



Office of the Principal Scientific Adviser
to the Government of India



राष्ट्रपुत्र वैचार

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STRENGTHENING GLOBAL SCIENCE ADVICE: G20-CSAR INITIATIVE



Professor Ajay Kumar Sood

Principal Scientific Adviser to the Government of India
Chair, G20-CSAR

India assumed the G20 Presidency on December 1, 2022. With this, the Honourable Prime Minister announced that India's Presidency will be "ambitious, decisive, inclusive and action-oriented".

The unanimous adoption of the G20 Declaration Statement during the G20 Leaders' Summit in New Delhi underlined India's commitment towards addressing global challenges keeping human centrality at its core. Science and Technology played a pivotal role in shaping the summit's stance on inclusive growth and sustained development.

The same spirit was reflected in the success of the G20-Chief Science Advisers Roundtable (G20-CSAR), a flagship initiative launched under the Sherpa Track of the Indian Presidency.

The G20-CSAR, a one-of-its-kind initiative convened over 85 percent of the world's scientific knowledge for the first time to discuss pressing global priorities in science, technology, and innovation landscape within the governance framework. The initiative culminated in the successful adoption of the Outcome Document and the Chair's Summary at Gandhinagar, Gujarat on August 28, 2023. Additionally, Brazil's commitment to continue the initiative during its upcoming Presidency added further momentum.

G20-CSAR presents a unique opportunity to synchronize global science advice with an ambitious, decisive, inclusive, and action-oriented approach.



PSA Prof. Ajay Kumar Sood chairing 2nd G20-CSAR Meeting

AMBITIOUS

India's profound commitment to democracy and multilateralism, rooted in the principle of '*Vasudhaiva Kutumbakam*,' set the stage for the ambitious G20-CSAR initiative. Under the overarching theme of India's Presidency, 'One Earth, One Family, One Future,' G20-CSAR envisioned to tackle known and unknown challenges that affect regional, national, and international landscapes through science advice with a human-centric approach.

The initiative also played a pioneering role in strengthening the global science advisory mechanism by rooting for a platform for continuous engagement of science advisers under the G20 framework. G20-CSAR also aimed to facilitate voluntary knowledge and resource sharing based on mutually agreed terms, with a focus on inclusivity, transparency, and sustained collaboration for science-informed policymaking.

DECISIVE

The underlying objective of G20-CSAR has been to elevate discussions concerning both current and emerging global priorities across various sectors to a more decisive and impactful level through the lens of science advice. A planning meeting was held in January 2023, wherein four priority areas were identified by all G20 members and invitee countries to discuss and deliberate upon. Over the course of multiple bilateral and plurilateral engagements, along with four intersessional meetings, these key priority areas evolved into actionable directives, paving the path for the successful adoption of the Outcome Document and Chair's Summary.



2nd G20-CSAR Meeting underway

INCLUSIVE

Since its inception, G20-CSAR has remained deeply committed to inclusivity. The importance of including underrepresented groups and communities in the global STI ecosystem was acknowledged by G20 member countries, invitee countries, and participating international organizations. Deliberations focused on bridging socio-economic gaps to ensure that the benefits of scientific and technological advancements reach all segments of society.

Furthermore, the Outcome Document highlighted the criticality of creating a global science and technology ecosystem rooted in Diversity, Equity, Inclusion, and Accessibility (DEIA), listed as its third focus area.

ACTION-ORIENTED

The G20-CSAR initiative helped produce several action-oriented outcomes to go beyond proactive discussions. Under the key priority area 'One Health', the Chief Science Advisers and their nominated equivalents proposed the development of data standards for One Health via appropriate channels for better information sharing. The Science Advisers recommended the creation of a network of 'One Health Institutes' for collaboration in this space.

Acknowledging the need to enable immediate and universal access to enable immediate and universal access to publicly funded scholarly scientific knowledge, the initiative recommended establishing interoperability standards to link various national and international repositories. Frameworks for research assessment and evaluation that take into consideration the holistic contribution of research outputs were also suggested.

The development and publication of a comprehensive database on comparable DEIA indicators that can foster evidence-informed policymaking was also recommended.



PSA Prof. Ajay Kumar Sood delivering inaugural address at 2nd G20-CSAR Meeting

G20-CSAR marked a significant milestone in creating an inclusive global science advisory mechanism, facilitating proactive discussions on contemporary issues by taking the *Whole of the Government* approach. The initiative aims to build on previous efforts in the domain of creating an inclusive global science advice mechanism in a complementary manner to remain effective, meaningful and to strengthen global science advice.

INDIA IN FOCUS: G20 LEADERS' SUMMIT 2023



Honourable Prime Minister Shri Narendra Modi chairing G20 Leaders' Summit 2023 in New Delhi

The prestigious G20 Leaders' Summit under the Indian Presidency convened from 7th to 9th September 2023 at Bharat Mandapam, New Delhi. The summit witnessed the participation of distinguished heads and representatives from 19 countries and the European Union. Additionally, ten other countries and 11 prominent international organisations also graced the summit.

The year-long presidency reached its successful culmination with unanimous adoption of all 83 paragraphs of the G20 New Delhi Leaders' Declaration, leaving an indelible mark on the international economic and political landscape. The summit was characterized by extensive deliberations, with a total of 112 outcome and presidency documents produced across various working group meetings and roundtable discussions. This exceptional unanimity, achieved through robust dialogue and mutual understanding, exemplified the shared commitment of all member countries.

For further insights, G20 Leaders' Declaration can be accessed [here](#):



82. We thank international organizations for their participation and support. We thank the Engagement Groups of B20, S20, SAI20, Startup20, T20, U20, W20, Y20, C20, P20 and L20 and the Initiatives, namely, EMPOWER, Research Initiative, Space Economy Leaders Meeting (SELM), **Chief Science Advisers' Roundtable (CSAR)** and the G20 Cybersecurity Conference for their valuable recommendations.

The Office of the Principal Scientific Adviser to the Government of India is delighted to note that the efforts of G20-Chief Science Advisers' Roundtable (G20-CSAR) initiative have been acknowledged and its contributions have been duly recognized in the G20 New Delhi Leaders' Declaration. This recognition underscores the importance of scientific expertise and collaboration in addressing global challenges.

In a symbolic gesture marking the ceremonial handover of the G20 Presidency, Honourable Prime Minister Narendra Modi passed the gavel to Brazilian President Luiz Inácio Lula da Silva and extended his best wishes to him. Brazil is set to officially take the helm of G20 group on December 1, 2023.



Prime Minister Narendra Modi passing the gavel to Brazilian President Lula

SPOTLIGHT ON SCIENCE ADVICE: G20-CSAR



“We recognize the need for creating an inclusive, evidence-driven, and action-oriented global science advice mechanism. Some of our contemporary priorities such as One Health; Open Access to Scholarly Knowledge; Diversity, Equity, Inclusion, and Accessibility in Science; as well as other emerging priorities demand synergistic efforts globally. G20-Chief Science Advisers Roundtable (G20-CSAR), initiated under the Indian Presidency, has set the stage for sustained engagement of science advisers globally on key issues that demand evidence-informed policymaking”.

