Comments in respect of the Provisioning of Mobile Broadband Wireless Open Access Services for Urban and Rural Areas Using the Complementary Bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500

Submission Date: 31 January 2020

Attention:

Mr. Davis Kgosimolao Moshweunyane

Tel: +27 (0) 12 568 3497

Email: DMoshweunyane@icasa.org.za

Table of Contents

Introduction

In the Public Notice 597 in Government Gazette No. dated 1 November 2019 on the Licensing Process for International Mobile Telecommunications (IMT) Spectrum, the Independent Communications Authority of South Africa (ICASA) invited interested stakeholders to submit their Comments in respect of the Provisioning of Mobile Broadband Wireless Open Access Services for Urban and Rural Areas Using the Complementary Bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500. The following organizations are herewith submitting their comments with the common objective to help create a quality and affordable telecommunications service to all South Africans, especially those in rural areas:

- Zenzeleni Networks, zenzeleni.net

- Association for Progressive Communications, apc.org

We welcome this opportunity to contribute to the work of ICASA in such an important process.

Context

The internet is a critical enabler of human rights; from freedom of expression to access to information to privacy, and freedom of assembly. Meaningful access to the internet[1], has also an impact on development and social justice. It is a precondition for the exercise of economic, social and cultural rights, ranging from social and health safety nets, to access to education and information that increase people's agency in the world. Additionally, there is mounting evidence that broadband directly contributes to job creation[2] and stimulates economic growth. For countries and individuals to realise the benefits that accrue from broadband investments and for people to exercise the right to communicate, telecommunications infrastructure must be accessible, affordable, and reliable. In an increasingly interconnected world, it is easy to forget that many people, especially women and minorities living in the rural areas, lack this basic service.

Despite having nearly all population covered by mobile broadband services, just over half of South Africans use the internet (56.17% according to the International Telecommunications Union[3] with a 12% gender gap in internet uptake[4]). One of the main drivers behind this low uptake is the lack of *affordable* services. Although on average mobile broadband internet might appear affordable (2.50% of monthly GNI per capita for 1 GB of mobile broadband data[5]), the

---

[1]"Meaningful internet access" should be construed as pervasive, affordable connection (of sufficient quality and speed) to the internet in a manner that enables individuals to benefit from internet use, including to participate in the public sphere, exercise human rights, access and create relevant content, engage with people and information for development and well-being, etc.; irrespective of the means of such access (i.e. whether via a mobile or other device; whether through private ownership of a device or using a public access facility like a library). See: www.intgovforum.org/multilingual/index.php?q=filedepot_download/3406/437

[2] The Arrival of Fast Internet and Employment in Africa
https://www.aeaweb.org/articles?id=10.1257/aer.20161385

[3] Percentage of Individuals using the internet is found in latest ITU database (2000-2018): https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

[4] https://researchictafrica.net/wp/wp-content/uploads/2019/05/2019_After-Access_Africa-Comparative-report.pdf
Similar stats for other African countries below use this source.

[5] Monthly GNI per capita for 1 GB of mobile broadband data is found in the A4AI online index: https://a4ai.org/affordability-report/data/?_year=2019&indicator=INDEX.

substantial income inequality in the country masks large connectivity differences between the wealthy and poor. Rural South Africans who currently use a 1GB prepaid data bundle are paying, on average, 60% of their disposable income for it[6]. Worse still, poor people can often only afford smaller bundles, with an even higher cost per MB resulting in an even higher percentage of their disposable income being spent for internet access. The Competition Commission has stated that the lack of data transparency amongst mobile network operators is undermining competition and that this is reflected in this kind of anti-poor pricing[7]. This reality challenges the vision of the National Development Plan to achieve a "dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous".

Rationale

There have been several attempts over the past ten years to satisfy demands for International Mobile Telecommunications (IMT) spectrum by network operators in order to ensure universal service and access to affordable and secure broadband services by all South Africans. The recently-published Information Memorandum (IM) takes the essential step of increasing the amount of available spectrum for IMT services from 566 MHz to 958MHz in the immediate future.

