Universal Service Funds – Failure and Promise: Anecdotes from the field on updating USF policies

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Summary

Many governments have established funds dedicated to expanding connectivity to underserved communities, so-called universal service funds (USFs) or universal service and access funds (USAFs).[1] These funds are usually financed through mandatory contributions by telecom operators, and the funds are dispersed back to the operators or other companies to support connecting the unserved and underserved. Over the years, USFs have not delivered on the promise of better connectivity nor updated their programmes to include a new range of connectivity providers that emerged over the last 10 to15 years. Through examination of current funds and the landscape of alternative and complementary connectivity solutions, it is possible to create more agile USF/USAFs that reach the unserved and underserved, while promoting competition and resiliency through a more diverse operator/provider base.

The role of community networks in addressing the connectivity gap has been acknowledged by various international bodies such as the International Telecommunication Union (ITU), the Organisation for Economic Co-operation and Development (OECD), the Inter-American Telecommunication Commission (CITEL) and the United Nations Economic and Social Commission for Asia-Pacific (UNESCAP), among others. A growing movement around community connectivity has been supported by organisations such as the Association for Progressive Communications (APC), the Internet Society (ISOC) and ARTICLE 19. Sustainable financing and adequate business models are key to a successful community network, and USFs should incorporate support for these initiatives.[2]

At the moment, most USFs are locked in by businesses and traditional connectivity providers, leaving little opportunity for complementary connectivity providers such as community networks to receive funding. USFs need a more agile way of working, in order to roll out infrastructure in a more efficient way, and to keep pace with the constantly changing connectivity landscape. The COVID-19 crisis highlighted the inefficiencies of USFs: many governments and regulators had

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[1] The authors will use the term USF throughout the paper, but that term is meant to encompass both USF and USAF. According to the International Telecommunication Union (ITU), there are currently 100 countries with operational universal service funds: https://www.itu.int/hub/publication/d-pref-ef-2021-eco_fin

[2] Belli, L., & Hadzic, S. (Eds.). (2021). *Community Networks: Towards Sustainable Funding Models*. Official Outcome of the IGF Dynamic Coalition on Community Connectivity (DC3). https://www.intgovforum.org/en/filedepot_download/92/20438

to create new regulatory measures or create separate new funding mechanisms for emergency infrastructure rollouts.

This paper proposes restructuring USFs to expand the pool of potential beneficiaries to complementary access solutions, including community networks. Some countries have already implemented changes and initiated special projects to accommodate USF applications from non-traditional operators, and these will be presented in this paper.

The paper is structured as follows: Section 1 provides an overview of literature on challenges associated with current universal service funds. Section 2 identifies best practices where community networks can benefit from both USFs as well as other public funding mechanisms. Section 3 analyses advocacy efforts in selected countries, and identifies commonalities that have actually led to systemic policy and regulatory changes. By tracking the civil society engagement process, we provide a high-level model for dialogue and advocacy procedure. Section 4 concludes the paper with a synopsis of findings and recommendations.

1. Introduction

Financing connectivity is recognised as a key priority in the United Nations Secretary-General's Roadmap for Digital Cooperation[3] and for the attainment of the Sustainable Development Goals (SDGs).[4] Studies on the role of USFs in addressing the funding gap have been conducted by the ITU's Development Sector (ITU-D) and by organisations like the Alliance for Affordable Internet (A4AI). A4AI, in fact, offers several resources on the use of universal service funds for connectivity. One of their early reports provides a historical overview of the evolution of USFs, and identifies major challenges that have arisen as technologies, markets and policies evolve.[5] The original operating model of USFs initially brought good results in the telecommunications industry, ensuring telephone connectivity in the early established funds, e.g. in the United States and Canada. However, the multidimensionality of the broadband expansion problem remains unaddressed in the old model – for example, some regulations lack provisions to allow use of USFs in urban areas, which often leads to a disconnect between the funds and broadband strategies. A4AI also recommends including gender and inclusivity as one of the criteria for

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[3] https://www.un.org/en/content/digital-cooperation-roadmap
[4] https://sdgs.un.org/goals
[5] Alliance for Affordable Internet. (2015). *Universal Access and Service Funds in the Broadband Era: The Collective Investment Imperative*. Web Foundation. https://webfoundation.org/research/universal-access-and-service-funds-in-the-broadband-era-the-collective-investment-imperative

operating the funds,[6] as well as for the USFs to support costs of access to electricity in underserved areas, as critical underlying infrastructure for delivering connectivity.[7]

The 2021 edition of A4AI's Affordability Report focused primarily on the need for new approaches to universal service funds.[8] In order to make USFs more inclusive and sustainable, one suggested approach is to support projects that deliver social value. Community networks are a perfect candidate, as they tend to provide meaningful connectivity and often specifically seek to include marginalised and historically excluded groups (including certain marginalised gender groups). When considering potential partnerships with other stakeholders, including community networks, these should not only be taken into account as potential recipients of these funds, but also as co-designers of the funding programmes and participants in fund governance.