Highlighting the imperative of a collaborative approach to establish a robust, inclusive and sustained global science advice mechanism, Chief Science Advisers and their counterparts of G20 member and invitee countries expressed their commitment to coordinated efforts in confronting common contemporary challenges to enable science advice informed policymaking.

The following common priorities were accepted in the G20-CSAR Outcome Document and Chair's Summary:



Opportunities in One Health for better disease prevention, control, and pandemic preparedness

We recognise that interdependent health threats to human, animal, plant and environmental health should be addressed collectively through the One Health approach. We emphasise the need for exploring virtual spaces for collaborations and capacity development for knowledge and technologies related to disease control such as disease modelling and epidemic intelligence, environmental and pathogen surveillance, and other critical tools. We stress the need to facilitate the development of data standards for One Health via appropriate bodies for better information sharing.



Synergising global efforts to expand access to scholarly scientific knowledge

We acknowledge the need to enable immediate and universal access to appropriate publicly funded scholarly scientific knowledge to communities within and beyond G20 members. We recognise that international collaborative efforts on this policy matter can further strengthen national priorities and ambitions and foster innovation. We acknowledge the importance of working together to synergise and align our open and public access policies and programs based on best practices in cognizance with the respective national legislations and policies. Such open and public access policies should uphold respect for universal human rights, the protection of national security, and principles and rules related to academic freedom, research integrity, privacy, and protection of intellectual property rights.



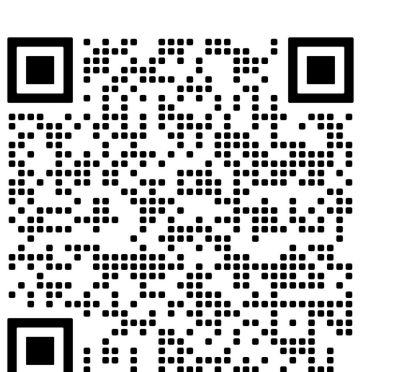
Diversity, Equity, Inclusion, and Accessibility (DEIA) in Science and Technology Ecosystem

We understand that addressing structural inequalities is central to increasing DEIA in the scientific and educational ecosystem, nurturing, and growing critical scientific human capital, and fulfilling our shared societal commitments. We recognize the importance of a diverse and inclusive workforce -that reflects the diversity of our societies-in advancing science and technology, and we encourage planning with accessibility and inclusion in mind both in our everyday choices and in larger projects, programs, and initiatives.



Creating an inclusive, continuous, and action-oriented Global Science Advice Mechanism

We will work towards creating a robust, relevant, and effective mechanism that brings chief science advisers and their nominated equivalents together to deliberate on contemporary issues that demand effective global science advice to address existing knowledge asymmetries that benefit global society equitably.



To access the G20-CSAR Outcome Document and Chair's Summary, click [here](#)

INCEPTION OF G20-CSAR: A NEW FRONTIER IN GLOBAL SCIENCE ADVICE

The Need

The world is grappling with an ever-evolving landscape of challenges and opportunities, affecting people's lives in myriad ways. The realm of science and technology is no exception to this phenomenon. The COVID-19 pandemic exposed the world's vulnerability in the face of tackling an emerging threat, compelling us to recognize the necessity of a global science advice mechanism for addressing emerging health and life crises.

Similarly, numerous complex issues, including population growth, disruptions in the food supply chain, incurable diseases, water security, environmental degradation, and the omnipresent threat of climate change have also posed the need of sustained science advice, irrespective of any emergencies or crisis situations. This has further highlighted the indispensable role of science advisers in providing evidence-informed science advice to decision-makers, including governments and policymakers in a continuous sustained manner.

The Challenge

While governments and international organizations have come to value science advice's crucial role, a significant gap remains. Several global initiatives, such as the United Nations' International Science Council (ISC) and the International Network for Governmental Science Advice (INGSA), have been established to foster collaboration among science advisers. However, these platforms are predominantly non-governmental and rely on membership-driven structures.

The challenge which persists is that of limited avenues being available at government to government level (G2G) fostering collaboration between science advisers and policymakers. This limitation hinders the joint formulation of policies on a global scale. Simultaneously, there is a paucity of such G2G advisory platforms that enable science advisers to have a common platform when advocating for science advice. This has resulted in gaps while effectively conveying scientific recommendations to their intended audience—the public.

The Intervention

G20-Chief Science Advisers Roundtable (G20-CSAR) is a first-of-its-kind initiative to bring together the chief science advisers and their nominated equivalents of G20 countries, embedded within the highest level of governance and having a prominent role in shaping policy choices by providing evidence-driven science advice.

G20-CSAR represents an ambitious endeavour to build upon previous efforts to consolidate science advice mechanisms. It aims to create an inclusive and action-oriented platform that strengthens science advice at both national and international level to promote evidence informed policymaking.

G20-CSAR envisions serving as a nexus bringing together the efforts of non-governmental forums, community-driven advisory mechanisms, global science advisers, policymakers, and governments. It aims to foster collaborative discussions among its members to converge on multidisciplinary issues, and to provide synergistic action-oriented science advice and leveraging Science Diplomacy to enhance cooperation among stakeholders.

The focus of G20-CSAR is to facilitate proactive deliberations on the most pressing concerns and challenges to come up with evidence-informed science advice within the government framework to help shape people-centric policies for the global good.



Dr. Parvinder Maini,
Scientific Secretary, Office of Principal Scientific Adviser to the Government of India

“We have been witnessing the importance of Global Science Advice. The realisation is growing by the day as we encounter several global challenges and other unknowns.”