However, lessons from around the world have shown that simply making spectrum available is not a guarantee of either competition or universal service and access. In order to address this, the IM sets out the terms for a Wholesale Open Access Network (WOAN) as well as coverage obligations for successful licensees.

Both for the WOAN or for other licenses there is a natural commercial incentive to start using this spectrum in places where they would obtain the speediest return on investment. This puts the licensees somewhat at odds with the IM's goal for "*increasing universal service and universal access through prioritising rural connectivity and inclusivity*". The proposed coverage obligations in section 6.2.1 of the IM suggest that an approach similar to that used by the German government in the 800MHz auction in 2010 be used. These obligations required successful spectrum licensees in the 800MHz band to roll out infrastructure in designated underserved areas first. It is claimed that this led to LTE services across the country within 2 years.

While we believe this is a strong move in the right direction, we are concerned that similar expectations for South Africa might be optimistic given that the country has:

- over three times the land mass compared with Germany;
- ARPU levels that are half that of Germany;
- a higher percentage of people living in rural areas; and,
- a higher level of income inequality meaning that ability to pay for a significant percentage of the population is going to be much lower than average.

---

[6] Using R149 for 1GB bundle from main providers in rural areas (MTN and Vodacom) and income levels and household size for Nyandeni local municipality: https://wazimap.co.za/profiles/municipality-EC155-nyandeni/
[7] http://www.compcom.co.za/wp-content/uploads/2017/09/Data-Services-Inquiry-Report.pdf.

	Germany	South Africa
GDP per capita (USD)[8]	47,502	7,434
GINI Index[9]	31.7 (2015)	63.0 (2014)
Percent rural population[10]	23%	34%
Average ARPU across operators (USD)[11]	14.50	7.25
Surface Area (sq. km)[12]	357,580	1,219,090
Population density per sq km[13]	240	49

With existing business models, it may be simply economically infeasible for national network operators to deploy and maintain infrastructure and services in low-income, rural areas.

And coverage is only one piece of the puzzle. The problem of access needs to be solved first, but even after years of operators reporting close to universal coverage, the majority of South Africans are not benefiting from that access. One of the major barriers to this is cost, and hence it is laudable that one of the goals of this IM is "*reducing the cost to communicate specifically data costs*".

The part of the spectrum allocated for the WOAN is designed to reduce the cost of communication and increase competition by encouraging small and medium size operators to purchase wholesale capacity from the WOAN at a regional level. Part of the reason for the WOAN's ability to provide wholesale capacity at a low cost is due to spectrum being available on a reduced or no-fee basis for the first five years.

In the case of the rest of the spectrum to be assigned to ECNS holders, it is unclear how this additional spectrum will directly translate into "*reducing the cost to communicate specifically data costs*"; in spite of promises made by existing national operators[14]. Lowering costs should not prove challenging given that costs to consumers have remained consistently high over the past 3-4 years, and are among the highest in the continent[15]. Yet it is doubtful that any reduction will be significant enough to provide affordable data communications to the lowest income sectors of the population. As history has demonstrated and the Competition Commission has related in its latest report, national operators have being actively engaged in exploitative price discrimination and partitioning strategies in order to push up margins and prices, strategies that are found to be anti-poor.

Universal affordable access to communications is a daunting but achievable challenge. However, not all affordable access strategies will contribute to the IM's goal of "*promoting the*

---

[8] https://tradingeconomics.com/south-africa/indicators & https://tradingeconomics.com/germany/indicators

[9] https://data.worldbank.org/indicator/SI.POV.GINI/

[10] https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS

[11] https://www.statista.com/statistics/668966/mobile-average-revenue-per-user-by-country/

[12] https://databank.worldbank.org/reports.aspx?source=2&country=ZAF,DEU

[13] https://www.worldometers.info/world-population/germany-population/ &
https://www.worldometers.info/world-population/south-africa-population/

[14] https://techcentral.co.za/our-prices-will-tumble-when-we-get-more-spectrum-mtn/84526/

[15] https://researchictafrica.net/ramp_indices_portal/

empowerment of historically disadvantaged groups ("HDG") in particular women, youth and people with disabilities". Achieving this goal will require strategies that go beyond assigning spectrum to large corporations or consortia, whose reason for existence is to maximize profit for shareholders; a reality which tends to lead to the marginalisation of poor and rural populations[16].

