Knowledge Society Debates: Hyderabad Roundtable Conference

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Session 1: Democracy or technocracy?

Public Science for Public Ends: Rethinking Democracy in a Technological Age

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It has become an axiom of good government in most democratic societies that public support for science and technology advances the public good. States routinely vie with one another to increase the portion of GDP spent on science, to identify and support key technologies, and to educate their publics to become more scientifically literate. Missing from much of the science policy debate, however, is a deep consideration of the changes that have fundamentally reshaped the production of science and technology over the past century. These changes include increasing specialization, the growth of military as well as civilian science and technology, the rise of mission-oriented science, the increasing involvement of the private sector in designing both the goals and the products of innovation, and the political and environmental challenges of globalization. Drawing on examples such as nuclear power, stem cells, and GM crops, we will explore how these seismic shifts in the landscape of scientific and technological production have reconfigured relations between states and citizens, so that the first premise of science policy—that more public science means more public good—can no longer be unquestioningly accepted. The model of the knowledge-able citizen will be advanced as democracy's best answer to these contradictions and challenges.

Taking democracy to the world of knowledge

Sunil Sahasrabudhey - Vidya Ashram

The world wide web and the neo-liberal economy have greatly disturbed the world of knowledge. In fact there is a sweeping destabilization of the world of knowledge which had got built over the previous centuries in the leadership of the physical sciences. This period had been concomitant with the rise of the idea and practice of democracy. However the world of knowledge as it got built replicating the paradigm of the reductionist science built strong hierarchies. The ideas of equality, liberty, fraternity and socialism were as if not relevant to this world. Now it seems a great opportunity is in the making for taking these ideas to a new world of knowledge which appears to be taking shape. The following may be noticed in this regard. Two new sciences are rising - Information Science and the science of Knowledge management. A new concept of knowledge is taking

shape. It is in such an initial stage that the word is often used indiscriminately defying any regulation that may be expected to stem from a well formed idea. There also seems to be, in line with it, a challenge to the scientific ontology of things and forces with inauguration of new spaces to postulate new basic entities residing at the moment in the worlds of communication, language and art, or even refusing to accept the idea of basic entities. The legitimacy criterion of knowledge is changing. This change can be seen around the change from the criterion of scientific method to that of organizability by the new information technology. Hierarchies of the old house of knowledge are breaking down. The reflection of this in market values has a correspondence with the changing concept of knowledge. New paradigms of knowledge are emerging. Life sciences are showing signs of a shift from physics/chemistry to information processing as constituting the basics. People's knowledge (*lokavidya*) is getting a new recognition. Not just the body of information, but design, art, method of organization and thinking all seem to be getting a new lease. The world of knowledge is getting populated by a variety of entities from diverse sources and abiding to different validity criteria. This situation constitutes a great opportunity to introduce the time honoured values of liberty, equality, fraternity and socialism into the world of knowledge. Without genuine democracy in the world of knowledge, the idea and practice of democracy cannot assume the command in the real world. However the accompanying processes of Knowledge Management, financial controls and the new technologies have emerged to sign a future which would look totally different. Knowledge management is moving to the top slot of the commanding position in this world of knowledge and from there it captures into the virtual world all that is of value (presently being determined in the market). Financial institutions (powers) exercise great control over these new knowledge processes, moving them towards building a new hierarchy in this new world of knowledge. Technocracy is on a rise, particularly with the advancing frontiers of what have been called the converging technologies, viz. bio, info, nano technologies and the cognitive science. This technocracy is not uncomfortable with the de-positioning of science. It seems to derive strength from the emerging world of knowledge and in the process strengthen the new hierarchy being built by the financial powers through Knowledge Management. Logic of being cannot be different from the logic of knowledge. Values of the real world cannot be different from the values of the world of knowledge. If democracy is the desired lead idea and practice of the real world, then democracy must inform the world of knowledge, different traditions of knowledge must command equal place and respect. A great source of strength and ideas for such a process to be taken forward is Gandhi and his philosophy. Not so long ago, Gandhian epistemology recognized the multiplicity of knowledge traditions and their validity in the world of science and industry, now it is up to us to reconstruct a view of knowledge which gives equal status to the great variety of traditions of knowledge in the world of Information and Knowledge Management.

