



RESEARCH AND INNOVATION WORKING GROUP CHAIR'S SUMMARY

TSHWANE, SOUTH AFRICA
23 SEPTEMBER 2025

Section A – Introduction

The Research and Innovation Ministers and equivalents of the G20 members and invited countries present in Tshwane, South Africa on 23 September 2025 met under the theme of “Science, Technology and Innovation for Solidarity, Equality and Sustainability” with a focus on three priority areas namely i) Open Innovation for Sustainable Development, ii) Biodiversity Information for Sustainable Development, and iii) Diversity, Equity, Inclusion, and Accessibility in Science, Technology and Innovation.

The meeting was informed by the objective to harness international cooperation in science, technology, and innovation, to respond to urgent global challenges, by *inter alia* building partnerships across all sectors of society, acting in the interest of our shared humanity. In the spirit of *Ubuntu*, the meeting recognised that also in science, technology and innovation, individual economies cannot thrive in isolation.

The meeting therefore reaffirmed the importance of promoting vibrant science, technology, and innovation networks and evidence-based policy making, as strategic foundations and enablers to advance sustainable development in its social, environmental and economic dimensions as well as long-term and responsible economic growth, climate action and biodiversity conservation. To achieve this, we will continue to advance, as relevant, earlier G20 commitments related to science, technology and innovation, including the promotion of open, fair, diverse and mutually beneficial international cooperation, aligned with the aspirations of the United Nations’ Sustainable Development Goals (SDGs), and advancing economic prosperity for our citizens.

The meeting’s efforts to promote such cooperation should include, among others, initiatives to advance Open Science principles, Open Innovation on mutually agreed terms, the international mobility of scientists and researchers, strategic policy and investment coordination on research infrastructures, and capacity-building for knowledge generation capabilities, especially in developing countries. In this regard, consistent with the principle of our engagement in the G20, as also highlighted in the Manaus Declaration of the 2024 Research and Innovation Ministerial Meeting, we share a commitment to promoting the responsible and ethical use of science, technology, and innovation, and recognise that our cooperation should be underpinned by the shared values, referenced therein such as research integrity and academic freedom.

Section B: 2025 RIWG Deliverables

Priority 1: Open Innovation for Sustainable Development

The meeting welcomed South Africa’s initiative to advance the implementation of the G20 Strategy to Promote Open Innovation Cooperation, which we endorsed in 2024 through the Manaus Declaration. The meeting recalled that the Strategy aims to foster enhanced collaboration and the more impactful co-creation of sustainable solutions that benefit all participants, which effectively responds to knowledge gaps related to major societal challenges.

The meeting recognised that Open Innovation is a distributed innovation process based on voluntary knowledge flow across organisational boundaries, on mutually agreed terms. In this context the meeting reaffirmed its support for the FAIR (Findable, Accessible, Interoperable and Reusable) principles of research data sharing, the CARE (Collective Benefit, Authority to Control, Responsibility, and Ethics) Principles for Indigenous Data Governance. The meeting also reiterated the importance of data free flow with trust whilst respecting domestic as well as international applicable legal frameworks and acknowledging the role of data for development and innovation.

The meeting accordingly welcomed the establishment of a G20 Open Innovation Platform of Platforms, as a tool for the voluntary sharing of information, on mutually agreed terms, as a resource to gain insight into science, technology and innovation structures across G20 members and other invited countries, in support of innovation partnerships.

The meeting also welcomed the initiative to implement an Open Innovation Demonstrator Project, as a pilot action, which brought together innovators from across the G20 and other countries, and provided practical evidence on how Open Innovation could be harnessed as an instrument to respond to key challenges such as scaling up disaster risk reduction and building water resilience. The meeting recognised the potential for such initiatives to be undertaken in other regions, focused on other themes, and will explore as appropriate and possible, support for piloting and elaborating the identified solutions, through our respective science and innovation authorities.

Priority 2: Biodiversity Information for Sustainable Development

The meeting stressed that conserving biodiversity and the sustainable use of biodiversity is important for sustainable development, always striving to halt and reverse loss of biodiversity and restore nature and ecosystems. Sustainable development should foster a broad range of ecosystem services that support livelihoods, economic growth, as well as the underlying ecosystems themselves. By adopting a holistic perspective that recognises the intricate links between human, animal, plant and environmental health, we can ensure a more sustainable future, as envisioned through the One Health collaborative approach bringing together multiple disciplines.

