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INTERVIEW

What makes research responsible? An Indian perspective

Julia Hahn interviews

Poonam Pandey on the hopes and challenges of practicing RRI in India and on possible lessons learned for global technology assessment.

Current societal challenges regarding well-being, sustainability or economic growth are deeply entangled with science and technology (S & T) across various countries around the world, also in India. This interview sheds light on a unique perspective regarding the potentials of Responsible Research and Innovation (RRI) beyond its original European context. It discusses current issues facing S&T in India, how these should be assessed and what this in turn means for a global perspective on technology assessment.

Julia Hahn: *What are you currently researching? Why do you find it fascinating?*

Poonam Pandey: In RRI literature, Stilgoe, Owen, and Macnaghten briefly mention the “commitment to care” for the future by responsible stewardship of S & T. In my opinion, this commitment to care provides us with an excellent opportunity to look at RRI and its aims from a very different and fresh point of view. The commitment to care gives RRI a purpose: politics and people – or, actually, more than just people, but living beings. Rather than being an overarching, normative, and general approach, commitment to care has the potential to turn RRI into specific, engaged, and practice-driven. Drawing inspiration from feminist ethics, the commitment to care perspective has at its core an ethico-political obligation towards the hidden, vulnerable, marginalized, and invisible. This makes it a very useful approach for RRI in the Global South. Currently, I am trying to employ this approach to study efforts made by India and Brazil in order to transition to a bioeconomy.

You have experience working in European research contexts, too. What are the differences and similarities to India?

It is extremely difficult to do a symmetrical analysis of the similarities and differences in my experience of working in Eu-

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rope and India, precisely because of the different entangled trajectories that situate me in both these geographies. There are obviously huge cultural differences in the nature of these societies and in how to engage with them as a researcher. As a result, the “rules of engagement” vary. European contexts teach you to be organized and structured in the modern sense of the word. It is very “productive” if the goal and target audiences are these societies. However, you miss the spontaneity and the joy and passion of being “involved” and not being ashamed or guilty about it. Being “involved” for countries like India means that structure, categories, and presentation take a secondary position when you work with or talk about issues where many lives and livelihoods are at stake. One has to continuously re-

invent categories in order to be able to engage oneself. One of my friends was once comparing the football games played by Western European countries and countries of the Global South. It is very similar to doing research. He said European countries are so “clean” and structured in their approach that, while watching, you admire their preparation, focus, and attention to detail. But when you watch the games of Brazil and Argentina, you can see individual “struggle”, “innovation”, and “creativity” and it makes you feel “engaged”. I don’t know much about football, but I can repeat the same sentence for research and presentations in these countries.

New technologies affect our states as well as societies. What are the current “hot topics” regarding science and technology in India? Why do you think they are debated?

The most active debate around technology in India relates to the vulnerability and risks associated with the unique identification of citizen data, and the misuse of social media to spread fake news that has led to fatal consequences. However, the nature of debates and platforms has changed. There is a tremendous shift from engaged grassroots activism to distant online activism. This defines the boundaries of who can participate, to what extent, in which language, and with what level of responsibility and commitment. I do not want to sound pessimistic and would want to stick with the idea of unpredictability and uncertainty of the future. Having cautioned about that, I think we are talking at a very unfortunate moment in Indian history, especially regarding debates around social justice and environmental sustainability aspects of technological innovations. However, this moment in history has not abruptly arrived and has been shaped over years of active efforts by different academia-government-industry complexes. The individualization of systemic problems and sidelining of civil society groups through multiple mechanisms of withdrawing support has resulted in decline in a number of advocacy groups

that could put up a reasonable agenda for debate. I think that the *Bt Brinjal moratorium* was a watershed moment in re-defining the role of S & T in Indian politics and democracy. However, despite being the result of nationwide consultation and a laudable effort in innovation democracy, the moratorium closed many doors for open debate and discussions on matters related to S & T. Parallel to the world, India never saw an active, open debate on nanotechnology, synthetic biology, artificial intelligence, or the ongoing CRISPR gene editing.

India has experienced large economic growth. In post-independent India, what role has innovation played for political decision makers? What is it like today?

I think you want to know about S & T innovation and its role in shaping Indian post-independence politics. A simple answer is that it has played a central role and continues to do so. To the extent that politicians and citizens alike use it as an anecdote. You state any social, cultural, political, or economic problem and there will be many who will say “we need technology and innovation to solve it”. The first prime minister of India, Jawaharlal Nehru, is famously known for having addressed meetings and asked citizens to develop a scientific temper and for telling that “the future belongs to those who make friends with science”.

Most of the time, the topmost position of any academic institution in the country or government body is given to either scientists, engineers, or economists. The technological culture that Wiebe Bijker talks about has long been a technocracy in India. A technocracy that at its heart is deeply hierarchical around religion, caste, and gender. This means other than a selected few, everyone else can assume the role of a subordinate. It seems to be an excellent opportunity for a capitalist system that thrives on large-scale exploitation of cheap labor and resources. I think this could possibly be one of the reasons for huge economic growth. However, this economic growth has raised many inter-

nal challenges of economic and social inequality, informalization, and environmental sustainability.

