, Mumbai, January 31, 2014.
- b. Decentralized Planning, international conference on Deepening Democracy, Government of Kerala at Kovalam, January 19, 2014.
- c. Lessons from Decentralization in India, GDN and IRMA Workshop, New Delhi, November 28, 2013.
- d. Educational Decentralization – Participation in School Governance, Azim Premji University, Bangalore, October 15, 2013.
- e. Economic Policies for the Elderly, international conference on Healthy Ageing, Indian Institute of Science, Bangalore, September 30, 2013.
- f. Decentralization and Delivery of Public Services, lecture for Senior Officers of Government of Karnataka, Administrative Training Institute, Mysore, September 3, 2013
- g. Research Methodologies for Administrative Decision Making, Gandhigram Rural University, Gandhigram, August 10, 2013.
- h. Corporate Social Responsibility and Impact assessment, lecture for Senior Executives from PSUs, Engineering Staff College of India, Hyderabad, June 14, 2013.
- i. International Experiences in Decentralization, lecture for Senior Civil Servants from India, LBSNAA, Mussoorie, June 3, 2013.
- j. Decentralization in India – An overview for Bangladesh Civil Servants, National Institute for Administrative Research (NIAR), Mussoorie, April 10, 2013.

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

Jafar K

He has submitted his doctoral thesis, and successfully defended his thesis titled, The Impact of Education Led-Growth on Human Development: A Case-Study of Malappuram District, Kerala. He has been awarded the degree by Manipal University.





KG Asha

She is at an advanced stage in her thesis work, Dynamics of Labour Relations across Different Circuits of Globalisation. She has finished her field work and is now currently writing her chapters.

S Soundarya Iyer

She has started work on her thesis, Dynamics of Rural Transformation in Karnataka: A view from three villages. This thesis aims to study the interconnected processes of rural transformation in Karnataka over the last five decades, with the help of sample surveys in three villages that were surveyed in the 1961 Census. Village survey monographs and key informant interviews with families residing in the villages will also be used to trace their trajectories over the past five decades. A portion of the field work in this thesis has been completed and data entry and processing work is currently underway for the completed portion of the field work.



Nalini NS

She has started work on her thesis, First Nature and Urbanization: Terrain and Urban Development of Bangalore, 1971-2011. 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. In the current academic year, she has completed the energy computations required for her work.

Ankita Rathi

A first-year student, her research work focuses on spatial and economic aspects of intra state forms of urbanization in India.



The background image shows a light-colored building with a terracotta-tiled roof and arched windows. A large palm tree stands behind the building. In the foreground, there is a brick-paved path and a metal fence with greenery and flowers. The text is overlaid on this image.

CLUSTER-STRATEGY, SECURITY AND CONFLICTS

Programmes

- Conflict Resolution
- International Strategic and Security Studies Programme
- Water Sharing and Conflicts

CONFLICT RESOLUTION PROGRAMME

Introduction

The Conflict Resolution Programme at NIAS 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. 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. In short, the programme aims to both develop knowledge and disseminate it in a way that influences both popular perceptions and policies aimed at conflict resolution.

In line with these objectives the work in this programme is classified into three main categories-writing backgrounders, research on major conflicts in India and courses on conflict resolution. The work done so far in the programme has been largely concentrated in the first two areas. Regarding courses on conflict resolution, the programme is working on offering an online diploma course on conflict resolution. 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.

Updates and Progress

The programme added to the seven backgrounders it had done earlier with a backgrounder on Conflicts in Tripura by Amarjeet Singh. Work on two more backgrounders – one on *Maoist Conflict in Chhattisgarh* and another on *Conflicts in Gorkhaland* – have just begun. 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 focused on both domestic and social conflicts. A report titled *Age, Family Type and Domestic Conflicts in Bangalore* by Hema Deshpande and Gee Ameena Suleiman explained how the nature of domestic conflict in Bangalore changes with age. Another area that has been recently added to the focus of research is the Maoist conflict in India. In this area the Maoist conflicts in nine different states of India will be studied keeping in mind the socio-political and economic specificities of individual states. Research on Maoist conflict would focus on how conflict resolution measures such as development initiatives, negotiation and peace talks could be used to resolve it.

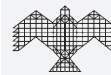
Another area that has been the focus of research has been the conflict in Northeast. In an article titled *ULFA Insurgency and Counterinsurgency in India: An Assessment*, Dr Amarjeet Singh analysed the United Liberation Front of Asom (ULFA) insurgency in Assam and the counter-insurgency measures of the state.

As a step towards exploring future areas of research a global Think-in programme was conducted in collaboration with Columbia University on March 18, 2014. This half-day programme involved young researchers from some premier research institutes to discuss the *Political Economy of Land and Water in India*. Professor Katharina Pistor and Dr Sai Balakrishnan from Columbia University initiated the discussion. The think-in was mainly structured around two key land and water laws – the Land Acquisition Act and the Model Groundwater Bill. The impacts of these laws on land and water governance will be analyzed through the cases of land-based financing for the Delhi and Hyderabad metro rail projects and the Coca Cola water dispute in Perumatty Gram Panchayat in Kerala.

Outreach

Following newspaper articles by Prof Narendar Pani contributed to our outreach:

1. By the Rivers of Telangana, The Business Line, December 6, 2013
2. The Growing Town-city Divide, The Business Line, October 2, 2013
3. A City Undone by a Strange Idea, The Business Line, March 2, 2014



Members of the Conflict Resolution Programme



Narendar Pani, *Anchor*
Anshuman Behera
Doctoral Student: Anamika Ajay

Anshuman Behera
Assistant Professor
School of Social
Sciences

Room No. A 1
Tel: 080-2218 5051
Fax: 080-2218 5028
Email: beheraisanshuman@gmail.com

Joined NIAS on: January 31, 2014

About

Anshuman Behera has a doctorate degree in Political Science from University of Hyderabad. His research and teaching interests include internal conflicts in India, Nepal and Bangladesh. He has co-authored a book entitled *Militant Groups in South Asia*. He has published a number of articles on violent conflicts, religious fundamentalism and terrorism related issues. He had previously worked at the Institute of Defence Studies and Analyses (IDSA), New Delhi.

Dr Anshuman Behera is developing course curriculum for online diploma course in conflict resolution. He coordinated a half-day think in program on *Political Economy of Land and Water in India* in collaboration with Columbia University, USA on March 18, 2014.

Doctoral Student of the Conflict Resolution Programme

Anamika Ajay

A first-year student, has completed the course work and is in the process of finalising her proposal for registration. Her thesis aims to understand the interaction between development and conflict by focusing on how development processes have influenced intra-family and inter-group conflicts in Kerala.





INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME

Introduction

The International Strategic and Security Studies Programme (ISSSP) has been active since 1996 at NIAS and specializes in examining contemporary issues with a science and technology perspective. The fact that technology and strategy are strongly inter-dependent justifies such an approach. At ISSSP, the political, military, organizational and structural linkages are interwoven with the S&T perspective to get a holistic picture. This is a unique capability at ISSSP and is well recognized in the Indian strategic establishment as evidenced by the invitation to take up/steer some specific studies by concerned bodies of the Government. ISSSP has developed specialty in carrying out in-depth studies relating to missile and nuclear issues. Methods of estimating missile dimensions, propulsion system performance and the missile trajectory to reach specified targets have been put in place; this, in turn leads to the development of a very comprehensive missile data base of different countries; and will be a significant asset to user agencies (Ministry of Defence, Security/Intelligence Agencies and other think-tanks) to draw inputs from the database as well as estimate capabilities of missile updates and variants.

The missile database mentioned above as well as investigation of other contemporary issues has been carried out under the auspices of the DRDO sponsored project titled *Science and Technology Dimensions of National Security*. Nuclear, missile, S&T and strategy issues of China and Pakistan form the focus of studies. In addition the focus is now expanding to include Iran, North Korea and the Indian Ocean Region. Obviously the US strategy and capabilities which draw reactions and drive events in our region of interest also form an important component of our study.

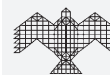
ISSSP is track-2 dialogue partner with the Committee on International Security and Arms Control (CISAC) of the National Academy of Sciences. The dialogue process was initiated in 1999 by the then Director, Prof Roddam Narasimha essentially to put forth India's security concerns and strategic requirements with the help of reasoned and balanced analysis especially on nuclear matters. Over time an acceptance about India's nuclear and missile capabilities has come about and the dialogue process now examines contemporary issue through joint workshop and joint studies. A memorandum of understanding is also in place between ISSSP/NIAS and the Bandaranaike Centre for International Studies. Study topic involving experts from both units have been finalized and is planned to be taken up. MOU with Institute of Peace and Conflict Studies, New Delhi is in place and a joint workshop has been held. Memorandum of understanding with the Oak Ridge National Laboratory, USA and the University of Tennessee is also being pursued.

The programme is staffed with a blend of people with S&T, political science and international relations background and is in a position to provide in depth strategic and policy analysis on topics of current interest.

Update and Progress

In 2013-2014, the programme made significant progress in studies relating to military-political and security developments in India's neighbourhood. In addition to contemporary topics examined, the Programme catalysed discussion meetings and workshops to engage a wider set of experts on the specific topics.

India's vast coastline and the requirements of maritime security in the context of emerging geopolitics have prompted the taking up of three interlinked studies: a) developing relationship matrix, data bank along with the hypothetical scenario involving China, India, the United States and the principal littorals in the Eastern Indian Ocean; and b) examining China and India's strategy in the Indian Ocean. As part of this exercise, a knowledge bank (database) comprising individual country's national interest, decision making apparatus, key decision maker profiles, technological capability, and internal dynamic has been created. National Perceptions on United Nations Convention on Law of Sea (UNCLOS) along with relationship matrix—diplomatic, political, economic and social—between major powers in the region constituted a significant part of the study.



Simulation of 'detect, identify and target' operation of the Chinese anti-ship ballistic missile operations involving space, land and missile assets was completed last year and supplemented with updates of the Chinese fleet of Yaogan remote sensing satellites. Their major functions like electronic intelligence (ELINT), optical remote sensing and microwave remote sensing were identified; and based on study of their orbital parameters, their passage over the carrier battle group and targeting opportunities identified.

The trajectory software developed in ISSSP was used to simulate the DPRK launch vehicle Unha-3. After updating the stage parameters based on the information put out by South Korean authorities on the recovered first stage spent hardware from the sea, the stage and fairing impact zones could be matched with our simulation. The orbital parameters of the Unha-3 satellite also closely matched with the US data.

The missile trajectory programme is now being offered as a user as a friendly code called *Quo Vadis* and is presently undergoing testing and de-bugging. Development of a desktop version of this software for use by the policy community in the country is currently underway.

Assessments of Pakistan Science and Technology with emphasis on Nuclear and Missile technologies are being pursued. 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 the figures for fissile materials held by Pakistan appearing in the international literature are overestimated. Based on this assessment, Pakistani capabilities in plutonium based miniaturized weapons and their use in cruise missiles and battlefield weapons has been evaluated.

Identification of uranium mines and associated infrastructure using Google Earth imagery has been taken up. A complete data set on the mining and milling facilities has been collected. With the help of gathered data attempts will be made to define the keys for image interpretation of the milling facilities.

ISSSP undertook a major study on the rare earths capability and capacity China has built up to reach the present pinnacle position it holds today. ISSSP also brought out a report advocating a strategy for rare earth for India. This report has been discussed widely in the relevant sectors of the Government and has catalysed discussion/approach for the exploitation of this resource by India. Dr Lalitha Sundaresan of ISSSP has coordinated the national rare earth's policy effort.

The pros and cons of the Pakistani battlefield tactical nuclear weapon NASR including implications for deterrence have been highlighted. The points brought out in the report have been presented to the National Security Advisory Board and were the topic of a round table discussion organised at Delhi jointly with the National Maritime Foundation.

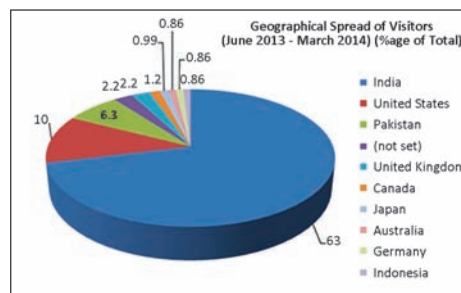
Specific studies were also carried out for the security agencies. The study results were presented to the specialist review committees formed by the sponsors for this purpose.

ISSSP has established its own website (www.issp.in), where the programmes output and outreach activities are reported. This has enhanced the programme's visibility as evident from the number of hits, comments and reference to the works (refer below for details).

Impact



The website of the International Strategic and Security Studies Programme (www.issp.in) was launched on June 1, 2013. Between, June 1, 2013 and March 31, 2014 over 24,000 people visited the site.



All ISSSP's books and reports (in pdf) are available on website. Details of talks and publications by ISSSP faculty and researchers are carried in the Outreach section of the website. The website also carries short articles called 'ISSSP Reflections'. The geographical reach of the website is depicted in the accompanying chart.

Comments on ISSSP Publications

I am most grateful to you for keeping me in loop regarding your various publications ... I make use of them whenever I have to speak on strategic subjects to Indian and international audiences. I cannot, therefore, thank you enough, and hope that I will continue to be a beneficiary of the largesse of the NIAS.

Shri MK Narayanan
Governor of West Bengal

On Hatf-IX/ Nasr Pakistan's Tactical Weapon

I would like to compliment the authors for an in-depth and holistic analysis of the development, especially, capability assessment based on technical / imagery analysis. Historical review based analysis of deterrence in Indo-Pak context is indeed noteworthy and would certainly add significance to the ongoing discourse on this subject.

Vice Admiral SPS Cheema
C-in-C, Strategic Forces Command

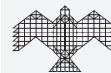
The paper is extremely informative and the views / analyses on the development of NASR / HATF -IX by Pakistan and their implications on the complex nuclear environment in the subcontinent are pertinent and well-articulated. The paper not only provides valuable inputs towards an overall understanding of Pak nuclear weapons programme but is also food for thought for formulation of our response options / strategies to retain our military ascendancy over our adversary

Lt Gen Vinod Bhatia
Director General of Military Operations (DGM0), Indian Army

Yaogann Satellite and Chinese Anti-Ship Ballistic Missile

I would like to compliment you for a holistic analysis of the development and its implications. The integration of these ELINT satellites with the existing SAR / Optical imaging satellites would certainly augment the space segment capability of the Chinese ASBM architecture.

Vice Admiral SPS Cheema
C-in-C, Strategic Forces Command



Chinese Rare Earth Strategy

Thank you for sharing the NIAS Report on the Chinese Rare Earth Strategy ... The NSCS has constituted a study under the leadership of Prof. Lalitha Sundaresan of NIAS for outlining a National Rare Earth Strategy.

Shri Nehchal Sandhu

Deputy National Security Advisor

Thank you for sharing the NIAS report on the issue. I understand the importance of this subject. The NMCC has already taken some initiative in this regard and has called for a meeting to discuss as to how to improve the growth and capabilities of this industry.

Dr V Krishnamurthy, Chairman
National Manufacturing Competitiveness Council

Pakistan Shaheen-1A Missile Test

Thank you for sharing the NIAS note on the Pakistani Shaheen1A missile test. The inputs are valuable for understanding this complex issue.

Lt Gen AK Choudhury
Director General of Military Operations (DGM0), Indian Army

The note contains a useful analysis of recent Pakistani Missile tests, including the changes in aerodynamic tailfins. I also take this opportunity to thanks your team and you at NIAS for the excellent research work on topical issues.

Shri Rajan Mathai
Foreign Secretary, Ministry of External Affairs

Outreach Conferences and Round Table Meetings

Round Table on *Pakistan's Tactical Nuclear Weapon Hatf-IX/Nasr*, was organised in association with the National Maritime Foundation at the India International Center, New Delhi. Members of the Defence Services and the strategic community attended the presentation, December 17, 2013.

First Strategic Workshop on *Eastern Indian Ocean Region*, was held at NIAS. Admiral (Retd) Arun Prakash, Vice Admiral (Retd) Vijay Shankar, Maj Gen. (Retd) Dipankar Baneerjee, Lt. Gen. (Retd) VR Raghavan, Rear Adm. (Retd) K Raja Menon, Prof KP Vijayalakshmi and Mr DS Rajan are the eminent persons who were part of the panel along with members of ISSSP, August 20, 2013.

Joint Conference with IPCS (New Delhi) and St. Joseph College, Bangalore was organised on *Shaping the Security Architecture in Southeast and East Asia* at St. Joseph College. From NIAS, Dr M Mayilvaganan, Dr Nabeel Mancheri and Ms Aditi Malhotra were speakers at the conference, September 10 and 11, 2013.

NIAS-NAS joint workshop on *Science and Technology for Countering Terrorism in 2014 and Beyond*, was organized at NIAS. Scholars from the US and India presented their papers on themes such as Conceptual Approaches to Countering Terrorism, Security at Chemical Facilities, Agricultural Security and Food Security, Emergency Preparedness and Response, Protecting Critical Infrastructure, Cyber security in its Complexity, February 3 to 5, 2014.



The CISAC Meet



NIAS-BCIS Meeting

National seminar on *Asia-Pacific Power Dynamics: Strategic Implications and Options for India*, was held at NIAS. Mr Jayadev Ranade, Prof Srikanth Kondapalli, Mr Mohan Guruswamy, Prof Chintamani Mahapatra, Amb MK Bhadrakumar, Amb Hemant Krishan Singh, Prof KV Kesavan, Prof SD Muni, Amb Leela Ponappa, Rear Adm K Raja Menon, Vice Admiral (Retd) Vijay Shankar, Dr Suba Chandran, Amb Latha Reddy and Amb CV Ranganathan were the distinguished participants of the seminar, March 10, 2014.

Second Strategic workshop was organised at NIAS. The workshop — gaming exercise — was intended to examine the changing power dynamics in Asia-Pacific from the India's strategic interest perspective and relate it with the nature of political, social, economic and military capabilities of the littoral states and major

powers in the region, March 11, 2014.

Discussion Meetings and Lectures

An interaction and presentation to NSAB members on various strategic and security issues including Rare Earth Elements etc. was held at NIAS, April 22, 2013.

Discussion meeting with Mr Arni Anand, former Additional Secretary in Cabinet Secretariat, July 3, 2013.

Third K Subrahmanyam Memorial lecture by Dr Onkar Marwah, Distinguished Fellow, Institute of Peace and Conflict Studies on Strategic Parity for Peace: Engaging China in the 21st Century. was organised at NIAS on July 30, 2013. The lecture focused on importance of engaging China.

Mr Sameer Patil, Associate Fellow, Gateway House, Mumbai gave a lecture on *LAC, LOC and Inside* at NIAS, August 13, 2013.



