# NIAS Newsletter

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### Featured Research Programme

NIAS has an integrated approach to the study of the intersections between science and technology, social issues, humanities and leadership. The philosophy underlying NIAS is given shape by its research through the Research Programmes housed by the Schools. In this issue of NIAS Newsletter we feature the International Strategic and Security Studies Programme.

### From the Director, NIAS

"NIAS engages in eminent dialogues and debates on common and uncommon interdisciplinary topics of national interest. We respect difference and diversity in thinking. The multidisciplinary research, evidence based studies and the doctoral programme strengthens competence and capacity of this unique Institute which gives equal importance to core and frontiers of knowledge. We endeavour to perceive and find solutions with purpose and inspiration. The choice of the topics is reflected in the newsletter and other publications which are visible on the website of NIAS. These and other efforts at NIAS are aimed at nurturing domain specialists, knowledge integrators and thought leaders for the country".

- Baldev Raj

### A Report From International Strategic and Security Studies Programme

The International Strategic and Security Studies Programme (ISSSP) is one of the oldest, active and vibrant groups within the National Institute of Advanced Studies (NIAS). Started in 1996 with the broad objective of conducting academic and policy research related to national and international security issues, today the ISSSP has a national and global standing on those issues it is engaged with.

With a right mix of senior scholars, full time faculty, doctoral and post doctoral fellows and young research associates the ISSSP is one of the largest programme as well within the NIAS.

In terms of research and related activities the ISSSP is *sui generis*. The primary emphasis of the ISSSP research is towards integrating complex elements of science and technology with policy, organizational and institutional arrangements.

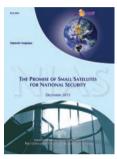
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### Primary Research Focus and Publications

Research carried out by the ISSSP reflects the rapidly changing geopolitical and technology adaptation scenarios that affect the national and international strategic conditions.

Current and emerging scenarios relating to nuclear, missiles and space weapons are reflective of such an impact and have formed the core area of research.



The latest ISSSP report titled "The Promise of Small Satellites for National Security," authored by Prof Rajaram Nagappa provides a survey of small satellites

that can be employed for military ISR requirements. The report also examines satellite and launch history of ISRO and concludes while ISRO has demonstrated technological capabilities, there is a lack of capacity in the country to meet the military space requirements. The report also carries a survey of small satellite launch vehicles and determines a launch vehicle capable of placing a

small satellite of 350 kg mass in an orbit around 500 km can be configured using available rocket/ missile stages in the country. The advantage of using readily available and flight-qualified



stages is that the development time can be effectively reduced. For generating a faster turn around of the small satellite launch vehicle and satellites, increased industry involvement is essential.

Another major report published during 2016 by the Programme was authored by Prof S Chandrashekar. Titled "Space,



War and Security: A Strategy for India", the report presents a critical appraisal of Indian capabilities to monitor and use the space environment for

various military tasks. These include Command & Control, Intelligence, Surveillance & Reconnaissance as well as a number of other space functions such as navigation and weather services. It makes a strong case for a new strategy that integrates these components into a coherent national strategy that is relevant for the country at this point in time. The formulation and implementation of such a strategy will also need a significant enhancement in capabilities to build and launch satellites. These are identified in detail.

Two more recent reports, titled "Identification of Uranium Mill sites from Open Source satellite Images" & "Estimating Uranium Mill Capacity Using

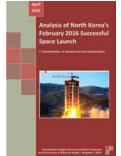
Satellite Pictures" authored jointly by S. Chandrashekar, Lalitha Sundaresan & Bhupendra Jassani focus on the use of openly available satellite imagery for the identification of Ura



identification of Uranium mills.

Its authors explained "using a sample of known Uranium mills from across the world a set of keys has been derived. These keys link observables in the satellite image (Google Earth image) with equipment and materials related to the processing of Uranium ore. Based on these features and their sequencing in the process a step by step algorithm for the identification of a Uranium mill has been worked out."

Another timely report authored by Arun Vishwanathan, S. Chandrashekar, L.V. Krishnan and Lalitha Sundaresan



analyses the nuclear tests of North Korea in January 2016. This report was well received at the global level and quoted widely.

#### **NIAS Strategic Forecasts**

During 2016, as a part of its expanding publications, the Programme has started a new series—NIAS Strategic Forecasts, looking at the future based on contemporary developments. The Programme has published the following from January 2016.

#### The New Symphony: Indo- US Entente in the Indo Pacific

Vice Admiral Vijay Shankar NIAS Strategic Forecast o8.

#### Global Transformations: Four Tectonic Shifts

Vijay Shankar NIAS Strategic Forecast 07, April 2016.

#### China and the Arctic: Evolving Geopolitics

Teshu Singh NIAS Strategic Forecast o6, April 2016.

#### Myanmar 2016: What next for the NLD?

M. Mayilvaganan NIAS Strategic Forecast 05, March 2016.

#### Will Pakistan Integrate Gilgit Baltistan? And What If?

D. Suba Chandran NIAS Strategic Forecast 04, February 26, 2016.





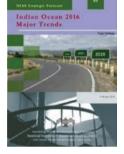
India and East Asia: Will Science and Technology bring them closer? Sandip Kumar Mishra NIAS Strategic Forecast 03, February 2016.



#### India and the Middle East Crises

Ranjit Gupta NIAS Strategic Forecast o2, February 2016.

Indian Ocean 2016: Major Trends Vijay Sakhuja NIAS Strategic Forecast 01, February 2016.



#### **ISSSP** Reflections

ISSSP Reflections are short commentaries on contemporary issues covering a broad range of issues related to India's national security, strategy, techno-political developments and global affairs. The platform offers authors an opportunity to reflect on relevant issues and challenge conventional wisdom by comprehensively covering the 'Whys' and 'Hows' of the debate.

Some of the recent reflections will include the following:

#### Findings of the Permanent Court of Arbitration: A Major Diplomatic Setback to China R.N. Ganesh, July 14, 2016.

#### Threats and Challenges in Countering Lone Wolf Attacks Harsh Vasani, July 7, 2016.

Bangladesh in Limbo over Blogger Deaths Sourina Bej, June 6, 2016.

#### Heavy Water leakage at the Kakrapar Nuclear Power Plant Kaveri Ashok, June 2,2016.

Myanmar's Rohingyas: Power Struggle, Buddhist Assertion & Ethnic Divide Albertina Nithya B, May 31, 2016.

The Madhesi Conundrum: Making Sense of India's Stand Sanjal Shastri, May 3, 2016.

DPP – 2016: A New Face of "Make in India" in Defence Prakash Panneerselvam, April 18, 2016.

**Peshawar to Charsadda: Is the NAP adequate to deal with the TTP?** Riffath Khaji, March 1, 2016.

NTI's 2016 Nuclear Security Index Report Beenish Altaf, February 24, 2016.

