

NATIONAL INSTITUTE OF ADVANCED STUDIES



ANNUAL REPORT 2015-16



Mr S Ramadorai, Chairman NIAS, Mr Suresh Prabhu, Union Railway Minister, Prof Baldev Raj, Director NIAS, and Prof Anindya Sinha, the then Academic Dean of NIAS, during the Foundation Day meeting in NIAS.

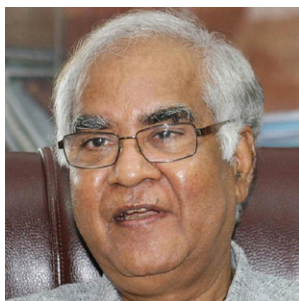
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From the Director



Union Railway Minister, Mr Suresh Prabhu, with the Director, Prof Baldev Raj, during the former's visit to NIAS.



National Institute of Advanced Studies is unique in the national and international context with respect to interdisciplinary research and training, non-bureaucratic functioning, choice of

problems for pursuit, and competence to address challenges.

NIAS is focussed on unsolved and inspiring interdisciplinary domains such as inequalities, education for the deprived and the gifted, culture and society, consciousness, strategic approaches and conflict resolutions, energy, complex systems, behavioural sciences, and other areas. The mandate is achieved by high quality inputs by faculty, our network of contributors (adjunct and visiting faculty, networks, etc.) and talented students through research, dialogues and insights.

It gives me great pleasure to present to you the annual report highlighting the activities of the National Institute of Advanced Studies, Bengaluru, for 2015-16. We have realised considerable degree of consolidation, both academically and administratively. Each of the programmes at NIAS has made significant progress in achieving the goal set for the Institute by Mr JRD Tata; a twin-dimensional goal of multidisciplinary research and the growing of leaders with substance. The programmes have carried out significant research with their faculty also contributing to coordinating and lecturing in programmes for scientists, a wide spectrum of professionals, students of various ages, and senior executives. They have also played their part in the growth of the Institute's PhD programme. The emphasis has been on taking the results of our research at NIAS to a larger audience and indeed outside academia to our stakeholders. Each programme has detailed its activities and outcomes later in the report and not much purpose will be served by pre-empting these narrations in this introduction. But I must say that this has been an academically rewarding year

for NIAS both in terms of research and training. I am confident that you will appreciate our work relating to achievements in each programme. We also look to your guidance for further improvements and enhancing relevance.

This academic consolidation has been accompanied by enabling changes in the structure of the Institute. In its pursuit of multidisciplinary research, NIAS has over the decades moved towards creating an appropriate academic structure. It has come a considerable distance from its initial reliance on the multidisciplinary instincts of stalwarts from individual disciplines. NIAS has created a structure which inherently encourages and sustains multidisciplinary work. A major initiative in this direction was the shift from individual disciplines to multidisciplinary programmes. In 2015-16, the focus was on developing synergy between programmes with common interests by restructuring NIAS so as to provide a more active role for schools. Based on a report of a faculty committee, the clustering of programmes into specific schools was reviewed so as to achieve such a synergy. This has led to the formation of a new school, the School of Conflict and Security Studies, which consists of two programmes: the International Strategic and Security Studies Programme, and the Conflict Resolution Programme. The three other schools are the School of Humanities, the School of Natural Sciences and Engineering and the School of Social Sciences. The School of Humanities consists of the Consciousness Studies Programme; and the Heritage, Science and Society Programme. The School of Natural Sciences and Engineering consists of the Energy and Environment Research Programme; the Complex Systems Programme; and the Ecology, Behaviour and Conservation Programme. The School of Social Sciences consists of the Education Programme; the RBI Programme on Interdisciplinary Approaches to Economic Issues; the Skills, Livelihoods and Mobilities Programme; and the NIAS-UNDP Policy Research Initiative on Inequality and Human Development. The Provincial Globalization Programme ended in 2015 with significant outcomes.

The reorganization of the schools has also created a robust management structure for the Institute. The Deans of the four schools, working together, form a body to work with the Director on the important decisions related to NIAS. This structure provides

the Director access to not just multiple views on specific issues but also a sense of faculty opinions and aspirations. This process has begun with the faculty of each school arriving at a consensus on the choice of their respective Deans. The first meeting defined the principles and scope of the new body of Deans, and the interactions between that body and the Director have been meaningful and have strengthened NIAS ethos and practices. The consolidation of the academic structure of NIAS has also made it easier to attract young faculty, contributing to the reduction in the average age of the institute's faculty.

On the financial front, the Institute has embarked on the strategy that would enable the Institute to consistently pursue its goals in a manner that is sustainable but true to the character of NIAS. While this is clearly a long-term process, a major stride was taken during the year with the Institute obtaining a grant from a Corporate Social Responsibility fund. In the first case of Corporate Social Responsibility support for the Institute, Tata Consultancy Services provided a grant for the Institute's research activities. The grant of Rs. 150 million spread over three-year period has enabled the institute to carry out three specific research initiatives. The grant will support select activities of the Education Programme in consolidating the efforts at reaching the unreached, both by developing programmes for gifted children as well as targeting issues related to exclusion in education. The support for the Heritage, Science and Society programme will help it grow the work on heritage in the Cauvery basin. And the NIAS-UNDP Policy Research Initiative on Human Development has been financed to explore two major aspects of inequality; one related to inequality and farmers' suicides and the other to the inequalities in the process of the movement towards non-farm occupations. The financial support from Tata Consultancy Services is also being used to create infrastructure to house the additional faculty, students, visiting scholars and enabling spaces.

As the Institute aspires to build on its foundations, traditions and knowledge repository, I look up to your support in realizing the vision of the legendary JRD Tata; a process that I am confident will contribute to the creation of an enlightened leadership and dialogue: the country needs to climb the next steps in a journey to a developed, secure and enlightened nation.

School of Conflict and Security Studies



Prof Ashis Nandy delivering the RL Kapur oration
on Studying Genocide after Fifty Years.

International Strategic and Security Studies Programme

The programme (ISSSP) examines key and topical issues relating to national security with a science and technology perspective along with relevant geopolitical, economic and military underpinnings.

Conflict Resolution Programme

The programme seeks to develop an inclusive knowledge base that would help effectively address major conflicts that affect India or have the potential to do so.



Prof Rajaram Nagappa
Dean, School of Conflict and
Security Studies



INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME

The primary objectives of the International Strategic and Security Studies Programme (ISSSP) are to study the political, military, technological, economic and security developments in India's neighbourhood and the world in general, examine issues challenging India's national security, study the impact of technology on security, implement projects, organize conferences on programmatic themes, as well as provide policy inputs on these issues. The Programme embarked on research studies that examined the contemporary challenges which have bearing on India's national interest and security from a strategic, political, economic and policy outlook combined with a science and technology perspective. Studies relating to Space, War, and Security, Understanding recent changes in Myanmar from India's strategic interest perspective, Identification of Uranium Mining and Milling using Commercial Observation Satellites, Assessing the capabilities of North Korean Satellite Launch, are some of the major studies and focus areas of the Programme during the given period.

Prof Rajaram Nagappa, *Head of the programme*
Prof S Chandrashekar, *JRD Tata Visiting Professor*
Prof N Ramani, *Visiting Professor*
Prof Lalitha Sundaresan, *Visiting Professor*
Prof Suba Chandran
Prof Baldev Raj
Dr. Chidambaran G Iyer, *Assistant Professor*
Dr M Mayilvaganan, *Assistant Professor*
Dr Arun Vishwanathan, *Assistant Professor*
Dr Prakash Panneerselvam, *Post Doctoral Associate*

Doctoral Students:
Murali Murti, BR Guruprasad, Sanket S Kulkarni
Senior Research Fellows:
Suparna Bannerji (till January 2016), Kaveri Ashok
Junior Research Fellows:
PS Ramya (till August 2015),
Mrunalini Deshpande, Riffath Kazi
Research Assistant:
Pranshu Besniwal

Research activities

The Programme has an ongoing Memorandum of Understanding with the Defence Research and Development Organisation. Under the terms of the MoU two studies were undertaken - one titled 'Building Bridges: Assessing Opportunities, Challenges and the Role of India in Myanmar' and the other titled 'China's Space Capabilities: A Critical Evaluation'. The Myanmar study was completed during the last year and findings presented to the sponsor while the other study is ongoing. The findings

of the Myanmar study were also informally discussed with Ambassador Shyam Saran, Former Foreign Secretary and Prime Minister's Special Envoy, and Ambassador P S Raghavan, India's Ambassador to Moscow, during their visit to the Institute. Both the ambassadors made useful comments and appreciated the overall study findings and recommendations.

The ISSSP, in keeping with the objective of examining issues from an S&T perspective, has made some original and significant contribution towards using open

source satellite imagery for identification of uranium mills and estimating their capacity. The findings have been presented in an international conference in UK and have been well received. This has also led to an invitation from the Monterey, California based Middlebury Institute for International Studies for collaboration in a study of North Korean uranium mills.

The software *QuoVadis* (an integrated Toolbox for Missile Performance Characteristics assessment) developed in-house has been extended to cover launch vehicle performance and satellite orbits. The capability has been applied to North Korean Unha 3 launches.

The Programme's work and the dissemination of the findings have begun to make an impact both nationally and internationally. The work on 'Rare Earth' has resulted in the setting up of a National Committee under the Chairmanship of the Director of NIAS for working out a strategy for the country. The setting up of the ISSSP website also aided in amplifying the impact of the Programme's research.

Notably, the outline of the Programme's major studies and its preliminary findings were discussed and disseminated to Scientific Adviser to Raksha Mantri, Dr G Satheesh Reddy, and Shri MH Rahaman, CC R&D (TM) DRDO, during their visit to the Institute. Both appreciated the efforts and the kind of research that the Programme has undertaken.

The programme added two new members – Prof Suba Chandran and Dr Prakash Panneerselvam during the year.

The NIAS Strategic Forecast, an initiative of ISSSP, calls for short and crisp essays, written by scholars on specific themes which generally encompass the interdisciplinary/multidisciplinary features of the subject matter. So far five issues have been published from January to March 2016, namely: *Indian Ocean 2016: Major Trends* (Dr Vijay Sakhuja), *India and the Middle East Crises* (Amb Ranjit Gupta), *India and East Asia: Will S&T bring them closer?* (Dr Sandip Mishra), *Will Pakistan integrate Gilgitbaltistan? And what if?* (Prof Suba Chandran) and *Myanmar 2016: What next for the NLD* (Dr Mayilvaganan).

On the invitation of the University of Calcutta (Department of Southeast Asian Studies), the

Programme has initiated a collaborative research study on understanding the issues and challenges of India's engagement with the Southeast Asia. As part of the exercise, ISSSP participated in a joint workshop with University of Calcutta, MAKAIAS and ORF (Kolkata Chapter) on March 9, 2016.

Training

NIAS – DST Training programme on "Policy for Science and Science for Policies" for Directors/ Divisional Heads of National Labs was coordinated by Prof Lalitha Sundaresan between November 16 -20, 2015 at NIAS, Bangalore. The programme was inaugurated by Dr Satheesh Reddy, SA to Raksha Mantri. Over the course of one week, the participants were exposed to socio-economic dimensions of Science Policy, Space Laws, Policy Implications for National Security, Human Wildlife conflict amongst other issues. Prof Lalitha Sundaresan presented a talk on "Introduction to Google Earth and its Applications", to the students of the North-east, selected under the PM's Scheme titled "Ishan Vikas-Udhan Programme" on December 24, 2015.

The 30th Annual Programme for Senior Executives on "To Lead a Change" was jointly coordinated by Dr Chidambaran Iyer and Prof Sindhu Radhakrishnan between January 18 to 23, 2016. The programme was designed as a series of interactive dialogues with inspiring thinkers across the country. The topics that were covered include: "What makes a leader?", "How does a leader initiate and respond to change?" and "Do different disciplines present different challenges for leadership".

NIAS-DST Training Programme on "Science Policy and General Management," for senior scientists was coordinated by Prof D Suba Chandran between February 29 to March 11, 2016 at NIAS, Bangalore. The course participants were exposed to the topics like Evolution of Indian Science Policy, Contemporary Developments in Science and Technology, Future Challenges, among others. The programme members had an interaction with the course participants, on Thursday, March 3, 2016.

Doctoral Activities

A doctoral student Mr. Sanket Kulkarni from the Programme has successfully accomplished his visiting fellowship at the Institute for Defence Studies and

Analyses (IDSA), New Delhi, where he was part of a project on 'Energy Security of India.'

The course on "Science, Security, Society and Diplomacy" was offered by Prof D Suba Chandran to NIAS PhD students with an objective of enhancing the understanding and implications of contemporary innovations and developments in the field of science and technology through various disciplines of social science and international relations. In particular the course aimed to create an understanding of how the state in South Asia, especially India, is dealing with the contemporary challenges posed by S&T, social movements and developments. Prof Lalitha Sundaresan and Dr Chidambaran Iyer also offered a three-credit course on 'Quantitative Techniques' to the PhD scholars of NIAS. Dr Chidambaran Iyer also offered a two credit course on "Economics of Science and Technology" for NIAS PhD students.

Conferences, Meetings and Workshops

The conferences ISSSP organised were on *Myanmar at the crossroads: Current realities, Challenges and Opportunities*, July 20-22, 2015. NIAS-Forum for Global Knowledge Sharing conference on "Technology, Growth and Sustainability" at NIAS, Bangalore, November 27-28, 2015, which was coordinated by Dr Mayilvaganan.

The Programme organised 5th Annual Residential Young Scholars' Workshop on '*Global Nuclear Politics and Strategy*' along with IPCS, New Delhi, between May 3-7, 2015 at JRD Tata Auditorium, NIAS, where young scholars were provided opportunity to gain significant understanding of the nuclear politics and strategy of the key countries in the world. Also, as part of the study on Myanmar, the ISSSP organised an international conference where scholars from Japan, Thailand, Myanmar joined Indian experts on Myanmar in deliberating the recent changes in Myanmar and the opportunity it provides to the world and in particular India.

Outreach and Public Lectures

On the 37th Annual ESARDA (European Safeguards Research and Development Association) Meeting and Symposium held at Manchester, U.K, between May 18-21, 2015, Prof. Lalitha Sundaresan as a delegate presented the paper on 'Monitoring Uranium Mining and Milling using Commercial Observation Satellites' which demonstrated the use of publicly available Google Earth images to classify a satellite image of a mill as a Uranium mill. This work was a joint effort of Prof S.Chandrashekar, Prof Lalitha Sundaresan and Prof B.Jasani. Prof Lalitha Sundaresan was also invited to speak on "Basic Principles and methods of Social network Analysis", followed by a Lab



Dr Anil Kakodkar, Dr Rangachari Krishnan and Prof Baldev Raj at NIAS.

session at the Workshop on Studying Elephants in Anthropogenic landscapes organized by Prof Anindya Sinha and Nishant S at NIAS. She delivered a talk on “Methodologies for Counter Terrorism”, at CAIR, DRDO.

Based on the North Korean satellite launch analysis, Dr Arun Vishwanathan, was invited by the Japanese Ministry of Foreign Affairs to Japan as a member of the ICRIER (Indian Council for Research on International Economic Relations) delegation in March 2016. Also, his report on “North Korea’s 2016 Nuclear Test” was cited by international media like NK News (Seoul) and research institutes like Council on Foreign Relations (Washington).

Dr M Mayilvaganan was invited by Indian Council for World Culture to deliver the Sri Pendulkar Endowment Memorial Lecture on ‘Challenges before Myanmar’ in February 2016 at Bengaluru. Dr Mayilvaganan was also invited to deliver the Felicitation address at the Valedictory session of International Conference on ‘Human Rights in India: Issues and Challenges’ at Annamalai University, March 2016. Dr Chidambaran G Iyer was invited as an expert for the review of the draft chapter ‘Human Development Index in Karnataka’ part of the Karnataka State Human Development Report.

Centre for Joint Warfare Studies, New Delhi, on 1 December 2015, invited Prof Rajaram Nagappa to deliver two lectures on India’s Strategic Ballistic Missiles and on India’s Strategic Cruise Missiles to the participants of Nuclear Orientation Course. He also delivered a talk on ‘Technology Dimensions of National Security’ to the participants of Workshop on Recent Trends in Video Analytics at MSRT, Bengaluru.

At the National Defence College (NDC), Delhi, Dr. Arun Viswanathan delivered a lecture on “Resurgent Iran and Its Role in the Region,” as part of a course for senior officers of the Indian defence services, civil services, police, and other departments in addition to officers from over twenty friendly foreign countries. At the Tokyo based Japan institute of international affairs and the national institute of defence studies (NIDS), Dr Arun Viswanathan, gave a presentation on the “North Korean Nuclear Weapon Test and Its Growing Space and Missile Capabilities” on 24 March 2016.

Three new reports on Promise of Small Satellites for National Security; Space, War and Security – A Strategy for India; Identification of Uranium Mill Sites from Open Source Satellite Images; Estimating Uranium Mill Capacity Using Satellite Picture, by ISSSP members, Thursday, March 3, 2016.



Prof Andrew Meulenberg addressing the Third LENR-India Forum meeting at NIAS.



CONFLICT RESOLUTION PROGRAMME

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The Conflict Resolution Programme was set up in 2009 to develop an inclusive knowledge base that would help effectively address major conflicts that affect India or have the potential to do so. The depth of the knowledge base has been built over the last seven years through research both into individual conflicts and the conceptualisation of socio-economic and political conflicts and their resolution. The breadth has been provided through developing backgrounders on individual conflicts, developing courses on conflict, offering lectures in institutions other than NIAS, writing in the print media and occasional participation in debates on national television. The backgrounders are relatively brief but comprehensive accounts of individual conflicts targeted at all who could have to deal with social conflicts, whether they are in industry, government or civil society. The courses include both an online course available on the NIAS website as well as regular courses offered in the institute. The lectures have been given by faculty involved in the programme both in and outside NIAS. 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.

Prof Narendar Pani, Head of the programme
Dr Anshuman Behera, Assistant Professor

Doctoral students:
Ms Anamika Ajay and Mr Shyam Hari

Research Activities

A major thrust of research activities during the year was on understanding the different dimensions of Maoism. A significant part of this research, carried out by Dr Anshuman Behera, interrogated the widely-held belief that development is the primary instrument to reduce Maoist conflict. Underlying this belief is the view that Maoist conflict is essentially the result of backwardness and development would necessarily lead to a decrease in conflict. Dr Behera in the research that led to his paper 'Development as a source of Conflict: Sahukars, displaced persons and Maoists in Koraput' argued that the relationship between development and conflict was not one dimensional. The Sahukars, the state, and the Maoists had each tried out their own development strategies in the recent history of the backward Koraput district in Odisha,

and in each case the process generated its own conflict. The development pushed by the Sahukars increased their conflict with the Tribals, as did the efforts of the state to develop the region through large projects. And the attempts of the Maoists to distribute land among the tribals brought them into conflict with the land owning Scheduled Castes. Thus despite number of development measures in various forms and shades conflict remains a striking feature of the region though the nature of conflict changes with each development model. Dr. Behera also published a backgrounder on 'Maoist Conflict in Odisha'. The backgrounder explains the history, the issues, the contenders and the nature of Maoist conflict in Odisha.

The process of using insights from specific conflicts to raise larger conceptual issues was extended by Dr.

Behera into his research on democracy and identity conflict in Northeast India. A paper 'Majoritarian way to Democracy: The Bodoland Conflict in Assam' argued that resistance against the majoritarian rule by the Bodo minorities in Assam doesn't necessarily reject the ideology of 'Majoritarianism'. The fight for democracy, equality and minority rights by the Bodos is based on the very idea of majoritarianism. This leads to a tendency among minorities to demand territories in which they constitute a majority. Further research is necessary on the extended consequences of this process. As the territorial maps are redrawn the erstwhile majority can be converted into a minority in the new territory. They then tend to retain connections with the regions in which they are a majority. This process can make the borders extremely porous. This tendency is also not necessarily confined to state boundaries within the country. It can also extend to international boundaries. To the extent that the porous features of international boundaries are illegal, it can lead to illegal connections across these boundaries. Dr. Behera also researched

one of the consequences such porous international boundaries in his paper on 'Insurgency, Drugs and Small Arms in Myanmar'. This paper dealt with many links between Insurgency, drugs and small arms in Myanmar in both strengthening and subverting the state building process.

The assertion of identity politics has not been even across the country, and this has been particularly

true of regional politics. Regional identities have periodically asserted themselves in Indian politics, both before and after Independence. The intensity of this regionalism has, however, tended to vary quite substantially from state to state and over time, ranging from a somewhat benign influence on state politics to demands for secession. These differences are typically explained in terms of specific local political conditions. While the local is undoubtedly important, in a paper on 'Experiential regionalism and south Indian politics'

Prof Narendar Pani argued that a larger theoretical explanation is also possible. This becomes evident once we recognise that regionalism operates in multiple spaces, ranging from the space of a given physical territory to the space of imagination. When the attitude to regionalism overlaps across multiple spaces the identification with the region becomes much stronger, just as differences in the role of regionalism in different spaces weaken the sense of the region. This difference in the role of the region in different spaces has its influence on the practice of local politics. The paper goes on to match its theoretical expectations with the politics of regionalism

in the neighbouring south Indian states of Karnataka and Tamil Nadu.

The existence of multiple political processes across different parts of the country throws up the rather understudied questions of what exactly it means to be in Indian politics. What *is* political in the Indian reality? What is Indian politics? What are the units that comprise this political reality? Do these units extend



Speakers at the conference on Indian Political Philosophy.

beyond those traditionally seen as belonging to the political sphere? What exists politically in India, both tangible and intangible? Such thinking about thinking in Indian politics has in recent decades moved out of the domain of the practicing politician. There was a time in the decades before independence and soon after when Gandhi, Ambedkar, Lohia, EV Ramaswamy Naiker, and others developed theories of Indian society that demanded very specific political interventions. After the early decades of independence, the interest of practicing politicians in developing and articulating specific theories of Indian society has noticeably declined. The distancing of the practicing politician from the articulation of political philosophy is not without its consequences for both academic analysis and political practice. With practicing politicians no longer willing to extensively state and defend their ideas there is no explicit debate on these issues. The different forms of ideation in India have to be brought out into the open to capture the nature of the Indian political reality.

In a paper 'Towards a political ontology of contemporary India: Ideation and the politics of

legality and morality', Prof Narendar Pani looked at the methods associated with different forms of ideation in India, and the legacy of their interaction on politically being in contemporary India. The effort focused on capturing the making of this legacy in the specific area of the legality and morality of Indian politics. This was done by first outlining the conflicting philosophical influences that were articulated and practiced in the decades around independence, thereby allowing him to trace some of the ideation of that time that has had a lasting impact on what is Indian politics. The paper then moved on to delineate how these multiple forms of ideation had developed aspects of legally and morally being in Indian politics.

The year also saw the completion of the research project on elephant-human conflict. Carried out in collaboration with the Centre for Ecological Sciences, Indian Institute of Science the project had Prof Raman Sukumar of IISc as the Principal Investigator and Prof Narendar Pani as the Co-Principal Investigator. Using the economics of ecosystem services approach, the project looked at the efficacy of fencing in reducing



Prof Pratap Bhanu Mehta, Dr Karuna Mantena and Prof Bhikhu Parekh at the conference on Indian Political Philosophy.

human-elephant conflict in two areas, one around the Bannerghatta National Park near Bengaluru and the other in Kodagu district. The project noted the differences in the nature of human-elephant conflict in the two areas which influences the effectiveness of the fencing. Based on surveys of the two regions and detailed calculations of the costs using multiple economic tools, the project suggested that, under specific conditions, fencing could be a useful method to reduce human-elephant conflict.

Doctoral Activities

Anamika Ajaya's Doctoral research is on 'The Impact of Development on Social Conflicts-Case Studies of Intra-family and Inter-group Strife in Two Villages in Kerala'. Her research aims at understanding whether and how development stimulates social conflicts in a localised context. Her work is specifically focusing on understanding whether and how Kerala's development has impacted intra-family gender conflicts and inter-group conflicts. During the year she completed her field research in two villages in Kerala. Shyam Hari has joined as a Doctoral student in the programme in 2015-16. The Programme offered three three-credit courses during this year: 'Ontology of Development' by Prof. Pani, 'Understanding Conflict' and 'Approaches to Conflict Resolution' by Dr. Behera. Both Prof. Pani and Dr. Behera also taught their parts in NIAS Foundation and Research Methodology Courses.

Conferences and Workshops

The programme organised an International Conference on 'Indian Political Philosophy' in collaboration with South Asian Studies, Yale University and School of Advanced Studies, University of London. The conference was held in NIAS between July 6-8, 2015. The conference was aimed as a closed discussion across three days between some of the leading philosophers and theoreticians of Indian politics. To aid such intense interaction, the papers were circulated earlier and not presented at the conference. The discussion in the

conference thus began with the discussants comments on each paper.

The participants included Prof. Bhikhu Parekh, Universities of Hull and Westminster, Prof. James Manor, University of London, Dr Karuna Mantena, South Asian Studies, Yale University, Prof Pratap Bhanu Mehta, Centre for Policy Research, New Delhi, Prof Yogendra Yadav, Prof Sasheej Hegde, University of Hyderabad, Dr Gitanjali Surendran, OP Jindal Global University, Prof Raghuramraju University of Hyderabad, Dr Rohit De, Yale University, Prof Narendar Pani, National Institute of Advanced Studies, Prof Vasanthi Srinivasan, University of Hyderabad, Prof Gurpreet Mahajan, Jawaharlal Nehru University, Prof Chandan Gowda, Azim Premji University, Dr Julia Stephens, Yale University, Prof Sundar Sarukkai, Manipal University, Prof Rajeev Bhargava, Centre for the Study of Developing Societies, New Delhi, and Dr. Ashis Nandy.

Outreach

Prof Narendar Pani continued his column 'Cityzen' in the national financial daily *Business Line*. Some of the pieces in this column dealt with different dimensions of urban conflict. He was also a panellist in a discussion on the Union Budget at the Bangalore International Centre.

Dr. Anshuman Behera presented his papers on 'Majoritarian Way to Democracy: Case of Bodoland Conflict in Assam' and on 'Insurgency, Drugs and Small Arms in Myanmar' at international conferences. Dr. Behera delivered a number of lectures on conflict and research methodology at Christ University, Bengaluru. Dr. Behera continued to contribute his writings in popular media.

The Conflict Resolution programme organised a lecture by Prof. Bishnu Mohapatra on the 'Insertion' into law and Impossibility of Justice' on March 1, 2016. The lecture explored the embattled relationship between law, justice, and the moral landscape of fairness.

School of Humanities

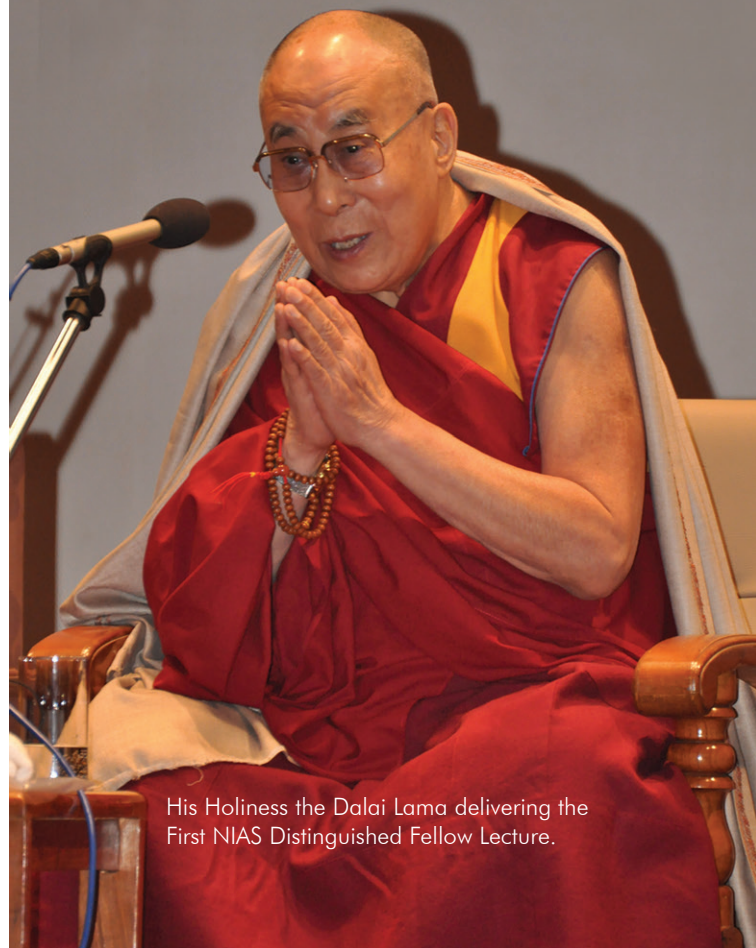
Heritage, Science and Society Programme

The programme seeks to locate tangible and intangible heritage, materials heritage, surviving craft practices and related technological dimensions within academic discourses while exploring its ramifications for science and society.

Consciousness Studies Programme

The programme's mandate is to understand the fundamental nature and working of the mind, consciousness, self and cognition from a broad multidisciplinary and interdisciplinary spectrum.

Prof Sharada Srinivasan
Dean, School of Humanities



His Holiness the Dalai Lama delivering the First NIAS Distinguished Fellow Lecture.



HERITAGE, SCIENCE AND SOCIETY PROGRAMME

An Artisan working on a bronze at Shivarapatna, Karnataka.

The NIAS Heritage, Science and Society Programme has a unique thrust whereby it has been working dynamically with a range of scientific interfaces and methodologies in the study and documentation of cultural heritage in the areas of archaeology, history, languages and literary texts. Topics of research include archaeological sciences and the applications of scientific techniques in the study of archaeological artefacts, art objects and heritage and the study of materials heritage in particularly archaeometallurgy, the study of metal artefacts, metal working and production and extractive metallurgy and geo-archaeology. The heritage of iron and steel production and bronze casting are especially explored. Ethnographic, ethno-archaeological and social anthropological studies on traditional metal crafts are attempted keeping in mind also the broader issues of sustainability. Geo-spatial applications in the study of heritage sites are explored, including remote sensing and satellite imagery. In the Indian scenario the programme has played a pioneering role, in nurturing inter-disciplinary research and keeping in mind the role of scientific investigations in art and archaeology in the preservation, and conservation and management of heritage.