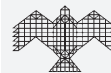
Prof Deepa Ollapally, George Washington University had a discussion meeting on *Ongoing and Future Research Activities* with the members of ISSSP at NIAS, August 19, 2013.

Presentation to Scientific Advisor (SA) to Raksha Mantri (RM) and senior scientists of DRDO on new activities proposed to be taken up at ISSSP, November 15, 2013.

Interaction with Wg Cdr Satyam Kushwaha, Defence Specialist, National Security Council Secretariat at NIAS. Issues relating to Pakistani and Chinese nuclear programmes were discussed, December 18, 2013.

Ashley J Tellis

Prof Ashley J Tellis, Senior Associate, Carnegie Endowment for International Peace, Washington DC gave a public lecture on *Pivot or Pirouette: The U.S. Rebalance to Asia* at NIAS. Dr Tellis also interacted with ISSSP members on ongoing research activities, January 3, 2014.



Interaction with Gen VP Malik, Former Chief of Army Staff, on his book on *India's Military Conflicts and Diplomacy: An Inside View of Decision Making*; January 20, 2014.

Prof Mohd Ayoob, Michigan State University interacted with ISSSP members. This was followed by a public lecture on *Geostrategic Significance of the Arab Spring*, February 10, 2014.

Three member team (Prof Rajaram Nagappa, Prof S Gopal and Dr M Mayilvaganan) from ISSSP, NIAS visited Sri Lanka at the invitation of the Bandaranaike Centre for International Studies (BCIS), for a discussion on joint collaboration between two institutes, February 24 to 27, 2014.

Public talk by Prof (Cdr) Alok Bansal, Senior Fellow, Centre for Land Warfare Studies (CLAWS), New Delhi on *The Crisis State: Growing Instability in Pakistan and Implications for India*, March 21, 2014.

Dr Sreeradha Datta, Director, Maulana Abul Kalam Azad Institute of Asian Studies (MAKAIAS), Kolkata had a discussion meeting with the members of ISSSP possibilities of research collaboration between NIAS and MAKAIAS, March 21, 2014.



Asia-Pacific (IOR) Seminar

Members of the International Strategic and Security Studies Programme



Rajaram Nagappa, *Anchor*
S Chandrashekar
S Gopal (till April 30, 2013)
N Ramani
Lalitha Sundaresan
M Mayilvaganan
Arun Vishwanathan
Nabeel A Mancheri (till September 30, 2013)
Doctoral Students: Murali Murti, BR Guruprasad, Sanket S Kulkarni
Senior Research Fellow: Aditi Malhotra
Research Associate: Viswesh R

Rajaram Nagappa
Visiting Professor
School of Natural and
Engineering Sciences

Room No. F 07
Tel: 080-2218 5087
Fax: 080-2218 5028
Email: r.nagappa@gmail.com

Joined NIAS on: February 1, 2007

Major Research Contribution for the Academic Year

Contributed to the ISSSP ongoing works on Pakistani and Chinese missiles. Major effort was towards discussion with the strategic community in the country on the feasibility of untested nuclear weapon systems and their deterrence value. The study on environment impact caused by WMD was well received by the sponsors after detailed review and discussion. Study of more recent images resulted in re-estimating the dimensions and performance of Pakistan long-range missile Shaheen II. Work on potential of small satellites and launch requirements is underway. Work proposed to be undertaken in association with members of ISSSP will include study of Chinese space capabilities and Chinese aircraft industry.

About

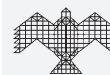
Rajaram Nagappa has specialised in aerospace propulsion and has worked extensively in the design, development and realization of solid propellant rockets for launch vehicle applications. He served the Vikram Sarabhai Space Centre, ISRO as its Associate Director, and later joined Anna University, Chennai as Pandalai Memorial ARDB Chair Professor at the MIT Campus. During this time, he accepted an invitation to take up the Lady Davis Visiting Fellowship at Technion-Israel Institute of Technology, Haifa. Prof Nagappa's forte is in indigenous and home grown rocket technologies. His background in aerospace engineering has been useful in assessing the missile and aerospace capabilities of Pakistan, China and Iran. His other interests cover disciplines related to missile defence, missile stability and space/space security issues.

Lecture

Science and Technology: Approaches and Advances in China, invited talk at the National Seminar on China's Strategic Rise and its Implications for India, Manipal, March 25, 2014.

Awards, Memberships

- Recipient of the DRDO Academy Excellence Award 2012
- Chairman, Preliminary and Critical Design Review of DRDO Propulsion Systems
- Chairman/Member in the Selection Boards of Recruitment and Assessment Centre, DRDO
- Member, Aerospace Engineering Sectional Committee, Indian National Academy of Engineering
- Chairman, Research Council, Advanced Systems Lab, DRDO
- Member, Research Council, Aeronautical Development Establishment, DRDO



S Chandrashekar
Visiting Professor
School of Natural and
Engineering Sciences

Room No. F 08
Tel: 080-2218 5084
Fax: 080-2218 5028
Email: schandra@nias.
iisc.ernet.in

Joined NIAS on: July 2, 2004

About

S Chandrashekar is a Visiting Professor in the International Strategic and Security Studies Programme (ISSSP). He has been associated with the Security Studies Programme since 2005. Prior to his involvement with ISSSP he was a Professor in the Corporate Strategy and Policy Area of the Indian Institute of Management Bangalore (IIMB) from where he retired recently. Before joining IIMB in 1993 he spent over twenty years with the Indian Space Research Organisation (ISRO).

At ISRO his work spanned all parts of the programme - satellite, rockets as well as the applications of space technology including communications and remote sensing. He was also involved in a major way with all activities related to international co-operation with the major space powers of the world including Russia, US, France and Europe. As part of this work he has represented and led Indian delegations to the United Nations Committee on the Peaceful Uses of Outer Space.

His research interests at IIMB included 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.

Along with other colleagues the current focus of his work at ISSSP has been to build a viable self-sustaining group in the realm of strategic studies that links the Science & Technology dimensions of national security problems with their political, economic and social counterparts. The idea behind these efforts is to provide a comprehensive integrated picture of the security challenges facing the country from a technology driven perspective.

Lecture

Technology and National Development, NIAS Round Table on Science for Policy and Policy for Science, October 31, 2013.

Membership

As a member of the Board of Trustees of the RBANMS group of educational institutions help them with their operations and strategy. This is one of the oldest charities in Bangalore that is providing school and college education to the poor and economically backward students in Bangalore.



N Ramani

Visiting Professor
School of Natural and
Engineering Sciences

Room No. F 04
Tel: 080-2218 5093
Fax: 080-2218 5028
Email: narayan.
ramani@gmail.com

Joined NIAS on: November 1, 2007

Major Research Contribution for the Academic Year

The core part of the Missile Trajectory Estimation Software (Quo Vadis) has gone through significant improvements based on its usage in a number of studies at the Programme. In the case of the North Korean Launch, additional information in the form of Impact Points of Stages 1 and 2 and Shroud were provided. The software was modified to use this additional information to determine the maneuvers during the course of the flight. This helped reconstruct the Orbit of the Satellite to a fair extent. Part of the work was completed during last year and in the early part of this year, further refinement, specifically with regard to implementing a "Pitch Programme", was carried out.

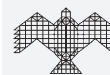
The GUI has been enhanced extensively based on our SRS and with the help of the existing Prototype Software. The same is undergoing Test and Evaluation.

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, CDBT, EPFO, IMD/MES and SBI.

Membership

Member of project review panel on Information Security at the Department of Electronics and Information Technology (DietY), for the following Project Centres during 2013: IIT-Kharagpur, DSCI Delhi, Jadavpur University, CDAC Gorakhpur, CDAC, Hyderabad and IIT, Patna.



Lalitha Sundaresan
Visiting Professor
School of Natural and
Engineering Sciences

Room No. F 05
Tel: 080-2218 5089
Fax: 080-2218 5028
Email: sundaresan.
lalitha@gmail.com

Joined NIAS on: May 14, 2008

Major Research Contribution for the Academic Year

Completed an assessment of Chinese capability in rare earths and its implication for India. Along with other members of the programme have been looking at what could be the strategy India should adopt to build a rare earth eco system in the country.

Submitted two reports (i) Pakistan Nuclear Forces, Delivery Platform and (ii) Does Pakistan have a Pu Weapon? to the relevant Funding Agency. This work was carried out with two other members of the programme (R Nagappa and S Chandrashekar) for the project on Assessment of Pakistan's S & T Capabilities in Missile and Nuclear Capabilities.

About

Lalitha Sundaresan has a doctoral degree from the Indian Statistical Institute, Kolkata. She has worked at the Indian Space Research Organization (ISRO), Bangalore, and the Department of Science and Technology (DST), New Delhi before joining NIAS. She carried out systems study in ISRO to assess the usefulness of satellite remote sensing for natural resources monitoring specifically for India. While at DST, she was involved with the setting up of Natural Resources Data Base Centres in all the districts of Karnataka as well as the development of indigenous GIS software. At NIAS she has been studying the S&T capability of India's neighbours, specifically in the strategic sectors. She 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. Recently she studied the strategy China employed to become a dominant player in rare earths ecosystem. 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.

Lectures

- a. China's Rare Earths – A Strategic Tool?, NIAS Round Table on Science for Policy and Policy for Science, October 30, 2013.
- b. Science, Technology and Security, Eleventh NIAS-DST Training Programme on Multidisciplinary Perspectives on Science and Technology, July 31, 2013.

Academic Course

Offered a course titled Quantitative Techniques for doctoral students of NIAS from August-December 2013.



M Mayilvaganan
Assistant Professor
School of Natural and
Engineering Sciences

Room No. S 12
Tel: 080-2218 5133
Fax: 080-22185 028
Email: mumayil@
yahoo.com

Joined NIAS on: November 2, 2010

Major Research Contribution for the Academic Year

Managing ISSSP research project on Indian Ocean Region and contributed in building database (knowledge bank and network modelling on components such as national interest, decision making apparatus, profiling key decision makers etc.) on the important littorals and major powers in Asia-Pacific. Invited to be the external member of International Advisory Board of Malaysian Journal of International Affairs. Coordinated NIAS Ph.D. Entrance Exam Process along with Dr Shivali Tukdeo.

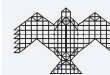
About

M Mayilvaganan is Assistant Professor in the International Strategic and Security Studies Programme at NIAS. Previously, he was Visiting 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 and 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 Asia, Terrorism, Maritime Security, 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.

Lectures

- a. Challenges to Sustainable Peace and Reconciliation: The Post-War Sri Lankan Experience in the international conference on Engaging South Asia at Mahatma Gandhi University, Kottayam, Kerala, March 27, 2014.
- b. Understanding Vulnerability to Climate Change and Sea Level Rise: Scenarios and Impacts – A Case Study of Maldives and Bangladesh, paper presented



in the international conference on Disaster Mitigation and Management Towards Sustainable Development at Periyar Maniammai University, Thanjavur, December 4, 2013.

- c. India's Maritime Interest and Challenges, paper presented in the international conference on Shaping the Security Architecture in Southeast and East Asia Indo-Pacific as Lookeast 3.0, organized by NIAS, IPCS and St. Joseph College, Bangalore, September 11, 2013 (with Ms Aditi Malhotra).

Academic Courses

- a. Offered, contributed (along with Dr Arun Vishwanathan) and coordinating ISSSP core course *National Security – I* (Internal Security) and *National Security - II* (India and International Security) for the students of ISSSP.
- b. Offered module on *Migration from Security Perspective* in Foundation Course for the first year NIAS Ph.D. students.

Awards, Memberships

- a. Member of International Advisory Board of Malaysian Journal of International Affairs.
- b. Member of Board of Question Paper Setters, Annamalai University, Chidambaram.
- c. External evaluator for International Relations (Master's programme), St. Joseph College, Bangalore.
- d. Member, Australia-India Interdisciplinary Research Network (AIIRN).



Arun Vishwanathan
Assistant Professor
School of Natural and
Engineering Sciences

Room No. A 02
Tel: 080-2218 5052
Fax: 080-2218 5028
Email: arun_
summerhill@yahoo.
com

Joined NIAS on: October 3, 2011

Major Research Contribution for the Academic Year

During this year, one of the major research contributions has been the NIAS Report titled Hatf-IX/ NASR – Pakistan's Tactical Nuclear Weapon: Implications for Indo-Pak Deterrence, co-authored with Prof Rajaram Nagappa and Ms Aditi Malhotra. I have also been invited to write on regular basis for the Stimson Center's website *Generation Why*. The website provides a platform for young and upcoming strategic experts from India and Pakistan.

About

Arun Vishwanathan is Assistant Professor, International Strategic and Security Studies Programme, National Institute of Advanced Studies, Bangalore. Prior to joining NIAS, he 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

- Presentation (with Prof Rajaram Nagappa, Dr LV Krishnan and Ms Aditi Malhotra) on Nasr BNW at the IIC, December 17, 2013.
- Presentation on NASR Monograph at IAS to the DRDO Review team and several other visitors, November 28, 2013.
- Remarks at discussion on Iran Today: Military and Nuclear Capabilities, Institute of Peace and Conflict Studies, New Delhi, April 30, 2013.
- Effects of Nuclear Explosions: An Overview with Specific Examples, HQ Strategic Forces Command, Ministry of Defence, Delhi, April 29, 2013.

Academic Courses

- Teaching a three-credit course Nuclear Deterrence in India, China and Pakistan during the August-December 2013 semester.
- Teaching a three-credit course National Security - I (Internal Security) jointly with Dr M Mayilvaganan.

Award

Elected as Full Member of the International Institute for Strategic Studies (IISS), London.

Doctoral Students and Other Associates of the International Strategic and Security Studies Programme

Murali Murti

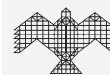


He is a third-year doctoral student in International Strategic and Security Studies programme working on Knowledge Search and Its Role in Innovation: A Comparison of Chinese and Indian Practices for his thesis. After the completion of coursework he is now in the process of finalization of his thesis proposal. As part of the proposal drafting, he has completed an extensive literature survey, and in addition has evaluated 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 has also initiated field research in two Indian organizations. Murali Murti holds a B.Tech. 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.

BR Guruprasad

He is a second-year doctoral student in International Strategic and Security Studies programme and works on Assessment of the Role of Foreign and Indigenous Technologies in the Development of the Indian Space Programme as the subject of his Ph.D. research. After completing course work in June 2012 and clearing Ph.D. qualifier examination in September 2012, efforts are being made 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 work. Guru Prasad holds a Master's degree in Communications and Journalism. His areas of research interest include international cooperation in the domain of space, technology assimilation, indigenisation, societal benefits accrued from space technologies as well as the history of Indian space programme.





Sanket Sudhir Kulkarni

He is a second-year doctoral student with the International Strategic and Security Studies Programme. In the past one year, he has registered his topic with Manipal University and has begun work on his thesis. He undertook a course under Dr Arun Vishwanthan on Nuclear Deterrence and Strategy in South Asia. Along with his doctoral research, Sanket is also associated with two projects in the Institute. He is collaborating with the Energy and Environment Group in NIAS as a Co-Principal Investigator on a project which deals with assessing the potential, challenges and policy options for cross border electricity trade in South Asia. Also he is associated with Dr Mayilvaganan's work on terrorism in Maharashtra. In the last one year he has presented a research paper in a conference in which he performed a comparative analysis of India and China's strategy towards Cross Border Energy Pipelines and has published web articles on energy security.

Research Associates

Aditi Malhotra is Senior Research Fellow in the International Strategic and Security Studies Programme at NIAS. Previously, she was an Associate Fellow at the Centre for Land Warfare Studies (CLAWS), New Delhi. Prior to joining CLAWS, she was working as a news correspondent in Dubai, UAE and interned with the Centre for Air Power Studies, New Delhi. She holds a Master's degree in International Studies from the University of Sheffield, United Kingdom with a dissertation concentrating on 'Nuclear Security: The Case of Pakistan.' Her areas of interest include Security Issues related to South and Southeast Asia, Nuclear Proliferation and Security, and Changing Trends in Conflict. Currently, she is a part of two projects at ISSSP, specifically on Pakistan's Tactical Nuclear Weapons (TNW) and Facing Strategic Challenges, Preventing Wars: Rising China and India's Strategy in the Indian Ocean.

Viswesh R is a Research Associate in the ISSSP at NIAS. He obtained a Master's degree in Physics from St Joseph's College Bangalore in the year 2013. Prior to joining as a Research Associate, he was an intern at NIAS where he worked on a project involving 'China's Supercomputing capabilities'. At ISSSP, he is working on a project involving China's aviation policies and on a separate project involving the Indian Ocean Region. He also works on the Iran and Pakistan sections of the 'Monthly Digest', an in house document that tracks developments in specific countries of interest. Viswesh's research interests include nuclear related issues, Science and Technology related to security and his specific area of interest is West Asia.

Sadhavi Chauhan is a Senior Research Fellow in the ISSSP at NIAS. She is currently involved in two projects of the programme - The Indian Ocean Region, and Civil-Military ties in India. She is also undertaking an independent research on the role of Vietnam in the South China Sea dispute. Prior to joining ISSSP, she was an Associate Fellow in the Strategic Studies Department of the Observer Research Foundation, New Delhi. She has completed her MSc in International Relations from the London School of Economics and Political Science. Her dissertation was on The Role of Geopolitics on a country's Foreign Policy: A Case Study of India. In the past she has worked for Blackwell Strategic, CNN-IBN and the Indian Express. Her areas of interest include the South China Sea Dispute, Foreign Policy Analysis, and the Politics of International Law.

WATER SHARING AND CONFLICTS PROGRAMME

Introduction

The main objective of the Water Programme is to conduct research studies in the water sector. The research themes include conflicts and conflict resolution surrounding equitable water sharing and 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. Research has been 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 aimed 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.

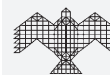
Update and Progress

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. The project was initiated in April, 2012 after finalising the concept notes, objectives, methodology and the time frame of research. The NIAS team was actively engaged in facilitating the project in the various zones through field visits and discussions with the respective zonal level teams and various stakeholders to facilitate strengthening of research and establishing constant communication 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. A comprehensive progress report was submitted in December 2013 and the project terminated.

NIAS in collaboration with the French Embassy established the Indo-French Network of actors in the water sector, supported by CEFIPRA. 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.

Being a part of a five member international team developed a module on *Vulnerability and Impacts of Droughts* using IWRM approaches to drought management for a comprehensive training programme titled *Integrated Water Resources Management in Drought Risk Management*. The modules have been tested and finalised in training international water professionals in Nairobi, Kenya and Monterrey, Mexico. The initiative was supported by UNDP and Cap-Net.