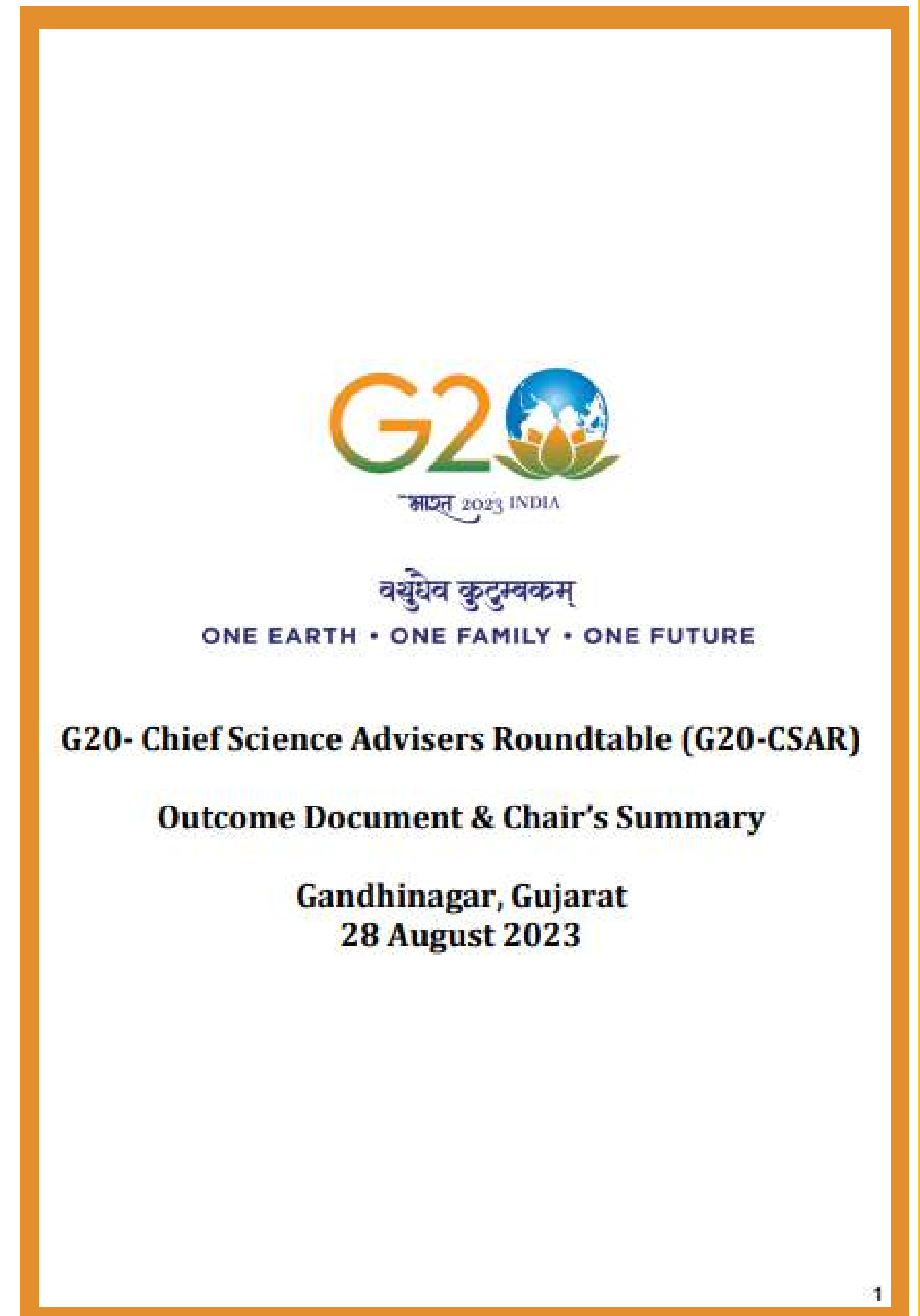


Dr. Parvinder Maini, Scientific Secretary, Office of PSA delivering presentation on Importance of Global Science Advice Mechanism

EVOLUTION OF G20-CSAR OUTCOME DOCUMENT

The G20-CSAR initiative began with a planning meeting in virtual mode on January 20, 2023, under the Sherpa Track of the Indian Presidency. This meeting set the stage for discussions on four priority areas. The G20-CSAR Outcome Document and Chair's Summary, resulting from this initiative, was a collective effort stemming from proactive participation from all G20 member and invitee countries. The journey began with the first meeting of G20-CSAR held in Ramnagar, Uttarakhand, in March 2023, where participants shaped the initial deliberations for the Outcome Document through focused discussions on priority areas. Subsequently, a series of four intersessional meetings, nine side events, and numerous bilateral and plurilateral discussions followed to shape the final Outcome Document.

The second meeting of G20-CSAR, hosted in Gandhinagar, Gujarat, in August 2023, brought together Chief Science Advisers and their nominated equivalents to finalise the Outcome Document. Day-long intense discussions took place at Mahatma Mandir Convention Centre, resulting in the unanimous adoption of the Outcome Document and a Chair's Summary. Now, as the leadership baton passes from India to Brazil, the G20-CSAR delegates have committed to advancing the G20-CSAR mechanism beyond the Indian Presidency. They aim to foster ongoing deliberations, providing a platform where members and international organisations can converge to address multidisciplinary issues. The goal is to offer synergistic science advice and employ Science Diplomacy to promote collaboration among various stakeholders.



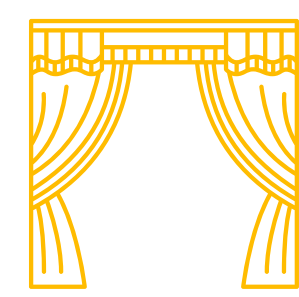
Below is the Timeline depicting the Evolution of the G20-CSAR Outcome Document

20th January, 2023



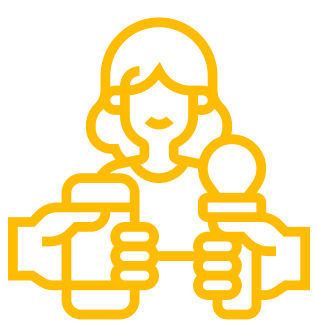
The **Planning Meeting** of the G20-Chief Science Advisers' Roundtable (G20-CSAR) was conducted virtually. During this meeting, representatives from G20 and invitee countries discussed and agreed upon four agenda topics for G20-CSAR deliberations.

24th March, 2023



A **Curtain Raiser Press Conference** was held, wherein Principal Scientific Adviser to the Government of India, Prof. Ajay Kumar Sood, Scientific Secretary Dr. Parvinder Maini, and Joint Secretary G20 (MEA) Shri Nagaraj Naidu interacted with the media, providing insights into this newly initiated initiative during the Indian Presidency.

29th March, 2023



A **Post-Event Press Conference** was conducted immediately after the first G20-CSAR meeting, where PSA Prof. Ajay Kumar Sood, Scientific Secretary Dr. Parvinder Maini, and Mr. Naman Upadhyaya, Under Secretary at the G20 Secretariat, briefed the media on the discussions that transpired.

29th March, 2023



The **First G20-CSAR Meeting** took place in Ramnagar, Uttarakhand. Discussions revolved around the four agenda points identified in the planning meeting, emphasizing the need for science advice to inform sustainable policy choices and strengthen inclusive global science advice mechanisms.

29th June, 2023



The **first G20-CSAR Side Event** was hosted by Bhubaneswar City Knowledge Innovation Cluster (BCKIC) Foundation in association with DBT-Institute of Life Sciences (DBT-ILS), Bhubaneswar on the theme: Diversity, Equity, Inclusion, and Accessibility in Science & Technology (S&T).

5th July, 2023



The **Second G20-CSAR Side Event**, organized by the Research and Innovation Circle of Hyderabad (RICH), highlighted the theme of Synergizing Global Efforts to Expand Access to Scholarly Scientific Knowledge Roundtable.

10th July, 2023



Pune Knowledge Cluster hosted the **Fourth G20-CSAR Side Event**, exploring the theme of One Health, Disease Surveillance, and Pandemic Preparedness.

