Policy Options for Connecting and Enabling the Next Billions: Phase IV (2018 edition)

Output Document

This is the final output resource from the fourth phase of an intersessional, multistakeholder and community-driven activity of the IGF aimed at investigating challenges and opportunities for addressing and overcoming barriers to meaningful Internet access, promoting meaningful access in diverse contexts and regions, and ensuring that meaningful access also supports the achievement of the UN sustainable development goals.

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Executive Summary

Connecting and Enabling the Next Billions - Phase IV is a part of the Internet Governance Forum (IGF) intersessional work for 2018. Phase IV aims to supplement policy recommendations made in the first three phases conducted from 2015 to 2017 with concrete case studies that highlight ways in which community-level projects are progressing on key sustainable goals. This output document is an edited compilation of case studies that show how connectivity initiatives are helping countries and communities make progress on four key sustainable development goals – Sustainable Development Goals 7 (Ensure access to affordable, reliable, sustainable and modern energy for all), 8 (Decent Work and Economic Growth), 9 (Industry, Innovation and Infrastructure), and 17 (Partnerships for the Goals) – collected using the IGF's traditional bottom-up, multi-stakeholder consultative process.

Some key findings of this resource are that there are many evident and prominent overlaps and interlinkages between projects attaining different SDGs; most projects don't fall into a single bucket and address multiple SDGs. This also highlights the importance of partnerships to achieve the envisioned goals. Hence, addressing the SDGs effectively requires unified multi-stakeholder collaborations with synergies between various approaches from market-based to government-based.

CENB IV maps several local access projects which make progress on SDG 7 such as; M-Kopa, which provides pay-as-you-go access to clean energy in Kenya using Portable solar energy as a charging solution for electronic devices; Solar Sister, which trains and supports women to deliver clean energy directly to homes in rural African communities; and Digital Inclusion Luxembourg which holistically addresses refugee inclusion, digital media literacy skill building, recycling/reusing e-waste, and sustainability. Several of these projects have strived towards manufacturing energy-efficient equipment, making progress on target 7.3, namely to double the global rate of improvement in energy efficiency by 2030. Various case studies in this report focus on landlocked countries such as Rwanda and Uganda, in consonance with target 7.d that seeks to expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and landlocked developing countries, in accordance with their respective programmes of support, by 2030.

The case studies highlight a wide range of economic activities and both demand- and supply-side interventions that are supported through Internet access from the tourism industry in Georgia to agriculture in Romania. Digital skills training programs often act as complements to traditional connectivity and improve economic outcomes for vulnerable communities, especially youth (as YISHDA shows) and women (as seen in

the CEDRO, Peru case). The projects also underscore the critical role that community anchor institutions (such as libraries) play in enabling meaningful access.

Moreover, this resource finds that Internet access is a key component of a thriving innovation environment and transformative industries, which is the focus of SDG 9 (Industry, Innovation and Infrastructure). It compiles examples of the lengths required to make Internet access available in places where geography and markets don't favor it. The emergence of community networks as supplementing traditional connectivity in areas that are remote and geographically isolated is highlighted in many submissions (such as Zapotec, Tusheti, and Red Chaski), as is the trend of ad hoc connectivity solutions and the proliferation of unlicensed spectrum use instead of licensed approaches. Case studies also highlight the use of newer and innovative technologies such as using vacant "white space" TV spectrum for data use, Li-Fi, mesh networks linking Wi-Fi signals together in villages, etc. to provide connectivity in line with SDG 9.

Lastly, and critically, the goal of connecting the next billion cannot be achieved by one set of stakeholders alone, highlighting the saliency of partnerships, as envisioned by SDG 17 (Partnerships for the Goals). Internet access itself can act as a unifying factor for bringing together diverse stakeholders to discuss and share resources to achieve SDGs. This resource highlights the work that different partnerships formed with an aim to promote Internet access are doing, and the impact that they have had in making tangible progress on the ground. It is observed that the partnerships highlighted in this resource are diverse in their organization and foci; they are operational at different levels of aggregation (partnerships such as the World Economic Forum's Internet for All operate internationally while partnerships such as Lavazza Foundation project in Colombia are local), and they have different models of engagement and organizational structure (such as EQUALS which has a specific issue area of Gender Digital Equality), with different levels of responsibilities on individuals and organizations that form these partnerships.

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Acknowledgements

This document is an edited compilation of inputs made by members of the global Internet Governance Forum (IGF) community, whose contributions to the process are gratefully acknowledged. The Multi-stakeholder Advisory Group led by Lynn St. Amour initiated the fourth phase in 2018, and the conveners of Phase IV – Christopher Yoo, Raquel Gatto, Wisdom Donkor, and Constance Bommelaer – provided invaluable guidance and unwavering support throughout the process. Panelists and participants at the CENB-IV session at the Internet Governance Forum provided input on the draft document and improved upon it. The IGF Secretariat provided key support in all phases of this process, for which we are grateful.

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Interpretation Notes

The Secretariat has the honour to transmit the paper prepared by CENB-IV. The content of the paper and views expressed therein are those of the authors and do not imply any expression of opinion on the part of the United Nations. Moreover, the designations employed and the presentation of the material in this resource do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The term 'country' as used in the text of this publication refers, as appropriate, to territories and areas. Mention of the name of any company, organization, product or website does not imply endorsement by the United Nations.

Abbreviations

AI	Artificial Intelligence
BOSCO	Battery Operated Systems for Community Outreach
BPF	Best Practice Forum
CEDRO	Center for Information and Education for the Prevention of Drug Abuse
CSTD	Commission on Science and Technology for Development
CENB	Connecting and Enabling the Next Billions
CSTD	Commission on Science and Technology for Development

DC	Dynamic Coalition
ECT	Eastland College of Technology
EIFL	Electronic Information for Libraries
GDP	Gross Domestic Product
IFC	International Finance Corporation
ISBI	Informal Sector Business Institute
ICT	Information and Communication Technologies
IFLA	International Federation of Library Associations and Institutions
IFAD	International Fund for Agricultural Development
IGF	Internet Governance Forum
ISP	Internet Service Provider
LDCs	Least Developed Countries
MGA	Member and Geographic Activities
MAP	Mobile Access Points
MAG	Multistakeholder Advisory Group
NRI	National and Regional IGF
NITDA	National IT Development Agency
OPIC	Overseas Private Investment Corporation
PAYG	Pay As You Go
P2P	Peer-to-Peer
SMS	Short Message Service
SDG	Sustainable Development Goal
TA	Technical Activities
TIP	Telecom Infra Project
TVWS	TV White Spaces

UN	United Nations
WSIS	World Summit on the Information Society
USAASA	Universal Service and Access Agency of South Africa
USPF	Universal Services Provision Fund
WIN	Wi-Fi Interactive Network
W4C	Wireless for Communities
YISHDA	Youth Initiative for Sustainable Human Development in Africa

Introduction

Connecting and Enabling the Next Billions - Phase IV is the fourth phase of a multi-year intersessional programme under the aegis of the United Nations Internet Governance Forum. A brief overview of the origins of intersessional work and outcomes of the process from the last three years is presented in this introductory section, to provide context as to how Phase IV builds on previous intersessional outputs on Policy Options for Connecting and Enabling the Next Billions.

IGF Intersessional Work

The United Nations (UN) Commission on Science and Technology for Development (CSTD) working group on Internet Governance Forum (IGF) improvements in 2012 recommended that the Internet Governance Forum develop tangible outputs to impact Internet governance debates globally.

The IGF 'Policy Options for Connecting the Next Billions' intersessional work process was initiated in 2015 as a response to the recommendations of the CSTD working group on IGF improvements. The IGF Multistakeholder Advisory Group (MAG) approved the launch of an intersessional program alongside efforts made by Dynamic Coalitions (DC), National and Regional IGF initiatives (NRIs), and Best Practice Forums (BPF) to foster discussions that engaged beyond annual meetings of the Internet Governance community. The outputs of and inputs to the intersessional processes are made available to all through the IGF website, and forwarded to related processes such as the UNGA 2nd Committee through UNDESA, the ITU Council as well as UNESCO. The IGF Secretariat works with these agencies as well as government missions to the UN and other bodies to disseminate this information as widely as possible and make key decision makers in both government and the private sector aware of this critical work.

In the Tunis Agenda of the World Summit of Information Society, the IGF's mandate to identify key issues, facilitate discourse among relevant stakeholders and to make recommendations is outlined. The outputs of the intersessional work process aim to further this mandate by providing tangible work products that can feed into existing debates.

Participation in IGF intersessional work is open to all interested stakeholders in the IGF multi-stakeholder community, and is governed by the IGF Code of Conduct employed at annual meetings.

Policy Options for Connecting and Enabling the Next Billions

The Internet Governance Forum (IGF) 'Policy Options for Connecting and Enabling the Next Billions' process is a bottom-up, community-driven intersessional work process that seeks to produce a collaborative document to identify ways to connect the next billions. Since 2015, this process has identified key barriers to connecting the next billions, made policy suggestions at the international and regional and local levels, and identified tangible linkages between grassroots ICT projects and the sustainable development goals. This output document represents the compilation of the fourth phase of this process with a focus on case studies that aid in the attainment of four Sustainable Development Goals namely SDG 7 (Clean and Affordable Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure) and SDG 17 (Partnerships to Achieve the Goals).