Three epochs in one: An account of contemporary India

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The production and transmission of what counts as knowledge takes place within the always already erected philosophical, political and ethical enclosures set up for us, by us and against us. Knowledge claims may lead to transgressions or even radical reconfigurations of those enclosures but cannot dismantle them as such. What counts as knowledge is therefore inescapably contaminated by the epistemic violence of the philosophical, the tyranny of the power exercised by the specific form of the political, and the ambiguities engendered by the putatively salient set of virtues comprising the ethical, enclosures.

If unceasing transgressions are valorized as modernity, resistances to such transgressions are upheld as tradition. Both transgressions and resistances are expressions of the human creativity to simultaneously affirm and deny identity and difference. Human history is thus the dialectic between transgressions and resistances. Postmodernity claims to have opted out of such transgressions and resistances through ascetic withdrawal from and/or aesthetic celebration of the play of identity and difference.

In our own epoch, the globally dominant knowledge system of modern science and technology seeks to enforce its enclosures through two principles, one of inclusion and the other of exclusion. Its inclusion principle contends that no domain of enquiry is exempt from its interrogation (the doctrine of secularism). Its exclusion principle asserts that what it calls the scientific method is the only valid method for the production of knowledge (the doctrine of methodological monism).

In light of the above framework, my account will seek to highlight the consonances and dissonances within and across the cognitive dispositions and material practices of three epochs- the preindustrial/traditional, the industrial/modern, and the postindustrial/postmodern –. which run their courses in parallel in contemporary India.

Global Integration and Local Exclusion in High-Tech Spaces

Ramachandraiah C. - Associate Professor Centre for Economic and Social studies
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The Cyberabad Development Authority (CDA) covers an area of 52 sq. kms. and has been projected as the ‘City of Tomorrow’, and ‘a model for other urban areas in the country’. This new township has several IT parks and institutions along with the ‘HITEC City’. One finds an universalising of visual forms or the built environment; ‘image engineering’ (as one observer put it) and indicates that these could be complexes anywhere in the world. Rise of gated communities in

Cyberabad is seen as another manifestation of the city becoming global. The new airport is supposed to have launched Hyderabad into the global aviation network. The high-tech spaces have been conceived and planned in ways that privilege the global but deny the local, the regional and the poor.

Amidst the high-tech glitter and gated enclaves, most of the villages in CDA experience acute drinking water crisis, which is in sharp contrast to the large quantity of water supplied to the IT companies and other institutions. Such a process of exclusion and marginalization of the poor is very starkly evident in school education in the city; global schools for the rich, private schools to the middle class, and government schools with pathetic state of infrastructure to the poor. This has got more accentuated in recent years.

Politics of ethics: do ethics committees represent the civil society?
Mariachiara Tallacchini - Faculty of Biotechnology, University of Milan (Italy)

Though the law has played a special role in the EU context, helping the harmonization of the different Member States' legal systems, the regulatory needs of the so-called Knowledge Society have gone beyond the traditional features of the law. In this context ethics has increasingly emerged and become a valuable political resource, capable of overcoming the original economic foundation and to shape the EU political and epistemic identity. In this perspective 'institutionalized ethics' has been performed primarily as a politics of ethics, namely as a way to rule society without formal rules. The presentation explores the main features and limits of this "soft normative tools".

Session 2: Whose innovation counts?

Innovation as commercial value: Imagining knowledge, for what social ends?
Brian Wynne - Associate Director of the UK ESRC, Centre for Economic and Social Aspects of Genomics, Lancaster University

The new global knowledge-economy weaves molecular bioscientific knowledge together with physical and information sciences, in the interest of competitive extraction of economic value from what is selectively defined to be science-based innovation. In these processes, the forces of concentration and control, legal ownership and exclusion combine as influences which reach further and further upstream in the life-cycles of scientific R&D in many fields of research. These intensifying and increasingly systematically global investment factors have created a so-called basic science agenda which tacitly reflects imaginations of private commercial value as if this normative horizon were natural. Even, perhaps most especially in domains such as agriculture, these political-economic forces of concentration have created monolithic trajectories of scientific innovation which have become inflexible to social – and environmental

sustainability - demands for diversity and distribution in terms of the social grounding of innovation in existing, rooted social and environmental worlds of agricultural knowledge-practices. This presentation will describe European research policies in crop plant sciences which have created a degree of crisis for science, thanks to their own self-defined imaginations of what counts as 'innovation' and the unaccountable commercial-corporate techno-social imaginaries which underpin these.

