An enabling environment for community-centred connectivity: A WSIS+20 agenda to leave no one behind

Association for Progressive Communications (APC), April 2025

Connecting the unconnected remains a priority

Twenty years into the World Summit on the Information Society (WSIS) process, there are still fundamental challenges in meeting universal access goals. This shortfall is ultimately due to the absence of a business case that meets traditional operators' profitability requirements. While traditional telecom operators have played an important role in bringing billions of people online, many developing countries still face significant hurdles. As a result, there is a growing consensus of a need to support different models, including community-centred connectivity initiatives (CCCIs), to achieve the WSIS targets.

However, these initiatives still face challenges even though they are widely recognised in international forums and policy processes as an important means of expanding universal access. Some of the processes are specifically mentioned in the 2024 Resolution from the UN General Assembly on the "Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society".[1] Some of the challenges they face are:

- Inconsistent prioritisation of the need to connect the unconnected
- Insufficient recognition by policy makers at national and regional levels of the potential and feasibility of community-centred connectivity initiatives (CCCIs).
- Outdated regulatory environments that create unnecessary barriers for CCCIs
- Lack of innovative and flexible financing for CCCIs.

The WSIS+20 review and the Global Digital Compact (GDC) offer opportunities to respond to these challenges with commitments and practical measures in support of community-centred connectivity.

Why are current efforts to bridge the connectivity gap failing?

More than two decades on, traditional telecommunication and mobile network operators have not achieved universal access goals even for basic voice connectivity.[2] They face challenges in expanding connectivity in remote and rural areas because it is just not profitable enough. Building new infrastructure is expensive. Population density in rural areas is low – particularly in Africa – as are income levels and smartphone

[1] See Annex 1 for more details about these references in the WSIS resolution.

[2] Shanahan, M., & Bahia, K. (2023). *State of the Mobile Internet Connectivity Report.* GSMA. https://www.gsma.com/r/somic/?ID=a6g1r000000xnptAAA&JobID=1709262 https://www.gsma.com/r/wp-content/uploads/2023/10/The-State-of-Mobile-Internet-Connectivity-Report-2023.pdf

penetration. Even the use of public funds channelled through traditional Universal Service Fund (USF) models is proving insufficient to improve operators' return on investment in these areas. The result is that most traditional operators in rural areas still offer expensive traffic-capped mobile data packages that remain unaffordable to many.

Research ICT Africa's "Beyond Access"[3] data indicates that even when people do have access, internet usage remains low because of the high cost of data and devices. Several countries with 95% mobile data coverage have less than 20% internet penetration. This falls short of the critical mass associated with economic growth. To give one example: a school in the Eastern Cape province of South Africa has three separate dishes on its roof for satellite communications from three different companies. However, none of them are being used due to a lack of budget for the ongoing costs and teachers do not have the skills to fully use and maintain the system.

But the cost is not just felt at the local level. The scale of digital inequality in Africa is such that every cent invested in digital public services will only generate a fraction of its potential return on investment in the form of social and economic benefits at the national level.

Diversifying internet access markets by creating enabling environments for community connectivity

In this context, community-centred connectivity providers are emerging as important complements to expanding access to the unconnected. Unlike traditional operators, these providers are driven by different investment priorities rooted in local and regional needs. They can be thriving small or medium businesses, non-profits, community organisations, or cooperatives. They originate from within local communities to address local connectivity needs, but they often also provide content and capacity development. They are the result of people working together, combining their resources, and connecting themselves to close connectivity gaps. Some are small in scope, serving communities of fewer than 3,000 people, but some serve much larger communities, or more than one village or community.[4]

To promote universal digital inclusion, the market needs to be diversified with a variety of players: corporate, local, and non-profit. Local community-centred small, medium and micro enterprises (SMMEs) are particularly good at reaching the otherwise marginalised, with examples from many countries.[5] These solutions offer unique advantages. For example, they can begin on a small scale and incorporate a variety of ownership and operating models that ensure financial sustainability. They range from networks which are fully deployed and operated by community organisations, to those set up by social enterprises, cooperatives and local governments where community members participate at different stages of the telecommunications infrastructure value chain. This, in turn, contributes to the cost-effectiveness of these solutions to provide meaningful connectivity.[6]

These initiatives are already part of the ecosystem of SMMEs that are the lifeblood of many economies, especially in the developing world, but which have failed to receive the support and attention they deserve in

[3] https://researchictafrica.net/project/after-access-2022-survey/ Updated surveys results for 2024 will be available by mid-2025.