The four phases of the CENB Process have each gradually built on prior work and expanded the international community's understanding and efforts to connect and enable meaningful access to the next billions. In 2015, the first phase titled 'Connecting the Next Billion' focused on agenda-setting, identified key obstacles, and proposed policy options to target these key obstacles. The first phase placed an emphasis on expanding infrastructure while keeping end-user costs low, enabling users through user-friendly applications and interfaces, and creating an enabling environment for adoption.

The second phase in 2016 expanded this work greatly, by focusing on 'meaningful access' to connect and enable the next billions. This year, the intersessional track focused on elucidating local and regional dimensions of the connectivity challenge, and discussed how ICTs help attain the Sustainable Development Goals promulgated by the UN General Assembly in 2015.

In 2017, the third phase of this intersessional work built from policy options at the local and regional levels, to focus on local access projects doing this work in the real world. Focusing on three key SDGs pertaining to education, gender equality and infrastructure (4, 5, and 9), the output document collected case studies of grassroots projects around the world that sought to advance these goals.

In three phases of this process, nearly 200 submissions and feedback comments from varied members of the IGF community have been received. The National and Regional IGF initiatives, Dynamic Coalitions and Best Practice Forums, as well as external organizations and individuals interested in the Internet Governance Community, contribute to this process and enrich its outputs each year.

Objectives for Phase IV

In 2018, the fourth phase of Connecting and Enabling the Next Billions seeks to build on the work in Phase III which focused on grassroots connectivity projects seeking to make progress on Sustainable Development Goals 4 (Education), 5 (Gender Equality) and 9 (Industry, Innovation and Infrastructure).

Phase IV continues to provide concrete evidence through case studies of grassroots Internet access projects to supplement the policy options explored in Phases I and II.

Phase IV focuses on the following *four* Sustainable Development Goals (listed along with their respective targets):

Goal 7 **Ensure access to affordable, reliable, sustainable and modern energy for all**

- By 2030, ensure universal access to affordable, reliable and modern energy services
- By 2030, increase substantially the share of renewable energy in the global energy mix
- By 2030, double the global rate of improvement in energy efficiency
- By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and landlocked developing countries, in accordance with their respective programmes of support

Goal 8 **Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**

- Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries
- Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
- Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

- Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
- By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
- By 2020, substantially reduce the proportion of youth not in employment, education or training
- Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
- Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
- By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products
- Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
- Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries
- By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

Goal 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation

- Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
- Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
- Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets
- By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies

and industrial processes, with all countries taking action in accordance with their respective capabilities
- Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending
- Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States 18
- Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities
- Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Goal 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development

Finance

- Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
- Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries ODA providers are encouraged to consider setting a target to provide at least 0.20 percent of ODA/GNI to least developed countries
- Mobilize additional financial resources for developing countries from multiple sources
- Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress
- Adopt and implement investment promotion regimes for least developed countries

Technology

- Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed

terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism
- Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed
- Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

Capacity building
- Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation

Trade
- Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda
- Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020
- Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

Policy and institutional coherence
- Enhance global macroeconomic stability, including through policy coordination and policy coherence
- Enhance policy coherence for sustainable development
- Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

Multi-stakeholder partnerships
- Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries
- Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Data, monitoring and accountability

- By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts
- By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

Methodology

Phase IV of Policy Options for Connecting and Enabling the Next Billion(s) followed a true multi-stakeholder, bottom-up, community-driven process to compile its output document.

Initial planning for Phase IV began with virtual discussions within the IGF's Multistakeholder Advisory Group (MAG) in early 2018, soon after the first in-person meeting of the MAG. Co-facilitators brainstormed on the focus of this year's intersessional track in April 2018, and zeroed in on the four SDGs for this year's CENB focus. This was reflected in a proposal to the MAG, and was approved in a virtual meeting of the MAG in May 2018.

A call for input was issued to various mailing lists to invite responses from various stakeholder groups in September 2018, with a soft deadline for the first round of inputs set for September 30, 2018. All members of the IGF community were invited to participate in an online public consultation and provide inputs to the output document. This process was augmented by specific outreach to other intersessional working tracks, namely the Best Practice Forums, Dynamic Coalitions and the National and Regional IGF Initiatives, in order to reach a diverse set of stakeholders. Contributors are listed in this document's appendix, and their contributions are published in full on the IGF website. The Internet Society engaged in outreach via a webinar in September 2018 to encourage inputs from more participants from the community.

The first draft was augmented by desk research and a wider literature review. Contributions have been synthesised to reflect the broad inputs from the community. Case studies have been lightly edited for readability and reflect text from contributions directly, where relevant. Case studies that have been reflected in prior output documents have **not** been repeated, unless there is a substantive addition to their project description or an extension of their work from previous years. Projects have been organized as per the sustainable development goals they correspond to.

Structure of this Report

This report is structured in three parts:

Part 1: Introduction and Context to this Phase
Part 2: Thematic findings under each SDG and individual case studies
Part 3: Conclusions and Roadmap for Future Work

Advancing the Sustainable Development Goals

The following section investigates case studies on local access projects that help attain SDGs 7, 8, 9 and 17, which formed the focus of CENB - Phase IV.

SDG 7 – Affordable and Clean Energy

Relevance

There is a high degree of overlap between the 1 billion people who lack access to electricity, and the 3.9 billion people who remain unconnected to the Internet. In least developed countries (LDCs), the proportion of the people with access to electricity more than doubled between 2000 and 2016, bringing absolute off-grid people to below one billion. The lack of power infrastructure and grid connectivity can stymie Internet access projects, as power forms an essential input for projects that seek to foster Internet adoption. Studying Internet access projects that seek to advance SDG 7 (affordable and clean energy) therefore highlights innovative approaches that various stakeholders are taking to surmount these challenges simultaneously.

Local access projects can help achieve each of the targets under SDG 7. Connectivity providers that provide solar power access as a complementary service such as MeshPower and SolShare directly help advance target 7.1, which seeks to ensure universal access to affordable, reliable and modern energy services. Since most Internet access projects in rural communities are based on off-grid solar power, they also contribute to target 7.2, which seeks to substantially increase the share of renewable energy in the global energy mix of available energy sources by 2030.

Several last mile access infrastructure providers such as Vanu in Rwanda and Vihaan Networks Limited in India have strived towards manufacturing energy-efficient equipment, making progress on target 7.3, namely to double the global rate of improvement in energy efficiency by 2030. Further, several of the case studies in this report focus on landlocked countries such as Rwanda and Uganda, in consonance with target 7.d that seeks to expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and landlocked developing countries, in accordance with their respective programmes of support, by 2030.

The diffusion of computers, the infrastructure needed to enable Internet access, (mobile) phones and other devices in industrialised and developing countries is also fueling demand for electricity. Generating renewable power to maintain the needs of a growing ecosystem, to power our quickly growing global digital infrastructure is also central to our ability to attain several sustainable goals and mitigate climate change.

At the CENB session at IGF 2018, Michael J. Oghia highlighted the important of addressing sustainability while discussing SDG 7:

> *"We cannot legitimately discuss Internet access without addressing sustainability. One of the biggest oversights that I recognize is there is no actual direct or explicit link within the SDG framework between goals 7 and 9. Over a billion people still lack access to reliable energy especially within the Global South. According to the World Bank's Digital Dividends report in 2016, more people have access to mobile phones than they do to reliable energy. Or clean water, for that matter. Energy and sustainability should consistently be part of the conversations. We should not look back and address sustainability in retrospect; it should be integrated into the core of our work, into the core of technological design, whether that be devices or networks, et cetera. But as well, sustainability should be a public policy consideration and basic requirement, especially as it relates to things like the Paris Agreement and other climate and environment-related agreements."*

Case Studies

Case 1: Agsol, Kenya

Agsol is a start-up based in Nairobi that manufactures solar-powered agro-processing machines for off-grid farming communities. Agsol innovates at the intersection of agriculture and energy through dual solution that links productive agricultural machines with scalable solar power.

Excess power remnant from these running these agro-processing machines are used to power lights and small appliances. AgSol solutions particularly help women and girls by sparing them brute manual labour involved in processing maize flour, milled rice, and grated cassava.

Case 2: Digital Inclusion Luxembourg

Digital Inclusion Luxembourg is a non-profit organization that was founded in February 2016 by Patrick de la Hamette and Isabelle Mousset, to holistically address refugee inclusion, digital media literacy skill building, recycling/reusing electronic waste (e-waste), and sustainability. The organization works to address three different but interconnected issues: make information and communication technologies (ICTs) accessible to everyone; promote social inclusion through digital technology; and take action for the environment by repairing, reusing, and recycling digital equipment.

Case 3: Electric Vine Industries, Jakarta, Indonesia

Electric Vine Industries is a micro-utility bringing sustainable energy access to un-electrified Indonesians. The Electric Vine Industries solar vine architecture delivers smart-metered, prepaid electricity via a physical footprint that is highly scalable and expandable via carefully engineered generation and storage building-blocks. As demand grows, new building-blocks are easily added to provide additional capacity.