Over the past decade important examples of innovative community-owned and small-scale local access service provision have emerged. These models, which complement existing traditional access infrastructure, enable historically disadvantaged communities to obtain the skills to install, manage, and operate their own electronic communications services and infrastructure. In addition to providing affordable connectivity in places where it did not exist or was not affordable, community-owned networks contribute to the empowerment of marginalized populations by fostering a local economy, creating local employment, developing technical and entrepreneurial skills and contributing to the social cohesion of the communities they serve. Community-based connectivity initiatives run the risk of reinforcing existing gender inequalities and discrimination but at the same time, there are also several examples where this is being addressed explicitly and effectively. Something that cannot be addressed by initiatives with national scope far from where those inequalities and discrimination takes place.

South Africa is, and has been historically, one of the most thriving countries in the community networks space in Africa. Various universities, as well as the Council for Scientific and Industrial Research, together with Wireless User Groups, were involved in the initial stages of the movement. Some of those efforts, like Zenzeleni Networks[17], have managed to sustain their efforts over several years, and have been covered extensively in national and international media[18]. That, together with hosting the 3rd Summit on Community Networks in Africa in 2018, and the current support from national and international funding sources, it is enabling more communities to set up own their networks.

As a result, there is a need for all stakeholders to take a fresh look at how spectrum assignments can address the digital divide.

Key recommendations

The Information Memorandum sets out a clear objective of ensuring national broadband access for all, in particular the objectives of promoting the empowerment of historically disadvantaged groups and increasing universal service and access through the prioritisation of rural connectivity and inclusivity. We believe that the spectrum strategy as currently conceived is not enough to fully realise that objective and that a complementary strategy is required. It is possible to carry out any of the currently envisaged scenarios for the spectrum auction but to also make spectrum available for Underserviced Areas and communities in a

---

[16] Report found here: https://www.apc.org/en/pubs/bottom-connectivity-strategies-community-led-small-scale-telecommunication-infrastructure

[17] https://zenzeleni.net/ More information in Appendix

[18] The village that built its own wi-fi network - BBC Africa: https://www.youtube.com/watch?v=R9u-hfxAeBo

manner that addresses key issues of universal service and empowerment. This can be done without compromising the proposed auction options. We propose the following:

- **Recommendation 1**: Create a new **Shared Access License** that would permit geographically-limited use in underserved rural areas of a selection of unassigned IMT frequencies by non-for-profit community networks and small commercial internet service providers.

- **Recommendation 2**: Create a new **Local Access License** that would permit geographically-limited use of IMT spectrum by community-owned networks in underserved rural areas that is assigned to an existing operator but which is unused and of limited or no commercial interest.

- **Recommendation 3**: Establish spectrum **license fee exemptions** for not-for-profit community-owned networks in order to enhance their viability in the most challenging services areas in the country.

To give a sense of the potential impact of these recommendations, the Zenzeleni network experience to date demonstrates that it will be able to offer uncapped data vouchers for R25 per month as well as voice rates 66% cheaper than the current main operator in the area[19].

Background to Recommendations

Innovative approaches to spectrum assignment have been recommended by the Broadband Commission, which recommends using "liberal, dynamic spectrum policies"[20]. The Telecommunications Development sector of the ITU (ITU-D) has recognised:

> *"that it is also important that administrations, in their radio-spectrum planning and licensing activities, consider mechanisms to facilitate the deployment of broadband services in rural and remote areas by small and non-profit community operators"[21].*

In July 2019, OFCOM published a statement[22] that established two new types of spectrum licences intended to make it easier to access shared spectrum. It is well known that spectrum

---

[19] Modelling used from real usage patterns from research presented in: Rey-Moreno, C., Blignaut, R., May, J., & Tucker, W. D. (2016). An in-depth study of the ICT ecosystem in a South African rural community: unveiling expenditure and communication patterns. Information Technology for Development (ITD), 22(sup1): 101–120. ISSN: ISSN: 0268-1102. For this model, this is combined with real pricing received from VoIP operators in South Africa.

