Towards Global Scientific Modernity
Science 20 in India and its Science Diplomacy Discourse

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Our collective sense of global modernity is based on our shared sense of scientific, technological, and innovative advancements. Science and technology have democratised our shared habitation on the planet and led to greater accessibility and comprehensiveness, transcending power and privilege disparities to reach even the most remote users. Despite this progress, the world exists in different eras, including pre-modern, modern, and post-modern periods, which coexist with cohesion and discord. We require better structures to strengthen cohesion and resolve discord. This need for better frameworks, is the birth of dialogue and the foundation for discursivity that establishes a sustained possibility of discourse. I like to think of it in terms of an interesting Foucauldian discursion where one dialogue leads into another – a continuum.

Science20 or S20 is a meeting of the academies – one can look at this platform as the coming together of vast international networks in science for a diplomatic dialogue wherein our collective future holds the central fort. In the periphery are the dynamics of cooperation and industrial translations of these cooperations. Collectively, a comprehensive debate emerges generating ideas essential for the development of civilisation.

S20 aims to provide policymakers with research-grounded recommendations based on broad consensus on selected issues of global relevance. Coordinated by the host academy, all member academies' representatives and decision-makers engage in lengthy discussions to reach a consensus statement. The host nation's G20 chair presents this statement to the Heads of Government. The signatory science academies have worked together in an outstanding spirit of cooperation and collaboration over the past six years to create a common policy document for the G20 leaders to accept and execute. The S20 group bears the crucial responsibility to engage with all stakeholders in the spirit of collective foresight and cooperation and to find solutions to the multitude of challenges faced by humanity.

Previous S20 Summits have addressed themes such as 'Improving Global Health: Strategies and Tools to combat Communicable and Non-Communicable Diseases' (Germany 2017), 'Food and Nutrition Security: Improving Soils and Increasing Productivity' (Argentina 2018), 'Threats to Coastal and Marine Ecosystems, and Conservation of the Ocean Environment - with special attention to Climate Change and Marine Plastic Waste' (Japan 2019), 'Foresight: Science for Navigating Critical Transitions' (Saudi Arabia 2020), 'Pandemic Preparedness and the Role of Science' (Italy 2021), and 'Recover Together, Recover Stronger' (Indonesia 2022).

To facilitate more productive and timely policy dialogue, it is crucial to have a comprehensive understanding of the global landscape of science. This understanding can be fostered through gatherings and conversations, which can then serve as the foundation for informed policy discussions.

The global experience of the scientific frontier is far more localised in terms of exchanges and engagement in the information age than ever before. 21st-century infrastructure has facilitated the expansion of international scientific networks connecting individuals both formally and informally to large collaborations in a shared ecosystem that supports and strengthens our knowledge systems. There has also been an exceptional rise in the informal research sector globally. Private enterprises, start-up ecosystems and independent individuals are making considerable contributions to research and knowledge systems but are represented indirectly through formal platforms.

The scientific enterprise faces challenges in the information age due to the age-old debate about intellectual narrative in public discourse. Science and society, though closely related, often come at crossroads, creating opportunities for effective dialogue. As we navigate our collective memory of the global scientific experience and our vision for its future, making decisions within the human institutions and their experiences is a challenge that requires global dialogue.

During the pandemic, we have witnessed the nature of complex questions that science must answer in a very short time to save the world. We are asking more fundamental questions with unprecedented rigour and precision. Science is now being judged based on its consequences and not just its intentions. There is no other world that seems to be waiting for us, the dialogue and diplomacy is our only pathway to making a better world.

We must now see science as a global unifier that can bring peace and security without further creation of borders or injunctions. It has proven to be effective and inclusive. Method or the logical framework of scientific inquiry engages in dialogue with all possible pathways involved in the mechanism to arrive at a theory. Logic, like a stoic wise old sage, is irrefutable, and if challenged, there are well-defined consequences. Despite that, the new age has also seen an unusual rise in irrational and unsubstantiated ideas debated in public discourse that have contemporaneously caused prejudicial friction among several factions of social and intellectual hegemony. Despite this, the new modernity of our age keeps emerging and advancing.

The emergence of global modernity is closely linked to scientific disruption and the pursuit of sustainable development. This year's Science20 conference is focused on exploring how disruptive science can lead to sustainable development. The conference will be centred around three major topics: clean energy and energy transition; the creation of holistic health that is universal; and how science, with its undisputed entanglements with society and culture, be more effective and benevolent in its relationship with them. Thus, under the overarching theme of *Disruptive Science for Sustainable Development*, we have three subthemes: *Clean Energy for Greener Future, Universal Holistic Health, and Science for Society & Culture*.

With disruptive science for sustainable development, we conceptually refer to the use of scientific innovations and advances to create more sustainable forms of economic and social development by reducing environmental impact, increasing efficiency in resource utilisation, and improving human well-being. Disruptive science uses cutting-edge technology such as data analytics, artificial intelligence (AI), machine learning (ML) and Internet-of-Things (IoT) devices, etc., which can optimise energy production and consumption; develop new renewable sources of energy; identify pollution sources; manage water supply systems; monitor air quality; optimise waste management processes; forecast weather patterns more accurately; maintain agricultural productivity levels, among others.