While many countries manage to collect levies and create a universal service fund, they often fail to disburse the funds. A4AI in collaboration with the Web Foundation and UN Women carried out a study which revealed that there were about 37 USFs across Africa and estimated that only half of the amount collected to expand connectivity has actually been spent, while USD 408 million remained unused. Out of these 37 funds across Africa, only 23 were active in 2018, meaning there was some disbursement activity in the previous five years.[9] Operations were largely non-transparent, and a substantial number of USFs did not provide any form of financial reporting; those that did report, often did so in a manner that makes it hard to differentiate whether the disbursements were in fact related to the USF's mandate. Among the 37 countries analysed by A4AI, there was very little interest in creating universal access policies that explicitly aim to close the gender digital divide.

The problem of unused funds and lack of transparency is not unique to Africa. A4AI researched the status of USFs in 24 countries in Latin America and the Caribbean. There is approximately USD 7 billion that has been accumulated and not used, or used for purposes other than

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[6] Alliance for Affordable Internet. (2021a). *The Costs of Exclusion: Economic Consequences of the Digital Gender Gap*. Web Foundation. https://a4ai.org/research/costs-of-exclusion-report

[7] Woodhouse, T. (2021). *Sustainable, universal access to the internet: Environmental implications and policy choices*. Alliance for Affordable Internet. https://a4ai.org/wp-content/uploads/2021/06/REPORT-Sustainable-Universal-Access-to-the-Internet.pdf

[8] Alliance for Affordable Internet (2021b). *The Affordability Report 2021*. Web Foundation. https://a4ai.org/report/2021-affordability-report

[9] Thakur, D., & Potter, L. (2018). *Universal Service and Access Funds: An Untapped Resource to Close the Gender Digital Divide*. Web Foundation. https://webfoundation.org/research/closing-gender-digital-divide-in-africa

connectivity projects. Apart from the current status of USFs, the study also investigated whether alternative stakeholders, such as small operators and community networks, are eligible to receive support from USFs. Argentina and the Dominican Republic are listed as best practice examples.[10]

ITU-D suggests reconsidering the structure of current USFs beyond their narrow focus on information and communications technologies (ICTs). USFs of the future would have to consider funding skill development, growth and innovation, and be aligned with the broader digital transformation process.[11] Referred to by the ITU as "USAF 2.0", this type of fund would ideally disburse resources for both supply-side (infrastructure) and demand-side (uptake) initiatives, and should be broadly defined so it does not restrict implementation to very specific terms.

A recent report by Connect Humanity, written with support from APC and ISOC, explored financing mechanisms for locally owned internet infrastructure, including public funding for community connectivity providers, through a set of case studies.[12] The next section of this paper provides examples of community networks tapping into USFs and other public funds, with a specific focus on advocacy efforts leading to this.

2. Best practices

Some countries have recognised the need to rethink their universal service funds. The rules around governing and operating these funds should evolve as technologies evolve. Potential beneficiaries should not only be big telcos, but also include a more diverse set of players – ideally including small non-profit operators and community networks. Flagship examples in this context are Argentina and Kenya. Argentina has already implemented two programmes that allow alternative service providers to apply for USF funding. Kenya's Communication Authority is in the process of finalising the restructuring of their USF, and is open to explore opportunities for supporting community networks. Brazil has recently reformed its USF and the regulator has initiated a dialogue with civil society to determine how community networks could be supported.

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[10] Alliance for Affordable Internet. (2021c). *Universal Service and Access Funds in Latin America & the Caribbean*. https://a4ai.org/wp-content/uploads/2022/01/USAF-Report-English.pdf; since the publication of the report, Brazil also has allowed use of USFs to fund complementary network solutions.

[11] ITU. (2021). *Financing universal access to digital technologies and services*. https://www.itu.int/hub/publication/d-pref-ef-2021-eco_fin

[12] Connectivity Capital. (2022). *Financing Mechanisms for Locally Owned Internet Infrastructure*. APC, Connect Humanity, Connectivity Capital & the Internet Society. https://connecthumanity.fund/report-financing-ccps

Some other countries, like South Africa and Indonesia, provide examples where alternative sources of public funding can be used to finance community networks. This section provides an overview of best practices, which can be used to identify commonalities that resulted in successful inclusion of community networks into different countries' regulatory frameworks.[13]

2.1. Argentina

There are two programmes in Argentina that enable community networks to apply for funding from universal service funds: the Roberto Arias programme[14] and the Barrios Populares programme,[15] both created by the Argentine telecom regulator ENACOM (Ente Nacional de Comunicaciones) as "special projects". ENACOM is the entity in charge of the implementation of universal service funds in Argentina.

2.1.1. Barrios Populares Programme

Barrios populares ("popular neighbourhoods") is the term used for informal settlements/slums/ shanty towns in Argentina. According to the data from February 2020, there were 4,416 of these neighbourhoods in Argentina, inhabited by almost one million families.[16] These neighbourhoods are distributed across the country, but with a major concentration in the province of Buenos Aires.

In June 2020, ENACOM created the "Programme for the Development of Internet Infrastructure" for these neighbourhoods. The amount allocated was one billion Argentine pesos (roughly USD 14 million at the time the initiative was launched) and it is open to all ICT licensees. The objective is to promote last-mile connectivity in order to guarantee access to ICTs for citizens residing in "barrios populares". Since most "barrios populares" are located in urban areas, and often exceed the limits on population density (being a rural, remote, sparsely populated area is often a requirement when applying for USF funding), they used to be excluded from previous USF programmes.