Knowledge, democracy and science policy: The missing dialogue In globalised India

Shambu Prasad – Associate professor and coordinator, Rural Management programme, Xavier Institute of Management.

There is a curious paradox to India's much celebrated "World's fastest growing free-market democracy". Even as this success rides on Indian science and technology prowess notions of democracy are largely missing in Indian science policy processes. This article explores these distortions in science policy and argues that in India's attempts to integrate with the global economy, closer attention needs to be paid to the democratic aspirations of large numbers of economically poor but knowledge-rich people that science policy makers ignore. The demands for inclusive growth in the 11th Five-Year Plan is possible only if the science and technology component of the Plan sees itself as laying the ground for a dialogue with diverse approaches. The article examines the recent steering committee report on science and technology for the 11th Plan in the light of current debates in innovation theory globally and asks if the steering committee report is out of sync with recent thinking on innovation on the one hand and democratic processes on the other. The article also examines alternate pathways to science policy urging that Indian policy experience needs to learn from a wider set of critical thinking on policy dialogues and public engagement with science in other parts of the world. Reworking the dialogue between knowledge, democracy and science policy in an interconnected world needs to be seen as paramount. Promotion of internal democracy, knowledge dialogues and learning alliances are processes, the article argues, that are as important as greater investments on R&D if India sees itself as realising its knowledge super (soft) power.

Soap and the social good: Innovations at the bottom of the pyramid

Jamie Cross - Royal Anthropological Institute Leach Fellow, National University of Ireland and Alice Street - Department of Anthropology, University of Sussex, UK

Hindustan Unilever Limited (HUL), the Indian subsidiary of Anglo-Dutch conglomerate Unilever, is India's largest fast moving consumer goods company. In 2000 the company embarked on a new marketing and advertising strategy aimed at rejuvenating falling sales of one of its oldest brands of soap, 'Lifebuoy'. This presentation introduces a new research project investigating the material

and ideological production of an everyday commodity, soap, as a 'social good' capable of eradicating disease and alleviating poverty. The project expands a critical engagement between anthropology, the market and international public health by focusing on the emergent field of 'social enterprise' and by asking how diverse actors, agents and institutions are enlisted to projects of accumulation.

How do farmers drive innovation trajectories of crop biotechnology?
Esha Shah – Institute of Development Studies, University of Sussex, UK

The academic and media debates in India routinely attribute the agency of good and bad of genetically modified crop biotechnology to the multinational companies and scientific establishments. Accordingly, farmers cultivating genetically modified crops are treated as passive recipients and often as victims of the technological innovations developed in far away laboratories beyond their control. In the similar vein, the recent and emerging scholarship on the regime transition theories, more generic to European context, explores meso-level alignment of socio-technical institutions and actors in explaining a specific directionality of technological change. Despite the wide spectrum of concepts used in the regime transition theories, there is a tendency to treat socio-technical change as a systemic property dominated by rational action of actors and institutions. In both these scholarly constructs of technological change generic to the debates in India and Europe, differential impact of power and politics in driving innovation trajectories is significantly neglected.

In my presentation, I will discuss the cultural, productive, environmental, and cognitive contexts within which the cotton-growing farmers in the western Indian state of Gujarat adopt, develop and diffuse genetically engineered crop biotechnology. I intend to argue that the crop biotechnology represents a technological culture with a specific value framework which is commonly endorsed by both multinational companies and resource-rich cotton-growing farmers in Gujarat. I will also briefly explain the ways in which historically determined access to water, land and labour and agrarian relations, since the introduction of green revolution, have created path dependency of technological change. The presentation will ultimately discuss how farmers create, reproduce, and exchange knowledge about the genetic modification and how their values, ethics, interests and desires influence and shape technological choices and thus drive innovation trajectories.