Disruptive science also promotes public policy changes relating to socioeconomic issues such as income inequality, poverty reduction strategies, access to healthcare services, access to finance opportunities or education reform initiatives. Furthermore, it encourages investments in green infrastructure which generate clean energy while protecting local ecosystems. Disruptive science has the potential to revolutionise how we live our lives by creating a future built on sustainability rather than the exploitation of resources. Now let's look at the subthemes in some detail.

Clean Energy for Greener Future

Our current reliance on fossil fuels is unsustainable, and we must prioritise transitioning to renewable energy to avoid catastrophic consequences, including the melting of Antarctica and an estimated 58-meter sea level rise that could displace millions living in coastal regions. Fortunately, the potential for harnessing renewable energies is enough to avert this fate - but capturing, converting and storing them on a large scale requires a monumental effort that has yet to be accomplished.

One option which should be explored when aiming for improved efficiency in our use of energy is technological advancement; however, implementing such improvements will require stringent regulations that place costs on carbon emitters and reduce price barriers associated with renewable sources like solar, wind, hydropower and biomass fuel. To this end, various technologies are being developed which offer real potential when it comes to utilising clean sources of energy. Examples include electric cars powered by batteries instead of petrol or diesel fuel; light-emitting diodes (LEDs) which consume less electricity than traditional lighting methods; plus high-voltage direct current transmission systems capable of transferring electrical power over large distances without needing transformers or other costly equipment. Despite their reliance on scattered natural resources like sunlight or wind velocity – both difficult to predict – these solutions still hold great promise in terms of technological innovation regarding both solar power generation and efficient storage solutions.

Despite our incapacity when it comes to predicting complex phenomena accurately, it is still crucial that each individual strives towards creating a better future through understanding and commitment. Acknowledging potential futures ranging from disastrous to idealistic, humanity must work together to create new energy systems compatible with long-term survival despite limitations and boundaries set by nature.

Universal Holistic Health

Universal holistic health emphasises comprehensive approaches that address physical, mental, social and environmental factors impacting health. It includes providing access to healthcare services and resources, as well as creating social and environmental conditions for healthy living. The World Health Organisation (WHO) supports this approach as part of its Health 2020 framework.

Creating better global health would not only mean creating better medical infrastructure or ease of access to medical care but also adopting sustainable practices, which would help enhance cumulative global health standards. It would mean better farming practices, availability of good food, healthy eating practices, and better opportunities for sustainable and environmentally responsible food products. In addition to this, it is important to revisit traditional practices and find a way to include them in our modern daily lives.

Holistic medicine considers the whole person- body, mind, spirit, emotions and others, for achieving an optimal state of well-being. Universal holistic healthcare ensures equal access to quality care for all individuals, regardless of economic status or geographic location, reducing disparities in health care. Additionally, emphasising preventive measures like immunisation campaigns and smoking cessation can lower the incidence rates of specific illnesses and medical costs.

Furthermore, addressing aspects like nutrition and activity levels can contribute to a general improvement in public well-being, which could eventually result in a rise in individual productivity within these countries' workforces.

It would also be ideal if cutting-edge healthcare technology were made accessible through worldwide research collaboration, establishing a network between global academia and business. In recent years, data have also become increasingly important in decision-making. With accurate measurements in place, it is crucial to evaluate how data, AI and ML technologies might be used to apply disruptive science to build a worldwide holistic health ecosystem.

Connecting Science to Society

Since the beginning of the reason-based discourse, science has struggled to find its place in the civilisational dynamics across the globe. Despite its potential to provide solutions to everyday problems and uncover the mysteries of the universe, science has not always been integrated into a cultural dialogue or social governance. It is rather amusing to observe that social evolution necessitates scientific progress and exploits scientific and technological advancements for its utilitarian purposes.

To facilitate progress, it is necessary to connect science with society and fulfil societal needs through equitable and sustainable development. It requires sharing quality scientific information with society on issues such as health, agriculture, climate change, ocean health, biodiversity loss and other areas of vital importance. A global diplomatic discourse needs to find a place in the realm of cultural diplomacy for science and its encouragement through various social engagement programs.

To promote global civilisational and evolutionary processes, it is vital to create a more interactive and inclusive science infrastructure through collaborations and partnerships. Encouraging participation in megascience projects can lead to the democratisation of scientific prowess and generate equitable benefits for all involved parties.

It is essential to position science in a public forum where it may be judged and scrutinised by the general population. Global welfare enterprises need to improve the lives of the last user through scientific and technological breakthroughs, demanding innovation that stimulates economic growth. This might be accomplished, for instance, by creating cooperative and shared incubation centres that utilise the STI capabilities of member institutions. Another significant expansion of the worldwide science diplomacy enterprise might be the promotion of entrepreneurial skills and the creation of possibilities for mentorship for science and technology-based companies.

The future of science is bright, and international cooperation will be crucial to our advancement. By forming alliances with other nations and organisations, we can use our combined knowledge to improve fields like technology, energy, and medicine in ways that would not be possible individually. We can find answers that could help humanity on a global scale by pooling our resources and sharing our knowledge. Importantly, these partnerships offer worthwhile chances for cross-cultural learning and idea exchange. When we work together across borders to foster an environment of creativity and collaboration, the future of science holds immense promise.