Prof Sharada Srinivasan, Head of the programme
Prof S Ranganathan, Homi Bhabha Visiting Professor
Prof S Settar, Honorary Visiting Professor
Dr MB Rajani, Assistant Professor
Dr.Srikumar M. Menon, Research Officer
Junior Research Fellow:
Uma Kritika

Doctoral Students:
Hema Thakur, Sumitra Sundar,
Krupa Rajangam, K.N Venkatesh
NIAS-Exeter University Collaborative Programme Students:
Brice Girbal, Tathagata Neogi, Jemma Singleton,
Kausalya Gunasena, Kathryn Bonnett

Research Activities

An important landmark for the Heritage, Science and Society Programme was the release during the NIAS Foundation Day, June 20, 2015 of the

volume on Metals and Civilisations edited by Prof Sharada Srinivasan, Prof Srinivasa Ranganathan, and Dr.Alessandra Giumlia-Mair consisting of the proceedings of the acclaimed international conference

series on the 'Beginnings of the Use of Metals and Alloys', BUMA VII. The twenty eight peer-reviewed papers by international scholars significantly widen the knowledge of several aspects of the archaeology, archaeometallurgy, historical metallurgy, crafts practices and metallurgical heritage of many Asian and some non-Asian countries.

The Hampi Digital Heritage project is one of the flagship projects that has involved the collaboration of nearly two dozen cultural and technical institutions and progress has been made towards the knowledge bank project which proposes to create a digital archive that can house the various outcomes of projects working on generating digital content related to various aspects of the heritage of Hampi, including the architecture, sculpture, art and murals. A test archive is being generated on Hampi murals. As part of the IDH Knowledge Bank project the aerial based documentation of archaeological sites has begun successfully in collaboration with National Aeronautical Laboratory (NAL). The initial test phase consisted of taking images from the historic site of Sravanabelagola with the colossal Gomatesvara sculpture using Drones and MAV with the first test site documentation done in early September. The team involved NIAS members Prof S. Settar, Dr M.B. Rajani and Ms Ekta Gupta along with six members from NAL, including pilots and scientists keeping track of wind speed, and a member of ASI. It is also proposed in the next stage to take up photography of Hampi using drones for use in the Hampi Knowledge Bank with annotations. The Hampi Knowledge Bank has as its principal investigators Prof Vijay Chandru, IIACD and Prof S. Settar, NIAS; the IDH Cultural Projects have as Coordinator Prof S Ranganathan and Associate Coordinator Prof SharadaSrinivasan; and the IDH sculpture and bronzes project has as its Principal Investigator Prof Sharada Srinivasan and as its Co-principal investigator, Prof S Ranganathan. A brainstorming meeting of IDH Hampi project Principal Investigators for the Knowledge Bank was organized at NIAS on Sept 30th coordinated by Profs Ranganathan, Settar and Vijay Chandru. The peer reviewed international volume 'New Research on Ancient Bronzes', just published by Zurich Studies in Ancient Archaeology Series, No. 10, 2015 with 50 articles in English, French, German and Italian on bronze masterpieces of the world has an article by Prof Sharada Srinivasan on finger-printing of Indian bronzes.

In the Indian scenario NIAS also has played a pioneering role in nurturing inter-disciplinary researches and keeping in mind the role of scientific investigations in art and archaeology in the preservation, and conservation and management of heritage. One of the major events of the programme was a collaborative Indo-Japan delegation visit to Tokyo University of the Arts spearheaded by Prof Ranganathan, while numerous seminars under the umbrella of the IDH Digital Hampi project also took place with Prof Settar leading the Hampi Knowledge Bank initiative.

As an example of some key researches, at a major national seminar on 'Iconography of Hindus, Buddhists and Jains' at CP Arts Centre, Chennai, supported by ICHR and Oxford Centre for Hindu Studies, Prof Sharada Srinivasan gave a talk on Nataraja iconography and archaeometallurgical and archaeoastronomical insights. Dr MB Rajani, Ms Ekta Gupta and Ms Sonia Das presented three papers in the National Symposium on 'Geomatics for Digital India', between December 16 to 18, 2015 at Jaipur on tracing historical Srirangapatna through old maps and satellite images and on geospatial inventories for archaeological landscapes and geoinformatics for protection of cultural heritage. Amongst the major papers published were one by Prof Dilip Ahuja and Dr MB Rajani in Current Science on the intriguing aspect of the asymmetry of the dome of the Taj Mahal, and a paper by Prof Sharada Srinivasan on 'Ancient metallurgy of zinc, high-tin bronze and gold and methodological issues', in Indian Journal of History of Science.

A major project supported by the Indira Gandhi National Centre for the Arts (IGNCA), New Delhi, Janapada Sampada Division, on Worldview of Vishwakarma was initiated in April 2015 with Prof Sharada Srinivasan as Principal Investigator. This project on 'Vanishing heritage of Vishwakarma and Kammalar in southern India' focuses on the techno-cultural and audio-visual documentation of metalworking communities in southern India. Work has begun in various parts of southern India including Tanjavur district and Kolar district along with documentary film maker Mr Baalaajee. Another major project on 'Cultural Heritage of Karnataka: A Remote Sensing and GIS Perspective' funded by Karnataka Knowledge Commission (KKC) with Dr MB Rajani as Principal Investigator has been awarded in May 2015 for an amount of 25 lakhs for one year under which work has begun on looking at historical landscapes including Srirangapatna with Ms

Ekta Gupta and Ms Sonia Das. An Artists Camp was conducted at NIAS in collaboration with agencies such as Lalit Kala Akademi. Coordinated by Prof S Settar it involved well known artists from southern India and Karnataka for two weeks in July and August where the artists also responded to many of the academic and environmental concerns of NIAS and including well known artists such as Alphonso. Further progress has been made on cooperation in conservation science with Tokyo University of the Arts with access to Spring 8 Synchrotron to examine iron ores, Tata steel, Samurai Swords involving Prof S Ranganathan, Dr Manako Tanaka and Prof Satyam Suwas.

Several new projects were sanctioned from March 2016. These include one on the 'Art of Aranmula mirror' by Indian National Science Academy (INSA) with Prof Sharada Srinivasan as Principal Investigator; and a project under the DST-SERB Young Scientist scheme on "Advancing Landscape Archaeology Using High-resolution Digital Elevation Models" with Dr MB Rajani as Principal Investigator. A major new project of the Heritage programme is the TCS funded project on 'Metal Crafts of the Cauvery region' aiming for enhancing skill development of traditional artisanal communities and metalworkers has been initiated for three years from mid-March 2016 led by Prof Sharada Srinivasan with Dr MB Rajani and Dr Srikumar Menon.

In the project supported by IGNCA on 'Vanishing Heritage of Vishwakarma and Kammalar', Prof Sharada Srinivasan and her team including V Baalaajee undertook fieldwork and filming at various artisanal workshops for dying or declining metal crafts such as at Nacharkoil and Swamimalai (Thanjavur district), Adilabad and Nizamabad districts of Telangana, Kolamukh in Kerala between October to November 2015 and with Ms Uma Kritika in Nagamangala and Sirivarapatna crafts villages in Karnataka.

A significant aspect of the Heritage, Science and Society programme has been cross-disciplinary engagement through the umbrella of the Intangible Histories Programme in collaboration with Exeter University. An MoU with Exeter University has enabled the NIAS-Exeter Split-Site PhD initiative. In this, PhDs are awarded in the fields of Archaeology and Drama for inter-disciplinary research drawing from sociology, philosophy, performance studies, economic history, urban studies and cognitive studies. Under this programme NIAS faculty and staff including Prof Sharada Srinivasan and Ms. Hamsa Kalyani, Library and Information Officer, visited Exeter University in June 2015. They visited the Bill Douglas Museum, Exeter University, to understand the curating of intangible heritage and intangible histories, and their Digital Humanities facilities to see the many



A painter at an artist camp at NIAS.

applications being explored in the fields of museum documentation of art, architecture, textiles with 3-D scanning and printing etc. A visit was also initiated by Ms Hamsa Kalyani to British Library, London to gain insights into their extensive experience in library and digital archiving.

The Programme worked on new initiatives including a three-year project to work in the area of culture, heritage science and enhancement of artisanal technologies supported by TCS for Rs 3 crores with Prof Sharada Srinivasan as anchor. An MOU was signed with Sahapedia, the online website for Indian culture to work towards modules that would project inter-disciplinary aspects in the study of cultural heritage and natural heritage. Research has also been initiated on NDT methods with IGCAR and on Geoinformatics studies. A new initiative is to recreate Tipu's rockets involving metallurgy, manufacturing technology combustion analysis and with GIS involving Prof R Narasimha, Prof S Ranganathan, Prof Baldev Raj, Prof HS Mukunda and Dr MB Rajani, while Prof Sharada Srinivasan has been invited to be part of a network related to cannon making with Medieval Centre Denmark, which also has ramifications for the broader project on studies on Tipu era weaponry. Another major initiative is on creating a compelling narrative on the History of India in 108 objects. This is conceptualised by Prof Ranganathan and further elaborated by Prof Baldev Raj. It is inspired by the book on history of the World in 100 objects by Neil MacGregor of the British Museum. It will give the narratives from an Indian perspective as opposed to a Eurocentric one. A preliminary presentation by Prof Ranganathan at the Tokyo meeting was well appreciated. Several faculties of NIAS, collaborators and experts will be drawn in this enterprise.

Training

As part of the NIAS Course for IshanVikas – Udhan Programme – Prof Sharada Srinivasan gave a lecture on Metallurgy and Culture and Prof Ranganathan on Material Dreams from Discovery to Design.

Doctoral Activities

The programme has four doctoral students working in the various areas of Mysore paintings (KN Venkatesh), art collectives in Karnataka (Sumitra Sundar), Hampi World Heritage Site and living communities (Krupa Rajangam), urbanisation in early historic Karnataka

and with respect to Sannati (Hema Thakur). Sumitra Sundar has also been selected for the upcoming Students Biennale as a Curator which is part of the Kochi-Muziris Biennale 2016.

The NIAS-Exeter Split Site PhD programme has several students working in Archaeology including Brice Girbal (Wootz steel), Debanjan Mitra (Gangetic Valley stone tools), Katie Bonnett (Ethnography of iron in Sri Lanka and India), Kaushalya Gunasena (Personal adornment in early historic Sri Lanka and southern India), Tathagata Neogi (Ethnography of iron production in Telangana), Gemma Singleton (Rock Art in Maski Region). All of the above students are guided by Prof Sharada Srinivasan.

A reading course was offered at NIAS by Prof Sharada Srinivasan which aimed to explore the history and theory of cultural heritage management, and cultural significance of heritage sites with readings encompassing art history, architecture, anthropology, heritage conservation and with a comparative focus on South Asia and Western Europe. Dr MB Rajani offered a course at NIAS on GIS applications for cultural and societal applications and conducted a one day workshop 'Applications of remote sensing and GIS to archaeological investigations' in April for researchers and students at the Department of History, University of Delhi.

Conferences, Meetings and Workshops

A Discussion Meeting was held at NIAS on 'Acoustic analysis of Hampi musical pillars' on March 9 bringing together experts from various institutions such as IGCAR, IAA, KCST and NIAS to explore the intriguing aspect of the 'musicality' of the famous 'Musical' pillars at the Vittala temple, Hampi, using vibrational modes analysis chaired by Prof Settar and Prof Baldev Raj. Consultative meetings were held on IDH Digital Hampi project (December 18th, February 23rd) which is a major collaborative project involving over 20 institutions aiming to use a range of techniques in computer vision and digital technology in the mapping of the heritage of the World Heritage site of Hampi, coordinated by Profs Settar, Prof Ranganathan and Prof Sharada Srinivasan. Field visits were undertaken to Srirangapatna, Avati, Halebidu and Sirival towards ongoing project funded by KKC 'Cultural heritage of Karnataka: a remote sensing and GIS perspective' by the team of Dr MB Rajani and Dr

Srikumar Menon. Prof Sharada Srinivasan compiled an article on Heritage of Hampi for the BRICS Youth Forum on behalf of NIAS.

Outreach and Public Lectures

The programme was significantly represented at a major inter-disciplinary Indo-Japanese collaborative seminar held in Tokyo University of Arts, Tokyo between March 23rd-March 25th, and with presentations also at the prestigious ISIJ Annual Seminar of the Iron and Steel Institute of Japan on 'Archaeometallurgy in India and Japan and indigenous traditions', which explored the historicity and technological aspects of numerous metallurgical traditions and surviving artisanal and crafts practices. Presentations were made on topics ranging from materials characterisation of high-tin bronzes of East Asia (Prof Sharada Srinivasan) and Indian steel making crucibles (Prof Sajiv Krishnan and Prof Sharada Srinivasan) and Samurai swords in Japan (Prof Ranganathan), to geospatial studies on metalworking sites related to the Tipu era (Dr MB Rajani et al presented by Prof S. Ranganathan) to more inter-disciplinary and artistic aspects such as the splendour of Indian Statuary bronzes (Prof Sharada Srinivasan) and History of 108 objects (Prof S. Ranganathan). The conference was a huge success and the Indian presentations were well appreciated.

University of Chicago invited Dr MB Rajani to participate in workshop on 'Images and Imaging in South Asia: Collaboration and Communication Across the Disciplines and Among Digital Objects', in their Delhi Centre and is working with their international team on archives.

A paper was also presented at the international conference of the European Association of Southeast Asian Archaeologists EurASEAA2015, in Paris in July by Prof Sharada Srinivasan in the metals and humankind session on high-tin bronzes and cross-cultural South Asian and Southeast Asian connections with published abstract.

The nationwide Epic Channel in its four-part *Made in India* series had one episode on Wootz Steel (<http://www.epicchannel.com/show/made-india>) which featured extensive interviews and content given by Prof Sharada Srinivasan, NIAS and Dr Jaikishan, Adjunct Faculty at NIAS and has been telecast since Dec 2014. The feedback from numerous scholars

and members of the public was that the episode was very enlightening and interesting. Episode 5 on Tipu's Rockets features interviews with Prof Roddam Narasimha, Emeritus Professor, NIAS.

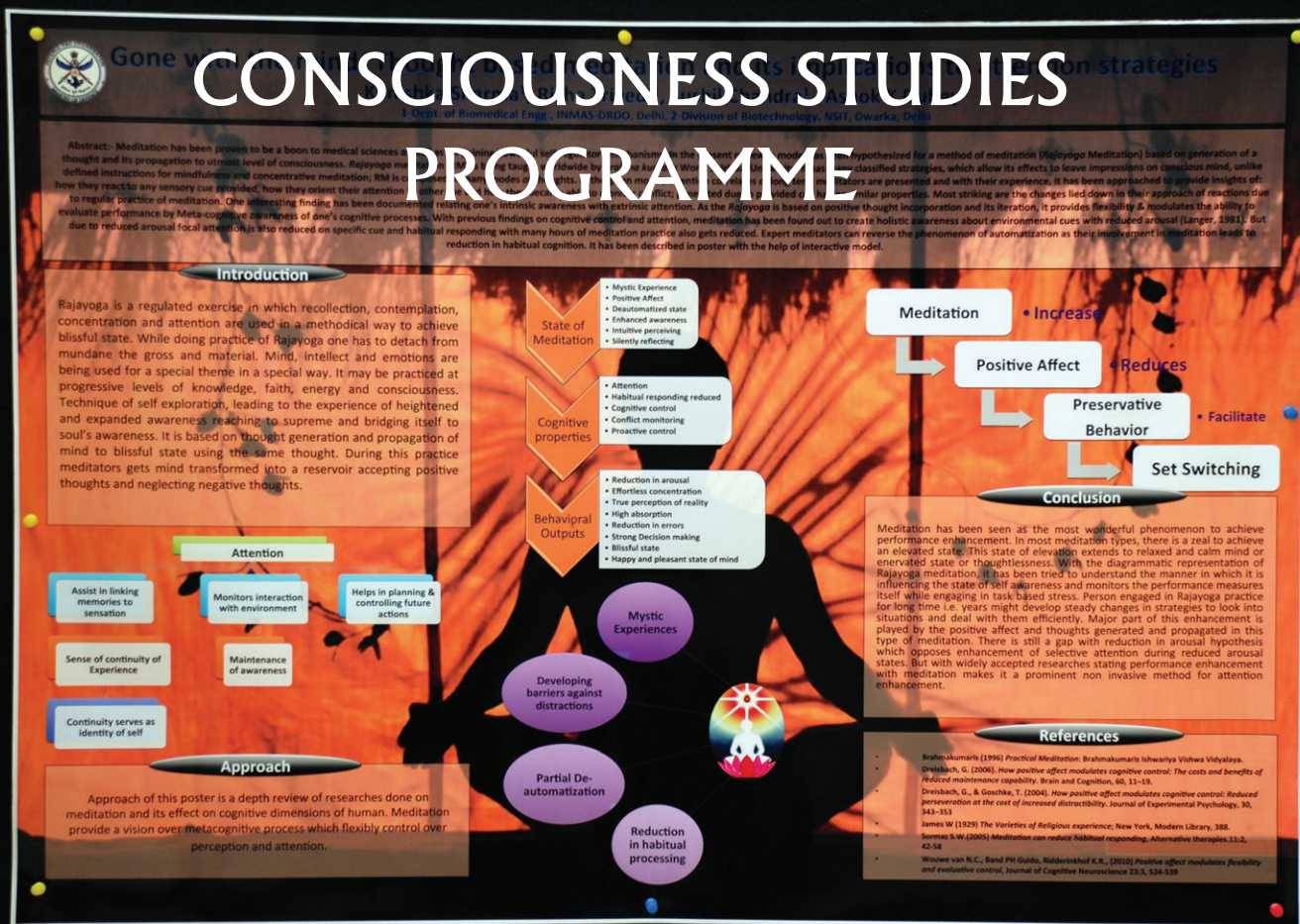
Numerous popular press articles featured the works of various members of the NIAS Heritage Programme. An article on the Aranmula mirror in Open Magazine cited Prof Sharada Srinivasan. An article on the Nilaskal megaliths by Srikumar Menon was featured in *Deccan Herald* on February 9, 2016. Maps of Nalanda from Dr Rajani's work were selected for display in the "Discovery Room" in the new Bihar Museum.

The Fourth R Balasubramanian Memorial Lecture was delivered by Prof Ranganathan on 'Digital Archaeology: A New Dimension in Materials Science', at the Defence Metallurgical Research Laboratory, Hyderabad. He also lectured and interacted on NDT and heritage science at IGCAR Kalpakkam in Sept. In May 2015, he gave a lecture on Gold at TITAN.

The TEDX-PES talks on the 'rock music' of prehistoric sites in March 2016 and a talk for Bengaluru Science Forum on Archaeometallurgy were presented by Prof Sharada Srinivasan. She was also invited to give a special lecture at the National Metallurgical Day, Coimbatore on high tin bronze metallurgy and Tamil innovations and on the Aranmula mirror for the Intangible Heritage Festival at SSUS, Kalady. She was invited as a Keynote Speaker at Jain University Meet on Women Researchers and Challenges, Bengaluru and for the 50th Year of Art Education, Karnataka Chitrakala Parishath, Bengaluru .

Lectures were given by Dr MB Rajani on 'Nottuswara: western influences in 18th-19th century western classical music' and 'Nalanda Mahavira' at various venues of Nightingales and IGCAR in April and at Nehru Memorial Museum in Sept on 'What satellites can reveal about the past'. She was also invited to give a talk to the students and faculty of IIIT Bengaluru and participated in a Geodesign Workshop about the site Hampi; organised by Integrated Design (INDÉ).

The Materials Heritage Exhibition by NIAS and IISc for IISc Open Day, coordinated by Prof Ranganathan, Prof Sharada Srinivasan and Ms Sonia Das was widely appreciated.



The NIAS Consciousness Studies Programme is an interdisciplinary Programme of the National Institute of Advanced Studies. The Programme brings in philosophy, psychiatry, cognitive sciences, animal studies, psychology, mathematics, physics and the neurosciences in its research mandate. The Consciousness Studies Programme at NIAS, while adopting a larger framework, is disciplinarily grounded in humanities, neurophysics, behavioural and cognitive sciences, neurosciences, neuropsychology and neurophilosophy. The Programme believes that there is a need to look at human experiences and consciousness as a whole, and in the interdisciplinary context of the humanities, biological, cognitive and the physical sciences. Five international conferences, three national conferences, and several landmark discussion meetings have been organised by the Programme and these have been attended by experts in the field from different countries and from within India and the proceedings have been published. Some of the collaborators and speakers at the past conferences include Charles Townes, Jane Goodall, Roger Penrose and Stuart Hameroff.

Prof Sangeetha Menon, Head of the programme
 Prof Anindya Sinha
 Prof BV Sreekantan, Honorary Visiting Professor
 Prof Sisir Roy, TV Raman Pai Chair Visiting Professor
 Dr. VV Binoy, Assistant Professor
 Dr Nithin Nagaraj, Assistant Professor

Dr Gagan Deep Kaur, Post-doctoral Associate
 Venkat Rayudu, Research Fellow
Doctoral Students:
 Lakshmi Kuchibotla (Awarded Degree)
 Namitha Kumar (Awarded Degree)
 Rolla Das (Awarded Degree), Siddharth S

Research Activities

A project entitled "Quantum Probability, Dempster Shafer Approach to Human Cognition" has been approved for Prof Sisir Roy for three years by SERB (Science and Engineering Research Board),

DST (Department of Science and Technology) Government of India jointly with two Co-PIs from Indian Statistical Institute, Kolkata. Dr Gagan Deep Kaur completed the first phase of the study on Kashmiri carpets, and has moved on to the second

phase. She is working in situated and distributed cognitive processes in Kashmiri carpet-weaving in all the constituent domains of this practice, namely, the design process, the talim writing, and the talim-reading by weavers, with special reference to negotiation of code or the talim in every stage by all the actors. She is using the methodology of cognitive ethnography for the purpose which includes semi and unstructured interviews with the respondents, participant observation etc.

A few collaborative studies were initiated during the year with institutions like NIMHANS which includes explaining conscious awareness in schizophrenia using the connectionist approach and fMRI studies. The members of the team which worked on this research were Dr. John P John [Department of Psychiatry, and Multi-Modal Brain Image Analysis Laboratory, NIMHANS], Pravesh Parekh [Doctoral Student, Department of Psychiatry, NIMHANS], Prof Sangeetha Menon, Dr. Harsha N Halahalli [Department of Physiology, KS Hegde Medical Academy, Nitte University, Mangalore], Prof Bindu M Kutty [Dept of Neurophysiology, NIMHANS], and Prof Sanjeev Jain [Department of Psychiatry, NIMHANS]. As an outcome of this study a poster was presented by Pravesh Parekh at the conference, 'Brain Informatics and Health' held in London. Pravesh Parekh was supported with a Short-term NIAS-Mani Bhaumik Fellowship through the NIAS Consciousness Studies Programme.

The Research on the 'Impact of Mild Stroke and Head Injury on the Autobiographical Memory and the Self', researched by the team of Dr. Pankaj Taylor, Dr. Sandhya M, [NIMHANS, Bengaluru], Dr. V.V. Binoy, Prof Sangeetha Menon, Dr. A. S. Hegde [MS Ramaiah Institute of Neurosciences, Bengaluru] and Dr. Srinivasa R. [MS Ramaiah Institute of Neurosciences, Bengaluru]. Dr. Roshan Satyavrathan was supported, through the NIAS Consciousness Studies Programme, with short-term NIAS-Mani Bhaumik Fellowship for a subsidiary study on the "Use of Meta-Autobiographical Memory during Adolescence: The Influence of Age and Socio-Cultural Situations Experienced". An examination of therapeutic efficacy and potential mechanisms of yoga treatment in schizophrenia, was carried out by Dr Naren P Rao (Dept of Psychiatry, NIMHANS); Prof Sangeetha Menon (CSP, NIAS); Dr. Shivarama Varambally (Dept of Psychiatry, NIMHANS); Dr. Rose Dawn Bharath (Neuroimaging

and Interventional Radiology, NIMHANS); Rishikesh V Behere (Dept of Psychiatry, Kasturba Medical College); Dr. Rajesh Krishna Bhandary (Dept of Psychiatry, Kasturba Medical College); Dr. Girish Babu (Dept of Psychiatry, SDM Medical College, Dharwad); Dr. Raghavendra Nayak (Dharwad Institute of Mental Health and Neurosciences); Dr. Narendra Kumar (Psychiatry, Mysore Medical College); and Dr. Anil Kumar (Psychiatry, Mysore Medical College). The study on 'Vipassana meditation and Well-being: Whether Vipassana meditative practice mitigates unwholesome mental attributes', was researched by the team of Dr Bindu Kutty (Dept of Neurophysiology, NIMHANS), Dr VV Binoy, Dr Nithin Nagaraj and Prof Sangeetha Menon. Dr Jyothi was supported by a short-term NIAS-Mani Bhaumik Fellowship through NIAS Consciousness Studies Programme.

A non-local hydrodynamic approach for swimming of bacteria and quorum sensing has been developed by Prof Sisir Roy. This will shed new light on the issue of neuronal correlate and consciousness. This work will be published as book chapter in BIOMAT 2015. A framework has been developed to understand the empirical data related to decision making in human cognition based on the concept of quantum probability.

In a paper published in *The Journal of Biosciences*, Dr V V Binoy and Prof Anindya Sinha explored the sensory cues employed by a fresh-water fish climbing perch to achieve familiarity-dependent recognition of a shoal of conspecific individuals. Prof Anindya Sinha and Dr Rajesh Kasturirangan of the erstwhile Cognition Programme published two chapters in a book, *Cognition, Experience and Creativity* (edited by J. A. Manjaly and B. Indurkha, and published by Orient Blackswan, Hyderabad, 2015): the first



Prof Sangeetha Menon delivering a TEDx talk NMIMS lecture.

oncreativity and experience in nonhuman primate cognition, with Dr. Shreejata Gupta and the other on the role of human creativity in understanding animal cognition, with Dr. Sartaj S. Ghuman, then students in the School of Natural Sciences and Engineering. Mr. Adwait Deshpande, a Mani Bhaumik Fellow of the programme and Prof Anindya Sinha also conducted a study on the referentiality and intentionality underlying coo calls of wild bonnet macaques in the Bandipur National Park during interactions with humans, using both observational and experimental approaches. Finally, in collaboration with Dr. Rolla Das, then a doctoral student of the School of Humanities, and Dr. Rajesh Kasturirangan of the erstwhile Cognition Programme, Prof Anindya Sinha published a paper on a comprehensive approach, involving the interpretation of semiotic assemblages associated with certain Bangla interjections, to resolve linguistic ambiguity in natural conversations.

Training

A valedictory address by Prof BV Sreekantan on 'Science, Reality and Consciousness' was delivered in the Thirteenth Annual NIAS DST Training Programme on "Multidisciplinary Perspectives on Science, Technology and Society" which had the core theme of Energy Security and Management in August 2015. He also participated in the Symposium on "Reality in

Modern Physics and in Classical Tradition", held at NIAS in December 2015.

Doctoral Activities

The doctoral thesis on the study of self and well being in the context of psychological features such as grief, conflict and desire, using the character analysis of the Mahabharata (by Lakshmi Kuchibotla) was awarded doctoral degree by the Mysore University. The doctoral thesis by Namitha Kumar on the study of subjectivity and selfhood in people with physical and sensory disabilities was awarded the doctoral degree by the Mysore University. Both theses were supervised by Prof Sangeetha Menon. Siddharth S a new doctoral research scholar has joined the Programme.

The doctoral thesis of Dr. Rolla Das on a multi-perspective analysis of *AcchA* and other Bangla response tokens in natural conversations, guided by Dr Rajesh Kasturirangan and co-guided by Anindya Sinha was awarded the doctoral degree by Manipal University.

A two-credit course was offered in the doctoral programme on 'An Introduction to Consciousness Studies'. The course was conceptualized and coordinated by Prof Sangeetha Menon, and course instructors were Lalit M Patnaik, Venkat Rayudu, Prof



Prof Tetsuro Matsuzawa speaking at the conference on Consciousness, Cognition and Culture: Implications for the 21st century.

Anindya Sinha, Dr. Nithin Nagaraj, Dr. VV Binoy, Prof Sisir Roy and Prof Sangeetha Menon. A one-credit course on 'Conceptual Mathematics for Cognitive Neuroscience' was conceptualized and instructed by Dr. Venkat Rayudu. Dr. Lalit Patnaik was the course instructor who designed the concept for the two-credit course 'Computation and Cognition: An Introduction'. Prof Sangeetha Menon and Dr. Gagan Deep Kaur designed the two-credit course 'Brain, Self and Cognition: Building Concepts & Frameworks'. These courses were also managed through an online platform of the NIAS Consciousness Studies Programme Website.

Conferences, Meetings and Workshops

The International conference on 'Consciousness, Cognition and Culture: Implications for the 21st century', was held during December 9-11, 2015, and a half-day Symposium on 12 December 2015 organised by the NIAS Consciousness Studies Programme concluded successfully. Several expert speakers from around the world attended the conference. Prof Sangeetha Menon gave the introductory address at the international conference. A talk on cognitive knowledge and the conception of self in a nonhuman primate species, the bonnet macaque, was delivered by Prof Anindya Sinha. A total of 250 participants, 7 sponsors, Nature India as the media partner, 24 Expert Speakers from across the globe, 100 Young Scholars, 15 Corporate participants, over 35 participating Indian institutions, over 18 participating institutions from other countries, website and social media reach, complete video documentation of proceedings, and open access Webcasts of lectures, were some of the features of this international conference. A complete report and the Video Webcast are available at www.niasconsciousnesscentre.com.

A unique meeting of the programme that received interest from many in the city was the Workshop organised on the mind-body connections in martial arts on 13th March 2015 at NIAS.