6th July, 2023



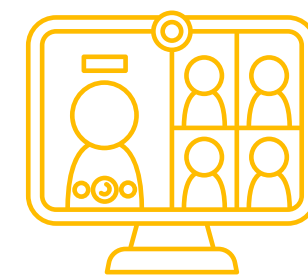
The **Third G20-CSAR Side Event** was hosted by the Office of the Principal Scientific Adviser to the Government of India, focusing on the theme of Institutionalizing Global Science Advice and Strengthening Science Advice for Policymaking.

21st July, 2023



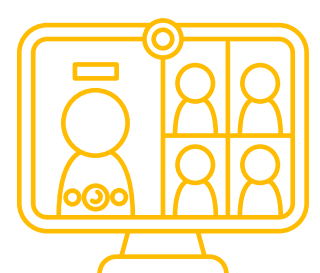
The Bengaluru Science & Technology cluster hosted the **Fifth G20-CSAR Side Event**, centered on creating an institutional mechanism for inclusive, continuous, and action-oriented global Science and Technology policy.

3rd August, 2023



The G20-CSAR Secretariat organized the **First Intersessional Meeting**, with a focus on converging on the Outcome Document leading up to the Second G20-CSAR meeting.

9th August, 2023



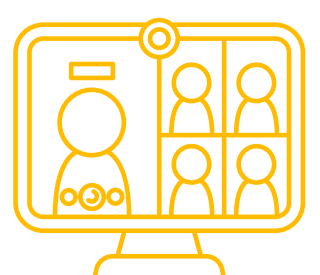
The **Second Intersessional Meeting** continued deliberations and negotiations to formulate the final Outcome Document for the G20-CSAR meeting.

8th August, 2023



Delhi Research Implementation and Innovation (DRIIV) hosted the **Sixth G20-CSAR Side Event**, examining the Role of Open Access in equitable climate and health action, including disease prevention, health systems resilience, and financing.

18th August, 2023



The **Third Intersessional Meeting** concluded with a consensus on significant portions of the Outcome Document after rigorous discussions and dialogues among G20 countries.

19th August, 2023



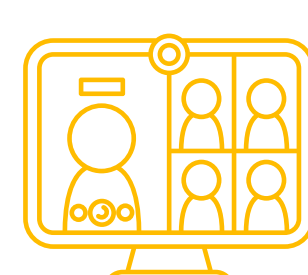
The **Seventh G20-CSAR Side Event** was hosted by the Jodhpur City Knowledge and Innovation Foundation (JCKIF), focusing on the importance of Diversity, Equity, Inclusion, and Accessibility in Science & Technology (S&T) with an emphasis on Plan and Policy for S&T-Powered Global Action.

28th August, 2023



The **second meeting of G20-CSAR** took place in Gandhinagar, Gujarat on 28th August 2023. Chief Science Advisers and nominated equivalents deliberated on agenda items and unanimously adopted an Outcome Document and Chair's Summary.

27th August, 2023



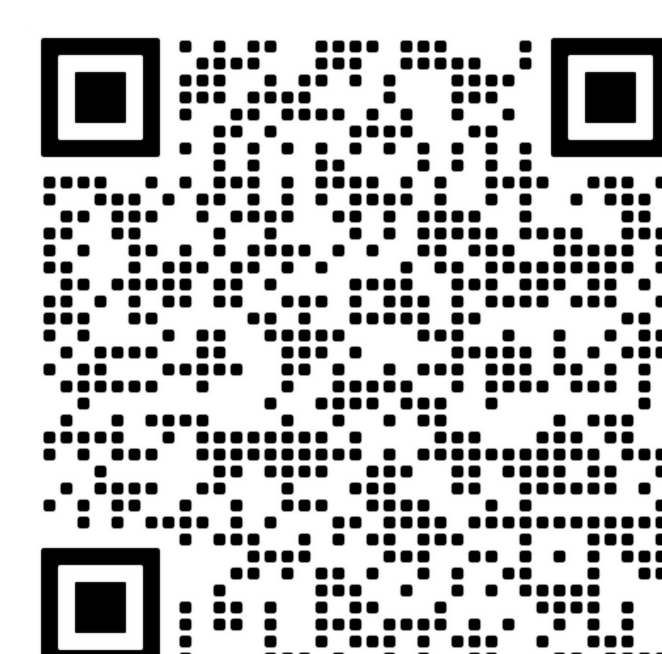
The **Fourth Intersessional Meeting**, held in physical mode at Gandhinagar, witnessed G20 member countries agreeing upon several final points, to enable full consensus for the final G20-CSAR.

28th August, 2023



A **Post-Event Press Conference** was held immediately after the conclusion of the second G20-CSAR meeting. PSA Prof. Ajay Kumar Sood, Scientific Secretary Dr. Parvinder Maini, and Mr. Naman Upadhyaya, Under Secretary at the G20 Secretariat, interacted with the media and announced the unanimous adoption of the Outcome Document and Chair's Summary.

To access the Outcome Document and Chair's Summary, click [here](#)



DEEP DIVE

ONE HEALTH APPROACH:

ENHANCING DISEASE PREVENTION, CONTROL & PANDEMIC PREPAREDNESS

The world witnessed a major health crisis when a respiratory illness, COVID-19, made its appearance in China in December 2019 and slowly transmitted all over the world affecting at least 200 countries and countless lives. On March 11, 2020, the World Health Organisation (WHO) declared COVID-19 as a pandemic and a severe public health emergency. This crisis starkly exposed the world's lack of preparedness to deal with global emergencies, compelling the world's governments to reconsider the 'One Health' approach.

WHO defines 'One Health' as an integrated, unifying approach to balance and optimize the health of people, animals, and the environment. Rooted in ancient knowledge, the One Health approach encompasses holistic health of humans, animals, and environmental sectors, and is particularly relevant for food and water safety and security, nutrition, the control of zoonotic diseases (diseases that can spread between animals and humans, such as, rabies, Nipah, Tuberculosis, anthrax, etc), pollution management, and combatting antimicrobial resistance.



Dr. Sindura Ganpathi, PSA Fellow, Office of PSA, delivering presentation on One Health approach



Dr. Jeremy Farrar, Chief Scientist, WHO, giving his intervention

In the wake of the COVID-19 pandemic, the importance of the 'One Health' approach became abundantly clear. As diseases anywhere are diseases everywhere, so in the context of global infectious disease governance and management, the need to address zoonotic diseases that transcend geographical boundaries, is critically important. This approach emphasized the interdependence of the health and well-being of humans, animals, and the environment, thereby calling for collaborative action and international cooperation.

In this light, the G20-CSAR initiative embraced the discussion on the One Health approach as an overarching endeavour for preventing, controlling, and preparing for pandemics and other infectious diseases on a global scale. Under the agenda **'Opportunities in One Health for better disease prevention, control, and Pandemic Preparedness'**, Chief Science Advisers unanimously acknowledged and appreciated the inclusion of One Health as a transboundary issue to safeguard the health and well-being of all forms of life on the planet. The focus of deliberations was to explore virtual spaces for collaboration and capacity development related to disease control, including disease modelling, epidemic intelligence, environmental and pathogen surveillance, thereby creating avenues for the world to handle complex information effectively and predict, prevent, and respond to emergency diseases.