### PLA Rocket Force: Adding fuel to the Dragon's 'Fire'?

Mrunalini Deshpande, February 22, 2016.

Nepal: Why are the Madhesis not willing to compromise? Sanjal Shastri, February 18, 2016.

#### Seminars / Conferences / Workshops

As a part of its research and outreach activities, the ISSSP organises a series of events and discussions on contemporary issues.



Some of the recent ISSSP events include the following:

India and Nuclear Suppliers Group Public Lecture by Dr. N. Ramamoorthy, July 5, 2016.

Armed Conflicts, Peace Audit and Early Warning Regional Workshop, June 2016.

### Are the Indian Fishermen 'Carefully Careless'?

NIAS Wednesday Discussion by M Mayilvaganan, June 2016.



China-Pakistan Economic Corridor and its Implications for India Public Lecture by Dr. Christian Wagner, June 2016.

### Blue Economy: A Maritime Strategy for India's Growth

NIAS Wednesday Discussion by Adarsh Vijay, June 2016.



#### Rising Radicalisation in India's Neighbourhood: Bangladesh and Myanmar

NIAS Wednesday Discussion by Sourina Bej and Albertina Nithya, June 2016.

#### How Peaceful is our Peace?

NIAS Wednesday Discussion by D.Suba Chandran, June 2016.



### The Fissile Materials Debate in South Asia

Panel Discussion with Prof. R. Rajaraman and Dr. L. V. Krishnan, February 2016.

#### Will China supersede the US?: Distilling facts from fiction

Public Lecture by Dr. Raj Verma, Wednesday, January 2016.

#### **ISSSP** Publications Outside

The ISSSP faculty has been contributing to various publishing house and book projects outside the NIAS. Following are some of the recent publications in books/magazines/journals/news papers:

M. Mayilvaganan, "Sino-Indian Relations: Contemporary Perspective," in Dr. Sidda Goud and Manisha Mookherjee, Eds., Sino-Indian Relations: Contemporary Perspective, Allied Publishers).

**D. Suba Chandran**, "Violence in the Valley," *The Hindu Business Line*, 15 July 2016.

**D. Suba Chandran**, "Return to the Durand Line," *The Hindu*, 7 July 2016.

**Arun Vishwanathan**, "Ready to Soar: Light Combat Aircraft Tejas is all set for IAF induction", *First Post*, 1 July 2016.

Arun Vishwanathan, India's 'Atomic' Test, *Eenadu* (Telugu), June 24, 2016.

**D. Suba Chandran**, "Modi's 'new symphony'", *The Friday Times*, 24 June 2016.

**D. Suba Chandran**, "Pakistan's Panama Paradox," *The Hindu Business Line*, 27 May 2016.

**D. Suba Chandran,** "The shifting sands in Afghanistan," *The Hindu*, 24 May 2016.

D. Suba Chandran, "To buy or not to buy: F-16, Pak, US & India," *The Tribune*, 19 May 2016. Sanjal Shastri, "The Brussels Ultimatum,"*Mainstream*, 23 April 2016.

**Kuhan Madan**, "India's Pluralistic Islam Under Siege," *Diplomat*, 29 April 2016.

D. Suba Chandran, "IPL Lessons" Dawn, 19 Feb 2016.

**D. Suba Chandran**, "We are like this only" *Hindu Business Line*, 17 Feb 2016.

Arun Vishwanathan, "Who will succeed Raheel Sharif as the next chief of Pak army?" *The Pioneer*, 13 Feb 2016.

#### **ISSSP Internship Programme**

The ISSSP takes pride in having a strong internship programme. The programme is hugely popular all over the country and leading institutions send their students to the ISSSP during Summer.





In Summer 2016 alone, the ISSSP provided space to more 20 students as summer interns. The interns focussed on various issues from defence industries in China to the maritime issues in the Indian Ocean.

The ISSSP provides an excellent opportunity for its interns to write, publish and also present their findings in internal meetings and also as a part of NIAS Wednesday Discussions. In June 2016 alone, three of ISSSP research interns made presentations to the larger NIAS audience as a part the Institute's Wednesday discussions.

#### **ISSSP PhD Courses**

The programme runs a selective PhD course. Scholars are registered for PhD under the ISSSP faculty.

ISSSP faculty has offered/ offering the following courses during 2016:

- Security, Conflict and Strategy: Concepts and Issues
- Effective Research Writing
- Science, Security, Society and Diplomacy
- Conflict, Peace and Regional Security in South Asia.

### **ISSSP Faculty**



Rajaram Nagappa, Programme Head Prof Rajaram Nagappa has specialised in aerospace propulsion and has

worked extensively in the design and development of solid propellant rockets. His interests are in missile technology and space weaponisation. He has served in the Vikram Sarabhai Space Centre, ISRO as its Associate Director, and later was Pandalai Memorial Chair Professor at Anna University, Chennai. He has also taught at Technion-Israel Institute of Technology, Israel.



S. Chandrashekar, JRD Tata Visiting Professor Prof S Chandrashekar is currently a Professor in the

Corporate Strategy and Policy Area at the Indian Institute of Management Bangalore (IIMB). Prior to his joining IIMB he spent more than 20 years working at the Indian Space Research Organisation (ISRO). His work at ISRO covered all parts of the programme – satellite, rockets as well as the applications of space technology especially remote sensing.



#### D. Suba Chandran,

Professor D. Suba Chandran is a Professor at the International Strategic & Security Studies, National

Institute of Advanced Studies (NIAS), Bangalore. His primary focus areas are Pakistan, Afghanistan, Armed Conflicts and Peace Processes in South Asia. He edits an annual titled Armed Conflicts in South Asia, published by the Routledge/ SAGE. He is an Associate at the Pakistan Study Research Unit (PSRU), University of Durham, UK.



#### Chidambaran lyer, Assistant Professor Chidambaran is an Engineer turned Economist. Before pursuing his PhD, he has worked in the

Chemical industry for four years. His work experience here includes erection and commissioning of chemical plants as well as setting up a lab scale plant for the natural dye 'Indigo'.Post PhD he has worked for the Consultancy Industry for more than two years. His report on the Indian Organic chemical industry detailed the market for seven organic chemicals in India. He also worked on the North American Specialty Chemicals market and has authored a couple of report.



#### M. Mayilvaganan, Assistant Professor

M. Mayilvaganan is an Assistant Professor in International Strategic and

Security Studies programme at NIAS. He earned a doctorate degree in International Studies from Jawaharlal Nehru University, New Delhi, India. Prior to joining NIAS, he was a Senior Lecturer at Department of International and Strategic Studies, University of Malaya, based at Kuala Lumpur, Malaysia where he taught South Asia in International Relations, Modern Warfare and International Politics. His past positions include Associate Fellow at Institute for Defence Studies and Analyses (IDSA), New Delhi (2006-2009) specializing Sri Lanka in particular and South Asia in general.