As an archipelago of more than 15,000 islands, conventional grids are not only difficult to implement in Indonesia, they are also extremely expensive because the remote regions rely heavily on diesel. Existing micro-grids throughout Indonesia quickly fail due to a lack of resources for Operations & Maintenance. Electric Vine Industries is contributing towards resolving this issue with their smart metered and monitored microgrid architecture.

Case 4: Lighting Africa, sub-Saharan Africa

The joint IFC (International Finance Corporation)-World Bank Lighting Africa program aims to enable more than 250 million people across sub-Saharan Africa currently living without electricity to gain access to clean, affordable, quality-verified off-grid lighting and energy products by 2030 by catalyzing the market through a number of different activities across the supply chain such as market intelligence, quality assurance, access to finance, consumer education, and business development support.

Since running its first pilot projects in Ghana and Kenya in 2009, Lighting Africa has enabled 28.8 million people across Africa to meet their basic electricity needs (lighting and mobile phone charging) through quality-verified off-grid solar products.

Case 5: Mawingu Networks, Kenya

Mawingu Networks is an Internet service provider (ISP) that provides affordable high-speed wireless Internet access to rural communities in Kenya by leveraging low-cost wireless technologies, such as Wi-Fi, fixed microwave, and TV white space. Located in Nanyuki, Kenya, 125 miles (200 kilometres) from the capital of Nairobi, Mawingu Networks has been providing the region with affordable Internet access, using low-cost wireless technology and solar power, since 2013. Mawingu provides critical infrastructure for services reliant on communications, including emergency services that residents can now call due to the presence of a network.

Mawingu Networks' expansion is being supported by Microsoft, the Government of Kenya and the Overseas Private Investment Corporation (OPIC). As most consumers lack electricity access, Mawingu makes prepaid Internet access and device charging available at an affordable rate of US$ 1 per month.

Case 6: MeshPower, Rwanda

Meshpower provides PAYG access to solar power through a smart, Internet-connected PV DC microgrid that connects communities in off-grid villages in Rwanda, where only 17% of the population has grid electricity and pre-existing government extension plans will still leave over 1.2 million people without a connection. It provides electricity alone as a PAYG service, as opposed to assets or contracts, enabling whole communities to gain access at affordable rates. MeshPower does not require customers to buy expensive equipment, and charges based on each user's usage.

Usage is tracked remotely through a GSM connection, and different tariffs are levied for different use cases (eg. home vs. office use). Meshpower usually sets up solar panels secured to a battery storage unit in the centre of a village through a base station, which then forms the center of the microgrid in that village that can be used to connect other homes.

Case 7: ME Solshare, Bangladesh

ME Solshare is a renewable energy service provider that is focused on building a peer-to-peer solar energy trading platform based on distributed ledger technology called SOLbox. Powered by Wi-Fi, SOLbox seeks to enable entrepreneurs to run a microgrid, analyse its performance, and monitor in real time. SOLshare interconnects solar home systems in peer-to-peer networks and enables the monetisation of excess solar energy along the value chain through mobile money payments.

SolShare is based out of Dhaka, Bangladesh, and provides electricity to off-grid villages, as well as opportunities to make income, for those with excess solar capacity installed at their homes.

Case 8: M-Kopa, Kenya

M-Kopa provides pay-as-you-go (PAYG) access to clean energy using a portable solar panel, bright, efficient LED bulbs, and a charging solution for mobile phones, radio, flashlights and even televisions at times, as the largest provider of solar home systems in East Africa. Providing clean energy solutions in disadvantaged areas unlocks people's economic potential, causing them to be healthier, wealthier, and more productive.

M-Kopa has reached over 700,000 homes (nearly 3 million people) that used to r rely on kerosene, and uses mobile phone money payments to charge customers for their service.

Case 9: Off Grid Electric, rural Tanzania and Rwanda

Off Grid Electric is a for profit social enterprise that aims to make distributed renewable energy accessible for all in rural Tanzania and Rwanda. They provide clean energy to

households that suffer from expensive, unreliable grids or have no grid access at all. By generating renewable power from the sun, they are helping customers reduce their greenhouse gas emissions.

They leverage informal supply chains to deliver items cost-effectively to the "last mile" using software to track their systems every step of the way. Instead of outsourcing distribution, they build it from the ground up, which enables them to deliver anything on demand, anywhere for a low cost to customers.

Case 10: Phi

Phi is a decentralized, peer-to-peer (P2P) energy network seeking to more effectively distribute renewable energy resources. It is an easy-to-use environment for simulating, finding investment for, and managing clean and decentralized energy systems. It aims to help users run collaborative energy projects on the blockchain to simulate P2P energy systems.

Phi helps new projects find investment, communities to select simulations to build, and projects to be built after investments. Tokens keep track of electricity that moves through the network so that behaviour that supports everyone, from consuming less power, to keeping batteries connected can be rewarded in a collaborative manner to manage shared infrastructure.

Case 11: Sigora, Haiti

Sigora International offers a fully vertically-integrated energy payments and control platform that is tailored for frontier markets with significant connectivity challenges. Sigora's platform provides an alternative to conventional metering infrastructure that provides zero visibility into grid operations. Through a PAYG platform that uses real-time monitoring and billing, Sigora improves transparency and provides a viable alternative to post-use, cash-based mechanisms that are susceptible to payment default by consumers and fraud by service providers.

Case 12: Solaris Offgrid, Tanzania, Uganda

Solaris Offgrid offers a PAYG energy access platform that is interoperable, hardware agnostic, and inclusive, and serves the need of last mile energy access providers. In Tanzania, Solaris runs its own last mile operations, providing both Internet access and energy access in off-grid rural communities. Solaris provides training and technical support to providers that use their platform for monitoring and billing, and provide an offline mobile application with data security and ownership for areas that require it.

Case 13: Solar Sister, Uganda

Solar Sister in Africa trains and supports women to deliver clean energy directly to homes in rural African communities while providing central services and training that enable women entrepreneurs to build sustainable businesses in their own communities. Solar Sister's model is shown to improve not only a woman's household income, but also health, education and a woman's status and control over resources.

Case 14: SunCulture, Kenya

SunCulture provides solar-powered irrigation systems for low-income farmers in Kenya to improve agricultural productivity. Through a partnership with Mawingu Networks in Kenya, SunCulture is extending precision agriculture technologies to the underserved.

The use of precision agriculture powered by artificial intelligence (AI), cloud services and connectivity with solar-powered irrigation system increases productivity and crop yields. This can translate to improved incomes for farmer. Through an Internet of Things (IoT) platform that collects, analyzes and disseminates information, Sunculture is playing a key role in empowering farmers and farming families in the poorest regions in Kenya.

Common Themes

Several common themes emerge from the case studies on energy and Internet access. Internet access appears to be used for two primary reasons in energy access projects.

1. First, Internet access is used to provide the backbone infrastructure for real-time monitoring and billing of renewable energy microgrid solutions, as in the case of Sigora, ME SolShare and M-Kopa.
2. Second, Internet access projects often provide energy as a complementary service that provides an additional source of revenue, as in the case of Mawingu. Partnerships between Internet access projects such as Mawingu and precision agriculture solutions such as SunCulture enable the creation of an environment that leverages energy and Internet access to produce collective gains within disadvantaged communities.

Another common thread in the submissions made to CENB-Phase IV are that these projects are private-sector led, with a heavy reliance on creating markets in areas where none exist at present. Most platforms, such as SolShare and Sigora, tend to use their products as a means to decentralise energy access and vest control in the hands of edge providers in these microgrid projects, providing an alternative to the conventional modes of doing business. The projects operate in off-grid, challenging environments with severe infrastructural constraints near the equator, mostly in the geographies of Asia and Africa.

SDG 8 - Decent Work and Economic Growth

Relevance

Internet access has both macroeconomic and microeconomic effects that lead to economic growth as envisaged by SDG 8. At the macroeconomic level, the World Bank estimated that for every 10% increase in broadband access, there is a 0.65% increase in Gross Domestic Product. Beyond the improvement of GDPs, Internet access can lead to job creation in frontier markets in sub-Saharan Africa, and has enabled access to online freelancing and microwork opportunities to promote inclusion of youth and women in economic activities that they would otherwise be shut out of.

Internet access projects therefore can help make progress on some of the targets laid out under SDG 8. As the World Bank and other studies have shown, there is a positive correlation between expansion of Internet access and national indicators of economic growth such as GDP, which directly contributes to target 8.1 that seeks to sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries. Internet access enables access to new sectors in the labour market for previously unconnected communities including but not limited to off-shore consulting, online microwork for previous agro-centric communities. This helps make progress on target 8.2, that seeks to achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors. Mobile financial services has proven to improve long-run poverty and gender outcomes, which fulfils part of target 8.3 that seeks to improve access to financial services and enables the growth of micro-, small-, and medium enterprises. Internet access can be an enabling factor to achieve target 8.4, by diversifying the possibilities set for all women and men to achieve full and productive employment. It shows some potential to make progress on target 8.5 that focuses on reducing youth unemployment, although as the 2019 World Development report notes, it is essential that digital transformation is accompanied by complementary policies and practices that provide the right training and safety nets. Some Internet access projects have led to improved tourism prospects, as case studies in the next section show, and as pointed above, mobile money has improved access to a range of financial services for previously underserved communities, including digital credit, loans, insurance and more.