[20] Broadband Commission for Sustainable Development. 2019. Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030. International Telecommunications Union *and* UNESCO. [Available https://www.broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf]

[21] ITU. 2017. World Telecommunication Development Conference (WTDC-17), Final Report. Buenos Aires, Argentina, 9-20 October 2017, International Telecommunications Union [Available https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_final_report_en.pdf]

[22] https://www.ofcom.org.uk/__data/assets/pdf_file/0033/157884/enabling-wireless-innovation-through-local-licensing.pdf

occupancy in rural areas is low. These new licenses create space for novel business models to deliver affordable access where traditional operators are not inclined to invest.

It is important to highlight here that OFCOM's Shared Access and Local Access licenses detailed above have already led to partnerships and new spectrum access in the United Kingdom[23].

Shared Access License

We recommend making a limited amount of unassigned IMT spectrum available for the provision of access in Underserved Areas[24]. This can be done through the establishment of an innovative license framework similar to the Shared Spectrum License[25] established by OFCOM in 2019. The aim of creating this new category of license would be to allow ICASA to flexibly make unassigned spectrum available in a variety of IMT bands for the purpose of enabling affordable access provision to underserved regions.

IMT spectrum that remains unassigned after the spectrum auction could be considered for eligibility for a Shared Spectrum License. The specific applicable regions, eligibility and power output levels can be determined through a national consultation.

There are precedents elsewhere in the world for making IMT spectrum available a shared basis. The Mexican regulator (IFETEL) has aside IMT spectrum specifically for the use of small operators and community networks in underserved regions. After a successful pilot, the IFETEL analysed the assignments in the 850 MHz band and concluded that there was a small amount of spectrum that remained unassigned. In their 2015 Annual Program[26] for the Use and Exploitation of Frequency Bands, spectrum was assigned for "social use". In particular, 2x5 MHz of 850 MHz spectrum in 7 regions was made available to social purpose organisations, with the provision that it must be used in rural settlements with a population smaller than 2,500 people and that the regulator had the right to assign the spectrum for commercial use in the future.

Tecnologías Indígenas Comunitarias (TIC), a non-profit organisation based in Oaxaca, Mexico, holds a concession as a social telecommunications operator, and currently serves more than 4,000 active daily users spread across 70 villages and communities in the state of Oaxaca with 2G voice and data services using 2x2MHz. These users are served by 17 community-owned and operated cellular sites.

The key lesson from the Mexico case is that it demonstrates that it is indeed possible to provide spectrum for small-scale rural operators such as community owned cooperatives.

---

[23] S.MkCaskill. 2019. Vodafone is the first operator to take advantage of spectrum sharing rules. Techradar. [Available https://www.techradar.com/uk/news/vodafone-is-first-operator-to-take-advantage-of-spectrum-sharing-rules

[24] In 2012 ICASA published a definition of what comprises an "Underserviced areas" and an associated list of such areas in *South African Government Gazette, vol. 734, no. 35675, 10 September 2012.* It would be prudent for the regulator to update both the definition and the list of areas. Concomitantly the definitions for Universal Service and Access should also be updated by the Minister, as per ECA 2005 82(3).

[25] https://www.ofcom.org.uk/__data/assets/pdf_file/0035/157886/shared-access-licence-guidance.pdf

[26] http://www.dof.gob.mx/nota_detalle.php?codigo=5387867&fecha=06/04/2015

Local Access License

The second license category that OFCOM introduced is a Local Access Licence[27] that provides a way for other users to access spectrum which has already been licensed to an existing Mobile Network Operator (MNO), in locations where an MNO is not using their spectrum.