Prakash Pannerselvam, Post-Doctoral Associate Prakash Pannerselvam is a Post-Doctoral Associate with the

International Strategic & Security Studies Programme, NIAS. He holds a Ph.D in Japanese Studies, School of International Studies, Jawaharlal Nehru University (JNU). He was the first Visiting Fellow to Japan Maritime Self-Defence Force (JMSDF) Staff College, Tokyo. He is a recipient of Japan Foundation Fellow (2011) and Okita Memorial Fellowship (2008).



N. Ramani, Visiting Professor Dr. N. Ramani worked at the ISRO Satellite Centre in the areas of software

development for spacecraft mission operations and in the establishment and management of the central computing facility. Led the activities relating to the design, development, testing and implementation of software for real time health monitoring and control of satellites. Pioneered the transition from main frame world of Fortran and assembler codes to distributed computing based on off-the-shelf systems with the best of breed Engineering Application Software packages.



#### Lalitha Sundaresan, Visiting Professor

Dr Lalitha Sundaresan has a doctorate from the Indian Statistical Institute, Kolkata

where her work was on digital processing of multi-satellite data. She was a scientist at the Indian Space Research Organization where she carried out studies to evaluate the usefulness of satellite remote sensing for monitoring natural resources, and natural disasters with special reference to India. She worked as a Principal Scientific Officer at the Department of Science and Technology, India. While at DST, she was involved with the setting up of Natural Resources Data Base centers in the districts of Karnataka.



#### **Arun Vishwanathan,** Assistant Professor Arun Vishwanathan

Arun Vishwanathan is Assistant Professor in the International Strategic and Security Studies

Programme. Arun holds a doctorate from the Jawaharlal Nehru University, New Delhi. His doctoral thesis was on exploring the Ambiguity in Indian nuclear decision making between 1962 and 1998. Prior to joining NIAS, he held the position of Assistant Director in the National Security Council Secretariat, Prime Minister's Office, Government of India between 2008 and 2011. Before his tenure in the government, he was Associate Fellow at the Indian Pugwash Society, IDSA Campus, New Delhi for three years (2005 to 2008).



Kaveri Ashok, Senior Research Fellow Kaveri Ashok is Senior Research Fellow in the ISSSP at NIAS, Bangalore. Before joining

ISSSP, she was a research intern with the Observer Research Foundation, New Delhi. Kaveri completed her Masters degree in Nuclear Science and Technology at the University of Delhi with a specialisation degree in Decommissioning and Waste Management.



#### Riffath Khaji, Junior

Research Fellow Riffath Khaji is a Junior Research Fellow in the ISSSP at NIAS, Bangalore. She pursued her

MA in, Political Science from St Joseph College Bangalore. Her dissertation focussed on Armed Non State Actors in Pakistan: A Case Study of Tehriki-Taliban Pakistan. she interned at Institute of Peace and Conflict Studies (IPCS), New Delhi . Her areas of interest is Pakistan with specific focus on Pakistan State society, rise of terrorism, and other terrorist network.



Mrunalini Deshpande, Junior Research Fellow Mrunalini Deshpande is a Junior Research Fellow in the ISSSP at NIAS, Bangalore.

She pursued her MSc in Defence and Strategic Studies from Savitribai Phule Pune University, Pune. Her dissertation was titled, "India's Look East Policy." Her areas of interest include International Relations, Strategic Studies and National Security.

#### **ISSSP** Adjunct Faculty

#### Vice Admiral R.N. Ganesh (Retd.)

has commanded a diesel submarine, a nuclear submarine and the aircraft carrier INS Vikrant.

**Prof Subrata Ghoshroy** has been with the MIT Group on Science, Technology and Society since 2005. He is leading the Project on 'Promoting Nuclear Stability in South Asia'.

**Prof S. Gopal** has been with the Govt. of India for more than three and a half decades during which he had wide experience in analysis of national and international security and strategic affairs.

**Dr Bhupendra Jasani** has been with the Department of War Studies, King's College since 1990.

**Dr L.V. Krishnan** retired as Director of Safety Research and Health Physics Programmes at the Indira Gandhi Centre for Atomic Research at Kalpakkam in 1997. was responsible for building the first Supersonic Wind Tunnel at VSSC.

#### **ISSSP** Website isssp.in

The ISSSP has an active and vibrant website—www.isssp.in, updated on a daily basis. The website reflects the activities the programme, neatly categorised under different sections: About Us, Publications, Events and Outreach. Entries are neatly categorised under the above sections,



a highly user friendly manner, that

from the Indian Foreign Service as Ambassador of India to the International Atomic Energy Agency, United Nations Industrial Development Organisation & the UN Offices in Vienna (Outer Space Affairs, Drugs and Crime) and to Austria in October 2009.

Ambassador Saurabh Kumar retired

Vice Admiral Vijay Shankar is the former Commander-in-Chief of the Andaman & Nicobar Command and Commander-in-Chief of the Strategic Forces Command.

**Dr V. Siddhartha** was with the Principal Scientific Adviser to the Government of India as Scientific Consultant (Advanced Technologies)

**Mr P. Soma** joined Vikram Sarabhai Space Centre (VSSC), Trivandrum in July 1973 and worked as Scientist in Aerodynamics Division till 1977. He in a highly user friendly manner, that allows the browser to reach the event/ publication in just a single click. *Try once; we are just a click away!*.

The Programme also has an active outreach activity. It sends regular alerts about its activities. *Kindly send an email* to the following to get subscribed to ISSSP News Alerts: issspblr@gmail.com.

Besides the Website and News Alert, the Programme also has an extremely popular facebook page, where the highlights of the Programme get updated on real time basis. *Visit us and become our friend!*.



https://www.facebook.com/issspnias



### **ISSSP TEAM**



NIAS Wednesday Discussion by ISSSP Faculty



ISSSP Public Lecture: "India and the NSG"





ISSSP Workshop: Armed Conflicts, Peace Audit, Early Warning



### Indo - Japanese Interdisciplinary Collaborative Initiative

### Sharada Srinivasan

A feather in the cap of the Heritage, Science and Society Programme was the participation in a major Indo-Japanese inter-disciplinary collaborative initiative and seminars in the end of March in Japan. Colleagues from NIAS who contributed to this historic Indo-Japanese initiative included Prof S Ranganathan, who spent a year as a distinguished Visiting Professor in the Tokyo University of Arts in 2012-2013, Prof Sharada Srinivasan who initiated archaeometallurgical collaborations in 2008 with Japanese colleagues with a visit, and Dr MB Rajani. The Indian delegation was hosted by the Tokyo University of Arts between March 22<sup>nd</sup> and 25<sup>th</sup>.