Two other forums that help raise fundamental questions are the "Evening Philosophy Chat" and "INSIGHTS". Evening Philosophy Chat is a forum for a group of students, scholars, public, artists, and anyone from any walk of life to engage in philosophical discussion that brings in arts, literature and psychology into its space. The dialogues at these meetings explore not only

'what is' but also 'how to do' - philosophical thinking, philosophical knowing and philosophical experiencing. The idea is to create a forum where each one of us can creatively extend the limits of our knowing and being, and can use such newly discovered spaces in our own life situations, professions etc. The "Keywords" for this forum are fun, joy, empathy, understanding, reflection, analysis, focus, consciousness, mind, questioning, reality, God, peace, love, art, literature, and theatre. The topics for the two recent EPC meetings were: 'Healing and Imagination', 'Merger of the Self-Other binary', and 'Purpose, Imagination and Common good'. The meetings of another forum of the Programme, "INSIGHTS", help explore fundamental concepts and foundational questions. It is a forum for imaginative minds to ask transdisciplinary questions and go beyond the boundaries of disciplinary thinking exploring the fundamental concepts of human experience and knowledge. While the first meeting presented four perspectives on 'Space', the topics for the coming meetings are Truth, Relations, Numbers, Time, Force, Purpose, Mind, Matter, Meaning, Substance, Method, Causality, and Life

Outreach and Public Lectures

Prof Sangeetha Menon spoke on the ethics of originality in a panel discussion on "Understanding Plagiarism in Academia" in May 2015. In a thematic introduction for the Evening Philosophy Chat meeting in June 2015, she spoke on 'Healing and Imagination: The Merger of the Self-other Binary'. In the thematic Introduction for the meeting on 'Space' in July 2015, Prof Menon spoke on 'Insights: Exploring Fundamental concepts and Foundational questions in July 2015.

Lectures delivered by Prof Sangeetha Menon outside NIAS included 'Brain-Mind model and Consciousness-Self model: Changing Perspectives' at the inauguration of "Cognitive Neuroscience Society of India", on the Yoga day at (NIMHANS) National Institute of Mental Health and Neurosciences, Bengaluru in June 2015; 'Body-sense and the Somatic markers: Emotions in Consciousness Studies at the international seminar on "Decolonising the Theories of Emotions", organised by the Institute of English, Centre for Women's Studies, University of Kerala, and University of British Columbia, in Trivandrum, in November 2015; 'By the Shore of Consciousness: Healing Waves and Self-transformation' the Inaugural Lecture at the national conference on "Alternative Perspectives in



Prof Ralph Abraham speaking at the conference on Consciousness, Cognition and Culture: Implications for the 21st century.

Psychotherapy”, Kristu Jayanthi college, Bengaluru, 2 February 2016. Prof Menon was also invited to give a lecture on ‘Self and Self-transformation: Understanding Experience and Consciousness’ at the Symposium on Understanding Cognition and Consciousness through Music and Meditation, Jointly organized by the Cognitive Psychology Unit, Department of Clinical Psychology & NIMHANS Integrated Centre for Yoga, Bengaluru in February 2016. Her other lectures included ‘Self-challenged Brain and Brain-challenged Self’ a TEDx NMIMS Lecture in February 2016, organised under the global platform of TEDx lectures, and ‘Beyond Brain and Mind: Reconciliation through Self-transformation’ an invited Lecture at the National Seminar organised by Sri Vishnu Mohan Foundation on “Peace and Reconciliation: Perspectives from Religion and Philosophy in Chennai in March 2016

Dr Nithin Nagaraj spoke on “Modeling the Reality of Conscious Experience” at S-VYASA in November 2015. Prof BV Sreekantan gave a talk on ‘Recent Developments in Astronomy’, at a one-day seminar on “Indian Astronomy and Modern Cosmology”, of The Mysore Education Society in Bengaluru in February 2016.

A keynote lecture on intentional tactical deception by wild bonnet macaques at a refresher course in the life sciences, was delivered by Prof Anindya Sinha at the Department of Botany of Calcutta University in December 2015 in Kolkata and at the Third M K Chandrashekar Memorial Symposium, organised by the Jawaharlal Nehru Centre for Advanced Scientific Research, in February 2016 in Bengaluru.

The paper by Prof BV Sreekantan and Prof Sisir Roy entitled “Dirac Large Number Hypothesis: Is it related to Consciousness?” and published *Neuroquantology* was reported by Indian Express as “Interpreting the mind in sleep and consciousness”.

The Programme extensively uses social media and outreach tools such as electronic newsletters. The Facebook page of the Programme is <https://www.facebook.com/NIAS-Consciousness-Studies-Programme-1529879760626616/?fref=ts>. Prof Sangeetha Menon’s TEDx lecture video has received positive responses on YouTube. The YouTube link for the video is <https://www.youtube.com/watch?v=P297MN3rkKU>

School of Natural Sciences and Engineering

The Ecology, Behaviour and Conservation Programme

The programme is interested in the ecology, behaviour, cognition, genetics and conservation status of several wildlife species across the country, chiefly primates, elephants and fishes.

Energy and Environment Research Programme

The programme examines challenges facing India's energy sector and provides independent analyses and recommendations in support of sustainable development and national energy security.

Complex Systems Programme

The programme, studies the dynamics of complex phenomena by constructing mathematical models.

Raman Kumar

A bee-eater.



Prof Sindhu Radhakrishna
Dean, School of Natural Sciences
and Engineering



ECOLOGY, BEHAVIOUR AND CONSERVATION PROGRAMME

Slender Loris.

The Ecology, Behaviour and Conservation Programme is interested in the ecology, behaviour, cognition, genetics and conservation status of several wildlife species across the country, chiefly primates, elephants and fishes. Apart from the core three faculty members, the Programme comprises five research scholars, several short-term research associates and a number of collaborators from the Schools of Social Sciences and of Humanities in NIAS and from more than fifteen institutions across India, Japan, UK, USA and Australia. It is the only research group in the country 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 fifteen 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.

Prof Sindhu Radhakrishna, *Head of the Programme*
Prof Anindya Sinha
Dr VV Binoy, *Assistant Professor*
TR Kumarswami, *Research Associate*
Dina Nishtar, *Research Associate*

Doctoral Students:
Asmita Sengupta, Shreejata Gupta,
Nishant M Srinivasaiah, Shaurabh Anand
NIAS-Exeter University Collaborative Programme:
Debanjan Mitra

Research Activities

The principal projects conducted by the programme last year include intra- and inter-population variation in behavioural plasticity in the climbing perch; intra specific variation in ecology and behaviour of the endangered slender loris; seed dispersal by rhesus

macaques; communication and cognition in bonnet macaques; and the population genetics of Arunachal and bonnet macaques. The important applied projects have continued to explore human-wildlife conflict in several areas of peninsular India and in the Western Himalayas, artificial propagation and

reintroduction of endangered fish species and the role of student networks in creating awareness about the environment, water, sanitation and hygiene in rural and socio-economically marginalised areas.

Dr VV Binoy received a research grant from The Connected Learning Initiative, a collaboration between the Tata Institute of Social Sciences, Mumbai, Massachusetts Institute of Technology, Cambridge, USA and the Tata Trusts, Mumbai. This project aims to develop modules on biology integrated with the tools of information communication technology for secondary school students in Mizoram, Rajasthan, Telangana and Chhattisgarh. Prof Anindya Sinha received three research grants – to investigate elephant ranging patterns and human-elephant conflict in southern Karnataka (with Nishant Srinivasaiah), to study the ecology and conservation status of the virtually unknown central Himalayan langur in Uttarakhand (with Himani Nautiyal) and to examine the demography, behavioural ecology and management of the Indian bonnet macaque (with Kakoli Mukhopadhyay). Prof Sindhu Radhakrishna's work on intraspecific behavioural variation in the nocturnal prosimian, the slender loris, and the extent and efficacy of seed dispersal by rhesus macaques continued to be supported by grants from DST-SERB.

The essentially transdisciplinary nature of the research conducted by the Programme is best exemplified by the work of Asmita Sengupta and Prof Sindhu Radhakrishna, who recently showed how primate ecological functions can be severely disrupted due to human cultural behaviours, like provisioning, thereby affecting food webs in a forest ecosystem. Dr. VV Binoy's work on environmental decision-making aims to develop effective strategies to protect biodiversity and sustain the quality of natural ecosystems by merging concepts from cognitive psychology, behavioural ecology, conservation biology and science communication. Dr. VV Binoy, in association with Rajeev Raghavan and Anwar Ali of the Kerala University of Fisheries and Ocean Science, Kochi also developed a network of educational institutions and non-governmental organisations to study the subterranean fishes of the Western Ghats Mountains. Prof Anindya Sinha, in collaboration with Rolla Das and Rajesh Kasturirangan of the erstwhile Cognition Programme, worked on documenting the semiotic assemblages that uniquely characterise human multimodal communication. Prof Anindya Sinha also

collaborated with Mann Barua, Oxford University, to initiate an urban ecology project that will examine the historical and current urbanisation of rhesus and bonnet macaques in human-dominated landscapes and its implications for the future management of these species.

During the year, the faculty and students of the Programme published seven peer-reviewed papers in international journals, two book chapters, four conference posters, eight conference abstracts and four technical reports. The presented / published papers dealt with subjects as varied as human-primate conflict, seed dispersal ecology, impacts of provisioning by humans, role of interjections in human conversations, multimodal gestural communication in wild primates and personality and decision making in fishes .

Dr V V Binoy was recognised as an Adjunct Fellow by the Centre for Study of Neuroeconomics, George Mason University and Krasnow Institute for Advanced Study, USA. Prof Anindya Sinha was invited to attend the International Biology Olympiad, a prime international programme for biology education, in Aarhus, Denmark as a member of the International SubJury. He also attended an organisational meeting of the Olympiad in Hanoi, Vietnam in January 2016, in his capacity as International Advisor to the International Biology Olympiad. Prof Sindhu Radhakrishna was invited to join the governing board of Yakshi as an Executive Committee member and as an Editorial Board member for the journal *Animal Cells and Systems*.

Doctoral Activities

Two doctoral students, **Asmita Sengupta** (Seed dispersal by rhesus macaques *Macacamulatta*; guided by Prof Sindhu Radhakrishna and co-guided by Prof Anindya Sinha), **Shreejata Gupta** (Other voices: Gestural communication of wild bonnet macaques *Macaca radiata* in the Bandipur National Park, southern India; guided by Prof Anindya Sinha) completed their doctorates and were awarded their degrees by Manipal University.

Teaching

Dr V V Binoy delivered two lectures on Social Cognition in the two-credit course *An Introduction to Consciousness Studies*, conducted by the Consciousness Studies Programme. Prof Anindya Sinha taught a three-credit course *Animal Behavioural Ecology* at the Postgraduate

Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru. He also taught a two-credit reading course, *Behaviour, Personality, Physiology: Readings from the Mammalian Literature*, a two-lecture module on Foundations of Biological Sciences in the *Foundations Course* and a two-lecture module on Cognition and Consciousness in Nonhuman Primates in the two-credit course *An Introduction to Consciousness Studies* for doctoral degree students of NIAS. Prof Sindhu Radhakrishna taught modules on Biological Sciences in the *Research Methodology Course* and the *Foundations Course* in NIAS and delivered a lecture on the ecology and behavior of nocturnal primates at the Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru in April 2015.

Training Courses

In collaboration with Chidambaran G Iyer of the International Strategic and Security Studies Programme, Prof Sindhu Radhakrishna organised the NIAS flagship training course, The 30th Annual Programme for Senior Executives on “To Lead a Change”, in January 2016.

Conferences/ Meetings / Workshops

Dr VV Binoy and Prof Anindya Sinha, along with colleagues from the Consciousness Studies Programme, organised The International Conference on Cognition, Consciousness and Culture: Implications for the 21st Century in December 2015. Dr. VV Binoy also organised a workshop, entitled Student Networks and Science Communication, for school and college students of Bengaluru. In collaboration with TR Kumaraswami and A Arun, Dr. VV Binoy also conducted a series of fourteen training workshops on topics such as water conservation, river conservation, methodologies

for studying water resources and water in different parts of Kerala and Karnataka states. In association with collaborators from five Indian institutions, Dr Binoy also conducted a workshop on freshwater fish conservation at the Student Conference on Conservation Science 2015 in Bengaluru. Prof Sindhu Radhakrishna, in collaboration with the Indian Council

of Agricultural Research organised a workshop on Human-Wildlife Conflict in Agro-Pastoral Contexts, at National Bureau of Agricultural Insect Resources, Bangalore in December 2015. Along with colleagues from various institutes, she also organised the first Indian conference on Behaviour, Ecology, and Evolution at the Corbett National Park, Uttarakhand in March 2016. Nishant Srinivasaiah and Prof Anindya Sinha organised a field-based workshop on Studying Elephants in Human-Dominated Landscapes, for early-career researchers and conservationists, in collaboration with their Indian and Sri Lankan collaborators.



Unknown frog.

Outreach and Public Lectures

Dr. VV Binoy delivered a lecture on “The Role of Fish Cognition and Behaviour in the Conservation of Freshwater Fish Diversity” at the Kerala University of Fisheries and Ocean Science, Kochi and was a panelist at the International Conference on Yoga and Education, organised by the Kaivalyadham Institute for Yoga in Lonavala. Prof Anindya Sinha delivered eight lectures on primate ecology, behaviour, cognition, evolution, conservation and management at various institutions across the country over the last year. Prof Sindhu Radhakrishna delivered seven lectures on primate ecology, human-animal studies, and human wildlife conflict and its impact on wildlife conservation at various institutions across the country

ENERGY AND ENVIRONMENT RESEARCH PROGRAMME



The solar energy facility at NIAS.

The Programme's objectives are to sustain capacity for long-term energy research and technology assessment, to develop policy solutions, and to identify suitable interventions that enhance energy security. The Programme strives to enrich discourse around ensuring adequate and affordable access to clean energy.

Prof Dilip R Ahuja, *Head of the Programme*
Prof DP Sen Gupta
Dr TS Gopi Rethinaraj, *Associate Professor*
Dr Shoibal Chakravarty, *Assistant Professor*
Dr Hippu Salk Kristle Nathan, *Assistant Professor*

Research Fellows:
Anasuya Gangopadhyay, Sravanthi Choragudi
Doctoral Students:
Neesha Dutt, Priyam Laxmi Borgohain
C.S. Vijay, C. Sashikiran

Research Activities

The Energy and Environment Research Programme (EERP) was commissioned by Power Corporation of Karnataka, Ltd. to study the causes for the "Deceleration in the growth rate of electricity demand in Karnataka during FY 2014". The study shows that the growth rate in electricity consumption has declined from an average of 8.65% between FY2005-FY2012 to 2.63% in FY 2014. The EERP team identified which companies and sectors were responsible for the

slowdown in the demand. The EERP's studies indicate that the demand in the agricultural sector is primarily influenced by annual rainfall and the area irrigated by tube-wells. The non-agricultural sectoral consumption was related to the state sectoral GDP. Predictive models were built to estimate the consumption of electricity in agricultural and non-agricultural sectors based on the above factors. The major questions that this study includes were, What were the relative declines in unrestricted demand, demand met and

consumption met in FY2014?, How were the declines distributed amongst the five supply companies in the state? How were the declines distributed among the five sectors for which data are compiled?, How were the sectoral demands related to the changes in sectoral components of GSDP (Gross State Domestic Product)?, How did the declines in FY2014 compare with the changes in FY2013?. The final report was submitted and a presentation made on the findings to the PCKL Board in March 2016. Prof DP Sen Gupta, Prof Dilip R Ahuja and Ms Akhila Prabhakaran conducted the study and authored the Report.

EERP developed a novel method of projecting daily load curves for a target year and recommended suitable combinations of Solar and Wind power in Karnataka in 2022 so as to incur minimum wastage or curtailment. EERP recommended the installation of 3.3-3.5 GW of solar power and adding 8 – 8.7 GW to the existing 2.2 GW of wind power for the year 2022. The Programme suggests that installation of a PHS facility would make the renewable power installations more effective. Karnataka power system with its persistent power shortage and regular load shedding is an inflexible system. The increased penetration of renewable energy sources, to partially meet increasing power demand does not necessarily improve its flexibility. EERP team found that incorporation of a PHS of 9,000 MWh capacity (1500 MW for 6 hours) will make the system more flexible in the year 2022. Prof DP Sen Gupta, Prof Dilip R Ahuja, Ms Anasuya Gangopadhyay and Ms Sravanthi Choragudi worked on this Report that has been submitted to POSOCO.

India has recently increased its targets for renewables, specifically aiming for 60 GW each for grid-connected solar PV and wind energy by 2022, 40 GW for roof-top solar PV, and 15 GW of biomass energy. The EERP analysed the potential of renewable energy to reduce CO₂ emissions from electric power generation. They also estimated CO₂ emissions from electric power generation via various energy sources for the years 2014 and 2022. EERP team submitted this report for DST (Department of Science and Technology) under the Global Technology Watch Group Project.

ICSSR project –EERP research project proposal titled “Analyzing Poverty Change in India: Decomposition, Inclusiveness and Multidimensional Nutritional

Deprivation” in collaboration with Nabakrushna Choudhury, Centre for Development Studies (NCDS), Bhubaneswar and Somaiya Institute of Management Studies and Research, Mumbai is approved for grant of 15,00,000/- by Indian Council of Social Science Research (ICSSR) research. Dr HSK Nathan is participating in this project as co-Principal Investigator.

In collaboration with Water Programme at NIAS the EERP has got the DST support on “Development of “water entrepreneurs” for integrated Eco-WaSH technology and practices literacy through women Self-Help Groups (SHGs) in marginalized areas”. Dr HSK Nathan will be leading this project from EERP.

Professor Ahuja also collaborated with Dr. MB Rajani of the School of Humanities in NIAS on a paper published by Current Science on the Symmetry of the Taj dome.

Training

The EERP group conducted the 13th Annual NIAS-DST “Multidisciplinary Training Programme on Science, Technology, and Society” with ‘Energy Security and Management’ as the core theme. The two-week training programme was held between August 10-21, 2015 and was attended by about 30 senior management personnel drawn from various public sector scientific and industrial research organisations (BARC, IGCAR, ISRO, AMD, etc) and public sector industrial organisations (BEL, NPCIL, etc). The participants were given a broad orientation in the technology and policy issues concerning energy and environment challenges facing India. The programme was very successful in raising awareness about these issues among senior scientific personnel and helped facilitate professional networking among participants. The programme and lecture topics covered were rated highly by the participants and recommended for repetition every year to benefit more participants in the science and technology community. This Training Programme was coordinated by EERP faculty member Dr TS Gopi Rethinaraj.

NIAS-DST training programme on *Science and General Policy* for mid- and senior level scientists was co-coordinated by Dr HSK Nathan. It was held during February 29 to March 11, 2016. EERP group interacted with the participants during the course on March 2, 2016.

Doctoral Activities

A semester long three-credit course on “*Energy Systems: Technology and Policy*” was jointly taught by EERP faculty members Dr TS Gopi Rethinaraj and Dr Shoibal Chakravarty for the Institute’s PhD students, research associates, and student interns. The objective of this course was to provide a basic understanding of the science, technology, economics and socio-politics of various energy systems (fossil, renewable and nuclear) for energy policy analysis and national or regional environmental regulation besides assessing various energy technology and policy options to mitigate global warming and climate change. Prof Dilip Ahuja, Prof DP Sen Gupta, and Dr HSK Nathan gave guest lectures in the course.

Conferences, Meetings and Workshops

The EERP was involved in convening the specialists’ group meeting on “Low Energy Nuclear Reactions (LENR): A Way Ahead for India” under the auspices of Ministry of New and Renewable Energy (MNRE) on April 8, 2015 and chaired by Dr Anil Kakodkar. About 30 distinguished scientists from various institutions within the country attended the meeting and contributed to the discussions to generate a

broad consensus to initiate work on experimental verification of LENR and resulted in the formation of an Advisory Group on Low Energy Nuclear Reactions (LENR) comprising Dr Srikumar Banerjee, Dr Baldev Raj, Dr R. Krishnan, and Dr M. Srinivasan. This Advisory Group met on July 6, 2015 and had a comprehensive discussion on the next steps forward aimed at experimental verification/validation of LENR experiment. Work is underway to discuss engineering design and protocols to standardise the required materials be supplied from a single source so that different groups can work with the same set of materials and quickly validate the results concerning heat measurement.

The Third LENR (Low Energy Nuclear Reactions)-India Forum meeting was held on March 19, 2016 with funding support from NTPC Limited. This meeting was attended by about 25 LENR experts from different institutions within the country, and was a follow-up to the two earlier meetings held at NIAS on April 8, 2015 and July 6, 2015. The purpose of these meetings is to undertake a comprehensive examination of the prospects of Low Energy Nuclear Reaction (LENR) systems for commercial energy



Mr Shyam Saran delivering the Fourth K Subrahmanyam Memorial Lecture on Climate Change and Energy Security: The Twin Challenges Confronting India.

production. The meeting resulted in identification of about five research groups in the country to conduct verification of LENR for energy production using identical experimental set-up and material conditions before providing specific technical policy input for the government regarding investment for further research or commercial prototype development. This meeting and the earlier two meetings were coordinated by EERP faculty member Dr TS Gopi Rethinaraj.

Partnering with The Collège de France, the Service for Science and Technology of the French Embassy to India, and the Centre for Social Sciences and Humanities, NIAS organized and hosted the Indo-French Innovation workshop during February 24-25, 2016. The workshops had sessions around different dimensions of Innovation: political, social, economic, technological, and policy; and around different domains of Innovation: medicine, energy and information. This workshop was attended by professors, scientists and researchers from both countries. Dr HSK Nathan led the organizing team from NIAS side for this two-day workshop. Ms Sravanthi Choragudi and Ms Anasuya Bandhopadhyay's poster on Pumped Hydro Storage Systems won the best poster award at the Workshop.

The EERP held a meeting with Mr Dennis Lien, Research Associate from King Abdullah Petroleum Studies and Research Center (KAPSARC), Riyadh, Saudi Arabia on possible collaboration on understanding the correlations between energy and human development – held at NIAS on 17 August 2015. Another Meeting with Dr. Maria Schewenius, Research Coordinator at Stockholm Resilience Centre, Stockholm University on possible collaboration on issues relating to urban sustainability – held at NIAS on 01 October, 2015. The team also had a meeting with the Japanese Delegation from academia and private sector to discuss issues related to energy and climate change on 16 November 2015.

A one-day workshop was held at NIAS in collaboration with the Divecha Centre for Climate Change, IISc, - Is Power Generation by solar cheaper than from coal? Workshop was held at NIAS on 8 August 2015 - to explore how far the cost trends in solar and coal-fired power plants were valid in the Indian context. The

Workshop was targeted at various players in the power sector, such as decision-makers, civil servants, think tanks, academia and grass root organizations. A Report of the Workshop was published in Current Science.

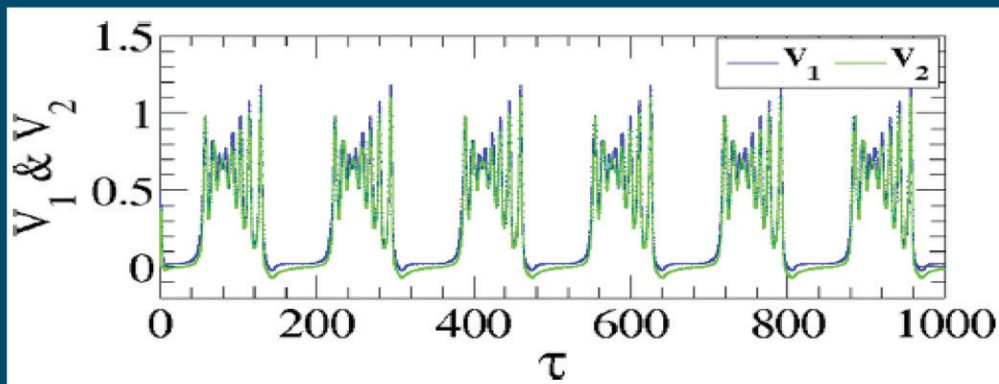
Outreach and Public Lectures:

EERP faculty, Dr TS Gopi Rethinaraj and Dr Shoibal Chakravarty were part of the scientific and local organizing committee of the 8th Biennial Conference of the Indian Society for Ecological Economics, held during January 4-6, 2016 at IISc Bengaluru. Dr S Chakravarty and Prof Dilip R Ahuja were invited by Current Science to write a guest editorial on the ambition in India's renewable energy targets announced for the COP-21 at Paris in November 2015. The editorial outlined what related steps the country would need to take in order to achieve the targets.

In the conference on "Urban Energy Poverty in different states of India: A household level analysis" Dr HSK Nathan presented a methodological paper. He also gave an Invited talk on "Solar PV for Electricity in India-lessons for Myanmar" at the Yangon University, Yangon, Myanmar organized by the Physics Department and University Research Centre of Yangon University, Dec 21, 2015. The talk has potential impact as Myanmar is going through a political transition and is planning to develop the solar sector. He also led a Special session on "Simple ideas on energy" in the exposure program for students from North East at NIAS, December 15, 2015. Among different ideas, advancing IST idea was also discussed, which when implemented will have a significant positive impact on the North East.

Reports on the Current Science paper by Prof Dilip Ahuja and Dr MB Rajani, 'On the symmetry of the central dome of the Taj Mahal', were carried by Bangalore Mirror, The Telegraph, The Hindu and The Economic Times.

Prof Dilip Ahuja was the Panelist for International Energy Agency's special Report on Energy Developments in India, 30 November 2015. He also gave a presentation to the PCKL Board on Deceleration of Electricity Demand in Karnataka with Ms Akhila Prabhakaran and Prof DP Sen Gupta on March 17, 2016.



COMPLEX SYSTEMS PROGRAMME

The Complex Systems Programme seeks to understand how diverse individual elements constituting a system give rise through differing mutual interactions and couplings to macroscopic collective behaviour exhibited by the whole system. The object is to be able to predict the future behaviour of the system – many times the behaviour can be totally unexpected. Complex systems are all inherently nonlinear – different nonlinearities give rise to different kinds of behaviour. The programme seeks to understand and explain the dynamical behaviour of systems of very different kinds by constructing appropriate mathematical models.

Dr. Janaki Balakrishnan, Associate Professor and Programme Anchor

Research Activities

The highlight of the work of the programme during the year was the work on an intriguing, bow-tie-shaped bursting behaviour in coupled Josephson junctions by Dr Janaki Balakrishnan, Mr. T Hongray and Dr SK Dana. In this work, the researchers explained the physical and mathematical mechanisms underlying the shape of these hitherto unknown bursts. The researchers also found identically-shaped bursts in a different mechanical system. Similar bursting oscillations are also experimentally observed in neuronal firing in the hippocampus in the brain. The researchers were the first to report this behaviour and resolved the puzzle of the bifurcation mechanism of the process. The results were published in a paper in *Chaos*. This has important implications in other similar systems as well, including coupled neurons.

A major research initiative of this programme was on modelling the impact of climate change on population cycles of ecological systems. Dr Janaki Balakrishnan, Ms Sudharsana V. Iyengar and Prof Jürgen Kurths have, for the first time in the literature, incorporated climatic parameters and proposed a mathematical model for prediction of cyclic outbreaks of an insect

pest, the larch budmoth which rapidly defoliates entire larch forests at high altitudes. For the tritrophic ecological system consisting of the larch trees, the budmoth population and parasitoids which feed on the budmoths, the model correctly reproduces the observed periodicities (from 1200 years of observational & dendrochronological data) of the budmoth infestation outbreaks in the Swiss Alps. The model also accounts for the non-occurrence of cyclic outbreaks in the Tatra mountains in the Slovakian Carpathians nearby and accounts for the collapse of the cycles after 1981, attributing it to climate change. The model reproduces other outbreak periodicities observed elsewhere in the world and predicts that the next outbreak in the Swiss Alps could occur in 2021.

Modelling neuron dynamics, sensory systems: Other work currently ongoing is on the spiking and bursting activity of coupled neurons of different types (J. Balakrishnan & V. Resmi), (J. Balakrishnan, B. Ashok & T. Hongray) and different aspects of sound detection by the ear (J. Balakrishnan & B. Ashok).

Some of the other ongoing collaborative work of the programme is on diverse topics ranging from fluid



Dr MR Srinivasan delivering a lecture on the occasion of the Foundation Day of NIAS.

dynamics (viscosity effects in bubble-dynamics and cavitation), ecology (in marine ecology, ecological extinctions, trophic cascades, studies of fish catchment data), mechanical engineering (on problems involving stability of tall structures under wind sway), physics (classical, nonlinear elastic systems, far from equilibrium systems, etc), and networks. Other work of interest to the programme which have been initiated include modelling animal movement and foraging behaviour and studies of environmental correlates of aerosols and suspended particulate matter .

SERB, DST, Govt. of India has sanctioned Rs.21,41,800/- for our research project: "Nonlinear oscillatory phenomena in sensory systems" & the first instalment of Rs. 8 lakhs has been released.

Outreach and Public Lectures

Dr. Janaki Balakrishnan taught a three-credit course, 'Introduction to dynamical systems theory' which was conceived and designed by her at the Indian Institute of Science, in her capacity as a Guest Faculty there. The course was also open to NIAS students. This course was unique in that it had both theory and numerics components. Such an introductory course which was also very comprehensive had not been offered here earlier. This was also evidenced in the interest the course evoked in students in IISc

spread over various disciplines. About 62 students from various departments from IISc (mechanical, chemical and civil engineering, aerospace, physics, mathematics, nanoscience, neuroscience, computer-science, and ecology departments, and the Undergraduate Programme) as well as some students from NCBS attended the course regularly. Of these, about 28 students credited it. Many students also worked on inter-disciplinary projects which were allotted to them as part of the course. Dr. J Balakrishnan also mentored students and researchers from outside NIAS for their research projects, including a mechanical engineering student from NIT Surathkal for his summer research project. She continued supervision of her two doctoral students registered with the University of Hyderabad, of whom one, Mr. Thotreithem Hongray, successfully completed his final PhD thesis defence at the School of Physics, University of Hyderabad in March. The pre-PhD seminar of her second doctoral student, Ms Sudharsana V Iyengar in the same department was also held in March.

The programme also has fruitful research collaborations with Indian Institute of Information Technology, Bengaluru (IIITB), Indian Institute of Chemical Biology (IICB) Kolkata, IISc, and with Prof. Dr. Juergen Kurths (Potsdam, Germany).

School of Social Sciences

Education programme

The programme has been active in the areas of education, research, teaching, advocacy and outreach, focusing on issues that are critical and yet have not received the attention that they deserve.

NIAS-UNDP Initiative on Inequality and Human Development

The aim of this initiative is to develop policy options based on a multidisciplinary and empirically consistent conceptualization of inequality and to contribute towards public discourse to enable more informed policy choices.