The meeting therefore encouraged global collaboration, especially to build research and innovation capacities for biodiversity monitoring and protection related to data preservation, data management, data access, and data use. This is consistent with the principles of our engagement in the G20 and participation in, and membership of different initiatives, and building on the 2024 G20 - Global Biodiversity Information Facility (GBIF) facilitation process for species cataloguing and the expansion of open biodiversity databases.

The meeting emphasised the importance of studying and monitoring the impacts of climate change on biodiversity across diverse ecosystems whilst considering specific challenges faced by particularly vulnerable regions.

The meeting considered that initiatives, which as appropriate establish and support international mechanisms and centres focused on biodiversity informatics, technical and scientific support, play an important role to protect, conserve, sustainably use, and restore biodiversity, whilst also fostering the broader use of biodiversity information for sustainable development and scientific progress.

The meeting recognised the importance of supporting regionally focused biodiversity organisations and their activities aimed at strengthening international cooperation in biodiversity research and innovation, as well as enhancing alignment and collaboration between national and international efforts. The meeting welcomed such cooperation including between entities such as the GBIF and the Regional and / or Subregional Technical and Scientific Cooperation Support Centers established under the United Nations' Convention on Biological Diversity (CBD).

In this context, and in support of global biodiversity data cooperation, the meeting affirmed the importance of initiatives such as the ongoing development of The Catalogue of Life by GBIF and partners, as a critical response to the need for accessible and comprehensive biodiversity information resources, including historical taxonomic collections and genomic data, to be made available to global science. The meeting therefore called for sustained support for the development of the Catalogue and other related international cooperation initiatives, to support the strengthening of biodiversity data systems, nationally, regionally and globally.

The meeting appreciated the contributions from museum experts and research leaders who contributed to the G20 Seminar on Natural History Collections, held in Mpumalanga, on 28 and 29 May 2025. The meeting commended the Seminar's development of a roadmap highlighting priorities and opportunities for future collaborations, such as the building of virtual global collections, and the enhanced recognition of the role of Indigenous Peoples, as well as local communities. Together such actions will serve to enrich science capacity globally.

The meeting further appreciated the convening of an expert workshop on 15 July 2025, which considered how to best develop science capabilities to better understand Africa's human genetic diversity as a resource for improving African and global public health. The meeting noted the report prepared based on the outcomes of the workshop, to guide future collaboration in this area.

Priority 3: Diversity, Equity, Inclusion, and Accessibility in Science, Technology, and Innovation

The meeting recalled the 2024 G20 Recommendations on Diversity, Equity, Inclusion, and Accessibility in Science, Technology and Innovation, the meeting reaffirmed its commitment to work to promote cooperation in the field of science, technology and innovation which is responsible and ethical, as well as open to everybody, without discrimination, wanting to contribute, to enable a safer, healthier and more prosperous future for all.

In this regard, appreciating the importance of the values of Open Science, the meeting welcomed related positive developments, which contribute to these goals, such as the United Nations Educational Scientific and Cultural Organisation (UNESCO) Recommendation on Open Science, other relevant national and international initiatives, which advance Open Science, also noting the UNESCO Call to Action on the Freedom and Safety of Scientists informed by the UNESCO Recommendation on Science and Scientific Researchers.

The meeting recognised that, consistent with the principles of our participation in the G20, enhancing diversity, equity, inclusion, and accessibility in science, technology, and innovation, can foster a closer alignment between research and societal needs, identify and address gaps in research, whilst providing new perspectives and facilitating the uptake of scientific research results within society.

The meeting, thus noted the development of a "Compendium of good practices in policy initiatives and instruments promoting Science, Technology and Innovation for All" as a knowledge resource, to support the implementation of the G20 Recommendations on Diversity, Equity, Inclusion, and Accessibility in Science, Technology, and Innovation, to be used at national discretion.

The meeting further noted that this Compendium will complement and contribute to the establishment of a Thematic Portal on Policies and Instruments that promote Diversity, Equity, Inclusion and Accessibility in Science, Technology, and Innovation. This Portal will be hosted by the UNESCO Global Observatory of Science, Technology, and Innovation Policy Instruments (GO-SPIN) enabled by the support of some G20 members and guest countries.