The delegates who visited Tokyo included Prof. Vibha Tripathi (Emeritus Professor, BHU) and Dr Sajiv Krishnan (IISc), apart from Prof Sharada Srinivasan and Prof Ranganathan. The Japanese hosts and collaborators comprised leading archaeologists, conservation scientists and archaeometallurgists such as Prof Nagata, an expert on Tatara steel from Japan and Drs Manako Tanaka, Yasuji and Nagae. The visit of the Indian delegation couldn't have been better timed. Just as they stepped into Tokyo's famed Ueno Park, they were greeted by a splendid first sighting, like a blush, of the legendary sakura cherry blossoms ushering in spring. The NIAS Heritage Programme and Indian delegation was also significantly represented through key presentations made as part of the 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 as well as the use of advanced scientific techniques and materials characterisation in the study of artefacts. Among the highlights was the group visit to the magnificent wooden Sensoji temple going back to the 7<sup>th</sup> century, said to be dedicated to Kannon, goddess of mercy, who is an equivalent of the Indian Buddhist deity Avalokitesvara. Since the visit coincided with a Japanese spring festival, the group was treated to the colourful sight at the temple of several young ladies breezing past elegantly dressed in traditional Japanese kimonos. Profs Sharada Srinivasan and Vibha Tripathi visited the Japanese sword museum which gave fascinating insights into the complex and skilled art of Japanese samurai sword making: at one level, stark and minimalist, and at another level incredibly intricate.

Prof Ranganathan also had occasion to catch up with former colleagues from the Tokyo University of Arts such as Dr Tanaka and witness the impressive work on digital heritage and 3-D printing of Buddhist art. A special memory to carry away was an exhibition in the Tokyo National Museum complex of Japanese paintings framed by cherry blossoms in an array of shades from off-white to delicate pale pink, which give further insights into its timeless significance to the Japanese ethos...The programme looks forward to deepening the academic and cultural engagement between NIAS and Japanese colleagues.



### Bridge Programme for Children Admitted under RTE Provision through Child Centered Play Malavika Kapur and Sindhu HR

Under the Right To Education Bill (RTE Bill) with an intention to provide Free and Compulsory Education to all Children, the private schools are required to admit 25% of the children from disadvantaged backgrounds. The aim of this project was to provide a Bridge Programme of **free intervention consisting of Child Centered Play** to make the transition to class 1 smooth and easy.

The programme was conducted for two weeks (10 working days) in two schools namely, Vivekananda and Vidyaniketan schools for 60 children. The programme in both the schools was through **child centered play way method** consisting of activities like indoor and outdoor games, drawing, storytelling, singing and dancing along with easy reading of Kannada and English and understanding Maths through interesting concrete tasks. The children were assessed before and after the intervention on intellectual functioning and basic reading and number skills.

The teachers were happy to see the children, especially those who are newly admitted getting comfortable at school, learning basics of academics and pro social behaviours. They wish to continue with this method on initial days of the school. In the writing skills, there was a qualitative improvement. On the intelligence test there was improvement in terms of quicker reaction time and accuracy of scores. 48 children could be assessed before and after the intervention. 38 children have shown improvement, 8 stayed the same and 2 of them have shown drop in performance.





### Autonomy, Democracy and Academic Spaces Shalini Dixit, Bharat Rout, Jeebanlata Salam and Anitha Kurup

Concerns of university governance have occupied much of our public imagination in the aftermath of several developments during the recent years. As the debates break open a wide array of related issues including constitutional rights, academic freedom, national allegiance and discrimination of varied types, some terms continue to re-surface: Autonomy and Accountability, Democracy, Inclusion etc. Recent events in academic institutions offer us points of entry in posing a set of broad questions about the very purpose of education and the pedagogic and administrative challenges that are part of the changing contemporary higher education. An interactive Panel discussion was organized by Education Programme of NIAS on 'Autonomy, Democracy and Academic Spaces', on March 4, 2016, in the wake of recent developments in the educational institutions.

Details of the panel discussions were as follows:

Dr Shalini Dixit: Education as an Enabler of Critical Engagements Dr Bharat Rout: Autonomy and the Changing Culture of the University Dr Jeebanlata Salam: State, Society and Educational Institutions Mr Chetan B Singai: Student Voice and Institutional Structures Chair: Prof Anitha Kurup Excerpts from the panel discussion:

The conception of the Indian state as enshrined in the constitution of India is based on liberal democracy, that is, it represents the interest of majority of Indians as citizens by translating the values of justice, liberty, equality and fraternity. The state operates with certain political expediency and ideology that often contradicts the values of equality and social justice. Academic spaces provide opportunities to internalize and mediate on the values of liberal democracy. Given the fact that education is a scarce public resource; state continues to wield tremendous power on schools and educational institutions with its own ideology whose interest is often in conflict with democratic, liberal and secular values.

The position paper on goals of education from NCERT (2006) states "as for education...ways of life other than one's own must be imaginatively and effectively presented as deserving of as much respect as one's own." (P.4). Education has a role of enabler. It enables us to make sense of our experience and think rationally. We see that rationality, freedom from biases and openness are major educational pursuits. Based on our understanding of education and the documents that the government of India had accepted, as the base for governing education in the country, we engage with the question -"are we able to foster these basic educational objectives, in our educational institutions today?" Taking the case of history textbooks, the talk highlighted different points in past, after the Independence of India, where there have been efforts to tamper or *mend* content in history textbooks. History, as an academic subject should be taught as a mode of enquiry rather than, as a tool to a ruling party. However, looking at the ways history-textbooks have been subject to distortions it was highlighted that how the very educational purpose of teaching history has been compromised by the agendas of parties in power. This not only compromises the credibility of historical enquiry but also defies the very purpose of education.

India has witnessed some of the unprecedented incidents in academic and institutional history often challenging intellectual discourse and dissents, encroachment on the internal and day-to-day affairs of universities and institutions, and even suppressing freedom in campuses. This has raised questions on the very existence and purpose of a university and the changing relationship between state, nation building and therefore the role of educational institutions in it. It highlights the changing nature of university as an idea and the realm of its activity in the light of current socio-political transformations and challenges to institutional autonomy. Universities in 21st century have changed significantly compared to that of traditional universities not just in respect to the content of curriculum and method of teaching and research, but also with respect to their relationship with larger society. The unity of teaching and research, freedom to teach and to learn and self-governance are some of the fundamental principles which have inspired modern universities across the world. Autonomy of institutional space is indispensable to generate new knowledge which needed continuous criticism of old and established knowledge. On the other hand, universities do not exist in isolation and have organic links both physical and cultural with their surroundings. Hence, universities in India are expected to contribute directly to the pursuit and promotion of equality. The realm of a university is the cradle of ideas; and both teachers and students are jointly engaged to attain the goals of equality, freedom and prosperity on behalf of the people in a society.