For these reasons, studying the linkages between ICTs and SDG 8 is relevant and the following section highlights some case studies that provide evidence on progress being made.

Case Studies

Case 1: CEDRO, Peru

From 2016 to 2018, the Center for Information and Education for the Prevention of Drug Abuse (CEDRO) in Peru ran a financial inclusion program for 5,000 women for information and communications technology (ICT) literacy and economic training, as well as a select group of 380 women specifically for entrepreneurial training. With support from the United States Agency for International Development (USAID) and Comités de Pobladores, the program trains women who then train others in groups of 20-25. The programs equip women with business and financial organizational skills, as well as a solid foundation in digital literacy and e-commerce. They have initiated 38 technology centers in three regions in Peru

Case 2: Community Network in Tusheti, Georgia

In the remote mountains of the Tusheti region, the Internet Society provided first-time connectivity to an Ex-Soviet outpost in Georgia. Internet access provided a lifeline for the oft-nomadic communities that inhabit this rugged, mountainous region that is rather isolated. The installation of the community network has tangible connections to economic growth within the community, as it has improved access to sustainable tourism in the region and provided critical emergency service access for hikers and mountaineers.

Case 3: Community Partnerships through Libraries, Romania

Public access to ICTs and training at libraries helps individuals learn skills for jobs that provide access to and increase existing economic opportunities. Libraries provide mediated help to individuals to develop new competences and navigate online job application processes with ease.

In 2017, Progress Foundation and Etic Association launched a project in 29 rural libraries to develop the coding skills of over 450 children. This project aims at starting a coding movement in Romania, a country with one of the fastest growing IT sectors in Central and Eastern Europe. The project seeks to complete classes for over 2000 kids and form 200 coding clubs in Romanian rural libraries.

Libraries also enable socio-economic development through strategic collaboration. Between 2011 and 2014 in Romania, Romanian libraries earmarked US$1.25 million for 116,000 farmers, and enabled farmers to completed online forms that enabled access to an additional $205 million in agricultural subsidies. Each library part of the program in Romania tailored its program according to local needs and minimized travel time for farmers, saving them time and money.

Case 4: EIFL Projects, South Africa, Bulgaria, Croatia, Lithuania

In 2011, the Masiphumelele Community Library helped 20 vulnerable young people find jobs and encouraged another 31 to enter further education. The library's information and communication technology (ICT) training (making use of its Internet connection), coupled with more traditional careers counselling and job-readiness programme serves young people in Masiphumelele, an impoverished informal settlement near Cape Town. The project focuses on building young people's skills, confidence and employability.

In 2010 in Ruse, Bulgaria's fifth largest city, unemployment among the over-40s rose by 10%. The Lyuben Karavelov regional library recorded an increase of 70% in its users as people were looking for jobs online at the library. However, many unemployed people lacked computer skills and money for training was not an option. Librarians saw a need and with support from the EIFL (Electronic Information for Libraries) Public Library Innovation Programme (EIFL- PLIP) in 2011, the library created the KNOW service - Knowledge for Opportunities for Work. After an incentive marketing campaign, 250 people joined the librarians for free Internet access and computer training programs. The project also emphasized job- seeking skills and important tools such as confidence building and access to job search counsellors. The courses also benefited other marginalized groups were targeted, including the elderly, orphans and minority groups.

In 2011, Zagreb city libraries started working with homeless people to increase their employability and confidence. The service the library offered was delivered at the homeless shelter as individuals were more comfortable receiving instruction in an environment familiar to them. Librarians taught ICT skills and job-seeking skills while social workers provided psychosocial support and confidence building skills. In a year, more than 63 people were taught ICT skills and 22 individuals obtained part-time jobs. The project has been now extended to two additional homeless shelters in the area.

Libraries in Lithuania are helping both through giving access to their Internet connections, and support to skills development. The National Library of Lithuania has offered a shared office space for young entrepreneurs and innovative start-ups. Young professionals and all those who need a space where to develop their ideas can visit a new Hub opened in the Martynas Mažvydas National Library of Lithuania. Librarians at Kaunas Municipal 'Vincas Kudirka' Public Library have developed a series of information literacy classes and training programs to encourage young generations' interest in ICT and science. In 2015 the library opened a learning space named 'Future Laboratory 3D'. In the laboratory teenagers learn these skills from tech industry partners eager to collaborate with the library. In November 2015, the first 40 students enrolled in the programme.

Case 5: Fairtrade, Papua New Guinea

Fairtrade Australia and New Zealand (ANZ) launched a two-year project in Papua New Guinea (PNG) to drive agricultural development and market linkages to alleviate poverty in rural areas through agricultural business capacity development. The project built on supply chains developed in PNG through Fairtrade ANZ's United Nations International Fund for Agricultural Development (IFAD)-funded "Fair trade Promotion Project in PNG" launched in 2011. The project enabled Fairtrade ANZ to partner with eight coffee and cocoa producing farmer cooperatives, representing 25,000 rural farmers, to trial and give feedback on various information and communications technology (ICT) interventions in order to promote ICT as a catalyst for business and community development in PNG. Selected interventions were aimed to address farmers' issues of isolation, and poor telecommunication and power infrastructure.

Case 6: IFA Krishi, Nepal

IFA Krishi is a smartphone application that provides information in the Nepali language to farmers about planting crops, livestock disease, weather forecast and market prices. It originally started as an SMS-based platform through a small US$ 8000 grant, scaling up to Android platforms and providing a wider range of services.

Certain services on the application are available offline, such as information to protect crops against disease, while others are reliant on having Internet access, such as accurate information on weather and market prices. Access to accurate information on agricultural yield pricing cuts out middlemen from the market and enables economic productivity for farming communities.

Case 7: Informal Business Sector Institute, Kenya

The Eastland College of Technology (ECT) in Nairobi, Kenya, is host to the Informal Sector Business Institute (ISBI), that offers a training course in micro-entrepreneurship with emphasis on information and communications technology (ICT) education. ECT was established in 2004 to develop educational programs for the formal sector, training technicians to aid Kenyan industrialization. The micro-entrepreneurship course aims to improve economic development and business practices and alleviate poverty among small, informal business owners in Nairobi since 2004.

Case 8: Mucho Mangoes, Kenya

Mucho Mangoes was founded in early 2015 to empower rural, smallholder farmers to improve crop production and reduce waste and losses in the mango farming industry in Kenya. Mucho Mangoes' methods include providing a short message service (SMS)-based mobile platform to share information and advice to farmers on what to do to prevent pests and diseases as well as provide training on how to use their system. Mucho Mangoes' business model depends on generating profits from sales of the

products that they empower farmers to produce. Their target is to reach 200,000 farmers by the end of 2020.

Case 9: Providing Access to Legal Information, IFLA and EIFL

IFLA (International Federation of Library Associations and Institutions) and EIFL (Electronic Information for Libraries) have worked with the International Labour Organisation, Cornell University Libraries and Yale Law School to enable online access to legal information and research specific to labour law, acknowledging that enforcing legal rights is a critical component of ensuring that all people can benefit from decent work.

Further, IFLA and EIFL have sought to find solutions for access to scientific and medical journals for people in less-developed countries through a partnership with Cornell University Libraries, Yale Law School and the International Labour Organisation in the form of the Global Online Access to Legal Information (GOALI) program.

Case 9: Wi-Fi Interactive Network (WIN), Philippines

Philip Zululeta, President and Founder, Wi-Fi Interactive Network (WIN) briefed the CENB IV session at IGF 2018 with his initiative's work on providing Wi-Fi in Philippines.

WIN started as a model for providing Internet access through mom and pop stores (typically women-run, small stores that sell consumer goods) based within communities in the Philippines. They worked with Unilever to provide Internet access to consumers in exchange for purchasing preferred brands that would pay for the Internet access. For example, if someone would purchase a sachet of shampoo, they provided the consumer with 30 minutes of Internet access; a purchase for value exchange.

However, since these stores did not have electronic Point of Sales systems, they were unable to link the purchase of the specific brand to reward the consumer with Internet access. Despite funding for setting up these systems, store owners were hesitant to adapt to the same due to tax sensitivity. The initiative then moved to a pay model with the help of a grant from Microsoft. Through this, they set up a base station and began broadcasting Wi-Fi signals in a small town and put up access points in different houses and stores.

Philip Zululeta notes:

> *"We learned people were not willing to pay Internet access. They prefer Wi-Fi to be free. One thing we concluded is providing Internet access to the base of the pyramid is not the question of affordability, it is the question of sustainability. People don't have the budget to pay for Internet access. So we have to develop a*

business model to be able to give them free access with sponsors and maybe advertisers paying for the taxes."

Case 10: YISHDA, Nigeria

Youth Initiative for Sustainable Human Development in Africa (YISHDA) is a nonprofit organization that provides leadership training for youth in Nigeria. They provide training in the areas of education, information and communications technology (ICT) development, civic engagement, and business development, including employment training in building a résumé and cultivating soft skills. These programs bring youth and women to area libraries, with mutually beneficial impacts for libraries and users. YISDHA is developing a network of libraries in Nigeria equipped with ICTs and resources. The project is partnered with Beyond Access, the Universal Services Provision Fund (USPF), and the National IT Development Agency (NITDA). YISHDA is focused on reducing youth unemployment, one of the targets under SDG 8.