Provincial Globalisation Programme

The objective of the programme was to trace the tangible and intangible remittances that are sent to India by international migrants and their impacts on the home regions.

RBI Programme on Interdisciplinary Approaches to Economic Issues

The programme seeks to use the knowledge gained from a variety of disciplines to understand economic issues.

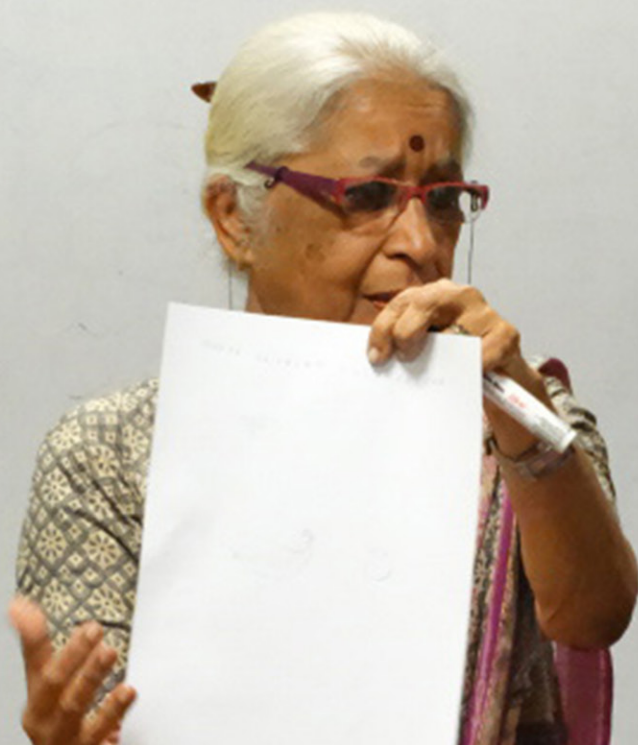
Skills, Livelihoods and Mobilities Programme

This new research programme aims to address gaps in our knowledge about current skill development policies and practices in India, and to investigate the linkages between skills, livelihoods and mobility. Work on the programme will begin in 2016-17.



Prof Anitha Kurup
Dean, School of Social Sciences

EDUCATION PROGRAMME



Prof Malavika Kapur at an interaction with students.



For over a decade, the Education Programme at NIAS has been active in the areas of education, research, teaching, advocacy and outreach. The programme has always focused on the issues that are critical yet have not received the attention that they deserve.

Prof Anitha Kurup, Head of the programme
Dr Shivali Tukdeo, Assistant Professor
Dr Shalini Dixit, Assistant Professor
Dr Jeebanlata Salam, Assistant Professor
Dr Bharat Rout, Post Doctoral Associate
Prof Malavika Kapur, Visiting Professor

Research Associates:
Mr Ajay Chandra, Ms Priyanka S, Ms Sindhu
Doctoral Students:
Ms R Maithreyi (Awarded Doctorate Degree),
Mr Chetan B Singai, Ms Anupama Mahajan,
Ms Savitha Suresh Babu

Research Activities

The academic year 2015-2016 has been particularly important for the programme as it has able to raise substantial funds for the work. The Education Programme has received rupees 3 crores for a period of three years from Tata Consultancy Services (TCS). In addition, a sum of 25.5 lakhs was granted to set up a 'May I Help You?' center for the gifted children in India. The programme also received a grant for 4 lakhs to organise a workshop on 'Futures of Education: Schools of the Future' from TCS and the Karnataka Knowledge Commission. As the Education Programme continues to build on the work, it has finally been able to expand the team, drawing in diverse talents in terms of faculty

members. With the new strength the programme is confident to excel in addressing the compelling problems that are part of India's education system. To this end, the Education Programme team are initiating long-term research in the domains that includes 'Education of the Gifted and Talented', 'Women in the STEM Disciplines', 'Social Exclusion and Education' and 'Vocational and Higher Education'. A rigorous and detailed engagement for three years, research with intensive fieldwork in these domains will contribute to the knowledge base of education research in the country. It will also lead to innovative programmes and curricular and instructional practices in the education domain.

A series of national consultations meetings and brainstorming sessions are being organised for each of the four components. On May 18 and 19, 2016 the programme organised a consultative meeting on "Education among the Adivasi communities in Maharashtra". The meeting was organised in collaboration with National Centre for Advocacy Studies (NCAS), Pune and it covered in depth the context, structures, schemes and pedagogies. The meeting involved invited presentations with specific focus on Ashram schools, key institutions associated with the education of Scheduled Tribes (ST) in the state and conditions of Educationally Backward Districts (EBDs) in the state. The meeting brought together researchers, educators, civil society organisations and governmental representatives to share their experiences and review the various aspects that affect education of the Adivasi communities.

Additionally, the programme organised an open discussion on "Autonomy and Accountability in Higher Education Spaces" in March 2016.

Given the wide scope of the programme and the nature of inquiry in education, its work is multidisciplinary. In recent years the team has worked with colleagues in disciplines such as Gender Studies, Social Policy, History, Psychology, Biological and Conservation Science and Cognitive Science to name a few. These disciplinary interactions have strengthened the inquiry of the programme. The programme team has started initial talks with the National Innovation Foundation, Ahmedabad to develop a programme that will draw out a plan to scout innovators and prodigies in rural areas of South India. The team hope to put in place a long term plan in collaboration with Agastya to strengthen the process of identification among rural children. The scope of the programme will be to identify and mentor local talent in areas of Math, Science, Humanities and Arts.

Following an organisation of a joint workshop with Christ University and Education programme, NIAS has initiated a formal and inter-institutional collaboration with Christ University. The main purpose of these collaborative efforts is to complement different strengths of the two institutions, resulting in faculty research collaboration, joint courses, conferences and internship programmes.

The Education Programme at NIAS is engaged in an inter-institutional collaboration for capacity building of university teachers in Karnataka State. Other partnering institutions are Institute of Social and Economic Change, Indian Institute of Science, Indian Institute of Management, Bengaluru and National Law School of India University. These institutions will work closely with the Higher Education Department of Government of Karnataka, to strengthen the newly established Teachers' Academy at Dharwad.

The Gifted Education Project at NIAS has initiated collaboration with Maiya Foundation, National Educational Society in an effort to identify and provide mentoring support to gifted girl students in the 17-18 years age group. Activities under the collaboration include creation of a mentor network from universities in India and the United States. Additionally, a one-time fellowship to the student with periodic mentoring support at the individual level and organization of summer and winter workshops will also be organised as part of the programme.

India has brought out a Status of Women Report 2015 after nearly 4 decades. Prof Anitha Kurup contributed the background paper on Women in Science. Recommendations made in this paper have been submitted in the final report. She was also invited to participate in the Southern Regional Consultation on the New Education Policy organized by regional College of Education at the Pondicherry University on October 12, 2015.

NIAS is forging collaboration with Agastya International Foundation and the National Innovation Foundation to scout for gifted children and innovators in rural India. A teachers training workshop was organized for the trainers of Agastya Foundation.

Training

A week long NIAS-DST training course was organised for women scientists and technologists. The course was coordinated by Dr Shivali Tukdeo and it was entitled 'Science for Progress in India: a Focus on Sustainability'. Among 80 applications, the team selected 25 candidates who spent a week at NIAS. The main purpose of the course was to introduce the concept of sustainability through an interdisciplinary lens. The course included lectures, film-screening, focus group sessions, open

dialogues and a cultural programme. A wide range of experts were requested to be part of the training and they focused on different ways of understanding sustainability. Given the multidisciplinary approach and a combination of scholars, practitioners, artists and social interventionists, the participants enjoyed the course and the feedback is very positive.

IshaanVikas Programme which has been launched by the Prime Minister, through the Ministry of Human Resource Development, includes several institutions as partners, including the IITs and NIAS. This programme was organized for 30 academically bright students of grade IX selected from the states of Assam, Manipur and Arunachal Pradesh. A series of lectures from leading scientists, social scientists and industrialists were organized along with visits to the Indian Institute of Science, Indian Space Research Organisation and the Planetarium.

As the chair of the Committee on Prevention of Sexual Harassment in the Workplace, Prof Anitha

Kurup and her team organized two separate training programmes on Gender awareness and prevention of sexual harassment in the workplace. The first one was for faculty and students and the second one in the local language for the administrative and support staff.

Doctoral Activities

A highlight of this year was the successful completion of doctoral research by Ms R Maithreyi. Her thesis is entitled 'Rethinking Life-skills education' and she worked under the supervision of Prof Anitha Kurup. Currently the programme has three doctoral students. Mr Chetan B Singai works on university governance and he is currently writing his dissertation after completing his field work. Ms Anupama Mahajan, a second year student who works on the social context of giftedness, completed her registration with Manipal University and has started her fieldwork. Both are being supervised by Prof Anitha Kurup. Ms Savitha Suresh Babu is a second year student who works on welfare hostel scheme for the Scheduled Caste and Scheduled Tribe students. She completed her



Students interact with a teacher at an Ishaan-Vikas Udhan event in NIAS.

registration with Manipal University and has started her fieldwork. She is supervised by Dr Shivali Tukdeo.

The course on Sociology of Education for the PhD students was organised by Dr Shivali Tukdeo. The course was designed around some of the classic readings in sociology of education and it also provided space for students to work on their proposal development/dissertation. Dr Shivali Tukdeo also organised a reading group on 'Social Exclusion and Education' during January 20 to 27, 2016.

Conferences, Meetings and Workshops

The Education programme with Future Agenda organized a National Stakeholder Workshop on Future of Education: Schools of the Future on 29 July 2015 at NIAS. This workshop was a part of a global foresight series titled Future Agenda. It was the 6th workshop on Education, in a global series of 100 workshops on 21 different themes, conducted across 50 countries. The workshop took place in the context of tectonic changes in the education sector – brought about by the huge increase in numbers of children entering the school system, the possibilities and trends brought about by changing pedagogies including the impact of technology, the changing aspirations of parents and students and the global competitive pressures on the knowledge economy. The workshop aimed at enabling a multi-stakeholder dialogue, with the objective of visualising the schools of the future and the possible direction of change.

The workshop was designed around important themes such as Emerging Teaching and Learning Practices, Working with Diversity, Changing roles of Teachers and Students and Student Aspirations.

The workshop drew a diverse set of stakeholders done purposively, in order to ensure a rich and balanced dialogue. The workshop was attended by Policy-makers, Non-profit entities engaged in the education sector, Technology providers, Corporations engaged with the sector, Psychologists and Researchers, Educators (Teachers), Educationists (Education experts) and Educational Institution Management representatives. Care was taken in bringing together a set of participants with wide and sufficiently diverse experiences. Further, the workshop was addressed

by eminent persons with a track record of national and global service in the public and private sectors, and wide-ranging engagement with the education sector, via keynote speeches and discussions. The involvement of Karnataka Jnana Aayoga and Tata Consultancy Services, two organisations who are playing a vital and complementary part in shaping the educational ecosystem, as event sponsors, provided the required leverage to focus on future action of the workshop. Efforts were made to set out the objectives of the workshop in terms of insights and recommendations in pre-identified thematic areas. In all, there were 35 recommendations as an outcome of the workshop. The stakeholders could choose those recommendations that each one could work with and carry the agenda forward.

Outreach and Public Lectures

The *Connectivate 2015* conference organized by Vidyashilp International School on 27 May 2015 at Taj West End, Yeshwanthpur, Bengaluru, Karnataka, India, invited Prof Anitha Kurup as a speaker. The conference was attended by over 200 delegates who were school leaders, educational researchers, pedagogic innovators and representatives of school management from across the country. The need for schools to pay attention to the gifted children was the focus of the lecture emphasizing the potential that the gifted children have to contribute to the national economy. She was also a delegate in the Asian Summit on Education and Skills 2015 organized at Bengaluru between 8 to 11 September 2015. ASES is Asia's only annual leadership event dedicated to the Education and Training sector. The summit is a partner event to the Education World Forum (EWF), London. ASES 2015 brings together Education and Skills Ministers from across Asia and Indian Central and State ministries, Senior Policy Makers, Eminent and Senior Educationists, Owners of Educational Groups and other key stakeholders to share and deliberate on various issues pertaining to policy and implementation of best practices in the education and training sector.

On September 23, 2016 Dr Shivali Tukdeo was invited to participate in a symposium on 'Revisions to New Education Policy: Implications for Post-Secondary Education', held at Indian Institute of Management, Bengaluru.

NIAS-UNDP POLICY RESEARCH INITIATIVE ON INEQUALITY AND HUMAN DEVELOPMENT



The NIAS-UNDP Policy Research Initiative on Inequality and Human Development aims to develop policy options based on multidisciplinary and empirically consistent conceptualization of inequality and to contribute towards public discourse to enable more informed policy choices. The motivation for this collaboration between NIAS and the United Nations Development Programme (India) stems from the concern that popular discourse on inequality in India has tended to be fragmented. This policy research initiative will expand our ability to understand the dynamic effects that inequality has on other processes in society such as on growth, individual aspirations, and rise of regional identities.

Prof Narendar Pani, *Head of the programme*
Dr Debosree Banerji, *Post-Doctoral Associate*

Dr Sumedha Bajar, *Post-Doctoral Associate*

In its first year of operation the NIAS-UNDP Policy Research Initiative on Inequality and Human Development has focused on the inequalities that arise from the major structural transformation taking place in the process of a once-agrarian economy to one dominated by services and industry. The dynamics of such transitions elsewhere in the world have generated huge social costs from the social costs of the industrial revolution in Europe to the millions of lives lost due to Collectivization in the Soviet Union. India is arguably the only major country to address this transformation in an electoral democracy. And the impact of electoral politics on the transformation must not be

underestimated. As welfare gains a prominent place in Indian rural politics staying on in villages can act as a safety net against the huge costs of the transition from agriculture to non-agricultural activities. It is thus no surprise that the share of agriculture in GDP has halved since 1991 to well under 20 per cent but in 2011 over two thirds of India still lived in rural areas. This process influences the dynamics of inequality as well. Apart from its effects on rural-urban inequality, there are specific aspects of this process that can affect both rural and urban inequality. To cite just one example, the process of the marginalized in rural society seeking urban opportunities affects both rural and

urban inequalities. As many of these processes have been understudied, the impact of the transformation from an agrarian economy to a non-agrarian one on the dynamics of inequality demands attention from a policy research initiative on inequality and human development.

This focus on the inequalities emerging from, and the consequences of, this transformation has been enabled by financial support from Tata Consultancy Services. The NIAS-UNDP policy research initiative has received support to the extent of Rs 1 crore a year for three years for two specific aspects of the transformation that influence inequality. The first project aims to capture the dynamics of the transformation of the Indian economy from an agricultural one to one led by urban industry and services. Its objective is to trace the process of people leaving agriculture, whether they stay in non-agricultural activities in rural areas, whether they move to urban areas, which type of urban areas they move to, and the issues that emerge from these patterns. The project will also track the regional differences in these trends, which points to an additional dimension of inequality. Trying to capture this process in a meaningful way Dr Sumedha Bajar is making use of secondary data as provided by Census of India to delve into understanding the larger trends across the 640 districts in the country. The results from this analysis will form the basis of a working paper on regional dispersion of farmers leaving agriculture and identification of contiguous areas that share a similar pattern of release of labour from agriculture. This first report is to be presented to TCS within nine months of the start of the project. This report will form the basis for a workshop involving experts who will review the mapping of the release from agriculture and the insights gained herein will be incorporated in the paper as well as into the final report. Following the secondary data analysis, in an effort to capture the socio-economic process of families moving out of agriculture, in-depth village level studies will be carried out, the results of which will then be compiled into a working paper and reviewed by experts in the workshop that will follow. The overall report will involve secondary

analysis and insights gained from the field that emerges from a consistent conceptualisation of macro and micro pictures generated from this study. A dissemination-cum-training workshop will follow for government representatives and practitioners from non-government sector to address the challenge of workers leaving agriculture and reducing the economic and social costs of the same.

The second project emerged from recognition by the NIAS-UNDP programme of the need to not only follow trends in inequalities but also look at the costs. High on any list of such costs is the burden faced by farmers who are sometimes driven, and sometimes enticed, into the less favourable dimensions of this transition. The most widely recognized examples of this pressure are in the many cases of farmers' suicides. There is thus a need to understand farmers' suicides as a reflection of the pressure of the transformation from an agrarian economy to a non-agrarian one, the resultant inequalities, including the regional inequality in the vulnerability of farmers to suicide. In order to do so we need to first capture the relative status of farmers' suicides vis-a-vis other suicides and their regional dimension. This can be done by putting together data from the National Crime Records Bureau and the Census of India for the twenty years that it is available, and then classify states by their vulnerability to farmers' suicides. This is being done by Dr. Debosree Banerjee and a paper on inequality and farmers' suicides in India will be the first report sent to TCS and come out as a peer-reviewed NIAS report. Once this is done the overall data for the states for twenty years will be used to develop an econometric model to understand what the macro picture tells us about the causes of farmers' suicides. This will form the basis of the second report based on secondary data. The patterns that emerge can then be analysed in greater depth through village studies. Qualitative and quantitative studies at village level in states with differing patterns of farmers' suicides will help further understand the relationship between various socio-economic-political causes of suicides and will be the basis for reports to be submitted later in the project.

PROVINCIAL GLOBALISATION PROGRAMME



Provincial Globalisation: The Impact of Reverse Transnational Flows in India's Regional Towns', a collaborative international research programme of NIAS and the University of Amsterdam, was initiated in January 2010 and completed in September 2015. The programme was co-directed by Prof. Carol Upadhyia and Prof. Mario Rutten and funded by WOTRO (the Netherlands). The ProGlo programme consisted of three doctoral and two postdoctoral projects carried out in three regions of India – central Gujarat, coastal Andhra Pradesh and coastal Karnataka – and in the destination countries of migrants from these regions, the UK, USA, and the Gulf.

Prof Carol Upadhyia, Head of the programme
Prof Mario Rutten, (AISSR, University of Amsterdam),
Programme Co-director

Doctoral Students:
Sanam Roohi, Sulagna Mustafi,
Sanderien Verstappen (AISSR)
Consultant Researchers:
Keya Bardalai

Research Activities

The 'ProGlo' programme explored the diverse material and immaterial resources that are sent back to India by Overseas Indians and their impacts on social development. Although it is well known that Indian migrants often send remittances to support their families at home, such resource flows have primarily been understood through the lens of development economics and on a national scale. In contrast, this programme documented regional variations in transnational networks and diaspora contributions and on the immaterial flows or 'social remittances' that often accompany financial remittances. The programme design was interdisciplinary, incorporating concepts and methods from sociology, social anthropology, economics, geography, history, and migration and transnational studies. By combining in-depth qualitative field studies with quantitative survey methods and by focusing on the regional scale, the

programme has assembled a rich body of material and theoretical insights on an important issue with policy and academic relevance. The programme has drawn on expertise and perspectives from several disciplines and interdisciplinary areas within the social sciences – sociology, social anthropology, economics, geography, political science, migration studies, transnational studies, and urban studies.

Although international policy debates on the question of migration and development have focused mainly on the impacts of household-level remittances, collective remittances (often referred to as 'diaspora philanthropy') were found to be more significant in our study regions, where migrant groups were found to be closely involved in a range of development activities. However, the impacts of 'NRI' (Non Resident Indians) interventions for social development are mixed, as they are shaped by local structures of power and social

hierarchies or inflected by conflicting social or political aspirations. The component studies revealed the multi-dimensional, multi-directional, and multi-scalar character of transnational flows, such as household remittances, investments in land or businesses, and philanthropic projects, support for NGOs, as well as intangible remittances that are often transmitted by migrants such as new aspirations, revitalised cultural identities, or religious ideologies.

Overall, the programme has demonstrated that migrant remittances are just one element of larger transnational circuits of mobility and exchange, which in turn are deeply embedded in social networks of kinship, caste, or religious community, or framed by regionally rooted cultural orientations or political agendas. The component projects also traced how diasporic connections with the home region, materialised through the transfer of resources, have been intricately shaped by the specific regional histories and social trajectories of migration from which they have emerged, and reflect the aspirations and imaginations of migrants as well as those of their families and communities at home. Thus, the ProGlo programme has made a significant contribution to the scholarly literature on transnationalism as well as to international policy debates on migration and development, and within India to policy discussions about the country's relationship with Overseas Indians.

By mapping the modalities, movements, destinations, and outcomes of migrant resources within their regional contexts, the ProGlo programme has produced new empirical data and insights on the influence of the Indian diaspora and migrants within India, and deepened our understanding of the economic, social,

political, and cultural implications of remittances, diaspora philanthropy, and other transnational influences in India's provincial towns and their rural peripheries. The component projects have produced a series of unique case studies detailing the multifarious connections that regional diasporas maintain with their regions of origin, especially through the various kinds of resources that they transfer to help the development of their communities or home towns. Sanderien Verstappen's work focused on central Gujarat, and she was awarded the Ph.D. degree in Anthropology by the University of Amsterdam in January 2016 for her thesis

entitled 'Mobility and the Region: A Multi-Scalar Ethnography of the Vohra Gujarati Community, in India and Abroad'. Ms. Sanam Roohi studied the transnational networks that link Coastal Andhra Pradesh with the region's affluent professional diaspora in the US, and the political implications of their philanthropic projects in Guntur district. Sulagna Mustafi's research in Coastal Karnataka explored the ways in which the identity of the Beary Muslims community has been shaped by their transnational connections with the Gulf, while postdoctoral researcher Leah Koskimaki studied development interventions in Dakshina Kannada by

wealthy Gulf businessmen belonging to other communities from the same region. Our postdoctoral research economist, Dr. Puja Guha, generated fresh national, state, and district-level data on transnational resource flows and their socio-economic outcomes; she also carried out a detailed household-level sample survey of migration and remittances in two districts of Gujarat, in collaboration with the Gujarat Institute of Development Research, Ahmedabad.

The Provincial Globalisation Programme has made significant contributions to the academic and policy



An international Provincial Globalization conference in Amsterdam.

discussions on migration and development in South Asia, which until now has not adequately captured the full range of migrant resources that enter India's provincial towns and rural areas, nor well understood their economic or social consequences. The research programme has contributed new insights and empirical data to the literatures on migration, transnationalism and globalisation by taking a regional and comparative perspective. It has been methodologically innovative in its multi-scalar and multi-dimensional analysis, multi-disciplinary research design, and by undertaking a comparative analysis of three regions. In addition, the research outputs will contribute to national and international policy debates on migration and development as well as the contributions of Overseas Indians to India's developments

Conferences, Meetings and Workshops

As a final dissemination and discussion event of the programme, a workshop was organised at NIAS on **The Future of the 'New' Andhra Pradesh**, on September

21, 2015. The workshop brought together leading academics, researchers, development practitioners, and government representatives to exchange ideas, share their observations, and articulate their visions for the future of Andhra Pradesh after bifurcation. One session focused on the contributions of NRIs to the past and future development of the state – the major theme of the ProGlo programme.

Outreach and Public Lectures

The findings of the ProGlo (Provincial Globalisation) programme have been widely disseminated through international peer-reviewed journal articles, public lectures and conference presentations, the ProGlo Working Paper and Research Report series, and the ProGlo website and Facebook page.

Till date, eleven ProGlo Research Reports and seven working papers have been brought out. Recent publications from the programme include S. Ananth, Transnational Capital Flows and Investment Culture



Workshop on the future of the 'New Andhra' in NIAS.

in Coastal Andhra Pradesh'. ProGlo Research Report No. 11, September 2015. Sanderien Verstappen and Mario Rutten, 'A Global Town in Central Gujarat, India: Rural-Urban Connections and International Migration', *South Asia: Journal of South Asian Studies* 38(2), 2015; and J. Timothy Scrase, Mario Rutten, Ruchira Ganguly-Scrase and Trent Brown, 'Beyond the Metropolis-Regional Globalisation and Town Development in India: An Introduction', *South Asia: Journal of South Asian Studies* 38(2), 2015.

A public **website** for the ProGlo programme (www.provglo.org) was launched in March 2011, which is serving as an important platform for publicising the programme activities and disseminating the research findings for the benefit of academic as well as general audiences. In addition, a public Facebook page was created to serve as a forum for exchange of ideas with the stakeholders of the programme as well as interested researchers and the public.

A **geo-visualisation** project, 'Mapping Provincial Globalisation', uses maps and interactive visual displays to present macro-level data on international migration and remittances. The project was completed in 2015 and is hosted on the ProGlo website. These pages will serve as an important resource for researchers and interested persons who are studying the question of migration.

See: <http://provglo.org/geo/>

In addition, two **documentary films** have been produced and are being widely circulated:

Transnational Village Day Part I by Dakxin Bajrange, Mario Rutten and Sanderien Verstappen. This film documents the annual village festival in Gujarat, India, that is sponsored by migrants and NRIs, focusing on contestations over the development of the village, in which both local villagers and transnational migrants are involved.

The 'Non-Resident' Returns, by Vanaja C., Carol Upadhyia, and Sanam Roohi (NIAS, 2016). This anthropological documentary highlights the philanthropic activities of 'NRIs' (Non-Resident Indians) in their home region, Coastal Andhra Pradesh, bringing out the complexities

and contradictions of migrant interventions in regional development.

The programme anchor Prof Carol Upadhyia has given many public lectures and conference presentations during the year, including: 'Speculating on Development: Provincial and Transnational Circuits of Accumulation in Andhra's New Capital Region', Department of Humanities and Social Sciences, Indian Institute of Technology Bombay, Mumbai, and TISS Mumbai, in October, 2015, and 'Amaravati and the New Andhra: Globalising the Provincial?' as part of the 'India and the World' Series, Nehru Memorial Museum and Library, New Delhi in November 2015. She presented the paper 'Amaravati and the New Andhra: Reterritorialisation and Transnational Circuits of Accumulation at the National Seminar on Migration, 'Heimat', Homelands in the Central University of Hyderabad, in February 2016, and 'Materialising Mobility: Migrant Property Investments in Coastal Andhra Pradesh, India' at the Conference on Mobilities and Temporalities: Rethinking Migrant Trajectories and Transnational Lifestyles in the Asian Context, Asia Research Institute, National University of Singapore in February 2016. Prof Upadhyia also gave a seminar on 'Reterritorialising Andhra: Provincial Capital and Transnational Circuits of Accumulation in India' at the Sussex Asia Centre, University of Sussex in June 2015, and presented a paper, 'Speculating on Development: Land, Provincial Capital, and the Visionary State in India', at the workshop on 'Speculation: New Vistas on Capitalism' at the London School of Economics in May 2015.

Doctoral student Ms. Sanam Roohi presented a paper 'Kula Gauravam: Transnational Migration and the Reconfiguration of the Dominant Caste Status in Coastal Andhra' at the International Conference on the Sociology of Elites in Contemporary India, organised by CSH and Ashoka University, Jawaharlal Nehru University, New Delhi in January 2016.

The first of the three PhD dissertations was submitted in November 2015 and the degree was awarded by the University of Amsterdam in January 2016 to Sanderien Verstappen for her thesis entitled 'Mobility and the Region: A Multi-scalar Ethnography of the Vohra Gujarati Community, in India and Abroad'.



RBI PROGRAMME ON INTERDISCIPLINARY APPROACHES TO ECONOMIC ISSUES

KPN

The RBI programme on Interdisciplinary Approaches to Economic Issues seeks to provide a multidisciplinary perspective on what are usually seen as economic issues. Unlike most work on interdisciplinary economics which takes economic methods to other disciplines, this programme taps other disciplines in order to provide a more comprehensive picture of economic issues. This approach has proved to be particularly useful in analyzing major policy initiatives such as the Mahatma Gandhi National Rural Employment Guarantee Schemes and the Jawaharlal Nehru National Urban Renewal Mission. It also contributes to a richer understanding of processes like urbanization.

Prof Narendar Pani, Head of the programme
Dr Kshitija Joshi, Post-Doctoral Associate

Doctoral students:
Ms NS Nalini, Ms Shatarupa Bhattacharya,
Ms Soundarya Iyer, Ms Ankita Rathi

Research

A major research interest of the programme during the year was on the socio-economic dynamics of technology in India. Not long after Robert Solow's seminal work pointing out that technological change was at least as important a contributor to economic growth as capital accumulation, the Scientific Policy Resolution of 1958 was built around a similar claim. In line with this view in the decades soon after Indian independence, Jawaharlal Nehru did provide a leading role for science and technology in India's development strategy. The drive to making the Indian economy globally competitive, particularly after 1991, has however been driven primarily by a search for capital. The reform process has focused on enabling foreign capital to enter previously debarred

areas, the mechanisms for the entry of portfolio investment have been transformed to make them more globally attractive, capital markets have been streamlined to enable large Indian companies to raise capital more efficiently, and efforts have been made to generate and use state resources to provide capital for large infrastructure projects. In this entire process the technological challenge has been largely underemphasized. In a paper addressing this issue, Prof Narendar Pani argued that the receding of technology from its pride of place in India's economic strategy was due to a mismatch between technology policy and economic transformation. It made its case by first tracing the main rationale for India's technology policies. It went on to consider the economic context in which these policies had to operate and finally argued

for a broader conception of technology, noting the implications this would have for technology policy. Motivated by the findings of this research and the large number of socio-economic issues in the dynamics of technology that emerged, there was recognition of the need for a programme that would enable several of these issues to be studied. A proposal on the 'Socioeconomic Dynamics of Technology in India' was developed by Prof. Narendar Pani and Dr. Kshitija Joshi. The proposal built around the 'Science to society' model that has tended to dominate Indian scientific thinking. In this view scientists are provided economic and academic freedom to carry out high quality science. The results of this effort are then to be disseminated to technologists who would in turn develop the products that would be useful to society. In practice various factors contributed to shortfalls in this process leading to gaps that had to be filled by imports. The social dynamics of this process have been grossly understudied. There is inadequate understanding of the social process that strengthens the links between the Indian scientific community and global institutions, occasionally delaying the benefit of their scientific knowledge to India. Again, there is a limited understanding of the social dynamics of innovations in India; does it, for instance, contribute to a greater emphasis on innovations in utilization such as missed calls, rather than production innovations? The proposal pointed to the variety of questions that have emerged about the socio-economic aspects of science and technology in India. How do the social processes affect the market's choice of technology? What would be the role of social networks in developing entrepreneurship and technological change? Are some of the social processes also culturally determined as in the case of 'Jugaad'? What does it take to encourage the transformation of an innovation into social necessity-based products, especially in the domains as basic as of, sanitation, affordable housing or healthcare, and what would be the social, cultural and institutional enablers of this process? And so on.