We propose that ICASA reviews and adapt OFCOM's Local Access License framework in order to enable local innovation in access from community networks and small network operators. We recommend that ICASA ensures that licenses for auctioned spectrum contain provisions for a Local Access License framework.

In South Africa, the currently available spectrum required to provide IMT services is fully assigned to six national MNOs. However, despite the debates around spectrum scarcity in the country, large amounts of IMT spectrum remains unused in rural areas.

At present, to use this unused spectrum, a prior agreement needs to be reached with one of the license-holders of the spectrum. Additionally, an application to ICASA is required for approval of a spectrum sharing agreement in terms of the 2015 Radio Frequency Spectrum Regulations. Zenzeleni Networks has approached 3 of the 4 operators with assigned, yet unused spectrum in rural areas. None of them has agreed to share their spectrum.

In its recent report, the Competition Commission of South Africa encourages ICASA to enable a framework that embraces the above licences:

> "*That ICASA consider models and regulatory changes to allow at least non-profit community networks, and possibly small commercial enterprises to access licensed spectrum not used by mobile operators in rural areas in a similar manner to television white space.*" [28].

Spectrum Fees for Community Networks

Frequency bands for IMT services are licensed. For community networks wishing to provide mobile services, this means they must pay the corresponding spectrum usage fees. In most countries, these fees must be paid prior to gaining access to the spectrum.

In South Africa, there is a formula that determines the amount to be paid by the operator[29]. This formula considers the centre frequency, the value of that band, a geographic factor, type of use (shared or exclusive), and the area and population covered, among other factors. Hence, currently a national and a community network operator in South Africa are subject to the same fee regime.

---

[27] https://www.ofcom.org.uk/__data/assets/pdf_file/0037/157888/local-access-licence-guidance.pdf

[28] Competition Commission South Africa. 2019. Data Services Market Inquiry, 24 April 2019 [Available http://www.compcom.co.za/wp-content/uploads/2019/12/Data-Services-Inquiry-Report.pdf]

[29] South Africa. 2015. Amendment of the Radio Frequency Spectrum Fees, 2010 in terms of the Electronic Communications Act, 2005. South African Government Gazette No. 38642.

Should any of the two recommendations above are implemented and community networks can operate IMT spectrum, these fees entail an additional burden for non-profit operators providing services in areas where low income is prevalent. Following, ICASA's formula, a 2x5 MHz allocation in the 700 MHz band to cover a rural community with 2000 potential users occupying an area of 40 square km e.g. Mankosi where average monthly income is around R400[30], amounts to R8,000 a year. Therefore, we recommend that ICASA consider spectrum license fee exemptions for community-owned networks, similar to those proposed for the WOAN.

Conclusion

We applaud the release of critical IMT spectrum as detailed in the IM as well as the inclusion of provisions to ensure coverage for all South Africans. However, we believe that these provisions will not be enough to affordable access for all, especially for the rural poor.

Accordingly, we propose that ICASA consider the introduction of two new license frameworks for spectrum sharing, using pioneering work by OFCOM as a base. These new licenses would permit spectrum sharing of unassigned IMT bands on a limited basis as well as sharing of assigned spectrum frequencies by community-owned networks in designated underserved regions.

We further propose that licence fee exemptions be considered for not-for-profit, community-owned networks in order to increase their viability in the most underserved regions in South Africa.

These recommendations are intended to complement the strategy proposed in the IM and will only serve to establish a more comprehensive approach to the delivery of affordable access to communication for all. Community-owned networks and small-scale operators have a critical role to play in the creation of a vibrant ICT ecosystem that serves and enables all South Africans. However, without access to IMT spectrum they will be unable to fulfill that potential.

---

[30] Rey-Moreno, C., Blignaut, R., May, J., & Tucker, W. D. (2016). An in-depth study of the ICT ecosystem in a South African rural community: unveiling expenditure and communication patterns. Information Technology for Development (ITD), 22(sup1): 101–120. ISSN: ISSN: 0268-1102.