A book volume has been edited 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 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.



Members of the Water Sharing and Conflicts Programme



N Shantha Mohan, *Anchor*

VV Binoy

Post-doctoral Associates: Durba Biswas (till May 24, 2013), V Jayasree (till November 30, 2013)

N Shantha Mohan
Visiting Professor
School of Social
Sciences

Room No. S 06
Tel: 080-2218 5143
Fax: 080-2218 5028
Email: shantha_nias@yahoo.co.in

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 am engaged in research, intervention and advocacy from a social justice and rights framework and a gender perspective on issues related to governance, violence against women and literacy. I am also engaged in facilitating the Government of India in writing its Fourth and Fifth Periodic Report on CEDAW, India. 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. As Chief Guest in an inter-collegiate debate competition on Violence against Women, gave a talk on the Application of CEDAW to Prohibit and Prevent Violence against Women in India, R.V. Teachers College, Bangalore, October 24, 2013.
- b. Made a presentation and led a discussion on the training module on Vulnerability and Impacts of Droughts, in the training programme on Integrated Water Resource Management in Drought Risk Management, in Monterrey, Mexico jointly supported by UNDP, Capnet and REMERH. The programme aimed at strengthening the capacity of international water professionals by enhancing IWRM knowledge and skills to reduce impact of drought disasters, June 24 and 28, 2013.

Awards and Memberships

- a. Vice President of the South Asian Consortium for Interdisciplinary Water Resources Studies (SaciWaters), Hyderabad.

- b. Member of a team of international experts for developing a training module on Integrated Water Resources Management in Drought Risk Management for water professionals, supported by UNDP and CapNet.
- c. Member of the expert group, Result Framework Document for the Departments of Women and Child Development, Scheduled Castes, Scheduled Tribes, Minorities and Backward Classes, Government of Karnataka.
- d. Member of the Governing Council of National Sarva Shiksha Abhiyan constituted by the Ministry of Human Resources, Department of School Education and Literacy, Government of India.
- e. Member of the National Resource Group, Mahila Samakhya, Ministry of Human Resources, Government of India.
- f. Member of the Executive Committee, Mahila Samakhya, Karnataka.



V Jayasree

Post-doctoral
Associate
School of Social
Sciences

Room No. A 03
Tel: 080-2218 5053
Fax: 080-2218 5028
Email: jayasree_66@
yahoo.com

Joined NIAS on: April 16, 2012

About

Between April 2012 and March 2013, Dr Jayasree has been engaged in co-ordinating 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.

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 been engaged in the assessment of the projects in Andhra Pradesh (South Zone); Manipur (Northeast Zone) and Rajasthan (North Zone).

The background image shows a university campus. A wide, paved path leads from the foreground towards a building in the distance. On the left side of the path, there are lush green trees and bushes with small orange flowers. On the right side, there is a long, two-story building with a red-tiled roof and arched windows. A tall, thin tree stands prominently in the center background. The sky is bright and slightly hazy.

CLUSTER – SOCIAL TRANSFORMATIONS

Programmes

- Education Portfolio
- Mobility and Transnationalism



EDUCATION PORTFOLIO PROGRAMME

Introduction

For over a decade, the Education Portfolio Programme at NIAS has been active in the areas of education research, teaching, advocacy and outreach. 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 marginalised communities. Through our research, invited talks, conferences and teaching we have continued to participate in national and international conversations on education. At present, we have two full time faculty members in the programme, several international collaborators across diverse institutions and many short-term visiting faculty. We have three full time doctoral students in the programme and two project research assistants. The milestones this year include Prof Anitha Kurup’s nomination as the Member of the Academic Council of Christ University for a period of three years. She continues to serve as a Member of the Governing Council of the Institute for Social and Economic Change, Bangalore. This year, upon an invitation from Zakir Husain Center for Education Studies, Jawaharlal Nehru University (JNU) New Delhi, Dr Shivali Tukdeo spent two weeks as Visiting Faculty in JNU. 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 Portfolio Programme carries out its activities through three nodal initiatives: (1) Platform for Education Policy (2) Curriculum Exchange Network (3) Research in Critical Areas of Education.

The following were some of our activities during the year 2013:

Participating in national conversations on education policy.

Research carried out in the areas of gifted education, higher education, sociology of education, gender studies, education policy and vocational education.

Teaching doctoral seminar classes for students in NIAS.

Inter-institutional collaborations.

Organisation of two national conferences: (a) Higher Education in India (b) Women in Higher Education and Research.

Organisation of (a) Workshop on Right to Education, (b) Nine Teachers’ Training Workshops on Identification of the Gifted Children, (c) Two Parents Sensitization Workshop on Gifted Education, (d) Two Mentor-Mentee Workshops on Introduction to Mentorship for Gifted Children (e) One Teachers’ Workshop to develop course content on Sound and Solar Energy for the Gifted Children of grade 4 to grade 10 of Silver Oaks High School, Hyderabad, and (f) One Summer Workshop for a period of 10 days on Sound and Solar Energy for Gifted Children of Silver Oaks High School, Hyderabad.

Updates and Progress

The year 2013 has been quite a satisfactory year for the Education Portfolio Programme with some projects coming to fruition and giving tangible results while many others shaping up. We continue to focus our energies on a range of diverse fronts — research, publishing, teaching, outreach and securing funds. We have also been able to build networks state-wide and with communities, organisations and social justice groups. As for research, we built on our previous field work, published in peer reviewed journals and have delivered lectures in several national and international conferences and workshops. Our research over the last two years has concentrated on the following issues: (a) Women in the STEM disciplines, their Career and Challenges in the Workplace (b) Developing Methodologies for Identification of Gifted Children in Science and mathematics in the age group 3 to 15 years (c) Comprehensive Perspective Report on Adivasi Education in India (d) Understanding Policy Spectrum in Indian Education (e) Developing Narrative Methodology to Uncover Higher Education in Rural Maharashtra (f) Relationship between Gender, Caste and Education.



We have been successful in raising funds for our research project on Gifted Education (Rs.1.28 crores) over the last three years. We envisage to increase this to about Rs.10 crores for the next 5 years. Proposal for the same have been developed and submitted to different agencies. The other proposals submitted include in the area of education and migration, vocational and technical education, women in the STEM disciplines and institutional studies.

Outreach

We are engaged in numerous outreach activities over the course of last year. These include publishing in peer reviewed journals and books, writing articles in national dailies and popular outreach magazines, organisation of conferences, delivering lectures/participation in panel discussions in conferences and workshops and partnerships with universities/colleges, institutions, schools and civil society groups. The details of outreach are the following:

(a) India's Higher Education: Challenges and Opportunities (April 4 and 5, 2013)

To reflect on the moments of transformation in higher education and to understand the various challenges before the field, the education programme organised a two-day seminar on April 4 and 5, 2013. The seminar involved scholars, policy makers, practitioners, students and curriculum developers who came together to think about current conditions in the domain of higher education and future challenges. The findings of the seminar have been documented in proceedings and we hope to come up with a book in future as well.

(b) Women in Higher Education and Research (June 20 and 21, 2013)

Debates on Gender equality in higher education are as relevant today as they were a hundred and fifty years ago worldwide. Attracting and retaining women in higher education, particularly research, continues to be a challenge for governments across the globe. India is no different. Keeping the above concerns in mind, a two day conference on *Women in Higher Education and Research: Challenges and Opportunities* was organised on June 20 and 21, 2013. The conference provided a platform for researchers, scientists, engineers and policy makers from the government, private sectors and industries to deliberate on ways and means to attract and retain women in higher education and research and harness their potential for the development of the nation.

(c) Engagement with the Right to Education (RTE) Act (October 9, 2013)

Since 2011, the Education Portfolio Programme is connected to the debates around Right to Education (RTE). Continuing from our previous meeting in 2012, the programme organized a discussion meeting on October 9, 2013 to focus on the implementation of RTE.

(d) Teacher Training Workshops

The Gifted Education project has over the last year conducted nine teachers training workshops with 730 teachers from the states of Karnataka, Kerala and Andhra Pradesh. Over 15 articles in popular media including the web have been published and disseminated amongst the public.

(c) Engaging Social Sciences in the 21st Century: Curriculum, Research, Pedagogy and Practice (March 17, 2014)

The Sociology Department at Christ University and the Education Portfolio Programme at NIAS jointly organized a one-day workshop focusing on the various aspects of social sciences. The participants included teachers from colleges around Bangalore and young researchers. This is among a series of events organized between NIAS and Christ University.

Members of the Education Portfolio Programme



Anitha Kurup, *Anchor*
Shivali Tukdeo
Doctoral Students: R Maithreyi, Chetan B Singai
Research Staff: Ajay Chandra, Jinna Bordoloi

Anitha Kurup
Professor
School of Social
Sciences

Room No. S 05
Tel: 080-2218 5144
Fax: 080-2218 5028
Email: bkanitha@gmail.com

Joined NIAS on: January 2, 1995

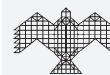
Major Research Contribution for the Academic Year

The NIAS Gifted Education Team led by Prof Anitha Kurup, developed a three stage model for the identification of gifted children in India in the age group of 3 to 15 years. The model was developed based on extensive fieldwork and detailed classroom observation of over 650 hours across a sample of schools in Karnataka. The model is validated for the rural and urban population in Karnataka.

For the first time in India, Prof Anitha Kurup developed a short curriculum on gifted and talented education as part of inclusive education that for the revised D.Ed. curriculum was for teacher educators of elementary schools in Karnataka.

About

Anitha Kurup is a Professor, School of Social Sciences and Anchor of the Education Portfolio Programme at NIAS. She is currently leading the National Gifted Education Programme (GEP) in India anchored at NIAS. The GEP has developed an Indian based battery of tools for identification of the gifted children using quantitative and qualitative dimensions. The tools are in process of being validated and standardized for different populations in India. Several training programmes for teachers to equip them to identify gifted children were conducted in the states of Karnataka, Andhra Pradesh and Kerala. Initial efforts of developing mentoring mechanisms for the identified children have been explored. For more, visit: www.prodigy.net.in. Her research interests span the broad disciplines of education and gender. Her recent publications *Trained Scientific Women Power: How Much Are We Losing and Why?* and *Trends Report: Creation and Analysis of Database of PhDs in India (1998-2007)* has been widely appreciated. Her doctoral work on quality of primary education in rural India is one of the earliest often cited work on grounded research in class room processes and school – community relationship in rural India. Prof Anitha Kurup's expertise in the area of gender covers a wide spectrum, from examining conceptual and methodological strands of gender relations, decentralised governance, and political participation. She has several publications to her credit. Prof Anitha Kurup was awarded the Fulbright Nehru Senior Research Fellowship for the year 2011-2012 and hosted at the University of California, Davis, California, USA. Prof Kurup is a nominated member, Governing Board, Institute of Social and Economic Change, ISEC, Bangalore. [<http://www.isec.ac.in/>] and member, Academic Council, Christ University, Bangalore in 2013.



Lectures

- a. Women Leadership in India, Global Education Dialogues: South Asia Series: Dangerous Demographics – Women, Leadership and The Looming Crisis in Higher Education, Colombo, March 17 and 18, 2014.
- b. Session chair on Exploring Notions of Ability in Giftedness Through the Lens of Socio-cultural Diversity, international conference on Research and Curriculum of the Gifted Minds, Jagdish Bose National Talent Search Organisation, New Delhi, February 6, 2014.
- c. The National Programme for Identifying and Mentoring Gifted Children in India: Challenges and Opportunities, international conference on Research and Curriculum of the Gifted Minds, Jagdish Bose National Talent Search Organisation, New Delhi, February 4, 2014.
- d. Common Curriculum and General Education Model, conference on The Future of Liberal Arts and Science in India. Raman Research Institute, Bangalore, January 8, 2014.
- e. The Need to Develop a Teacher's Nomination Behavioural Rating Scale for Identifying Gifted Children in the Age Group of 3 to 6 Years Within the Montessori Environment, IMC, Bangalore, December 7, 2013.
- f. Development and Standardisation of the Teachers Nomination Behavioural Rating Scale to Identify the Gifted Children, Teachers Training Workshop organised by Amrita Institutions of Teachers of all Amrita schools in Karnataka at Mangalore, November 30, 2013.
- g. Overview of the National Project on Gifted Education in India, Teachers Training Workshop organised by Amrita Institutions of Teachers of all Amrita schools in Karnataka at Mangalore, November 29, 2013.
- h. Revisiting Classroom Spaces for Active Engagement, panel discussion on Best Practices of Research and Teaching in Higher Education, conference of Catholic Colleges of Karnataka and Christ University, Christ University, Bangalore, November 23, 2013.
- i. Individual Branding- Academic Leadership: Research, Teaching and Service, national seminar on Departmental Leadership, Christ University, Bangalore, September 27, 2013.
- j. Women in Higher Education: Changing Paradigms, Department of Drama, University of Exeter, UK, September 18, 2013.
- k. Interrogating Higher Education: Changing Paradigms, national conference on Women in Higher Education and Research, NIAS, June 20, 2013.
- l. Contemporary Research Trends in the Social Sciences: Areas and Methods, roundtable conference on the Production and Dissemination of Knowledge in the Social Sciences: Contemporary Concerns, Christ University, Bangalore, April 10, 2013.
- m. Inclusion: Gender Caste Language, national conference on Higher Education in India. NIAS, April 4, 2013.

Academic Courses

- a. Delivered four lectures on Education and Social Capital in the NIAS Foundation Course
- b. Delivered two lectures on Gender Studies for the Social Science Course at NIAS.

Training Courses

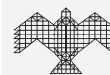
- a. Nine Teacher Training Workshops to equip teachers with skills necessary to identify gifted children is carried out and over 100 teachers have been trained in Bangalore, Tumkur, Kochi and Hyderabad.
- b. One Parents Workshop was organized to sensitise parents towards the needs of the gifted children. The workshop provided a platform for parents to share their challenges and experiences of bring up a gifted child. It is hoped that the parents network will provide a platform for sharing of resources and continue with an ongoing dialogue with others who share similar concerns.
- c. Two Mentors Mentee Workshops were organized as part of the Gifted Education Programme. This programme aims to provide an opportunity for a gifted child to interact with an expert in the field of their interest and engage in a meaningful dialogue with subject experts. Informal mentoring with regard

to the several opportunities available to pursue a career in the STEM disciplines will be a part of the ongoing dialogue between the mentor and the mentee. The programme which is currently operating in an unstructured manner will be reviewed periodically to make it more effective through a consultative process.

- d. A summer course of ten days duration was organized for gifted children between 10 to 16 years on Sound and Solar Energy in collaboration with Silver Oaks International School, Hyderabad and the Mentors Network, IISc, Bangalore. The course aimed to develop skills among the gifted children so that they are able to pursue the topic of their interest independently. The course in Sound and Solar Energy offered in the summer course was illustrative of developing basic skills among the gifted children to carry on independent learning.

Awards, Memberships

- a. Member, Board of Governors, Institute for Social and Economic Change, Bangalore, India (2013 – till date).
- b. Member, Academic Council, Christ University, Bangalore, (2013 – till date).
- c. Expert on Education for the Economic Survey, Planning Commission Government of Karnataka, 2013-2014.
- d. Member, Adhoc Task Force Expert Group, Education Sector, for the RFD, Education Department, Government of Karnataka, (2012 – till date).
- e. Awarded the Guruvandana Teachers Award by Mr Hansraj Baradwaj, Governor of Karnataka, organized by the Rotary Club, Bangalore and Karnataka Civil Defense Corps in Bangalore.
- f. Member, Advisory Committee for the International Conference on Research and Curriculum of the Gifted Minds, Jagdish Bose National Talent Search Organisation, New Delhi (February 4 to 6, 2014).
- g. Member, Recommendation and Advisory Committee of the Indo-Dutch International Conference on the Design for Sustainable Well-being and Empowerment, to be held at the Indian Institute of Science, Bangalore, June 12 to 14, 2014.



Shivali Tukdeo
Assistant Professor
School of Social
Sciences

Room No. S 12
Tel: 080-2218 5133
Fax: 080-2218 5028
Email: tukdeo@
gmail.com

Joined NIAS on: March 10, 2010

About

Shivali Tukdeo has been working as Assistant Professor with the Education Portfolio Programme since 2011. Her 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 focused her research the new policy regimes in education in India and their connections with international, supra-national policy orientations. Her current work includes education and disadvantaged communities, ethnography of education and gender studies.

Lectures

- a. Contemporary Social Sciences: Trends and Pedagogic Relevance, Christ University, Bangalore, March 17, 2014.
- b. Schooling Anxieties: Questions of Education Policy in India, Seminar at the Ashoka Trust for Ecology and Environment (ATREE), Bangalore, January 27, 2014.
- c. Global Pressures and Domestic Pulls: The Story of India's Education Policy, Zakir Husain Center for Educational Studies, Jawaharlal Nehru University, New Delhi, October 29, 2013.
- d. Violence and Public Pedagogy, Zakir Husain Center for Educational Studies, Jawaharlal Nehru University, New Delhi, October 22, 2013.
- e. An Assault on Reason: Commemorating the Legacy of Dr Narendra Dabholkar, panel discussion organised by Bharat Gyan Vigyan Samiti (BGVS), Indian Institute of Science Campus, Bangalore, September 2, 2013.
- f. Indigenous Knowledges and Formal Education, R.V. College of Education, Bangalore, August 1, 2013.

Academic Courses

- a. Introduction to Gender (2013 winter semester)
- b. Core Course in Social Sciences (2013 monsoon semester)
- c. Coordination and Teaching, Foundations Course (2013 and 2014)
- d. Coordination and Teaching, Research Methodology (2013 and 2014)



Malavika Kapur
Visiting Professor
School of Humanities

Room No. F 05
Tel: 080-2218 5091
Fax: 080-2218 5028
Email: malavikakapur
@yahoo.co.in

Joined NIAS on: May 1, 2003

Major Research Contribution for the Academic Year

Prof Malavika Kapur has contributed at the national and international level with policy and academic work in main stream Psychology, especially Child Psychology, providing professional services as a clinician and a trainer, applied multidisciplinary research in education, dissemination of models for preferred practices in child development and mental health and outreach activities through a Child Counselling Centre, teacher training workshops and working in rural and tribal areas in HD Kote in Karnataka. In addition also acts as a consultant to national and international bodies like ICSSR, NCERT and the WHO and as resource person at seminars, workshops and conferences. She has been writing books both fiction and nonfiction in the area of developmental psychology.