Moreover, there was a consensus on the need to establish a network of 'One Health Institutes' not only within G20 countries but also beyond. The upcoming National One Health Institute (NIOH) in Nagpur, Maharashtra, received particular emphasis as a vital step to bolster proactive engagement in this realm.

The agenda also asserted the importance of developing data standards for One Health through appropriate bodies to facilitate better information sharing. This was highlighted by the rapid development of COVID-19 vaccines, which became possible due to the open exchange of information and resource sharing regarding the virus's genome and emerging data about its pathogenesis.

“



Dr. Rajiv Bahl,
Director General of the Indian Council of Medical Research

“India has established a National Institute of One Health (NIOH) in Nagpur, Maharashtra. This institute will function under the overall guidance of the Office of Principal Scientific Adviser and will be guided by Secretaries of all partner departments. We believe that creating a network of institutes like India's NIOH across G20 countries and beyond will be immensely helpful for pandemic preparedness and response.”

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DEEP DIVE

UNLOCKING THE TREASURE TROVE: SCHOLARLY KNOWLEDGE FOR ALL



Left to Right: Prof. Sudeshna Sarkar delivering presentation on Open Access; Dr. Sethuraman Panchanathan, representing United States, giving his intervention

Rising global temperatures have led to extreme weather anomalies such as torrential rainfall, heatwaves, melting ice sheets, rising seawater levels, droughts, flash floods, forest fires, and the list goes on. Wildfires in Canada, excessive flooding in Libya, rapid melting of Antarctic Sea ice, blistering heatwaves recorded in Japan, China, Italy, Rome, Austria, and Russia - such extreme weather conditions are a testimony that climate change is indeed real and occurring at an unrelenting pace.

These pose the urgency of preparing ourselves to better mitigate the adverse impacts of climate change, be it climate resilient agriculture, enhanced capabilities to address adverse weather events, and improvements in global disease control strategies.

Similarly, the threat of public health emergencies such as COVID-19, also highlights the need to find ways to deal with disease control or how we create vaccines for emerging diseases to enable better pandemic preparedness. Achieving these goals requires a swift and widespread exchange of scholarly scientific knowledge. Unrestricted and unfettered knowledge sharing is essential for fostering innovation and addressing complex global challenges in a timely and well-informed manner.

Scholarly knowledge is often regarded as elusive, and not easily accessible as it is based largely on subscription models. Exorbitant Article Processing Charges (APCs) are major obstructions for researchers pursuing cutting-edge and translational research activities. Access to scholarly publications and journals, both current and archival, is essential for the timely dissemination of critical research and the development of scientific solutions and technological innovations. This access should be free, immediate, and available to all, enabling the benefits of scientific research to contribute to socio-economic development effectively.

Recognizing the significance of this challenge, the G20-CSAR initiative identified **Synergizing global efforts to expand access to scholarly scientific knowledge** as one of its focus areas. The roundtable discussions highlighted the necessity of providing immediate and universal access to publicly funded scholarly scientific knowledge, not only to communities within G20 member countries but also to those beyond.

Further, the initiative recommended international collaborative efforts to strengthen national priorities and ambitions, fostering innovation. It emphasized the importance of G20 countries working together to harmonize their open and public access policies and programs while respecting their respective national legislations and policies.



Prof. (ETHZ) Dr. Gerald Hermann Haug,
President National Academy of Sciences Leopoldina
Head of Delegation, Germany

"We are all for open science, open access, and open data. G20 should take the lead to request the leaders for better funding in Science and Technology which is important for equity and inclusivity."



Open access to scientific scholarly knowledge will also empower researchers and scientists from diverse backgrounds with a wide range of knowledge, both modern and traditional, to contribute to global scientific advancements.

DEEP DIVE

FROM LAB COATS TO LOCAL WISDOM:

DEIA IN SCIENCE

Science and Technology form many of the building blocks of modern society. However, opportunities to contribute effectively towards advancing science and technology remain exclusive to a certain section of society. A profound lack of representation persists, affecting underrepresented groups and disadvantaged socio-economic backgrounds. These glaring disparities underline the critical need for diversity, equity, inclusion, and accessibility (DEIA) within our modern science and technology ecosystem.

Furthermore, the invaluable contributions stemming from traditional and indigenous knowledge systems (TKS and IKS), such as Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homoeopathy (Ayush), agroforestry, crop rotation, polyculture are often kept away from the mainstream scientific discourse, shedding light on the structural inequalities affecting our current science and technology ecosystem.

This disparity has led to epistemic injustice, limiting our research potential, narrow data collection perspectives, and fragmented evidence, hindering inclusive policymaking and effective knowledge transfer between science and society.

Recognizing this critical issue, the G20-CSAR identified **Diversity, Equity, Inclusion, and Accessibility (DEIA) in the Science and Technology Ecosystem** as one of its priority areas. DEIA, while distinct concepts on their own, are often grouped together because they are interconnected, and it is only in combination that their true impact emerges. Simply put, DEIA in science and technology aims to provide equal opportunities for individuals from all backgrounds, enhance their representation, and nurture talent across diverse communities within the science, technology, and innovation ecosystem.

A conscious commitment to DEIA, by expanding the pool of diverse and talented individuals contributing to the field can enhance the ability of the scientific community and equip it to confront complex challenges in our rapidly evolving world.

Therefore, the G20-CSAR's third focus area seeks to address structural inequalities within the scientific and educational ecosystems. The roundtable emphasized the necessity of a "diverse and inclusive workforce that mirrors the diversity of our societies in advancing science and technology."

Research indicates that indigenous scientists often perceive scientific challenges differently due to their identities and backgrounds, often taking holistic approaches. Their access to valuable traditional knowledge, accumulated over generations and deeply rooted in a specific place, proves invaluable in addressing complex contemporary scientific issues. One example is the One Health approach, a concept



Prof. Anitha Kurup delivering presentation on DEIA, G20-CSAR delegates Prof. Wiebe Bijker, representing Netherlands and Atheer Ali Alkubeyyer representing Kingdom of Saudi Arabia sharing their interventions

dating back to ancient times but brought to the forefront by the rapid environmental changes of the 21st century, especially in light of the devastating impacts of the COVID-19 pandemic. The One Health approach epitomizes the interconnectedness of the natural world with human health and amalgamates traditional knowledge with modern science.

G20-CSAR also acknowledged the severe consequences of language barriers in science, causing inequalities for underrepresented communities and making non-English-language knowledge inaccessible. It asserted the importance of recognising the plurality of languages and knowledge systems within inclusion-related policy discourse.

Among the actionable outcomes, the roundtable called for efforts to collect disaggregated DEIA data and the establishment of a comprehensive database featuring comparable DEIA indicators to inform evidence-based policymaking.

