Task Force 7
Towards Reformed Multilateralism: Transforming Global Institutions and Frameworks

ENHANCING INTEROPERABILITY BETWEEN CONNECTIVITY INITIATIVES TO ACHIEVE THE SDGs AND PARIS CLIMATE GOALS

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Abstract

The current fragmentation and weaponisation of connectivity initiatives threatens the achievement of the UN Sustainable Development Goals (SDGs) and Paris Agreement commitments.

To enhance the interoperability of connectivity initiatives, this policy brief proposes the G20 should establish a Working Group on Strategic Connectivity Clusters (SCCs), and consider coordinating the first SCC on early warning systems (EWS) as a catalyst for SDG progress with clear benefits for all.

In a multipolar yet interdependent world, the SCC concept provides a flexible tool to the G20, one that works in synergy with existing aspects of connectivity coordination, such as legal frameworks and commitments to build and finance infrastructure.

The proposed SCC could map out connectivity activities implemented by various stakeholders but working towards the same objective, such as EWS. By identifying gaps and synergies, SCCs highlight opportunities for all to act towards faster connectivity, SDG, and climate progress.

The Challenge

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Greater coordination and financial flows are urgently needed to ensure measurable progress on the UN Sustainable Development Goals (SDGs) and Paris Agreement commitments. In answering these challenges, competing connectivity initiatives risk causing further damage and delay due to fragmented implementation and increased risk of weaponisation. While enhanced interoperability among connectivity initiatives is necessary, this is a challenge in an increasingly divided and multipolar world. Current efforts towards interoperability are slow and uneven across sectors, with the ever-present risk of a race to the bottom regarding environmental and social standards. Yet, global goals can be attained only by bridging the connectivity gap and avoiding fragmentation.

Working definition of connectivity

The stakes of connectivity are high, encompassing all aspects of sustainability and development in a globalised world. This policy brief incorporates working definitions and concepts of connectivity from recent G20 discussions. Connectivity, as described by the 2019 Japan G20 Development Working Group (DWG) meeting, is "an attribute of a network and is a measure of how well connected any one node is to all other nodes in the network".[1]

Ill-planned and poorly coordinated connectivity initiatives can have potential adverse effects, such as traffic congestion, accidents, harmful health impacts, security risks, social exclusion, and an inequitable distribution of benefits. They can also hamper future connectivity policy coordination and coherence efforts. Resolving issues related to the weakest nodes (those with 'limited capacity, are in poor condition, or have low performance') of the network through greater investments could reduce such potential adverse effects and, as per the 2019 G20 DWG discussion, ensure greater resilience and economic growth with better supply-chain efficiency.[1]

Fragmentation and weaponisation of connectivity

Many connectivity initiatives coexist globally, led by countries or regional and international organisations, and implemented by dynamic sets of national

and international stakeholders such as development finance institutions and the private sector. This multiplicity of actors leads to fragmented approaches to connectivity. An aggravating factor is the rise of competing approaches to connectivity, which sometimes results in their geostrategic weaponisation through the political exploitation of economic interdependencies.[2] [3] [4]

Whether intentional or not, fragmentation undermines connectivity and, therefore, sustainable development. In addition, there are numerous potential negative impacts due to insufficient coordination, including the inefficient use of resources and the depletion of commons.[5]

Challenges to connectivity coordination

While connectivity projects provide large development and market access opportunities, they also create difficulties in managing (i) political sensitivities; (ii) multiple laws and regulations; and (iii) complications in procurement and finance; as well as (iv) addressing asymmetric economic gains. Therefore, it is essential to develop 'coordinated hub-and-spoke' connectivity models and harmonised standards, laws, and technical regulations, and build flexible approaches to deal with political backlashes for greater effectiveness of cross-border connectivity projects.[6]

Different connectivity initiatives operate under different principles, standards, norms, and procedures. The key challenge is increasing connectivity coordination and interoperability while stimulating a virtuous upward spiral towards high environmental, social, and governance norms with technical and financial assistance for the Global South to ensure access, equity, and inclusion (versus the opposite, i.e., initiating a race to the bottom). Though necessary, coordination among connectivity initiatives is complex, especially at the regional and multilateral level.

Challenges to connectivity interoperability

Interoperability can be defined as "the ability of a system or a product to work with other systems or products without special effort on the part of the customer".[7] Diallo et al. point out that there are two main levels of interoperability—technical, to ensure information exchange; and substantive, to align models for meaningful exchanges.[8] Standards and technical regulations negotiated at the multilateral level are at the heart of making interoperability effective. However,

according to negotiation practitioners, efforts take time, are sector-specific, and can be contentious.

In the meantime, connectivity cooperation at the project level already occurs at multiple scales but mostly among groups of likeminded partners. However, the SDGs and Paris Agreement commitments, anchored in the twin transition (digital and green), require interoperability efforts and solutions complementary to the race for harmonising standards and other tenets of traditional interoperability.