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 Ph.D. 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. The mysteries of the human mind have always fascinated her as a psychologist and a creative writer. She has written several



anthologies and a novel 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. Inaugural address during the UGC sponsored National Seminar on Psychological Issues and Challenges Related to Women and Children at the Maharani's Arts, Commerce and Management College for Women, Bangalore, March 21, 2014.
- b. Special invited lecture on Specific Learning Disabilities and chairing a keynote address and appointed to judge for Saugata Basu Memorial Best Research Paper Award on Developmental Disabilities at the international ICDD conference on Developmental Disability, University of Kolkata, March 6 to 8, 2014.
- c. Do We Know Our Children?, New Age Education Trust, Aurobindo Memorial National School, Bangalore, February 15, 2014.
- d. Invited by the Deccan Herald Special Initiative on Education to hold a half day session for school principals on the topic Seeing Children Differently at Bangalore, January 31, 2014.
- e. Conducted a session on Developmental Approach to Feminist Research Methodology, Centre for Women's Studies, Bangalore University, December 19, 2013.
- f. Keynote speaker at the 7th international conference of South Asia and 12th Indian Association of Child and Adolescent Mental Health, New Delhi on the topic Low Cost Solutions for Learning Disabilities and chaired a plenary session on Crisis in Parenting in a Global World, September 25 to 28, 2013.
- g. Keynote speaker at the workshop on Therapeutic Counselling for Engineering Technology, NMAM Institute of Technology, Nitte, South Kanara, July 16 to 19, 2013.
- h. Attended the international conference on Body, Mind and Life, Dharmasala, Himachal Pradesh, June 26 to 28, 2013.
- i. The Child and the Teacher, Shishu Shikshana Research Unit, Bangalore, May 11, 2013.
- j. From Puttur to Timbaktu: A Travelogue, Bangalore International Centre, April 2, 2013.

Award

Appointed by the Vice-Chancellor to the expert committee to select faculty in the Centre for Health Psychology, Hyderabad University, May 4, 2013

Other Information

- a. Member of NIAS Doctoral Advisory Committee for two Ph.D. Scholars (Ms K Lakshmi and Ms Namitha A Kumar).
- b. Collaborating the Gifted Children Project with Prof Anitha Kurup.
- c. Gave a talk on Yakshagana (April 2013) as part of the NIAS-Exeter Exchange (Drama Section).
- d. Organised the first Prof RL Kapur Oration by Prof Sudhir Kakar, August 23, 2013.
- e. Working towards NIAS Ethics Committee.
- f. Evaluating two doctoral thesis from NIMHANS, Bangalore and Department of Psychology, Calcutta University.
- g. Evaluating five research reports for the ICSSR.
- h. Resource Person at the national level meeting on Developing Standards for Social and Emotional SEL for Indian Schools, Teachers Foundation, Bangalore, January 21, 2014.
- i. Running a free child clinic and training of volunteers in child counselling at Prasanna Counselling Centre, Bangalore for the last ten years.
- j. Running an enhancing competency through play with volunteers in a government primary school.
- k. Teacher learning for Ashram schools in HD Kote, since the last three years.

Doctoral Students of the Education Portfolio Programme



R Maithreyi

Doctoral Thesis: Reconceptualizing Life Skills as Essential Processes within School Learning: Development of a Process-Oriented Curriculum

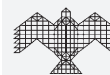
During the last year, data analysis of the field notes is being carried out and draft chapters are being written.

Chetan B Singai

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

During the last year, Chetan has finalized his detailed field study schedule and completed the field study of Mysore University. During this period, he has presented data from the field to his SAC members and obtained critical fieldback and giving his field study greater focus.





PROVINCIAL GLOBALISATION: THE IMPACT OF REVERSE TRANSNATIONAL FLOWS IN INDIA'S REGIONAL TOWNS

Introduction

Provincial Globalisation is a five-year 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. 'ProGlo' was initiated in January 2010 and is now in its final year.

The Provincial Globalisation Programme explores transnational resource flows from Indians living abroad to their home regions, and how these flows are shaping development processes. International migration from India has produced significant diasporic communities across the world, many of which remain linked to their home regions and towns through dense transnational networks. Overseas Indians often transmit a range of economic resources, 'social remittances', and cultural products back to India. By comparing the nature and functioning of transnational networks, and the modalities and destinations of resource transfers, across three regions, the 'ProGlo' programme is designed to produce new empirical data and deepen our understanding of the economic, social, political, and cultural impacts of migrant remittances. The programme incorporates several disciplinary perspectives, including sociology, social anthropology, economics, geography and history and draws on the interdisciplinary fields of migration studies and transnational studies.

The programme consists of several interlinked research projects, both doctoral and postdoctoral. Research is being carried out in three regions: central Gujarat, coastal Andhra Pradesh and coastal Karnataka. The Ph.D. projects are intensive studies, one in each region, while the postdoctoral projects provide macro- and meso-level studies of transnational linkages and flows at the regional, state, and national levels. These studies have mapped the range of resources sent by Overseas Indians, including household level remittances, financial investments, and philanthropic donations. Together, the component research projects will provide a comparative regional level perspective on migration and development in India.

Ph.D. Projects

Reconstructing Community and Identity in a Transnational Space: The Beary Community of Coastal Karnataka, India - Sulagna Mustafi

Constituting a Transnational Community through Caste Works: A Study of the Kamma Philanthropic Circuit - Sanam Roohi

Regional Identity and Mobility of the Charotar Sunni Vohras of Central Gujarat (India) - Sanderien Verstappen



*Prof Carol Upadhy speaking at the
PVP Siddhartha
Institute of Technology, Vijayawada
(November 21, 2013)*

Postdoctoral Projects

Migration, Transnational Flows and Development in Provincial India: An Economic Perspective - Puja Guha

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

Supplementing the Ph.D. and postdoc projects, several independent projects by consultants have been commissioned in Coastal Andhra and central Gujarat. The ongoing projects in Andhra study the impact of financial investments by NRIs in the region; the effects of out-migration on rural landholding and agrarian structures; and the social and mobility aspirations of engineering students. The Gujarat projects are investigating patterns of student migration and return migration by second-generation migrants in the UK. In addition, Co-Directors Prof Carol Upadhyia and Prof Mario Rutten have undertaken our own research projects on migration, transnational ties, and development in Coastal Andhra and Central Gujarat, respectively.

Updates and Progress

The Provincial Globalisation Programme is poised to make significant contributions to the growing international literature on migration, globalisation, and transnationalism by exploring in the diverse connections between the Indian diaspora, or Overseas Indians, with their home towns and regions. The programme's unique focus on regional diasporas and the 'reverse flow' resources sent by migrants has shown that

remittances are multi-dimensional and multi-directional, with significant regional variations. The component projects have documented in detail the diversity of flows of resources, money, and 'social remittances' between Overseas Indians and their home regions, and their complex consequences for local development. The programme is also methodologically innovative in its multi-disciplinary, multi-scalar, and multi-dimensional research design. The outputs will contribute to national and international policy debates on the links between migration and development and on the contributions of Overseas Indians to India.

We have now completed four years of this five-year research programme. The constituent projects are all on track or completed and we have made substantial progress in fulfilling our objectives. Several key outputs are in the pipeline and will appear over the next one or two years, as the various research activities are wound up and the doctoral dissertations completed.

Outreach

An important activity during the last year was the organisation of a two-day international conference on Regional Towns and Migration: Interrogating Transnationalism and Development in South Asia at the University of Amsterdam, October 10 and 11, 2013. In addition to a select group of scholars from Europe, India, and the US, ProGlo team members presented papers. An edited conference volume is under preparation.



Session of the international conference on "Regional Towns and Migration", University of Amsterdam (October 10 and 11, 2013)



Papers presented by the ProGlo team at the conference:

Leah Koskimaki and Carol Upadhy, Discussion Note: Remapping the Region in South Asia - Mobilities, Politics, Identities

Carol Upadhy, Engineering Mobility: The IT Craze, Transnational Migration, and Privatisation of Education in Coastal Andhra Pradesh

Puja Guha and Mario Rutten, Migration Patterns and Transnational Linkages: A Longitudinal Study of Patel Migrants from Central Gujarat

Mario Rutten, Contestation and Ambivalence: Circular and Return Migrants in Central Gujarat

Sulagna Mustafi, Transnational Connections of Beary Muslims of Coastal Karnataka and the Fashioning of the Modern Islamic Woman

Sanderien Verstappen, Born in the UK, Married in Gujarat: Marriage and Transnationalism among Charotar Sunni Vohra Muslims from Central Gujarat (India) in the UK

Sanam Roohi, Governmentalising Diaspora Philanthropy: The Case of the NRI Cell in Guntur

A dissemination meeting for members of the Indian community in the Netherlands, on the *Role of Indian Diaspora in Economic, Social, Cultural, and Political Development in India*, was co-organised by AISSR and Vrije University, and held at the University of Amsterdam on October 12, 2013. Profs Upadhy and Rutten gave the introductory lectures.

Several academic outputs of the programme have been circulated through our working paper and research reports series, academic publications, and participation in seminars and conferences.

A geo-visualisation project was initiated during the year and the web pages are currently under construction. The pages will be a collation of quantitative and qualitative data on migration and remittance patterns in India, using maps and interactive visual displays. The visualizations and maps will be hosted on the ProGlo website to serve as a resource for researchers and the public.



The ProGlo website (www.provglo.org) and Facebook page (<https://www.facebook.com/pages/Provincial-Globalisation/164674226951228>) are key channels for the dissemination of our research findings and related information, for the benefit of academic as well as general audiences. In addition, our Facebook page serves as a forum for exchange of ideas with the stakeholders of the programme as well as interested researchers and the public. These pages are continually updated with programme outputs, photo albums, and relevant news items. The ProGlo Facebook page has a growing number of followers (currently 128), the majority from the Netherlands, India and the UK.

Participants in the international conference on "Regional Towns and Migration", organized by the Provincial Globalisation Programme, University of Amsterdam (October 10 and 11, 2013)

Members of the Provincial Globalisation Programme



Carol Upadhyaya

Professor
School of Social
Sciences

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

Joined NIAS on: September 1, 2003

Major Research Contribution for the Academic Year

Spearheaded innovative social science research on migration and transnationalism in India at the regional level.

About

Carol Upadhyaya, a social anthropologist, is Professor in the School of Social Sciences. Her research interests focus on mobility, transnationalism, development, and class formation in contemporary India. She is Co-director (with Prof Mario Rutten, University of Amsterdam) the research programme, 'Provincial Globalisation: The Impact of Reverse Transnational Flows in India's Regional Towns', and has anchored the Urban Research and Policy Programme at NIAS. Prof Upadhyaya is also co-directing a research project on Bangalore's growth with colleagues at the University of Minnesota, USA, entitled 'The Great Transformation: Urban Land Markets, Livelihoods and the Growing Ecological Crisis in Asia's Cities'. She has several publications to her credit, on topics ranging from the Indian middle class to the social effects of the Indian software industry; the history of sociology and anthropology in India; land rights and adivasi politics in Jharkhand; and the growth of regional capital in Coastal Andhra Pradesh. Her co-edited volumes include *In an Outpost of the Global Economy: Work and Workers in India's Information Technology Industry* (with AR Vasavi; New Delhi: Routledge, 2008), and *Small Business Entrepreneurs in Asia and Europe: Towards a Comparative Perspective* (with Mario Rutten; New Delhi: Sage Publications, 1997). Prof Upadhyaya recently completed a book manuscript on work, capital, class and culture in the Indian software industry, which is under review.

Lectures

- a. Globalisation and Social Change in India to students and faculty of PVP Siddhartha Institute of Technology, Vijayawada, November 21, 2013.
- b. Presented paper, Engineering (In)equality: Social and Spatial Strategies of Mobility in Coastal Andhra at the International Conference on Social Mobility and Inequality in Post-reform India, organised by the Centre of Global South Asian Studies, University of Copenhagen and Department of Sociology, University of Delhi, November 8, 2013.
- c. Introductory lecture to expert symposium on the Role of Indian Diaspora in Economic, Social, Cultural, and Political Development in India, co-organised by AISSR and Vrije University, University of Amsterdam, October 12, 2013.
- d. Presented two papers at the international conference on Regional Towns and Migration: Interrogating Transnationalism and Development in South Asia, University of Amsterdam, (co-organised with Prof Mario Rutten): (1)



Discussion Note: Remapping the Region in South Asia - Mobilities, Politics, Identities (along with Leah Koskimaki) (2) Engineering Mobility: The IT Craze, Transnational Migration, and Privatisation of Education in Coastal Andhra Pradesh, October 5 and 6, 2013.

- e. 22nd Annual Wertheim Lecture, What's New about the 'New India'? Capital and Class after Liberalization. University of Amsterdam, June 5, 2013.

Academic Courses

- a. First term, 2013-14: Module on Social Sciences for Foundation Course
- b. Second term, 2013-14: Module on Qualitative Methods for Research Methodology Course

Awards, Memberships

- a. Member (representing NIAS), Governing Council, Centre for Research and Education for Social Transformation (CREST), Kerala.
- b. Member, Advisory Group on India EU Engagement on Migration Initiatives at the ICOE (Indian Council of Overseas Employment), Ministry of Overseas Indian Affairs, New Delhi, 2011 – 2013.
- c. Member of Editorial Board, Contributions to Indian Sociology.
- d. Honorary University Fellow, School of Humanities, University of Exeter, UK, 2012 to present.

Doctoral Students and Post-docs of the Provincial Globalisation Programme

The three doctoral students working in the ProGlo Programme are at an advanced stage of their work and are expected to complete by the end of 2014. The students will submit their doctoral dissertations to the University of Amsterdam. In addition to working on their dissertations and participating in the ProGlo Amsterdam conference, they participated in several conferences and workshops. Some highlights of the year are given below.



Sanam Roohi

Presented a paper on Kamas on the Move: From a Dominant Caste to a Transnational Caste at the 7th European South Asia Ph.D. Workshop, Amsterdam, September 26 and 27, 2013.

Presented a paper in the seminar on Horizontally Fractured: Realigning the Telugu Diaspora along Caste Lines, Population Research Centre, University of Groningen, the Netherlands, November 15, 2013.

Sulagna Mustafi

Presented a paper on Shaping of the 'Modern Islamic Women' in Coastal Karnataka, India: Transnational Experiences and English Education amongst the Beary Muslim Community at the Muslim South Asia Graduate Conference, SOAS, London, October 28, 2013.



Rashmi M

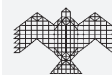
She works on changing media consumption practices via mobile phones in the city of Bangalore focusing on users with limited technological access and economic means. She is currently doing her field-work in Bangalore.

Sanderien Verstappen: Presented a paper on Channels of Charity. International Migrants' Participation in Associations that Channel Charity to Central Gujarat (India) at the 7th European South Asia Ph.D. Workshop, International Institute of Social History, Amsterdam, September 26 and 27, 2013.

Delivered a lecture on Making a Safe Place: Transnationalism of Charotar Sunni Vohra Muslims in Central Gujarat (India) and the United Kingdom at the University of Münster, Germany, December 11, 2013.

Leah M Koskimaki: Post-doc anthropologist completed her project on Dakshina Kannada's connections with the USA and UAE and the involvement of NRIs in Mangalore's development and environmental politics. She has taken a position at the University of the Western Cape, Cape Town, South Africa, and is in the process of writing up her research work.

Puja Guha: Post-doc economist (now with Azim Premji University, Bangalore), spearheaded a survey of migrant households in central Gujarat in cooperation with the Gujarat Institute of Development Research, Ahmedabad. The survey report has been completed and several working papers based on the survey were brought out during the year.



INVITED VISITING CHAIR PROFESSORS

SCHOOL OF NATURAL AND ENGINEERING SCIENCES



Pallava Bagla
TV Raman Pai Chair
Visiting Professor

*Period: March 14,
2014 to May 13, 2014;
June 16, 2014 to
August 15, 2014*

Email: pallava.bagla@gmail.com

Pallava Bagla is an Indian science journalist, communicator and photo journalist for over 25 years, and during this time he has come to be respected for his analysis, commentaries and for having showcased, Indian science and technology to the world in almost two decades of writing for Science, the prestigious weekly magazine of the American Association for the Advancement of Science (AAAS), Washington DC, USA. He is concurrently Science Editor for India's highly respected private television network New Delhi Television (NDTV). His work showcasing India's maiden mission to Mars – Mangalyaan in 2013 and earlier his decisive work on India's first mission to the moon, Chandrayaan-1 in 2008 has been applauded, broadcasting both in English and Hindi. Simplifying complex science for the lay people is his forte. An elected member of the Executive Board of the World Federation of Science Journalists the apex body of world's science journalists associations, headquartered in Canada where he serves a four year term from 2011 to 2015. He is author of several books, the most recent being Destination Moon: India's Quest for Moon, Mars and Beyond, published by Harper Collins in 2008. He has published over 1000 news and features stories in leading national and international publications; published six books; edited five books and over 3000 photographs taken by him have been published over the years.

SCHOOL OF SOCIAL SCIENCES



Ashutosh Varshney
Raja Ramanna Chair
Visiting Professor

*Period: June 20, 2013
to September 19,
2013; June 26, 2014
to August 25, 2014*

Email: ashutosh_
varshney@brown.edu

Ashutosh Varshney joined Brown faculty in January 2009. Previously, he taught at Harvard (1989-1998) and the University of Michigan, Ann Arbor (2001-2008). He was the 2008 winner of the Guggenheim fellowship and the Carnegie Scholar awards. His *Ethnic Conflict and Civic Life: Hindus and Muslims in India* (Yale 2002) won the Gregory Luebbert Prize of the American Political Science Association. *Democracy, Development and the Countryside: Urban-Rural Struggles in India* (Cambridge 1995), in its PhD dissertation form, won the Daniel Lerner Prize at MIT. His research and teaching cover three areas: Political Economy of Development, Indian Politics, and Ethnicity and Nationalism. His academic papers have appeared in *World Politics*, *Perspectives on Politics*, *Comparative Politics*, *Daedalus*, *World Development*, *Journal of Development Studies*, *Journal of Asian Studies*, *Journal of Democracy*, *Journal of East Asian Studies*, and *Foreign Affairs*. In addition to professional journals, he also contributes guest columns to newspapers and magazines. He is currently working on India's rising cities, the North-South economic divergence in India, and a multi-country project on cities and ethnic conflict. He served on the former UN Secretary General Kofi Annan's Millennium Task Force on Poverty (2002-2005). He has also served as an adviser to the World Bank and UNDP.