Universities as academically autonomous institutions often pose an embodiment that challenge societal inequality and state failure, as one of the crucial roles of education is to promote social equality and social justice. Universities, therefore remain a site of social struggles of those aspiring young man and woman, hailing from disadvantaged backgrounds, rural hinterlands, small towns, cities and those victims of state failure and exploitative social relations - be it caste, class domination, tribal / nontribal conflict, gender issues, ethnicity etc. Universities, by virtue of its academic autonomy privilege these young folk to enter into critical engagement about their own societies they constantly interact with and the world in general. The central emphasis in most of these engagements are, questioning and critiquing, the given such as the 'body politic', of an exploitative social order.

When such intellectual autonomy of a university is not suitable for the state's project, then university autonomy can be threatened as universities are public goods.

The discussion on the sub-theme - student voice and institutional structures - emphasized on the issues emerging from the recent tensions in the country between the state, the university and students. Universities ought to be autonomous spaces from internal and external pressures. Internally, the relationship between students, teachers and administrators represent a complex network of relationship. It is in this complex web of hierarchies, the voice of the students, getting encumbered. For instance, policies with regard to student elections in academic spaces the Lyndogh committee (clause 6.8), which provides unlimited powers to the university administration to nullify elected students renders the elected as powerless. Further, students are not represented in the university decision-making bodies, which determine the form and functions of the university – teaching, research and extension – hence are passive members of the university and function. An engagement with the idea and practice of autonomy within the university is critical, given the recent tensions in university spaces across India. The crisis in the higher education sector is a recurring crisis, but the present crisis in the universities curtailing the freedom of speech and expression of students', is unprecedented and hence critical to reflect.

The four panel speakers highlighted the complex and dynamic nexus among society, state and education and forces surrounding them. Dr Shalini Dixit brought out how the subject of History has been the sources of legitimacy for political regimes by highlighting syllabi and subject content of the history text books. Dr Bharat Rout in his discussion underlined the changing nature of university as an idea and the realm of its activity in the light of current sociopolitical transformations and challenges to institutional autonomy. Dr Jeebanlata Salam spoke in detail on existing inequalities in the society and how the Indian State despite its Constitutional commitment to democratic values remain embedded in India's highly hierarchical society, often prompting the universities to critique the state and structural operations of society. Finally, Mr Chetan Singai brought out how students' freedom of expression and speech to dissent and protest on pertinent socio-political-economic and educational issues are compromised and challenged by the state and the university structure and their apparatuses. In addition to this, he also discussed how students' voices and the issues discussed in the universities located in the core are privileged over the ones in the periphery.

The Panel discussion generated debates and discussions on several issues and challenges not only in the context of educational institutions but also in the context of the interface among society, education and state. Discussions covered areas such as freedom to lead a life one value while not infringing on others' life and liberty; freedom of speech and its' limitations; the changing nature of the meaning and practices of institutional autonomy; autonomy, freedom and value prioritization in diverse societal and cultural contexts; the idea of being compassion and endurance to guard the line in case of value conflict that impact others; to identify erroneous forces and look for how we can work against these forces in the best interest of the society, among other issues. While the discussions generated fresh perspectives and knowledge on the idea of institutional autonomy, the panelists and participants agreed to bring out a specific and contextual manual on institutional autonomy.

### Past, Memory and History: Do They Play With Us? Shalini Dixit

### History is as much imagined/invented as found - Hyden White

Past is an interesting and inseparable part of our worldly existence. We all live and die with our past. It can be source of joy and sufferings. Both, biologists and psychologists have established that we, humans, are product of our past. The immediate past of our current life time, and our distant past on the phylogenetic journey, we are all living histories. We reflect our histories in our language cultures, traditions, religions, technologies and genome.

It is interesting to look at how we deal with past. Psychology has a term called 'autobiographical memory'. We remember our past with our self as a referral point. We remember events around us in light of our personal milestones. We choose narrations and episodes around our life episodes, and sometimes interpret them accordingly. We choose what to remember and what to eliminate form our memory. Many a times when there is a dissonance; there are unpleasant memories to handle, we use defense mechanisms. <sup>1</sup>Thus, even If we think we have 'let it go' it remains in the forms of our forgetting. What we forget is also decided by our past. Going by common sense and logic, we all know that past cannot change. What has happen has happened, right! But, do you remember anyone you got angry at, and later, when the person explained you her position you changed your mind. There are unpleasant episodes in life which, when we see in retrospect, we often change our attitude towards it. In

other words our past does not change but it changes its appearance for us. Interestingly, this is the job most of the counsellors do, when you go to them with some psychological issue. They change your past for you. Poor past! It cannot claim to be constant for us.

Thus, in our personal lives, our past and memory can be two different things.

There is a similar case with society and its past. It is well known that significant event and episodes of human society are studied under the domain of history. Based on the area of human endeavor it deals with, there are various conceptions and subsections of history-history of science, history of arts, and history of music etc. Society too has a vast unlimited past, however, the moment it is termed as history it signifies the significance of the chosen slice of history indicating that it was/ is "important" for the society. Just like personal history, societal history can also say a lot through its selective memory.

There are many factors which make past unique in its own way. One of these factors is that, unlike most social and natural sciences, history is not available for current exploration. One cannot observe all parts of history. This makes the task of a historian challenging and interesting. It also makes historian take roles of a detective, a philosopher, a researcher and a psychologist. Despite all this, there is a person in him/her, who selects and interprets the information. This is similar to selecting our autobiographical memory, although historian is far more scientific than an ordinary human mind. But, one cannot deny that a historian selects social past and social memory for society, making it history. In doing so, s/he might also be uncomfortable with certain parts of our past. They might challenge his/ her belief, self and identity. Positivist thinkers in history argue in favor of true documentation of facts. However, as one starts weaving narration out of the facts the person in the historian silently crawls in. It might show up even when a historian starts attributing intentions and motives of historical characters.

What we do when we face uncomfortable sections of our past? We choose what to remember. We do so, in order to reduce our dissonance. This also reflects that we are using defense mechanism at a societal level. Lets us look at some of the defense mechanism that we commonly use as a person and as a society: We use denial (refusal to accept reality); distortion (we manipulate the reality for our self and for others); Idealization (attribution more desirable qualities than he or she may actually have); rationalization (finding amicable reasons for past acts to make it look good).

Past is both, powerful and fascinating. Past has a power of becoming memory or history. It tell us where we came from, indicating where will we go. And since it evokes its legacies in the present; it shows the connections between 'long ago' and now'- saga of time is charged with eternity. So, there is no escape from it. All we have to use it handle it with care; let us not allow it to handle us.