Development dimension of connectivity finance and data flows

The 2015 Addis Ababa Action Agenda on financing for development had pitched for setting up a new forum to improve coordination and alignment between ongoing infrastructure initiatives. A major aim was to ensure that public, private, and blended financing are used in a manner that is "environmentally, socially and economically sustainable".[9]

In addition, under the Asia-Europe Meeting definition of connectivity,[10] which reflects a 51-country consensus, connectivity contributes to narrowing gaps in development and capacities among partners to implement the SDGs.

Several G20 members, including India and the European Union (EU), have emphasised the importance of digital solutions in the fight against poverty, climate change, and pandemic recovery. The Indian government is now making its 'data for development' initiative a core theme of its G20 presidency. In this context, India has developed open digital platforms in areas such as vaccine registration and payments. These interoperable platforms are seen as digital public goods.[11] Similarly, the EU and 13 EU member states launched a 'Digital for Development' (D4D) Hub in December 2020 to foster cooperation between 'Team Europe' and international partners. The D4D Hub "aims to be an open and inclusive platform at scale".[12]

The G20's Role

2

The G20 has long played an essential role in infrastructure and development policy and cooperation across sectors, with dedicated working groups. The concepts of connectivity and interoperability were introduced in 2016 during the Chinese presidency.[13] While connectivity was used in the context of physical, energy, digital, and regional connectivity, the term interoperability was promoted for cross-border payments, healthcare, climate-related financial disclosure, and digital and research frameworks (see Table 1). Building further consensus, the 2019 Quality Infrastructure Investment Principles[14] published during the Japanese presidency call for scaled-up quality infrastructure investments that enable sustainable development and connectivity.

Table 1: Mentions of 'Connectivity' and 'Interoperability' in G20 Leaders' Declaration

G20 Summit/ Leaders' Declaration/Year	Connectivity	Interoperability
Indonesia, 2022	– Strengthen international connectivity; Develop regional energy interconnectivity. – Build high-quality digital connectivity. – Ensuring security in connectivity infrastructure.	– Coordinate on cross-border payments and interoperability; Interoperability of Central Bank Digital Currencies (CBDCs) for cross-border payments. – Achieve interoperability across climate-related financial disclosure frameworks.
Italy, 2021	– Universal, and affordable access to digital connectivity for all by 2025. – Endorse the G20 Guidelines for Financing and Fostering High-Quality Broadband Connectivity for a Digital World.	– Acknowledge vaccination certificates and interoperability and mutual recognition of digital applications. – Work on enabling data to flow with trust to foster future interoperability. – Welcome interoperable and trusted digital identity solutions.
Saudi Arabia, 2020	– Acknowledge universal, secure, and affordable digital connectivity. – Endorse G20 guidelines on Regional Connectivity.	– Not mentioned.

G20 Summit/ Leaders' Declaration/Year	Connectivity	Interoperability
Japan, 2019	– Not mentioned.	– Encourage the interoperability of different (digital) frameworks.
Argentina, 2018	– Not mentioned.	– Not mentioned.
Germany, 2017	– Boost investment in connectivity.	– Promote interoperability in the use of ICT.
China, 2016	– Cooperate in infrastructure connectivity for sustainable development. – Endorse the Global Infrastructure Connectivity Alliance.	– Facilitate appropriate access to publicly funded research results on findable, accessible, interoperable and reusable (FAIR) principles.

Source: G20 Information Centre.[15]

Divisive context, common goals

In a tense geopolitical and geoeconomics context, the G20's diversity—with members from the emerging and industrialised economies—gives it the heft to coordinate efforts towards common global goals. Indonesia's G20 presidency in 2022, followed by India in 2023, Brazil in 2024, and South Africa in 2025, provide an opportunity for the Global South to highlight development perspectives in connectivity initiatives, including those related to the twin transition. The financial and technical resources of G20 members can support community-led innovation and sustainable solutions to bridge the connectivity divide.

Recommendations to the G20

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Strategic Connectivity Cluster

It is possible to achieve inclusive connectivity cooperation to foster global progress. The proposed approach is to establish a G20 Working Group on Strategic Connectivity Cluster (SCC) to tackle connectivity challenges in a non-fragmented manner, enhance the interoperability of connectivity initiatives, and ensure a just twin transition.

An SCC[16] is formed by connectivity initiatives set in a geographically determined space and working towards the same global goal. By leveraging on complementarities and minimising gaps, an SCC can achieve far more than single initiatives and standalone projects.

The SCC concept encompasses flexible aspects of coordination that work in synergy with the long-term harmonisation of standards and technical regulations to achieve interoperability, in addition to hard elements, including building physical and digital infrastructure. Many different actors can sponsor and implement the connectivity initiatives forming an SCC.

Clustering procedure

Establishing and implementing strategic connectivity clusters can be done as follows:

- Mapping out all relevant initiatives,
- Defining the thematic and geographical scope of the cluster,
- Identifying gaps in the cluster and hurdles (cluster analysis),
- Gathering all relevant stakeholders, including relevant authorities and representatives from the scientific community, civil society, private sector, and investment
- Identifying opportunities and fostering solutions strengthening the highest standards (open to competition and innovation),
- Fostering synergies and potential cooperation with partners and stakeholders.

