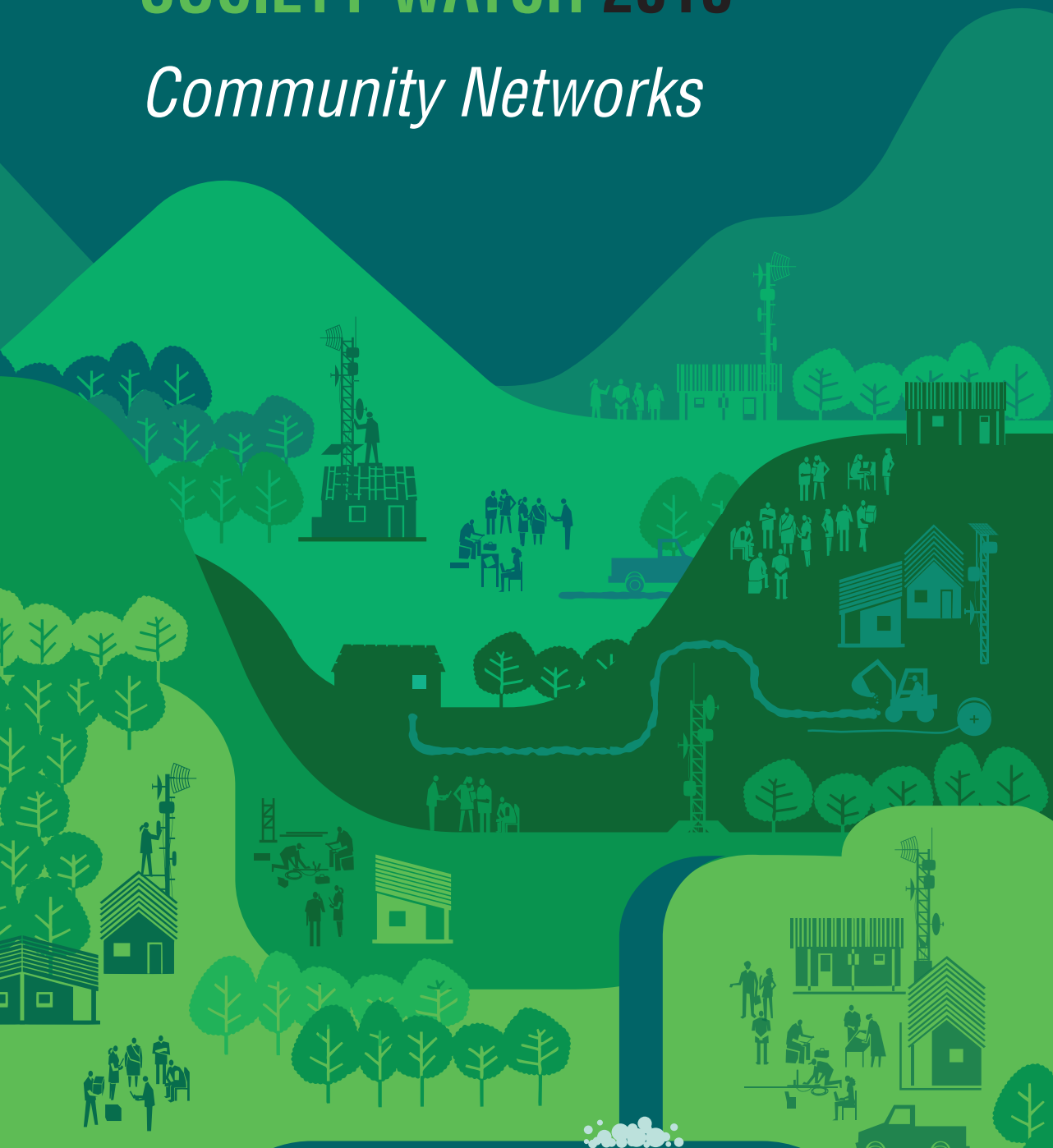
# GLOBAL INFORMATION SOCIETY WATCH 2018

## *Community Networks*



Association for Progressive Communications (APC)
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# Global Information Society Watch

## 2018

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*This edition of GISWatch came into being alongside a brand new baby boy. Welcome to the world, Ronan Diga!*

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# Decentralising culture: The challenge of local content in community networks

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## Introduction: A bit of history

Our first steps with community networks go back to 2003, with the beginnings of BuenosAiresLibre. At that time, free networks were phenomena of big cities (Buenos Aires, Montevideo, Seattle, Portland, Berlin, Rome, etc.). They were set up mainly by "geeks", the community that had ties to the free software movement.