What role does research play regarding the assessment of risks and benefits of technologies in India?

Technological risks and benefits have different weightage in societies that actively choose economic growth (in place of societal growth) as the measure of their progress and development. Future risks and uncertainties associated with technologies that promise great potential for the future are conveniently sidelined in the name of developing a “positive environment” in the initial phases of technology development. Once the technology is ready to reach the market, risk assessment becomes an internal matter between the industry and regulatory bodies. Research is sought internally or from external agencies, but with huge vested interests of the industry. There are quite a few very good research organizations in India that focus on risk research. However, the infatuation of societies with “positive

outcomes” and “goods” of technological innovations often makes them struggle for their survival and redefine their usefulness as per existing environment. It is only when any S & T controversy breaks out in the public that these risk research organizations and their research are seen as relevant. That makes one realize that controversies are a major requirement for innovation democracy and that they play a major role in the opening-up of regulatory governance of S & T and the democratization of technological assessment.

Who are the most relevant actors in this area at the moment?

Mostly scientists in government, civil society, or corporate organizations. In India, technology and, by default, technology assessment are studied either by scientists and engineers or, if you want to get a second opinion, by economists (which basically means replacing one set of quantitative analysis by another). There are three interconnected aspects that result in such a situation. First, and the most obvious, is the presence and dominance of a technocratic culture that only acknowledges quantitative inputs as valid recommendations. Second, in general, funding and Gross Domestic Product expenditure on S & T in India are very low for a country of this potential. Funding for the study of ethical, legal, and social implications (ELSI) of technology and TA are almost negligible. Third, there is a dearth of trained people in the country who are capable of undertaking studies in interdisciplinary domains. The social science community, other than the economists, have taken very little interests in matters of S & T or creating a pool of human resources in this interdisciplinary domain.

What are the main challenges for a diverse country like India regarding the inclusion of different people and stakeholders in S & T decision making? Are there differences between urban and rural areas?

There are huge differences between and within urban and rural areas. But, as Khil-



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nani in *Idea of India* remarks aptly, India has historically shown the world how to transform difference into diversity, rupture into continuity, and invasion into accommodation. As a result, differences are not a problem, but rather a necessity for a huge republic like India. Diversity creates the possibility of keeping a mutual check against tyranny through moderating ideological homogenization and softening power. The main challenge is the lack of political and institutional will to include people in S & T decision making. After more than 20 years of public engagement with science scholarships and their different uptakes in policy all over the world, the Indian S & T system still seems to be stuck in the deficit model. As a result, there is a huge lack of platforms and cognitive frameworks that could accommodate such diversity of knowledge and make it useful for S & T decision making.

What have your experiences regarding TA in India been like? Have you noticed any changes over the years?

In India, for many years the only formally recognized form of technology assessment was expert science advice to government bodies through multiple parliamentary and ad hoc committees. There are regular reviews of most of the S & T-led programs and initiatives in the country, but most of them could not be classified as TA in its complete sense. There were parallel attempts from civil society groups and academia to develop a bottom-up and critical TA. These attempts, though rich in evidence and analysis, never found a place in mainstream TA.

Over the past 20 years, Indian government has also attempted to institutionalize TA through dedicated institutions like the Technology Information, Forecasting and Assessment Council (TIFAC). As per my experience over the years, TA as formerly practiced, is mostly science advice that relies heavily on quantitative evidence and desktop research. This is not a problem as long as the goal of assessment is the evaluation of S & T projects for academic purposes. However, once the goal

broadens to include societal and environmental issues, this format of TA becomes extremely limited and restrictive. There is a huge lack of capacity of interdisciplinary scholars that can engage with social and cultural aspects of TA in India.

In an ideal world: what do you think India needs regarding TA processes and methods? How could that be implemented in a meaningful way?

As a short-term goal, it needs institutionalization in academic formats. There are different forms (like science advice) in which TA is being practiced in the country. However, practice should also accompany knowledge making and reflection. There is a dire need of informed debates and discussions on what TA is right now and what it can be for India. Institutionalizing TA through courses in undergraduate and graduate programs in science and engineering would be a very welcome move. Not only would this promote the development of reflexivity in engineering education, but at the same time, it can also present a new set of career choices for science and engineering graduates, which is to pursue science policy research. There is also a need for people who could identify

proper cross talk between S & T and its deeper social, ethical, and cultural implications is mostly missing. The black box of science, technology and innovation (STI) has still not been properly opened in the Indian context and whatever we know is mostly peripheral.

Where do you see TA and responsible research in India in 20 years?