Among the many less studied aspects of the socio-economic dynamics of technology has been its impact on the relationship between work and the worker. A critical part of this relationship is the often ignored aspect of the demand for travel between home and work. A distinct effort was made to reduce this demand when the public sector units set up their own townships or layouts close to their factories. In other

industries the reduction in the extent of travel has sometimes been caused by economic factors, such as the wages being too low for workers to travel great distances from home. Conversely in cases of high wage employment there is relatively less pressure to reduce the distance to work, thereby generating greater pressure on urban infrastructure. Prof Narendar Pani explored some of these issues in the context of Bengaluru. He presented some of these arguments on 'Home from work and work from home' in the workshop on Spatial Politics of Work at the New School in New York.

Alongside this thrust on the socio-economics of technology the programme continued to develop some of the interests it had pursued earlier. The programme had earlier looked at various aspects of the relationship between the global and the urban in India. During the last year Prof Narendar Pani continued his exploration into the social dynamics of this relationship, going deeper into the area of caste. Popular discourse in India sees caste as being the remnant of a backward social system that will disappear with the coming of modernity. And since globalization is associated with modernization it is expected that caste would disappear in the more globalized cities. Based on data that has been collected earlier for one of India's most global cities, Bengaluru, Prof Pani examined the expectation that caste would disappear in the time of globalization. The empirical study demonstrated that the role of caste did change with globalization, but that did not necessarily mean a decline in its importance. Indeed, in terms of identity and political dynamics caste may have in fact got a fresh impetus. In order to explain this empirical finding this work recognized the need for an alternative framework that viewed caste as a changing institution. Using the common ground shared by Gandhi, Ambedkar and Max Weber it developed the basics of an alternative framework to understand caste. While this work is in the process of being developed into a paper, it has been presented in seminars. Prof Narendar Pani was invited to give a lecture on 'Caste in the time of globalization' by the South Asia Institute of Harvard University.

Training Programmes

Faculty of the RBI programme have lectured in NIAS training programmes. During the last year Prof Narendar Pani delivered a lecture on "A Neo-Gandhian Perspective on Sustainability" on February



Prof TN Srinivasan delivering the Fifteenth MN Srinivas Memorial Lecture at NIAS.

9, 2016 to the Participants of NIAS – DST Training Programme for Women Scientists (under DISHA Scheme) on “Science for Progress in India: Focus on Sustainability”.

Doctoral students

All the doctoral students associated with the RBI programme made considerable progress during the year. Dr Asha KG received her PhD degree for her thesis on the ‘Dynamics of labour relations across different circuits of globalization: Evidence from garment making and cashew nut processing units in Kerala’. Ms Soundarya Iyer is currently writing her thesis titled “Dynamics of rural transformation in Karnataka: A view from three villages”. She recently presented a paper, ‘Agrarian change without land reform: Transformational interventions in a South Indian village’ at the Modern South Asia workshop 2016 at Yale University. She taught a class on local urbanization in India based on her field work in a village in Kalaburagi district in a course titled

‘Urbanization and International Development’ offered by Dr. Sai Balakrishnan at the Harvard University Graduate School of Design in March 2016.

Ms N.S. Nalini is currently writing her thesis titled ‘First Nature and Urbanization: Terrain and Urban Development of Bengaluru, 1971-2011’. Her paper, ‘The Great Divide: Exploring the divergence between urban metabolism in theory and practice in water supply system in Bengaluru’ has been accepted for publication in the *International Journal of Urban Sustainable Development*.

Ms Shatarupa Bhattacharya is currently writing her thesis, ‘Interaction between Development and Festivals: Durga, Kali, Bonbibi – Dakhinray in the Sundarbans’. Ms Ankita Rathi completed her field work in a village and a town in Punjab for her thesis ‘Transition from village to town: A study of two settlements in Punjab’. Ms Meera Sudhakar joined the programme this year.

Training Programmes

NIAS-DST TRAINING PROGRAMME ON SCIENCE POLICY AND GENERAL MANAGEMENT

(February 29 to March 11, 2016)

Coordinators:

Prof Suba Chandran and Dr Hippu Salk Kristle Nathan

The two-week NIAS-DST Training Programme on Science Policy and General Management was held from 29 Feb to 11 Mar, 2016. This was the first time a training programme was held with science policy and general management as a focus. The participants included senior and mid-career executives from various institutions – government organizations, industry, and research think-tanks. The programme started with an inaugural address by Prof. VS Ramamurthy on a short history, current trends and future scenarios of science and technology in India. The lectures were from the domains of energy, security, agriculture, education, health, conservation, and disaster management. The eminent speakers included Dr. RK Bhandari, Dr. Bharat Bhargava, Dr. PS Dhekne, Dr. PS Goel, Dr. Garima Jain, Dr. Ullas Karanth, Dr. Ajay Lele, Prof. G Padmanaban, Mr. Anil Razdan, and Vice Admiral Vijay Shankar, among others. The participants have exclusive sessions with the Energy and Environment Policy Programme, the International Strategic and Securities Studies Programme, and the Ecology, Behaviour and Conservation Programme. There were three evening public lectures delivered by Prof. VK Aatre, Dr. Ajay Mathur, and Prof. Darshan Shankar. A cultural programme was organised for the participants with a Hindustani classical sitar *jugalbandi* by Ustad Rafique Khan and Ustad Shafique Khan.

30th NIAS PROGRAMME FOR SENIOR EXECUTIVES

(January 18 to 23, 2016)

Coordinators:

Prof Sindhu Radhakrishna and Dr Chidambaran G Iyer

The 30th Annual Programme for Senior Executives was held from January 18 to 23, 2016. Inspired by Mahatma Gandhi's words on change and leadership, the theme for this year's Programme was "To Lead a Change". The participants of the 30th Programme included Senior Executives from various government organisations as well as from private industry. The programme covered a variety of subjects from management, medicine, law and order, music,

Dr R Chidambaram inaugurating the 30th NIAS Programme for Senior Executives.



cinema, psychology and society. The programme was inaugurated by Dr R Chidambaram, the Principal Scientific Adviser to the Government of India. Other major speakers included Dr K H Sancheti, Justice Prabha Sridevan, Shri B Muthuraman and Shri Ricky Kej. Some of the other highlights of the programme were the lecture by Shri D R Kaarthikeyan, wherein he shared the leadership challenges he faced during his investigation of the Rajiv Gandhi assassination case, Prof Vijayalakshmi Ravindranath's talk on building scientific institutions in India, and Prof Manas K Mandal's exploration of "The Mind of Leader". The valedictory address was by Shri Kris Gopalakrishnan, co-founder Infosys.

NIAS-DST TRAINING PROGRAMME FOR WOMEN SCIENTISTS
ON SCIENCE FOR PROGRESS IN INDIA: FOCUS ON
SUSTAINABILITY

(February 8 to 12, 2016)

Coordinator:

Dr Shivali Tukdeo

The 5th NIAS-DST programme for women scientists was held from February 8 to 12, 2016. This year the theme was 'Science for Progress in India: a Focus on Sustainability'. The theme offered an excellent opportunity for multidisciplinary engagements, given its connection to research, teaching, advocacy, policy and community participation. The course started with a brief history of sustainability and in addition to the environmental and energy perspectives, the training programme included other views on sustainability focusing on questions of gender, resources and alternatives. The participants in the course were women scientists from various institutions across the country. The sessions of the programme were carried out in lecture-demonstration format and were interactive. Additionally, the programme offered opportunities for women scientists to discuss issues of leadership and mentoring. Prof. Roddam Narasimha delivered the inaugural address for the programme while Prof. J. Sreenivasan gave the valedictory address.

COURSE UNDER THE ISHAN VIKAS-UDHAN PROGRAMME
FOR SCHOOL CHILDREN

(December 15 to 25, 2015)

Coordinator:

Prof Anitha Kurup

The Ishaan Vikas programme was initiated by the Prime Minister and is jointly run by Ministry of MHRD and IIT, Gauhati. This two-week course is part of a larger programme of the Ministry of Human Resource Development, Government of India to provide exposure to potentially bright students from the North eastern states to premier institutes of science and engineering in India. NIAS is the only non-IIT institution to be a part of the programme.

The 2nd Ishaan- Vikas Programme was organized for 36 students of grade IX selected from the states of Assam, Arunachal Pradesh and Meghalaya of India. Five teachers of the respective schools also attended the workshop. The speakers in the programme included Prof. Jayant Murthy, Dr. Shyamala Mani, Dr. Kota Harinarayana and Dr. Dipankar Banerjee. Visits were organized as part of the workshop to the Centre for Nano Science and Engineering, Climate Change and Lab Tour to IISc, Jawaharlal Nehru Planetarium and ISRO Satellite Centre.

NIAS-DST TRAINING PROGRAMME ON POLICY FOR SCIENCE
AND SCIENCE FOR POLICIES

(November 16 to 20, 2015)

Coordinator:

Prof Lalitha Sudaresan

The NIAS-DST Training programme on 'Policy for Science and Science for Policies' was held during November 16 to 20, 2015 for scientist-administrators and technologists at the Director or Divisional Head position from various scientific organizations in the country. The programme was inaugurated by Dr G Satheesh Reddy, Scientific Advisor to Defence Minister of India. Shri S V Ranganath, IAS, Former Chief Secretary to Government, gave the valedictory address on November 20, 2015. The speakers included were Prof. Gautam Bhan, Dr K G Narayanan, Prof (Dr.) G. S. Sachdeva, Prof. Ashwagosha Ganju, Mrs. Bharati Baxi, Dr Dipankar Banerjee.

As part of the programme, the participants had an opportunity to visit Dr. L Narayan Reddy's agriculture training institute 'Parashara Jaivika Krishi Gurukula', Doddabaalpura. They also witnessed a Carnatic Veena-Venu duet concert by Vidwan D. Balakrishna on Veena and Vidwan Mysore V Vamshidhar on Venu (Flute) and team.

THIRTEENTH ANNUAL NIAS DST TRAINING PROGRAMME ON
MULTIDISCIPLINARY PERSPECTIVES ON SCIENCE, TECHNOLOGY AND
SOCIETY CORE THEME: ENERGY SECURITY AND MANAGEMENT
(August 10 to 21, 2015)

Coordinator:

Dr TS Gopi Rethinaraj

The Thirteenth Annual NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society was organized from August 10 to 21, 2015 for senior scientists, technologists and administrators. Twenty-eight participants including seven women drawn from various institutions, laboratories and government departments in the country attended the programme. The Programme was inaugurated by Dr MR Srinivasan, Former Chairman, Atomic Energy Commission of India, who addressed the participants on the theme 'Energy and Development'. The valedictory address on 'Science Reality and Consciousness' was delivered by Prof B V Sreekantan, Visiting Professor, NIAS. The speakers who covered a wide range of topics on the main theme

'Energy Security and Management' included Prof Ramprasad Sengupta, Dr Prabhat Kumar, Prof MR Srinivasa Murthy, Dr Vijay Manchanda, Mr Sudhir Vasudeva, Prof J Srinivasan, Dr Bharat Bhargava, Dr G N Dayananda, Shri S Duraisamy, Prof Rahul Tongia, Mr. M Gopalakrishnan and speakers from NIAS faculty.

Two Annual Memorial Lectures were held during this training programme. The Eleventh Raja Ramanna Memorial Lecture was delivered by Dr Ajay Mathur on the topic 'Well-Trodden Highways and New Pathways: Finding the Best Roads for Accelerating Energy Efficiency in India' and the Fourth K Subrahmanyam Memorial Lecture was delivered by Mr Shyam Saran on the topic 'Climate Change and Energy Security: The Twin Challenges Confronting India'. The participants visited the Central Power Research Institute (CPRI), Bengaluru as well as Belur, Halebid and Mysore palace during the course of the programme. The participants had an opportunity to witness a Carnatic violin duet by Vidhwan GJR Krishnan and Vidushi Vijayalakshmi.



Mr S Ramadorai, Chairman NIAS, delivering a lecture on the occasion of the Foundation Day of NIAS.

Doctoral Committee

Dr. T S Gopi Rethinaraj, *Chairperson & Academic Head*

Prof. Sangeetha Menon, *Member*

Dr. Shivali Tukdeo, *Member*

Dr. Mayilvaganan, *Member*

Dr. Anshuman Behera, *Member*

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

The Doctoral Programme was initiated at the Institute in 1999 with the signing of a Memorandum of Understanding with the Manipal Academy of Higher Education (MAHE), instituting a NIAS-MAHE Doctoral Programme. It was agreed at that time that students guided by NIAS faculty (who were recognised as guides by MAHE) would be allowed to register with MAHE and would follow its rules for the doctoral programme. NIAS had no financial responsibility for students given that most students were supported by faculty research grants. Under this arrangement, five students registered with MAHE between 1999 and 2004. The doctoral programme entered a second phase in the year 2004-05 when it was expanded and regularised on the basis of financial support received from the Indian Space Research Organisation and the Department of Science and Technology. The programme is also partly supported by grants from the Ministry of Earth Sciences since 2011-12.

NIAS does not directly grant degrees but has received recognition as a research centre from Manipal University and the University of Mysore. Students register with either of these two universities and carry out their research at NIAS. Students go through a year

Doctoral Programme



Dr KG Sreeja receiving the best thesis award from the Union Railway Minister, Mr Suresh Prabhu.

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 six students have been part of NIAS doctoral programme since its inception and Thirty one students have successfully completed their Ph.D. as of March 2016. Twenty nine have registered their Ph.D, and six students are carrying out pre-registration process. As of March 2016, a total of thirty five students are enrolled in the programme-four in the School of Conflict and Security Studies, eleven in the School of Humanities, nine in the School of Natural 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:

SCHOOL OF CONFLICT AND SECURITY STUDIES

Sanket Kulkarni, International Studies
India's Energy Security Concerns & Policy Formulation: A case study of Cross-Border natural Gas Pipelines

Murali Murti, International Studies
Knowledge process and their role in Innovation –A comparison of selected Chinese and Indian practices

B R Guruprasad, International Studies
Attainment of India's Sustained Space Capabilities Through Technology Acquisition and Indigenous Technology Development Policies: A Critical Evaluation

Shyam Hari P, Conflict Resolution

SCHOOL OF HUMANITIES

Hema Thakur, Ancient History & 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

H R Meera, Cognitive Science& Sanskrit
Language Game and the Role of Suggestion (Vyarigya) Therein

N S Nalini, Economics
First Nature and Urbanisation Terrain and Urban Development of Bangalore, 1971-2011

Shatarupa Bhattacharyya, Economics
Interaction between Development and Festival: Durga, Kali and Bonbibi-Dakshinray in the Sundarbans

Sumitra S, Archaeology
Creative collectives: A case study of collaborative practices in Karnataka

Dr. Shankar R, Psychology
A Qualitative approach to the Psychology of three Self-conscious Emotions from Sanskrit Poetics

K N Venkatesh, Archaeology
Evaluation of Mysore Painting: Exploring the role of royal patrons in the emergence of styles in the 18th and 19th centuries

Krupa Rajangam, Heritage
Study on Resident communities and conservation practice: Case of Hampi World Heritage site

Siddharth S
Yet to register

SCHOOL OF NATURAL SCIENCES AND ENGINEERING

Neesha Dutt, Energy & Environment
Urban greens: Ecological Impacts and Socio-economic Drivers of Turfgrass Ecosystems

Priya Gupta, Environmental Science
Interface of exclusionary conservation policies and rights of communities: Case study of a Protected Area

Priyam Laxmi Borgohain, Energy & Environment
Downstream environmental and socio-economic impacts of hydropower projects in Northeast India – Case studies of Ranganadi and lower Subansiri Hydroelectric projects

Nimisha Agarwal, Environmental Science
Assessment of Farmers' Perception of Climate Change and Local Adaptation Strategies in Uttar Pradesh.

Nishant Srinivasaiah, Behavioral Ecology
Grabbing the Bull by the Tusks: Behavioural Ecology of the Male Asian Elephant in a Human-Dominated Landscape

Shaurabh Anand, Behavioral Ecology
Patterns and Determinants of Human-rhesus Macaque Conflict

Sashi Kiran C, Vijay CS, Sreedhar Vijayakrishnan
Yet to register

SCHOOL OF SOCIAL SCIENCES

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
Mobile phones and changing Media consumption practices in Bangalore

Anamika Ajay, Economics
The Impact of Development on Social Conflicts: Case studies of Intra-Family and Inter-Group Strife in two villages in Kerala

Ankita Rathi, Economics
Transition from village to town: A study of two settlements in Punjab

Savitha Suresh Babu, Education
Welfare hostels in higher education: Understanding the experiences of Dalit and Adivasi women students

Keya Bardalai,
Northeast Women Migrants in Delhi: Aesthetic Labour in the New Consumer Economy

Anupama Mahajan, Gifted Children
Contours of lived experiences of children identified as gifted in India

Meera Sudhakar
Yet to register

GRADUATED STUDENTS - 2015-2016

SCHOOL OF HUMANITIES

Lakshmi K
Self and Well-being: A qualitative approach with focus on the Mahabharata

Rolla Das
Understanding communication through semiotic assemblies: A study of speech-gesture composites in pragmatics

Namitha A Kumar
A Study of subjectivity and selfhood in the context of subjects with physical disabilities: A theoretical approach

SCHOOL OF NATURAL AND ENGINEERING SCIENCES

Sajini Anand P S
Nonlinear, Multidimensional Transformations and its Applications to Signal Processing

Asmita Sengupta
Seed Dispersal by Rhesus Macaques (Macacamulatta)

Shreejata Gupta
Other Voices: Gestural Communication of Wild Bonnet Macaques Macaca radiata in the Bandipur National Park Southern India

SCHOOL OF SOCIAL SCIENCES

Ms. Asha K G
Dynamics of Labour Relations Across Different Circuits of Globalization

Ms. Maithreyi R
Reconceptualising life skills education: A critical analysis of ideas around childhood, 'risk' and 'success'

Orations

NIAS DISTINGUISHED FELLOW LECTURE SERIES

NIAS is an institution that creates and is led by enlightened leadership inspired by its founder JRD Tata. Through the NIAS Distinguished Fellow Lecture series we hope to honour the distinguished minds of the world who with their leadership, commitment for greater achievements, and vision for creating a better world, contribute to human wellbeing.

THE FIRST NIAS DISTINGUISHED FELLOW LECTURE

His Holiness the 14th Dalai Lama, Tenzin Gyatso
December 6, 2015

ANNUAL MEMORIAL LECTURES

FIFTEENTH MN SRINIVAS MEMORIAL LECTURE

Prof TN Srinivasan

Samuel C Park, Jr Professor Emeritus of Economics,
Yale University

*Micro Foundations of Public Policy: Some Thoughts
Inspired by the Contributions of MN Srinivas*

January 19, 2016

ELEVENTH RAJA RAMANNA MEMORIAL LECTURE

Dr Ajay Mathur

Director General, Bureau of Energy Efficiency,
Ministry of Power, New Delhi

*Well-Trodden Highways and New Pathways: Finding the
Best Roads for Accelerating Energy Efficiency in India*

August 19, 2015

FOURTH K SUBRAHMANYAM MEMORIAL LECTURE

Mr Shyam Saran

Former Foreign Secretary and

Prime Minister's Special Envoy for Nuclear Affairs
and Climate Change

*Climate Change and Energy Security: The Twin Challenges
Confronting India*

August 11, 2015

THIRD RL KAPUR ORATION

Prof Ashis Nandy

Distinguished Fellow, Centre for the Study of
Developing Societies, Delhi

Studying Genocide after Fifty Years

June 19, 2015



Dr. Ajay Mathur delivering the Eleventh Raja Rammanna Memorial Lecture on Well-Trodden Highways and New Pathways: Finding the Best Roads for Accelerating Energy Efficiency in India.

LECTURES

Mahzarin Rustum Banaji

Richard Clarke Cabot Professor of Social Ethics,
Department of Psychology, Harvard University

Blindspot: Hidden Biases of Good People

(In collaboration with Centre for Contemporary
Studies, IISc and Centre for Study of Science,
Technology and Policy)

October 6, 2015.

Nilanjan Banik

Mahindra Ecole Centrale, Hyderabad

*The Dynamics of Income Distribution in India: What Do
the Data Tell Us?*

September 7, 2015

John Bryden

Prince Mohammed University

Recognizing Knots

March 18, 2016

Ian M Cook

Department of Sociology and Social Anthropology
Central European University, Budapest, and Visiting
Scholar, Indian Institute of Human Settlements,
Bengaluru

*The Immoral City: Community, Love and Vigilantism in
Mangaluru*

March 29, 2016

Madhurima Das and Sudhira HS

Research Media Services Division, Gubbi Labs, Gubbi
Media Interface Session

April 8, 2015.

David Gellner

Professor of Social Anthropology and Fellow of All
Souls College, University of Oxford

*Ethnogenesis and Open Borders: Reflections on Nepal's Tarai-
Madhesh and What Went Wrong in India-Nepal Relations*

January 18, 2016

Subrata Ghoshroy

Research Affiliate in the Science, Technology and
Society (STS) Programme at the Massachusetts
Institute of Technology, USA

*R&D in the USA: How it is conducted and the role of the
academia*

September 2, 2015.

Lectures and Conferences



Mr Ricky Kej speaking at the 30th NIAS Programme
for Senior Executives.

Ananta Kumar Giri

Madras Institute of Development Studies, Chennai
With and Beyond Epistemologies of the South: Ontological Epistemology of Participation and Multi-topical Hermeneutics
March 23, 2016

Michael A Huffman

Associate Professor, Department of Ecology and Social Behavior, Primate Research Institute, Kyoto University, Inuyama, Japan and Adjunct Faculty, NIAS
Animal Doctors, Film Screening, Followed by Discussion
June 10, 2015

Shivanand Kanavi

Adjunct Faculty, NIAS
How Does Indian Media Work?
May 18, 2015

Bharat Karnad

Centre for Policy Research, New Delhi

Nitin Pai

Director, The Takshashila Institution

S Chandrashekar

JRD Tata Chair Professor, NIAS
Book Discussion – Why India is not a Great Power (Yet)
authored by Bharat Karnad
October 9, 2015.

Brian M Katulis

Senior Fellow, Centre for American Progress, National Security, Washington, DC, USA
The US Middle East Policy
July 27, 2015

Marek Lyczka

Faculty of Philosophy, Jagiellonian University, Krakow (Poland)
Is Cognitive Science of Indian Philosophy Possible? The Case of Indian Neurophilosophy
December 7, 2015

Bishnu N Mohapatra

Formerly Professor at the School of Development, Azim Premji University, Bengaluru
Insertion' into Law and Impossibility of Justice
March 1, 2016

N Nagaraj

Formerly Principal Economist at ICRISAT
Sustainable Management of Water and Energy for Livelihood Security of Farmers in the Wake of Climate Change
December 16, 2015

Geert De Neve

Reader in Anthropology, University of Sussex
Caste Discrimination in Contemporary Tamil Nadu: Evidence from the Tiruppur Textile Region (by Grace Carswell, Geert De Neve and Judith Heyer)
January 21, 2016

Deepa Ollapally

Professor of International Affairs, Associate Director of the Sigur Center for Asian Studies, Elliott School of International Affairs, George Washington University
Energy Security Worldviews in Asia
April 28, 2015

Ravi (Ravinder) Prakash G

Senior Professor & Dean (Research), BMS Institute of Technology and Management, Bengaluru
Cyber Security
September 9, 2015.

Ambassador P S Raghavan

India's Ambassador to Moscow
East-West stand-off over Ukraine and its Border Implications for India and China
June 5, 2015

Lucinda Ramberg

Assistant Professor, Department of Anthropology and Feminist, Gender and Sexuality Studies, Cornell University
We Were Always Buddhist: Notes on the Temporality and Sexual Politics of Dalit Conversion
April 8, 2015
(In collaboration with the Bengaluru Research Network)

Baradwaj Rangan

Film Critic and Senior Deputy Editor, The Hindu
Cinema and Social Change
January 21, 2016

GK Sasidharan

Former Vice Chancellor, Calicut University
Maharshi Sree Narayana Gurudev on the Creation of Universe
April 10, 2015

Amrita Shah

Visiting Faculty, Centre for Contemporary Studies,
Indian Institute of Science, Bengaluru
Writing the City
March 3, 2016

Esha Shah

Independent Researcher, Bengaluru
Philosophy of Reductionism in Genetic Science: A Historical View
February 11, 2016

Darshan Shankar

Vice-Chancellor, The Institute of Trans-disciplinary
Health Sciences and Technology
Integrative Health Care: Emerging Paradigm in 21st Century
March 7, 2016

Charlotte Sleigh

Lecturer, School of History, University of Kent
Electric Monks and Pathology Biscuits: What Is Science Communication and Why Does It Matter
January 27, 2016
(In association with Centre for Contemporary Studies, IISc)

Justice Prabha Sridevan

Chennai
Judiciary and Change
January 18, 2016

Rukmini Srinivas

Massachusetts
Book Reading by the Author - Tiffin: Memories and Recipes of Indian Vegetarian Food
January 8, 2016.

Smriti Srinivas

Professor of Anthropology, University of California, Davis

A Place for Utopia: Urban Designs from South Asia
December 29, 2015

Tulasi Srinivas

Associate Professor of Anthropology, Emerson College, Boston
Adjusting Gods: Creativity, Wonder and Ethical Life in Bengaluru
July 16, 2015

Jayaraj Sundaresan

Associate Fellow, Development Planning Unit Bartlett, University College London and Visiting Faculty, IIHS, Bengaluru
Urban Planning, Land Use Violations and Vernacular Governance in Bengaluru
July 21, 2015

Raj Verma

Assistant Professor in International Relations, School of International and Public Affairs, Jilin University, China.
Will China Supersede the US?: Distilling Facts From Fiction
January 27, 2016

CV Vishveshwara

Formerly Senior Professor, Indian Institute of Astrophysics and Emeritus Director, Jawaharlal Nehru Planetarium, Bengaluru
Subtle is the Lord.... The Legacy of Albert Einstein
May 22, 2015
Black Holes and Gravitational Waves- What LIGO Saw
March 24, 2016

Anurag Viswanath

An Adjunct Fellow of the Institute of Chinese Studies, New Delhi.
'China hones its "soft power"'
January 5, 2016.

Airbus Defence and Space Team

Engineering Centre; RMZ Infinity Campus, Bengaluru
Solutions for Space Surveillance Activities
September 22, 2015.

FACULTY LECTURES

Dilip Ahuja

Deceleration of Electricity Demand in Karnataka (with Prof. D. P. Sen Gupta and Ms. Akhila Prabhakaran), presentation to the PCKL Board, Bengaluru, March 17, 2016.

The History of Time, Time Keeping and Indian Standard Time, (with Prof. D. P. Sen Gupta) DST Programme, NIAS, February 8, 2016.

Energy Developments in India, Panelist for the release of International Energy Agency's Special Report, Bengaluru, November 30, 2015.

Wind and Solar Energy for Reducing Karnataka's Electricity Deficits, 13th NIAS-DST Training Programme, NIAS, August 20, 2015.

Errors of Attribution, at the Panel Discussion on *Understanding Plagiarism in Academia*, NIAS, May 1, 2015.

Panelist for *International Energy Agency's special Report on Energy Developments in India*, November 30, 2015.

Anshuman Behera

Understanding Conflict at Department of International Studies, Christ University, Bengaluru, June 11, 2015.

Delivered a talk as a resource person in the Quality Improvement Programme for the faculty members of Social Work Department of Christ University on *Mixed Method* (Qualitative Research and Quantitative) Research, January 18, 2016.

Delivered a lecture to the Master students of International Studies department, Christ University on *Philosophical Foundations of Conflict*, February 6, 2016.

VV Binoy

Free Choice Learning and Information Technology Based Biology Education. Connected Learning Initiative (CLIX), Tata Institute of Social Science (TISS), Mumbai, April 25-28, 2015.

Conservation and Ethology: Can the Twain Meet? Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. Student Conference on

Conservation Sciences- 2015, Indian Institute of Science, Bengaluru, September 9, 2015.

Student Network- A platform for the Student-Scientist Partnership. Workshop on Student Network, National Institute of Advanced Studies Bengaluru, December 1, 2015

Animal Consciousness: Some Fishy Facts. International Conference on 'Cognition Consciousness and Cultures Implications for the 21st century', December 9-11, 2015.

Introduction to the Cognitive Science. ISHAN VIKAS – UDHAN PROGRAMME, NIAS, December 18, 2015.

Yoga: Research and Education. International Conference on Yoga and Education Kaivalyadhama Institute of Yoga Lonavala, December 29, 2015.

Fish Behaviour and Cognition. Kerala University of Fisheries and Ocean Studies (KUFOS,) January 21, 2016.

Science Education: Role of the School-College-Research Institution Network. MES KVM College, Valanchery, January 22, 2016.

Biology Education In India, Making it Fun. Tata Institute of Social Science (TISS), Mumbai, January 28, 2016.

Water Resource Conservation and Student Network. St. Thomas College, Thrissur February 24, 2016.

Freshwater Resource Conservation: Role of Environmental Education. St. Joseph College, Devagiri, Kozhikode. February 17, 2016.

Freshwater Resource Management: A Social Cognition Approach. Government College, Nellihudikeri, Coorg, February 6, 2016

Interdisciplinarity and Biology. For the Members of 'Walk with a Scholar Programme' of Nirmalagiri College Kannur. National Institute of Advanced Studies Bengaluru, March 18, 2016

Science popularization lectures for school children *Freshwater Conservation and Student Network*. Anglo Vernacular Composite High School, Madikeri, February 5, 2016

Yes! Science is fun. Govt. Middle Primary School Nanjarayapatna, February 5, 2016

Bridging Colleges with School for Effective Science Education. Govt. High School, Irimbiliyam, Malappuram, January 22, 2016

Student Scientists and Water Management. Anekal Public School, Anekal, November 14, 2015

Be Creative. BVS School Pottur, Thrissur, November 12, 2015

Why We Need More Student Scientist? Govt. High School, Irimbiliyam, Malappuram, July 24, 2015.