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[13] This section provides an overview of developments up until January 2023. Some of its subsections reflect the content of an internal benchmark of USF practices prepared by the Association for Progressive Communications as a response to the Digital Access Programme request to provide input to the USF review conducted by Viscar Capacity in Kenya. The authors acknowledge that there have been additional activities and developments between then and the publication date.

[14] https://www.enacom.gob.ar/redes-comunitarias-roberto-arias_p5049

[15] https://www.enacom.gob.ar/programa-barrios-populares_p4615

[16] https://www.argentina.gob.ar/noticias/barrios-populares

Funding from the USF is guaranteed and covers expenses such as labour, active and passive infrastructure, and even up to 30% for the equipment costs on the user side. When the applicant is a community network licensee, special conditions are included: additional expenses such as six months of backhaul costs and maintenance costs can be considered.

By the end of 2021, there were more than 70 projects in various stages of evaluation within ENACOM in the framework of this programme,[17] and approximately 500,000 people have benefited from these plans and have been connected.[18]

2.1.2 Roberto Arias Programme

In June 2021, ENACOM launched the Roberto Arias Programme, specifically aimed at financing community network projects through the country's universal service fund. The beneficiaries are holders of community network licences (established under the registry denomination "Value Added Service – Internet Access, Community Network Holders", with the acronym VARC), or those who are in the process of obtaining one of these licences at the time of submitting an application. The priority of the programme is to address the connectivity needs of rural and Indigenous communities through community networks.

The initial amount allocated to the programme was 300 million Argentine pesos (approximately USD 3 million at the time of programme launch). The programme refers to Recommendation ITU-D 19 of the International Telecommunication Union (ITU) for rural and remote areas, which proposes the consideration of small non-profit community operators and the implementation of appropriate regulatory measures to enable access to basic infrastructure.[19]

The programme can be seen as a direct result of the dialogue and engagement between the state and community networks stakeholders. The funds allow applicants to cover the capital expenditure (CAPEX) and six months of backhaul connection to help with the sustainability of

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[17] Baladrón, M. (2021). Universal Service Funds for Urban and Rural Community Networks: The Barrios Populares and Roberto Arias Programs in Argentina. In L. Belli & S. Hadzic (Eds.), *Community Networks: Towards Sustainable Funding Models.* Official Outcome of the IGF Dynamic Coalition on Community Connectivity (DC3). https://www.intgovforum.org/en/filedepot_download/92/20438

[18] Pellettieri, L. (2022, 26 April). Digital Divide Widens as Providers Refuse Service. *Global Press Journal.* https://globalpressjournal.com/americas/argentina/digital-divide-widens-internet-providers-refuse-service

[19] See ITU Recommendation D.19 (03/10). https://www.itu.int/rec/D-REC-D.19-201003-I/en

the initiative. It also funds equipment costs on the user side (not limited to 30% as in the previous programme).

However, this inclusion by the regulator did not happen overnight. It is important to highlight the role of civil society and their advocacy efforts. At the first edition of the Latin American Summit of Community Networks, organised by the AlterMundi collective in 2018, an official document was produced identifying main challenges in terms of financing community networks and regulatory framework obstacles. One of the recommendations was the development of "clear and agile policies and mechanisms for the allocation of universal service funds to community networks." That same year, community networks were recognised nationally as non-profit providers, with certain limitations such as not serving more than 5,000 people. The operator licence application is fee-exempt.

AlterMundi convened the Argentine Summit of Community Networks, after which local collectives advocating for the right to communication and technological sovereignty started a dialogue with the state, jointly stating that "community networks constitute the 'first kilometre' of infrastructure" and requesting the creation and development of policies with clear and agile mechanisms for the allocation of USF funding to community networks, regardless of their geographic location.[20] Shortly before the global pandemic was declared by the World Health Organization (WHO), a meeting was held at ENACOM with various sectors and institutions to generate agreements that allow the consolidation of an agenda on the revised use of USFs.

From the perspective of the community network movement in Argentina, there is a sentiment that the success of this programme is due to the fact that it is *exclusively* aimed at community networks. In any other scenario, traditional operators would have tapped into the funds, creating fewer opportunities for alternative, complementary solutions. Traditional operators have more experience, resources and skills when it comes to applying to such funds. There might still be barriers for organisations who are attempting to create their first community network, without any prior experience in building their own infrastructure and operating communication networks.

