

IndiaLICS International Conference 2017: A Report of Special Sessions

Anwasha Borthakur, Anup Kumar Das

Centre for Studies in Science Policy, School of Social Sciences, Jawaharlal Nehru University (JNU), New Delhi-110067, INDIA.

Correspondence

Anwasha Borthakur

Centre for Studies in Science Policy, School of Social Sciences, Jawaharlal Nehru University (JNU), New Delhi-110067, INDIA.

E-mail: anwesh79_sse@jnu.ac.in

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Sustainable Development is a key focus area for the majority of the research interventions in both Global North and the Global South. The seventeen sustainable development goals (SDGs) today define the central research and policy approaches worldwide. The Fourth IndiaLICS International Conference 2017 on “Innovation for Sustainable Development: Perspectives, Policies, and Practices in South Asia” was aimed at exploring the possibilities of Science, Technology, and Innovation (STI) in achieving the SDGs in the South Asian sub-region.^[1] This conference was held at Jawaharlal Nehru University, and India Habitat Centre, New Delhi during 2–4 November 2017. It was jointly organized by the Centre for Studies in Science Policy (CSSP), Jawaharlal Nehru University (JNU); Research and Information System for Developing Countries (RIS); and CSIR–National Institute of Science, Technology and Development Studies (CSIR–NISTADS). IndiaLICS is a research network of STI scholars working in India where the CSSP, RIS, and CSIR–NISTADS are the active members. IndiaLICS is also connected with GLOBELICS – a worldwide network of STI scholars.

Communicating Science Technology and Innovation for Sustainable Development

As a part of the conference a panel discussion on “Communicating Science Technology and Innovation for Sustainable Development” was convened. How does proper communication of science, technology, and innovation contribute towards sustainable development? This was the foremost query being addressed during the panel discussion. The panel discussion was co-organized by VigyanPrasar, DST. The panel

was chaired by Prof. Prajit K Basu from the University of Hyderabad with panelists including Gita Bamezai (Indian Institute of Mass Communication, New Delhi), Smita Srinivas (TCLab), Uma Shankar Pandey (SNCW, University of Calcutta, West Bengal.), Manoj Kumar Patel (CSIR–CSIO, Chandigarh), Sambit Mallick (Indian Institute of Technology Guwahati), Aviram Sharma (Nalanda University, Bihar), and Mathieu Quet (CEPED IRD, France; CSSP JNU). The discussants for the session were Sohan Prasad Sha (Martin Chautari, Nepal), Girish Kumar (BIIC, Mahatma Gandhi University, Kottayam, Kerala), and Archita Bhatta (VigyanPrasar).

During the session, several significant issues and queries were raised on communicating science, technology, and innovation for sustainable development, which revolve around the following four concerns.

1. Is science communication at all necessary for sustainable development?
2. If yes, isn't it imperative to listen to peoples' voices and ensure their active participation?
3. How is the framing of a problem important to shape communication among diverse groups?
4. To what extent the success of communication depends on the ability of participants to develop an acceptable language of discussion?

The gist of the discussion that was taken up during this important session is presented in the following sections.

a. Science Communication for Sustainable Development

‘What are we communicating and to whom’ – this is a significant concern that should be addressed adequately. The panelists of the session largely agreed to this viewpoint. Providing a relevant example, Prajit Basu emphasized on the appropriate framing of a problem. The problem of allergies of women

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who sprays pesticide in agricultural fields can either be seen as a medical problem requiring medication to cure allergies, or a health problem demanding innovation of alternative, greener form of crop management. The second way of viewing the problem has indeed led to the invention of newer management practices in agriculture. In attending to such problems, knowledge of agricultural sciences, local farmer's issues, and medical sciences would intersect with an aim towards developing a sustainable solution. Thus, an issue, pertinent to the present day context, is the need for interdisciplinary research and policy approaches towards devising sustainable solutions to the existing and forthcoming problems.