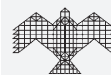


**Supriya
RoyChowdhury**
TV Raman Pai Chair
Visiting Professor

*Period: June 25, 2013
to August 24, 2013*

Email: supriya@isec.
ac.in

Supriya RoyChowdhury is Professor at Centre for Political Institutions, Governance and Development at the Institute for Social and Economic Change, Bangalore. Her research and teaching interests are globalization and labour; urban poverty; social movements; comparative development. She has published important articles on informal labour, urban activism and globalization. Some of her publications include, *Class in Industrial Disputes: Case Studies from Bangalore*, *Economic and Political Weekly*, Vol.XL111, No.22, 2008, *Slums and Civil Society: the Limits of Urban Activism*, in Darshini Mahadevia (ed) *Inside the Transforming Urban Asia: Processes, Policies and Public Actions*, Concept, 2008, and *Globalization and Labour*, in Baldev Raj Narain (ed) *Globalization and Politics in India* (New Delhi, Oxford University Press, 2007) and *Public Sector Restructuring and Democracy: The State, Labour and Trade Unions in India*, *Journal of Development Studies*, Vol.39, No.3, February 2003.



NIAS TRAINING PROGRAMMES

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 organised 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 from both the public and private sectors in touch with a variety of disciplines and experiences in order to help them evolve fresh perspectives in their own specialised fields. The programme accomplishes this objective through lectures, panel discussions, field visits and special sessions designed to help participants link their experiences to established analytical concepts.

The 28th edition of this programme, with the theme of Leadership in Challenging Times, was organised between January 19 and 25, 2014. Inaugurated by Prof VS Ramamurthy, Director, NIAS, the programme had sixteen participants, including two women. The participants were from government, various public and private sector companies, research institutions and the armed forces.

The eminent speakers invited to address the participants also came from backgrounds ranging from the administration through culture and media, from politics to science and technology. They included Justice Michael F Saldanha, Mr Shekhar Gupta, General Ved Prakash Malik, Mr OP Bhatt, Dr Devi Prasad Shetty, Mr Krishna Byre Gowda, Prof MV Rajeev Gowda, Dr K Ullas Karanth, Mr RC Maheshwari, Mr Pawan Kumar and Dr PR Vasudeva Rao. In addition, there were also speakers from NIAS, including Prof Narendar Pani, Prof Dilip R Ahuja, Prof DP Sen Gupta and Prof SS Meenakshisundaram.

The cultural programme featured a unique Bharatanatyam performance by the Shree Ramana Maharishi Academy for the Blind, Bangalore while a field visit was arranged for the participants to the Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam.

The programme was coordinated by Dr Chidambaran G Iyer, Ms V Girija and Prof Anindya Sinha.

Participants of the 28th NIAS Programme for Senior Executives on "Leadership in Challenging Times" with one of our distinguished speakers, Justice Michael F Saldanha and the Faculty of NIAS (January 19 to 25, 2014)



General Ved Prakash Malik, Former Chief of Army Staff delivering the public lecture on "Leadership in Modern Warfare" during the 28th NIAS Programme for Senior Executives (January 20, 2014)



Dr Devi Prasad Shetty, Chairman, Narayana Hrudayalaya Group of Hospitals after the public lecture on "Indian Medical Systems: Challenges and the Way Forward" during the 28th NIAS Programme for Senior Executives (January 21, 2014)



Prof MV Rajeev Gowda, Indian Institute of Management Bangalore delivering the public lecture on "Electoral Politics in India: Challenges" during the 28th NIAS Programme for Senior Executives (January 22, 2014)



Participants of the NIAS-DST Training Programme on "Science for Progress in India: Innovations in Technologies" with the Director and Faculty of NIAS (February 10 to 14, 2014)

NIAS-DST Training Programme on Science for Progress in India: Innovations in Technologies

NIAS-DST Training Programme on Science for Progress in India: Innovations in Technologies was held organised from February 10 to 14, 2014.

As an initiative under the DISHA Programme for Women in Science, NIAS organised a one week training programme from February 10 to 14, 2014, supported by Department of Science and Technology (DST) for women scientists from science and technology institutions including R&D laboratories on the theme Science for Progress in India: Innovations in Technologies. This programme was organised for women scientists and technologists so that they could be made aware of the enormous potential and prospect afforded by this new scientific and technological development, and enable them to interact with scientists and technologists and explore possibilities of increasing their own presence, visibility and entrepreneurial capabilities in Science and Technology. The programme was inaugurated by Dr Dipti Deodhare, Additional Director from Center for Artificial Intelligence Robotics and the valedictory address was given by Prof VS Ramamurthy, Director, NIAS. The programme was attended by 22 participants.

The programme was coordinated by Prof Sangeetha Menon.

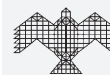
Policy for Science and Science for Policies

The NIAS-DST Training Programme on Policy for Science and Science for Policies was organized from December 16 to 20, 2013 for Directors and Divisional Heads. Twenty four participants including two women scientists drawn from various institutions, laboratories and departments in the country attended the programme.



Participants of the NIAS-DST Training Programme on "Policy for Science and Science for Policies" with the Director and Faculty of NIAS (December 16 to 20, 2013)

The programme was inaugurated by Dr J Gowrishankar, Director, Centre for DNA Fingerprinting Diagnostics, Hyderabad and addressed the participants on the theme Science Policy Initiatives-2013: The Future of Biological Research in India. The valedictory address on Nurturing India's Natural Resources: Scientific Perspectives was delivered by Dr (Ms) M Lakshmi Kantam, Director, Indian Institute of Chemical Technology, Hyderabad. Other lectures on the themes Promotion of Scientific Research: Initiatives of SERB for Strengthening R&D, Innovating for Technology Development and Technological Innovation, Wildlife Conservation in India: Interrogating the Role of Science, Technology Development for National Development, Technology Creation and Management at the Research Institutions, IISERs: An Indian Experiment in Science Education and Research, and Regulating Biotechnology Research in India were delivered by the speakers which included Prof TK Chandrashekar, Ms Deepanwita Chattopadhyay, Dr MD Madhusudan, Dr VK Aatre, Prof S Mohan, Prof N Sathyamurthy and Prof K VijayRaghavan respectively. A special evening lecture on Leapfrog Cooking Technology: Does it Exist? by Prof Kirk R Smith, Professor of Global Environmental Health and Director of the Global Health and Environment Program, University of California, USA was arranged.



Apart from the lecture sessions mentioned above, participants' presentation on Sharing of Experiences on general theme Crisis Management in different groups were arranged for the Course Participants.

As part of the programme, a visit to Central Manufacturing Technology Institute, Bangalore was arranged and Mr BR Satyan, Director briefed the participants on manufacturing and technological issues being handled by the organisation. In addition, a cultural programme on Carnatic Classical Vocal Music by Vidhushi Vani Sateesh was organized for the participants.

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 2013-14 was conducted on the theme Multidisciplinary Perspectives on Urban Development between October 21 and 25, 2013. The twenty-nine participants in the training programme were middle to senior level officers from the IAS and other central services from various government departments from different states of the country. The training programme was inaugurated by Mr Aromar Revi, Director, Indian Institute of Human Settlements, Bangalore.

The speakers included Dr Venkatesh Panchapagesan, Prof Geetam Tiwari, Dr Anjula Gurtoo, Mr Prem Chandavarkar, Dr S Vishwanath, Prof Partha Mukhopadhyay, Prof Babu Mathew, and Prof Darshini Mahadevia. Four afternoons were devoted to group discussions on case studies of urban situations from across the world. The programme concluded with the valedictory address by Prof Samuel Paul.

The course was coordinated by Prof Narendar Pani.

Multidisciplinary Perspectives on Science, Technology and Society

The Eleventh NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society was organized from July 22 to August 2, 2013 for Senior Scientists, Technologists and Administrators. The main theme of the Programme was The Road Taken and the Planned Path: Evolution of Science and Technology Policy Planning and Dilemmas of Contemporary India. Twenty-five participants including six women scientists drawn from various institutions, laboratories and departments in the country attended the programme.

The programme was inaugurated by Prof P Banerjee, Director, National Institute of Science, Technology and Development Studies, New Delhi who addressed the participants on the theme Science, Technology and Policy Planning in the context of Globalization. The valedictory address on Technology and Capabilities was delivered by Prof Narendar Pani, School of Social Sciences, NIAS. The speakers in the context of Evolution of Science and Technology Policy Planning and Dilemmas of Contemporary



Prof Kirk R Smith, Professor of Global Environmental Health, University of California, Berkeley delivering the public lecture on "Leapfrog Cooking Technology: Does it Exist?" during the NIAS DST Training Programme on Policy for Science and Science for Policies (December 17, 2013)



Participants of the In-service Training Programme for IAS Officers on "Multidisciplinary Perspectives on Urban Development" with the Director and the Faculty of NIAS (October 21 to 25, 2013)



Participants of the 11th NIAS-DST Training Programme on "Multidisciplinary Perspectives on Science, Technology and Society" with the Director and Faculty of NIAS (July 22 to August 2, 2013)

India included Prof SS Meenakshisundaram, Dr VV Krishna, Dr T Jayaram, Dr Srijit Mishra, Dr HN Chanakya, Mr Rahul Matthan, Prof Vidyanand Nanjundiah, Prof J Srinivasan, Dr Lalita Sundaresan, Dr Sachin Chaturvedi and Prof KN Ganesh. Other speakers on the theme Multidisciplinary Perspectives on Science, Technology and Society covering a wide range of topics from Sustainability and Development, Optimality and Hierarchy in Structures, Reflections on Scientific Progress to Traditional and Modern Knowledge Systems included Dr Sharachchandra Lele, Prof GK Ananthasuresh, Dr MG Narasimhan and Dr Anil K Gupta respectively.

A few of the topics as special evening lectures on the themes Science in 21st Century India: Policies, Practices and Prospects, Judicialisation of Environmental Governance and K Subrahmanyam Memorial Lecture: Strategic Parity for Peace Engaging China in the 21st Century were delivered by the speakers Prof LS Shashidhara, Dr Geetanjoy Sahu and Prof Onkar Marwah respectively.

Apart from the lecture sessions mentioned above, participants' presentation on Sharing of Experiences on the general theme Crisis Management in different groups were arranged. A Seminar on Sustainability and Development was organized and participated by few of the participants as Panelists for discussion. This was done to encourage direct participation of the part of the participants in organizing a Seminar on their own.

As part of the programme, a visit to BOSCH Ltd as to know what is happening in the field of switchgear technology and an outdoor visit to Hassan and related historical places of Tourism were arranged and conducted by Mr P Srinivasa Aithal, Head, Administration, NIAS. A cultural programme on Carnatic Vocal Music by Vidushi Amrutha Venkatesh was organized on the penultimate day of the programme.

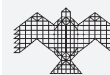
The programme was coordinated by Dr MG Narasimhan.



MG Narasimhan
Deputy Programme
Coordinator
School of Humanities

Joined NIAS on: January 2, 1998

Room No. F 24
Tel: 080-2218 5081
Fax: 080-2218 5028
Email: narasimhan
marehalli@gmail.com



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 Ph.D. 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 2004-05 when it was expanded and regularised on the basis of financial support received from the Indian Space Research Organisation, the Department of Science and Technology and the Ministry of Earth Sciences 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 sixty students have been part of NIAS Doctoral Programme since its inception and twenty-three students have successfully completed their Ph.D. as of March 2014. Twenty-four have registered their Ph.D. and thirteen students are carrying out pre-registration process. As of March 2014, a total of thirty-seven students are currently enrolled in the programme — thirteen in the School of Humanities, thirteen in the School of Natural and Engineering Sciences and eleven in the School of Social Sciences.

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

Doctoral Committee

Prof BV Sreekantan, *Chairman*
Dr Shivali Tukdeo, *Academic Head*
Prof Dilip R Ahuja, *Member*
Dr Janaki Balakrishnan, *Member*
Dr M Mayilvaganan, *Member*

SCHOOL OF HUMANITIES

Rolla Das, Cognitive Science

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

K Lakshmi, Psychology

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

Hema Thakur, Ancient History and Archeology

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

Naresh Keerthi, Cognitive Science

Cognitive Tropes – Beyond the Cognitive Metaphor

Samiksha Bajpai, Linguistics

A Cognitive Analysis of the Compound Verb in Hindi

Namitha A Kumar, Psychology

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

HR Meera, Cognitive Science and Sanskrit

Language Game and the Role of Suggestion (Vyarigya) Therein

NS Nalini, Economics

First Nature and Urbanisation Terrain and Urban Development of Bangalore, 1971-2011

Shatarupa Bhattacharyya, Nishant Seth, Shankar R and Sumitra S

In the process of registration

KN Venkatesh

In the process of completing course work

SCHOOL OF NATURAL AND ENGINEERING SCIENCES

PS Sajini Anand, Mathematics

Nonlinear, Multidimensional Transformations and its Applications to Signal Processing

Neesha Dutt, Energy and Environment

Urban Greens: Ecological Impacts and Socio-economic Drivers of Turfgrass Ecosystems

Asmita Sengupta, Behavioral Ecology

Seed Dispersal by Rhesus Macaque (Macaca Mulatta)

Shreejata Gupta, Behavioral Ecology

Development of Integrated Gestural and Vocal Communication Systems in Wild Bonnet Macaques Macaca Radiata

Priya Gupta, Environmental Science

Interface of Exclusionary Conservation Policies and Rights of Communities: Case Study of a Protected Area

Priyam Laxmi Borgohain, Energy and Environment

Downstream Environmental and Socio-Economic Impacts of Hydropower Projects in Northeast India – Case Studies of Ranganadi and Lower Subansiri Hydroelectric Projects

Sanket S Kulkarni, International Studies

India's Energy Security Concerns and Policy Formulation: A Case Study of Cross-Border natural Gas Pipelines

Nimisha Agarwal, Environmental Science

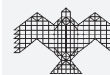
Assessment of Farmers' Perception of Climate Change and Local Adaptation Strategies in Uttar Pradesh.

Murali Murti and BR Guruprasad

In the process of registration

Nishant M Srinivasaiah, Mary Abraham and Shaurabh Anand

In the process of completing course work



SCHOOL OF SOCIAL SCIENCES

Leena Pascal, Art Education

Pictorial Representation and Its Development in Children

Sowjanya R Peddi, Social Anthropology

Food Retail Practices in Bangalore: A Comparative Anthropological Study

KG Asha, Economics

Dynamics of Labour Relations across Different Circuits of Globalization

R Maithreyi, Education

Reconceptualizing Life Skills as Essential Processes within School Learning: Development of a Process Focused Curriculum

Sulagna Mustafi, Anthropology

Transnationalism and Muslim Identity in Dakshina Kannada, India

Sanam Roohi, Anthropology

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

Soundarya Iyer, Economics

Dynamics of Rural Transformation in Karnataka: A View from Three Villages

Chetan B Singai, Education

Higher Education and University Governance in India: A Case Study of Two Universities in Karnataka

Rashmi M, Media Studies

In the process of registration

Anamika Ajay and **Ankita Rathi**

In the process of completing course work

GRADUATED STUDENTS 2013/2014

SCHOOL OF NATURAL AND ENGINEERING SCIENCES

Kishor G Bhat, Mathematics

Games in the Garden of Numbers

Mayukh Chatterjee, Ecology, Behaviour and Conservation

An Uncommon Performing Monkey: Behavioural Flexibility and Social Diversity in the Northern Bonnet Macaque Macaca Radiata Radiata

Narayan Sharma, Ecology, Behaviour and Conservation

Behavioural Ecology and Conservation of Primate Communities in the Lowland Evergreen Forests of Upper Brahmaputra Valley, Assam

KG Sreeja, Environmental Science

Emergent Non-agrarian Livelihoods and Resource Linkages in the Agroecosystems of a River Basin: A Case Study of Chalakudy River Basin, Kerala

SCHOOL OF SOCIAL SCIENCES

K Jafar, Economics

The Impact of Education-Led Growth on Human Development: A Case Study of Malappuram

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

In a truly inter-disciplinary endeavour, this programme has the participation of several NIAS faculty members cutting across schools through the UKIERI-supported NIAS-Exeter Split-Site Ph.D. initiative through a MoU with Exeter University in UK. This programme brings together the disciplines of archaeology, natural sciences, performance studies, sociology, philosophy, economic history, urban studies, and cognitive studies with the aim of illuminating different aspects of our tangible and intangible heritage.

NIAS and the University of Exeter in UK were jointly awarded funding for two projects, 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) 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.

Significant progress has been made over 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 Exeter University faculty visited NIAS at the end of March and early April 2013 to jointly hold, with the NIAS faculty, interviews for the selection of the second cohort of students and to participate in supervisory development sessions. A second group of NIAS faculty also visited Exeter in September 2013 in order to familiarise themselves with the programme and hold wide-ranging academic discussions with the Exeter faculty in Archaeology and Drama. In April 2014, the upgrade interviews of the first cohort of students took place along with the students' presentations and the selection of one student each in Archaeology and Drama for the third cohort. The NIAS faculty and staff who visited Exeter in 2013-2014 include Shivali Tukdeo, Sangeetha Menon, S Ranganathan, Anitha Kurup, Sharada Srinivasan and P Srinivasa Aithal.

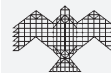
The students in Archaeology from the first cohort include Tathagatha Neogi and Brice Girbal, who will both be working on various aspects of ethno-archaeological and archaeo-metallurgical studies in the Telengana region of Andhra Pradesh under the joint supervision of Sharada Srinivasan (NIAS) and Gillian Juleff (Exeter), and Alice Lowson, working on portable

Coordinators

Sharada Srinivasan,
Smriti Haricharan and
Anindya Sinha



NIAS Delegation in Exeter, September 2013



antiquities in the Chennai area under the joint supervision of Smriti Haricharan (NIAS) and Gillian Juleff. For the second cohort, the students selected were Debanjan Mitra, who is working on Palaeolithic stone tools from northern India and their underlying archaeo-cognitive architecture, under the supervision of Anindya Sinha (NIAS) and Bruce A Bradley (Exeter), and Jemma Singleton, working on rock art in Karnataka with Sharada Srinivasan and Linda Hurcombe (Exeter). The candidate selected as part of the third cohort in 2014 in Archaeology is Kausalya Gunasena, who proposes to work with Sharada Srinivasan and Gillian Juleff on personal adornment in Sri Lanka and south India in the early historic period.

The three first-cohort students in Drama include Sabina Sweta Sen, who is currently working 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 Upadhyaya (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). The second cohort includes Rebecca Savory, who is working on flash mobs as an urban Indian phenomenon with Shivali Tukdeo (NIAS) and Jerri Daboo, while a new candidate, Rosie Bristowe, has been selected as part of the third cohort and plans to work on living Indian exhibits in exhibitions organised in England in the nineteenth century under the supervision of Carol Upadhyaya and Jerri Daboo.

Sharada Srinivasan was one of the select invitees from amongst UKIERI-II awardees to showcase the NIAS Exeter partnership as a successful case study in the form of a poster at the British Council, Delhi in November 2013 and to participate in interactions with a high-level British delegation of the UK Science and Innovation Network.