[4] For further illustrations and examples, see https://www.internetsociety.org/issues/community-networks/success-stories/

[5] Rey-Moreno, C. (2024). *Typology of community-centred connectivity initiatives*. Association for Progressive Communications and Rhizomatica. https://www.apc.org/en/node/40460

[6] https://academy.itu.int/training-courses/full-catalogue/universal-service-financing-efficiency-toolkit

a sector typically dominated by anywhere between two and four national carriers per country. As SMMEs themselves, they also play a catalytic role in the local economic ecosystem as they enable and support other SMMEs through the provision of access to connectivity and skill-building. This has the impact of strengthening SMMEs (e.g. through access to information, market reach and knowledge, efficiency tools, better access to e-government, etc.).

Additionally, community-centred connectivity providers promote broader participation from diverse community members to address needs that extend beyond internet access. This includes building digital skills and creating culturally relevant, local digital content. The social inclusion and transformational nature of these additional services significantly increase their social return of investment, and so they contribute to other Sustainable Development Goals (SDGs) beyond those related to internet access alone. Local access networks are local interventions that integrate supply-side and demand-side of internet access.

Now, what is needed for these community-centred connectivity providers to expand and operate more cost-effectively, thus scaling up their impact?

The six-pillar plan for diversifying access markets to connect the unconnected

- Pillar one: Deepen insight into the value of a diversified ecosystem
- Pillar two: Reduce regulatory requirements for CCCIs
- Pillar three: Establish innovative financing and investment models
- Pillar four: Adopt mechanisms to share spectrum
- Pillar five: Ensure affordable access to backhaul networks
- Pillar six: Raise awareness and build capacity

Pillar one: Deepen insight into the value of a diversified ecosystem

Acknowledging the failure of the traditional operator model to close the digital gap and exploring how to complement their efforts with business models more tailored to underserved areas is critical. The Communications Authority in Kenya[7] and Anatel in Brazil[8] commissioned work to explore potential enablers for CCCIs. Similarly, the Data Services Market Inquiry from the Competition Commission in South Africa recommended approaches to incentivising diversity via community networks.[9] Anatel has gone one step further by creating a working group to have a continued dialogue with these initiatives and operationalise enablers for them.[10]

[7] https://repository.ca.go.ke/bitstream/handle/123456789/47/Licensing-and-Shared-Spectrum-Framework-for-Community- Networks-May-2021.pdf?sequence=1

[8] Labardini Inzunza, A. (2021). *Policy Brief and Recommendations for an Enabling Environment for Community Networks in Brazil*. Association for Progressive Communications. https://sei.anatel.gov.br/sei/modulos/pesquisa/md_pesq_documento_consulta_externa.php?eEP-wqk1skrd8hSlk5Z3rN4EVg9uLJqrLYJw_9INcO7Pwj-3IV1l7IHgYMB-bbrYeBUxe1cWNVSkPuk8jN_6nkpj_OiAnYbrUD2KgGMhro4XY785bcVkb50mNt5TGB4F

[9] http://www.compcom.co.za/wp-content/uploads/2019/12/Data-Market-Inquiry-SUMMARY.pdf.

[10] https://www.gov.br/anatel/pt-br/composicao/grupos-de-trabalho/gt-rcom

Pillar two: Reduce regulatory requirements for community-centred connectivity initiatives/providers

Hefty licence and compliance requirements for network operators exist in most countries from the global South. This contrasts with regulatory frameworks in developed telecommunication markets that are characterised by a simple authorisation or registration system which permits internet service provision without the need for a special licence or an exemption. Among those incentives, lowering licence fees, or even waiving them, and reducing their administrative burden, are among the most important.[11] In Kenya, most of those incentives exist via a Community Network and Service Licence.[12] In South Africa, initiatives have made use of the licence-exempt regulations, and a more robust framework is being designed.[13] This is the case in the Philippines too.[14] In Brazil, they can apply for an authorisation under the Service of Restricted Interest category.[15] The Colombian government has recognised the importance of connectivity and issued a decree with a special regime for these initiatives, plus a five-year exemption of official fees.[16]