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[20] Muller, A. (2021, 17 June). Programa Roberto Arias. *AlterMundi*.
https://altermundi.net/2021/06/17/programa-roberto-arias

2.1.3 Semilleros

Despite all the considerations taken into account by ENACOM when creating the Roberto Arias Programme, there are still aspects that make it difficult for target communities to participate. In conversations with organisations and communities from different Argentine provinces, AlterMundi detected that an important impediment is the lack of previous experience in building a community network, leading to difficulties when presenting an administratively and technically complex project. To facilitate and promote the use of the state funds assigned to the Roberto Arias Programme, AlterMundi created the "Semillero de Redes Comunitarias de Internet" – a "seedbed" for community networks.[21] The collective learning experiences promoted through this initiative cover theoretical, sociopolitical and practical elements, and envisage the initial deployment of community networks. Sixteen communities that participate in the project are accompanied in their initial network design (including deployment of their first four nodes) and in project design, proposal writing and the process of applying to the Roberto Arias Programme. Semilleros was awarded with the first prize in the Community Enablement Category at the IEEE Connecting the Unconnected Summit in 2022.[22]

AlterMundi consciously works to promote female participation: from the training material in gender-inclusive language, constantly reflecting on female participation in community networks, to the fact that it is women who lead the "semilleros".[23]

There is no doubt that the advocacy work of the community networks and the strengthening of their regional and national networks created the conditions for the possibility of both programmes, with the recognition of the community network licence (VARC) in 2018 being an important starting point from the regulatory point of view. The establishment of a Sub-Directorate for Special Projects within ENACOM helped facilitate the dialogue between the regulator/USF holder, and small operators including community network representatives.

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[21] https://altermundi.net/altermundi/formacion-y-acompanamiento/semillero-de-redes-comunitarias-postulantes-al-roberto-arias

[22] Giudice, J. (2022, 3 November). IEEE reconoció con el primer premio al Semillero de Redes Comunitarias para Postulantes al Programa Roberto Arias. *AlterMundi*. https://altermundi.net/2022/11/03/ieee-reconocio-con-el-primer-premio-al-semillero-de-redes-comunitarias-para-postulantes-al-programa-roberto-arias

[23] Giudice, J. (2023, 10 February). AlterMundi: Nuestro compromiso con el empoderamiento de las mujeres. *AlterMundi*. https://altermundi.net/2023/02/10/altermundi-nuestro-compromiso-con-el-empoderamiento-de-las-mujeres

One issue that still needs to be addressed is the sustainability of awarded projects beyond the six-month grace period of covered backhaul costs.

2.2. Kenya

After a public consultation by Kenya's Communication Authority[24] in May 2021, the Community Network and Service Provider (CNSP) License[25] was introduced later in the same year. Community-based organisations and non-profit collectives can apply for this type of licence. Additionally, in the draft public consultation document, the Communication Authority expressed that it would explore the creation of special projects under which a subsidy for start-up funds for community networks can be established. These funds could catalyse community initiatives and lead to development of locally-owned connectivity solutions.

In April 2022 the Communication Authority issued the Draft Universal Service Fund (USF) Principles and Guidelines,[26] with tentative USF programmes which include community broadband networks, ICT content and applications, and an ICT capacity building and awareness programme, among others.

The Communication Authority commissioned Viscar Industrial Capacity[27] to conduct an access gap study,[28] which was led by APC, while local civil society represented by KICTANet contributed to in various ways. For example, there was a mapping of countries where community networks were supported by USFs, Argentina being the flagship use case provided, as well as specific recommendations as to how the USF could support community networks in three different categories: infrastructure (CAPEX + OPEX), capacity building (Kenya National Schools of Community Networks as an example for supported type of programmes), and development of local content and applications.

The final report, led by APC's LocNet team in collaboration with KICTANet, recommended adopting new innovative connectivity solutions like community networks to serve small

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[24] https://www.ca.go.ke/public-consultation-on-draft-licensing-and-shared-spectrum-framework-for-community-networks-in-kenya

[25] https://www.ca.go.ke/document/community-network-and-service-provider-cnsp-license

[26] https://www.ca.go.ke/wp-content/uploads/2022/04/Draft-Universal-Service-Fund-USF-Principles-and-Guidelines-2022.pdf

[27] The report was supported by FCDO's Digital Access Programme (DAP).

[28] The commissioned report was titled "Capacity Building, Review and Update of the Voice and Data Services Access Gaps in Kenya".

communities, leading to their inclusion in the Draft USF Strategic plan 2022-2026.[29] Some recommendations given by KICTANet and local community networks during the public consultation process were taken into account: the draft strategic plan foresees the establishment of at least 100 community networks in the next five years. KICTANet also submitted comments as part of the public consultation process for the draft strategy, and participated in the call organised by the regulator. In their submission, Kenyan civil society organisations (CSOs) encouraged the Communication Authority to adopt a holistic approach to their financial support, which includes the necessary capacity building to develop the technical, organisational and community-building skills needed to grow healthy and vibrant community networks.

The Communication Authority acknowledges the role that civil society has played in the process of USF restructuring, and attributes the growth of the community network movement in the country to the fact that Kenya hosted the first and second African Community Networks Summits in 2016 and 2017, organised by the Internet Society and APC in partnership with community networks across Sub-Saharan Africa. Since then, interest in starting community networks significantly increased; however, the policy and regulatory environments were not accommodating. What has made advocacy efforts successful has been the relationship between the United Kingdom's Foreign, Commonwealth & Development Office (FCDO), or specifically their Digital Access Programme (DAP) in Kenya, and the Communication Authority: DAP has supported a number of developments in the ICT regulatory space in the country, such as the development of TV white space regulations, and the introduction of a community network licence. DAP realised that in addition to the funding it provides to various projects, if there is no policy and regulatory change, the sustainability of any programme being implemented is threatened. In the case of community networks in Kenya, DAP supported its grantees in regulatory and policy efforts, beyond activities on the ground. FCDO, APC, the Internet Society, KICTANet, AFCHIX and the TunapandaNet community network were and continue to be involved in the advocacy process.