NIAS SILVER JUBILEE YEAR CELEBRATION



Mr Benoy K Behl
Film Maker, Art-historian and Photographer
The Murals of India
May 15, 2013



Prof Shruti Sadolikar – Katkar
(Jaipur-Atrauli Gharana)
Vice Chancellor, Bhatkhande Music Institute
University, Lucknow *Hindustani Classical Vocal Concert*
June 19, 2013

NIAS ANNUAL MEMORIAL LECTURES

Five annual memorial lectures were organised – the Dr Raja Ramanna Memorial Lecture, Prof MN Srinivas Memorial Lecture, Dr K Subrahmanyam Memorial Lecture, Prof CV Sundaram Memorial Lecture and Prof RL Kapur Oration.



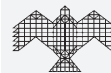
Fourteenth MN Srinivas Memorial Lecture

Lord Meghnad Desai
Emeritus Professor of Economics, London School of
Economics
India Beyond Mandal
January 8, 2014



First CV Sundaram Memorial Lecture

Dr Baldev Raj
President–Research, PSG Institutions, Peelamedu,
Coimbatore
Materials Related Technologies in Our Cultural Heritage
October 30, 2013



First RL Kapur Oration

Prof Sudhir Kakar

Senior Homi Bhabha Fellow, Centre for Advanced Study in Humanities, University of Cologne, Germany and DD Kosambi Visiting Research Professor, Goa University

The Complementarity of Civilizations: Rabindranath Tagore Revisited

August 23, 2013

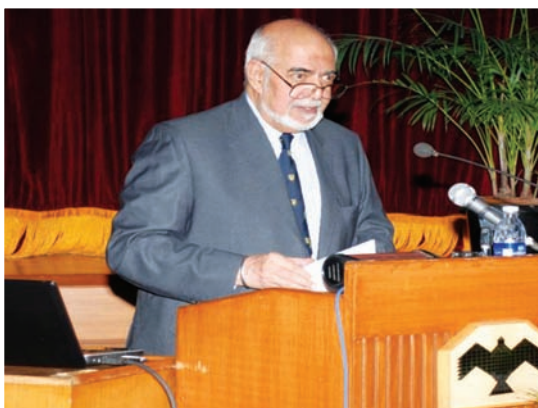


Ninth Raja Ramanna Memorial Lecture

Prof Ashutosh Varshney

Sol Goldman Professor of International Studies and the Social Sciences, Brown University and Dr Raja Ramanna Chair Visiting Professor, NIAS
India's Improbable Democracy: Theory, Comparison, Performance

August 8, 2013



Third K Subrahmanyam Memorial Lecture

Dr Onkar Marwah, IAS (Retd)

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

Strategic Parity for Peace: Engaging China in the 21st Century

July 30, 2013



NIAS PUBLIC LECTURES AND PROGRAMMES

Dr Emma Belcher

MacArthur Foundation Director for International Peace and Security

International Peace: Some Initiatives

February 28, 2014

Mr V Koteswara Rao

Scientific Secretary, Indian Space Research Organisation, Bangalore

Mars Orbiter Spacecraft – First Indian Interplanetary Mission

February 10, 2014

Prof Mohammed Ayoob

University Distinguished Professor Emeritus of International Relations, Michigan State University

The Geostrategic Significance of the Arab Spring

February 10, 2014

Dr Norman R Augustine

Former Chairman and Chief Executive Officer, Lockheed Martin Corporation, USA

An Overview of the US Space Program

February 6, 2014

Prof MV Rajeev Gowda

Professor of Economics and Social Sciences, Indian Institute of Management, Bangalore

Electoral Politics in India: Challenges

January 22, 2014

Dr Devi Prasad Shetty

Chairman, Narayana Hrudayalaya Group of Hospitals, Bangalore

Indian Medical Systems: Challenges and the Way Forward

January 21, 2014

General Ved Prakash Malik

Former Chief of Army Staff

Leadership in Modern Warfare

January 20, 2014

Prof Ashley J Tellis

Senior Associate, Carnegie Endowment for International Peace, Washington DC

Pivot or Pirouette: The US Rebalance to Asia

January 3, 2014

Prof Prema Kurien

Professor of Sociology, Syracuse University, USA

The Civic and Political Activism of Indian American Groups

January 3, 2014

Dr Steven Walsh

Distinguished and Regents Professor, University of New Mexico

Institute Professor for the Entrepreneurial Renewal of Industry, University of Twente

Technology Innovation for the 21st Century

December 27, 2013

Prof Kirk R Smith

Professor of Global Environmental Health, University of California, Berkeley

Leapfrog Cooking Technology: Does it Exist?

December 17, 2013

Dr SV Srinivas

Senior Fellow, Centre for the Study of Culture and Society, and Visiting Professor, Centre for Contemporary Studies, Indian Institute of Science, Bangalore

Battle of Sentiments: Understanding Telangana and Samaikhyandhra Agitations

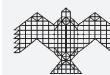
December 3, 2013

Mr TCA Srinivasa-Raghavan

Editorial Adviser to CEO, The Hindu Group of Publications, Chennai

India's Latest Crisis: Old Wine, New Bottle

September 10, 2013

**Mr Sameer Patil**

Associate Fellow, Gateway House, Mumbai
LAC, LOC and Inside
August 30, 2013

Mr Vidura Jang Bahadur

Photographer, New Delhi
Individual Perceptions of Identity
August 22, 2013

Dr Geetanjoy Sahu

Assistant Professor and Chairperson, Centre for
Science Technology and Society, School of Habitat
Studies, Tata Institute of Social Sciences, Mumbai
Judicialisation of Environmental Governance
July 29, 2013

Prof LS Shashidhara

Professor and Coordinator, Biology, Indian Institute
of Science Education and Research, Pune
*Science in 21st Century India: Policies, Practices and
Prospects*
July 26, 2013

Dr Samiparna Samanta

Assistant Professor of Asian History, Georgia College
and State University
*"Scientifying" the Orient: Race, Gender, and Sexuality
in the Colonial Tropics*
July 19, 2013

Prof Supriya RoyChowdhury

Shri TV Raman Pai Chair Visiting Professor, NIAS
*The Child and the City: Autonomous Migrant Children
in Bangalore*
July 16, 2013

Prof Barbara Harriss-White

Emeritus Professor, Oxford University
*Technology, Jobs and a Lower Carbon Future: Methods,
Substance and Ideas for the Informal Economy (The
Case of Rice in India)*
July 4, 2013

Prof Shakuntala Narasimhan

Columnist-Academic Resource Person, Bangalore
Women Composers of India – A Feminist Overview
June 20, 2013

Mr Pawan Agarwal

Adviser (Higher Education), Planning Commission,
Government of India
*12th Plan and Beyond: The Future of Indian Higher
Education*
April 5, 2013

Prof Gopal Guru

Jawaharlal Nehru University, New Delhi
Higher Education and Social Exclusion
April 4, 2013



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 Arun Vishwanathan

Is a Nuclear Weapons Free World Sustainable?

March 26, 2014

Prof Partha Ghose

A Scientific Study of Human Emotions Induced by Music

March 19, 2014

Mr Naresh Keerthi

Ranna's Gadayuddhakavyam - History and Fiction in a Jaina Mahabharata

March 5, 2014

Prof Siraj S Hasan

New Developments in the Study of the Sun

February 26, 2014

Prof Anindya Sinha

The Monkey in the Town's Commons: An Anthropogenic History of the Bonnet Macaque

February 19, 2014

Prof Nagasuma Chandra

Systems Biology and Its Impact on Medicine

February 12, 2014

Mr Krishna Byre Gowda

Challenges in Political Leadership

January 22, 2014

Dr VK Aatre

Technology Development for National Development

December 18, 2013

Ms Namitha Kumar

Lived Experience in Research: "I" am the Field and the Method

December 11, 2013

Dr MG Narasimhan

Varieties of Darwinism

December 4, 2013

Prof Sangeetha Menon

Brain, Self and Consciousness: Explaining the Conspiracy of Experience

November 27, 2013

Prof Narendar Pani

The Making of India's Economic Crisis

November 13, 2013

Prof S Ranganathan

The Glitter of Gold: Metallurgy as a Human Experience

November 6, 2013

Dr Anjula Gurtoo

The Urban Informal Economy: Challenges and Perspectives

October 23, 2013

Dr Siddhartha Krishnan

Can the Transformation of Grasslands into Forests be Interpreted as Risky and Thus Environmentally Unjust? Pastoral Land, Life and Modernity in the Nilgiris (1900-2010)

October 9, 2013

Prof Malavika Kapur

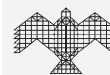
Exploring the Magical World of Child Care in Four Indigenous Medical Systems of India

September 18, 2013

Dr Shivali Tukdeo

Difficult Dialogues: Sexual Violence and the Role of Education

September 11, 2013



Mr Nishant M Srinivasaiah

New Wine in an Old Bottle: Revolutionizing Human-Elephant Conflict Studies in Asia

September 4, 2013

Ms Hamsa Kalyani

Research Data: Issues and Challenges

August 28, 2013

Dr Muthatha Ramanathan

Repolicising Development: Tracing Spatial Technology in the Rural Development Landscape of Interior Dry Karnataka

August 14, 2013

Dr Manu Verghese Mathai

Narratives of Transition or Creative Continuity? Building an Enabling Context for Low Carbon Societies in Asia

August 7, 2013

Prof Lalitha Sundaresan

Science, Technology and Security

July 31, 2013

Prof VV Krishna

Globalisation and Changing Social Contract between Science and Society: Some Challenges

July 24, 2013

Prof BV Sreekantan

The Mysterious Universe – Deep Revelations of the 20th Century Physics and Astrophysics

July 10, 2013

Mr Anand Arni

Indo-Pak Relations and Nawaz Sharif's Compulsions

July 3, 2013

Dr S Jaikishan

Saga of Deccan Cannon: The Neglected Beauties

June 26, 2013

Dr Rup Narayan Das

Role of Media in China

June 19, 2013

Dr Shoibal Chakravarty

Modelling Tools for Energy and Climate Policy in India

June 12, 2013

Prof Narendar Pani

Intervening in the Urban

June 5, 2013

Dr Khalid Wasim

Struggle between Secular Nationalism and Islamic Nationalism: Ethnographic Insights from the Contemporary Self-determination Movement in Kashmir

May 29, 2013

Prof Dilip R Ahuja

Factors Hindering Scientific Contributions of High Quality from India

May 22, 2013

Mr K Kamalaksha, Dr S Ganapathi Mayya, Dr DL Prabhakara, Mr NV Raghuram and

Mr R Naveen Raja

Varahi Underground Power House and Utilisation of Marginal Hydro Sources to Meet Power Demand of Karnataka State Till 2050

May 15, 2013

Dr Bejoy K Thomas

Problem Oriented Development Research: Illustrations and Learnings from Southern India

May 8, 2013

Dr Janaki Balakrishnan

Bubble Oscillators

April 24, 2013

Dr VV Binoy

I Know All About The Tiger, But What Is A Civet?: Understanding Attitudes Towards Wildlife by School Children in Malappuram, Kerala

April 17, 2013

Mr Naresh Keerthi

Krishnadevaraya's muktamlyad – The Emperor's New Poem

April 10, 2013



NIAS ASSOCIATE'S 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 150 distinguished personalities as our associates. NIAS organises regular associates meetings, which include lectures, plays, and performing arts events. As many as 185 programmes have been organised so far. During this year five Associates' Programmes were organized.

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

CVN Kalari Marma Yoga Chikitsa Asramam

(In Kilikollor, Kollam), Kerala

Kalari Payattu - A Martial Art Performance

February 13, 2014

Vidushi Vani Sateesh

Bangalore

Carnatic Classical Vocal

December 19, 2013

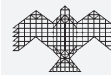
Shree Ramana Maharishi Academy for the Blind

Bangalore

Bharatanatyam

January 23, 2014

In addition, Silver Jubilee Lecture by Prof Shruti Sadolikar – Katkar and First CV Sundaram Memorial Lecture were also Associates' Programmes.



NIAS LITERARY, ARTS AND HERITAGE FORUM

The Literary, Arts and Heritage Forum aims to be an innovative platform for occasional lectures on diverse topics of cultural interest and of interest to science and culture, science and society, including literature, the arts and aspects of heritage.

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

Dr Jean-Marie Welter

Consultant, International Copper Trade Associations,
Luxembourg

Jean-Balthazar Keller: The Master Caster of Louis XIV

March 12, 2014

Dr María Alejandra Korstanje

Adjunct Professor at the National University of
Tucumán, Argentina

*Agriculture of the Ancient Andes. Help For Today's
Small Scale Farmers?*

February 21, 2014

Dr Susantha Goonatilake

President, Royal Asiatic Society of Sri Lanka

*Othering Max Weber: A 21st Century Perspective from
Asia*

December 24, 2013

Prof RH Kulkarni

Principal, Chitrakala Parishat, Bangalore

*Vijayanagara and Post Vijayanagara Painting in
Karnataka*

July 18, 2013

Ms Lata Mani

Feminist Historian and Cultural Critic, Bangalore

*Book Reading: The Integral Nature of Things: Critical
Reflections on the Present*

April 12, 2013

Prof Malavika Kapur

Visiting Professor, NIAS

*A DVD Presentation and Discussion on Yakshagana
Theatre of Karnataka*

April 1, 2013



NIAS LIBRARY

Collection

The Library expansion activity was consolidated during the year by updating the collection with required reference sources, seminal works, textbooks and other types of reading materials across disciplines for the faculty, researchers and Ph.D. scholars.

490 books were purchased during the year taking the collection to 15,250 books. In addition, 36 books in Kannada language and 162 donations were added to the collection.

NIAS 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 Publishers as well as JSTOR through this consortium. The Library also subscribes to select journals from other major publishers and societies in core areas of research activities. However, subscription to 14 titles had to be suspended due escalating price of subscriptions in 2014. Since the Library has arrangements for document delivery services with other Libraries, the required articles are being obtained using this service. The total number of current subscriptions is 2736.

Subscription to databases includes JSTOR which provides access to more than 2000 journals archives and Indiastat.com, which is a portal for India's socio-economic data and information.

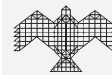
NIAS Library website is a one-stop destination for accessing Library resources. The licensed content which includes electronic journals and databases is accessible on-site as well as remotely via Athens.

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*

Table 1: Library Resources

Sl No.	Library Resources	Numbers
1	Books	15250
2	Kannada Books	288
3	Donations	732
4	Theses	18
5	Current Subscriptions	3736
6	Bound Volumes	2065
7	Data CDs	328
8	CDs	218
9	Lectures on DVDs	381
10	Magazines	6
11	Newspapers	10
12	Audio Tapes and Videos	1300



SERVICES

Online Library Catalogue

The Library uses LibSys software for housekeeping operations and the online catalogue provides access to bibliographic information of Library resources which includes books, Kannada books, donations, theses, journals and back volumes of journals, CDROMs, data CDs as well as NIAS lectures on DVDs. In addition to search and browse features for Library resources, the catalogue provides the following facilities to each user account.

1. The list of books borrowed as well as check-in/check-out history.
2. The status (approved, ordered, received, accessioned) of all recommended books is provided against each title. This information helps the user to know the status of the recommended books.

Alerting, Circulation and Reference 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 40 new books were displayed every month in the Library throughout the year. The number of documents issued during the year is 1135.

The infrastructure includes a workstation which provides access to data such as census and NSS data, Windows Server connected to five thin clients and a photocopy machine and two Linux servers. The facilities include internet browsing, access to licensed content and Library catalogue, desktop applications, scanning, printing and photocopying. The total number of photocopies made and articles printed by Library users is 30932 pages. NIAS Library is an open reference Library with a pleasant ambience and adequate physical infrastructure. In order to accommodate the increasing number of users in the Library, additional reading tables have been acquired during the year.

Interlibrary Loan Services (ILL)

NIAS Library has formal arrangements for resource sharing with all the major Libraries in Bangalore as well as elsewhere, in addition to document delivery services.

Institutional Repository Services

The Library has setup an institutional repository using Eprints software. This open access repository is being populated with research publications of NIAS faculty and students. A NIAS report listing all the publications and documents arranged in chronological order since inception of NIAS has been compiled and this report will form the basis for NIAS's institutional repository.



Hamsa Kalyani
Deputy Librarian

Joined NIAS on: May 1, 1992

Lecture

Scholarly Communication and Libraries, NIAS-DST Training Programme for Women Scientists on Science for Progress in India: Innovations and Technologies, February 11, 2014.

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



PUBLICATIONS

BOOKS

Guenther Rita, Micah Lowenthal, **Rajaram Nagappa** and **Nabeel Mancheri** (Rapporteurs). *India-United States cooperation on global security: Summary of a workshop on technical aspects of civilian nuclear materials security*. Washington DC: National Academy of Sciences; Bangalore: NIAS.

Kapur Malavika (2013). *Jivaka, the child healer*. New Delhi: Vitasta Publishing Private Limited.

Menon Sangeetha (2014). *Brain, self and consciousness: Explaining the conspiracy of experience*. New Delhi: Springer India.

Menon Sangeetha, Anindya Sinha and **B V Sreekantan** (eds.) (2014). *Interdisciplinary perspectives on consciousness and the self*. New Delhi: Springer India.

Sen Gupta D P (2013). *Our earth and our quest for energy: A journey through science and history of inventions*. Bangalore: Prism Books Private Limited.

Sen Gupta D P (2013). *Chichibabar dui shodor*. Calcutta: Sishu Sahitya Samsad.

Sen Gupta D P (2013). *Brothers from Chichibaba*. Calcutta: Sishu sahitya Samsad.

Settar S (2014). *Halagannada lipi lipikara, lipi vyavasaya* (Ancient Kannada script, scribe and cultivation of letters). Bangalore: Abhinava.

Shetty P K, S Ayyappan and **M S Swaminathan** (2013). *Climate change and sustainable food security*. Bangalore: NIAS; New Delhi: Indian Council of Agricultural Sciences.

Sreekantan B V (ed.) (2014). *Foundations of science*. Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education.

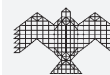
Srinivasan Sharada and **S Ranganathan** (2014). *India's legendary wootz steel: An advanced material of the ancient world*, 2nd ed. Hyderabad: Universities Press.

Vishwanathan Arun and **Rajaram Nagappa** (eds.) (2013). *Troubling Tehran: Reflections on geopolitics*. Bangalore: NIAS; New Delhi: Pentagon Press.

PAPERS

Ahuja Dilip R (2013). Public perception of the seriousness of climate change as a problem In: *Proceedings of the Seminar on Public Risk Perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 107-114.