The networks were experimental spaces and were usually set up to offer access to self-contained web servers, FTP repositories, games, etc.; that is, they functioned as metropolitan intranets, and reflected the interests of those who set them up. At that time, these networks did not have their own public IP resources, autonomous system numbering, or peering agreements with neighbouring networks, and they were not linked to internet exchange points. In general, their members resolved their individual internet connectivity needs through commercial providers.

Some networks of this first era evolved, such as guifi.net in Catalonia,[1] but many went down in history. The freenetworks.org website[2] maintained information about free networks in the world for years, but today it is no longer online.

AlterMundi, like other similar organisations,[3] focused its efforts outside the big cities and took the model of community networks to disadvantaged and digitally excluded areas. These communities have huge socioeconomic and educational differences compared to big cities and the most concrete communication need is to achieve internet connectivity.

Our perspective is that community networks should be, mainly, a vehicle to allow the "unconnected" to connect themselves. Over time and thanks to some successful examples, the perspective on community networks in the areas of internet governance – national and international – began to change. Longstanding organisations such as the Association for Progressive Communications (APC) and Internet Society (ISOC) developed plans and strategies focused along these lines: a Dynamic Coalition was created at the Internet Governance Forum,[4] a Special Interest Group was started in ISOC,[5] and a project on local access networks was started in APC.[6] Community networks started to be seen as an effective solution to reduce the digital divide and became an important issue on the agenda of various relevant actors.

This report focuses on the role that community networks play in creating an inclusive and culturally diverse internet. We discuss the concept of right to access, suggesting its limitations. We then introduce an alternative notion of the "right to co-create the internet". We also share some experiences that give us perspective on the history and future of community connectivity as a fundamental enabler to the right to co-create the internet.

## The right to co-create the internet

The right to access communications is one of the fundamental notions defended by sectors of civil society devoted to issues concerning the digital divide and connectivity in excluded areas. At AlterMundi we believe that this notion has to be challenged, and ask ourselves if defending it is not, in some way, supporting the agenda of the concentrated powers of the internet ecosystem and reproducing its operating models. Is it possible to think about the construction of the internet from another paradigm?

Other social movements help us reflect on this problem. Let's think of the terms "food security" and "food sovereignty". The first is the term that governments and food corporations use to refer to the condition that exists when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for

1 See the Catalonia country report in this edition of GISWatch.

2 https://web.archive.org/web/20171204140813/http://freenetworks.org:80/member-affiliates

3 Atalaya Sur, Coolab, Zenzeleni, Gram Marg, etc.

4 https://www.intgovforum.org/cms/175-igf-2015/3014-dynamic-coalition-on-community-connectivity-dc3

5 cnsig.info

6 https://www.apc.org/en/project/local-access-networks-can-unconnected-connect-themselves

an active and healthy life."[7] Governments are primarily responsible for guaranteeing this right and must not interfere with individuals' efforts to "earn a living". They must also "create opportunities" for those who do not yet enjoy the "right to food".

However, other actors use the term "food sovereignty". Food sovereignty is the right of peoples, communities and countries to define their own food policies that are ecologically, socially, economically and culturally appropriate to their circumstances. It also claims food as a right.[8] That is to say, the dispute is not the right to eat but the right of the communities to food self-determination and therefore to define their own food policies. This means building a new social relationship that questions oppression and inequalities.