Common Themes

Internet access projects can aid a wide range of economic activity in the case studies above: the stories show that Internet access can provide support to the tourism industry in Georgia, agriculture in Romania, Papua New Guinea, and Nepal. The modes by which Internet access helps spans both demand- and supply-side interventions. In Georgia, the connectivity itself acts as an enabler, where in Papua New Guinea, the effect of connectivity is aided by training and assistance to meaningfully use connectivity. In Nepal, a mobile phone application provides the relevant information for agricultural prices, whereas in Romania, librarians' assistance goes a long way in unlocking access to agricultural subsidies. Digital skills training programs often act as complements to traditional connectivity provisioning and improve economic outcomes for vulnerable communities, especially youth (as YISHDA shows) and women (as seen in the CEDRO, Peru case). The submissions also highlight the critical role that community anchor institutions such as libraries play in enabling meaningful access and supporting communities' goals in economic empowerment.

SDG 9 - Industry, Innovation and Infrastructure

Relevance

Internet access proves to be a key component of a thriving innovation environment and transformative industries, the focus of SDG 9. Internet access initiatives contribute to target 9.c of SDG 9, which seeks to increase access to ICT and strives to provide universal and affordable access to the Internet in LDCs by 2020. A GSMA 2016 report estimated that some 1.6 billion of the 4.2 billion people offline at the end of 2015 lived outside a 3G coverage area. Several Internet access projects are making strides in attaining this goal through innovative approaches, and the case studies provide fascinating examples of the lengths required to make Internet access available in places where geography and markets don't favor it. Mesh networks linking Wi-Fi signals together in villages, reusing vacant "white space" TV spectrum for data use, and new technologies such as Li-Fi and others are some examples of projects that have emerged to provide connectivity in line with SDG 9.

Internet connectivity also enables other targets listed under SDG 9. Developing resilient Internet infrastructure at the backhaul, middle-mile and last mile forms a critical component of target 9.1, that seeks to develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. Mobile connectivity and allied suite of innovative mobile financial services can help achieve target 9.3, that seeks to increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

Case Studies

Case 1: BOSCO, Uganda

BOSCO, which stands for "Battery Operated Systems for Community Outreach," is a non-profit organisation that promotes education and computer literacy through a network of ICT & Development Centers in remote locations across Northern Uganda. BOSCO's mission seeks to empower communities in post-conflict Uganda through dialog, education and economic development. In the past, BOSCO has utilized the resources of the Catholic church network to provide Internet, and as well as computer literacy education in Uganda. The organization also has 32 Community E-Learning Centers, which teach computer literacy.

Case 2: Brightwave Networks, South Africa

In South Africa, Brightwave Networks, the Universal Service and Access Agency of South Africa (USAASA) and Microsoft are partnering to provide Internet connectivity in the Eastern Cape municipalities of King Sabata Dalindyebo and Mhlontlo. Affordable broadband access is being deployed to rural schools and clinics in the Eastern Cape whilst also bringing connectivity to the surrounding community under coverage.

In alignment with South Africa's e-education, e-health and national digital strategy, Brightwave, a certified Black-Owned Enterprise, has deployed a network of over 600 access points providing connectivity to over 213,000 students. Eastern Cape municipalities are rural and disadvantaged and many of the schools are in areas with difficult terrain, limiting access options. By leveraging TVWS, Brightwave cost-effectively reaches underserved areas.

Connectivity in the region provides a platform for residents to access the educational, commercial and economic benefits of cloud-based services. With the provision of free Wi-Fi, users can interact with cloud-based training platforms which enable them to upskill and become new entrants in the job market.

Case 3: Colnodo, Colombia

The NGO Colnodo's Community Networks as a Social Programme is the recipient of a 2018 grant from Regional Fund for Digital Innovation in Latin America and the Caribbean and is designing and working on different models for the sustainability and appropriation of the network using a gender focus. Colnodo seeks to deploy community networks, exchange experiences and engage in a dialogue to close the gap in Internet access at the country level through community networks. The project has increased connectivity in rural area in the municipality of Maní, in the Casnare department in eastern Colombia, and raised community issues at the national bureau for Internet governance.

Case 4: Community Network in Zapotec, Mexico

Zapotec, a village in Oaxaca Mexico, successfully created an autonomous mobile phone network using open-source software and with technical assistance from an NGO (non-governmental organization). The community network, one of many supported by Rhizomatica, is the village's latest innovation in a centuries-long process in which creative problem-solving is integrated with indigenous patterns of mutual aid, reciprocal labour and cooperativism.

Case 5: Internet Village Motoman Project, Cambodia

The Internet Village Motoman Project highlights the deployment of community wireless networks in rural Cambodia. The project was initiated by a non-governmental

organization American Assistance for Cambodia and Japan Relief for Cambodia (AAC/JRC) with funding from private donors, supplemented with matching funds from the Asian Development Bank and the World Bank.

The project uses Wi-Fi equipped motorcycles as mobile access points (MAPs) to synchronize e-mails and other Internet content between a satellite dish situated at an Internet access point and the computers at schools. The term "Motoman" denotes "motorcycle man," and the motorcycle riders are called the e-mailmen or motomen. The project enables students and teachers in remote schools in rural Cambodia to use its e-mail service to communicate with their peers. In addition, community leaders and villagers use it for grievance redressal, sending complaints to the provincial governor in times of need.

Case 6: IREX Community Technology Hubs, Myanmar

In Myanmar, a 7% to an 85% mobile penetration rate (a key objective under SDG 9.c) was managed in Myanmar though community technology hubs. The technology hubs were located in libraries as Myanmar had a network of 5,000 libraries spread across the country with the potential to offer public access to the Internet. Given their focus on learning, teaching and facilitating access to information, librarians were charged with managing technology hubs, which were created in three steps: the first phase included the training to the librarians, the provision of the equipment and the creation of a community of practice. The second phase included community engagement and peer-based skills development. The last step allowed the diverse sections of the communities to have access to technology and opportunities they could not access elsewhere.

Case 7: Lavazza Project, Colombia

The Lavazza Foundation, Colombia's Information and Communication Technology Ministry (ICT), ALO & Partners, Makaia and Microsoft are partnering on the Technology Transformation Project that seeks to increase Internet access and digital skills on coffee plantations in the Meta region.

The Technology Transformation Project is part of Colombia's rural connectivity plan, which is a critical component of the peace treaty signed between the government and the rebels to end the war in Colombia. The pilot is in Mesetas, a rural, sparsely populated municipality in the Meta region. The project provides Internet access using TV White Spaces and digital literacy and skills with an aim of increasing coffee quality and farming outcomes. The project was rolled out in phases beginning with Internet access, followed by training courses in basic digital literacy, certifications, and telemedicine support, and was supported by the regulator that freed up TVWS spectrum for use to youth and residents who otherwise would not have computer access.

Case 8: Red Chaski and Atalaya Sur, Argentina

Red Chaski is a community network in Argentine Puna, that fosters the creation of local content with a strong educational, technological and cultural stamp. Red Chaski users are able to create and share their own content, and can collate this information in a repository online called Chaskitube. Red Chaski connects La Quiaca – in Jujuy province – through 51 free access points located in public squares and streets. It was extended to Cieneguillas, a town of 450 inhabitants located 35 kilometers away from the city, where there was only one telephone to receive calls before the provision of Internet access. The infrastructure was developed by young people from Villa 20, one of the largest informal settlements in Buenos Aires, with 30 blocks and 30,000 inhabitants. The infrastructure was deployed with active participation from municipal commissioners, churches and educational institutions.

Within the framework of Red Chaski, Atalaya Sur promotes robotics workshops and audiovisual production among the native communities in La Quiaca and surrounding towns.The project has trained over a 100 boys and girls aged 10-13 in weekly workshops about robotics and organised training courses in the field of telecommunications networks.

Case 9: Zero Connect by Wireless for Communities, India

Zero Connect is a project under Phase VII of the Digital Empowerment Foundation's Wireless for Communities (W4C) project, and seeks to provide Internet access to the socially and economically marginalised Agariya salt farming community in far-flung areas in Gujarat, India. The project is implemented in partnership with the Internet Society (ISOC) and supported by the Agariya Heetrakshak Manch. The project connects the Little Rann of Kutch, Manish Rann, Kharagodah Rann, Patadi and Surendrangar. The Zero Connect project uses diverse wireless technologies, line of sight and unlicensed spectrum to bring broadband Internet connectivity to the region. In addition, the project includes a specially designed vehicle with built-in digital equipment, rooftop solar panels, back up batteries, an expandable and flexible 5 meter tripod based antenna tower with dish antenna that aligns with the broadband Internet tower, providing Wi-Fi access in a 100 m radius. Through the Zero Connect vehicle, the project reaches students in another 17 schools and a number of settlements that are over 20-50 kilometers from the backhaul tower.

Common Themes

The emergence of community networks as supplementing traditional connectivity in areas that are remote and geographically isolated is highlighted in many submissions, including Zapotec, Tusheti, and Red Chaski. These community networks rely on a range

of unlicensed and TV white space spectrum (TVWS) approaches, and have proliferated in a multitude of regions around the world.

