

# **POLICY BRIEF AND RECOMMENDATIONS FOR AN ENABLING ENVIRONMENT FOR COMMUNITY NETWORKS IN BRAZIL**

## **EXECUTIVE SUMMARY**

October 2021



# EXECUTIVE SUMMARY

In January 2020 the Brazilian National Telecommunications Agency (Anatel) acknowledged the contribution that community networks make, in developing and developed countries, to the universalisation of access, and decided that such networks may operate in Brazil by using the limited private service authorisation regime (SLP). Consistent with this line of thinking, the agency proposed a number of projects that complement each other and are intended to increase access through providers of various sizes, including community networks and small operators, in the 2021 Structural Plan for Telecommunications Networks (PERT).<sup>1</sup> The projects do not mention explicitly how community networks will be enabled or supported by each (or some) of these projects, but many possibilities exist for creating regulatory, policy and funding opportunities for local, small-scale operators that, with affordable technologies already in the market, may sustainably provide internet connectivity, community media and voice and data communications on a non-profit basis.

The footprint of community networks is still small in Brazil. This is due to the limited awareness of the existence of these community-owned infrastructures and the opportunities to self-provide communications services, and also due to regulatory barriers and lack of technical skills, especially among rural or remote communities, or communities of vulnerable people.

The Association for Progressive Communications (APC), with support from the UK Digital Access Programme and the collaboration of Anatel and a diverse committee of experts working in different organisations with communities or in universal access projects in Brazil, has identified barriers, challenges and opportunities to enable Brazilian community networks by recommending key regulatory and policy changes that would make a difference in areas such as access to spectrum, backhaul, funding, technical training and licensing.

The policy brief we hereby present to Anatel includes recommendations and specific proposals to enable community networks in Brazil, considering extensive research in both the global and Brazilian context, the state of the art of these small, not-for-profit players and the findings and experiences of 32 interviewees all related in some capacity to Brazilian community networks: internet access, spectrum management, the digital divide or research on information and communications technology (ICT) projects.

We hereby summarise the priority areas that need to be addressed and the recommendations to reduce barriers and unlock the potential of Brazilian community networks.

<sup>1</sup> <https://sistemas.anatel.gov.br/anexar-api/publico/anexos/download/7838beee0e7f5837d491fd26413cb46>

PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>Open dialogue with communities</b>	
<b>Anatel</b>	<p><b>Near term</b></p> <ul style="list-style-type: none"> <li>● Open a dialogue channel with communities, meso organisations, academia and technical community supporting community networks, with purpose, agenda, goals and indicators to be mutually agreed upon.</li> <li>● Plan towards creating a formal community networks committee.</li> <li>● Advocate at the Telecommunications Universal Service Fund (FUST) to include community network representatives in the council.</li> </ul>
<b>Anatel/National Indigenous Foundation (FUNAI)</b>	<p><b>Near term</b></p> <ul style="list-style-type: none"> <li>● Consult Indigenous and tribal communities according to International Labour Organization (ILO) Convention 169<sup>2</sup> on the issues of community network regulation and policy impacting Indigenous and quilombola communities.</li> </ul>
<b>Anatel</b>	<p><b>Mid term</b></p> <ul style="list-style-type: none"> <li>● Create a community networks committee, similar to the small-scale providers' committee operating within Anatel.</li> </ul>

<sup>2</sup> [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C169](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169)

PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>Affordable access to spectrum</b>	
<b>Anatel</b>	<p><b>Near term</b></p> <p><b>a) Spectrum used by restricted radiation equipment</b></p> <ul style="list-style-type: none"> <li>● Review technical restrictions on the gain for point-to-point (PtoP) – 2.4 GHz.</li> <li>● Review 10 MW/MHz power limits and Effective Isotropic Radiated Power (EIRP) in 5150-5350 MHz for backhaul links.</li> <li>● Review limits to antenna gain in 5725-5850 MHz for PtoP links.</li> <li>● Consider adding bands such as 24 and 60 GHz for PtoP and point-to-multipoint (PtoMP) links for community networks/SLP.</li> </ul> <p><b>b) TV white spaces</b></p> <ul style="list-style-type: none"> <li>● Allow for the experimental use of TV white spaces when regulations and database are ready. Only symbolic fees to be charged, or none in underserved areas (sandbox for experimental community network use).</li> </ul> <p><b>c) High frequency radios for remote areas</b></p> <ul style="list-style-type: none"> <li>● Enable access to high frequency (HF) multichannel frequencies and expedite authorisations for community networks (first as SLP) and for the registration of stations.</li> <li>● Reduce public price for the right to use radio frequencies (PPDUR)/ installation inspection fee (TFI) per station or coverage area for community network use.</li> </ul>
<b>Anatel</b>	<p><b>Mid term</b></p> <p><b>a) Shared local access to licensed international mobile telecommunications (IMT) spectrum: “Use-it-or-share-it” policy for personal mobile device (SMP) authorisations.</b> Not as a secondary market but as a secondary use authorised and managed by Anatel. Five-year sharing for wireless community networks in rural and remote areas.</p> <p><b>b) Sharing of 5G spectrum for community networks, not as a secondary market</b> through a public reference offer for SMP which would exclude not-for-profit providers. Instead include use-it-or-share-it policy managed by Anatel.</p> <p><b>c) Designate IMT bandwidth for rural local wireless access under a community network regime (non-profit) in communities where there is no scarcity of wireless broadband access, in different bands, especially those under 1 GHz, where affordable equipment is available.</b></p> <p><b>d) Spectrum access for backhaul at low fees</b></p> <ul style="list-style-type: none"> <li>● Review the Act 4800/2020<sup>3</sup> to consider including special enabling conditions (including low fees) for community networks/SLP using the 10.5 and 11 GHz bands for backhaul links (PtoP and PtoMP) in localities with fewer than 200,000 people.</li> </ul>