The concept of "food security" is similar to the "right to access communications", but there is no clear concept analogous to "food sovereignty" in the field of communications. In this area, there is a broad grouping that seeks to build another paradigm and does not identify with the "right to access". The argument is that the widespread use of the term "access" is not casual. It implies looking at the person as an individual user, in a consumption relationship which is unidirectional; people access services and content that they do not control and that do not belong to them. This is a model of "feed them" access.

Organised and self-managed communities that build their own infrastructures and technologies to meet their communicating needs work in a different direction. What they do is understood more clearly as a right to co-create the internet. From this perspective, they do not constitute themselves as consumers, but as empowered citizens. They are also cultural actors who manifest themselves online using the ability to produce, control and host their content and services, efficiently solve local communication challenges and share their culture, while still accessing, at the same time, the global network under equal conditions as peers.

In this view, mobile networks, public Wi-Fi hotspots, internet balloons or planes, and other state and private initiatives that look okay from the perspective of "access", fall short as a vehicle to fulfil the right to co-create the internet.

## To reach the internet or build the internet?

We understand that the internet is, like culture, our bodies or land, a territory in dispute. And we understand it in a multidimensional way: with a physical dimension (infrastructure, standards and network protocols), a logical dimension (services and applications), and a cultural dimension (contents, messages). The important thing, for those who intend to intervene in this dispute, is to understand that in the three dimensions there are strategies, practices and technologies that strengthen the co-creation of the internet, or in contrast, reinforce the idea of mere "access".

For AlterMundi, we understand that each new community network is a new part of the internet and it is necessary to work so that each of them strengthens local culture and popular organisation.

So, those of us who work for the development of community networks: How will we guarantee that their growth does not result in just adding consumers for the large, concentrated content and service providers? How will we help preserve and increase cultural diversity? How will we strengthen the people's processes of local organisation instead of invading them with global idiosyncrasies?

## Experiences with local content

The struggle to counteract the expansion of the global monoculture is unequal. Powerful actors operate in all dimensions – physical, logical and cultural – generating an inclined field where the birth of local alternatives is difficult.

Our experience with the networks of the Paravachasca Valley in Córdoba, Argentina, has been and continues to be a complex challenge. In this region, five community networks interconnect villages through their own infrastructure, with more than 120 km of backbone links and about 100 nodes that make up the mesh networks of the villages. The set of networks has its own autonomous system number (ASN)[9] and global IPv4 and IPv6 resources. The bandwidth in the networks is symmetric and only limited by the capacity of the links. All connected devices receive a global IPv6 address and a dynamic name resolution system allows each connected device to be reached by its hostname.

We can say that the physical dimension enables an environment in which locally hosted services and content have no impediments to flourish and be accessible both to the community and to others outside of the community who have access to the internet. However, having fertile land is not a guarantee of being able to produce locally.

In the first years, while community networks were being deployed in the Paravachasca Valley, experiments with content generation and sharing of culture and communication were carried out locally.

7 www.fao.org/economic/ess/ess-fs/en

8 https://viacampesina.org/es/seguridad-soberania-alimentaria

9 https://en.wikipedia.org/wiki/Autonomous_system_(Internet)

For a long time, QuintanaLibre – one of the five community networks – ran a captive web portal with relevant information for the community: public transportation schedules, a map of the area, a list and description of local organisations and institutions, cultural activities, a section of advertisements for local products and sales, etc. Chat and voice over IP (VoIP) services and streaming of the local community radio were also provided. The services, implemented on free software platforms and low-cost hardware (embedded computers and display-less notebooks), were successful during the first years. Much of the cultural dimension of the network was expressed through these local, alternative services and information.

However, different circumstances determined that these services stopped working or being used over time. It is striking that much of the "failure" to sustain these alternatives in the upper layers (logical dimension) was largely due to success in the lower layers (physical dimension). The increase in capacity in the links that connect these community networks with the rest of the internet, which in principle would represent an advantage, was promoting practices that tend to favour global alternatives over local. A clear example: people use global music and video on demand services instead of downloading content to local devices and sharing them; even when that content, such as music and children's programmes, was clearly displayed and accessible. The growth of content delivery networks (CDNs) with increasingly closer caching nodes also tilts the court in the same direction. Even local cultural products tend to be shared through global systems such as YouTube, Facebook, and WhatsApp groups.