Balakrishnan R, J Bahuleyan, D Nandi and **M Jain** (2014). Modelling the effects of chorus species composition and caller density on acoustic masking interference in multispecies choruses of crickets and katydids. *Ecological Informatics* 21:50-58.



Binoy V V and **Sindhu Radhakrishna** (2013). Environmental decision making: The role of culture-induced divergence in cognition. *Current Science* 105(6): 757-759.

D'Lima C, Helene Marsh, Mark Hamann, **Anindya Sinha** and Rohan Arthur (2013). Positive interactions between Irrawaddy dolphins and artisanal fishers in the Chilika Lagoon of eastern India are driven by ecology, socioeconomics and culture. *Ambio* doi 10.1007/s13280-013-0440-4.

Gupta Shreejata and **Anindya Sinha** (2014). Executive functions as a path to understanding nonhuman consciousness: Looking under the light In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and B V Sreekantan). New Delhi: Springer India, pp. 101-116.

Haricharan Smriti, Hema Achyuthan and N Suresh (2013). Situating megalithic burials in the iron age-early historic landscape of southern India. *Antiquity* 87: 488-502.

Hongray Thotreithem, B Ashok and **Janaki Balakrishnan** (2013). Effect of charge on the dynamics of an acoustically forced bubble. [http://arXiv:1304.4905v1 \[nlin.CD\]](http://arXiv:1304.4905v1 [nlin.CD]) (2013). **Hongray Thotreithem, B Ashok** and **Janaki Balakrishnan** (2013). Oscillatory dynamics of a charged microbubble under ultrasound. [http://arXiv:1304.4916v1 \[nlin.CD\]](http://arXiv:1304.4916v1 [nlin.CD]) (2013).

Iyer Chidambaran G (2014). Harnessing satellite technology for education development: Case studies from India. *Innovation and development* 4(1): 129-143.

Jafar K (2013). Reservation and women's political freedom: Candidates' experience from three Gram Panchayats in Kerala, India. *Social Change* 43(1): 79-97.

Kapur Malavika (2013). Consciousness, memory and dreams in *Kashyapa Samhita* In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and BV Sreekantan). New Delhi: Springer India, pp. 73-80.

Kapur Malavika (2013). Resilience and competence in childhood In: *Psychology and Psychoanalysis* (ed. Girishwar Misra). Vol. XIII Part 3 of History of Social Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Munshiram Manoharlal Publishers Pvt. Ltd., pp. 255-298.

Kapur Malavika (2013). Psychological, social and cultural perspectives on risk In: *Proceeding of the Seminar on Public Risk Perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 45-52.

Kasturirangan Rajesh (2014). The self as organizer In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and BV Sreekantan). New Delhi: Springer India, pp. 51-64.

Kuchibhotla Lakshmi and **Sangeetha Menon** (2014). Self and empathy In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and BV Sreekantan). New Delhi: Springer India, pp. 177-192.

Kumar Namitha A and **Sangeetha Menon** (2014). Adapted self in the context of disability: An ecological, embodied perspective In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and BV Sreekantan). New Delhi: Springer India, pp. 193-208

Kumara H N and **Sindhu Radhakrishna** (2013). Evaluation of census techniques to estimate the density of slender loris (*Loris lydekkerianus*) in Southern India. *Current Science* 104(8): 1083-1086.

Kumar H N, R Sasi, R Suganthasakthivel, M Singh, H S Sushma, K K Ramachandran and W Kaumanns (2014). Distribution, demography and conservation of lion-tailed macaques (*Macaca silenus*) in the Annamalai hills landscape, Western Ghats, India. *International Journal of Primatology* DOI: 10.1007/s10764-014-9776-2.

Kumar R, Anindya Sinha and Sindhu Radhakrishna (2013). Comparative demography of two commensal macaques in India: Implications for population status and conservation. *Folia Primatologica* 4: 384–393.

Lakshmi K (2013). Altruism and *D na*: Impact on self and well-being. *Journal of Human Values* 19(2): 65-71.

Menon Sangeetha (2014). Self and transformative experience: Three Indian philosophers on consciousness In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and B V Sreekantan). New Delhi: Springer India, pp. 209-224.

Menon Sangeetha (2013). Reason, emotion and wellbeing: An understanding of consciousness In: *Psychology and Psychoanalysis* (ed. Girishwar Misra). Vol. XIII Part 3 of History of Social Science, Philosophy and Culture in Indian Civilization (gen. ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Munshiram Manoharlal Publishers Pvt. Ltd., pp. 387-402.

Menon Sangeetha (2013). Altruism, renouncing the renunciant: A discussion on desire and selflessness In: *Altruism in cross-cultural perspective* (ed. Douglas A Vakoch). International and Cultural Psychology (ser. ed. Anthony J Marsella). Springer, pp. 113-122.

Menon Sangeetha (2013). Risk perception and the sense of security: A humanistic approach In: *Proceedings of the Seminar on Public risk perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 11-24.

Mohanto G, N Madhavan, S Nath, J Gehlot, Ish Mukul, A Jhingan, T Varughese, A Roy, R K Bhowmik, I Mazumdar, D A Gothe, P B Chavan J Sadhukhan, S Pal, Maninder Kaur and Varinderjit Singh, A K Sinha, **V S Ramamurthy** (2013). Evaporation residue excitation function and spin distribution for $^{31}\text{P}+^{170}\text{Er}$. *Physical Review C* 88(3): 034606(7).

Narasimhan M G (2013). Role of risk communication in risk studies In: *Proceedings of the Seminar on public Risk Perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 25-44.

Nathan Hippu Salk Kristle and B Sudhakara Reddy (2013). Urban transport sustainability indicators – Application of multi-view black-box (MVBB) framework. *International Journal of Environment and Sustainable Development* 12(3): 285–312.

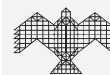
Nathan Hippu Salk Kristle and Sanket Sudhir Kulkarni and Dilip R Ahuja (2013). Pipeline politics-A study of India's proposed cross border gas projects. *Energy Policy* 62: 145-156.

Nathan Hippu Salk Kristle and Srijit Mishra (2013) Group differential for attainment and failure indicators. *Journal of International Development* DOI: 10.1002/jid.2898.

Nungshi Devi S and **Sindhu Radhakrishna** (2013). Attitudes towards primates and primate conservation in Manipur, northeastern India. *Asian Primates* 3: 29-36.

Ramamurthy V S (2013). Science and technology in China- Implications and lessons for India: An overview In: *Science and Technology in China: Implications and Lessons for India* (ed. Maharajakrishna Rasgotra). New Delhi: Sage Publication, pp. 1-13.

Ramamurthy V S (2013). Perceptions and acceptance of public risks. *Vigyan Prasar magazine: Dream-2047* 15(12): 39-37.



Ramamurthy V S (2014). The discovery of nuclear fission – A game changer in the history of scientific research (Commentary). *Current Science* 106(4): 509-510.

Ramamurthy V S (2013). Introduction: Perception and acceptance of public risks In *Proceedings of the Seminar on Public Risk Perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 3-10.

Rao Mukund, R Sivakumar, **K R Sridhara Murthi**, Shailesh Nayak and T Ramasami (2013). India's vision for national GIS (Based on space-images and positioning, survey and maps, virtual GI, Geo-tagged data) (IAC-13,B1,4,7x16548). *Proceedings of 64th International Astronautical Federation Congress*, Beijing, October 2013, pp 1-7.

Rao Mukund, **K R Sridhara Murthi** and **V S Ramamurthy** (2013). Perspectives for a national GIS policy (including assessment of existing national remote sensing, map and data sharing policies) (IAC-13,E7,5,7x16547). *Proceedings of 64th International Astronautical Federation Congress*, Beijing, October 2013, pp 1-7.

Routray Sailen and **N Shantha Mohan** (2012). Securing livelihoods: The watershed plus approach and emergence of 'the social' in a watershed project in Odisha. *Indian Journal of Human Development* 6(2): 267-281.

Rutten Mario and **Sanderien Verstappen** (2014). Middling migration: Contradictory mobility experiences of Indian youth in London. *Journal of Ethnic and Migration Studies* 40(8): 1217-1235.

Sen Gupta D P, I Gupta and **Dilip R Ahuja** (2014). All states stand to save electricity were Indian Standard Time to be advanced. *Current Science* 106(1): 70-74.

Sen Gupta D P and Vani Santosh (2013). Cellphones, possible risks: Can it cause brain cancer? In: *Proceedings of the Seminar on Public Risk Perception* (eds. Malavika Kapur, Dilip Ahuja and Sangeetha Menon). Bangalore: NIAS, pp. 73-86

Sengupta A and **Sindhu Radhakrishna** (2013). Of concern yet?: Distribution and conservation status of the bonnet macaque *Macacaradiata* in Goa, India. *Primate Conservation* 27: 109-114.

Sharma Narayan, M D Madhusudan and **Anindya Sinha** (2014). Local and landscape correlates of primate distribution and persistence in the remnant lowland rainforests of the upper Brahmaputra valley, northeastern India. *Conservation Biology* 28: 95-106.

Shetty P K, M B Hiremath and M Murugan (2013). Status of organic farming in agro-ecosystems in India. *Indian Journal of Science and Technology* 6(8): 5083-5088.

Singh M Amarjeet (2013). Revisiting the Naga conflict: What can India do to resolve this conflict? *Small Wars and Insurgencies* 24(5): 795-812

Sinha Anindya (2014). Of charitable cats and chimpanzee cultures: Reflections on the science of animal behaviour and cognitive ethology. In: *Foundations of Sciences* (ed B V Sreekantan), Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson, pp. 625-645.

Sinha Anindya (2014). Experientially acquired knowledge of the self in a non-human primate In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and B V Sreekantan). New Delhi: Springer India, pp. 81-99.

Sreekantan B V (2014). Reality and consciousness: Is quantum biology the future of life sciences? In: *Interdisciplinary Perspectives on Consciousness and the Self* (eds. Sangeetha Menon, Anindya Sinha and B V Sreekantan). New Delhi: Springer India, pp. 263-278.

Sreekantan B V (2014). Introduction and overview In: *Foundations of Sciences* (ed. B V Sreekantan), Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education, pp. xxxix-xcviii

Sreekantan B V (2014). Role of experiments and technologies in the foundations of sciences In: *Foundations of Sciences* (ed. B V Sreekantan), Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education, pp. 335-357.

Sreekantan B V (2014). Interaction between theory and experiment in the 20th century In: *Foundations of Science*, Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education, pp. 377-388.

Sreekantan B V (2014). The quest for ultimate reality In: *Foundations of Sciences* (ed. B V Sreekantan), Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education, pp. 747-759.

Srinivasan Sharada (2013). Indian iron and steel, with special reference to southern India. In: *The World of Iron* (eds. Jane Humphris and Thilo Rehren). London: Archetype Publications, pp. 83-90.

Srinivasan Sharada (2013). Megalithic and continuing peninsular high-tin binary bronzes: Possible roots in Harappan binary bronze usage? *Transactions of the Indian Institute of Metals* 66(5-6): 731-737.

Srinivasan Sharada (2014). Aesthetics and the foundations of science: Insights from Indian metallurgical traditions In: *Foundations of Sciences* (ed. B V Sreekantan), Vol XIII Part 5 of History of Science, Philosophy and Culture in Indian Civilization (gen ed. D P Chattopadhyaya). New Delhi: Centre for Studies in Civilizations (Project of History of Indian Science, Philosophy and Culture)/ Pearson Education, pp. 209-254.

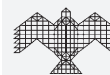
Tukdeo Shivali (2014). The not-so-hidden power of mobility and education: Indian diaspora, knowledge industries and the development imperatives. *Journal of Diaspora Studies* 7(1): 56-70.

Upadhyaya Carol (2013). Shrink-wrapped souls: Managing the self in India's new economy In: *Enterprise culture in neoliberal India: Studies in youth, class, work and media* (ed. Nandini Gooptu). London: Routledge, pp. 93-108.

Upadhyaya Carol (2013). Return of the 'Global Indian': Software professionals and the worlding of Bangalore In: *Return: Nationalizing transnational mobility in Asia*, (eds. Xiang Biao, Brenda Yeoh and Mika Toyota). Durham: Duke University Press, pp 141-161.

Vaidya Prabhakar G and **P S Sajini Anand** (2014). Estimating the dimension of a manifold and finding local charts on it by using nonlinear single value decomposition. *Topology Proceedings* 43: 277-291.

Vishwanathan Arun (2013). IAEA safeguards: Evolution and current status. *International Journal of South Asian Studies* 6(1): 129-146.



Vishwanathan Arun (2013). Sino-Pak nuclear and missile collaboration: Implications for India. *Defence and Security Alert* 5(1): 32-34.

Vishwanathan Arun (2014). Iran and P5+1 Geneva agreement: A game changer?. *Diplomatist* 2(3): 23-25.

CONFERENCE

Abstracts

Binoy V V and **Anindya Sinha** (2014). 'Left eye - right brain': Exploring the impact of social isolation on personality traits and lateralised utilisation of the brain in an air-breathing freshwater fish, climbing perch. *First Annual Conference on Cognitive Science*. New Delhi, March 2014

Dixit Bharat, Satyam Suwas, **Sharada Srinivasan**, S Jaikishan and **S Ranganathan** (2014). Microstructural analysis of a wootz steel blade from southern India. *BUMA VIII, Proceedings 2014*.

Gupta S, K Mukhopadhyay and **Anindya Sinha** (2013). The common 'threatened' monkey: Is the bonnet macaque being driven to extinction?. *Nilgiri Biosphere Reserve Silver Jubilee Conference*. Ootacamund, August 2013.

Juleff G, S Jaikishan, Sharada Srinivasan, S Ranganathan and B Gilmour (2014). Northern Telangana, an iron and crucible steel production landscape in India, Pioneering Metallurgy Field Survey 2010. *BUMA VIII Proceedings 2014*.

Nagae Takekazu, **Sharada Srinivasan**, **S Ranganathan**, R M Pillai, Yasuji Shimizu and Haruhisa Mifune (2014). Thermographical analysis of continuing tradition of mirror casting in Kerala. *BUMA VIII Proceedings 2014*.

Sasi R and **Sindhu Radhakrishna** (2013). Status and distribution of slender loris in Tamil Nadu, India. *Proceedings of the Prosimian Congress 2013*. Ranomafana, Madagascar, August 2013, p 84.

Sinha Anindya (2013). Social cognition and experiential knowledge in nonhuman primates. *International Workshop on the Evolution of the Human Mind*. Indian Institute of Science Education and Research, Pune, November 2013

Sinha Anindya and K Mukhopadhyay (2013). The monkey in the town's commons: An anthropogenic history of the bonnet macaque. *International Meeting on Tropical Biodiversity and Conservation*. Centre for Ecological Sciences, Indian Institute of Science, Bangalore, September 2013.

Posters

Binoy V V and **Anindya Sinha** (2013). The impact of an alien invasive fish, the tilapia, on the cognitive abilities and lateralized utilization of brain hemispheres in a freshwater fish, the climbing perch. *Young Investigators' Meeting 2013*. Jodhpur, India, February 2013.

Rao A, **V V Binoy** and **Anindya Sinha** (2014). Cube vision: Can blindfolded Rubik's cubing provide insights into the formation of mental imagery and its application to problem solving?. *First Annual Conference on Cognitive Science*, New Delhi, March 2014.

Watve M, **V V Binoy** and **Anindya Sinha** (2014). Changing personalities? Are behavioural syndromes modified during metamorphosis in the Indian common toad?. *First Annual Conference on Cognitive Science*, New Delhi, March 2014.

BOOK REVIEWS

Tukdeo Shivali (2014). Review of *Complexity, institutions and public policy: Agile decision making in a turbulent world* by Graham Room (Edward Elgar Publishing Pvt Ltd, 2011). *Current Science* **106(7)**: 1014-15.

Tukdeo Shivali (2013). Review of *Universities at the Crossroads* by Andrei Beteille. (New Delhi: OUP, 2010). *Contributions to Indian Sociology* 47(2): 327-330.

Upadhyaya Carol (2013). Mapping Migration Within and From India: Mobilities and Networks (Review of three books). *Migration Studies* 1(2): 247-252.

Upadhyaya Carol (2014). Review of *India's middle class: New forms of urban leisure, consumption and prosperity* by Christiane Brosius. (New Delhi: Routledge, 2010). *Contributions to Indian Sociology* 48(1): 143-163.

Vishwanathan, Arun (2013). Review of *Aftermath of a nuclear attack: A case study of post-strike operations* by Anil Chauhan. *India Quarterly: A Journal of International Affairs* 69(2): 200-202.

Vishwanathan, Arun (2013). Review of *Pakistan: A New History* by Ian Talbot (New Delhi: Amaryllis, 2013). *The Book Review XXXVII* (10): 51-52.

OUTREACH ARTICLES

Bagla Pallava (2014). Polio: Two drops of skepticism. *Outlook*, 27 March.

Kapur Malavika (2014). Loss of innocence, advertising in India: A Perspective. *WCRC Leaders Asia*, 21 February.

Kurup Anitha and Amita Basu (2013). What is giftedness. *ParentEdge* 3(2): 50-51.

Kurup Anitha and Amita Basu (2013). Identifying potentially gifted children. *Parentedge* 3(3): 32-33.

Kurup Anitha and Amita Basu (2014). The twice-exceptional learner. *Parentedge* 3(4): 64-65.

Kurup Anitha and Amita Basu (2014). Parenting gifted children: Not a cakewalk. *Parentedge* 3(5): 28-29.

Kurup Anitha (2014). Ask the Expert. *Parentedge* 3(5): 26-29.

Mayilvaganan M (2014). Natural and indispensable partners: India and Japan in the Asia-Pacific, *Science, Technology and Security Forum*, 31 March.

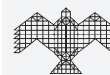
Mayilvaganan M (2014). India-Sri Lanka: Battle over fishing grounds. *ISSSP Reflections* No. 10, 6 January.

Mayilvaganan M (2013). Examining India's Look East Policy 3.0. *International Policy Digest*, 21 November.

Mayilvaganan M (2014). Sri Lanka-Pakistan relations: Search for strategic partnership?, *Foreign Research Policy Centre Journal* 2, March-April.

Nathan Hippu Salk Kristle (2014). The two-seat solution. *The Indian Express*, 31 March.

Nathan Hippu Salk Kristle (2013). Uttarakhand Tragedy the question one prefers to ignore. *Humanist Outlook* 13(9): 290-292.



Nathan Hippu Salk Kristle (2013). Science and non-science. *Science Reporter* 50(10): 41.

Nathan Hippu Salk Kristle (2013). Reducing wastage of food is key to saving environment. *Deccan Herald*, 5 June .