S.Chandrashekar

Crisis management in complex systems, taught three classes for colleagues at IIM-Bengaluru.

DP Sen Gupta

The History of Time, Time keeping, Standard Time and advancing Indian Standard Time IISER, Pune April 15, 2015,

The History of Time and Time keeping. Local Time and Standard Time Vidya Valley School Pune, April 5, 2016.

PODCAST on Standard Time and Advancing IST, September 5, 2015

KASSIA, on Renewable energy to meet Power deficits in Karnataka State October 9, 2015

Units of Electricity, Lives of Inventors at JNCASR, for PORIKROMA, January 22, 2016

Chidambaram Iyer

Quantitative Research Design in the ICSSR Course on Research Methodology and Quantitative Techniques in Social Sciences organized by Department of Economics, Christ University, October 5-14, 2015.

Malavika Kapur

Child Development, Samagra Shikshana Programme, Ravindra Nele, Bengaluru, May 16, 2015.

Inauguration and Keynote Address on Soft Skills in Counselling, Four day' workshop on Introduction to

therapeutic Counselling for Engineering Teachers, NMAM Institute of Technology, NITTE, Udupi District, July 13, 2015.

Being a Humane Doctor – What are the Qualities Required of a Health Professional? invited lecture, Prof MV Govindaswamy's Birth Anniversary, NIMHANS, Bengaluru, November 30, 2015.

Research Priorities for Parenting and Child Mental Health, Indian Association of Child and Adolescent Mental Health Conference, Pune, November 19, 2015.

Scientist and Philosopher in the Crib (to the post-graduates of MA/MSc Psychology), Christ University, February 26, 2016.

Understanding Children: Looking through the Lens of Art and Play, National Institute of Public Cooperation and Child Development, Bengaluru, March 1, 2016.

Anitha Kurup

Gifted education for a National workshop of Teachers organized by the Pearson Group, April 28, 2015.

Advancing Research Capabilities: Importance of Publications in a National Workshop of College Teachers, organised by Christ University, April 10, 2015.

Women Work Place and Gender Justice for Senior Women Scientists - Science for Progress in India organized by NIAS and DST, February 10, 2016.

Research Methods: Ethnography organized by Christ University for Faculty of Education, September 30, 2015.

Introduction to Gifted education for a group of Councilors organized by Banjara Hills, October 6, 2015.

Teachers training for Rural Teachers of Agastya International at Kuppam, March 28 2016/ Vidyashilp- 23 November 2015.

Higher education Chapter for Karnataka Development Report, Planning Dept, GOK, February 8, 2016.

Advancing Research in Management Science for Faculty of Management Ramaiah Institute of Management, February 17, 2016.

M. Mayilvaganan

Proximity, Asymmetry, and Identity Factor: Making Sense of Relationship between India, Sri Lanka and Maldives in National Conference 'Sub-regional Co-operation in South Asia: India, Sri Lanka and Maldives,' organized by Christ University, Bengaluru, August 31, 2015.

Chinese Maritime Silk Route: Threat or Opportunity for India", in a National Symposium on *India -China Relations: Recent Developments*, organized by the Centre for Indian Ocean Studies, Osmania University, Hyderabad, December 29, 2015.

Deliver Sri Pendulkar Endowment Memorial Lecture on *Challenges before Myanmar* at IWC Auditorium, on invitation from Indian Council for World Culture, Bengaluru, February 28, 2016.

Invited lecture, *India in Southeast Asia: Assessment of India's Image and Role - A Case Study of Myanmar and Malaysia* at the workshop jointly organised by ISSSP NIAS, the Department of Southeast Asian Studies, University of Calcutta, MAKAIAS, and ORF at University of Calcutta, March 9, 2016.

Invited talk, *On Target: Analyses of Terrorist Attacks in Mumbai from 1992-2011*, at CAIR, DRDO, Bengaluru to the participants of the Continuing Education Programme (CEP) on *Emerging LIC Operations Technologies*, March 12, 2016.

Two special lectures (a) *Soldiers and Democrat: Where Does Myanmar Stand Today?* (10.30 AM) and (b) *India and the Changing Dynamics in the Indian Ocean Region* (2. 30 PM) at Department of Politics and International Studies, Pondicherry University, Pondicherry, March 23, 2016.

Look East to Act East: Where Does India Stand Today in the East Asian Neighbourhood, at the National Seminar on *Indian Strategic Perspective and Global Order*, organized by the Department of Politics and International Studies, Pondicherry University, March 28, 2016.

Delivered felicitation address at the Valedictory Function of International Conference on *Human Rights in India: Issues and Challenges* at Annamalai University, organised by the Department of Politics

and Public Administration, Annamalai University, Chidambaram, March 30, 2016.

S.S. Meenakshisundaram

Endowment lecture on *Cooperatives in Rural Development*, Tumakuru University, Tumakuru, April 9, 2015

Right to Food and Local Governments in the International Conference on *Deepening Democracy through Local Governance*, Govt. of Kerala at Kovalam, Kerala , May 15, 2015

Economic Security among the Elderly: Opportunities and Challenges, Father Muller Medical College, Mangalore, June 6, 2015

Development goals at the Grassroots; Policy perspectives and challenges, Gandhigram Rural University, Tamilnadu , June 23, 2015

Chaired the *Jan Sunvai on Nyaya Panchayats* and delivered the Valedictory address, organized by SUTRA at Kali Bari Temple Hall, Shimla, Himachal Pradesh, July 22, 2015.

Inaugural address in the National Consultation on Sanitation Partnerships, Govt. of India at Hotel Pinewood Convention Centre, Shillong, Meghalaya, September 9, 2015.

Ethics and Governance in Higher Education in the orientation programme for College Principals, University Grants Commission at Bengaluru University, Bengaluru, September 22, 2015.

Key note address in the National Seminar on *Rural Sanitation in India: Achievements, Trends and Challenges*, NIRD & PR, Hyderabad, Janaury 27, 2016

Inequalities: the case of Tribals in India in the international workshop on ' Tracing patterns of inequalities and grievances in South Asia, Tata Institute of Social Sciences (TISS), Mumbai, February 4, 2016.

The Evolution of PMO as an Institution of Governance in the in service training course for All India Service Officers, Tata Institute of Social Sciences (TISS), Mumbai, March 1, 2016.

Sangeetha Menon

Introduction to the Dec 2015 NIAS International Conference – *Consciousness, Cognition and Culture: Implications for the 21st Century* JRD Tata Auditorium, NIAS, Bengaluru, December 9, 2015.

The Ethics of Originality Lecture at the Panel Discussion on *Understanding Plagiarism in Academia*, NIAS, May 1, 2015.

Brain-Mind model and Consciousness-Self model: Changing Perspectives Invited Lecture on the occasion of the inauguration of *Cognitive Neuroscience Society of India*, on the Yoga day at (NIMHANS) National Institute of Mental Health and Neurosciences, Bengaluru, 21st June 2015

Healing and Imagination: The Merge of the Self-other binary Thematic Introduction for the Evening Philosophy Chat meeting, NIAS, June 29, 2015.

INSIGHTS: Exploring Fundamental concepts and Foundational questions Thematic Introduction for the meeting on “Space”, NIAS, July 4, 2015.

Body-sense and the Somatic markers: Emotions in Consciousness studies International Seminar on *Decolonising the Theories of Emotions*, organised by the Institute of English, Centre for Women’s Studies, University of Kerala, and University of British Columbia, in Trivandrum, November 11-13, 2015.

By the Shore of Consciousness: Healing Waves and Self-transformation Chief Guest and Conference Inaugural Lecture at the National Conference on *Alternative Perspectives in Psychotherapy*, Kristu Jayanthi college, Bengaluru, February 2, 2016.

Self and Self-transformation: Understanding Experience and Consciousness Invited Lecture at the Symposium on Understanding Cognition and Consciousness through Music and Meditation, Jointly organized by the Cognitive Psychology Unit, Department of Clinical Psychology & NIMHANS Integrated Centre for Yoga, Bengaluru, February 8, 2016.

Self-challenged Brain and Brain-challenged Self TEDx NMIMS Lecture at Hotel Novatel, 27 February 2016, Bengaluru, organised under the global platform of TEDx lectures.

Lecture Video: <https://www.youtube.com/watch?v=P297MN3rkKU>

Speaker info: <https://www.ted.com/tedx/events/17576>

Beyond Brain and Mind: Reconciliation through Self-transformation Invited Lecture at the National Seminar organised by Sri Vishnu Mohan Foundation on “Peace and Reconciliation: Perspectives from Religion and Philosophy, Chennai, March 2-3, 2016.

Rajaram Nagappa

Cruise Missiles – the Propulsion Challenge, invited talk at the Workshop on Design, Manufacturing, Testing and Certification of Small Gas Turbine Engines, GTRE, June 15-16, 2015.

Test Ban for Hypersonic Missiles - Participant in tri-nation (India, China and US) debate, www.thebulletin.org/test-ban-hypersonic-missiles8422, June 2015

Safety Considerations for Onboard Propellant Systems – major concerns during Integration and Checkout, invited talk to CEP participants at ITR, Chandipur, September 18, 2015.

Panelist in the session on Advances in Missile Delivery Systems, Fourth EU Non-Proliferation and Disarmament Conference, Brussels, November 11-12, 2015.

India’s Strategic Ballistic Missiles and India’s Strategic Cruise Missiles – Two Lectures to participants of Nuclear Orientation Course, Centre for Joint Warfare Studies, New Delhi, December 01, 2015.

Technology Dimensions of National Security, invited talk delivered to the participants of Workshop on Recent Trends in Video Analytics, MSRIT, Bengaluru, January 05, 2016.

Tenth International High Energy Materials Conference and Exhibit, Hyderabad, Plenary Speaker – *Revisiting Solid Propellant/Propulsion Research*, February 11-13, 2016.

Nithin Nagaraj

Modeling the Reality of Conscious Experience delivered at S-VYASA, November 5, 2015

Hippu Salk Kristle Nathan

Urban Energy Poverty in India: Towards a new methodological framework at CUTS International, Jaipur, March 16, 2016.

Institute of Social and Economic Change (ISEC, Bengaluru) on *Solar PV for rural electricity in India: Is the glass half full or empty* – presentation to research scholars of ISEC, Bengaluru, March 03, 2016.

Solar PV for Electricity in India– lessons for Myanmar at the Yangon University, Yangon, Myanmar organized by the Physics Department and University Research Center of Yangon University, December 21, 2015.

Special talk on the topic *Simple ideas on Energy* in the Exposure Program for Students of North East at National Institute of Advanced Studies, Bengaluru, December 15, 2015.

Energy Access and Energy Poverty: Some concepts and insights on measurements at the Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, December 05, 2015.

Rural lighting through solar options: expectations and realities at Department of Economics, School of Graduate Studies, Jain University, Bengaluru on July 24, 2015.

NIAS-DST training Programme: A lecture on *Urban Energy Poverty of India: A new approach* at the NIAS-DST training Programme (Feb 28 to Mar 11, 2016) on Science Policy and General Management, March 02, 2016.

Narendar Pani

A Neo-Gandhian Perspective on Sustainability to the Participants of NIAS – DST Training Programme for Women Scientists, February 9, 2016.

Caste in the time of globalization delivered at the South Asia Institute of Harvard University, March 9, 2016.

Sindhu Radhakrishna

Coming into the light?: Ecology and behaviour of nocturnal primates. Talk delivered at the MSc Wildlife Biology course, NCBS, Bengaluru, April 2015

Human-wildlife conflict: Old enemies or New rivals?. Talk delivered at the DST sponsored course on “Policy for Science” in NIAS, November 2015

Anthropocentrism: the big A in ecology?, Talk presented at the conference on “An Ecology Intervention in Humanities and Social Sciences”, Christ University, Bengaluru, August 2015

Why study wildlife? Talk given at the DST-INSPIRE workshop, Srimad Andavan Arts and Science College, Trichy, February 2016.

Baldev Raj, Director**Honour Lectures**

Frontiers in Non-Destructive Evaluation for Condition Monitoring, CMSI-GITAM Endowment lecture, GITAM University Campus, Visakhapatnam, March 4, 2016.

Energy Foresight, Security and Sustainability in the Context of India, D. V. Narasimha Rao Memorial Lecture, The Institution of Engineers (India), Mysore, February 15, 2016.

Consciousness, His Holiness Dalai Lama and National Institute of Advanced Studies, Inaugural Address at the His Holiness the 14th Dalai Lama Visit, NIAS, Bengaluru, December 6, 2015.

Energy Security : Foresight and Technologies, Monash Energy Materials and Systems Institute (MEMSI) Forum, Monash University, Australia, November 19, 2015.

Panel Discussion: *Improving the quality of higher education in Institutions to bring them at par with the top institutions of the world*, President of India Conference, Ceremonial Hall, Rashtrapati Bhavan Cultural Centre, New Delhi, November 5, 2015.

Engineering, Education on India: Learning and Aspirations, Symposium on “Engineering Education in the 21st Century: Issues Related to IMPRINT (India) and Grand Challenges (USA)”, INAE, MHRD and NAE(USA) Joint Symposium, India International Centre, New Delhi (oral), October 16, 2015.

Energy Security: Foresight and Technologies, Dr Raja Ramanna Memorial Lecture, Institute of Defence Scientists & Technologists (IDST) Bengaluru, September 19, 2015.

Energy Security: Foresight and Technologies, First Golden Jubilee Lecture at CSIR-Indian Institute of Toxicology Research, Lucknow, August 25, 2015.

Science on Strategic Sector, presentation to Hon'ble Prime Minister of India, Prime Minister Residence, New Delhi, August 19 2015.

Intertwined Science, Engineering and Technology to Meet National Aspirations, Fresher's Day Function, M.S. Ramaiah Institute of Technology, Bengaluru, August 6, 2015.

Indian Institute of Science & Indian Nuclear Programme, Third IISc Alumni Global Conference-2015, session on *Contributions to Strategic Sectors*, Indian Institute of Science, Bengaluru, June 26, 2015.

Challenging Inequalities with Science and Technologies, Social Sciences, Humanities and Policies, Convocation address, Christ University, Bengaluru, May 21, 2015.

Impact of Corrosion on Competitiveness and Growth, International Corrosion Awareness Day at FICCI, Delhi, organized by NACE International, The Worldwide Corrosion Authority, April 24, 2015.

Inaugural talk at the Two-day discussion meeting on *Bridging Innovations in Academic Institutions to Society*, NIAS, Bengaluru, Organized by NIAS, Thematic Unit of Excellence, Indian Institute of Technology (IIT) Madras, April 28-29, 2015.

Defence Aspiration of India: Translating Homi Bhabha Model to the Current Realities, Convocation address Raising Day, Defence Institute of Advanced Technology (DIAT), Pune, May 1, 2015.

Energy Security and Sustainability: Approaches and Priorities for Growing and Aspiring India, Prof. T R Anantharaman Memorial Lecture, IIT, Banaras Hindu University, Varanasi, April 13, 2015.

Plenary lectures

Corrosion Management in Nuclear Industry: Learning from Experiences, 17th Asian Pacific Corrosion Control Conference (APCCC17), Victor Menezes Convention Centre, IIT Bombay, Mumbai, January 28, 2016.

Integrated Education Policy: Mega successes with academy Industries; A few glimpse, Plenary Session on the *Role of STI Policy* at 103rd Indian Science Congress – 2016, University of Mysore, Mysore, January 3, 2016.

Understanding and Applications of Ferrofluids Prof Baldev Raj and Dr John Philip jointly gave a plenary talk at the International Conference on Nanomaterials and Nanotechnology NANO-15, Centre for Nanoscience and Technology, K.S.Rangasamy College of Technology, Tiruchengode, Tamil Nadu, India (in Association World Class University (WCU), GIST, South Korea), December 7, 2015

Corrosion Mitigation, Monitoring And Inspection Technologies, plenary talk at the Annual Corrosion & Prevention Conference, Adelaide Convention Centre, Adelaide, South Australia, November 17, 2015.

A Perspective on Advanced Materials for Energy Systems Plenary Talk: Intl. conf. on Frontiers in Materials Processing, Applications, Research & Technology (FiMPART-2015), Hyderabad. Endorsed by Materials Research Society, Singapore (supported by Springer, ICMCB, MGIT-Hyderabad, CNRS, Conf. Development Centre, Star Alliance), June 14, 2015

Energy Sustainability: Emphasis on Changing Demands on Materials Research and Technology in Nuclear Energy, International Conference on Advanced Materials and Manufacturing Processes (ICAMPS 2015), Indian Institute of Metals, Trivandrum, May 13, 2015.

Nuclear Energy After Major Accidents: Economics, Safety, Risk, Scale, Acceptance, Special Lecture on *Global Nuclear Politics and Strategy: Vth Annual Residential Workshop for Young Scholars*, International Strategic and Security Studies Programme (ISSSP), NIAS, Bengaluru May 7, 2015

Child Nurturing and Growth: A sure way to right India, 79th Indian Montessori Training Courses, Indian Montessori Centre, Bengaluru, April 30, 2015.

Key note Lectures

Current Status and Future Directions of Welding Science and Technology: Indian Context, Golden Jubilee Celebrations of IIW-India, Kolkata, April 26, 2016.

Keynote address at the Two-Day Workshop on *Explosive Detection Technologies*, Victor Menezes Convention Centre (VMCC), Lecture Hall No. 21, IIT-Bombay, February 22, 2016.

Residual Stresses: Mechanisms, Measurements and Solutions, Keynote Address at the All India Seminar on *Residual Stress: Key Challenges and Remedies*, The Institution of Engineers (India), Karnataka State Centre; National Design and Research Foundation & Central Power Research Institute, Bengaluru, January 21, 2016.

Life Cycle Management of Structural Components of Reactors and Reprocessing Plants, Keynote talk at the Fourth International Conference on "Through-Life Engineering Services (TESConf2015)", Cranfield University, UK, November 3, 2015.

Brain Storming Session on Accelerated Nuclear Energy in India between INAE and DAE, Nuclear Power Corporation of India, Mumbai, September 7, 2015.

Energy Security : Foresight and Technologies, Engineers' Conclave (EC 2015), Nabhiklya Urja Bhawan, Anushaktinagar, Mumbai, Organized by Indian National Academy of Engineering (INAE) & Bhabha Atomic Research Centre (BARC), September 7, 2015.

India: Reality and Aspiration, Chief Guest and Prize Distribution Function at Clarence High School, Bengaluru, July 4, 2015.

Keynote address at Motorola Scholar Awards (2014-15) Programme, Foundation for Advancement of Education and Research, MS Ramaiah Institute of Technology, Bengaluru, June 30, 2015.

Invited Lectures

Fun of Doing Science: Make Earth a Better Planet, Woodstock School, Mussoorie, April 18, 2016.

Professional Societies Contribution to Strengthening the Indian Accreditation System, Interaction Session with the Accreditation Delegation from The Institution of Engineering and Technology, UK, The Institution of Engineers (India), Karnataka State Centre, Bengaluru

Energy Foresights, Security and Sustainability, NIAS-DST Training Programme on "Science Policy and General Management", February 29, 2016.

Inaugural Address at the Workshop on Advanced NDE Techniques, Indian Institute of Technology Madras, Chennai, February 24, 2016.

Role of today's Institutions and Organisations in Specific Learning Difficulty (SLD), Felicitation Ceremony of the Specific Learning Difficulty: train the Trainers-A Certificate Programme, Christ University co-organized by Times Foundation (The Times group), February 20, 2016.

Fun of Doing Science: Make Earth a Better Planet, NIAS Course for Ishan Vikas – Uddhan programme (Sponsored by Ministry of human resource development government of India), December 25, 2015

Successful globalization case studies in strategic sectors, Forum for Global Knowledge Sharing, 10th Annual Conference on "Technology, Growth and Sustainability", NIAS (organized by Knowledge Forum, Bengaluru), November 27, 2015.

Energy Security : Foresight and Technologies, The Thirteenth Annual NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society; Core Theme: Energy Security and Management, August 10, 2015.

Aspiring Scientists in Aspiring India, Inaugural address at INSPIRE Internship Camp-2015, Centre for Nanoscience and Technology, Tiruchengode (Organized by Dept. of S&T, Govt. of India), August 5, 2015.

Science is Fun: Service to Society is Accomplishment, Interactive session: INSPIRE Internship Camp-2015, Centre for Nanoscience and Technology, Tiruchengode (Organized by Dept. of S&T, Govt. of India)

Challenges and opportunities to realizing India of my Dreams, Address at Freshers' Day Function, Atria Institute of Technology, Bengaluru, August 3, 2015.

Welcome address at the Consultative Workshop on *Future of Education: The Schools of the Future*, National

Institute of Advanced Studies (NIAS), Bengaluru (co-organizers Future Agenda, Karnataka Knowledge Commission, TCS), July 29, 2015.

Welcome address at the Conference on *Myanmar at the Crossroads: Current Realities, Challenges and Opportunities*, ISSSP Unit, NIAS, July, 20 2015.

Technology, Ethics, Equity and Sustainability, Atomic Energy Retired Officers' Association, Annual General Body Meeting, Bengaluru, July 18, 2015

Inaugural address the 1st Quantitative Infrared Thermography Asia Conference (QIRT-Asia 2015) at Radisson Blu, Mahabalipuram (organized by IGCAR), June 7, 2015.

MB Rajani

Nottuswara: western influences in 18th-19th century western classical music and Nalanda Mahavira at various venues of Nightingales and IGCAR in April, 2015 and at Nehru Memorial Museum on September 21, 2015 on 'What satellites can reveal about the past'.

Invited to give a talk at IIIT Bengaluru to their students

(course MTech Digital Society) and faculty, November 18, 2015.

N Ramani

Lab session on the use of software Quo Vadis to the participants of the Fifth Annual Residential Young Scholars' Workshop, organized by IPCS, New Delhi and NIAS, Bengaluru on May 3-7, 2015.

S Ranganathan

Digital Archaeology: A New Dimension in Materials Science, as Fourth R Balasubramanian Memorial Lecture, INAE Engineering Heritage, Defence Metallurgical Research Laboratory, Hyderabad, February 5, 2106.

Lectured and interacted on NDT (*Non-Destructive Testing*) and heritage science at IGCAR Kalpakkam in Sept. In May 2015, he also gave a lecture on Gold at TITAN.

T.S. Gopi Rethinaraj

Invited lecture on *System Dynamics for NFCSS Implementation*, International Atomic Energy Agency, Vienna, Austria, October 2015



Mr SV Ranganath delivering the Valedictory Address in the NIAS-DST Training Programme on Policy for Science and Science for Policies.

Invited lecture on Nuclear Security and Risk at the University of Tokyo, Japan, January 29-30, 2016

Sisir Roy

Quantum Entanglement and the Philosophy of Relations: Jaina Perspective at International Conference on Jain Philosophy, IIT Mumbai, January 8, 2016.

Scientific Elaborations at the SYMPOSIUM on *Reality and Insights Across various Ancient Indian Traditions* NIAS, December.12, 2015.

On Mind the Tool for getting at Truth: The Yoga Perspective By Dr. H.R. Nagendra at One day Symposium at NIMHANS, Bengaluru, December 8, 2015.

Invited Speaker in one day DIALOG based symposium at Poorna Prajna Insitute, Bengaluru, December. 7, 2015.

Keynote Address at International Conference: BIOMAT15 on *Hydrodynamic Model and Quorum Sensing*, IIT Roorkee, November 28, 2015.

Invited Lecture on *Large Number Hypothesis and Dependent Origination* at Tibet House, New Delhi; November 22, 2015.

Public lecture on *Weirdness of Quantum Theory* at Indian Institute of World Culture, Bengaluru, June 11. 2015.

Invited lecture on *Functional geometry and Neuronal basis of consciousness*, International Conference *Science and Scientists 2015*, Kathmandu, Nepal April 18-19, 2015.

S.Settar

Foundation Lecture on the establishment Kannada Chair in the J N U, New Delhi, November 26, 2015.

Anindya Sinha

Social and Cultural Evolution in Bonnet Macaques, Fifth Annual Science Journalism Workshop, National Centre for Biological Sciences, Bengaluru, India; June 16, 2015

The Bonnet Macaque: Uniquely Adaptable, but Ultimately Threatened?, Annual General Meeting, Wildlife Rescue and Rehabilitation Centre, Bengaluru, India; November 15, 2015

Ecology and Conservation of the Arunachal Macaque Macaca munzala, Discussion Meeting on the Rufford

Small Grants for Research and Conservation, Nature Conservation Foundation, Bengaluru, India; November 17, 2015

Scio Ergo Sum: Cognitive Knowledge and Conception of Self in a Nonhuman Primate, International Conference on Consciousness, Cognition and Culture: Implications for the 21st Century

National Institute of Advanced Studies, Bengaluru, India; December 9, 2015

Sterilisation of Rhesus Macaques in Himachal Pradesh, NIAS-ICAR Workshop on Human-Wildlife Conflict in Agro-Pastoral Contexts, National Bureau of Agricultural Insect Resources, Bengaluru, India; December 12, 2015

Conservation Problems of Northeastern India, Second Ishan Vikas – Udhaan Programme, National Institute of Advanced Studies, Bengaluru, India; December 15, 2015

True Lies! Intentionality and Tactical Deception in Wild Bonnet Macaques, Refresher Course in the Life Sciences, Department of Botany, Calcutta University, Kolkata, India; December 28, 2015

Intentional Tactical Deception in a Nonhuman Primate, Third M K Chandrashekar Memorial Symposium, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, India; February 5, 2016

Sustainable? Human-Macaque Conflict and Threats to Primate Populations in India, NIAS-DST Training Programme for Women Scientists on Science for Progress in India: Focus on Sustainability, National Institute of Advanced Studies, Bengaluru, India; February 8, 2016

BV Sreekanthan

Science, Reality and Consciousness, Valedictory Address at the Thirteenth Annual NIAS DST Training Programme on “Multidisciplinary Perspectives on Science, Technology and Society”; Core Theme: Energy Security and Management, NIAS, August 21, 2015.

Reality in Modern Physics and in Classical Tradition Symposium on “Reality in Modern Physics and in Classical Tradition”, NIAS, December 12, 2015.

Recent Developments in Astronomy one day seminar on *Indian Astronomy and Modern Cosmology*, The Mysore Education Society (Regd.), Bengaluru, February 27, 2016.

Sharada Srinivasan

Intangible Heritage Festival 2015, SSUS Kalady, Aranmula mirror, December 4, 2015,
Bengaluru Science Forum, Archaeometallurgy: An emerging frontier, December 9, 2015,
TEDX-PES talk on the 'rock music' of pre historic sites, March 12, 2016

Lalitha Sundaresan

Took a Lab session on the use of software Quo Vadis to the participants of the Fifth Annual Residential Young Scholars' Workshop, organized by IPCS, New Delhi and NIAS, Bengaluru on May 3-7, 2015.

Gave a Talk on *Basic Principles and methods of Social network Analysis*, followed by Lab session at the Workshop on Studying Elephants in Anthropogenic landscapes for young researchers, under the Frontier Elephant Programme organized by Dr. Anindya Sinha and Nishant S at NIAS, Bengaluru, on October 13, 2015.

Delivered a lecture on *Introduction to Google Earth and its Applications*, to the students of North east, selected under the PM's Scheme titled *ISHAN VIKAS-UDHAN PROGRAMME* on December 24, 2015.

A talk delivered at CAIR, DRDO, Bengaluru, on *Methodologies to Counter terrorism*, to the participants of the Continuing Education Programme (CEP) on Emerging LIC operations technologies on March 9, 2016.

Shivali Tukdeo

Social Inclusion and new education policy. Indian Institute of Management, Bengaluru (September 2015)
Indian Higher Education as a Pedagogic Project. Shiv Nadar University (March 27, 2015): Keynote speech, *Enabling Pedagogies* conference.

Carol Upadhya

Amaravathi and the New Andhra: Globalising the Provincial? Public Lecture in *India and the World Series*, Nehru Memorial Museum and Library, New Delhi, November 4, 2015.

Speculating on Development: Provincial and Transnational Circuits of Accumulation in Andhra's New Capital Region. Presentation at Department of Humanities and Social Sciences, IIT Bombay, October 6, 2015.

Speculating on Development: Provincial and Transnational Circuits of Accumulation in Andhra's New Capital Region. Presentation at TISS, Mumbai, October 14, 2015.

Reterritorialising Andhra: Provincial Capital and Transnational Circuits of Accumulation in India. Seminar at Sussex Asia Centre, University of Sussex, June 4, 2015.

Arun Vishwanathan

Nuclear Dynamics in Southern Asia, (with Prof S. Chandrashekar), NIAS-IPCS Young Scholars Workshop, NIAS, Bengaluru, May 5, 2015.

Contemporary Global Nuclear Scene and Challenges for India, School of International Studies, Central University of Gujarat, February 5, 2016.

Resurgent Iran and its Role in the Region, National Defence College (NDC), New Delhi, September 8, 2015.

International Relations: What, Why and How? Christ University, June 11, 2015.

CONFERENCES AND WORKSHOPS

Prof Dilip Ahuja

Make in India for a Solar India, IIT Bombay, April 18, 2015.

Meeting Equity in Climate Change, Chair Session on Energy Policy and Climate Mitigation, Tata Institute of Social Sciences, August 1, 2015.

Is Power Generation by Solar Cheaper than that from Coal, NIAS, August 8, 2015.

Stakeholders Consultation Workshop on Renewables and Nuclear, C-Step, Bengaluru, October 13-14, 2015 (Lead Discussant on R & D and Manufacturing Issues).

ZEN Dialogue on the Future of Electricity, Bengaluru, December 1, 2015

Towards a Sustainable Energy Strategy for India, Nicholas Stern-Montek Singh Ahluwalia ICRIER-LSE Seminar, February 1, 2016.

Renewables and Nuclear Workshop: Stakeholders Consultation C-STEP for NITI Aayog, Bengaluru, October 13-14, 2015 (Lead Discussant on R & D and Manufacturing Issues).

Anshuman Behera

Majoritarian Way to Democracy: Case of Bodoland Conflict in Assam in an international conference on *Multitude and Democracy: Experiences from Myanmar and Northeast India* jointly organised by Peace Research Institute Oslo, Norway and OKDISCD, Guwahati, February 19-20, 2016.

Insurgency, Drugs and Small Arms in Myanmar in an International conference on 'Myanmar at the Crossroads: Current Realities, Challenges and Opportunities', Organised by International Strategic and Security Studies Programme, NIAS, Bengaluru, July 20-22, 2015.

