GLOBAL INFORMATION SOCIETY WATCH 2020

Technology, the environment and a sustainable world: Responses from the global South

Association for Progressive Communications (APC)
and Swedish International Development Cooperation Agency (Sida)

Global Information Society Watch 2020
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APC would like to thank the Swedish International Development Cooperation Agency (Sida) for their support for Global Information Society Watch 2020.

Published by APC
2021

Global Information Society Watch 2020 – web and e-book
ISBN 978-92-95113-40-4
APC-202104-CIPP-R-EN-DIGITAL-330

Community networks: A people – and environment – centred approach to connectivity

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Introduction

During the middle of the last decade, mobile phone penetration growth began to slow.[1] This, more than perhaps any other indicator, is a clear sign that the dominant model of connectivity around the world – i.e. commercial mobile services – has begun to reach its limits, saying nothing of the quality of the connectivity provided, who it is provided for, its social value, or the fact that only around half of the world's population can get online. It is clear that other approaches to connectivity must be embraced if all are to enjoy its benefits.

As a sector, agriculture shares many of the challenges of the telecommunications sector, both in terms of market concentration and big business interests, creating less than optimal outcomes. But it is also a sector in which small actors play a crucial role.

In 2014, the Food and Agriculture Organization published a report titled *The State of Food and Agriculture* that revealed that there are over 570 million farms in the world, more than 90% of which are run by an individual or a family and rely primarily on family labour.[2] These family farms produce about 80% of the world's food; yet while farms of less than one hectare account for 72% of all farms, they control only 8% of all agricultural land. In contrast, only 1% of all farms in the world are larger than 50 hectares, yet control 65% of the world's agricultural land.

As numerous recent reports have warned, the Earth and its inhabitants are being damaged by a global system that values profits over life.[3] In the world of agriculture, smallholder farms as well as cooperatives are a major way that land is responsibly stewarded and biodiversity is maintained around the world.

The analogue of this in connectivity are community, local and cooperative networks: self-organised, self-managed or locally developed solutions for communication and internet access.[4] Similar to the consolidation we see in the agricultural space, there are major monopolies controlling much of the spectrum and investment while only connecting half of the world's population, making it extremely challenging for local, more grassroots models to emerge. Despite these barriers, a significant number of community networks have managed to thrive where other networks did not exist or are not affordable or adequately meeting the needs of local people.

Digital technologies: Saviour or danger?

What is the connection between digital communication technology and the creation of a more just and sustainable world? Initially heralded as a saviour, digital communication technologies have also contributed to and facilitated much of the activity around the world that is destroying life. Additionally, they hold a special place as both signifier and contributor to the hegemonic ideas around development and progress.

An example of how the material and symbolic nature of connectivity runs counter to sustainable development and a more just world can be found in the explosion of mineral resource extraction to create the over eight billion mobile handsets in circulation.[5] The ownership of these devices is both a symptom and a perpetuator of for-profit strategies based on the manufacturing of needs, and their temporary satisfaction, through excessive consumption of electronics rooted in planned obsolescence and a throw-away culture, reinforcing values of individualism, a false sense of

1 International Telecommunication Union. (2018). *World Telecommunication/ICT Indicators Database*. Geneva: ITU.

2 Food and Agriculture Organization. (2014). *The State of Food and Agriculture: Innovation in family farming*. FAO. https://www.fao.org/3/a-i4040e.pdf

3 Brondizio, E. S., Settele, J., Díaz, S., & Ngo, H. T. (Eds.) (2019). *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. IPBES. https://ipbes.net/global-assessment

4 Finlay, A. (Ed.) (2018). *Global Information Society Watch 2018: Community Networks*. APC & IDRC. https://www.giswatch.org/community-networks

5 Murphy, M. (2019, 29 April). Cellphones now outnumber the world's population. *Quartz*. https://qz.com/1608103/there-are-now-more-cellphones-than-people-in-the-world

human connection, and that one's worth is based on what one owns.

The modus operandi of the telecom and internet industry that promotes most of the digital communication technology we all use is based upon and thrives on the most elemental and destructive aspects of "novelty" capitalism. Within the current world order there is a relentless focus on doing things as quickly and as massively as possible based on the imperative to put capital to productive means and guaranteeing a speedy return on investment and value to shareholders. The technological tools developed under these imperatives must extract as much value as possible from users by commodifying and manipulating their attention and "data bodies" through proprietary algorithms. Perhaps paradoxically, the telecommunications industry is only able to profitably serve half of the world's population, creating a massive and widening digital divide.