Pillar three: Mainstream, accelerate and incentivise more innovative financing and investment models

The Global Digital Compact (GDC) includes a commitment to invest in "local networks" to close all digital divides. One way of doing so would be through the revision of the Universal Service Access Funds (USFs), which have suffered from failure to spend and, in several cases, maladministration (sometimes corruption). Expenditure from USFs also tends to be excessively focused on supply-side interventions such as infrastructure provision e.g. MNO base station rollout or school connectivity with no sustainability plans behind them. Demand-side interventions and whole-of-society approaches which includes CCCIs are mostly not supported by USFs.. With very few exceptions, and despite recommendations from the UN Broadband Commission[17] and the ITU, among others, USFs are not designed to enable CCIs through funding. This needs to change. Argentina was a pioneer in this approach,[18] and Brazil has recently authorised it.[19] Kenya also has plans to make this happen,[20] while in Indonesia, initiatives have been supported by the Village Fund made available by the Ministry of Villages for connectivity-related projects. In Colombia, the European

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[11] International Telecommunication Union. (2021). *Global Symposium for Regulators 2021 Best Practice Guidelines*. https://www.itu.int/en/ITU-D/Conferences/GSR/2021/Documents/GSR-21_Best-Practice-Guidelines_FINAL_E_V2.pdf

[12] https://www.ca.go.ke/sites/default/files/CA/Licenses%20Templatses/Community%20Network%20and%20Service%20Provider%20Licence.pdf

[13] https://www.gov.za/sites/default/files/gcis_document/202407/50725proc166.pdf

[14] https://legacy.senate.gov.ph/press_release/2025/0206_cayetanoa2.asp

[15] Agência Nacional de Telecomunicações (Anatel). (2024). *Redes Comunitárias: Universalização das Redes de Telecomunicações*. https://www.gov.br/anatel/pt-br/regulado/universalizacao/redes-comunitarias

[16] https://www.mintic.gov.co/portal/inicio/Sala-de-prensa/Noticias/276726:Publicacion-decreto-internet-comunitario-fijo.

[17] United Nations Broadband Commission for Sustainable Development. (2021). *21st Century Financing Models for Bridging Broadband Connectivity Gaps.*https://broadbandcommission.org/wp-content/uploads/dlm_uploads/2021/11/21st-Century-Financing-Models-Broadband-Commission.pdf

[18] ENACOM (Ente Nacional de Comunicaciones). (2023, 23 May). Convocatoria Para La Adjudicación De Aportes No Reembolsables Para El Desarrollo De Infraestructura De Internet A Través De Redes Comunitarias Programa "Roberto Arias". https://www.enacom.gob.ar/multimedia/noticias/archivos/202305/archivo_20230523045957_7544.pdf

[19] Juliao, H. (2025, 26 March). GT da Anatel quer redes comunitárias entre projetos financiáveis pelo Fust. *Teletime.* https://teletime.com.br/26/03/2025/gt-da-anatel-quer-redes-comunitarias-entre-projetos-financiaveis-pelo-fust/

[20] https://www.ca.go.ke/sites/default/files/CA/Universal%20Access/Draft-USF-Strategic-Plan-2022-2026-.pdf

Commission's Global Gateway[21] has provided funding for the deployment of CCCIs in demilitarised zones under the peace process. Additionally, CCCIs are also trying to use innovative financing mechanisms such as demand aggregation, blended finance, concessional loans, credit guarantees, and development/social impact bonds.[22] Yet these are remarkable exemptions, given the incapacity of private and public financiers to design financial products for initiatives so different from the large infrastructure investment projects they are used to funding.

Pillar four: Adopt mechanisms to share spectrum

Mobile spectrum in particular should be made available as it offers cost-effective opportunities to bridge the digital divide[23] and it is unused or unassigned in most underserved areas of the global South. Also, approaches to spectrum sharing have become widespread in the global North, but their adoption in the global South, where they are most needed, is still the exception. While in Mexico a social purpose spectrum licence was pioneered,[24] in Colombia several experiments have been authorised and monitored by the relevant authorities to enable this possibility. In Brazil, an authorisation for these initiatives to make mobile spectrum available on a secondary basis in so-called radio frequencies of polygons has been recently created.[25] South Africa has also recently enacted policy to enable CCCIs to access unused mobile spectrum.[26] This should also include promoting increased use of unlicensed spectrum.