TunapandaNet facilitates the first National School on Community Networks.[30] It serves as the "meso organisation", providing training to selected community networks (micro organisations) –

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29 https://www.ca.go.ke/wp-content/uploads/2022/04/Draft-USF-Strategic-Plan-2022-2026-.pdf

30 National Schools on Community Networks are being organised in five countries – Brazil, Indonesia, Kenya, Nigeria and South Africa – as part of the project "Supporting Community-led Approaches to Addressing the Digital Divide" led by APC and Rhizomatica, with support from local organisations, such

seven for the first iteration of the school and 11 for the second. Each of these micro organisations selects three participants to attend the school. Training is provided in three areas: 1) network infrastructure and services, 2) policy and regulations, and 3) sustainability. In practical terms, participants are equipped with skills to apply for the Community Network and Service Provider (CNSP) License with the Communication Authority. Some of the CNSP licence application requirements are schematic network diagrams, agreements on infrastructure sharing, and a human resource development plan, among others. Besides being a CNSP licence holder, an additional requirement to apply for USF funding is to have a sustainability plan. The sustainability of USF projects was a major concern raised by key stakeholders during the access gap study. Sustainability sessions provided by the school focus on community ownership, leadership, financial management and choice of technologies. The curriculum changed in the second iteration to include local content creation.

2.3. Brazil

FUST (Fundo de Universalização dos Serviços de Telecomunicações), the Brazilian USF, was originally created to expand universal fixed telephony in Brazil, but has barely been used since revenue started being collected in 2001. As of May 2021, FUST had collected over BRL 23.5 billion, approximately USD 4.6 billion. While only 0.01% of the funds collected were used for universal access, most of the resources were used to ensure fiscal surplus and pay government debts.[31] An operational audit carried out by the Federal Court of Audits in 2017 observed that less than 5% of telecommunications funds[32] were allocated to inspection activities of telecommunications services, 14% were redirected to other funds, and 81% of the funds were used by the National Treasury Secretariat for various purposes, only some of which can be tracked.[33]

FUST is managed by the Ministry of Communications and in 2020 it was reformed to enable USF financing to be employed in broadband connectivity projects as well. At the same time,

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as KICTANet in Kenya. For more information, see: APC. (2022, 26 May). Meet the national schools empowering grassroots communities to bridge the digital divide. https://www.apc.org/en/node/38092

[31] Alliance for Affordable Internet. (2021c). Op. cit.

[32] The audit complied with a request from the Brazilian National Congress to carry out inspections regarding the collection and application of resources from country's telecommunications funds: the Telecommunications Inspection Fund (FISTEL), Fund for Universalization of Telecommunications Services (FUST), Fund for Technological Development Telecommunications (FUNTTEL), and the Contribution to the Development of the National Film Industry (Condecine).

[33] https://portal.tcu.gov.br/imprensa/noticias/apenas-5-dos-fundos-de-telecomunicacoes-sao-usados-para-sua-finalidade.htm

Anatel,[34] the Brazilian telecommunications regulatory authority, started drafting proposed regulations to effectively operationalise the fund. Anatel acknowledges the importance of community networks: it declared the existing SLP license category (Serviço Limitado Privado, or restricted private service) as the regulatory mechanism through which community networks could operate in Brazil.

Anatel supported APC's publication of the report *Policy brief and recommendations for enabling community networks in Brazil.*[35] After engaging with various stakeholder groups throughout 2021, APC provided a set of recommendations to Anatel on how to include community networks into their regulatory framework, and identified key regulatory and policy adjustments and alterations that would benefit community networks such as access to spectrum, backhaul, funding, technical training and licensing.

The report criticised the SLP license category for not being a good fit for community network operations, as it imposed several restrictions and barriers. In terms of USF funding, the following recommendations about the use of FUST for community networks were included:

- Community network representatives should be included in the FUST Council, and have a voice, as well as at FUNTTEL (Fundo para o Desenvolvimento Tecnológico das Telecomunicações, the Fund for the Technological Development of Telecommunications, managed by the Ministry of Communications).
- Funding should be allocated to community network projects across the country, and especially support the initial capital expenditure costs (CAPEX).
- Funding for women-led, Indigenous or quilombola (descendants of Afro-Brazilian escaped slaves) community networks in underserved communities should be prioritised.
- FUNTTEL should consider community networks as possible beneficiaries of funds when they are developing technology for community networks such as LibreRouter.
- Community networks should be incentivised to use locally manufactured open source equipment via FUNTTEL/FUST funding.
- The procedure for obtaining a community network licence should be simplified.
- Generally, ICT policies should be designed and implemented using a gender perspective methodology.