While this digital divide must be addressed, information and communications technologies (ICTs) can and must be employed and deployed differently. Community networks offer an example of how. One way to understand this is through the lens of "appropriate technology", defined as being small-scale, affordable by locals, decentralised, labour-intensive, energy-efficient, environmentally sound, and locally autonomous.[6] In this definition we find similar dynamics in land stewardship and small-scale agriculture insofar as the appropriate technology movement grew out of the energy crisis of the 1970s, similar to land-based approaches that promote environmental conservation by seeking to "close the cycle", such as permaculture.

The concept of connectivity and communication, as part of what the community is, rather than just another service it consumes, is at the heart of how and why community networks are an important way forward if we wish to have ICTs contribute positively to a more sustainable and environmentally stable planet. Community networks inherently embody the principles of sustainability and local involvement, and do not put the onus of connectivity on someone else. Instead they leverage the limited resources – yet unlimited ingenuity – of local people to address the inherent human need and desire to communicate and be informed. Due to these attributes, community networks are seen as key enablers of sustainable access.[7]

Within community networks, diversity is valued, and there is an emerging recognition that there can be linkages between digital expertise and, for example, women's alternative, grassroots technologies and skills already in use, such as weaving.[8] As fundamental as women are in small-scale agriculture, so too is their role in implementing and managing local networks.

Furthermore, mobile broadband is used by less than 20% of the population in least developed countries (LDCs), and a mobile broadband subscription with a 1.5 GB data package costs less than 2% of gross national income (GNI) per capita – the International Telecommunication Union affordability target – in only four LDCs. Community networks offer one of the few real prospects for allowing the barely connected and the unconnected to participate more meaningfully in the defence of the planet.[9]

Community networks: Sustainable, local solutions

Through the work of the "Connecting the Unconnected" project, we have had the privilege to work with and support community networks around the world and have seen first-hand how these networks embody and reproduce values of sustainable and participatory development.[10] Community networks sustain the use of local knowledge that directly relates to land stewardship and traditional knowledge about the natural world. They engage in local economic activities based on degrowth, circular economies, and upcycling. They are more conscious about energy usage than traditional networks – and they share knowledge freely so all can contribute. Not surprisingly, many community networks are located in regions affected by climate change, and being largely subsistence farming and agriculturally based, they are directly affected by deteriorating environmental conditions.

In 2019, through an APC-funded Community Networks Learning Grant programme,[11] projects were undertaken in South and Southeast Asia, Latin America and Africa, many of which had biodiversity

6 Hazeltine, B., & Bull, C. (1999). *Appropriate Technology: Tools, Choices, and Implications*. Academic Press.

7 Oghia, M. (2018). Community networks as a key enabler of sustainable access: A review. In A. Finlay (Ed.), *Global Information Society Watch 2018: Community Networks*. APC and IDRC. https://www.giswatch.org/en/infrastructure/community-networks-key-enabler-sustainable-access-review

8 Zanolli, B. et al. (2018). Feminist infrastructure and community networks: An opportunity to rethink our connections from the bottom up, seeking diversity and autonomy. In A. Finlay (Ed.), *Global Information Society Watch 2018: Community Networks*. APC and IDRC. https://www.giswatch.org/en/infrastructure/feminist-infrastructures-and-community-networks

9 https://itu.foleon.com/itu/measuring-digital-development/affordability; https://broadbandcommission.org/Documents/SOBB-REPORT%20HIGHTLIGHTS-v3.pdf

10 https://www.apc.org/en/project/connecting-unconnected-supporting-community-networks-and-other-community-based-connectivity

11 https://www.apc.org/en/node/35438

preservation as a key goal. Through the Gram Marg Broadband project, BAIF Development Research Foundation and IIT Bombay seeded the growth of community networks in a remote rural village in Maharashtra, India. The project focused on digitising local knowledge relating to rural livelihoods in Indigenous communities. The project looked to build connectivity infrastructure that is meaningful to the community through the use of a digital knowledge-sharing platform for economic empowerment and the promotion of local livelihoods.

Some of the critical concerns in the region are loss of traditional knowledge on agro-biodiversity and indigenous crop cultivation, and the impact of climatic change and weather patterns on crop yields and biodiversity. The open source platform allows farmers to share information and co-create knowledge on indigenous crop varieties, cultural art forms like paintings, craft, music, etc. This is collected by the community and stored as a repository on a locally accessible server.