About contributing organizations

Zenzeleni Networks

Zenzeleni is a community owned wireless internet service provider based in rural South Africa that offers quality, high speed internet comparable to the country's most developed urban centres. Its model aims to significantly cut costs of telecommunications, retain expenditure within communities as a form of social entrepreneurship, and support the development of a rural digital ecosystem towards bridging the digital divide.

Association for Progressive Communications

APC is an international network of civil society organisations founded in 1990 dedicated to empowering and supporting people working for peace, human rights, development and protection of the environment, through the strategic use of information and communication technologies (ICTs). We work to build a world in which all people have easy, equal and affordable access to the creative potential of ICTs to improve their lives and create more democratic and egalitarian societies.

Contact Person

Prof. Shaun Pather, Board Member Zenzeleni Networks & Professor, University of the Western Cape: spather@uwc.ac.za

Appendix: Background to policies and regulations supporting community networks

Different international organizations acknowledge the role of community networks in bridging the digital divide, and the type of policy and regulatory support they require.

The Broadband Commission, in its report "Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030" assumes that *"connecting the last 15-20 percent of the population in rural and remote areas, depending on the population density level, requires innovative business models"* [31].

The Report of the UN Secretary-General's High-level Panel on Digital Cooperation, among the four factors to consider to promote inclusivity, it refers to more concrete solutions and considers that to "creating the foundation of universal, affordable access to electricity and the internet will often require innovative approaches, such as community groups operating rural networks, or incentives such as public sector support." [32]

This is consistent with earlier documents such as the Recommendation 19 ITU-D: Telecommunications for rural and remote areas - The World Telecommunication Development Conference[33] that includes the following recommendation:

"*that it is important to consider small and non-profit community operators, through appropriate regulatory measures that allow them to access basic infrastructure on fair terms, in order to provide broadband connectivity to users in rural and remote areas, taking advantage of technological advances*;"

Along these lines, the Broadband Commission also mentions community networks in 3 of its 8 steps within its Roadmap. Of particular relevance is, the text within "Objective 1 Ensure that the commercial broadband ICT market is open and structurally prepared for competitive" which within its "Immediate/Short-Term Actions" recommends "*Adopt open wholesale and retail telecommunications market entry policies, especially competitive and unified licensing regimes [...]. Such policies should also accommodate community and nonprofit focused network operators who offer services in underserved areas*".

Similarly, in a recent Declaration from the Specialized Technical Committee on Communications and ICT, African member states have directed the African Union to:
"*Promote the formulation of strategy and pilot projects for Unlocking Access to Basic Infrastructure and Services for Rural and Remote Areas including Indigenous Community Networks , and develop guidelines on legislation on deployment of technologies and ICT*

---

[31] Broadband Commission for Sustainable Development. 2019. Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030. International Telecommunications Union *and* UNESCO. [Available https://www.broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf]

[32] Report of the UN Secretary-General's High-level Panel on Digital Cooperation. Available at:https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf

[33] ITU. 2017. World Telecommunication Development Conference (WTDC-17), Final Report. Buenos Aires, Argentina, 9-20 October 2017, International Telecommunications Union [Available https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_final_report_en.pdf]

applications, to accelerate infrastructure role out in collaboration with ATU and other regional institutions;" [34].

In South Africa there are several policy and legislative elements that are pertinent to the community networks model[35]. It is quite encouraging that the South African government has begun to take an interest in the community networks model. For example, during her speech at the 2018 Budget Vote to Parliament on 17 May 2018, the Deputy Minister for Postal and Telecommunications Services (DTPS), stressed the importance of CNs and acknowledged that the community ownership model advances components of the ICT Development Index and development goals highlighted in the National Integrated ICT Policy White Paper[36]. She posited, "The [CN] model further addresses the key barriers for universal access which the department's Internet for All project seeks to address" [37]. The DTPS has established a Steering Committee involving the relevant State Owned Entities (SoEs) to pursue further development of CN co-operatives as one element of operationalising its ICT SMME strategy. In addition since March 2018, the Department of Science and Technology (DST) Technology, through the Technology Innovation Agency (TIA) has supported Zenzeleni Networks NPC to investigate how a community network model could be scaled to other South African communities. This support is in line with the latest report from the Competition Commission that recommends that "*government at all levels actively promote [...] the creation and entry of community networks*"[38].