Insurgency, Drugs and Small Arms in Myanmar in an International conference on 'Myanmar at the Crossroads: Current Realities, Challenges and Opportunities', Organised by International Strategic and Security Studies Programme, NIAS, Bengaluru, July 20-22, 2015.

S Chandrashekar

Myanmar at the Crossroads: Current Realities, Challenges and Opportunities July 20-22, 2015, NIAS,

NIAS IPCS Young Scholars Workshop on *Global Nuclear Politics and Strategy*, May 3-7, 2015, NIAS

Chidambaran G. Iyer

Coordinator from NIAS for the Knowledge Forum Annual Conference on *Technology, Growth and Sustainability* to be held in November 2015. The conference was organized by Knowledge Forum, Indian National Academy of Engineering and NIAS.

Presented the paper *Use of Technology in providing Quality Engineering Education: Exploring the Indian Experience*, at the 10th Knowledge Forum conference held in November 27-28, 2015 at NIAS. The theme of the conference was *Technology, Growth and Sustainability*.

M. Mayilvaganan

National Conference *Sub-regional Co-operation in South Asia: India, Sri Lanka and Maldives*, organized by Christ University, Bengaluru on August 31, 2015.

National Symposium on *India - China Relations: Recent Developments*, organized by the Centre for Indian Ocean Studies, Osmania University, Hyderabad, December 29, 2015.

Workshop on *Look East to Act East*, organised by ISSSP NIAS, the Department of Southeast Asian Studies, University of Calcutta, MAKAIAS, and ORF at University of Calcutta, March 9, 2016.

National Seminar on *Indian Strategic Perspective and Global Order*, organized by the Department of Politics and International Studies, Pondicherry University, March 28, 2016.

International Conference on *Human Rights in India: Issues and Challenges* at Annamalai University, organised by the Department of Politics and Public Administration, Annamalai University, Chidambaram, March 30, 2016.

Nithin Nagaraj

International Conference on *Consciousness, Cognition and Culture*, December 2015.

Neurodegenerative Diseases: Pathogenesis to Therapy, CBR, IISc., November 2015

Information processing in biological systems, ICTS, January 2016

Hippu Salk Kristle Nathan

Roundtable workshop on *Renewable Energy: Policy Creation, Implementation and Efficacy* organized by King Abdullah Petroleum Studies and Research Center held at Jaipur, March 14, 2016.

A Stakeholders Consultations Workshop on policy framework for achieving the ambitious targets of renewables and nuclear power at Windsor Manor, Windsor Square, Bengaluru, October 13-14, 2015.

OPHI (Oxford Poverty and Human Development Initiative) Summer School 2015 on Multidimensional Poverty Analysis held at Georgetown University, Georgetown, Washington DC, August 3- 15, 2015.

A Solar xChange Workshop on *Indian and South Asian experience of implementing community solar power plants* jointly organized by The Energy Resources Institute (TERI) and University of Oslo at TERI Southern Regional Centre, Bengaluru, April 21, 2015.

A roundtable on *Make in India for a Solar India: The need to boost R&D and local manufacturing in the Solar PV sector* organized jointly by National Centre for Photovoltaic Research & Education (IIT Bombay) and Observer Research Foundation Mumbai at IIT Mumbai, April 18, 2015

8th INSEE (Indian Society for Ecological Economics) 2016 – paper presentation *Urban Energy Poverty indifferent states of India: A household level analysis*, organized by Indian Institute of Science, Bengaluru, January 04-06, 2016.

HDCA (Human Development and Capability Association) 2015 Annual Conference on Capabilities on the Move: Mobility and Aspirations– paper presentation *Inclusiveness of human development in India* at Georgetown University, Washington DC, on September 10-13, 2015.

Conference on Myanmar at the crossroads: Current realities, challenges and opportunities – paper presentation *Indo-Myanmar Electricity Cooperation: Prospects and Challenges*, organized by International strategic security studies programme, NIAS, Bengaluru, July 20-22, 2015.

International symposium in Microgrid – paper presentation *Solar Microgrid in India – different perspectives* at the National Institute Engineering, Mysore, May 15-16, 2015.

Narendar Pani

Towards a political ontology of contemporary India: Ideation and the politics of legality and morality in an international conference on *Indian Political Philosophy* organized jointly by School of Advanced Study, London University; South Asia Studies, Yale University; and National Institute of Advanced Studies in Bengaluru, July 7, 2015.

Human-elephant conflict as a negative ecosystem service at a workshop on *Studying Elephants in Human-Dominated Landscapes*, NIAS, Bengaluru, October 14, 2015.

Home from work and work from home, presented in the *Spatial Politics of Work* workshop in the India China Institute of The New School, New York, March 12, 2016

Sindhu Radhakrishnan

Least concern cause for much concern? The impact of human-macaque conflict on bonnet macaque conservation status? Paper presented jointly with Binoy VV at the 9th annual ATBC Meeting, Asia Pacific Chapter, Phnom Penh, Cambodia, April 2015.

Feeding monkeys and losing trees: Consequences of provisioning rhesus macaques for seed dispersal. Paper presented jointly Sengupta A with at the 9th annual ATBC Meeting, Asia Pacific Chapter, Phnom Penh, April 2015.

God or Pest? Human-primate conflict in India. Paper presented at the National Consultation Workshop on Human Wildlife Conflict, MoEF, New Delhi, May 2015

Farmers perspectives regarding problem wildlife species. Paper presented at the NIAS ICAR workshop on 'Human wildlife conflict in agro-pastoral contexts, NBAIR, Bengaluru December 2015.

Bharat Chandra Rout

Three Worlds of Education Welfare State in South Asia: Investigating into the processes of De commodification and Stratification, in the International conference on *Governance, Development and the State in the Contemporary times*, Tezpur University, Assam, March 10-12, 2016.

Capabilities and Quality Education, in the National Conference on *Empowering Adolescent Girls: Understanding Realities and Expanding Capabilities*, Rajiv Gandhi National Institute for Youth Development, Sriperumbudur, Chennai, March 22-23, 2016.

Shivali Tukdeo

Participation in the Annual Comparative Education Society Conference December 14 -16, 2015

Arun Vishwanathan

Workshop for Young Scholars on *Global Nuclear Politics and Strategy* (jointly organized with Institute of Peace and Conflict Studies IPCS, New Delhi), NIAS, Bengaluru, May 3-7, 2015.

North Korean 2016 Nuclear Test and Evolving Space and Missile Capabilities, India-Japan Workshop, Japan Institute of International Affairs (JIIA), Tokyo, March 17, 2016.

Nuclear Asia: Current Dynamics and Challenges, in International Conference on Asia-Pacific: 70 Years after the War, Indian Council for International Economic Research (ICRIER), India Habitat Centre, New Delhi, November 24, 2015.

New Issues in Arms Control and Space, in International Conference on India's Perspectives on Arms Control and Disarmament: Seeking Security through Cooperation, Indian Institute of Advanced Studies, (IIAS), Shimla May 18-20, 2015.

North Korean 2016 Nuclear Test and Evolving Space and Missile Capabilities, India-Japan Workshop, Japan Institute of International Affairs (JIIA), Tokyo, March 17, 2016.

Nuclear Asia: Current Dynamics and Challenges, in International Conference on Asia-Pacific: 70 Years after the War, Indian Council for International Economic Research (ICRIER), India Habitat Centre, New Delhi, November 24, 2015.

New Issues in Arms Control and Space, in International Conference on India's Perspectives on Arms Control and Disarmament: Seeking Security through Cooperation, Indian Institute of Advanced Studies, (IIAS), Shimla May 18-20, 2015.

Carol Upadhyaya

Speculating on Development: Land, Provincial Capital, and the Visionary State in India. Paper presented at workshop on Speculation: New Vistas on Capitalism, Department of Anthropology, London School of Economics, May 28-29, 2015.

Bangalore Research Network – NAGARA Workshop on *Bangalore City Studies*, Bengaluru. Panel discussion, August 1, 2015.

Seminar on Migration, 'Heimat', Homelands, Central University of Hyderabad, Departments of Sociology, Regional Studies, and Women's Studies, February 11-12, 2016. Presented paper: 'Amaravathi and the New Andhra: Reterritorialisation and Transnational Circuits of Accumulation'

Conference on Mobilities and Temporalities: Rethinking Migrant Trajectories and Transnational Lifestyles in the Asian Context, Asia Research Institute, National University of Singapore, February 25-26, 2016. Presented paper: *Materialising Mobility: Migrant Property Investments in Coastal Andhra Pradesh, India*.

WEDNESDAY DISCUSSION MEETINGS

Dilip R Ahuja

ISRO Professor of Science and Technology Policy, NIAS

Mughal Funerary Architecture

April 1, 2015

Janaki Balakrishnan

Associate Professor, NIAS

The Case of the Missing Budmoth Population Cycles

February 17, 2016

VV Binoy

Assistant Professor, NIAS

Animal Personality: Insights from Ichthyology

March 31, 2016

Shoibal Chakravarty

Assistant Professor, NIAS

100 Gigawatts of Solar by 2022? Challenges and Implications

May 13, 2015

Adwait Deshpande

Mani Bhaumik Fellow, Consciousness Studies Programme, NIAS

The Troublesome Transition: How Do Animals Respond To Death?

May 6, 2015

Debra Efroymson

Regional Director of HealthBridge, Canadian public health NGO, & Advisor to Work for a Better Bangladesh & the Institute of Wellbeing (Bangladesh)

Beyond Conventional Economics: Think Differently, Reduce Poverty

September 2, 2015

DP Sen Gupta

Visiting Professor, NIAS

Rural Electrification in India: The Problems and Inadequacies: Is There a Solution?

August 19, 2015

Evelien de Hoop

PhD Scholar, Eindhoven Technical University, The Netherlands

Pongamia Pinnata in Hassan Bio-Fuel Park: A Qualitative Study from the Perspective of Trees

October 21, 2015

Chidambaran Iyer

Assistant Professor, NIAS

Use of Technology in Providing Quality Engineering Education: Exploring the Indian Experience

October 14, 2015

Garima Jain

Consultant, Indian Institute for Human Settlements

How Smart is "Smart"? A Reflection on the Case of Vishakhapatnam

February 10, 2016

John P John

Professor of Psychiatry, NIMHANS, Bengaluru

Schizophrenia as a Disorder of the Self

August 26, 2015

Shivanand Kanavi

Adjunct Faculty, NIAS

Energy Security, Environmental Impact and Renewables

July 22, 2015

Malavika Kapur

Visiting Professor, NIAS

Bedside Manner - A Lost Art?

June 17, 2015

Ullas Karanth

Director for Science-Asia, Wildlife Conservation Society (WCS), Bengaluru

Science, Technology and Conservation

March 9, 2016

Gagan Deep Kaur

Post-Doctoral Associate, NIAS

Design Coding and Decoding in Kashmiri Carpet Weaving

February 3, 2016

Ricky Kej

Proprietor, Music Producer, Music Director, Raveolution Studios, Bengaluru

Music and Leadership

January 20, 2016

Ambassador Saurabh Kumar

Adjunct Faculty, NIAS

The "India in the Chinese Media" Project

August 5, 2015

Anitha Kurup

Professor, NIAS

Higher Education in Karnataka: Unravelling the Big Picture

July 15, 2015

Vijay Manchanda

Former Head, Radiochemistry Division, BARC, Mumbai

Role of NGOs in power projects in India

August 12, 2015

M Mayilvaganan

Assistant Professor, NIAS

Is Myanmar Opening Up? Current Realities, Challenges and Opportunities for India

April 8, 2015

TR Gopalakrishnan Nair

Adjunct Faculty, NIAS

Cognitive Avionics

November 25, 2015



Mr Kris Gopalakrishnan delivering the Valedictory Address at the 30th NIAS Programme for Senior Executives.

MG Narasimhan

Adjunct Faculty, NIAS

The Advancement of Science and Accompanying Ethical Dilemmas

September 9, 2015

Hippu Salk Kristle Nathan

Assistant Professor, NIAS

Urban Energy Poverty in Different States of India: A Household Level Analysis

October 7, 2015

Narendar Pani

Professor, NIAS

The Adaptation of Caste to Globalization: Empirical Results from Bengaluru

December 16, 2015

Air Cmde Ramesh V Phadke (Retd)

Freelance Researcher, Bengaluru

Future of Air Power in India

January 27, 2016

Akhila Prabhakaran

Research Consultant, NIAS

Deceleration in the Growth of Electricity Demand in Karnataka in 2014

September 23, 2015

Sindhu Radhakrishna

Professor, NIAS

Human-Animal Relations: Views from Primatology

April 22, 2015

MB Rajani

Assistant Professor, NIAS

Nottu Swara: Western Influences in Late 18th and Early 19th Century South Indian Classical Music

April 29, 2015

VS Ramamurthy

Emeritus Professor, NIAS

The Indo-US Nuclear Deal – A Decade After

November 18, 2015

V Bhujanga Rao

Former Distinguished Scientist and Director General (Naval Systems and Materials), DRDO, New Delhi

Underwater Technologies for Stealth, Security and Society
March 16, 2016

Posina Venkata Rayudu

NIAS-Mani Bhaumik Research Fellow, NIAS

Mind: Structure and Logic

February 24, 2016

Functorial Calculus of Cognition

May 20, 2015

Anil Razdan

Former Secretary, Ministry of Power, Government of India

Science, Technology and Energy (Fossil Fuels)

March 2, 2016

Sisir Roy

Shri TV Raman Pai Chair Visiting Professor, NIAS

Anthropic Principle and Rhythms of the Brain

September 16, 2015

Quantum Weirdness and Philosophy of Relations

June 3, 2015

Ramprasad Sengupta

Professor Emeritus of Economics, Centre for Economic Studies and Planning, JNU, New Delhi

Policies for Sustainable Use of Critical Resources in India

– Land, Water and Energy

June 24, 2015

Bikash Sinha

Former Director, Saha Institute of Nuclear Physics (SINP) & Variable Energy Cyclotron Centre (VECC), Kolkata

MEGA – SCIENCE in India, an International and National Perspective?

June 10, 2015

BV Sreekantan

Honorary Visiting Professor, NIAS

To Where Has Modern Science Led Us in Our “Quest for Ultimate Reality”

July 1, 2015

AR Sundararajan

Chairman, Safety Review Committee for Application of Radiation in Industry, Medicine and Research (SARCAR), AERB

Environmental Legacy of Nuclear Weapon Programme of Former Soviet Union

April 15, 2015

Carol Upadhy

Professor, NIAS

Amaravathi and the New Andhra: Globalising the Provincial?

December 23, 2015

Arun Vishwanathan

Assistant Professor, NIAS

Understanding the Nuclear Agreement with Iran

November 4, 2015

PANEL DISCUSSIONS AND INTERACTIONS

A Panel Discussion on Understanding Plagiarism in Academia

organised by NIAS Student Body

Participants: T S Gopi Rethinaraj, Hamsa Kalyani, Sangeetha Menon, Narendar Pani, Carol Upadhy and Dilip Ahuja

May 1, 2015

A Panel Discussion on Einstein-Tagore Dialogue

Participants: Madhurima Chatterji, Roddam Narasimha, DP Sengupta, CV Vishveshwara, and Bangalore Little Theatre

December 22, 2015

(In association with Bangalore Little Theatre)

Interactive Panel Discussion on Autonomy, Democracy and Academic Spaces

Participants: Dr Shalini Dixit, Dr Bharat Rout, Dr Jeebanlata Salam and Mr Chetan B Singai, NIAS

March 4, 2016

Panel discussion on 'The Fissile Materials Debate in South Asia' by the panellists Prof R Rajaraman, Emeritus Professor of Theoretical Physics, JNU, Dr L V Krishnan, Former Director, Safety Research and Health Physics Group, DAE, February 29, 2016.

Rajaram Nagappa was a panelist in the Session on Derivatives from Space, ORF-Kalpana Chawla Dialogue, New Delhi, February 24-26, 2016.

Anindya Sinha was a panelist in Human-Wildlife Conflict in Agro-Pastoral Contexts: Policy Initiatives, NIAS-ICAR Workshop on Human Wildlife Conflict in Agro-Pastoral Contexts, National Bureau of Agricultural Insect Resources, Bengaluru, India; December 12, 2015

Anindya Sinha was a panelist in The Ecology, Behaviour and Conservation Programme in NIAS, NIAS-DST Training Programme on *Science Policy and General Management*, National Institute of Advanced Studies, Bengaluru, India; March 9, 2016

ISSSP Team interaction with Dr G Satheesh Reddy, Scientific Adviser to Raksha Mantri, New Delhi, November 16, 2015.

ISSSP Team discussion meeting with Air Marshal K K Nohwar PVSM VM (Retd), Additional Director General, Centre For Air Power Studies, New Delhi, Thursday, November 26, 2015.

ISSSP Team discussion meeting with Dr Maths Persson and Mr Samuel Bergenwall, Wednesday, November 25, 2015.

ISSSP Team interaction with Dr Peter Hefele economics and Former Director of the Shanghai Office, Konrad-Adenauer-Stiftung, Thursday, January 14, 2016.

ISSSP Team interaction with Dr Karthikeyan, Former Director of Central Bureau of Investigation, Director General, National Human Rights Commission, January 20, 2016.

ISSSP Team interaction with Ms Arti Shukla Wankhede, International Coordinating Editor, BBC Monitoring Division of UK British Broadcasting Corporation, Tuesday, February 2, 2016.

ISSSP Team interaction with Mr Jonah Blank, Senior Political Scientist at the RAND Corporation, Washington, Thursday, March 17, 2016.



Honours, Awards and Recognition

Dilip Ahuja

Received a Certificate of Outstanding Contribution in Reviewing from the Editors of *Energy Policy*, Elsevier, September 2015.

2009 *Sapiens* article “is far and away the most viewed article on the site. Currently, it receives around eight times as many views as the second-most viewed article”

Nature paper on Global warming Potentials reached 500 citations in December 2015.

VV Binoy

Research Affiliate, Centre for the Study of Neuro-Economics, George Mason University, USA.

External Affiliate, Kranow Institute of Advanced Study, George Mason University, USA.

TeamLead, Biology Education, *Connected Learning Initiative (CLIX)*, A joint venture of Massachusetts Institute of Technology, USA and Tata Institute of Social Science (TISS), Mumbai.

S Chandrashekar

Member, Board of Trustees of the RBANMS Group of educational institutions

Member, Governing Council of the MVJ College of Engineering

DP Sen Gupta

The Book titled “Dynamics of Electrical Machines” published by Macmillan & Co. has been selected by SPRINGER for digitizing and releasing as an e-book

Invited by JNCASR to be a member of the Committee to plan Solar energy for the Institution March 2016.

Chidambaran G Iyer

Invited as an expert for the review of the draft chapter ‘Human Development Index in Karnataka’ in the upcoming Karnataka State Human Development Report on 16 February 2016.

Malavika Kapur

Chief Guest, Teachers’ Day Celebrations, Sri Krishna Group of Institutions, Bengaluru, September 19, 2015.

Represented the President in the Valedictory Address, Indian Association of Child and Adolescent Mental Health Conference, Pune, November 19 - 21, 2015.

Chaired the Keynote Address on Psychological Adversities and Lost Childhood by Prof ShekharSheshadri, Indian Association of Child and Adolescent Mental Health Conference, Pune, November 20, 2015.

Inaugurated the 23rd Anniversary Event of Shivarama Karanth Vedike, Bengaluru, January 31, 2016.

Invited by the UGC on the order of HRD Ministry to be a Member of the Expert Committee to draw a Vibrant and Model Syllabi for Psychology, February 19, 2016.

Meeting of the Expert Committee, Centre for the Study of Developmental Disability, SAP/DRS, Department of Psychology, Calcutta University, March 29 - 30, 2016.

Anitha Kurup

Member, Board of Governors, Institute for Social and Economic Change, Bengaluru, India (till December 2015)

Member, Academic Council, Christ University (2014-till date)

Member, Academic Council, BhagatPhool Singh MahilaVishwavidyalaya, Sonpet, Haryana (2014 -till date)

Member, Adhoc Task Force Expert Group, School Education, Higher Education, for the RFD, Education Department, Government of Karnataka, India (2012-till date).

Invited as an expert by the High Level Committee to Prepare a Report on the Status of Women in India constituted by Department of Women and Child Development, Government of India to contribute on Women in Science to a chapter in Education.

Invited as an expert to write a chapter on Higher Education for the Karnataka State Human Development Report by the Department of Planning, Government of Karnataka and UNDP.

M. Mayilvaganan

Member, Australia-India Interdisciplinary Research Network (AIIRN).

Member of International Advisory Board of Malaysian Journal of International Affairs.

Member of Board of External Examiner for the evaluation of exam papers of M.A. International Studies at Christ University, Bengaluru, May 2015.

Member of Board of External Examiner for the evaluation of exam papers of M.A. Political Science at St. Joseph College, Bengaluru, May 2015.

S.S. Meenakshisundaram

Member in Board of Management

Centre for Sustainable Development, Bengaluru.

IndiaWash Forum, New Delhi.

Institute of Social Sciences, New Delhi.

IIPA, Karnataka Regional Branch, Bengaluru.

Institute for Societal Advancement,

Thiruvananthapuram.

MYRADA and the Institutions promoted by MYRADA and.

Member

Academic Council, IGNOU, New Delhi.

Technical Advisory group for the SDC funded research project on 'Ethnic Power Relations and Conflict in Fragile States' at TISS, Mumbai.

Advisory group for the ICSSR funded research project on 'Empowerment through MGNREGS' undertaken by the Institute of Rural Management at Anand (IRMA) and Gandhigram Rural University.

Executive Committee for RGPSA, Ministry of Panchayatiraj, GOI.

Advisory group for Prime Minister's Rural Development Fellows Programme, Ministry of Rural Development, GOI.

Social Audit Monitoring Committee of the Govt. of Chhattisgarh, Raipur.

Guidance Committee to the School Local Governance at NIRD & PR, Hyderabad.

Expert Panel of the Ministry of Panchayati Raj to finalize a Panchayat Devolution Index to assess the performance of the States in Decentralization

Peer group to review the manuals prepared by the Kerala Institute of Local Administration (KILA) for the GramaPanchayats.

Expert group to develop India Panchayat Knowledge Network for the Ministry of Panchayatiraj, GOI.

Chairperson

Results Framework Documentation group for Rural Development and Panchayatiraj Department of the Government of Karnataka.

Programme Coordinating Mechanism of the Global Sanitation Fund for India, New Delhi

Search Committee to select the Ramakrishna Hegde Chair Professor on Decentralization & Governance at ISEC, Bengaluru.

Committee constituted by the Govt. of India to develop a roadmap for Panchayati Raj Institutions in Union Territories.

Adjunct faculty in the Gandhigram Rural University, Dindigul, Tamilnadu.

Sangeetha Menon,

Invited to be the Board Member for Shankar IAS Academy, Chennai to conduct UPSC Mock Interviews (16-17 May 2015).

Member – Cognitive Science Research Initiative Task Force set up by DST, Govt of India Council.

Member – Indian Council of Philosophical Research (until October 2015).

Board Member – International Association for Transpersonal Psychology .

Nominated Member – International Society for Science and Religion, Cambridge Member – Committee for Memberships, International Society for Science and Religion, Cambridge.

Committee Member – Institutional Human Ethics Committee of Indian Institute of Science.

Committee Member – Institutional Committee for Stem Cell Research, Indian Institution of Science.

Committee Member – Institutional Committee for Stem Cell Research, JNCASR .

Adjunct Faculty , School of Drama, Exeter University.

Prof Rajaram Nagappa

Chairman, Design Review Committee, ASL
Chairman, Research Council, ASL, DRDO
Member, Research Council, ADE, DRDO

Hippu Salke Kristle Nathan

Coordinator for South Asia region, Human Development and Capability Association.

Member, Indian Society for Ecological Economics

Sindhu Radha Krishna

Editorial Board Member for the journal *Animal Cells and Systems*.

Executive Committee Member on the Governing Board of Yakshi.

Baldev Raj

Awards

H K Firodia Vijnan Ratna Award 2015 for Excellence in Science & Technology.

Award of Honour Engineers' Conclave 2015, (organized by Bhabha Atomic Research Centre and Indian National Academy of Engineering) at Mumbai.

Prof. T R Anantharaman Memorial Award, Metallurgy Day, Department of Metallurgical Engineering, IIT-Banaras Hindu University, Varanasi, 2015.

Lifetime Achievement Award, Indian Science Monitor & Indo Asian Foundation for Archaeological Research (in presence of Hon'ble Chief Justice M.N. Venkatachaliah), 2015.

Membership

Member, The International Society for Condition Monitoring (ISCM), UK (2016 onwards).

Member, Institute of Directors, New Delhi (2016 onwards).

Member, Research Advisory Council, National Thermal Power Corporation of India Ltd (NTPC) (2012) & (2016 onwards).

Member of CII National Committee on Higher Education (2016 onwards).

Apex Advisory Committee Member and / or Chairman of most eminent Conferences, Workshops in fast reactors, fusion reactors, actinides, materials, welding, / non destructive evaluation over a period of two decades etc.

Member, Advisory Committee to set up Green Energy Centre at VIGNAN University, Vadlamudi, Guntur, Andhra Pradesh (2016 onwards).

Chairman, Board of Governors, National Design Research Foundation (NDRF), The Institution of Engineers (INDIA), Bengaluru (December 2015-2018).

Chairman, Committee for National Material Policy for Strategic & Critical Materials, Govt. of India, Ministry of Defence, Office of the Scientific Adviser to Raksha Mantri, Delhi, December, 2015 onwards.

Chairman of the Advisory/Mentoring Committee, "Programme Support on Translational Research on Biomaterials for Orthopaedic and Dental Applications", Materials Research Center, Indian Institute of Science.

Permanent Invitees, Committee for Advancement of Technology & Engineering (CATE), The Institution of Engineers (India), Kolkata (2016 onwards).

Hon. Scientific Consultant (Advanced Materials and Sensors), Office of the Principal Scientific Adviser to the Government of India, New Delhi 2015 onwards.

Member, Eminent Committee to Review Joint Entrance Exam (JEE) for IITs, NITs and other leading Engineering Institutes (2015 onwards).

Member, Executive Committee of Karnataka State Council for Science and Technology (KSCST), Govt. of Karnataka (November 2015 onwards).

Member, Indian National Commission for Cooperation with UNESCO (INCCU), (2015 onwards).

Chairman, Steering Group for Hosting of BRICS Young Scientists Conclave in India, DST, Intl. Multilateral Regional Cooperation Division, GOI (2015 onwards).

Chairman, NITI AAYOG-Mineral Division, Rare Earths and a Business Model, New Delhi (2015 onwards).

Chairman, The NRDC Prize Award Committee, NRDC, New Delhi, 2016.

Member, National Committee for Selection of ISRO Awards (Life Achievement Award & Outstanding Achievement Awards), Indian Space Research Organization, Bengaluru (2015 onwards).

Expert Member: Joint Parliamentary Committee for Ministry of HRD, Govt. of India.

Hearing of acceptance to create National Institute of Technology, Science Education and Research, BESU, West Bengal, India (Amendment Bill-2013).

Member, National Metallurgists Day (NMD) Awards Selection Committee, The Indian Institute of Metal, Kolkata (2015 onwards).

Advisory Board member, Materials and Engineering, Tel Aviv University, Israel (2015 onwards).

Permanent Member, Global Advisory Board of the Global Academy of Engineering, (2015 onwards).

Chairman, Advisory committee Sponsored Research and Consultancy, VIT University, Vellore (2015 onwards).

Chairman, Research Council, Gas Turbine Research Establishment (GTRE), GOI, Ministry of Defence, DRDO (2015 onwards).

Chairman, Expert Committee for Review of Commissioning and Criticality and Operation of Prototype Fast Breeder Reactor (500 Mwe), Bhavini, Government of India (2015 onwards).

Member, Advisory Board, VAAK-Virtual Academy of Ancient Knowledge Systems, Samskriti Foundation, Mysore, 2015 onwards.

Chairperson, Selection Committee for Advancement for Career of Senior Scientists and Engineers, Recruitment and Assessment Centre, DRDO, Govt. of India, Ministry of Defence, 2015 onward.

Member of the Editorial Board of the eminent *Journal Engineering*, Chinese Academy of Engineering (2015 onwards).

Bharat Chandra Rout

Fulbright-Nehru Post-doctoral Fellowship, Missouri University/Duke University 2016-17.

Honorary MehrGallier Fellowship for postdoctoral studies, Missouri University, USA, 2016-17.

Member, The Human Development and Capability Association (HDCA).
Member, International Political Science Association (IPSA).
Member, Comparative Education Society of India (CESI).

Prof Sisir Roy

Appointed as editor of e -book series “Current Advances in neuroscience” by Bentham Publishers.

S Settar

Masti Prasasti by Masti Venkatesvara Iyengar Foundation, Bengaluru.

Karnataka Sahitya Acedemy Book Award for the best book published in the year 2012

Karnatak Sahiya Akademy’s Gaurava Prasasti, given in recognition of lifetime achievements.

Prof Anindya Sinha

International Advisor and Member, International Sub-Jury, Twenty-Sixth International Biology Olympiad, Aarhus, Denmark; July 2015

International Advisor, Twenty-Seventh International Biology Olympiad, Hanoi, Vietnam; July 2016

Resource Person, Indian National Biology Olympiad, 2014-2015 and 2015-2016

Representative, Biology, National Steering Committee of the Indian Science Olympiads, Government of India
Vice-President, Indian Association for Teachers in the Biological Sciences, Mumbai

Member, IUCN/SSC Primate Specialist Group and South Asia Group, Species Survival Commission of the

International Union for the Conservation of Nature, Gland, Switzerland

Steering Committee, Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru

Prof Sharada Srinivasan

Invited to be Advisory Board Member of Centre for South Asian Studies, University of Exeter

Carol Upadhya

Member, International Steering Committee for ‘Development in Question: Challenges for the 21st Century’, An International, Interdisciplinary Conference, Cornell University, Ithaca NY, October 6-8, 2016

Member, Governing Council, Centre for Research and Education for Social Transformation (CREST), Kerala

Member, Selection Committee, Indian Institute of Information Technology, Bengaluru (May 2015)

Arun Vishwanathan

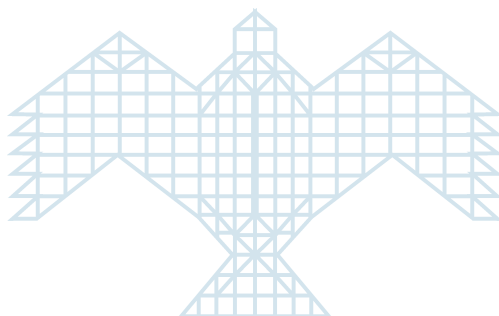
Visit to Japan as part of a delegation from ICRIER at the invitation of the Japanese Ministry of Foreign Affairs (MoFA)

Member, Board of Studies, Centre for International Politics, School of International Studies, Central University of Gujarat, Gandhinagar.