Session 3: Risk and uncertainty

Science, precaution and participation in governance of technological risk: from tension to synergy?
Andy Stirling – SPRU and Co-Director of STEPS Centre, University of Sussex, UK

In current high-profile debates over the management of technological risk, many see a contradiction between science and innovation on the one hand and precaution and 'public engagement' on the other. Moves in either of these latter directions are often seen alternatively (positively) as matters of democratic principle or (negatively) a reflection of 'political correctness'. Either way, there appears to be a tension with the role of objective expertise and rigour in the governance of technology. Likewise, increasing prominence of the precautionary principle is sometimes represented as a capitulation to irrational public anxieties over new technology. Where no distinction is made between different pathways for technological innovation, there arise strong fears that precaution presents a threat to technological progress itself. Starting from a broad view of the nature of technological progress - and using examples drawn from debates over energy technologies and agricultural strategies – this presentation will explore some of the gaps and misunderstandings in current high level policy discourses over science, precaution, participation and progress. A number of practical implications will be explored both for appraisal methods and general policy making.

Gain maximization for a few Vs risk minimization for all: Choice that society will have to make to survive this century

Sagar Dhara - Serana Foundation, Hyderabad Platform

Knowledge and energy are the fundamental drivers that have historically shaped human development. They helped colonize nature to increase material wealth. Since the advent of class society, embodied energy (eMergy—total congealed energy that goes into products and services) has accumulated with a class of humans—eMergy-appropriators—through processes that allowed them to usurp the rightful share of energy from nature and from a class of humans who are eMergy producers.

With the use of fossil fuels since 500 years, energy use and eMergy appropriation and accumulation have increased exponentially. Primary commercial energy use today is one-sixth the energy produced by photosynthesis, with a 30-year doubling time. We are currently consuming 1.4 times earth's bio-capacity, thus liquidating earth's natural capital.

We face three tipping points today, each with the potential to pose grave risk to human society, as we know it. 1) Rapid depletion oil and gas reserves, with no viable alternative energy source available; consequently steep energy price rise followed by a deep global recession in the near future. 2) Global warming, which is expected to drastically impact the environment and human society. 3) Rapid deterioration of the environment and its life support systems—land, water, air and biodiversity.

Technical, legal and economic fixes cannot stall society's march towards these tipping points as the global economy is based on greed and has permitted

eMergy accumulation on a massive scale in the hands of a few, and this has interfered with the carbon cycle in a fundamental way.

Development as understood—growth, equity and social justice—has failed. Economic growth will slow down and even become negative with rapidly rising energy prices and climate change impacts setting in. Trickle-down theory has failed and inequity has only grown in the last 150 years. Mass poverty and massive global inequities between nations and economic classes can no longer be reduced by the "economic growth" mantra. With the failure of economic equity, social justice cannot happen. By going against the laws of nature, capitalism has become self-limiting. *Sustainable development* is an oxymoron. Development must therefore be re-defined as:

- Powering down energy (and natural resource) throughputs in society.
- Conservation natural capital is vital and can only be done only by addressing issues related to equity.
- Ensuring that all people have energy and natural resource equity. To control their energy sources, people must recover control over their stolen environments.

The above can only be achieved if global thinking shifts from *"gain maximization for a few"* to *"risk minimization for all"*. To move towards the latter, we have a choice of three equities: a) between people, b) between generations, c) between species.

While nature has facilitated negative entropy, humans, in their quest for conquering nature, have created ever-increasing knowledge of energy conversion, which increases entropy. If society is to survive, we have to encourage nature-nurturing negative entropy knowledge, and voluntarily eschew knowledge that increases entropy significantly.

The roadmap to do all this is hazy and uncharted. There isn't adequate public will or time left to make the shift before catastrophic events predicted to happen with peak oil and climate change tear apart the fabric of society as we know it. Some are already talking of survival strategies in a post-industrial stone age.

The speaker belongs to the most rapacious predator that ever stalked the earth, and to a net destructive discipline—engineering—that has to take more than a fair share of the responsibility for bringing earth to an apocalypse.