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[34] https://www.gov.br/anatel
[35] Labardini Inzunza, A., & Zanolli, B. (2021). *Policy brief and recommendations for enabling community networks in Brazil.* APC. https://www.apc.org/sites/default/files/policy_brief_brazil_eng_final.pdf

Currently, there is an open dialogue between the Ministry of Communications and the community networks movement. Whether it will result in including community networks as potential recipients of USF funding remains to be seen. At the Internet Community Networks Encounter in São Paulo in November 2022, representatives of different stakeholder groups gathered to discuss and share their experiences. The subject of using USFs to support community networks was also discussed, with high hopes with the transition to the new government.[36]

In fact, the recently elected government in Brazil adopted a new law which instituted the National Digital Education Policy (Política Nacional de Educação Digital, PNED) in January 2023.[37] The policy is based on the dialogue between different government programmes across sectors, in order to enhance standards and increase the impact of public policies related to the Brazilian population's access to digital resources, tools and practices, with priority given to the most vulnerable populations. Apart from budget allocations and donations, these actions will also be funded by FUST and FUNTTEL. Among other actions, PNED provides for the implementation and integration of connectivity infrastructure for educational purposes, which includes universalisation of school connectivity to high-speed internet with adequate equipment for internet access in educational environments, and promotion of digital educational content. Another recent resolution establishes accountability and reporting forms for the FUST.[38] Monitoring the execution of programmes, projects, plans, activities, initiatives and actions carried out by entities benefiting from non-refundable FUST resources will be carried out by financial agents. Community networks have not been specifically mentioned, as of yet.

2.4. South Africa

From a licensing perspective, the process of making a community network legal in South Africa has been well documented and elaborated by the founders of the Zenzeleni community

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[36] Prado, D. (2022, 24 November). Community networks movement calls for supportive policy and regulation in Brazil. *APC*. https://www.apc.org/en/news/community-networks-movement-calls-supportive-policy-and-regulation-brazil

[37] http://www.planalto.gov.br/ccivil_03/_Ato2023-2026/2023/Lei/L14533.htm

[38] https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?data=17/01/2023&jornal=515&pagina=6&totalArquivos=31

network.[39] By registering the network as a cooperative, Zenzeleni was able to obtain a network service exemption for being a private network. In this case, the service provision license was exempt due to the non-profit nature of the cooperative: non-profit operators are recognised and mentioned in the Electronic Communications Act[40] as eligible for licence exemption. If exempted from holding a licence, one is exempted from paying registration, renewal and annual fees. The cost of registering a cooperative is almost negligible, less than USD 30.

This does not mean that there are no challenges when it comes to adoption and expansion of community networks. Limited resources of cooperatives or small local internet service providers (ISPs) make it difficult to expand access to every user. A licence exemption is not the same as being a licence holder – for example, licence exempt community networks are not eligible to apply for universal service funds. In South Africa, USFs are managed by an independent agency, the Universal Service and Access Agency of South Africa (USAASA), which has faced repeated allegations of corruption and mismanagement of funds.[41]

Although South African community networks do not qualify for universal service funds, there are some examples where it was possible to tap into other sources of public funding. A national award for best innovation with social impact led to Zenzeleni Networks receiving support from the Department of Science and Innovation, specifically its Technology Innovation Agency. The funding was used to seed a second cooperative. The fact that the South African branch of APC's National Schools on Community Networks is co-funded by multiple government bodies and agencies shows the official commitment to support their growth and uptake. These co-funding entities are the Northern Cape Department of Economic Development and Tourism, the Technology Innovation Agency, the University of the Western Cape, and the Department of Science and Technology.

Given the lack of recognition for community networks by many public entities, engaging with a range of ministries and departments overseeing related portfolios (such as Science and

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[39] Rey-Moreno, C., Tucker, W. D., Cull, D., & Blom, R. (2015). Making a community network legal within the South African regulatory framework. *ICTD '15: Proceedings of the Seventh International Conference on Information and Communication Technologies and Development*. https://doi.org/10.1145/2737856.2737867

[40] https://www.gov.za/sites/default/files/gcis_document/201409/a36-050.pdf

[41] Lewis, C. (2019). *The Universal Service (and Access) Agency (of SA) (1994 – 2014).* SSRN. https://dx.doi.org/10.2139/ssrn.4087670

Technology, Social and Economic Development) for support has proven to be a good alternative to harness funding from the public financing mechanisms.

Zenzeleni has been continuously participating in ICT-related public consultations, e.g. in public consultations to address changes to the Electronic Communications Amendment Bill, proposed policy and policy directions on licensing of unassigned high-demand spectrum, among others, always defending the interests of community networks and small non-profit ISPs.

2.5. Indonesia

Since 2015, the Indonesian government has implemented village fund programmes with the intention to support local government administration, infrastructures and community development in rural and remote areas. Although these funds do not yet cover the telecommunications sector, there is an ongoing exploration of funding access for village-owned telecommunications through locally administered funds.

A new regulation encourages the creation of village-owned enterprises (BUMDes) or joint village-owned enterprises (BUMDesma), and explicitly mentions the eligibility of projects related to ICTs as part of national priority programmes. Within that regulation, projects based on the procurement of ICT infrastructure including internet provision are listed as an example.[42]

2.6. Papua New Guinea

In Papua New Guinea, legislation empowers regulators to issue "mandatory instruments", which gives them some leeway to license non-traditional entities, including community networks. This allows these entities to receive USF funding to improve internet access.[43] Internet Society approached the regulator to establish the country's first community network, which was funded using Papua New Guinea's Universal Access and Service Fund (UAS Fund).[44] As a result, the regulator included community networks in its 2022 project proposals for the fund, opening new doors for financing.