<sup>3</sup> [https://sso.acao.gov.br/login?client\\_id=sistemas.anatel.gov.br&authorization\\_id=17bc6859cbc](https://sso.acao.gov.br/login?client_id=sistemas.anatel.gov.br&authorization_id=17bc6859cbc)

PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>Licensing procedures</b>	
<b>Anatel</b>  <b>SLP simplification</b>	<b>Near term</b> <ul style="list-style-type: none"> <li>● Simplification of community networks/SLP authorisation and/or registration procedures.<sup>4</sup></li> <li>● Broadening authorisation and registration exemptions for community network SLPs (to include internet access connectivity beyond a single property) for rural homes in a small village would be enabling.</li> <li>● Extend the interpretation of condominium in Article 12 (Resolution 720/2020) so that community networks in rural or remote communities need no authorisation under Article 12.</li> </ul>
<b>Anatel</b>  <b>Community network special regime</b>	<b>Mid term</b> <p><b>a) Wi-Fi, Wi-Fi mesh community networks</b></p> <ul style="list-style-type: none"> <li>● No authorisation, no registration of equipment required when using only restricted radiation equipment. To only notify start of operations as a community network to Anatel, with a sustainability plan. Consider an off-line format for communities with no internet access.</li> </ul> <p><b>b) Wired or wireless community network providing any other community services or broadcast media using fibre or equipment of restricted radiation</b></p> <ul style="list-style-type: none"> <li>● No authorisation required for community networks with fewer than 5,000 subscribers.</li> <li>● Registration of equipment used for Wi-Fi backhaul Wi-Fi bands.</li> <li>● Authorisation required for spectrum use in other than Wi-Fi bands.</li> <li>● Discounted PPDUR, TFI and any other applicable fees for community networks.</li> <li>● Clear rules to be eligible for a community network regime with the understanding that the network is a community-owned and managed network infrastructure designed to serve the community's communication and information needs, preferences and values on a not-for-profit basis.</li> <li>● Affordable access to backhaul. Preferential rates in public backhaul networks for community networks.</li> </ul>

<sup>4</sup> <http://sistemas.anatel.gov.br/se/>

PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>Open access to backhaul networks</b>	
<b>Anatel</b>  <b>Anatel/CADE (competition regulator)</b>	<b>Near term</b> <ul style="list-style-type: none"> <li>● Open wholesale backhaul public reference offers (PRO) for SLP/ community networks.</li> <li>● Allow for a special PRO for non-profit providers (community networks).</li> <li>● Anatel negotiates reduced priced backhaul for community networks in public sector backhaul networks and state satellite.</li> <li>● Demand transparency in backhaul markets as few use wholesale offers negotiation system (SNOA).</li> <li>● Open access policies for backhaul for community networks (non-profit) both in coverage obligations in spectrum auctions, Conduct Adjustment Agreements (TACs) and rural internet service providers (ISPs).</li> <li>● Initiate the investigation of backhaul-relevant markets or a market study on backhaul PRO.</li> </ul>
<b>FUST and FUNTTEL</b>	
<b>Anatel</b>	<ul style="list-style-type: none"> <li>● Propose a seat for a community network representative on the councils of FUST and the Fund for the Technological Development of Telecommunications (FUNTTEL).</li> </ul>
<b>FUST and FUNTTEL councils</b>	<ul style="list-style-type: none"> <li>● Allocate funding to community network projects in every region of the country specifically for initial CAPEX.</li> <li>● Prioritise funding for women-led, Indigenous or quilombola community networks in underserved communities.</li> </ul>
<b>FUNTTEL council</b>	<ul style="list-style-type: none"> <li>● Anatel advocates before FUNTTEL for considering SLP or community networks as possible beneficiaries of funds when they are developing technology for community networks such as LibreRouter.<sup>5</sup></li> </ul>