DEEP DIVE

GLOBAL SCIENCE ADVICE MECHANISM: BRIDGING KNOWLEDGE ASYMMETRIES

Rapid advancements in the field of Science and Technology are accelerating our progress as knowledge-based economies. Technological innovations are also driving disruptive changes in our societies at an unprecedented scale and speed. This era of transformation has highlighted the significance of global science advice like never before.

The COVID-19 pandemic emerged as a global threat that shed light on the dire need for effective and timely science advice to address health crises of unfathomable scales. The pandemic also brought forth the realisation both at national and international levels the importance of science advice in shaping policies on a wide range of transboundary challenges. The issues include, but are not limited to, climate change mitigation; broader technological and other transitions, such as digitalization and Artificial Intelligence, clean and sustainable technology; a unified approach to One Health; and concerns related to Open Access to scholarly knowledge, among others.



Left to Right: Dr. Parvinder Maini, Scientific Secretary, Office of PSA delivering presentation on Global Science Advice Mechanism, Prof. Dame Angela Ruth McLean representing UK giving her intervention

Chief Science Advisers play a pivotal role in providing evidence-based science advice for informed policymaking. While several non-governmental and informal science advisory networks have been established to create a systematic approach to science advice, many of these efforts lack inclusivity and require limited commitment from member countries. Moreover, many countries have set up their own science advice mechanisms to tackle such challenges.

However, there are various common, complex, interdependent, and transboundary challenges that require government level science advice dialogues at international scale. Recognising this critical need, the G20-CSAR initiative identified one of its focus areas as **'Creating an inclusive, continuous, and action-oriented Global Science Advice Mechanism.'** The focus area aims to complement and strengthen existing efforts by creating a truly inclusive and outcome-oriented global science advice mechanism. The goal is to complement the global efforts by providing a government-to-government framework in a continuous and sustained manner through the G20-CSAR initiative.

Such an institutional mechanism aims to provide Chief Science Advisers of participating countries with a robust and effective platform to deliberate on contemporary issues and bridge existing knowledge asymmetries for equitable societal benefit. This initiative promises to (i) foster proactive discussions, (ii) promote convergence among members and international organizations on multidisciplinary issues, (iii) and leverage Science Diplomacy to enhance synergies among various stakeholders for the holistic development of the global science and technology ecosystem.

Additionally, the G20-CSAR initiative acknowledges the importance of creating a space for voluntary knowledge and resource sharing in a peer-to-peer manner. The goal is to exchange best practices based on principles of inclusivity, heterogeneity, interdependency, transparency, a plurality of expertise, and collective interest.



Dr. Liliana Pasecinic,
Joint Research Centre, and Head of Delegation, European Union

"EU welcomes progress towards setting up a global science advice mechanism offering a platform for dialogue between G20 Chief Science Advisers. The mechanism needs to be inclusive, and to take into account diversity of the science advisory ecosystem worldwide."



FEATURE STORY

RAMNAGAR RENDEZVOUS: INAUGURAL G20-CSAR SETS STAGE FOR GLOBAL SCIENCE ADVICE

India's G20 Presidency marked a departure from convention in many ways. To showcase India's untouched splendour, the G20 India Secretariat decided to host G20 meetings in over 60 Indian cities, spanning from Srinagar to Kumarakom, Gandhinagar to Gangtok, and Itanagar. In this spirit, G20-CSAR initiative hosted its inaugural meeting in the magnificent town of Ramnagar, Uttarakhand, from March 28-30th, 2023.



PSA Prof. Ajay Kumar Sood delivering inaugural address at 1st G20-CSAR Meeting

Delegates from G20 member and invitee countries were warmly welcomed at Ramnagar Airport on March 28, 2023, with traditional customs, including tilaks on their foreheads and symbolic attire like pahadi topis, patkas, and tulsi malas. The Bhotia Sanskritik Kala Manch Samiti of Joshimath presented a captivating Jhoda dance performance, offering a glimpse into Uttarakhand's rich culture.

Later that evening, the Office of the Principal Scientific Adviser to the Government of India hosted a gala dinner for the delegation by the Kosi River. Delegates engaged in candid conversations while savoring delectable Indian cuisine, setting the stage for meaningful dialogues ahead.

On March 29, 2023, the G20-CSAR roundtable discussions commenced, focusing on four key priority areas identified during the planning meeting. Delegates from 18 countries, including Australia, Brazil, Canada, China, the European Union, France, Italy, Japan, the Netherlands, Nigeria, the Republic of Korea, Russia, Saudi Arabia, South Africa, Spain, the United Kingdom, and the United States, participated in talks about transboundary Science & Technology issues of mutual interest.

As the sun dipped below the horizon, Uttarakhand showcased its vibrant culture with a grand cultural evening and dinner for the G20 delegation. Honorable Governor Shri Gurmit Singh, Chief Minister Shri Pushkar Singh Dhami, Principal Scientific Adviser Professor Ajay Kumar Sood, Scientific Secretary Dr. Parvinder Maini, and Chief Secretary Shri S.S. Sandhu extended a warm welcome. This cultural evening was a symphony of music, dance, and tradition, forging bonds that transcended geographical boundaries.



Uttarakhand Governor Shri Gurmit Singh, Chief Minister Shri Pushkar Singh Dhami welcoming G20-CSAR delegates at gala dinner

The next morning called for a wilderness walk as delegates had the unique opportunity to explore the Corbett Tiger Reserve. A safari through the Bijrani zone revealed a captivating world of biodiversity. Tigers prowled, elephants roamed freely, and deer grazed peacefully. The resonating calls of hornbills echoed through the dense foliage, showcasing the incredible avian fauna that graced this habitat.

In a bid to deepen their appreciation for India's wildlife conservation efforts, delegates also engaged in interactive sessions on wildlife rescue and rehabilitation. They were treated to insightful short films chronicling Corbett's history and its magnificent megafauna. The highlight of the program was the delegates' interaction with the highly trained elephants of the Corbett Tiger Reserve, leaving a lasting impression.



G20-CSAR delegates enjoying the wilderness walk in the Corbett Tiger Reserve



Volunteers and delegates in the First Meeting of G20 CSAR held in Ramnagar, Uttarakhand



Cultural Performance by local folk artists



"We closely link global science advice and science diplomacy and the development of functional mechanisms, which we believe should be inclusive and transparent in order to benefit society and people equally around the planet."

Dr. Irina Kuklina,
Executive Director of the International Centre for Innovation in Science, Technology and Education, and Head of Delegation, Russia



G20-CSAR SIDE EVENTS: A RECAP

1 CII Global Science, Research and Innovation Summit in partnership with OPSA



Confederation of Indian Industry

May 2nd, 2023



Scientific Secretary Dr. Parvinder Maini with dignitaries at CII Global Science, Research & Innovation Summit

The Confederation of Indian Industry, in partnership with the Office of PSA, NITI Aayog, CSIR, TIFAC, IGSTC, DRDO, and IIT Delhi organized the '**CII Global Science, Innovation, and Research Summit**' on **May 2nd, 2023**. The event was organized as part of the CII National Technology Mission, aimed at fostering investment in R&D, promoting Industry-Academia-Research-startup collaborations, and encouraging Women in STEM fields. One of the noteworthy aspects was a special panel on 'Nurturing Future-Ready Skilled Workforce'.