Pillar five: Ensure affordable access to backhaul networks

Securing sufficient backhaul capacity is often the single largest cost element for small networks, especially where affordable access to national backbones and middle-mile fibre networks is limited or not competitively priced for small-scale operators. Examples of this enabler are scarce, with the notable exception of the Palapa Ring in Indonesia.

Pillar six: Awareness-raising and capacity-building programmes

These are required to reinforce socially-driven initiatives that could effectively use the aforementioned incentives to close the digital divide. Examples to raise awareness exist in Brazil, with a website on community networks maintained by the regulator,[27] and in Colombia.[28] The LocNet Initiative[29] and other

[21] https://international-partnerships.ec.europa.eu/policies/global-gateway/paz-total-connectivity-colombia_en

[22] Connectivity Capital. (2021). *Financing Mechanisms for Locally Owned Internet Infrastructure*. Association for Progressive Communications.https://www.apc.org/sites/default/files/financing-mechanisms-for-locally-owned-internet-infrastructure.pdf

[23] United Nations Broadband Commission for Sustainable Development. (2021). *21st Century Financing Models: Broadband Commission*. Op. cit.

[24] Song, S., Rey-Moreno, C., & Jensen, M. (2019). *Innovations in Spectrum Management*. Internet Society. https://www.internetsociety.org/resources/doc/2019/innovations-in-spectrum-management/

[25] Agência Nacional de Telecomunicações (Anatel). (2025, 26 March). Anatel discute inclusão digital e avanços para redes comunitárias em reunião do GT-RCom. https://www.gov.br/anatel/pt-br/assuntos/noticias/anatel-discute-inclusao-digital-e-avancos-para-redes-comunitarias-em-reuniao-do-gt-rcom

[26] https://www.gov.za/sites/default/files/gcis_document/202407/50725proc166.pdf

[27] https://www.gov.br/anatel/pt-br/regulado/universalizacao/redes-comunitarias

[28] https://www.redescomunitarias.co/

[29] https://cnlearning.apc.org/

promoters of these models, such as the Internet Society,[30] maintain similar resources, and facilitate capacity building. Courses available on this topic in the ITU Academy are also critical in this regard.

In countries where CCCIs are being recognised as tangible enablers, these initiatives are beginning to bloom. In Kenya, more than 15 initiatives have emerged in the last two years.[31] In Brazil, 63 CCCIs were identified in a research published two years ago,[32] before the creation of Anatel's working group.[33] In Colombia, at least 15 community networks have been identified.[34] Similarly, 23 in Indonesia and 93 in the Philippines have been identified by recent research.[35]

Therefore, a more proactive and expedient creation of these enablers is recommended for these initiatives that integrate the supply and demand side to contribute to enabling meaningful connectivity where profit-seeking models do, and will, not reach.

The opportunity of WSIS+20

In over 20 years since the conclusion of the WSIS process, community-centred connectivity providers have become broadly accepted as an important complement to countries' universal access strategies. However, while progress has been made in enabling and recognising the important contribution of community-centred models, it is evident that more work is needed to unlock their full potential. This is reflected in the recently adopted Global Digital Compact (GDC),[36] which includes explicit commitments to develop innovative financing mechanisms and to invest in these local network initiatives to connect the unconnected.

Now is the time for those participating in the WSIS process to recognise that community-centred models are not receiving enough attention. To this end, the WSIS+20 review offers an excellent opportunity to build on the GDC's commitments to further enable these models and to update policies in support of innovative financial mechanisms that can support their expansion as a model for connecting the unconnected.

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www.apc.org

[30] Internet Society. Community Network DIY Toolkit: Bridging the Connectivity Gap with Community Networks. https://www.internetsociety.org/resources/community-network-diy-toolkit/

[31] Internet Governance Forum. (2024). *Plenary Report from the Policy Network on Meaningful Access.* https://intgovforum.org/en/filedepot_download/256/28586

[32] NIC.br.(2022). *Estudos Setoriais: Redes Comunitárias de Internet no Brasil.* https://www.nic.br/media/docs/publicacoes/7/20220905125048/estudos_setoriais_redes_comunitarias_de_internet_no_brasil.pdf

[33] This working group has raised public awareness and national support for these initiatives and reduced existing prejudice as these entities were previously defined as "illegal networks".