Nevertheless, Smita Srinivas argued that interdisciplinary research approaches are still inadequate because people are either afraid of their professional identity or skeptical about if they are contributing towards their parent discipline, indicating that there appears to be a tradeoff between catering to one's own profession and reaching out to a larger public. Therefore most of the researchers are reluctant to take up studies beyond their comfort zone or parent subject. This kind of situation is both unfortunate and upsetting. Most of the speakers in this panel discussion agreed to the fact that interdisciplinary perspectives to present-day problems are of utmost importance and it is essential to promote such knowledge for the larger benefit of the society.

During the very beginning of the commentary session, Gita Bamezai emphasized on 'why communication is significant to scientific exploration and to search for scientific solutions to the problems'. She argued that the whole idea of communication should be redefined or reframed in the context of science. Most of the presenters argued that it is essential to move from a deficit to a dialogue model. Archita Bhatta, however, pointed out that although theoretically, communication models have evolved from 'deficit' to 'contextual' to 'participatory'; application of participative communication approaches is still missing. She argued that the very problem lies with the way our education is conducted in India. The culture of asking questions is still very much missing among the Indian students who restrict many science communication approaches. Substantiating her point, Sambit Mallick argued that critical thinking and culture of interrogation must be cultivated from the very beginning of childhood days in such pursuit. He further emphasized that when we dwell upon communicating science, technology, and innovation for sustainable development, we must examine the nature of the state itself, its location within the matrix of a class-divided society and its relationship with various other contending social forces.

Substantiating points related to communicating science to school children and youths, Manoj Kumar Patel pointed out importance of the public outreach events such as open days in the national laboratories, the Children Science Congress, the

India International Science Festival, and the Indian Science Congress, where school children and youths get chance to learn from the hands-on experiments, or demonstrate problem-solving models dealing with the societal challenges. He appraised the inclusive innovation approaches of the agencies such as National Innovation Foundation and CSIR, where the grassroots innovators can get involved with the scientific institutions for a formalization of their frugal innovations.

Two sets of changes are indispensable today: one is inside the scientific organizations, and another is outside them involving general public including policymakers, media, civil society, etc. For instance, there are inherent problems the way science is done. Scientists, most of the time, are reluctant to share their knowledge with others. The only platform where they would prefer to share their knowledge is the scientific research journals or in the conferences/seminars within the peer group. It is essential to share their knowledge in platforms other than the above two. There are needs of rethinking professional education and its role in science communication. Smita Srinivas argued that a huge gap exists in applying theories to evidence and evidence to the theory. She mentioned that major challenges are faced by the researchers when they attempt to apply evidence to the theory. With her ventures in curriculum development in new university programmes in Asia, America, and Africa, she argued that the role of professional education in science communication is an issue still addressed ineffectually. She further described her experiences while beginning the Technological Change Lab (TCLab) in Columbia University about a decade ago and the challenges associated with carrying forward the initiative successfully to date.

Is it essential at all to communicate science to the public? This was the question first raised by Mathieu Quet pointing out that large popularity of plastic and nuclear technology, at least in France, was due to the scientists' efforts to popularize such technologies a few decades ago. Unfortunately, now scientists are being seen as trying hard to retract from their position. These innovations confront SD and SDGs! One should also think in this line as SD approaches are futuristic and require 'ahead of the time' research and thinking capabilities.

Commenting on the session, K.J. Joseph was skeptical about 'who are we to communicate science.' For instance, he ascertained that farmers have much better knowledge about their practices than scientists do. Therefore scientists must be particularly cautious in communicating scientific approaches to them so that their traditional or indigenous knowledge base is appreciated and preserved. He emphasized on the need for a capability-based approach in science communication.

Commenting further on science communications and sustainable development, Mammo Muchie said that we need to 'critique' science and not only confine ourselves to communi-

cating it. There is a larger need to teach non-western science in terms of Indian science, Islamic Science or African science. He pointed out that universities evolved in what we call today as global south long before the west or global north. In his words, we must learn to unlearn and then relearn to communicate science better. Taking reference from Steve Fuller, an American philosopher-sociologist in the field of STS, Sambit-Mallick argued that universities both as political and academic sites reflect the dialectic between science as a social movement and as a disciplinary formation. For science cannot be reduced to the recording and analysis of the 'pre-notions' that social agents engage in the construction of social reality; it must also encompass the social conditions of the production of these pre-constructions and of the social agents who produce them. Towards the end of the session, Dinesh Abrol proposes if innovation scholars can engage in science communication experiments firsthand which would eventually aid in realizing a better picture of the current situation and identify the gaps in the existing communication models.