On the other hand, the emergence of smartphones as a dominant device (over 80% of the connected clients) and the ubiquitous use of WhatsApp as a tool for individual and group text, voice and video communication – made more feasible by the improvement in connectivity with the outside world – resulted in a difficult competition to overcome for the local community network services, especially for chat and voice calls. The implementation of local services using free but centralised platforms was also a weak point. A single damaged server represented the loss of one or more services for the entire network. The low demand for these services meant that local technicians lacked motivation to replace hardware and repair services, which remained off-line.

It is interesting to note that although the tools used by neighbours to communicate are controlled by global corporations, the groups that have been set up in the main continue to play a role of local organisation: network maintenance, political action, cultural activities, disaster response, car-pooling, local commerce, etc. That is, the physical dimension is controlled and deployed by the community, the logical dimension is controlled mainly by global corporations, but the cultural dimension still maintains a strong component of local empowerment.

Nevertheless, it is true to say that in regions where the quality of the collective connectivity to the internet achieves levels comparable to the community network performance, the successful implementation of local services imposes more challenges than certainties. In contrast, where connectivity with the global network is scarce or non-existent, creative initiatives have been born and have grown to represent, in all dimensions, a significant part of communication in cultural life. An example is Rhizomatica and REDES in Mexico, who founded *Telecomunicaciones Indígenas Comunitarias* together with the community operators. The absence of fixed or mobile telephony services served as a stimulus for the creation of a mobile telephony community network that has expanded to cover more than 63 locations through 15 networks that are self-managed by indigenous communities. Today they have more than 3,500 user-members.[10]

Cuba, where internet connectivity is very limited and expensive, also offers practical examples. As an alternative to internet connectivity, creative initiatives were born, such as "*El Paquete*" (the package), a sneakernet[11] that every week distributes varied content such as videos, music, website downloads, software, etc., across the island. The "package" – or content – is stored on high-capacity hard drives that are copied and then distributed by land transport. The people are responsible for transportation, replication and then the partial distribution of content to each user. There is another similar project administered by the state called "*La Mochila*" (the backpack) that distributes educational content. Yet another case worth mentioning is the Street Net or SNet, which consists of a metropolitan network built by the neighbours. This network has hundreds of nodes and covers tens of kilometres in the city of Havana and surrounding areas and provides access to local services such as forums, games and content.

In northern Argentina, in Jujuy, the organisation Atalaya Sur together with the local community is building a community network in a region that lacked access to the internet. The Chasqui network provides local IP telephony services, video and

10 See the Mexico country report in this edition of GISWatch.

11 https://en.wikipedia.org/wiki/Sneakernet

book repositories, text messaging and a social network, all based on free software. Since the arrival of a 3 Mbps connection to the internet, the use of WhatsApp has begun to spread, although the community is still choosing the local social network to share content.

## Why all dimensions matter

There are numerous other examples of networks and systems that facilitate communication and provide local services in regions with little or no connectivity to the global network. But, when they are fully integrated with the internet, how will these systems adapt? How can they take advantage of the experience and continue to empower their communities? When local alternatives compete directly with the offer of powerful corporations and their systems, will the creativity and ingenuity that made them possible adapt and survive? Is it worth asking these questions?

Returning to our initial comparison with the field of food, we understand that true food sovereignty tends to be expressed in all its dimensions, which we could simplify as:

- Control over/access to the land for those who farm it.
- Appropriation of tools, techniques, seeds, supplies, etc.
- Fair and sustainable production and distribution of healthy food.

We would not hesitate to fight for food sovereignty if Bayer/Monsanto controls the intermediate layer (seeds, techniques, supplies). So why would it be acceptable or reasonable that in our co-creation of the internet, the logical layer, the systems and applications that host our culture and transport our messages, are controlled by the likes of Facebook or Google?