2 Bhubaneswar City Knowledge Innovation Cluster



June 29th 2023



Dr Prashant Kumar Singh, CEO, BCKIC Foundation addressing the roundtable session.

Bhubaneswar City Knowledge Innovation Cluster (BCKIC) Foundation, in collaboration with DBT-Institute of Life Sciences (DBT-ILS), Bhubaneswar, convened a roundtable on **June 29th 2023**, addressing key issues on the theme '**Diversity, Equity, Inclusion, and Accessibility in Science and Technology**'. Under the aegis of G20-CSAR, participants engaged in extensive policy deliberations aimed at developing common frameworks for pivotal policy concerns related to the theme. This event attracted approximately 100 attendees, including representatives from the State S&T Ministry, scientists, researchers, administrators, and students, all contributing their perspectives to the discourse.

3 Research and Innovation Circle of Hyderabad



July 5th, 2023



42 distinguished scientists, representing 27 research institutions across various fields attended the workshop.

Research and Innovation Circle of Hyderabad (RICH) organized a workshop '**Synergizing Global Efforts to Expand Access to Scholarly Scientific Knowledge Roundtable**' under the umbrella of G20-CSAR. The workshop took place on **July 5th, 2023**, at the International Institute of Information Technology Hyderabad and was attended by 42 distinguished scientists, representing 27 research institutions. With the objective of enhancing collaboration and knowledge exchange among industry professionals, the workshop provided a platform for in-depth sub-thematic deliberations, enabling participants formulate action plans. These efforts aimed at coordinating actions to achieve open access to scholarly knowledge generated through publicly funded research.

4 Office of Principal Scientific Adviser to Government of India



Left to Right: Shri Nagaraj Naidu, Joint Secretary G20 (MEA); Dr. Parvinder Maini, Scientific Secretary; Jan Marco Müller, Coordinator Science Diplomacy and Multilateral Relations, European Commission; Dr. Chagun Basha, Office of PSA

A dialogue on 'Institutionalising Global Science Advice' was organized under the aegis of G20-CSAR on **July 6th, 2023** by the Office of Principal Scientific Adviser to Gol at Vigyan Bhavan Annexe, New Delhi. The central focus of the dialogue was the imperative of '**Strengthening and Institutionalising Science Advice for Global Policy**'. The dialogue witnessed participation from pertinent government departments, foreign missions in India, academia and policy institutions. Dr. Parvinder Maini, in a compelling presentation, delineated India's Science Advice mechanism and its institutional framework. Following the talks, a fishbowl-style discussion ensued, where the invited experts articulated their perspectives on institutionalizing the science advice mechanism and delineated the pivotal role of G20-CSAR.

5 Pune Knowledge Cluster



Dr. Parvinder Maini, Scientific Secretary, Office of PSA addressing the panel virtually

Pune Knowledge Cluster (PKC) organized a G20- CSAR Side Event focusing on **One Health, Disease Surveillance, and Pandemic Preparedness** on **July 10th, 2023**, at IISER Pune. The event, attended by 94 participants from 43 diverse organizations including hospitals, research institutions, civic bodies, foundations, startups, and industries, showcased the Government of India's initiatives aimed at creating inclusive platforms, involving funding agencies, health ministries, animal husbandry, forests, and the National Disaster Management Authority, as part of the National One Health Mission.

6 Bengaluru Science & Technology Cluster



Experts from various sectors - academics, policy institutions, think tanks, policy consultants, industries, startups, and consulates attending the roundtable.

Bengaluru Science & Technology cluster (BeST) organized a roundtable discussion on **July 21st, 2023** on the topic '**An Institutional Mechanism for Inclusive, Continuous, and Action-Oriented Global Science & Technology Policy Dialogue**'. Approximately 22 attendees including experts from diverse backgrounds, and delegates from Switzerland, France, Netherlands, and Israel converged for a focused discussion on identifying challenges in Science & Technology, transforming them into opportunities within the policy sphere, and proposing relevant solutions through S&T policy dialogues. The event's unique approach encouraged participants to focus on real-world challenges, pivoting on key thematic areas of urban mobility and quantum technology.

7 Delhi Research Implementation and Innovation



August 8th, 2023



Delhi Research Implementation and Innovation (DRIIV) organized a G20-CSAR side event on **August 8th, 2023** on the topic **'Role of Open Access in Equitable Climate and Health Action: Prevention, Response, and Financing,'** under the aegis of G20-CSAR. The conference emerged as a vital platform for fostering global dialogues and collaborations concerning the intricate synergy between climate and health. This event highlighted the indispensable role that open access to data, research, and resources plays in crafting equitable solutions to climate change mitigation challenges. Dr. Parvinder Maini, Scientific Secretary, Office of PSA, graced the event with a keynote address, illuminating the core objectives of the conference and emphasizing the imperative for collective action in the face of these pressing challenges.

8 Jodhpur City Knowledge and Innovation Foundation



August 20th, 2023



Jodhpur City Knowledge and Innovation Foundation (JCKIF) and IIT Jodhpur organized two-day G20-CSAR side events on **'Diversity, Equity, Inclusion, and Accessibility in Science & Technology (S&T),** with a focus on **Plan and Policy for S&T Powered Global Action'** and **'One Health for Well-being of All'** on **August 19th and 20th, 2023** respectively. The event on Day 1 included an engaging Panel Discussion on Social Inclusion and Diversity, as well as Livelihood, Regional Diversity, and Science & Technology. These sessions facilitated profound discussions, enhancing attendees' understanding of these critical topics and encouraging collaborative dialogue among participants. The objective of the Day 2 event was to convene prominent experts, researchers, policymakers, and practitioners from across the nation to collectively address issues concerning One Health for the Well-being of All.

9 Netherlands Embassy in partnership with OPSA



August 30th, 2023



A seminar on **Diversity, Equity, Inclusion, and Accessibility in Science & Technology** was jointly organized by the Kingdom of Netherlands Embassy in India and the Office of PSA on **August 30th, 2023**. This event served as a follow-up to the G20-CSAR emphasizing the ongoing collaboration between the Netherlands and India in shaping a diverse, inclusive, and accessible scientific landscape. Hosted by Ambassador Marisa Gerards, the event featured enlightening keynotes from prominent figures, including Scientific Secretary Dr. Parvinder Maini, Director General of TERI Vibha Dhawan, and Professor Wiebe Bijker from NWO in the Netherlands. The seminar delved into the significance of epistemic justice, the diversity of people and knowledge, and global cooperation in the realm of Science and Technology.

