MEETING REPORT

Science and policy*

(a) Noting that there is a need to strengthen good science leading to good technology to help solve social and environmental problems of the country, (b) intending to make science and technology (S&T) a caring, humane, professional working tool accountable to the society, (c) agreeing that S&T without ethics, empathy and responsibility is extremely dangerous, (d) acknowledging that as India transforms from traditional to modern, rural to urban, agrarian to industrial, and old to young, the nation's S&T policy must evolve with time, (e) recognizing that even after 23 years since India opened its economy and welcomed technology in a major way, her people are still struggling with staggering levels of inequality, and (f) realizing that it is essential to reflect the thinking of senior-level scientists and technologists on the broader policies of scientific management in the country, a group of 22 senior scientists and heads of specialized divisions of major national institutes and universities in the country along with other leading scientists and policy makers spent five-days to work out a draft strategy towards a 'Policy for science and science for policy'.

The basic idea of the meet was to deliberate on new perspectives on S&T policy to make S&T more meaningful to the society. The deliberation spanned over several important areas such as how future S&T policy of the country should respond to climate change, global warming, energy requirement, space security, public health, cyber security, wildlife management, environment, renewable energy, foreign policy, and primary and higher education.

For the ensuing century and even beyond, S&T would be the leading element in spearheading the mental, psychological, philosophical and educational development in the world. However, it is realized from experience over the last six decades that scientific productivity has never been continuous and has remained

nonlinear with reference to capital input. Stressing electricity generation as a major challenge for any future S&T policy, R. B. Grover (HBNI, Mumbai) indicated that by the middle of this century, India will need about 8000 TWh (8 lakh kWh) energy, which is eight times the present generation output. Quoting Stephan Hawking that 'the development of full artificial intelligence could spell the end of the human race', Grover called for unification of social sciences with the realities of social life. Recognizing that the distinction between big and small, S&T, basic and applied research, and regional and international has blurred over these decades, Pranav Desai (JNU, New Delhi) identified emerging technologies (nano-, information- and bio-), environmental movement and globalization as three major challenges towards scripting a successful S&T policy in the country.

Visioning an increase in demand for floor area by a whooping 200% by 2025 compared to the present, Radhika Khosla (CPE, New Delhi) emphasized on smart construction of future buildings that could be energy-efficient by 60%. Stressing that space security is very much linked with Earth-bound security, such as terrorism, proliferation of WMD, regional conflicts, organized crime, ozone hole, orbital debris from out-of-service satellites, environmental degradation and monitoring international borders, Bhupendra Jaswani (Kings' College, London) took the participants to a different knowledge level to ultimately suggest that any S&T policy should encourage more regional satellites (SAARC, EU, continent-wise, etc.) rather than crowding space with country satellites, and to operate under an UN Satellite Monitoring Agency. Suggesting a paradigm shift from the existing bio-medical model to a social/community model vis-à-vis health care in the country, Ravi Narayan (SOCHARA, Bengaluru) proposed that health policy should work as a tap-turner rather than a floor-mopper, and must shift from medicine to poverty eradication and improving nutrition, and from illness care to well-being.

Agreeing with the Madhav Gadgil report (2007), Nitin Rai (ATREE, Bengaluru) argued that a transparent and

inclusive 'inform and share' approach in the form of empowering gram-sabhas must replace the present control and command structure on managing biodiversity. The enormous potential of renewable energy in India was presented by P. C. Maithani (Ministry of New and Renewable Energy, Government of India), that includes 2000 MW from wind, 750 MW from sunlight (@ 3% of land availability), 17 MW from biomass, and 15 MW from small hydro projects. Maithani appeared confident of tapping these resources in future, as establishment cost will come down due to favourable Government policy. Malavika Kapur (NIAS, Bengaluru) brought to focus the fact that unless the gap between developmental psychology in child and primary education is bridged, quality education will remain elusive. Child-centred instead of teacher-centred approach is the key to quality education for all.

The brain-storming discussions that followed the above presentations offered some definite inputs towards framing a new policy for science and science for policy. The outcome, aptly summarized by Baldev Raj (NIAS, Bengaluru), indicates that any new policy must ensure (a) science has to serve society and not vice versa, (b) replacing science with human beings at the centre of the Universe, (c) avoidance of imposed solutions and imported technology, (d) participative approach that encourages local entrepreneurs to tap unprecedented opportunities, (e) replacing present output-oriented policy in career progression to outcome-oriented evaluation, and replacing the present project-specific funding by block funding flexible policy to institutes/universities, (f) help accomplish initiatives like Digital India, Swachcha Bharat, Skill India, Health for All, garbage reprocessing and academy–industry–research synergy, and (g) establishing credibility, sustainability, and ethics in S&T paradigm.

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