Media also plays an important role in science communication approaches. Gita Bamezai argued that media tends to unnecessarily sensationalize issues, making scientists apprehensive about approaching and communicating a certain idea/invention to them. Further, sometimes areas within the scientific framework are so difficult even for the scientists of a different domain to comprehend that they are reluctant to convey it to the general public. For instance, for a physicist to understand a biotechnological invention or vice versa is already challenging. In such a condition, scientists are hesitant to communicate science to the common public due to the uncertainties associated with its effectiveness. Therefore a common language should evolve for successful communication of science.

b. Public Engagement and Participation

Mathieu Quet pointed out that most science communication approaches are 'top-down'. However, scientific communication or benefits of science should reach people who have been left behind. Therefore, instead of a 'top-down' approach, a 'bottom-up' structure has much higher possibility of success as it will ensure active public participation. Such an approach will aid in achieving the seventeen goals of SDGs by the targeted year of 2030. He emphasized on three factors, which could be instrumental in directing science, technology, and innovation towards sustainable development – communication, public engagement, and participation. He argued that it is not exclusively about communicating science, but about creating platforms for dialogue and discussions. For him, it is essential to broaden the public participation in order to attain the proposed aim of SD.

Nonetheless, there are a number of challenges India always encounter in bringing all the stakeholders to the same platform. As pointed out by Uma Shankar Pandey, the populace of the country is diverse, and it is quite understandable that their perspectives are dissimilar as well. Therefore, it is essential to design communication approaches considering these varied viewpoints. For instance, Basu emphasized on developing a 'pidgin language' through which scientists from across the disciplines could effectively communicate among themselves, as well as to the larger public. It is also essential to defy the flawed attitude that people are ignorant and scientists know everything. As argued by Aviram Sharma and Gita Bamezai, it is crucial to shift from the currently dominant 'deficit model' to 'dialogue model' or 'participatory model' which involve engaging and working with communities. This is especially relevant in the context of genetically modified (GM) crops and climate science.

For Basu, further challenges arise during attempts to effectively communicate 'techno-sciences' such as nanotechnology, nanobiotechnology, or information technology. For instance, 70% of researches in these sectors are carried out in the private domain. Interests of private and public sector differ significantly and so thus their science communication approaches. Private sector acknowledges that innovations associated with these new techno-sciences do have certain uncertainties. However, more often than not, this sector argues that 'benefits' of these techno-sciences are certain; it is only the 'impairments' that is uncertain. Contrary to that, researches in the public sector often believe that if 'harms' are uncertain, so do the benefits.

Although India is a party to the SDG promises, SDGs still look ambitious for India. On a positive note, there are certain initiatives taken up in the country which have the potential to contribute towards attaining sustainable development. For instance, as pointed out by Smita Srinivas, Neighborhood Improvement Partnership (NIP) organized in the year 2015 in the city of Bangalore could be considered a significant first step in this regard. For her, the support for NIP obtained from different quarters of the society was something overwhelming. There were key interests of all groups, be it citizens, corporate, local authorities or ministries. For instance, significant financial supports were provided by corporate houses through their Corporate Social Responsibility (CSR) initiatives. With a total number of 140 groups registered for the event, it is considered one of the largest programmes of this kind in India till date.

During the discussion, Sohan Prasad Sha raised the concern that before communicating science, it is imperative to evaluate how much science is actually done, especially in the context of countries like Nepal. In Nepal, 86% of students in their

tertiary education do not study science which restricts the students with a science background to only 14%. He argued that there is still a long way to go, both in ‘doing’ and ‘communicating’ science. Girish Kumar, during his presentation, emphasized on a ‘lab to land’ approach and discussed how inventions for sustainable development should be brought from the laboratories to the markets.