[34] https://www.redescomunitarias.co/es/redes-comunitarias-en-colombia

[35] Toquero, A. R., Padong, G., Falcutila, C, & Rey-Moreno, C. (2025). *Understanding community-centred connectivity initiatives in Asia and the Pacific*. Association for Progressive Communications. https://www.apc.org/en/pubs/understanding-community-centred-connectivity-initiatives-asia-and-pacific

[36] https://www.un.org/global-digital-compact/sites/default/files/2024-09/Global%20Digital%20Compact%20-%20English_0.pdf

Annex – Analysis of the Resolution adopted by the Economic and Social Council (ECOSOC) on 23 July 2024: Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society[37]

The WSIS follow-up resolutions of 2023 and 2024 mention community-centred connectivity initiatives (CCCIs). Moreover, the 2024 ECOSOC WSIS resolution recalls several other UN processes and decisions that have affirmed the importance of CCCIs as a means of achieving digital inclusion. Some of these explicitly recommend that these initiatives receive support in the form of enabling regulation and financing.

In other words, the call to action included in this document is not new. These initiatives go by different names in different documents. For example, in the 2024 CSTD / ECOSOC resolution, they are referred to as "small and non-profit community operators, including community networks". In the Global Digital Compact, they are referred to as "local networks", while in the UN Secretary General's Roadmap for Digital Cooperation, they are " smaller-scale providers, including broadband cooperatives, municipal networks and local businesses". The Broadband Commission refers to them as "community networks" and recommends that they receive various forms of support in the form of funding, access to spectrum, and enabling regulation.

The ITU WTPF (2021) and Plenipotentiary (2022) refer to them as "complementary access networks and solutions" and call on member states and sector members to "encourage innovation and entrepreneurship in local populations, including by encouraging community support for entrepreneurship and locally based programmes, including those for complementary solutions and networks".

WSIS stocktaking reports have included examples of such initiatives from Brazil, India, Mexico, and South Africa. The Brazilian regulator, Anatel, shared how it set up a Working Group on community networks in the 2022 stocktaking report.

The table below includes specific references and extracts from these and other documents related to the WSIS and the GDC that illustrate that what is lacking is not awareness of community-centred connectivity as a legitimate and effective contribution to leaving no one behind. What is lacking is sufficient

[37] https://docs.un.org/en/E/RES/2024/13

prioritisation and collaborative action by member states, and by other stakeholder groups. It is in this context that we present the Six Pillar Plan outlined above.

Process / Document cited in the CSTD/ECOSOC WSIS resolution of 2024	**How and in which Community-Centred Connectivity Connectivity is included**
UNGA Resolution 78/132 of 19 December 2023, on information and communications technologies for sustainable development Paragraph PP6	Paragraph 26 “Recognizes the importance of broadband connectivity to users in rural and remote areas, and in this regard notes that small and non-profit community operators, including community networks and other affordable, scalable and inclusive technology and business models that provide last-mile connectivity solutions, as appropriate and among others, can provide these services through, inter alia, appropriate regulatory measures that allow them to gain access to basic infrastructure”
Global Digital Compact Paragraph PP6, PP7, 146	“We commit by 2030 to: (c) Invest in and deploy resilient digital infrastructure, including satellites and local network initiatives, that provide safe and secure network coverage to all areas, including rural, remote and “hard-to-reach” areas, and promote equitable access to satellite orbits, taking into account the needs of developing countries.”
UN SG's “Roadmap for digital cooperation” - Paragraph PP7	"Some policies have been shown to promote connectivity, including regulations aimed at creating an enabling environment for smaller-scale providers, including broadband cooperatives, municipal networks and local businesses, by putting in place practices such as facilitating licence exemption and tax incentive schemes"
"Report of the Secretary-General: Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" 2024	It refers to the Broadband Commission report cited below, and to the ITU Efficiency Toolkit which includes a reference to community networks as one of the innovations for USF 2.0.
Tunis Agenda – Paragraph 27e)	27 e) “[h]elping to accelerate the development of domestic financial instruments, including by supporting […] networking initiatives based on local communities”
Broadband Commission – Paragraph 45	“Connecting Africa Through Broadband” includes recommendations to support community networks.