<sup>1</sup> Defense mechanism is an unconscious coping mechanism to reduce anxiety resulting from a noxious experience or apprehension. In this we distort the perception of reality to make workable agreement with the perceived reality.



### BRICS Young Scientist Forum BYS Conclave 2016, Bengaluru 26-30 September

India is hosting the BRICS Young Scientist Conclave in September 2016, as an integral part of the BRICS Young Scientist Forum initiative. The initiative has been approved by the Second BRICS Science, Technology and Innovation Ministerial Meeting at Brasilia in 2015.

NIAS in collaboration with the Department of Science & Technology (DST) of the Government of India is organizing this prestigious Conclave in its campus and in Hampi during 26-30 September. Three themes - Computational Intelligence, Energy Solutions & Affordable Healthcare have been chosen as the focus for this Conclave.

This Conclave aims to bring together some of the brightest young minds from the BRICS countries on a single platform, allowing intense scientific exploration, technological innovations and avenues for transformative changes to the most pressing problems of the society.

Ten scientists, techno-entrepreneurs and researchers from each BRIC nations between 22 to 35 years will form part of the Conclave. Besides bringing these participants, the Conclave will also provide them with abundant opportunities to interact with trail-blazers, leaders and pioneers of S&T through workshops, interactive sessions and lectures. We have already approached some of the leading minds at the global level to be apart of the Conclave faculty to enrich the panel discussions.

The Conclave will be a platform to harness solutions/ideas on country-specific problems and common challenges faced by BRICS nations. The BRICS Young Innovation Prize for Innovative Ideas will enable participants to develop unique, path-breaking designs on three themes identified.

The Conclave hopes to forge a 'BRICS Scientific Identity'



through the establishment of a Pan BRICS network of young talents. This Forum will pave the way for creation of a strong future generation of BRICS S&T leadership that can accelerate change.

The Conclave will also look at the issues of Science through a larger perspective; it would include science, technology, social sciences, humanities and will also look at the social impact and its contribution to development.

The first part of the Conclave will take place at the NIAS Campus. NIAS has developed an expertise through rigorous research in the field of natural sciences and technology, social sciences and humanities to address some of the grave problems in our society today.

As a unique recognition of the historical and social practice of science, the participants will be taken on an expedition to Hampi, a UNESCO World Heritage site, which stands as an archetype of the best contributions of Indian scientific, philosophical and cultural traditions.

The panel discussions to be held during 26-28 September at NIAS campus will cover the following themes:

- BRICS Policy Reflections (Keynote)
- A Scientific Identity for BRICS (Keynote)
- Affordable Health Care
- Young Indian Trailblazers
- Computational Intelligence
- Interdisciplinary Science for Society and Humanity
- Leaders, Here and Now
- Ideas Hunt
- Energy Solutions
- Traditional Science and Indigenous Knowledge
- Communication in Science and Technology
- Cultural Connects of Science: Birdsong Beatbox
- Science and Social Equity
- Collaborations across the BRICS Nations:

The above discussions in Bengaluru will be followed by another round of informal discussions by the participants in Hampi. The participants will leave Bengaluru on o1 October 2016.

As a part of the Conclave, NIAS will be preparing a series of reports to be published during and after the Conclave.

To know more about the Conclave visit: http://brics-ysf. org/ & Facebook: https://www.facebook.com/BRICS-Young-Scientist-Forum-991742517600200/



Manipal University had organized a discussion meeting with all affiliated institutions like NIAS from diverse fields at Manipal to learn from each other the best practices of academic and industrial collaboration on 5 April 2016. Dr TS Gopi Rethinaraj, Academic Head, NIAS Doctoral Programme, Mr Srinivasa Aithal, Head-Administration, NIAS and Ms JN Sandhya, Senior Executive Assistant (PhD Programme) attended this meeting on 4 April 2016 and participated in the discussions with the Manipal University Vice Chancellor and other senior management personnel.

At the Founder's Day event in Manipal University a poster presentation competition for all PhD candidates registered with them was held on 4 April 2016. Ms Soundarya S lyer, working under the supervision of Prof Narendar Pani from the School of Social Sciences and Ms Priyam Laxmi Borgohain, working under the supervision of Prof Dilip R Ahuja, from the School of Natural Sciences and Engineering, represented NIAS for the poster presentation.

Ms Soundarya Iyer won the First Prize in the poster competition and has received cash prize and a certificate from Manipal University. Ms Soundarya also brought laurels to NIAS through



her invitation to present a paper at the Yale Modern South Asia Workshop 2016, Yale University. She was also selected to participate in the three week Brown International Advanced Research Institutes Workshop 2016 at Brown University in June 2016. Another PhD Student Mr S Siddarth was selected to attend a two week Summer University programme

### NIAS PhD Programme Updates

### TS Gopi Rethinaraj (Academic Head) reports...

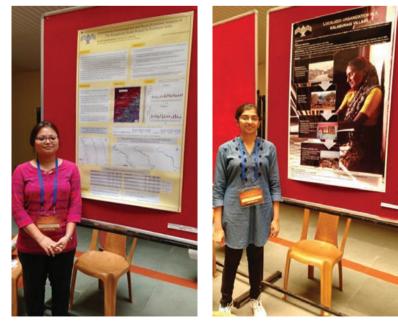
at the Central European University (CEU), Budapest, Hungary on 'Matter, Mind and Consciousness' in July 2016.

#### **Qualifying Exam**

All six first year students in the NIAS PhD Programme (Mr S Siddarth, Mr Shyam Hari P, Ms Meera Sudhakar, Mr Sreedhar Vijayakrishnan, Mr Sashi Kiran C and Mr Vijay CS) passed the PhD Qualifying Exam held in the first week of June 2016. Passing the qualifying is a requirement for continuing in the Doctoral Programme and to get registered in the University. Mr Sreedher Vijayakrishnan presented his thesis proposal on the topic *Seeing the Elephant:* Socioecology and Physiology of the Female Asian Elephant *Elephas maximus* in an Anthropogenic Landscape at NIAS on Friday, 15 July 2016 and will register with the Manipal University.

#### NIAS Admissions 2016

The entrance exam and interviews for admission to the NIAS Doctoral Programme for the 2016 batch was held on June 27 and 28, 2016. The total of eight students spread across the four Schools will enter the NIAS PhD Programme in August 2016 and will be the thirteenth batch since the beginning of the doctoral programme. The academic year will begin on 1 August 2016 and NIAS faculty members are offering courses a wide range of interdisciplinary courses to the new batch, continuing students, and students and general public outside of NIAS.