Furthermore, cognisant of the need to strengthen science capabilities through increased public understanding and awareness of, and participation in science, the meeting endorsed the G20 Recommendations on Science Engagement. Notably, we are confident that these recommendations will foster greater trust in science and support our citizens' involvement in evidence-based policy- and decision-making, including at local, national and international levels. The meeting stressed that Science Engagement should holistically include all disciplines of science, including the social sciences and humanities, and target key societal concerns such as public health.

The meeting further appreciated South Africa's initiative to organise two events focused on achieving gender equality and the empowerment of all women and girls in science, technology and innovation, and the discussions it enabled on how to accelerate action in support of this objective.

Section C: The Tshwane Package

The meeting noted that the various initiatives of the South African Presidency of the G20 Research and Innovation Working Group (RIWG) in 2025 and the deliverables they produced, will be known as the **Tshwane Package**.

As set out in this Chair's Summary, the **Tshwane Package** comprises:

An initiative endorsed by this Ministerial Meeting:

1. The G20 Recommendations on Science Engagement (attached hereto).

Initiatives welcomed by this Ministerial Meeting:

2. The establishment of the G20 Open Innovation Platform of Platforms.
3. The implementation of an Open Innovation Demonstrator Project focused on Disaster Risk Reduction and Increasing Water Resilience.
4. Support for international cooperation related to biodiversity data and informatic capabilities, such as the ongoing development by GBIF and partners of the Catalogue of Life.
5. The organisation of two events focused on achieving gender equality and the empowerment of all women and girls in science, technology and innovation.

Initiatives noted by this Ministerial Meeting:

6. Support for regionally focused biodiversity organisations and their activities, which enhance alignment and collaboration between national and international efforts, including for example cooperation between entities such as the GBIF and the Regional and/or Subregional Technical and Scientific Cooperation Support Centres established under the CBD.
7. The report prepared, based on the outcomes of an expert workshop, to guide future collaboration related to better understanding Africa's human genetic diversity as a resource for improving global public health.
8. The roadmap proposed by the G20 Seminar on Natural History Collections to enhance international cooperation related to such research infrastructures and build global science capacity to further develop them.
9. The development of the "Compendium of good practices in policy initiatives and instruments promoting Science, Technology and Innovation for All."
10. The support for the establishment of a Thematic Portal on Policies and Instruments that promote Diversity, Equity, Inclusion and Accessibility in Science, Technology and Innovation hosted by the UNESCO GO-SPIN.

Section D – Side and Associated Events

The meeting expressed its appreciation to the South African Presidency of the G20 Research and Innovation Working Group for the organisation of various side and associated events, coinciding with and in preparation for this Ministerial meeting, which highlighted the importance of international cooperation in research and innovation, which advances solidarity, equality, and sustainability. These events include:

- a) The meetings of the Science 20 (S20) Engagement Group, which focused on enhancing scientific collaboration on the intersections of climate, food, water, energy and land systems.
- b) The G20 Chief Science Advisors Roundtable (CSAR), which interrogated the critical role of harnessing scientific advice to enhance policy- and decision-making.
- c) The meeting of G20 experts which continued the work initiated under the Brazilian Presidency to advance cooperation under the G20 Initiative on the Bioeconomy (GIB) and the implementation of the ten voluntary, non-binding G20 High-Level Principles on Bioeconomy decided upon in 2024.
- d) The UNESCO Management of Social Transformations (MOST) Forum, which emphasized the importance of investment in the social sciences and humanities to enhance our ability to respond to complex global challenges.

- e) The visit to the South African site of the Square Kilometer Array Observatory (SKAO), organised to demonstrate the role of global research infrastructure in boosting scientific discovery.
- f) The workshop on the role of Artificial Intelligence in supporting the implementation of the African Union Science, Technology, and Innovation Strategy for Africa (STISA), as a contribution to the South African G20 Presidency's Task Force on Artificial Intelligence, Data Governance, and Innovation for Sustainable Development.

Section E - Conclusion

The meeting thanked the knowledge partners of the South African Presidency — the Global Biodiversity Information Facility, the International Centre for Genetic Engineering and Biotechnology, the Organisation for Economic Cooperation and Development and the United Nations Educational, Scientific and Cultural Organisation for their contribution to the work of the Group.

The meeting commended and thanked the South African Presidency for its leadership of the G20 RIWG in 2025 and looks forward to the G20 Presidency of the United States of America in 2026.