Another common theme that can be observed in areas with great challenges, is the emergence of ad hoc connectivity solutions. Zero Connect and the Motoman project elucidate the approaches, wherein a vehicle is typically deployed to periodically provide access to a community that otherwise has no access. While full and meaningful access remains a challenge within the communities targeted by these projects, ad hoc solutions show the potential for some progress in areas with low population density.

Most Internet connectivity projects submitted to CENB IV this year are smaller scale, focusing on specific sub-communities or within country. This is in line with some of the findings of the 2016 report, that highlighted the importance of local and regional specificities as relevant to Internet access provisioning especially in currently underserved regions.

An emerging theme in submissions is also the proliferation of unlicensed, TVWS spectrum use by projects instead of licensed approaches. As highlighted in the 2016 CENB report, policy and regulations around spectrum can be an enabler of extending connectivity to currently underserved communities, making progress on SDG 9.

SDG 17 - Partnerships for the Goals

Relevance

Internet access projects can be facilitated by and can facilitate partnerships between different stakeholder groups, the key aim of SDG 17. The goal of connecting the next billion cannot be achieved by one set of stakeholders alone, highlighting the saliency of partnerships. Internet access projects can provide useful insights into the anatomy of partnerships at the local, regional and national levels, as can be observed in several case studies in the previous sections of this draft. Further, the goal of Internet access itself can be a unifying factor that brings several stakeholders to the table, help to share evidence on what works and what does not, target areas most in need, share resources, and leverage the power of many organizations as opposed to one, to attract more investment.

The following section highlights the work that different partnerships formed with an aim to promote Internet access are doing, and the impact that they have had in making tangible progress on the ground.

Case Studies

Case 1: CITEL

The regional regulatory body for American statis, CITEL, has issued a Resolution in August 2018 to which aims to encourage the participation of small, non-profit and community operators as new actors with alternatives for reducing the digital divide in countries that have unserved areas.

CITEL plans to study the experience that member states have had with these operators through partnerships and information gathering, in order to identify trends and best practices in the implementation of regulatory elements, public policies, and spectrum planning and allocation needed to facilitate the existence and development of these new actors.

Case 2: EIFL and Beyond Access, Kenya and Bangladesh

Libraries are a global network of community- based institutions ready to support patrons with information literacy classes to improve education at the local level while impacting development at national scale. Libraries have a tremendous role in connecting communities to technology and improving the lives of disadvantaged children by giving them the capacity to make news of new possibilities. For instance, in the largest informal settlement in Africa, Kibera, the Kenyan National Library, Practical Action partnered with the Berkley Foundation set up a community library to facilitate

access to information and equalize opportunities among poorer children. Through the project "Kids on the Tab" local children were instructed using computer tablets. In Bangladesh, literacy campaigns for all targeted disadvantaged children throughout the country and rural libraries served as hubs for learning and the librarians were trained on literacy instruction and the use of technology to promote reading. Students benefited greatly from the activities and IREX and Save the Children signed a Memorandum of Understanding with the Department of Public Libraries in Bangladesh to be able to reach gradually most of the children, directly contributing to SDG 17.8.

Case 3: EQUALS

EQUALS is a global network delivered by a committed partnership of corporate leaders, governments, non-profit organizations, communities and individuals around the world working together to bridge the digital gender divide. EQUALS comprises three coalitions, each focused on Access, Skills and Leadership. A cross-cutting research group provides support for the work of all three coalitions. The coalitions facilitate the sharing of information and experience on how to increase women's access to and use of the Internet, how to improve digital skills for women and girls, and how to promote women and girls in leadership roles within the tech industry. The coalitions identify high-impact initiatives or actions to be undertaken by Coalition members, identify countries where there can be coordinated action by Coalition members to increase access to, and use of the Internet for women and advocate on this issue at key forums to increase awareness, prioritization and action (such as the W20).

Joyce Dogniez, Vice-Chair, ITU Equals was present as a panelist at the CENB session at IGF 2018, and observed the importance of partnerships:

> *"Just like we need the Internet to achieve the goals set out, we need to create a network of network and not only in the technical sense, but a network of network of humans, communities, ecosystems."*

Case 4: IEEE Internet Inclusion Initiative

The IEEE Internet Inclusion Initiative enables the global technical and policy communities to work together on the issue of Internet Inclusion. The initiative provides a platform for discussions and debate,, and invites various stakeholders to IEEE Internet Initiative-hosted events. Dedicated liaisons within IEEE Technical Activities (TA) and Member and Geographic Activities (MGA) help engage those IEEE units in working within the internet policy and inclusion space. The Internet Inclusion Initiative includes 5 working groups, on Digital Skills, Evidence-based Research, Community Networks, Public Access and the Gender Digital Divide. In half-yearly meetings, working group leads meet to share updates from within their working groups and forge new partnerships or leverage shared knowledge for common aims in Internet Inclusion.

Case 5: Microsoft Airband Initiative

The Microsoft Airband Initiative, which started as an Affordable Access Grants program by Microsoft in 2015, now partners with local organizations to develop cost-effective solutions tailored to the unique needs of their communities. Microsoft Airband Initiative provides a grants programme for sustainable, mostly for-profit enterprise projects working on last mile energy and Internet access, and has funded over two dozen organizations in the last two years. Each year, the Airband Initiative with a range of partners hosts a summit to train and provide mentorship and guidance to Microsoft grant award winners.

Case 6: Telecom Infra Project

The Telecom Infra Project (TIP) is a collaborative telecom community that was launched in 2016 with an aim to accelerate the the pace of innovation in the telecom industry. The partnership is made up of over 500 Member organizations, including operators, technology providers, developers, integrators, startups, and a range of other entities inside and outside the traditional telco space. The Telecom Infra Project seeks to accelerate innovation with new business approaches to help create and deploy networks of the future. Every year, TIP hosts an annual gathering of its members at the TIP summit in Fall.

Case 7: World Economic Forum Internet for All

The Internet for All Initiative establishes and facilitates physical and digital platforms at the global, regional and national level to improve Internet access with a focus on the hardest to reach. It brings together stakeholders from the public and private sectors, non-profits, academia, international organizations, donors and civil society to create multistakeholder partnerships. Since its launch in 2016, the Internet for All project has launched four operational country programmes in Rwanda, South Africa, Argentina and Jordan, partnered with organizations to launch projects such as Rwanda's Digital Ambassadors Program and the South Africa Imbizo Campaign, promoted the use of blended financing in connectivity investments, and created a country program model that can enable scale.

Common Themes

It can be observed that the partnerships highlighted in submissions to CENB-IV, not just within this section, are operational at different levels of aggregation. Some are international partnerships such as the World Economic Forum's Internet for All, yet others are regional, such as CITEL, and many are local, as can be observed in the Lavazza Foundation project in Colombia.

Several partnerships have a specific issue area or issue verticals that help channel the energies of the members of the coalition: for EQUALS, it is the issue of Gender Digital Equality, for IEEE, there are working groups on Community Networks, Public Access, and Innovative Business Models, among others. These ways of organizing partnerships show that different models of engagement and organizational structure exists, with different levels of responsibilities on individuals and organizations that form these partnerships.

Some partnerships have country champions, such as WEF, and others have working group leads or coalitions on specific sub-issues (such as EQUALS). Most partnerships seem to value the network that the partnership creates, but realise the importance of boots on the ground by specific pioneers.

Submissions by IFLA and EIFL also show how libraries can be incredibly useful as a neutral venue and strategic player in forging partnerships that can further Internet access goals in a variety of geographical contexts.

Conclusion: Weaving Common Threads to Advance the SDGs

A draft version of this resource was presented and discussed during the CENB IV session at the 13th IGF on 12 November 2018 at UNESCO, Paris, France. What is evident from the compiled case studies and session discussions for SDGs 7, 8, 9 and 17, is that most projects don't fall into a single bucket and address multiple SDGs. This also highlights the importance of partnerships between SDGs and stakeholders to achieve the envisioned goals.

An important takeaway is the necessity to view Internet access in the context of environmental sustainability for SDG 7. As noted by Michael J. Oghia at the IGF 2018 session:

> *"According to the latest IPCC report, we have around 12 years to fix the earth, more or less. We cannot legitimately discuss Internet access without discussing environmental sustainability as well. We have to do our part; we cannot be retroactive in the way we approach sustainability as it relates to ICTs. It needs to be integrated into the core design of networks, technology, consumption and recyclability, etcetera. I don't think that is currently the case, however. We need to work actively, collaboratively to ensure that happens, and it needs to happen immediately. We cannot wait any longer to make our technology sustainable."*

Taking forward the focus on sustainability, discussions on the SDGs at IGF 2018 highlighted the contestations between affordability and sustainability. Philip Zululeta noted:

> *"I think it is not a question on whether there is enough technology to serve the majority of people. I think it is a question of who pays for that technology. How do we find the monetization model that will offer this service for free. I think it is free to the user, but somebody eventually has to pay for it. I think we're trying to figure out what is the model that will make it sustainable that private enterprise, corporate organizations would spend to make it happen. "*

A differing view was offered during the session by Carlos Rey-Moreno in defense of focusing on affordability:

> *"I don't think it is a question of sustainability, it is question of affordability. There are a lot of resources from fiber to spectrum to towers that are there to be used and to make these cases affordable and sustainable that people do not want to share*

because they still want to take the last cent of the people that don't have money. So I think start thinking outside of the box and find ways to connect the next billion in terms of infrastructure and affordability, we could make a different case than the one we're making today. "

Mary Uduma highlighted the importance of ensuring a fair distribution of the gains of what emerging technologies and proper incentives and rewards for those developing new networks and applications for SDG 8. June Parris took forward this line of reasoning by noting the importance of having good network connections to work in e-Commerce and contribute meaningfully to furthering SDG 9.