	"21st Century Financing Models for Bridging Broadband Connectivity Gaps" includes: ● Recommends that the potential beneficiaries from USF should include not-for-profit complementary access solution providers, such as community networks. ● Governments can provide licensed spectrum for free to support community networks, and local authorities can ease access to RoWs and allow the use of public sites as well. ● Proposes an international fund, where for other projects that are less scalable, such as community networks, the fund can act as a clearing house for knowledge and best practices, while also potentially providing loans or other resources. ● Recommends that Governments may also explore the options and feasibility of funding allocations to empower smaller providers and implementers offering innovative business and programmatic (demand-focused) solutions and models, including, for example, community networks, rural providers, and small and medium-size ISPs.
	State of Broadband 2023 mentions "complementary connectivity solutions as recipients of the USF"
ITU Plenipotentiary – Paragraph 58 Resolution 139 (REV. BUCHAREST, 2022) of the ITU Plenipotentiary on "Use of telecommunications/information and communication technologies to bridge the digital divide and build an inclusive information society"	instructs the Director of the Telecommunication Development Bureau, in coordination with the Directors of the other Bureaux, within their respective mandates "7 to support sharing national experiences and information, such as case studies, and support enabling environments for the use of affordable technologies for bridging the digital divide, such as current and emerging telecommunication/ICT infrastructure, including telecommunication/ICT complementary access networks and solutions;" Invites Member States "4 To consider facilitating an environment for sharing national experiences for bridging the digital divide, as appropriate, using affordable technologies, such as current and emerging telecommunication/ICT infrastructure, including telecommunication/ICT complementary access networks and solutions, according to national regulations;
ITU WTPF – Paragraph 59 Report by the ITU Secretary-General for the Sixth World Telecommunication/Information and Communication Technology Policy Forum 2021	Paragraph 2.8.6.4 recognising "c) that among sectors and stakeholders, ICT investments, including those in new and emerging telecommunication/ICT services and technologies, and complementary access solutions, should be coordinated to avoid fragmentation and duplication of efforts;" Is of the view "6. that use of new and emerging telecommunication/ICT services and technologies, and complementary access solutions can promote sustainable development, and that policies in the field of telecommunications/ICTs should consider environmental challenges such as climate change mitigation;"

	Invites Member States “1. to consider how best to foster an enabling environment that is conducive for mobilizing new and emerging telecommunication/ICT services and technologies, as well as complementary access solutions for sustainable development, to maximize their benefits, and minimize their risks;” Invites Member States, Sector Members and other stakeholders to work collaboratively “7. to encourage innovation and entrepreneurship in local populations, including by encouraging community support for entrepreneurship and locally based programmes, including those for complementary solutions and networks”
ITU WTDC 2022 – Paragraph 61 Resolution 37 from WTDC "Bridging the digital divide"	Included in “acknowledging” and “considering” section and resolves to instruct the Director of the Telecommunication Development Bureau (BDT) “15. to continue supporting Member States, where requested, in developing policy and regulatory frameworks that could expand and support the engagement of telecommunication/ICT complementary access networks and solutions in bridging the digital divide” “17 to continue supporting Member States, in the case where it is requested, in developing policy and regulatory frameworks that could expand and support the engagement of telecommunications/ICTs complementary access networks and solutions in bridging the digital divide;” Invites Member States “5 to consider inclusive and innovative policies to close the digital divide, taking into account national initiatives and telecommunications/ICTs complementary access networks and solutions,” Para 80 included “community networks” explicitly as one of the mechanisms
WSIS stocktaking – Paragraph 135	Digital Empowerment Foundation (DEF) from India and Zenzeleni from South Africa are mentioned in the 2020 report. LocNet, IBE and Tosepan are mentioned in the 2021 report. Anatel efforts setting up a Working Group on community networks are mentioned in the 2022 report. ENACOM efforts through the Roberto Arias Program are mentioned in the 2023 report.