Understanding the notions of Risk and Uncertainty: Critical Insights from the Indian Health Sector

Purendra Prasad - Department of Sociology, School of Social Sciences, University of Hyderabad

Health is increasingly projected as an individual's responsibility rather than a systemic service expected in a welfare/developmental state. The notion of `risk' is also highly individualized. With the growing knowledge systems, technological modernity, scientific innovations, the proportion of sick poor has been constantly on the rise in post-Independent India. Given the limited options for large majority of the poor, they are blamed as irrational and superstitious when the sick poor consult the traditional healers and when they like to embrace modern health care system, the inaccessibility and social distance makes it impossible for them to participate in any manner. With all these complexities, the pluralistic medical tradition in India gets glorified by the articulated sections, which in reality needs to be explained what it means for the sick poor and their life situation, where disease is only incidental in the whole process. In that sense, medical pluralism and rational choices are all about two different social worlds, a few social groups getting increasingly connected with the global health standards while the others getting completely disconnected with the institutionalized medical systems.

There are clear indications with the recent epidemics that issues such as poverty, gender inequality, marginalisation of people ad lack of access to information and services play a major role in aggravating the epidemic situation. The dominant medical, legal, and administrative approaches are used to identify the risky population in order to classify, label and target these groups which results in segregation and alienation of certain social groups. Infact these approaches justify or produce medical facts that incorporates the existing social biases in categorizing groups of people and then target certain groups as 'risk groups'. For instance, the problematic issue in the HIV/AIDS discourse is about how it castigates one form of sexuality- that is commercial aspect of sex work and also through this process it provides legitimacy to other forms of sexuality, which holds exchange value because they are labelled as non-risk groups.

Anti-discrimination and appropriate use of new technologies: Speaking to edifices of International Trade Law

T. K. Naveen, Research Scholar, Department of Law, University of Tilburg

Science continues to be dressed up as the neutral and foolproof yardstick against mercantilist protectionism. This is notwithstanding the reality of its over-reliance exacerbating profound imbalances on democratization among *international* relations in general, and international trade disputes in particular. Commercialisation of new technologies are often connected to economies of scale and the first mover advantage, where claims of mercantilist protectionism are quick to be seized upon in the context of differential treatment in *foreign* jurisdictions. For instance, the transatlantic neo-liberal consensus has been under consistent strain in the past decade due to controversies around Beef Hormones and GMOs.

Recent histories clearly demonstrate that the permissible ambits of national regulatory action has moved away from *legitimate reasons* model to a particular

risk model that is sought to be *scientifically* configured. Thus, specific risk to human health, environment and so on, are sought to be either *scientifically* proved or *precautionarily* dealt with to legitimate national regulatory action. Where can this scenario leave regulatory actions that may seek to make governance structures more plural, open ended and specific to the necessities of a region? Through constructions of necessity and public interest the development and use of new technologies, say in its funding and rules for commercialization, can vary substantially in different regions. These can include regulatory choices to ensure that different technological options are kept open, in the face of scientific uncertainty and ignorance. How then does the disciplinary context of international trade law affect regulation of wide-scale use of a new technology, say in scenarios where such regulation include genuine attempts to be open-ended to ensure plurality? Conversely, what are the heuristic possibilities of transformation offered by such national regulatory moves to the current configuration of the principle of *anti-discrimination* in the global trade regime?

Risks in dry land agriculture: A note from AP

E Revathi, Centre for economic and social studies.

Agriculture has been undergoing structural transformation in terms of size of land holding, cropping pattern, input intensity, and increased market dependence. The agriculture scenario is predominantly occupied by small farmer in terms of number as well area operated, cultivating mostly high value non food crops with high credit and other input requirements producing essentially for the markets. At the same time the state support that was in place during the first phase of Green Revolution has been retreating. The traditional / informal mechanisms of risk sharing and bearing become obsolete and formal mechanisms (market based and publicly provided) have found to be severely incapacitated and inadequate. This transformation is found to be causing additional stress on high risk groups in terms of geographical location (dry land), class and social group of farmers. The present note attempts to analyse risks faced by deceased farmers from a primary study conducted in four districts (Warangal, Mahbubnagar, Anantapur and Guntur) in Andhra Pradesh. Risks are categorized into idiosyncratic and covariant and the former are more in number in suicide cases. Farmers who are subject to input and output market risks as well as psychological stress are more prone to commit suicide.