For all of the above to be achieved, partnerships and collaborations under SDG 17 are key, as Joyce Dogniez noted during the IGF 2018 session:

"Whether we speak about community networks, energy, digital skills development, whichever of the topics we talked about today, none would have any form of success if we didn't actually actively deliberate or partner to come together to connect the next billion. "

Renata Aquino Ribeiro added to this observation by noting that partnerships are not dependence, but mutual exchange:

"What we want is not to be dependent on a partner because we know that will not be long lasting. We need to have our own way of doing things in our community. So partnerships are about being honest to each other, finding what you have to give and what you need from other stakeholders."

In this manner, Policy Options for Connecting and Enabling the Next Billions has become a useful resource in its relatively brief history, illustrating how the IGF is able to provide a useful platform for mobilising stakeholders towards solving complex problems using a multistakeholder approach. Various stakeholders pointed out that their respective organizations had found the resource to be useful in their own work in the field, and would continue to value the opportunity for multistakeholder collaboration offered by the IGF, particularly when addressing the challenge of connecting and enabling more Internet users. It was noted that there is a need for the IGF to continue providing such a platform in the future, possibly as part of a fifth phase in this intersessional activity's work.

Appendices

A: Discussion Paper submitted to the MAG

The document is available online on the IGF Website and is replicated below.

I – Co-Coordinators
Raquel Gatto and Wisdom Donkor (MAG members)
Constance Bommelaer, ISOC and Christopher Yoo, University of Pennsylvania (invited by the MAG)

II - Background
In 2015, the IGF MAG decided to develop the intersessional work under the topic "Policy Options for Connecting the Next Billion" (CNB track), starting a new methodology to build the policy recommendations based on broad consultations, bottom up crowdsourcing and cross-engaging the work of NRIs, DCs and BPFs. The discussions were focused on infrastructure, increasing usability, enabling users, entering affordability and enabling environments. The final output document is here.

Given the successful results of this trend, the IGF MAG has continued a second phase of the intersessional work for Connecting the Next Billion, focused narrowly on how ICTs can help reach United Nations Sustainable Development Goals (SDGs), with the lens on local and regional specificities. Phase II built on the policy options developed in 2015 during the first phase, which aimed at supporting the creation of enabling environments, including deploying infrastructure, increasing usability, enabling users, and ensuring affordability. The final report is here.

Building on the previous year's results, the IGF MAG has approved a third phase to focus on a limited number of SDGs, namely SDG 4 (Education), SDG 5 (Gender) and SDG 9 (Infrastructure) that are impacted by ICTs and to do a deep dive in collecting and analyzing case studies worldwide. This approach has completed phase I and II with concrete local experiences. The final output document can be found here.

In the past three years, the CENB track has received nearly 200 submissions, including many from national and regional IGF initiatives (NRIs), that contributed to the development of comprehensive sets of Policy Options for Connecting and Enabling the Next Billions, and demonstrate through case studies how ICTs can enable SDGs 4, 5 or 9.

III - Description of the work for 2018
Policy Options for Connecting the Next Billion towards fulfilling the SDGs

These Policy Options and concrete examples are already serving as tangible and useful resources for policymakers and other stakeholders, but also symbolize the IGF community's conviction that the need for multistakeholder collaboration towards expanding meaningful Internet access is a shared goal that remains at the core of Internet governance.

The objective for this year CENB IV is to collect concrete stories showcasing how connecting the next billion(s) helps achieve broader Sustainable Development Goals such as:

SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all
SDG 8 - Decent Work and Economic Growth
SDG 9 - Industry, Innovation and Infrastructure
SDG 17 - Partnerships for the Goals

We would continue to rely on community inputs, including NRIs experiences, but also looking for a closer collaboration with other BPFs and DCs (for example, DC3, Youth-DC etc).

IV - Outreach plan and multistakeholder engagement in the work
Rough Guidelines

- All stakeholders are invited to submit contributions.
- We will continue to encourage community inputs that are already engaging with the IGF -- from NRIs, BPFs, DCs, but also encouraging inputs from external resources, such as organizations like WEF, Intergovernmental organizations, such as the ITU, UNESCO, UNCTAD, UNDP, ISOC, IEEE, and others who are contributing to affecting connectivity initiatives. This will require more effective outreach to such entities to publicize the call for contributions.
- Rounds of online public consultations will be conducted, following the previous years' experience for an open and bottom-up process.
- Contributions must be supported by studies, reports, references, statistics etc
- All formats are welcome but contributions are expected to be of reasonable length in order to maximize readability. A template will be developed to support further contributions.
- Multilinguism is important and will be considered in this work. However given the language skills limitation within the working team, automatic translation tools will be necessary.
- Outreach and engagement through various online platforms as strategically needed (e.g., survey, twitter conversations, webinars)
- The final output document will be shared in other fora (WSIS-related, G20 etc)

V - Tentative Timeline

March/April – fine tune proposal and approval in the MAG
May/June – launch Call for Contributions (close mid-June)
July/August – launch first draft for comments (close mid-August to merge comments)
September – launch second draft for comments (close end of September)
Early November – launch final draft output for discussions during IGF
November/December – discussions during IGF Post-IGF: Final Document published, incorporating multiple comments

B: Call for Public Inputs

1. Introduction

The IGF's Multistakeholder Advisory Group (MAG) recently decided to further develop the IGF's intersessional work, "Policy Options for Connecting and Enabling the Next Billion(s)". This will therefore be Phase IV (CENB IV). This year's work on Policy Options will build on the IGF community's past three years of important work on the theme of promoting meaningful access.

In 2015, the IGF MAG decided to develop the intersessional work under the topic "Policy Options for Connecting the Next Billion" (CNB track), starting a new methodology to build the policy recommendations based on broad consultations, bottom up crowdsourcing and cross-engaging the work of NRIs, DCs and BPFs. The discussions were focused on infrastructure, increasing usability, enabling users, entering affordability and enabling environments. The final output document is available here.

Given the successful results of this trend, the IGF MAG continued a second phase of the intersessional work for Connecting the Next Billion, focused narrowly on how ICTs can help reach United Nation's Sustainable Development Goals (SDGs), with the lens on local and regional specificities. Phase II built on the policy options developed in 2015 during the first phase, which aimed at supporting the creation of enabling environments, including deploying infrastructure, increasing usability, enabling users, and ensuring affordability. The final report is available here.

In 2017, Phase III focused on SDGs 4, 5, and 9 that are impacted by ICTs and dived into collecting and analyzing case studies worldwide to complete phase I and II with concrete local experiences and community-level projects.

In the past three years, over 200 submissions, including many from national and regional IGF initiatives (NRIs), contributed to the development of comprehensive sets of Policy Options for Connecting and Enabling the Next Billions in Phase I, Phase II, and Phase III.

These Policy Options are already serving as tangible and useful resources for policymakers and other stakeholders, but also symbolise the IGF community's conviction that the need for multistakeholder collaboration towards expanding meaningful Internet access is a shared goal that remains at the core of Internet governance.

2. Phase IV (2018): Policy Options for Connecting and Enabling the Next Billion(s)

The objective for this year CENB IV is to collect concrete stories showcasing how connecting the next billion(s) helps achieve broader Sustainable Development Goals such as:

SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all
SDG 8 - Decent Work and Economic Growth
SDG 9 - Industry, Innovation and Infrastructure (particular linkage with Internet access)
SDG 17 - Partnerships for the Goals
IGF would continue to rely on community inputs, including NRIs experiences, but also looking for a closer collaboration with other BPFs and DCs (for example, DC3, Youth-DC etc).

3. Guidelines for background contributions

All stakeholders are invited to submit contributions on the theme "Policy Options for Connecting and Enabling the Next Billion(s) – Phase IV".
Contributions from national, regional and Youth IGFs (NRIs), Best Practice Forums (BPFs), Dynamic Coalitions (DCs), and IGF workshops are particularly welcome.

3.1. What format should my feedback be in?
Contributions are expected to:

- demonstrate through case studies how ICTs can enable SDGs 7, 8, 9 or 17. They can come in various formats: links to publications, reports, references, statistics, stories, etc.
- be of reasonable length in order to maximize readability.

Note that various projects already explore the link between ICTs and SDGs (e.g. ITU). The IGF's added value will be to complement other existing efforts by collecting information in the field, in a bottom-up fashion, the validate existing theories and assumptions.

Contributions are preferred to be in English and to use of an editable file, compatible or readable with Microsoft Word. Documents in other languages will be translated using an automate system which might reduce accuracy.
Additional templates may be developed to aid contributions if this is deemed helpful.

3.2. What will happen to my contribution?
All contributions will be published publicly with contributors' names on the IGF's website. As an example, see submissions from previous years are available here.