Sen Gupta D P and **D R Ahuja** (2014). Changing time. *The Indian Express*, 31 January. p.11.

Tukdeo Shivali Translated from Marathi(2013). Fact-finding report on the murder of three dalit youths in Sonai, Maharashtra by Kunal Shirsathe & Manisha Tokle. *Roundtable India: For an informed Ambedkar age*.

Tukdeo Shivali (2013). The word and the world. *The Indian Express*, 28 September.

Vishwanathan Arun (2013). India's missile modernisation and credible minimum deterrence. *Generation Why: South Asian Voices*, Stimson Center, Washington DC, 5 December.

Vishwanathan Arun (2013). Nuclear signals in South Asia. *Bulletin of the Atomic Scientists*, 9 August.

Vishwanathan Arun (2013). Special commentary: Carnegie 2013 Nuclear Policy Conference, *Institute of Peace and Conflict Studies*, IPCS Article No. 3891, 23 April.

Vishwanathan Arun and **Aryaman Bhatnagar** (2013). India-Pak CBMs and cricket: Duck, six or somewhere in between?, *Generation Why: South Asian Voices*, Stimson Center, Washington DC, 30 August.

Vishwanathan Arun (2013). Indo-Pak relations: Moving beyond binaries. *ISSSP Reflections No. 7*, National Institute of Advanced Studies, Bangalore, 11 November.

Vishwanathan Arun, S Chandrashekar and **Rajaram Nagappa** (2013). Nuclear Weapons and Deterrence. *ISSSP Reflections No. 8*, National Institute of Advanced Studies, Bangalore, 18 November.

Vishwanathan Arun (2014). Is there a debate about Nasr/Hatf-IX within Pakistan, *Generation Why: South Asian Voices*, Stimson Center, Washington DC, 27 February.

Vishwanathan Arun (2014). Nuclear security summit 2014: The way forward. IPCS Article No. 4351. New Delhi: *Institute of Peace and Conflict Studies*, 21 March.

Vishwanathan Arun (2013). India-US row: Voices from the streets. *Al Jazeera English*, 20 December.

REPORTS

Dhak Biplab and Amita Shah (2014). Transnational flows: Mapping the extent, pattern and impacts within a multi-scalar comparative framework in Gujarat. (Provincial Globalization Research Report No. 8). Bangalore: NIAS; Amsterdam: Amsterdam Institute for Social Science Research, University of Amsterdam. March 2014.

Guha Puja (2013). Migrants' private giving and development: Diasporic influences on development in central Gujarat, India. Provincial Globalization Working Paper No. 6). Bangalore: NIAS; Amsterdam: Amsterdam Institute for Social Science Research, University of Amsterdam. August 2013.

Guha Puja and Biplab Dasgupta (2013). Final Report: Survey of international migration and remittances in central Gujarat Region - Anand and Kheda Districts. NIAS, Bangalore; Ahmedabad: GIDR.

Guha, Puja and Biplab Dhak (2013). District level survey of international migration and reverse flows in central Gujarat. (Provincial Globalization Research Report No. 7). Bangalore: NIAS; Amsterdam: Amsterdam Institute for Social Science Research, University of Amsterdam. April 2013.

Pani Narendar and **Chidambaran G Iyer** (2013). Evaluation of the processes in the implementation of Jawaharlal Nehru national urban renewal mission in Karnataka, KEA Report, October 2013.

Sampath A, S Gangopadhyay, S Chakravarty, **D P Sen Gupta** and **Dilip R Ahuja** (2014). The extent to which Karnataka's future electricity demand can be met with renewable energy. Report submitted to the Power System Operation Corp. Ltd., 31 March 2014.

NIAS PUBLICATIONS

Chandrashekar S (2013). Does India need a national strategy for rare earths? (Report R18-2013). Bangalore: NIAS.

Chandrashekar S, N Ramani, Rajaram Nagappa and **Soma Perumal** (2013). North Korea's successful space launch (Report R20-2013). Bangalore: NIAS.

Hamsa Kalyani (comp.) (2014). Publications from NIAS: January 1988 – June 2013 (Report R23-2014). Bangalore: NIAS.

Kapur Malavika, Dilip Ahuja and **Sangeetha Menon** (eds.) (2013). Proceedings of the Seminar on Public risk perception [Seminar held on 29th & 30th September 2011] (Special Publication SP3-2013). Bangalore: NIAS.

Kurup Anitha, Amita Basu, Ajay Chandra and **Parvathy Jayan** (2014). Teacher training module for identifying gifted children with the teacher nomination form for gifted children (Ages 3-12) (Kannada Translation) (Report R16-2013). Bangalore: NIAS.

Kurup Anitha (2014). NIAS policy against sexual harassment in the workplace.

Mancheri Nabeel, Lalitha Sundaresan and **S Chandrashekar** (2013). Dominating the world China and the rare earth industry (Report R19-2013). Bangalore: NIAS.

Marwah Onkar (2013). Strategic parity for peace: Engaging China in the 21st century (Third K Subrahmanyam Memorial Lecture, July 30, 2013) (Lecture L7-2013). Bangalore: NIAS.

Nagappa Rajaram, Arun Vishwanathan and **Aditi Malhotra** (2013). HATF-IX/ NASR – Pakistan's tactical nuclear weapon: Implications for Indo-Pak deterrence (Report R17-2013). Bangalore: NIAS.

Pani Narendar (2013). Towards a strategy for manufacturing in Karnataka (Report R22-2014). Bangalore: NIAS.

Shetty P K and **M V Srinivasa Gowda** (eds.) (2013). Innovations in agricultural policy (Special Publication SP2-2013). Bangalore: NIAS.

Srinivasan Sharada and **S Ranganathan** (2013). Minerals and metals heritage of India (Backgrounder B8-2013). Bangalore: NIAS.

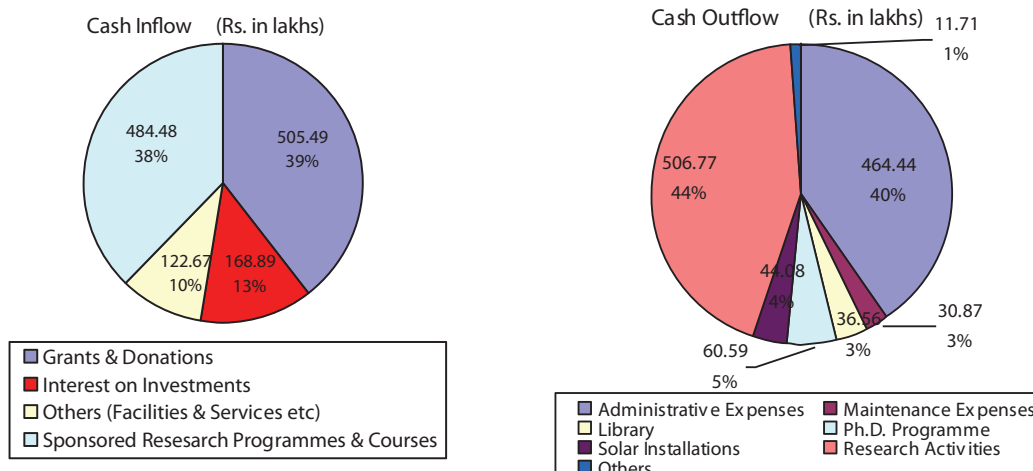


NIAS ADMINISTRATION

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 Mr S Ramadorai, 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 thirty-seven students work for their Ph.D. degrees. Administration also takes care of the campus, its facilities such as the Auditorium, lecture halls, meeting rooms, classrooms, guesthouse, dining halls, etc and all other infrastructure of NIAS. Administration also plays a unique role in conducting various programmes including training courses. Procurement of materials and consumables, maintenance of facilities, inventory control, etc are also done by Administration. Compliance with various statutory requirements such as Provident Fund, Professional Tax, 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 Manager's in the area of Administration and Accounts & Finance and other Secretarial/ Office/Supporting Staff, in all numbering 31.

Finance management, accounting, auditing (internal and statutory), resource mobilization and expenditure control are carried out systematically. An overview of finances for the year 2013-14 is given below:



NIAS has a specified investment of Rs.1810.39 lakhs (exclusive of project funds) as on March 31, 2014.

During the year, the Institute has received 10 new research projects with a total value of Rs.140.50 lakhs. Total value of projects handled during the year including the projects sanctioned in the earlier years was Rs.1598.26 lakhs. Foreign exchange component included in this sum was Rs.299.45 lakhs.



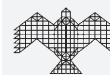
P Srinivasa Aithal
Head, Administration
& Finance

Joined NIAS on: November 1, 1995

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



Left to Right top: MS Shivakumar, B Lalu, C Shashidharan, KS Rama Krishna,
P Srinivasa Aithal, A Deva Raju, VA Ramesh, P Satish Bhat
Left to Right below: Gayathri N Lokhande, S Lalitha, JN Sandhya, R Vijayalakshmi, AS Mary Stella, V Girija



NIAS 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, 2014 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 31st March, 2014.
- 2) In the case of the Income and Expenditure Account, of the Excess of Income over Expenditure for the year ended on that date.

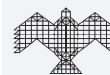
We further report that:

- 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: 20.06.2014

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



Balance Sheet

(Amount in Rupees)

Particulars	As at 31 March 2014	As at 31 March 2013
Sources of Funds:		
Capital Fund	77,299,030	77,299,030
Corpus Funds	33,500,000	33,500,000
Other Funds	178,235,426	178,192,264
Current Liabilities	5,288,169	3,924,312
Provisions	324,364	92,135
Excess of Income over Expenditure	8,779,191	(4,550,302)
TOTAL	303,426,180	288,457,439
Application of Funds:		
Fixed Assets		
Gross Block	162,451,112	154,214,926
Less: Depreciation Block	98,994,211	91,360,593
Net Block	63,456,901	62,854,333
Investments	230,113,041	221,842,445
Current Assets, Loans and Advances		
Advances, Deposits & Receivables	3,962,785	1,243,598
Cash and bank balances	5,893,453	2,517,063
	9,856,238	3,760,661
TOTAL	303,426,180	288,457,439

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

Sd/-
(PROF. V S RAMAMURTHY)
DIRECTOR

PLACE: BANGALORE
DATE : 20 JUNE 2014

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 2014	Year ended 31 March 2013
Income:		
Grants and Donations	50,549,411	46,984,600
Interest on Investments	16,889,484	18,002,930
Overhead & Administrative Charges Received	10,025,906	9,507,309
Miscellaneous Income	2,241,364	3,803,717
	79,706,165	78,298,556
Expenditure:		
Administrative Expenses	44,007,484	51,466,609
Repairs and Maintenance	3,086,513	3,230,494
Research, Symposia and Course	3,152,755	2,588,434
Professorship	2,437,179	1,955,231
PhD Programme	6,059,123	5,746,507
Depreciation	7,633,618	8,832,249
	66,376,672	73,819,524
Surplus/(Deficit) for the year	13,329,493	4,479,032
Add: Balance in income and expenditure account brought forward	(4,550,302)	(9,029,334)
Balance Carried forward to the Balance sheet	8,779,191	(4,550,302)

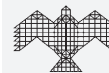
As per our report of even date,
for B.R.V.GOULD & CO.,
CHARTERED ACCOUNTANTS
FRN 000992 S

Sd/-
(PROF. V S RAMAMURTHY)
DIRECTOR

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

PLACE: BANGALORE
DATE : 20 JUNE 2014

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



Sponsored projects income and expenditure account (consolidated)

For the year ended 31st March, 2014

Particulars	Scientific Research 2013-14 Rs.	Scientific Research 2012-13 Rs.	Social Science Research 2013-14 Rs.	Social Science Research 2012-13 Rs.
A. INCOME:				
Projects Receipts	36,747,688	36,024,097	11,700,744	11,048,939
TOTAL (A) Rs.	36,747,688	36,024,097	11,700,744	11,048,939
B. EXPENDITURE:				
Projects Expenditure	36,823,893	38,428,800	11,697,790	9,966,870
TOTAL (B) Rs.	36,823,893	38,428,800	11,697,790	9,966,870
C. SURPLUS/(DEFICIT) FOR YEAR (A-B) TRANSFERRED TO PROJECTS FUND	(76,205)	(2,404,703)	2,954	1,082,069

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 2014

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



NIAS COUNCIL OF MANAGEMENT

Mr S Ramadorai (Chairman)

Vice Chairman
Tata Consultancy Services Limited
TCS House, Raveline Street
Mumbai 400 001

Prof P Balaram

Director
Indian Institute of Science
Bangalore 560 012

Prof André Béteille

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

Mr Xerxes Desai

41, 4th Cross
Defence Colony
Indiranagar
Bangalore 560 038

Dr Rajneesh Goel

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

Dr Devaki Jain

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

Mr NR Narayana Murthy

Executive Chairman
Infosys Technologies Limited
Hosur Road, 3rd Cross, Electronic City
Bangalore 561 229

Mr ISN Prasad

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

Dr Arcot Ramachandran

No.3, Crescent Road
Bangalore 560 001

Prof VS Ramamurthy

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

Dr T Ramasami

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

Dr SK Sarkar

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

Mr AN Singh

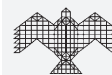
Managing Trustee
Sir Dorabji Tata Trust
Bombay House
24, Homi Mody Street
Mumbai 400 001

Prof MS Swaminathan

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

Prof Narendar Pani (Secretary)

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



NIAS SOCIETY

Mr S Ramadorai (Chairman)

Vice Chairman
Tata Consultancy Services Limited
TCS House, Raveline Street
Mumbai 400 001

Prof P Balaram

Director
Indian Institute of Science
Bangalore 560 012

Prof André Béteille

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

Mr Xerxes Desai

41, 4th Cross
Defence Colony
Indiranagar
Bangalore 560 038

Dr Rajneesh Goel

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

Dr Devaki Jain

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

Mr NR Narayana Murthy

Executive Chairman
Infosys Technologies Limited
Hosur Road, 3rd Cross, Electronic City
Bangalore 561 229

Mr ISN Prasad

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

Dr Arcot Ramachandran

No.3, Crescent Road
Bangalore 560 001

Prof VS Ramamurthy

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

Dr T Ramasami

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

Dr SK Sarkar

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

Mr AN Singh

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

Prof MS Swaminathan

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

Prof Narendar Pani (Secretary)

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



NIAS STAFF

Director

VS Ramamurthy

Professors Emeritus

K Kasturirangan

Roddam Narasimha

Visiting Professors

Pallava Bagla, *Shri TV Raman Pai Visiting Professor*

S Chandrashekar, *JRD Tata Visiting Professor*

Supriya Roy Chowdhury, *Shri TV Raman Pai Visiting Professor (June 25, 2013 to August 24, 2013)*

DP Sen Gupta

S Gopal, *Sir Ashutosh Mukherjee Visiting Professor (till April 30, 2013)*

Malavika Kapur

SS Meenakshisundaram

N Shantha Mohan

Rajaram Nagappa

N Ramani

S Ranganathan, *Homi Bhabha Visiting Professor*

S Settar

BV Sreekantan

Lalitha Sundaresan

Ashutosh Varshney, *Dr Raja Ramanna Visiting Professor (June 20, 2013 to August 19, 2013)*

Professors

Dilip R Ahuja, *ISRO Professor of S&T Policy Studies*

Anitha Kurup

Sangeetha Menon

Narendar Pani

PK Shetty

Anindya Sinha, *Dean (Academic Affairs)*

Sharada Srinivasan

Carol Upadhyaya

Associate Professors

Janaki Balakrishnan

Rajesh Kasturirangan

Sindhu Radhakrishna

Assistant Professors

Anshuman Behera

Chidambaran G Iyer

Nabeel Ajmal Mancheri *(till September 30, 2013)*

M Mayilvaganan

Hippu Salk Kristle Nathan

M Amarjeet Singh *(till July 12, 2013)*

Shivali Tukdeo

Arun Vishwanathan

Research Consultant

Shoibal Chakravarty

Post Doctoral Associates

VV Binoy

Durba Biswas *(till May 24, 2013)*

Smriti Haricharan

Khalid Wasim Hassan *(From July 9, 2013 to August 11, 2013)*

Hippu Salk Kristle Nathan *(till February 23, 2014)*

V Jayasree *(till November 30, 2013)*

Deputy Programme Coordinator

MG Narasimhan *(till December 31, 2013)*

Deputy Librarian

Hamsa Kalyani

Head (Administration & Finance)

P Srinivasa Aithal

Office Manager

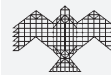
B Lalu

Assistant Manager (Administration)

A Deva Raju

Assistant Manager (Accounts & Finance)

P Satish Bhat

**Senior Executive Assistants**

V Girija
KS Rama Krishna
S Lalitha
Gayathri N Lokhande

Executive Assistants

JN Sandhya
C Shashidharan
VB Mariyammal
AS Mary Stella
R Vijayalakshmi

Junior Executive Assistants

VA Ramesh
MS Shivakumar

Support Staff

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



NIAS ADJUNCT FACULTY

B Ashok
 Bruce Alan Broadly
 Amal K Chakrabarti
 T Chand (*till November 30, 2013*)
 N Chandrasekaran
 Vijay Chandru
 RN Ganesh
 Subrata Ghoshroy
 S Gopal
 MV Srinivasa Gowda
 Manabrata Guha
 Kota Harinarayana
 MR Hegde
 MB Hiremath
 Stephen Hodge
 Michael A Huffman
 Manjari Jain
 Bhupendra Jasani
 Swapna Bista Joshi (*till September 2013*)
 Gillian Juleff
 B Narayan Karkera
 Nayeem Ullah Khan (*till March 2014*)
 LV Krishnan
 Saurabh Kumar
 HN Kumara
 MD Madhusudhan
 K Manorama
 Kim R McConkey

KR Sridhar Murthi
 CRL Murthy (*till November 2014*)
 S Srinivasa Murthy
 Nithin Nagaraj (*till August 2013*)
 Charmalie AD Nahallage
 MG Narasimhan
 Meera Natampally
 RR Naval Gund (*till August 2013*)
 Suresh Prabhu
 Soumya Prasad
 K Raghuraman
 Baldev Raj
 Mukund Rao
 L Shobini Rao (*till January 2014*)
 Veena Rao
 Mario Rutten
 Gautam Sen
 Jyoti Sharma
 Vijay Shankar
 V Siddhartha
 Mewa Singh
 AK Sinha
 Prakash Sinha
 Sitabhra Sinha
 P Soma
 Catharine Turner
 KP Vijayalakshmi

NATIONAL INSTITUTE OF ADVANCED STUDIES

Indian Institute of Science Campus, Bangalore - 560 012

Tel: 080 2218 5000, Fax: 2218 5028

E-mail: admin@nias.iisc.ernet.in