Proposal for a new SCC: Early Warning Systems

To illustrate the SSC approach, the case study of early warning systems

(EWS) is presented. EWS adoption is a timely example, with the recent release of a 2023-2027 Executive Action Plan for Early Warnings for All (EW4All)[17], the UN Global Early Warning Initiative for the Implementation of Climate Adaptation. EW4All holds the potential to bring cross-cutting progress to many of the SDGs while spearheading SDG-13 on climate action. At the heart of the twin transitions (green and digital), EW4All tackles all aspects of disaster preparedness, including but not limited to the use of relevant information and communication technologies.[18]

The main official activity pillars of EW4All are presented in Table 2 (left column), while relevant projects selected from the authors' research are matched with relevant activity pillars in the right column. This is equivalent to a sample of the proposed clustering analysis of pertinent initiatives to EWS. The proposed geographical scope includes South Asia and Southeast Asia.

Table 2: Example of SCC mapping applied to EWS

EW4All Pillars towards SDG-13	A few relevant initiatives
Disaster risk and knowledge	Kerala Resilient Program[19] – Partners: WB, AIIB, AFD
	Climate Resilient and Inclusive Cities (CRIC)[20] – Partners: EU, UCLG ASPAC, Pilot4DEV, ACR+, ECOLISE, AIILSG, Gustave Eiffel University
	Sustainability Issues Metaverse for Building Participatory Learning Environments (SIMPLE)[21] – Partners: IRD, CTU and NSTDA, LPI, MERFI, Vietnam MOET, IUCN, INRAE, UM6P
Observations and forecast	National Copernicus Capacity Support Action Program for the Philippines (CopPhil)[22] – Partners: Philippines government, PhilSA, ESA, EUMETSAT, ECMWF, EU Agencies, Mercator Océan International
	Climate Resilient and Inclusive Cities (CRIC)
Dissemination and communication	Climate Resilient and Inclusive Cities (CRIC)
	Sustainability Issues Metaverse for Building Participatory Learning Environments (SIMPLE)
Preparedness and response	Kerala Resilient Program
	Coalition for Disaster Resilient Infrastructure (CDRI)[23] – Members: 31 governments and 8 international organisations
	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre)[24] – ASEAN and partners

Source: Based on authors' research

Through a dedicated SCC, the G20 should promote discussion on comprehensive multi-hazard EWS, using the latest technologies, including artificial intelligence and data analytics, to monitor risks, including those emanating from geopolitics, cyberthreats, and those related to supply chains.

Overarching goals of the SCC and aspects of implementation

Strategic connectivity clusters should contribute to the following overarching goals:

- Bridging the global gaps in connectivity as well as the related finance and technological capabilities.
- Addressing the gaps in technological and financial resources of the global South in complying with high Environmental, Social and Governance standards.
- Promoting interoperability for optimal results in connectivity initiatives, including in digital and energy transition projects, but also all other connectivity projects whose impacts are directly linked to one or more SDG(s).
- Reinforcing the direct links between connectivity projects on the one hand, and progression on the SDGs and Paris Agreement commitments on the other hand.

To prevent siloed approaches to connectivity and ensure access, equity, and inclusion, SCCs may:

- Fortify resilience in connectivity projects by developing mechanisms for the dynamic monitoring and analysis of risks, as well as holding regular stakeholder consultations on SCC issues.
- Incentivise interoperable cross-border connectivity projects through a dedicated Viability Gap Funding for identified SCC projects in G20 countries.
- Establish consultations on various identified aspects of harmonisation and interoperability requiring coordination between G20 countries.

Implementation challenges and the need for consensus

Interoperable connectivity solutions, through their transparency and openness, provide users with higher-quality and innovative products and services, thereby promoting competition and competitiveness.[25] However, their success depends on the consensus of all parties involved. To ensure the mass adoption of interoperable solutions as applied to connectivity and the 2030 Agenda, a critical element is 'regulatory international interoperability'—by enhancing the compatibility of regulatory standards—which can only be achieved through international coordination.[26]

The authors acknowledge that achieving consensus on interoperable solutions along geopolitical fault lines is a major challenge. However, it is important for G20 members to consider the risks associated with siloed approaches within their own jurisdictions and between countries. The proposed SCC approach provides a push for interoperability by encouraging talks to address information gaps and develop a common taxonomy. In the connectivity context, the focus should therefore be to ensure a comprehensive mapping of initiatives and agreements on common definitions and basic principles. The interoperability of equipment and networks is a next step.

The SCC methodology is based on the vitality and diversity of global connectivity engagement. It provides a framework to map out this engagement and analyse the gaps, opportunities, hurdles, and synergies affecting our shared goals and future. This approach aims to create a virtuous cycle, promoting healthy competition among various connectivity players in a way which accelerates SDG and climate progress, rather than threatening it.

Attribution: Fanny Sauvignon, Arun S. Nair, and Stefania Benaglia, "Enhancing Interoperability Between Connectivity Initiatives to Achieve the SDGs and Paris Climate Goals," *T20 Policy Brief*, June 2023.

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