Contributions will be analysed and incorporated into the outcome document for Policy Options for Connecting and Enabling the Next Billion(s) – Phase IV, as far as is deemed possible and relevant by an editorial group of volunteers. All contributors' details will be credited in the outcome document, and contributions may be published on the IGF's website.

3.3. What is the deadline for contributions?
All submissions should be made by 30 September 2018.

3.4. Who do I send my feedback to?
Email contributions should be sent to cenb@intgovforum.org.

3.5. What if I have more questions?
For further queries, or for more information, please contact Radhika Radhakrishnan at radhika.radhakrishnan5@gmail.com or drop a mail at cenb@intgovforum.org.

3.6. Proposed questions to guide your response:
The first phase (2015) and the second phase (2016) of Connecting and Enabling the Next Billion have identified a set of policy options aimed at the creation of enabling environments, and investigated the ways in which meaningful Internet access can support and contribute to realising the United Nations' Sustainable Development Goals (SDGs). The third phase(2017) gathered concrete examples of how these policy options have been implemented in relations to SDGs 4, 5 and 9. The fourth phase (2018) aims to collect concrete stories showcasing how connecting the next billion(s) helps achieve SDGs 7, 8, 9, and 17.

Please support your contributions by studies, reports, references, statistics etc. While inputs of any format will be considered for incorporation, the following suggestions that you can tackle in your contribution:

- Give examples of how local or regional policies have helped connect and enable users, giving them access to information and communications technology and providing universal and affordable access to the Internet in least developed countries.
- Share a story from any region about how connecting people to the Internet has increased access to information regarding affordable, reliable, sustainable and modern energy.
- Give concrete examples showing how access to the Internet has promoted decent work and economic growth, especially in least developed and developing countries, and small island states.
- Share concrete examples and stories in which the use of ICTs has promoted development in industry, innovation and infrastructure. Explain how specific policies or legislation might have helped promote this at a local level.

4. Important dates:
    - 3 September - Call for inputs is open to receive any contributions.
    - 3 September - 30 September - Editorial work to compile version 1.0 of the document based on all contributions received by the IGF Secretariat.
    - 30 September - Close contributions
    - 15 October - Launch of the first draft and open for comments and second round of contributions
    - 31 October - Close comments and inputs
    - 7 November - Issue of the final draft that will be delivered in the IGF Paris 2018 (12-14 Nov)

C: List of Contributions

CENB Phase IV received 8 formal contributions in response to its 2018 public call for contributions. The CENB team wishes to thank all contributors for their valuable insights.

List of Contributors

1. 1 World Connected
2. Bob Frankston
3. Shreedeep Rayamajhi
4. Atalaya Sur
5. Association for Progressive Communications (APC)
6. IFLA and EIFL
7. Microsoft
8. Michael J. Oghia

Panelists at the CENB IV IGF session in Paris, France (12 November 2018):

- Mr. Wisdom Donkor
- Mr. Philip Zululeta
- Ms. June Parris
- Mr. Christopher Yoo
- Ms. Radhika Radhakrishnan
- Ms. Raquel Gatto
- Ms. Renata Aquino Ribeiro
- Ms. Mary Uduma
- Ms. Joyce Dogniez
- Mr. Carlos Rey-Moreno
- Mr. Michael J. Oghia

D: CENB IV Session Structure at IGF 2018

Date and Time
Monday, 12 November 2018 at 9:00 - 10:30 a.m. (90 minutes)

Venue
UNESCO, Salle IV

Organizers
Radhika Radhakrishnan (Consultant, Secretariat - Internet Governance Forum, UN-DESA)
Christopher Yoo (1 World Connected)
Sharada Srinivasan (1 World Connected)
Raquel Gatto (Regional Policy Manager, Internet Society)

Description
IGF Policy Options for Connecting the Next Billion(s) Phase IV collected concrete stories showcasing how connecting the next billion(s) helps achieve broader Sustainable Development Goals such as:
SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all
SDG 8 - Decent Work and Economic Growth
SDG 9 - Industry, Innovation and Infrastructure (particular linkage with Internet access)
SDG 17 - Partnerships for the Goals

This session will showcase the outcome of the Phase IV of the CENB work. It will highlight that these community activities have resulted in tangible resources of which policy makers can draw when addressing Internet policy issues.

The session will also seek community suggestions and input as to how these outputs could be taken forward into other relevant IG fora and how IGF community intersessional work could be enhanced looking ahead to 2019 and beyond.

Participants

Intergovernmental Organization

- Mr. Wisdom Donkor, Co-Founder, Africa Open Data and Internet Research Foundation

Business / Private Sector

- Mr. Philip Zululeta, President and Founder, Wi-Fi Interactive Network (WIN)

- Ms. June Parris, Associate Researcher, Halaqah Media

Academia

- Mr. Christopher Yoo, Director, Center for Technology, Innovation & Competition, University of Pennsylvania Law School **(Moderator)**
- Ms. Radhika Radhakrishnan, Consultant, Secretariat - Internet Governance Forum

Technical Community

- Ms. Raquel Gatto, Regional Policy Manager, Internet Society
- Ms. Renata Aquino Ribeiro
- Ms. Mary Uduma, Managing Director, Jaeno Digital Solutions Ltd
- Ms. Joyce Dogniez, Vice-Chair, ITU Equals

Civil Society

- Mr. Carlos Rey-Moreno, "Community and Local Access Networks" Project Coordinator, Association for Progressive Communications
- Mr. Michael Oghia

Rapporteur

Ms. Radhika Radhakrishnan

Session structure

The format of the session will be a moderated panel discussion with speaker presentations as follows.

Opening Segment ***Introduction to CENB process***		
9:00 - 9:10	**Introduction**	Moderator: **Raquel Gatto** (MAG Member) Speakers **Christopher Yoo**, 1 World Connected - Previous work of the CENB (Phases I, II, III) - Multi-stakeholder, bottom-up, community-driven process that was followed in compiling the outputs for 2018 **Radhika Radhakrishnan,** Consultant, Secretariat - Internet Governance Forum, UN-DESA - Summarize thematic findings for CENB IV and their relevance

Main Segment
Presentations on each SDG

A member of the Multistakeholder Advisory Group (MAG) will give a brief pitch introducing the relevance of discussing SDGs 7, 8, 9 and 17 in the context of connecting and enabling meaningful access to the next billions. Invited speakers will give short presentations on case studies on local access projects that help attain SDGs 7, 8, 9 and 17. This will be followed by discussions.

Moderator for this segment: **Christopher Yoo**

9:10-9:20	**SDG 7:** Ensure access to affordable, reliable, sustainable and modern energy for all	Pitch: 3 minutes **Wisdom Donkor,** MAG Member - How can the promotion of reliable, universal, sustainable and affordable electricity services best be financed to the rural poor? - What can be done to strengthen cooperation at the regional and national level to promote innovation and facilitate financing; support regional cross-border power grid connectivity to enhance energy security, advance economic integration and sustainable development; and share best practices that are responsive to regional needs regarding SDG 7 and its interlinkages with other SDGs.? - What can be done in the short term, medium term and long term in order to achieve goal 7 before and after 2030? Case: 5 minutes **Michael Oghia** - Internet access and energy sustainability - Initiatives working to address the energy gap, particularly across Africa.
9:20-9:30	**SDG 8:** Decent Work and Economic Growth	Pitch: 3 minutes **Mary Uduma,** MAG Member - What policies should countries put in place to ensure equitable, inclusive and fair redistribution of the gains of innovation and new technologies which may inadvertently result in job losses?

		- How can these policies be communicated and implemented to ensure capacity building and retraining of legacy skills? <u>Case: 5 minutes</u> **Philip Zululeta** - Outcome of trials on business WIFi for communities - New approach geared towards public WiFi (in public ports and government facilities)
9:30-9:40	**SDG 9:** Industry, Innovation and Infrastructure (particular linkage with Internet access)	<u>Pitch: 3 minutes</u> **June Parris,** MAG Member - How Internet access or thereof affects business. - The inability to download freely due to poor internet connections, lack of knowledge and fear of technology. <u>Case: 5 minutes</u> **Carlos Rey-Moreno** - How the traditional models of infrastructure provision to connect and enable the unconnected are plateauing - What complementary models are emerging to do so (i.e. community networks) and what can be done at the policy and regulatory levels to enable them
9:40-9:50	**SDG 17:** Partnerships for the Goals	<u>Pitch: 3 minutes</u> **Renata Aquino Ribeiro** - Why partnerships are important for people from underserved regions to approach regional challenges globally <u>Case: 5 minutes</u> **Joyce Dogniez** - What are the lessons learned from the Internet ecosystem that show the importance of partnerships for achieving all SDGs? - As vice-chair of EQUALS, how are partnerships contributing to achieving SDG 5 on gender equality?

9:50 - 10:10	**Discussion**	all members present – 20 minutes
Closing Segment ***Wrap-up and Next Steps***		
10:10 - 10:15	**Closing remarks** Each speaker to highlight one key takeaway from the discussion	all case speakers, 1 minute each
10:15 - 10:20	**Summary remarks**	Moderator to sum up the session and outline roadmap for the future.

A video recording of the session can be found here.