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[42] https://dpmpd.kaltimprov.go.id/download/peraturan-permendes-nomor-7-tahun-2021-tentang-prioritas-penggunaan-dana-desa-tahun-2022

[43] Internet Society. (2019). *Report on the Asia-Pacific Regional Community Networks Summit 2019 – Innovating to Connect the Unconnected*. https://www.internetsociety.org/wp-content/uploads/2019/10/APAC_CN_Summit_2019_Report.pdf

[44] https://www.internetsociety.org/impact-report/2021

In 2022, Papua New Guinea's National Information and Communications Technology Authority, which manages the UAS, issued a consultation paper on the Universal Access and Service (UAS) Strategic Plan for 2023-2027.[45] The Meaningful Connectivity Initiative focuses on the demand side and its three main components are digital literacy, ICT applications and content, and device support. The list of proposed UAS projects for 2023 includes a community network project within the Broadband Internet Initiative.[46]

2.7. Dominican Republic

The Dominican Republic issued a Decree in 2021, with the country's 2030 Digital Agenda, which specifies community networks as potential beneficiaries of the country's universal service fund. It explicitly states that the USF should "support the deployment of last-mile community networks in rural and semi-urban areas not reached by private investments."[47] Indeed, some results are already positive. In 2020, one third of USF resources were awarded to small and medium-sized enterprises (SMEs), the public sector, and community networks – basically stakeholders who did not have easy access to these funds before.[48]

2.8. Eastern Caribbean Telecommunications Authority (ECTEL)

A universal service fund has been established in each ECTEL member state (St. Lucia, Saint Kitts and Nevis, Dominica, Grenada, and Saint Vincent and the Grenadines) for the promotion of universal service. Some national telecommunications regulatory commissions of the ECTEL member states interpret the definition of "universal service" widely enough to include the provision of equipment to enable persons with disabilities and other groups to make use of ICTs. ECTEL's new draft framework requires national authorities to achieve universal service and universal access. The draft proposes to allow non-licensees, such as community groups, NGOs, and other non-telecommunications providers, to bid for funds.[49]

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[45] https://uas.nicta.gov.pg/images/2023_public/UASStrategicPlan2023-2027.pdf
[46] https://uas.nicta.gov.pg/images/2023_public/ProposedUASProjects2023.pdf
[47] Article 2.1.4 of Decree 527/21. https://presidencia.gob.do/decretos/527-21,
[48] Alliance for Affordable Internet. (2021c). Op. cit.
[49] Bleeker, A. (2019). *Using universal service funds to increase access to technology for persons with disabilities in the Caribbean*. Economic Commission for Latin America and the Caribbean. https://repositorio.cepal.org/bitstream/handle/11362/44913/1/S1900752_en.pdf

3. Role of civil society in the advocacy process

The role of civil society and their engagement with national authorities, to transform existing universal service funds, is indisputable.

Apart from advocacy work on a very specific topic such as the use of USFs and public funding, most CSOs mentioned in this report participate in calls for public consultations issued by relevant authorities, on a regular basis in their respective jurisdictions.

Some commonalities identified in the advocacy process by CSOs in selected countries are:

- Initial engagement/starting the dialogue – often with help from large international CSOs.
- Continuous engagement post regulatory intervention (local capacity building).
- Ongoing participation in public consultation processes.
- Using a gender-responsive approach in their advocacy work.
- Addressing the sustainability aspect of community networks.

For successful changes in the regulatory and policy landscape, it is essential that CSOs establish relationships with government bodies, such as regulators and ministries, and that they be included as key stakeholders in future regulatory and policy consultations. It also is critical for traditional operators to consider CSOs as partners and part of the policy-regulatory landscape rather than as competitors.

3.1. Recommendations

One of the major recurring costs for community networks and other complementary access solutions is the cost of backhaul. For community networks to be sustainable beyond initial grant funding, which often covers initial CAPEX costs, support ideally would be provided from public funding sources (including USFs) to cover backhaul costs. USF support does not have to be monetary: it can be in the form of access to fibre and subsidies for backhaul costs – this way, incumbents would get back part of their contributions to the USF. One recommendation would be to test and pilot new financing mechanisms, for example, by establishing regulatory sandboxes.