S Ramadorai

Baldev Raj

# **Recent News**

### Visitors

**Prof B Ravi**, Institute Chair Professor, Mechanical Engineering, IIT Bombay, Mumbai (June 1 to November 30, 2016)

**Prof Bourguignon,** President, European Research Council (May 23, 2016)

**Mr Purnendu Ghosh,** Executive Director, Birla Institute of Scientific Research, Jaipur (May 22 to June 5, 2016)

Ambassador Ronen Sen, Director, Tata Trusts (April 26, 2016)

### **Events**

NIAS signed a MoU with Center for Comparative Philosophy, Duke University (July 27, 2016)

Hampi Musical Pillars Meeting (July 4, 2016) Coordinator: Dr Srikumar M Menon Justice MN Venkatachaliah was conferred NIAS Honorary Distinguished Fellow (June 20, 2016)

NIAS Foundation Day (June 20, 2016)

Cultural Evening for NIAS Family on account of NIAS Foundation Day (June 19, 2016)

NIAS Council of Management and Annual General Body Meetings (June 15, 2016)

### Foundation Day Lecture

#### Justice MN Venkatachaliah

Former Chief Justice of India Constitutional Ideals and Justice in Plural Societies June 20, 2016

### **Training Programme**

Second Summer Workshop for Children under NIAS Gifted Education Programme (May 12 to 14, 2016) Coordinator: Dr Shalini Dixit

### Fourth RL Kapur Oration

#### Prof Manoj Das

Distinguished Writer, Sri Aurobindo Ashram, Pondicherry *The Riddle of Sphinx - The Issue of Love and Death in the Mystic Lore of India* June 21, 2016

### Conferences, Meetings & Workshops

Workshop on Bangalore's Great Transformation (June 24 and 25, 2016) Coordinator: Prof Carol Upadhya

Workshop on Advanced Manufacturing Technologies in Defence Sector (June 18, 2016) Coordinator: Prof V Bhujanga Rao

INAE-NIAS Round Table Meeting on Regional Transport Aircraft (June 14, 2016)

Two Day National Consultative Meet on Vocational (Skill), Technical and Higher Education (June 13 and 14, 2016) Coordinator: Dr Jeebanlata Salam

### Public Programmes

#### Dr R Srikanth

Bengaluru Towards an Integrated Mining and Environmental Policy for the Indian Coal Sector July 29, 2016

#### Prof KL Sebastian

Department of Inorganic and Physical Chemistry Indian Institute of Science, Bengaluru *First FIST (Forum for Interdisciplinary Studies) Lecture July 28, 2016* 

#### Dr Balaji Srinivasan

Associate Professor, IIT, Delhi Flow Computations and Their Relation with Complex Systems and Cognition July 8, 2016

#### Dr Marieke van Vugt

Assistant Professor, Cognitive Modelling Group, University of Groningen *Comparing Different Kinds of Mind-Wandering Using Computational Modeling* July 7, 2016

#### Dr N Ramamoorthy

Former Director, Division of Physical and Chemical Sciences, IAEA, Vienna, Austria India and the Nuclear Suppliers Group (NSG) July 5, 2016

#### Prof Amit Bhaduri

Emeritus Professor, Jawaharlal Nehru University, New Delhi *Truths and Untruths about the Indian Economy in the Global Financial Setting* July 4, 2016

#### Dr Thomas D Albright

Professor and Conrad T Prebys Chair, Salk Institute for Biological Studies Director of the Salk Institute Center for the Neurobiology of Vision University of California, San Diego Reforming Forensic Science: Some Insights from Research on Vision and Memory July 1, 2016

**Mr Gautam Sonti** and **Ms Usha Rao** Bengaluru *Whose City? Public Space, Protest, Art* June 24, 2016

#### Prof Vilupanur Ravi

Professor and Chair, College of Engineering, CA The Plank Canoe of the Chumash Culture: A Historical and Materials Science-based Perspective June 23, 2016

#### Prof SS Meenakshisundaram, Prof Narendra Pani and Prof Sangeetha Menon NIAS

Conflict and Post Conflict Societies in South Asia - Defining "Peace": A Poli-sophical Approach - NIAS Multi-Disciplinary Debate through an Interaction June 23, 2016

#### **Prof PCAgrawal**

University of Mumbai–Department of Atomic Energy Center of Excellence for Basic Sciences, Kalina, Mumbai View of the X-ray Sky through ASTROSAT's Eyes June 17, 2016

#### Dr Purnendu Ghosh

Executive Director, Birla Institute of Scientific Research, Jaipur *Engineering of Need and Want* June 3, 2016

#### Mr Surendra Kumar Sagar

Technical Director (Structural Design and Engineering) Total Environment Group of Companies, Bengaluru, *Cosmic Travelling Mind* May 31, 2016

### Wednesday Discussion Meetings

#### Dr Shailaja D Sharma

Adjunct Faculty, NIAS Pre-University Math – Back to the Future? July 27, 2016

#### Dr MB Rajani

Assistant Professor, NIAS The Search for Odantapuri: Evidence from Landscape Archaeology July 20, 2016

#### Dr Shalini Dixit

Assistant Professor, NIAS Socio-Cultural Influences on Development of Historical Understanding July 13, 2016

#### Dr M Mayilvaganan

Assistant Professor, NIAS Fishing Conflicts in the Palk Bay: Are the Indian Fishermen 'Carefully Careless?' June 29, 2016

#### Prof DP Sen Gupta

Visiting Professor, NIAS *Sister Nivedita: She gave her all to India* June 22, 2016





#### Mr Adarsh Vijay

Intern, International Strategic and Security Studies Programme, NIAS India and Blue Economy: A Maritime Strategy for Growth June 15, 2016

#### Ms Sourina Bej and Ms Albertina Nithya B

Interns, International Strategic and Security Studies Programme, NIAS Bangladesh and Myanmar: Rise of Radicalism June 8, 2016

#### Prof D Suba Chandran

Professor, NIAS June 1, 2016 Post Conflict Societies in South Asia: How Peaceful is Our Peace?