Finally, it is imperative to acknowledge that participation in science communication is not about unconstructive arguments or fallouts. Views of the diverse public should be listened to and respected. As suggested by Basu, this calls for the development of an agreeable ‘pidgin language’. Without devising such a language, no science communication approaches will be successful or effective enough for contributing towards sustainable development.

Third Annual Memorial Christopher Freeman Lecture on “Evolution from the Economics of Innovation to Economic Development”

The research students of Centre for Studies in Science Policy (CSSP) in association with the 4th IndiaLICS Conference and Training Workshop 2017 organized the Third Annual Memorial Christopher Freeman Lecture at JNU Convention Centre on 5th November 2017. A special lecture titled “Evolution from the Economics of Innovation to Economic Development” was delivered by Smita Srinivas, who is the Founder Director of the research platform the Technological Change Lab (TCLab) and currently an Honorary Professor at the Indian Council for Research on International Economic Relations (ICRIER). Chair of the Session, Prajit K. Basu of the University of Hyderabad, introduced the speaker and briefly discussed the thematic area of the Lecture.

The 3rd Christopher Freeman Lecture was built on Professor Christopher Freeman’s immense legacy and considered how best to take the insights of evolutionary perspectives into the domain of economic development, one of Freeman’s core concerns. The talk began with the idea of institutional variety in both evolutionary economics and a more traditional development political economy. The remainder of the talk delved deeper into what an evolutionary perspective leaves unfinished, which translate into difficult theoretical and empirical extensions to policy domains in late industrializers. Specifically, by looking at the “V” on variation and institutional variety in the VSR framework, the talk suggested ways to better frame industry analysis with examples from the health industry that enhance and advance beyond class-based perspectives. The talk concluded by discussing variety in the evolutionary economics context and its planning process and policy design implications. The materials for the Lecture were drawn on and elaborated on the arguments in Srinivas’s book “Market

Menagerie: Health and Development in Late Industrial States” (Stanford University Press, 2012).

In the talk, Srinivas further elaborated her research interests in the institutional explanations and plans for economic transformation and governance. Her recent work has analyzed gaps and tensions between the institutional and behavioural assumptions of evolutionary economics with those of ‘late’ industrial, political economy and development economics. Her wider research interests include comparative development data, social policy, skills, moral philosophy and value preferences in economics and governance. She elaborated her experience in higher education reform initiatives in economics and policy-focused professional schools in the US, India, and East Africa. Srinivas has strong interests in problem-framing and – solving and the use of heuristics in economic theory in realistic development plans and policy design. She further discussed how her institution the Technological Change Lab (TCLab), which she founded, deploys three-way research focuses on economic theory, policy design, and realistic development plans. Much of economic development has tended to exclude one or more of these elements.

The Lecture attracted the enthusiastic commentaries from the learned audience. Mammo Muchie of the Tshwane University of Technology in South Africa elaborated how personally and academically he benefitted from Christopher Freeman, as his doctoral supervisor and his academic mentor. Christopher Freeman was instrumental in the formation of the Globelics – a global research network for scholars of innovation studies. There were other discussants such as Sujit Bhattacharya of CSIR-NISTADS, and Rajeswari S. Raina of Shiv Nadar University. The participants of training workshop also interacted with the speaker in this session to broaden their research perspectives and research agendas.

The 3rd Christopher Freeman Lecture concluded with vote of thanks by Saradindu Bhaduri, Chairperson of CSSP JNU. He mentioned about the special sessions convened during the Conference that include a plenary session on Responsible Research and Innovation (RRI) and a session in honour of Professor Ashok Parthasarathi.^[2] He thanked the resource persons, participants, funding agencies, and volunteers for the successful conclusion of the IndiaLICS Conference and Training Workshop 2017, which was jointly organized by CSSP, Jawaharlal Nehru University; RIS, New Delhi; and CSIR-NISTADS.

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