3.1.1. Regulatory sandboxes, testbeds and pilots for public funding of community networks

A regulatory sandbox provides relaxed requirements and thereby facilitates testing of new models with significantly reduced regulatory risk. For example, in the financial sector there is a growing trend for regulatory sandboxes to promote innovation in the sector while staying alert to emerging risks. Most sandboxes in the telecom sector are related to testing of 5G technologies; examples include Colombia, Thailand, France and South Korea.[50] However, Colombia's Regulation Communications Commission (CRC) proposed a regulatory sandbox that is somewhat more broadly defined. The regulator specifies telecommunication network and service providers, whether multinational or community-based entities, as eligible to participate in the testing of new products, services and solutions in any aspect of the ICT sector, within specified geographic areas under a flexible regulatory regime or with regulatory exemptions.[51]

In the context of public funding for community networks, a regulatory sandbox could facilitate testing of new regulatory prototypes to integrate grassroots, bottom-up initiatives and community actions into the conventional regulatory landscape. However, the first step is to officially recognise these complementary solutions. Sandboxes usually do not address the funding challenge, but by using the regulatory protection they provide, combined with financing from USFs and other public funds, they could provide a practical way to test the efficacy of both regulatory measures and financing mechanisms.

A sandbox differs from an experimental licence to test a wireless technology – it is more of a regulatory waiver or regulatory beta test. The problem arises when the sandbox period ends: some communities may revert to their initial state of connectivity, if not anchored in the right governance and public service principles. For example, in the case of Colombia, the CRC sandbox is more commercially driven and targeted to big operators who already hold a cellular spectrum license – therefore not designed for those who intend to connect the unconnected and who need funding to build out their community networks. Colnodo, a Colombian non-profit organisation, and the Internet Society chapter in Colombia, requested to be included in the regulatory sandbox of the CRC in order to determine how mobile internet services could be offered through the community network in Buenos Aires, Department of Cauca, and to define a

[50] Attrey, A., Lesher, M., & Lomax, C. (2020). *The role of sandboxes in promoting flexibility and innovation in the digital age*. OECD. https://goingdigital.oecd.org/data/notes/No2_ToolkitNote_Sandboxes.pdf

[51] https://digitalregulation.org/case-study-regulatory-sandbox-framework-in-colombia

regulation for its operation. In the end, the inclusion was not accepted because the CRC could not grant the permission to use the spectrum that is under the authority of the Ministry of ICT. Technologically speaking, the cellular community network RedINC[52] (supported by Colnodo) was a success and provided valuable knowledge on technical, economic and legal aspects that were delivered to the Ministry of ICT, and yet its inclusion in the sandbox was denied.[53] The previously connected communities remained disconnected, which is clearly a setback in terms of digital inclusion.

Experiments and pilots are essential for testing financing mechanisms, too, by testing incentives that USFs could provide for local connectivity. Priority should be given to communities that are inclusive, already have some governance structure (collective decision making), and participate in capacity-building programmes. Whether this is framed as a sandbox or pilot, an evaluation mechanism should be in place as well as a plan for continued operations beyond the experimental period. Rules for participation/application should be enabling, instead of creating additional barriers.

Lack of coordination between institutions and lack of holistic public policy for affordable access significantly delay progress in achieving meaningful connectivity for all.

4. Conclusion

At the moment, most USFs are locked in by businesses and big telcos, while programmes have been delayed due to corruption or regulatory inertia. Most USFs currently in place need a major revamp.

The fact that community networks are more consultative than top-down deployed networks, and that in many countries there are fewer institutional and corporate barriers, gives people more opportunity to participate and shape their own connectivity solutions to suit local needs, empowering those who need it most: marginalised and historically excluded groups, including gender groups. This paper identifies possible opportunity areas for changes to the scope of universal service regulations and management of universal service and access funds that may benefit community network projects.

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[52] https://redinc.colnodo.apc.org
[53] A timeline of the experience is available at: https://www.internetsociety.org/issues/community-networks/success-stories/redinc

Community networks are being increasingly recognised at the international level, for example at the ITU, CITEL, OECD and G-20, and by national governments like those of Argentina, Brazil, Kenya and Papua New Guinea. What has definitely helped are the global policy and advocacy efforts led by organisations such as APC, the Internet Society, the Internet Governance Forum Dynamic Coalition on Community Connectivity, ARTICLE 19, Connect Humanity, and others. Community networks and their associated movements are helping drive change on licensing, funding, spectrum allocation and assignment, and universal service funds. They are shaping the connectivity discourse from the bottom up, and influencing policy making – both on a national and global scale.

However, advocating for the use of USFs to fund complementary network solutions like community networks needs to happen on the national level first, directly with the fund holder. The work of local (often grassroots) CSOs is essential in shaping policy and regulatory practices with policy makers and regulators.

Regulators and USF managers (which in many cases is the regulator itself, but often the ICT ministry or an independent agency) need to be aware that community networks exist, that they are a complementary access solution, and that their potential to bridge the digital divide in the local, national context is a key part of the overall connectivity landscape in a country. They are not a threat; rather, they are an opportunity to connect many more unserved and underserved communities. Ideally, community network representatives would have a seat on USF management boards, or be able to participate in their governance by other means.

Flexible licensing (which would allow more actors in the connectivity provision landscape), spectrum, and access to USFs are issues that reinforce each other for better regulatory and public good. From the regulatory perspective, the focus should be holistic to improve the overall ecosystem. However, advocacy efforts are better kept separate. Generally, ICT policies – including financing mechanisms such as USFs – should be designed and implemented considering aspects of inclusion and gender.

Civil society plays a big role in shaping the connectivity discourse and influencing policy and regulations. However, their engagement with policy makers and regulators is a continuous process, and therefore needs continuous support and funding.