#### Dr Anshuman Behera

Assistant Professor, NIAS From Mao to Maoism: The Indian Path May 25, 2016

#### Prof Malavika Kapur

Visiting Professor, NIAS Laments of a Child Psychologist May 18, 2016

#### Dr Srikumar M Menon

Research Officer, NIAS The Uttarakhand Disaster of June 2013: A Survivor's Account May 4, 2016

#### Dr Deepa Srikantaiah

Fulbright-Nehru US Scholar, IIMB Beyond Counting: Strong Foundational Skills in Early Mathematics Leads to Number Sense, Critical Thinking, and Achievement in STEM April 27, 2016

#### Dr Nithin Nagaraj

Assistant Professor, NIAS Uncertainty, Undecidability, Unpredictability April 20, 2016

#### Dr Samira Agnihotri

DST-SERB National Post-Doctoral Scholar, NIAS Vocal Mimicry in Birds: Sincere Flattery or Devious Deception? April 6, 2016

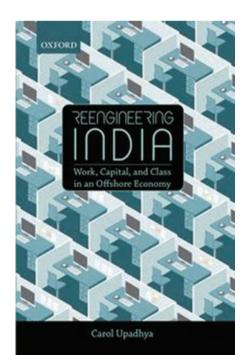
### Literary, Arts & Heritage Forum

#### Mr Ganesh Shivaswamy

Trustee, Raja Ravi Varma Heritage Foundation, Bengaluru *The Role of Lithographs in Popular Culture and Legacy of Raja Ravi Varma* July 29, 2016

### Publication

Carol Upadhya Reengineering India Work, Capital, and Class in an Offshore Economy Oxford University Press, 2016



### **Obituary**



**Mr Xerxes Desai,** Member of the NIAS Council of Management expired on June 27, 2016. NIAS pays our condolences. He will be greatly remembered for his leadership and guidance.

### New Faces...



Prof Bishnu N Mohapatra joined NIAS for a period of three months as Sir Ashutosh Mukherjee Visiting Professor on June 1, 2016



**Prof PS Goel** joined NIAS as **Dr Raja Ramanna Chair Visiting Professor** on May 2, 2016

#### They recently joined NIAS Congratulations!



**Prof V Bhujanga Rao** joined NIAS as **Visiting Professor** under the International Strategic and Security Studies Programme on April 20, 2016

### Whirls of Words: The Writer's Space The Pedigree of a Pot and a Tuft of Grass Naresh Keerthi

The following verse from the *jaina* poet Pampa's Kannada redaction of the Mahābhārata tale *Vikramārjuna·vijaya* is composed in a bitextu(r)al style, probably for the first time in the Kannada literary world. In Pampa's narrative, his patron, the *Cālukya* chieftain *Arikesari*, is identified with Arjuna, the central character in this retelling.

This verse is taken from the wellknown episode wherein Drona, who has trained the Kuru princes, arranges a demonstration of their military skills to mark their graduation. The Pāndava and Kaurava princes all acquit themselves admirably, and Arjuna's display of his skills is the finale. The teachers Drona and Krpa and the other elders appreciate his performance and declare him the greatest archer in the world. Karna then appears on the scene, challenging Arjuna to defend his title of 'the greatest archer in the world'. Drona snubs Karna and asks him to declare his lineage, since the noble Kuru princes can only engage with their equals and will not indulge in combat with their inferiors. Stung to the quick, Karna counters with this verse:

#### ಕುಲಮೆಂಬುಂಟೆ ಬೀರಮೆ ಕುಲಮಲ್ಲದೆ ಕುಲಮನಿಂತು ಪಿಕ್ಕದಿರಿಂ ನೀಂ । ಒಲಿದೆಲ್ಲಿ ಪುಟ್ಟಿ ಬೆಳೆದರೆ ಕುಲಮಿರ್ದದೆ ಕೊಡದೊಳಂ ಶರಸ್ತಂಬದೊಳಂ ॥

kulamembuduņțé bīrame kulam'allade kulaman'intu pikkadirim nīm | `olid'elli puțți beledaró kulam'irdude koḍadolam śarastambadolam || 2.83 ||

What is lineage? Courage is the only lineage, all else is empty talk.



Does one choose one's birth and upbringing? What pray, is the pedigree of a pot and a tuft of grass?.

The second hemistich may require some explanation – according to the Mahābhārata, while both Droṇa and Kṛpa had Rṣi-s for fathers, Droṇa was born of a pot, and Kṛpa, his brother-inlaw, was born to a tuft of grass.

Pampa's portrayal of Karna is striking, and he often uses Karna as an agent of social commentary. Karna turns Drona's question about his parentage on its head, and questions the relevance of parentage in the appraisal of merit. Karna reminds Drona of his origins, making his question a case of the potborn calling the kettle black.

# Birds and Blooms





If you walk down NIAS's driveway past the hostel, you cannot miss the Balloon Plant when in bloom. Its unusual appearance with several soft, pale green spheroids is indeed striking. At a distance, one can be forgiven for thinking these are citrus fruits -- limes, perhaps? But closer inspection reveals a hairy texture surrounding the fruit. If you actually try to grasp the fruit, you will be surprised by the lack of density -- one feels that the shape could collapse at the slightest touch like a ... balloon!

The plant is a species of milk weed, native of southeast Africa, and has been widely naturalised and used as an ornamental plant. It is a perennial herb that can grow to over six feet, and blooms in warm months. It has a fibrous rootstock, its pale yellowish green branches are hollow, and emanate from a small single-stemmed trunk. The leaves are light green and narrowly oblong (about 10 cm long, little over 1 cm broad). Cream or white flowers (about 1 cm across) hang in clusters -- they have an attractive, complicated structure with white hoods and petals folding backwards over the flower. The conspicuous feature that has given rise to most of the plant's common (and sometimes colourful) names is the large spherical inflated follicles reaching 8 cm in diameter, covered with soft spines, splitting to release many brown seeds, each with a tuft of long silky hairs attached at one end.

#### Botanical name: Gomphocarpus physocarpus

Family: Apocynaceae Origin: Southeast Africa Common name: balloon milkweed, balloon wild cotton, hairy balls, bindweed, balloonplant, balloon cotton-bush, bishop's balls, nailhead



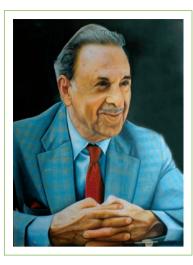
Photo Courtesy: MB Rajani



Photo Courtesy: Ekta Gupta

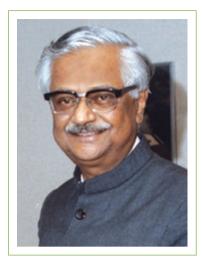


### About NIAS



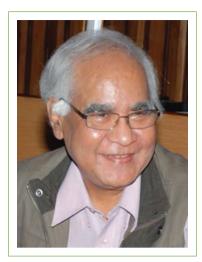
Founder Chairman JRD TATA

The National Institute of Advanced Studies (NIAS) was conceived and established by the vision and initiative of the late Mr JRD Tata. Dr Raja Ramanna, as the Founder Director, immensely



Founder Director RAJA RAMANNA

contributed to the growth and development of the Institute. In subsequent years, Prof Roddam Narasimha, Dr K Kasturirangan and Prof VS Ramamurthy became the Directors of NIAS.



Current Director BALDEV RAJ

Presently Prof Baldev Raj is the Director.

NIAS celebrates its Foundation Day on June 20.

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