20 years is a long time. TA for sure is going to stay, even in its highly technocratic version, through institutions like TIFAC. TA in its technocratic version could be easily disguised as value-free, neutral, and non-partisan, resulting in its relatively easy acceptance by scientists and policy makers. I hope that eventually they will get interested in its political, social, and cultural aspects as well. TA is also gaining momentum through emerging academic institutions and research organizations that have developed science policy as their focus area. I am not sure about RRI though. Precisely for the reasons mentioned above. On the face of it, RRI looks normative and demands engagement with values. This is a difficult subject for the technocratic establishments. As a result, policy makers come

Economic growth has raised many internal challenges of economic and social inequality, informalization, and environmental sustainability.

with it as a domain of expertise. There is a general tendency that people identify with their core discipline. In India, science policy is usually a domain where either renowned scientists (postretirement) bring funds to fulfil their desire for doing something for society or ad-hoc experts from different core disciplines give ad-hoc advice. There are research organizations like the National Institute of Science, Technology and Development Studies and the Research and Information System for Developing Countries, but they too are heavily dominated by economists. As a result, a

with a ready-made answer that disarms RRI from penetrating these institutions and looking at actual practice of STI in India. The other entry point for RRI in India is through research organizations, which are involved in EU collaboration projects on RRI. Most of the times, these organizations run in a mode where, by nature of their existence, they spend the majority of their time in meeting deadlines and ticking boxes. Once a project is over, the focus shifts to the next and then the next. Everything is mechanized and automated. It is not a blame or complaint,

but a mere reflection on the current state of affairs. As a result, RRI never got a chance to become an academic phenomenon or to get the kind of attention it de-

ducted on an everyday basis to result in access, inclusion, and equity? What kind of power and knowledge asymmetries affect these processes and in what ways?

disruption than loosely coupled, flexible technological systems. Similarly, Felt's work on Risk Society suggests that technological risks have socio-economic and political dimensions. A global TA needs to be sensitive to these aspects. TA in our globalized world needs to be reflexive and responsive at the same time. This demands a commitment to care and continuous engagement.

At a deeper level, RRI also demands “commitment to care” for the processes of how “responsiveness to social needs” could be achieved.

served in order to find its niche. There are fringe engagements from people like me, but we are really a drop in the ocean.

What are the predominant values in India at the moment concerning responsible research?

Well, as I said, in general, the black box of STI in India has still not been opened properly. As a result, whatever values we are currently talking about are from peripheries of S & T. The element of reflexivity is largely missing. Indian scholars and policy makers who engage with RRI are too busy with celebrating frugal and grassroots innovation as Indian versions of RRI. This preposition could be highly problematic. For one, it masks the systemic challenges and institutional failures RRI could have engaged with by highlighting individual strategies of survival and coping as responsible innovation.

The STI policy 2013 envisions ensuring access, inclusion, equity, and sustainability though faster delivery of S & T-led solutions. Many identify these as the core values to be addressed by RRI. At a broader and more general level, the STI policy goals go very well with the aims of RRI, which are to engage with the “right impacts of research” or being “responsive to societal needs”. However, at a deeper level, it also demands “commitment to care” for the processes of how this could be achieved. Who would take responsibility? What does it mean to take responsibility? In what ways could RRI be con-

All these questions are unanswered in the Indian context and demand deeper engagement.

What can Germany learn from India regarding the relationship between S & T and society?

Honestly, I need to know more about the German S & T system to answer this question. The relationship between S & T and society in India is multivalent. Some bonds are stronger than others, and some are cared for and nurtured more at the expense of neglecting others. A lot exists outside the formal institutional domain of S & T. This is the space where multiple forms of knowledge exist, including traditional knowledge systems, even though it is shrinking every day. Because of the sheer existence of multiple knowledge systems and their interactions, the relationship between S & T and society in India offers the possibility of new combinations of alternatives to emerge in the face of our pressing global challenges.

S & T developments are increasingly global, new technologies simultaneously affect societies across the world. How do you think TA should respond?

The effects of new technologies are definitely global, but not uniform, and this is what TA should pay attention to. If we look at the concepts of Normal Accidents by Perrow, tightly coupled, rigid, and complex technological systems are more vulnerable to technological failures and

What could India bring to a global TA approach?

Indian scholars have enormously contributed to a critical TA, which emphasizes that in order to understand the impacts of technology on society one cannot shy away from the questions of knowledge, justice, and democracy. These deeper, uncomfortable questions often get sidelined in the long-term narratives of progress and development and the short-term demand for a quick technological solution to an immediate problem. These critical studies of technology have been largely unsuccessful in engaging scientists, the industry, and policy makers. A cross-talk between global TA and Indian critical technology studies has the potential to open up opportunities to develop an analytical approach that is sensitive to these bigger questions while addressing practical challenges faced by practitioners.

What is your favorite activity besides research and why?

I love dancing. Why do I like it? Virginia Woolf answers it in the most beautiful way in *A Dance at Queen's Gate*: “Dance music stirs some barbaric instinct – lulled asleep in our sober lives – you forget centuries of civilization in a second, and yield to that strange passion which sends you madly whirling round the room – oblivious of everything save that you must keep swaying with the music.”