---

[34] Report from the Third Ordinary Session of the African Union's Specialized Technical Committee on Communication and Information Technologies in Sharm El Sheikh, Egypt, from 22 to 26 October 2019 https://au.int/sites/default/files/decisions/37590-2019_sharm_el_sheikh_declaration_-_stc-cict-3_oct_2019_ver2410-10pm-1rev-2.pdf

[35] https://www.dst.gov.za/images/2018/POLICY-BRIEF-COMMUNITY-OWNED-NETWORKS.pdf

[36] DTPS. 2016. National Integrated Policy White Paper. Department of Telecommunications and Postal Services, South Africa. [Available https://www.dtps.gov.za/images/phocagallery/Popular_Topic_Pictures/National_Integrated_ICT_Policy_White.pdf

[37] S. Ndabeni-Abrahams. 2018. Budget Vote 32 Address by Hon Stella Ndabeni-Abrahams, Deputy Minister of Telecommunications and Postal Services, Parliament, Cape Town. [Available https://africanewswire.za.com/deputy-minister-stella-ndabeni-abrahams-telecommunications-and-postal-services-dept-budget-vote-2018-19/]

[38] Competition Commission South Africa. 2019. Data Services Market Inquiry, 24 April 2019 [Available http://www.compcom.co.za/wp-content/uploads/2019/12/Data-Services-Inquiry-Report.pdf]

Appendix: About Zenzeleni Networks

The Zenzeleni community networks model represents an alternative for rural South Africa, offering access to high quality, truly affordable connectivity through social cooperative entrepreneurship in which communities are empowered to own and operate telecommunications cooperative businesses. Communities are assisted by a group of expert mentors to ensure legal, governance and technical compliance.

To date Zenzeleni Networks NPC has supported the incorporation of two rural telecommunication cooperatives: Zenzeleni Networks Mankosi Co-Op, and Zenzeleni Networks Zithulele Co-Op. These are South Africa's first telecommunications cooperatives, both 100% owned and managed by historically disadvantaged communities, and fully sanctioned by ICASA with ECS and ECNS exemptions. Together they comprise a region with 7,000 inhabitants as well as thousands of tourists who visit the area throughout the year. Since then, many other communities throughout rural South Africa have expressed interest in adopting the Zenzeleni model.

From a technical perspective, the cooperatives use a shared 5GHz WiFi backbone consisting of more than 40 point to point radios, which can carry above 200 Mbps. This wireless backbone interconnects the two communities together with a data centre hosted by Walter Sisulu University in Mthatha. There, Zenzeleni Networks connects to Openserve 's national fiber backbone, via a wholesale agreement with Easttel. Currently, that wholesale upstream agreement is for 90 Mbps, but in can be increased if the demands in the network increases. As shown in the figure below, the current footprint of Zenzeleni highly exceeds that of the communities where co-operatives have been established

Zenzenleni has contracted and paid for almost one million Rand worth of broadband capacity since its initial connection in November 2017. This is an ample demonstration of the robustness of its billing and revenue collecting system. It is also a reflection of the competitiveness of the rates that Zenzeleni cooperatives offer their customers. Connectivity rates are focused on two types of services that cater to a diverse range of clients. These include uncapped data vouchers for R25 per month to dedicated fixed access billed at a flat rate (based on speed) as well as metered use (GB). These rates are highly competitive, even by urban standards, and are attracting new clients from local community members, professionals, students, local businesses, NGOs and schools. Access for fixed wireless clients as well as for voucher users is currently done using 2.4 GHz licensed-exempt spectrum. Voucher users connect using one of the 65 WiFi hotspots deployed between the two communities. Currently there is an average of 200 voucher users monthly, although numbers continue to grow every month.