Member, Board of Studies, Masters in International Relations, School of Law, Christ University, Bengaluru.

Shivali Tukdeo

Member, International Education Society,
Member, Global Studies Association,
Member, Curriculum Review Committee, Jawaharlal Nehru Technological University, Hyderabad



LITERARY, ARTS AND HERITAGE FORUM

Mekhola Gomes

Doctoral Scholar, Centre for Historical Studies,
Jawaharlal Nehru University, New Delhi

*The Aesthetics of Power: Representations of Kingship within
the Early Pallava Imperium*

March 21, 2016

Corinna Wessels-Mevissen

Independent Researcher affiliated with the Asian Art
Museum, Berlin/Germany

*Orientation and Protection: Some Aspects of the Depiction
of the Guardians of the Directions (Dikpalas) in Southern
India*

January 28, 2016

A Film Screening

From Africa to India: Sidi Music in the Indian Ocean Diaspora

Directed by Amy Catlin-Jairazbhoy (UCLA)

January 1, 2016

(In association with Centre for Contemporary Studies,
IISc)

Vijay Kumar

Freelance Art Historian

Pandya Caves and Monoliths

December 23, 2015

Lathashree Kolla

Freelance Historian

City-As-Text: Bengaluru as a Living Testimony of Its Past

November 24, 2015

Avishek Ray

Trent University

Archaeology of Vagabondage

April 20, 2015

ASSOCIATES PROGRAMMES

Vidwan D Balakrishna and Vidwan Mysore V Vamshidhar

Carnatic Veena-Venu Duet Concert

November 19, 2015

Art and Culture



Vidwan Lalgudi GJR Krishnan and Vidushi Lalgudi Vijayalakshmi
Chennai
Carnatic Violin Recital
August 20, 2015

OTHER CULTURAL EVENTS

Ustad Rafique Khan and Ustad Shafique Khan
Dharwad
Sitar Jugalbandi
March 10, 2016

**An Outstanding American Theatre Production
Celebrating 100 Years of Einstein's General Theory
of Relativity!**
(Tom Schuch in Einstein – A Stage Portrait) Directed
by Willard Simms
December 12, 2015
(In Association with Bangalore Little Theatre and Azim
Premji University)

Gautam Sonti and Usha Rao
Bangalore
A Screening of the Film 'Our Metropolis'
August 24, 2015

Ranjani Ramachandran
Hindustani Classical Vocalist, Swar Ganga Music
Foundation, Kolkata

Classical Hindustani Vocal Recital
February 10, 2016

**International Strategic and Security Studies
Programme Reports Release Function**
Book Release by **Baldev Raj**, Director, NIAS
ISSSP Reports: A Critique by **Vice Admiral RN
Ganesh and YS Rajan**
March 3, 2016

**Film Screening and Discussion – A Film by Gouri
Patwardhan**
Two Tales of Modikhana (Modikhanyachya Don Goshti)
February 11, 2016

Manjula Murthy and Party
SPICMACAY
Mohiniyattam
January 20, 2016

Artist Camp
Heritage, Science and Society Programme
July 21-22, 2015

Artisans
Iranna GR, New Delhi, M. S. Murthy, Bengaluru, V.
G. Andani, Gulbarga, Manish Sutaar, Mumbai, Vijaya
Sindhur, Jamkhandi, Bijapur, Basawaraj Musavalagi,
Kiranagi, Gulbarga, Manu Chakravarthi KN, Tumkur,
Mallikarjuna Shetty, Honnakiranagai, Gulbarga, K.
S. Appajaiah, Hunsur, Kallahalli, Mysore, Madhu D,
Hiriyur, Chitradurga, M B Patil, Tikota, Bijapur



Vidwan GJR Krishnan and Vidushi Vijayalakshmi perform at NIAS.

Administration

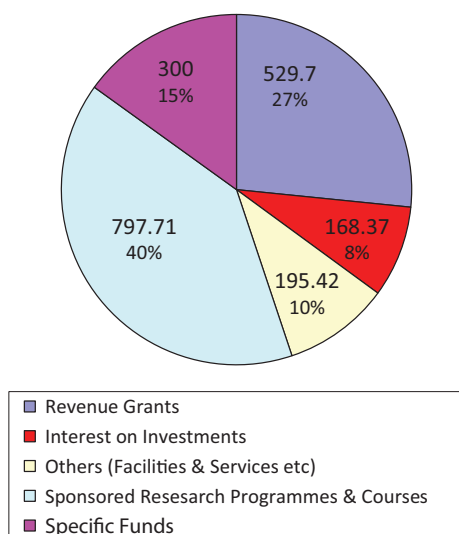
As a registered society, NIAS derives its administrative and financial authority through the society, represented by the general body. The Council of Management which is currently chaired by Shri S Ramadorai, is vested with full power and authority to do all acts, deeds, etc which are necessary for the promotion and fulfillment of the objectives set out in the Memorandum of Association. The Director, presently Dr Baldev Raj, 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).

The management of all resources such as infrastructure, finance, human resources, estates and other general administrative matters are handled by Head (Admin. & Finance). The 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 41 students work for their Ph.D. degrees. The Administration also takes care of the campus and its facilities such as the auditorium, lecture halls, meeting rooms, classrooms, guesthouse, dining halls, and all other infrastructure of NIAS. The Administration also plays a unique role in conducting various programmes including training courses. Procurement of materials and consumables, maintenance of facilities and inventory control are also done by the Administration. Compliance with various statutory requirements such as Provident Fund, Professional Tax and Income Tax is also the responsibility of the 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 29.

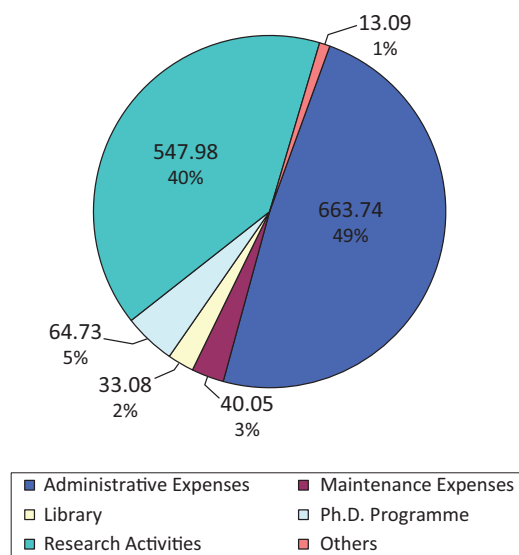
Finance management, accounting, auditing (internal and statutory), resource mobilization and expenditure control are carried out systematically. An overview of finances for the year 2015-16 is given below:



Cash Inflow (Rs. in lakhs)



Cash Outflow (Rs. in lakhs)



NIAS has a specified investment of Rs. 1911 lakhs (exclusive of project funds) as on 31st March 2016.

During the year, the Institute received 8 new research projects with a total value of Rs.171 lakhs. The total value of projects handled during the year including the projects sanctioned in the earlier years was Rs.1052 lakhs. The foreign exchange component included in this sum was Rs. 295 lakhs.

One of the major achievements of the year was, award

of Rs.15 crores of Corporate Social Responsibility funds, spread over a period of three years by Tata Consultancy Services to conduct research in the areas of education for the development of the gifted child, education and exclusion, emerging concerns in vocational and higher education in Karnataka, women in science, inequality and farmers' suicides, inequalities and the demand for non-farm occupations, and metal craft heritage in the Cauvery region. The grant includes a support for construction of a building to house the increasing number of members of the faculty.



The facilities at a NIAS conference.

The NIAS library continued to acquire reading materials recommended by its patrons and expanded its collection by purchasing 525 books during the year. Electronic journal subscriptions include journal packages published by Oxford University Press, Cambridge University Press and Taylor and Francis Publishers. In addition, the library has subscriptions to journals of relevance from other reputed publishers which are reviewed periodically for its usage. Subscriptions to three journals were suspended and four new journals have been included during the current year. Current subscriptions include 46 print journals and 1616 online journals. Archival resources include JSTOR with access to more than 3070 journals and EPW archives. Data resource includes the ongoing subscription to Indiatat.com, a portal for India's socio-economic data. The Library also commenced its subscription to EPWRF IndiaTime Series data from February 2016.

Trial access to *South Asia Archives* from Routledge and *Sage Research Methods online* was provided during the year.

Libsys software is being used for housekeeping operations. The Library catalogue is accessible on the internet. The table of contents of new books is being scanned and integrated in the catalogue record of books.

The Library has arrangements for inter-library loan and document delivery services with other libraries in Bengaluru and elsewhere.

The infrastructure includes a workstation which provides access to datasets such as census and NSSO data, Windows server connected to five thin clients and a photocopy machine as well as two Linux servers. The facilities include access to licensed content and Library catalogue, internet browsing, desktop applications, scanning, printing and photocopying. The total number of photocopies made and articles printed by Library users is 34036 pages. The number of visitors to NIAS Library during the year is 1358.

The Library facilitates activities related to the website and research media services. The institutional repository of NIAS has been redesigned and continues to be populated with research output and other scholarly publications from NIAS.

Library



Library Resources

Sl No.	Library Resources	Numbers
1	Books	16075
2	Kannada Books	340
3	Donations	964
4	Theses	29
5	E-Journals Subscriptions	1616
6	Print Journals	46
7	Bound Volumes	2368
8	Data CDs	333
9	CDs	351
10	Lectures on DVDs	531
11	Magazines	6
12	Newspapers	10

Publications



BOOKS

Bandyopadhyay Nikhiles (2015). *Metallic coatings: Corrosion management FAQs*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali)

Bhardwaj, Anil (2015). *Do's and do not-Corrosion inhibitor application*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali)

Bhardwaj Anil and **Baldev Raj** eds. (2015). *Internal corrosion of pipelines*. New Delhi: Narosa Publishing House Pvt. Limited.

Ghosh Purnendu and **Baldev Raj** eds. (2016). *The mind of an engineer*. Singapore: Springer.

Kapur Malavika (2016). *Psychological perspectives on childcare in Indian indigenous health systems*. New Delhi: Springer India.

Mathew P K (2015). *Storage and transit-Corrosion management: Do's and do not*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali Ser. Eds.)

Mudali U Kamachi (2015). *Guidelines for storage and corrosion preservation of engineering components: Do's and do not*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali)

Pai M A, **D P Sen Gupta**, K R Padiyar and N Senroy (2016). *Small signal analysis of integrated power systems*. New Delhi: Narosa.

Parameswaran P (2015). *Materials and corrosion*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali)

Parthiban_G T (2015). *Materials and corrosion*. Chandigarh: Confederation of Indian Industry-Corrosion Management Committee (ser. eds. **Baldev Raj** and U Kamachi Mudali)

Perumal K Elaya (2015). *Process equipment corrosion failures: Procedure for analysis and real life case studies*

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NIAS Council of Management

Mr S Ramadorai (Chairman)

Chairman, National Skill Development Corporation
Bombay House, 24, Homi Mody Street
Mumbai 400001

Mr R Venkataramanan

Executive Trustee
Sir Dorabji Tata Trust
Bombay House, 24, Homi Mody Street
Mumbai 400001

Dr Padma Sarangapani

A4, Casalavelle Block, 4, 12/5-5,
Lavelle Road, Bengaluru 560001

Prof Baldev Raj

Director
National Institute of Advanced Studies
Indian Institute of Science Campus
Bengaluru 560012

Mr Sanjay Kothari

Secretary
Ministry of Personnel, Public Grievances & Pensions
Government of India
112/A, 1st Floor, North Block, New Delhi 110001

Prof Ashutosh Sharma

Secretary
Department of Science and Technology
Government of India
Technology Bhavan, New Mehrauli Road
New Delhi 110016

Mr Bharat Lal Meena

Principal Secretary
Higher Education Department
Government of Karnataka
Multi-storey Building
Bengaluru 560001

Mr ISN Prasad

Principal Secretary
Finance Department
Government of Karnataka
Vidhana Soudha
Bengaluru 560010

Prof Anurag Kumar

Director
Indian Institute of Science
Bengaluru 560012

Mr Xerxes Desai

41, 4th Cross, Defence Colony
Indiranagar, Bengaluru 560038

Dr Devaki Jain

C II/41, 2nd Floor, Safdarjung Development Area
New Delhi 110016

Dr Arcot Ramachandran

No.3, Crescent Road, High Grounds
Bengaluru 560001

Prof André Béteille

69, Jorbagh, New Delhi 110003

Prof S Siraj Hasan

Distinguished Professor
Indian Institute of Astrophysics
Koramangala, Bengaluru 560034

Ambassador Nirupama Rao

The Watson Institute
Brown University
Providence 02912, United States

Dr P Venkat Rangan

Vice Chancellor
Amrita Vishwa Vidyapeetham
Amritanagar, Ettimadai, Coimbatore 641112

Ms Swati Ramanathan

Chairperson, Jana Urban Space
Co-Founder, Janaagraha Centre for Citizenship and
Democracy
Janaagraha Centre for Citizenship and Democracy
4th Floor, UNI Building
Thimmaiah Road, Vasanth Nagar, Bengaluru 560052

Prof Narendar Pani (Secretary)

National Institute of Advanced Studies
Indian Institute of Science Campus
Bengaluru 560012

NIAS Society

Mr S Ramadorai (Chairman)

Chairman, National Skill Development Corporation
Bombay House, 24, Homi Mody Street
Mumbai 400001

Mr R Venkataramanan

Executive Trustee
Sir Dorabji Tata Trust
Bombay House, 24, Homi Mody Street
Mumbai 400001

Dr Padma Sarangapani

A4, Casalavelle Block
4, 12/5-5, Lavelle Road
Bengaluru 560001

Prof Baldev Raj

Director
National Institute of Advanced Studies
Indian Institute of Science Campus
Bengaluru 560012

Mr Sanjay Kothari

Secretary
Ministry of Personnel, Public Grievances & Pensions
Government of India
112/A, 1st Floor, North Block, New Delhi 110001

Prof Ashutosh Sharma

Secretary
Department of Science and Technology
Government of India
Technology Bhavan, New Mehrauli Road
New Delhi 110016

Mr Bharat Lal Meena

Principal Secretary
Higher Education Department
Government of Karnataka
Multi-storey Building, Bengaluru 560001

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Vidhana Soudha
Bengaluru 560010

Prof Anurag Kumar

Director
Indian Institute of Science
Bengaluru 560012

Mr Xerxes Desai

41, 4th Cross, Defence Colony,
Indiranagar, Bengaluru 560038

Dr Devaki Jain

C II/41, 2nd Floor
Safdarjung Development Area
New Delhi 110016

Dr Arcot Ramachandran

No.3, Crescent Road
High Grounds, Bengaluru 560001

Prof André Béteille

69, Jorbagh, New Delhi 110003

Prof S Siraj Hasan

Distinguished Professor
Indian Institute of Astrophysics
Koramangala, Bengaluru 560034

Ambassador Nirupama Rao

The Watson Institute
Brown University
Providence 02912, United States

Dr P Venkat Rangan

Vice Chancellor
Amrita Vishwa Vidyapeetham
Amritanagar, Ettimadai, Coimbatore 641112

Ms Swati Ramanathan

Chairperson, Jana Urban Space
Co-Founder, Janaagraha Centre for Citizenship and
Democracy
4th Floor, UNI Building, Thimmaiah Road,
Vasanth Nagar, Bengaluru 560052

Prof Narendar Pani (Secretary)

National Institute of Advanced Studies
Indian Institute of Science Campus
Bengaluru 560012

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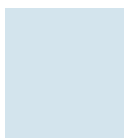
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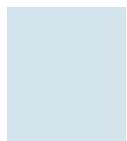
K.N Venkatesh
Doctoral Student



Brice Girbal
*Doctoral Student, NIAS-Exeter
University Collaborative Programme*



Tathagata Neogi
*Doctoral Student, NIAS-Exeter
University Collaborative Programme*



Jemma Singleton
*Doctoral Student, NIAS-Exeter
University Collaborative Programme*



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*Doctoral Student, NIAS-Exeter
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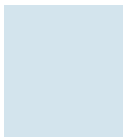
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TR Kumarswami
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Dina Nishtar
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Visiting Professor



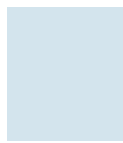
Shalini Dixit
Assistant Professor



Ajay Chandra
Research Associate



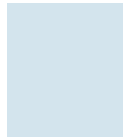
Jeebanlata Salam
Assistant Professor



Priyanka S
Research Associate



Bharat Chandra Rout
Post Doctoral Associate



Sindhu
Research Associate



R Maithreyi
Doctoral Student



Anupama Mahajan
Doctoral Student



Chetan B Singai
Doctoral Student



Savitha Suresh Babu
Doctoral Student

NIAS-UNDP POLICY RESEARCH INITIATIVE ON INEQUALITY AND HUMAN DEVELOPMENT



Narendar Pani
Head of the programme



Sumedha Bajar
Post Doctoral Associate



Debosree Banerji
Post Doctoral Associate

PROVINCIAL GLOBALISATION PROGRAMME



Carol Upadhy
Head of the programme



Sulagna Mustafi
Doctoral Student



Mario Rutten
*(AISSR, University of Amsterdam),
Programme Co-director*



Sanderien Verstappen (AISSR)
Doctoral Student



Sanam Roohi
Doctoral Student



Keya Bardalai
Consultant Researcher

RBI PROGRAMME ON INTERDISCIPLINARY APPROACHES TO ECONOMIC ISSUES



Narendar Pani
Head of the programme



Shatarupa Bhattacharya
Doctoral Student



SS Meenakshisundaram
Visiting Professor



Soundarya Iyer
Doctoral Student



Kshitija Joshi
Post Doctoral Associate



Ankita Rathi
Doctoral Student



NS Nalini
Doctoral Student

LIBRARY



Hamsa Kalyani
Library & Information Officer

Administrative Staff



P Srinivasa Aithal
Head (Administration & Finance)



B Lalu
Office Manager



Bharath Chandra BK
Communications Officer



A Deva Raju
Assistant Manager (Administration)



P Satish Bhat
Assistant Manager (Accounts & Finance)



V Girija
Senior Executive Assistant



KS Rama Krishna
Senior Executive Assistant



S Lalitha
Senior Executive Assistant



Gayathri N Lokhande
Senior Executive Assistant



JN Sandhya
Senior Executive Assistant



R Vijayalakshmi
Senior Executive Assistant



VB Mariyammal
Executive Assistant



AS Mary Stella
Executive Assistant



VA Ramesh
Junior Executive Assistant



MS Shivakumar
Junior Executive Assistant



SUPPORT STAFF

Sukhdev Behra (till February 29, 2016), R Harish, N Sathya Murthy, G Nagaraja, Gajanana S Naik, Mujeeb Pasha, N Rajesh, N Ramesh, SR Rathnam, S Revanna, S Sampath, B Shivanandappa, V Srinivasa, MV Sudhakara, Mohammed Umar, G Venugopal

Financial Statements

For the year 2015-2016

**NATIONAL INSTITUTE OF
ADVANCED STUDIES**

Indian Institute of Science Campus
Bengaluru 560 012

DELOITTE HASKINS & SELLS LLP
Chartered Accountants
Mumbai

Independent Auditors' Report

To The Members of National Institute of Advanced Studies

Report on the Financial Statements

We have audited the accompanying financial statements of **NATIONAL INSTITUTE OF ADVANCED STUDIES** ("the Society"), which comprise the Balance Sheet as at March 31, 2016, the Income and Expenditure Account for the year then ended, and a summary of the significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

The Society's Management is responsible for the preparation of these financial statements in accordance with the Accounting Standards as issued by Institute of Chartered Accountants of India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these 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 the 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 Society's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Society's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of the accounting estimates made by the 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 a true and fair view:

- (a) In the case of the Balance Sheet, of the state of affairs of the Society as at March 31, 2016; and
- (b) In the case of the Income and Expenditure Account, of the excess of income over expenditure for the year ended on that date.

For DELOITTE HASKINS & SELLS LLP
Chartered Accountants
(Firm Registration No. 117366W/ W-100018)

sd/-
Joe Pretto
(Partner)
(Membership No. 77491)

Place: Mumbai
Date: 12 October 2016

NATIONAL INSTITUTE OF ADVANCED STUDIES

Indian Institute of Science Campus, Bengaluru 560 012

BALANCE SHEET AS AT MARCH 31, 2016

Registration No. - Bangalore/139/88-89

Particulars	As at 31 March, 2016 (In Rupees)	As at 31 March, 2015 (In Rupees)
Funds and Liabilities		
Funds		
(a) Capital Fund	2,67,53,785	7,72,99,030
(b) Corpus Fund	3,35,00,000	3,35,00,000
(c) Earmarked Funds	6,39,50,381	5,75,53,482
(d) Other Funds	17,76,33,518	14,76,33,518
(e) Income & Expenditure Account	5,32,63,628	(6,84,872)
	35,51,01,312	31,53,01,158
Current Liabilities and Provisions		
(a) Sundry Liabilities	17,47,000	14,14,502
(b) Provisions	22,54,775	17,69,349
	40,01,775	31,83,851
TOTAL	35,91,03,087	31,84,85,009
ASSETS		
(a) Fixed assets	5,69,83,765	6,06,10,624
(b) Investments	9,25,00,000	9,30,00,000
(c) Loans and advances	1,11,97,746	56,58,642
(d) Cash and bank balances	19,84,21,576	15,92,15,743
TOTAL	35,91,03,087	31,84,85,009

See accompanying notes forming part of the financial statements

In terms of our report attached.
For **Deloitte Haskins & Sells LLP**
Chartered Accountants

Joe Pretto
Partner

Place : Mumbai
Date : October 12, 2016

For **National Institute of Advanced Studies**

sd/-
Prof. Baldev Raj
Director

Place : Bengaluru
Date : October 12, 2016

sd/-
P. Srinivasa Aithal
Head-Administration

NATIONAL INSTITUTE OF ADVANCED STUDIES

Indian Institute of Science Campus, Bengaluru 560 012

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31, 2016

Registration No. - Bangalore/139/88-89

Particulars	2015-16 (In Rupees)	2014-15 (In Rupees)
Income		
Grant income	10,61,19,013	7,63,31,618
Other income	2,19,28,216	1,98,39,638
Total Income	12,80,47,229	9,61,71,256
Expenses		
(i) Sponsored Research Expenditure	5,10,54,963	3,94,46,887
Total (A)	5,10,54,963	3,94,46,887
(ii) Employee Benefit Expenses	5,51,26,939	5,29,19,299
(iii) Other Expenses	1,14,09,057	55,57,869
(iv) Depreciation	55,62,609	77,11,264
Less: Employee benefit and Other expenses included in Sponsored Research Expenditure	(1,73,99,025)	(1,05,34,818)
Total (B)	7,20,98,605	6,61,88,432
Total expenses	12,31,53,568	10,56,35,319
Excess of Income over Expenditure for the year	48,93,661	(94,64,063)
Add : Prior Period adjustments	4,90,54,839	
Excess of Income over Expenditure/(Expenditure over Income)	5,39,48,500	(94,64,063)

See accompanying notes forming part of the financial statements

In terms of our report attached.
For **Deloitte Haskins & Sells LLP**
Chartered Accountants

For **National Institute of Advanced Studies**

Joe Pretto
Partner

sd/-
Prof. Baldev Raj
Director

sd/-
P. Srinivasa Aithal
Head-Administration

Place : Mumbai
Date : October 12, 2016

Place : Bengaluru
Date : October 12, 2016

Notes:

SIGNIFICANT ACCOUNTING POLICIES AND NOTES ON ACCOUNTS FORMING PART OF THE FINANCIAL STATEMENTS AS AT 31ST MARCH 2016.

1) (a) Organization Overview :

The National Institute of Advanced Studies ("Society") is registered as a Society under the Karnataka Societies Registration Act, 1960, vide No.139/88-89 dated June 20, 1988.

Society is registered under Section 12A (a) of the Income Tax Act, 1961, vide No. **Trust/718/ 10A.Vol. AII/86/459/1986-87/CIT.II, dated April 15, 1986.**

(b) The main objectives of the Society include:

- I. To establish and develop an Institute of Advanced Studies in order to impart higher knowledge and conduct Research;
- II. To set up and sponsor research groups on problems relating to the development of the country and for identifying problems which require immediate study and resolution; and
- III. To provide programmers of varying duration for executives and officers of Government, Public and Private Enterprises, and Personnel of Universities, Defense services and the Professions, to broaden their cultural and academic background for the successful performance of their duties.

2) Significant Accounting Policies:-

A. Basis of Preparation of Financial Statements:

The financial statements has been prepared in accordance with historical accounting convention and on the accrual basis of accounting. The Accounting Policies adopted in preparation of financial statement are consistent with those followed in the previous year.

B. Fixed Assets:

Fixed assets are stated at written down values i.e. cost of acquisition less accumulated depreciation. Cost of acquisition of fixed assets includes all direct expenses relating to acquisition of the asset.

C. Depreciation:

Depreciation on the fixed assets has been provided on written down value basis, in accordance with the rates prescribed under Income Tax Act, 1961.

D. Revenue Recognition:

- a) Donation / Revenue Grants are recognized as income in the Income and Expenditure Account in the period in which the collections are actually received.
- b) Earmarked grants are initially credited to a liability account in the Balance Sheet and are transferred to Income and Expenditure Account in the year in which and to the extent to which the Institute complies with the conditions attached to them.
- c) Interest Income is recognized in the time proportion basis taking into account the amount outstanding.
- d) Income from symposia, seminars and workshops are recognized as income as and when symposia, seminars and workshops are organized and held.

E. Foreign Exchange Transactions:

Transactions denominated in foreign currency are accounted at the transacted exchange rates.

F. Investments:

Investments are stated at Cost less provision for other than temporary diminution in value.

G. Employee Benefits:

I. Short Term Benefits: Short term Employee Benefits are accounted as an expenses in the income and expenditure account in the year in which service is rendered.

II. Post employment Benefits and other long term Employee Benefits:

a. Provident Fund: The Society has created a provident fund Trust. The society's contribution to the provident fund is recognized as expenses in the Income and Expenditure account of the year in which the contribution is paid to the provident fund trust. Any deficit in the Provident Fund Trust is recognized as expense in the Income & Expenditure Account of the Society.

b. Gratuity Fund: The Society has created a Gratuity Trust. The Society's contribution to the Gratuity Fund is recognized as expenses in the Income and Expenditure account of the year in which the contribution is paid to the gratuity trust. Any deficit in the Gratuity Trust is recognized as expense in the Income & Expenditure Account of the Society.

H. Impairment of Assets:

The Management of the Society has assessed the fixed assets for any impairment as on 31.3.2016 and has concluded that there has been no significant impairment in any of the fixed assets that needs to be recognized in the books of accounts.

I. Provisions and Contingent Liabilities:

Provisions are recognized when the society recognizes that it has a present obligation as a result of past events, it is more likely than not that an outflow of resources will be required to settle the obligation and the amount can be reasonably estimated.

Provisions are not discounted to their present value and are determined based on best estimate required to settle the obligation at the balance sheet date. These are reviewed at each balance sheet date and adjusted to reflect the current best estimates.

Contingent liabilities are not recognized but disclosed in the notes to financial statement. Contingent assets neither recognized nor disclosed in the financial statement.

J. Revolving Fund:

Revolving Fund is in the nature of contingency reserve fund. The interest earned on investment made out of the Revolving fund is used to meet the revenue expenditure of the Institute and the fund may be used to meet shortfall, if any, in general fund and replenished back as and when surplus funds are available, in order to keep the revolving fund intact.

K. Recognition of Capital Grants:

Capital Grants received towards cost of fixed assets is credited to Capital fund. The Institute has started adopting Accounting Standard -12 issued by ICAI, in the case of Capital Grants, from current year onwards. Accordingly, an amount equal to the depreciation on the assets created out of such grants is transferred from Capital fund to Income & Expenditure Account.

3. The Society is registered under Section 12AA of the Income Tax Act, 1961, vide No. Trust/718/ 10A.Vol. AII/86/459/1986-87/CIT.II, dated April 15, 1986 which entitles it to claim an exemption from Income tax provided certain conditions laid down in the Income Tax Act 1961 are complied with. Provision for tax will be made only in the year in which the Society is unable to establish reasonable certainty of its ability to fulfill these conditions.
4. Prior period adjustment shown in the Income & Expenditure account relate to the Depreciation provided in the earlier years to the extent of Rs. 4,90,54,839 on the assets created out of the specific capital grants received from the Tata Trusts and others. This has been done to give effect to the adoption of Accounting Standard 12 issued by the ICAI, as stated under Significant Accounting policies in '**2(K) - Recognition of Capital Grants**'. Consequently, the total accumulated depreciation provided up to 31-03-2015 has been credited back to the Income and Expenditure Statement as a prior period adjustment in the current year. Correspondingly, the said amount has been reduced from the Capital Fund account.
5. Previous years' figures have been regrouped/ reclassified wherever necessary.

For and on behalf of National Institute of Advanced Studies

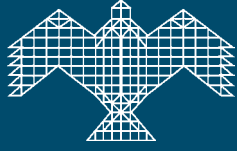
Place : Bengaluru
Date : October 12, 2016

Sd/-
Prof. Baldev Raj
Director

Sd/-
P. Srinivasa Aithal
Head-Administration



His Holiness the Dalai Lama interacts with faculty during his visit to NIAS.



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

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

NATIONAL INSTITUTE OF ADVANCED STUDIES

Indian Institute of Science Campus, Bangalore - 560 012

Tel: 080 2218 5000, Fax: 2218 5028

E-mail: admin@nias.iisc.ernet.in