<sup>5</sup> <https://librerouter.org>

PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>National industry development</b>	
<b>Federal government</b>	<ul style="list-style-type: none"> <li>● Import tax exemption or significant reduction for community network equipment, components and free/libre and open source software (FLOSS).</li> <li>● Further incentivise the use of open source in the development of standards of routing and Wi-Fi technologies.</li> <li>● Incentivise through tax exemption and FUNTTEL/FUST funding, use of technologies for community networks such as routers and antennas, especially those that use FLOSS, from local, small not-for-profit manufacturers.</li> </ul>
<b>Anatel</b>	<ul style="list-style-type: none"> <li>● Lower or exempt homologation fees (type approval) of non-profit FLOSS technologies and exempt type approval of equipment which has only changed firmware.</li> </ul>
<b>Community media promotion</b>	
<b>Ministry of Communications</b>  <b>Broadcasting secretariat</b>  <b>Anatel</b>	<ul style="list-style-type: none"> <li>● Allocate more FM frequencies for community radios.</li> <li>● Relax power limits (25 W) and distance coverage (1 km).</li> <li>● Support Bill PL 10637/2018 which has senate approval.</li> <li>● End the criminalisation of genuine, non-profit community radio broadcasters as it is contrary to Inter-American standards of freedom of expression.</li> <li>● Launch campaign on the importance and nature of community radio.</li> <li>● Provide training to federal police and Anatel about standards of freedom of expression and human rights-based law enforcement.</li> <li>● Dialogue with communities for a strategy to promote community television and support radio and audiovisual content as key to pluralism.</li> <li>● Incentivise the digitalisation of broadcast radio and choose an open standard like Digital Radio Mondiale (DRM), that is not-for-profit, open-source and widely used internationally.</li> </ul>



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<b>Transparency and open data for community networks</b>	
<b>Anatel and Ministry of Communications</b>	<ul style="list-style-type: none"> <li>● Increase efforts around granular open data on access and backhaul networks.</li> </ul>
<b>Anatel</b>	<ul style="list-style-type: none"> <li>● Collect and publish precise information on authorised or registered SLPs that operate as community networks in each municipality.</li> <li>● Increase transparency of actual occupation of IMT, VHF and UHF bands and PtoP and PtoMP bands.</li> <li>● Create a community network and media website similar to the small-scale internet service providers (PPP) portal.</li> </ul>
<b>FUNAI and Anatel</b>	<ul style="list-style-type: none"> <li>● Gather and publish maps of coverage and services in Indigenous territories and quilombos.</li> </ul>
<b>Gender equality affirmative actions</b>	
<b>Anatel</b> <b>Ministry of Communications</b> <b>FUST</b> <b>FUNTTEL</b> <b>State/local governments</b>	<ul style="list-style-type: none"> <li>● When designing or implementing ICT policy, apply a gender perspective methodology to anticipate possible unintended impacts, bias and barriers.</li> <li>● Include affirmative action policies that benefit women’s digital inclusion, access to community networks, devices, content and technical training.</li> <li>● Conduct periodic surveys, focus groups and dialogue with women from diverse contexts, age, race and socioeconomic groups.</li> <li>● Develop indicators, statistics, and gather data with gender and race perspectives.</li> </ul>



PRIORITY AREAS	SUMMARY OF RECOMMENDATIONS
<b>Recommendations for collaborative work</b>	
<p><b>Anatel</b></p> <p><b>PPPs</b></p> <p><b>National Teaching and Research Network (RNP) and universities</b></p> <p><b>Wi-Fi Brasil, Brazilian e-Government Initiative (GESAC) and Internet Para Todos</b></p> <p><b>Telebras</b></p>	<ul style="list-style-type: none"> <li>● Backhaul and capacity building.</li> <li>● Collaboration between community networks and PPPs, which could become backhaul providers while the community networks may service the first mile.<sup>6</sup></li> <li>● Collaboration of RNP by providing access to their points of presence (PoP) at low or no cost.</li> <li>● Educational collaborations between community networks, RNP and universities by providing capacity building for community networks' needs, while they can exchange practical field knowledge and serve as test beds.</li> <li>● GESAC/Wi-Fi Brasil projects could increase bandwidth so their internet can be distributed along the community territory by the community networks. In addition, Wi-Fi Brasil could have a special category of applications to contemplate such networks.</li> <li>● Telebras could donate satellite backhaul capacity or fibre broadband to community networks in exchange for the first mile being done by the networks. In addition, the institution could provide capacity building on satellite backhaul and fibre backhaul.</li> <li>● Anatel can lead these collaborations by advocating in favour of community networks.</li> </ul>

<sup>6</sup> Given the vital role that community networks can play in providing connectivity to the billions left behind by current strategies that see local access as the "last mile", we prefer to use the term "first mile" to reinforce the centrality and importance of local access for end-users in connecting those who remain unconnected. More information available at: <https://www.apc.org/en/node/35657>

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presented to the  
Agência Nacional de Telecomunicações



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