Left to Right: Ambassador Marisa Gerards; Scientific Secretary Dr. Parvinder Maini; TERI Director Vibha Dhawan; CSA Netherlands Prof. Wiebe Bijker giving lecture in seminar

FEATURE STORY

GANDHINAGAR GATHERING:

CONVERGENCE OF INTERNATIONAL EFFORTS TOWARDS INCLUSIVE SCIENCE ADVICE MECHANISM

In the heart of Gandhinagar, a city rich in history and culture, where the past seamlessly merges with the future, the second G20-CSAR meeting took place from August 27th to 29th, 2023. This gathering was more than just a diplomatic meeting; it symbolized the chief science advisers' commitment to establishing an inclusive science advice mechanism. It was a pioneering effort, bringing together the chief science advisers of G20 countries within a government-to-government framework.

Nestled on the banks of the Sabarmati River, Gandhinagar exudes tranquility and tradition, a fitting backdrop for the second G20-CSAR meeting. As G20 members and invitee countries arrived at Ahmedabad Airport on August 27, 2023, they received a warm welcome from Gujarat Government's folk artists. The summit commenced with a networking lunch, followed by an excursion to the captivating village of Modhera in Gujarat's Mehsana district.

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Dr. Moulin Cyril,
Deputy Director-General, Research & Innovation, France

“I would like to thank the Indian presidency for the work on the fundamental subject of access to scientific knowledge. For France, it is strategic that the G20 continues to support in the future this socially useful dynamic of access to scientific knowledge.”

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Left to Right: UK GCSA Prof. Dame Angela Ruth McLean; Netherlands CSA Prof. Weibe Bijker receiving warm welcome at Ahmedabad Airport

In Modhera, the G20-CSAR delegates visited India's first fully solar-powered village, Sujanpura, a testament to the country's unwavering commitment to clean energy. The delegation then arrived at the marvellous Modhera Sun Temple, which is believed to be the residence of the Sun God. The ancient sculptures, architectural marvels, and the temple's aesthetics left the G20-CSAR delegates in awe. A mesmerizing cultural performance by local folk artists, dedicated to India's historic achievement of successfully landing Chandrayaan-3 on the moon's south pole, paid tribute to India's space prowess. The performance captured India's spirit for scientific innovation and advancement. The cultural performance was followed by an enchanting light and sound show that narrated the Sun Temple's mythological and historical significance, enhancing the temple's grandeur. The day concluded with a gala dinner hosted by the Honourable Chief Minister of Gujarat, Shri Bhupendra Patel, fostering an atmosphere of camaraderie and allowing delegates to savor Gujarati hospitality.

The morning of August 28th marked a significant milestone, as it set the stage for creating an effective platform for chief science advisers to address contemporary global challenges in the science and technology ecosystem. Intensive day-long discussions culminated in the successful adoption of the Outcome Document and Chair's Summary, marking a pivotal moment in global science advisory mechanisms.

In the midst of scientific dialogue and deliberation, a traditional craft bazaar showcasing the brilliant craftsmanship of artisans and weavers from across Gujarat provided a vibrant spectacle during session breaks. The G20-CSAR delegates couldn't resist but immerse themselves in the colours of textures of beautifully crafted products.



Traditional Craft Bazaar winning hearts of G20-CSAR delegates



Gujarat Chief Minister Bhupendrabhai Patel at Modhera Sun Temple welcoming G20-CSAR delegates for cultural performance and State Dinner

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Dr. Takahiro Ueyama,
Chief Executive Member, Council for Science and Technology
Head of Delegation, Japan

“There is an argument that scientific advisory is one thing and making policy is another, I found it vital to create a bridge between the 2 activities in the field of science and technology.”

Following the roundtable discussions, delegates visited Dandi Kutir, India's largest and only museum dedicated to Mahatma Gandhi's life and teachings. The museum serves as a poignant reminder of Gandhi's vision of a united, pluralistic society. It treated the delegates to a captivating light and sound show depicting Gandhi's inspirational life journey, offering an enriching experience.

The delegates left their mark on Gandhinagar, not just through diplomatic triumphs, but by embracing the city's heritage. On the last day of this delightful panorama, delegates embarked on a heritage walk, discovering the secrets and stories that Gandhinagar's streets held.

The G20-CSAR meeting in Gandhinagar was not just a gathering of minds; it was a celebration of culture, tradition, and a shared commitment to a more inclusive and action-oriented future. As the departing delegates bid farewell, they carried with them not only the fruits of their negotiations but also the memories of a place where history, culture, and diplomacy harmoniously converged.



Visit to Dandi Kutir, Gandhinagar and Heritage Walk in the streets of Gandhinagar

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LEGACY LIVES ON: BRAZIL TO CARRY G20-CSAR TORCH FORWARD

Building upon the successful outcome of the G20-CSAR initiative, Professor Ajay Kumar Sood, the Principal Scientific Adviser to the Government of India, passed the baton to Professor Marcia Barbosa, Vice Minister of the Ministry of Science, Technology, and Innovation in Brazil to steer the initiative ahead, as Brazil gears up to assume the prestigious G20 Presidency from December this year.

As Brazil assumes this pivotal role, it highlights the significance of the G20-CSAR initiative in the global science and technology ecosystem, particularly for strengthening the global science advice mechanism. This represents a crucial step toward enabling science-informed policymaking on a global scale.

With this, the legacy of the G20-CSAR initiative will persist not only in the exchange of ideas but also in the actionable frameworks developed to address complex global challenges. This symbolizes the continuity of collaborative science advice, nurturing a global ecosystem of knowledge, innovation, and equity.

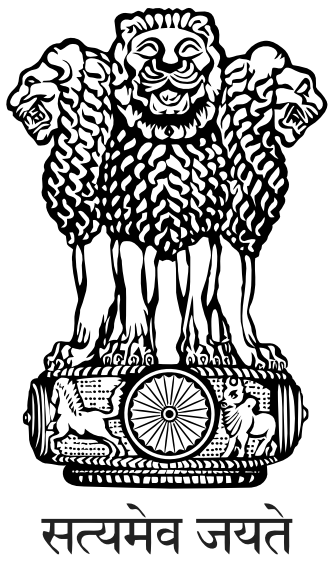


"We came here to learn how to handle both thinking in science and making policies in a good way, policies that make possible for a country to move forward. We learnt a lot from the members, particularly from the Indian Presidency and we are going out to get this job done, and for that I need each one of you, we are going to work together and we are going to show that yes, we can do it."

Prof. Marcia Barbosa,
Vice Minister, Ministry of Science, Technology and Innovation
Head of Delegation, Brazil



PSA, Prof Ajay Sood, Chair, G20-CSAR passing over the Baton to Professor Marcia Barbosa, Vice Minister, Ministry of Science, Technology, and Innovation, Brazil for upcoming presidency. The occasion was joined by Prof. Anugerah Widiyanto, Director, National Research and Innovation Agency (BRIN), Indonesia and Dr Mlungisi Bhekizizwe Gabriel Cele, Head, National Advisory Council on Innovation, South Africa



Office of the Principal Scientific Adviser to the Government of India



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