We understand that this is where we must clearly demarcate the limit between the defenders of "access" and the promoters of internet co-creation. At times we find ourselves in scenarios where actors who structure their business in the logical dimension of the internet appear as partners, defending positions that resemble ours. Their business, their platforms, live in this layer which is the most difficult to appropriate with local alternatives. While we work to deploy more networks and expand the physical layer, more people will participate in the cultural layer and will do so through the platforms that these actors control. So, if community networks do not face the problem in all its complexity, we will be reproducing logics that we wanted to modify. The tools we use to transmit culture and to communicate will determine the type and reach of our messages as much as the seeds we grow will determine the food we can harvest.

## The decentralised repository of culture

We are convinced that a powerful response to the questions we have been asking is to develop and generate the conditions (technical, social, educational, budgetary, etc.) for the appropriation of distributed and decentralised tools that take advantage of existing intercultural scenarios, enhancing cultural diversity through peer-to-peer communication within and among communities.

Because of this, we began developing the decentralised repository of culture.[12] It is a free tool to deepen the experiences of appropriation of technology in community networks beyond the physical dimension, in a real, efficient and valuable way that allows sharing and distributing culture with a counter-hegemonic logic. The fundamental principle of the repository's design is simple: decentralised but organised.

Historically,[13] the systems used to share culture directly between users have either taken the form of peer-to-peer (P2P) filesharing protocols and clients or forums and specialised systems, mostly websites. The former, although they are more resistant to attempts at takedown, do not allow an elaborate and efficient organisation of the corpus of contents they host. Centralised systems, such as forums and specialised sites, allow the organisation and categorisation of content, but they are fragile in the face of attacks, both cyber and legal, and their accessibility necessarily depends on the quality of the internet access to the centralised system.

The idea of "decentralised but organised" represents the best of these two approaches. In the decentralised culture repository, the metadata that makes content organisation possible is replicated along with the content itself. Pieces of the repository that become fragmented still maintain their classification locally. The repository is a natural partner of community networks with little connectivity that use sneakernet techniques to transport information from and to the outside communities that do not have access.

Each fragment of the culture repository, which consists simply of a number of instances connected in a network, makes sense in itself. This allows for a transparent evolution between the different stages of connectivity of a community network.

12 https://github.com/Altermundi/openrepo-desktop

13 https://en.wikipedia.org/wiki/Timeline_of_file_sharing

Our hope in AlterMundi is that this newly born project evolves over time to become a vehicle to re-appropriate portions of the logical dimension in the same way that previous developments such as LibreMesh[14] and LibreRouter[15] are currently enabling the re-appropriation of the physical dimension for numerous communities.

If we think about the global scenario, where the unconnected have the opportunity and the role of connecting themselves, it is vital and necessary to deploy community network infrastructures but also to complement those processes with an ecosystem that is coherent and does not reproduce the systematic exclusion and oppression that the unconnected have suffered so far. What we have to contribute as social actors has to go in the direction of developing tools that enable communities in their role as free, sovereign and empowered subjects to produce and share culture. In this way, conditions are created so that the right to co-create the internet can be engaged, appropriated and inhabited by all the people who coexist in the great global network, creating, in all dimensions, their own internet.

14 https://github.com/libremesh

15 https://librerouter.org

GLOBAL INFORMATION SOCIETY WATCH 2018

# Community Networks

THE 43 COUNTRY REPORTS included in this year's Global Information Society Watch (GISWatch) capture the different experiences and approaches in setting up community networks across the globe. They show that key ideas, such as participatory governance systems, community ownership and skills transfer, as well as the "do-it-yourself" spirit that drives community networks in many different contexts, are characteristics that lend them a shared purpose and approach.

The country reports are framed by eight thematic reports that deal with critical issues such as the regulatory framework necessary to support community networks, sustainability, local content, feminist infrastructure and community networks, and the importance of being aware of "community stories" and the power structures embedded in those stories.

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