Sustainable livelihoods are facilitated by this system using an e-commerce platform, ensuring direct connection between the farmer and the clientele for selling and purchasing of goods. In the Pathardi community network in Maharashtra, women played a lead role in collecting information of the various biodiversity available in the village. This information was collected in the form of audio recordings played on a community radio, and photographs and videos of different plant and crop varieties. Women also collected information on the various methods adopted by the community to preserve seeds. Other methods of biodiversity conservation that women contributed to were through tribal wild food festivals where women followed traditional recipes.

In Latin America, when a community network is planned, the communities centre on their traditional communication processes before even thinking about connectivity. For example, in the joint work carried out in Cuetzalan del Progreso, Puebla, Mexico with the Unión de Cooperativas Tosepan, the primary importance of communication has been the revitalisation of the Nahuatl and Tutunaku languages. A living Indigenous language such as Nahuatl constitutes a thought-feeling system where nature and the environment are at the centre and the human being is only one part of the ecosystem.

In this context, language is vital for the care and defence of the territory, so in that sense a network that creates community through communication finds dialogue, knowledge, experiences, stories, needs and dreams that anchor it to the territory.

Communication networks that create community are a space where people meet to decide on the technologies they need and want. In this way, educational spaces are generated where people can reflect on the dilemmas of the internet, social networks and privacy in territories where life of all types is protected and defended.

In Africa, BOSCO in northern Uganda uses solar energy to power its community network, which spans over 400 kilometres in 13 districts. The network connects a total of 54 centres, which include schools, health clinics, community ICT hubs, and local NGO and government offices. BOSCO has also established large energy systems (6 KW and 30 KW) powering three secondary schools. Youth from the communities are trained on how to operate and maintain the solar equipment.

BOSCO emerged as a way to connect the community around messages of peace and hope as local populations were unable to connect to the national radio or any form of communication with the outside throughout the war that left many displaced in refugee camps. BOSCO was established to connect the community and transition them out of isolation. The development and use of solar energy emerge in BOSCO and several other community networks on the continent as an extension of the ways to sustain life.

Conclusion

While big tech and traditional telecoms operators are pushing populations around the globe to go faster and carry on consuming, the coronavirus pandemic and the deteriorating state of the planet require us to scale back and slow down – to find ways to live more harmoniously with our environment and make digital communications an integral part of this change. In order to do so responsibly, we must support efforts from the global South to rethink connectivity. In the words of renowned economist and inequality expert Tony Atkinson:

> The direction of technological change should be an explicit concern of policy-makers, encouraging innovation in a form that increases the employability of workers and emphasises the human dimension of service provision.[12]

Community networks around the world are doing this and much more, and as such are an integral part of any strategy to create a greener and more just world.

12 https://economysg.wordpress.com/the-15-proposals-from-tony-atkinsons-inequality-what-can-be-done

COMMUNITY NETWORK CHECKLIST

- Build the capacity of communities, and especially women and ethnic minorities, to connect themselves in a timeframe and process that are comfortable to them and allow them to attend to their local and practical needs.
- Create space for women to make communication governance decisions and take on leadership roles in their communities.
- Create mechanisms for those communities and the organisations that support them to share experiences and learn from each other.
- Invest in free/libre and open source technology that is:
  - Easy to use, does not require prior technical knowledge, and is well documented
  - Affordable to build or purchase and operate
  - Robust enough to work in adverse environments
  - Easy to understand in terms of how it works and easy to repair locally
  - Adaptable to local needs and use cases
  - Energy efficient (consumes low amounts of energy) and can work with renewable energy
  - Optimised to the low bandwidth conditions of community networks.
- Create a more enabling policy and regulatory environment, for example, by:
  - Providing public funding to community network initiatives
  - Creating a more level playing field for interconnection with larger/dominant infrastructures
  - Facilitating access to spectrum, especially for mobile broadband
  - Creating appropriate options for community networks within regulatory licensing frameworks that do not place undue economic and bureaucratic burdens on community networks.

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The world is facing an unprecedented climate and environmental emergency. Scientists have identified human activity as primarily responsible for the climate crisis, which together with rampant environmental pollution, and the unbridled activities of the extractive and agricultural industries, pose a direct threat to the sustainability of life on this planet.

This edition of Global Information Society Watch (GISWatch) seeks to understand the constructive role that technology can play in confronting the crises. It disrupts the normative understanding of technology being an easy panacea to the planet's environmental challenges and suggests that a nuanced and contextual use of technology is necessary for real sustainability to be achieved. A series of thematic reports frame different aspects of the relationship between digital technology and environmental sustainability from a human rights and social justice perspective, while 46 country and regional reports explore the diverse frontiers where technology meets the needs of both the environment and communities, and where technology itself becomes a challenge to a sustainable future.

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2020 Report
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