THE PROPOSED REVIEW OF THE LICENSING FRAMEWORK FOR THE TELECOMMUNICATIONS SECTOR IN UGANDA

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RE: Public Consultation on The Proposed Review of the Licensing Framework for the Telecommunications Sector in Uganda

Thank you for the opportunity to provide commentary on the important topic of the licensing framework for the telecommunications sector in Uganda. Below are our answers to the questions included in the Consultation Paper[1].

Question 1
What trends have impacted the telecommunication sector that have a bearing on the licensing framework? Please explain

Pervasive, affordable access to broadband has become the sine qua non of a thriving modern economy. However, affordable access strategies that do not target everyone can end up magnifying the digital divide: those with affordable phone/internet services have access to ever increasing education resources, opportunities, services, and social safety nets such that the unconnected fall further behind just by standing still. This represents a challenge because, in spite of the phenomenal spread of mobile telephony and now mobile broadband infrastructure in the last 20 years, network growth is now slowing[2] as the economic models of large mobile network operators fail to match the economics of poorer more sparsely populated rural areas. Even in places that are already covered, communicating is not affordable to many.

The lack of affordability, together with other economic, cultural and social factors, is also affecting the ability of women enjoy the benefit of online connectivity. A survey carried out in 2014 by the Uganda Communications Commission found that only 6% of women in Uganda are online. Kampala has the largest gender gap in internet access across 10 cities surveyed by research commissioned by the World Wide Web Foundation. Only 21% of women reported having used the internet, versus 61% of men[3].

There is thus a need to enable alternative approaches to broadband delivery that can complement existing network operator models.

The potential for alternative approaches has been amplified by the fact that the cost of communication technology has dropped dramatically. This applies to WiFi but also to LTE and other IMT technologies. Facebook's Open Cellular initiative have an LTE base station design

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[1] https://www.ucc.co.ug/wp-content/uploads/2019/04/PUBLIC-CONSULTATION-PAPER-ON-TELECOM-LICENSE-05-04-2019...pdf

[2] Universal internet access unlikely until at least 2050, experts say. The Guardian. 10 January 2019. https://www.theguardian.com/technology/2019/jan/10/universal-internet-access-unlikely-until-2050-experts-say-lack-skills-investment-slow-growth

[3] M. Owiny and Z.G. Amuriat, "Uganda's ICT Laws and Policies from a Gender Perspective". WougNet, 2016. Available at: https://www.apc.org/sites/default/files/uganda-s-ict-laws-from-a-gender-perspective.pdf

under $1000. Successful examples of these alternative approaches abound in organisational models from community networks like Rhizomatica in Mexico or Zenzeleni in South Africa to commercial initiatives such as Vanu in Rwanda or Africa Mobile Networks (AMN) in DRC, Cameroon, and other countries in the region.

Communication technology hasn't just gotten cheaper, it has gotten more flexible. For example, WiFi technologies are being expanded beyond the traditional ISM bands of 2.4 and 5GHz to 11GHz, 24GHz and even into mmWave frequencies like 50GHz. Giving its importance to innovation, the United States of America is currently reviewing its National Frequency Allocation Table to extend WiFi into the 6 GHz band. Spectrum management techniques that allow for more flexibility, like TV White Spaces are being enacted elsewhere, including countries in the region like Mozambique and South Africa.

Thanks to the growth of mass market manufacturing and a host of technological innovations in the sector, it is now possible for anyone to build meaningful, affordable internet infrastructure. This makes it possible for local entrepreneurs and/or community groups to develop innovative and sustainable solutions to their own access challenges. However, policies and regulations for telecommunications have historically been designed for large-scale, for-profit corporations. What is missing are enabling regulations to unleash the potential of community networks and other small network operators to deliver affordable access everywhere.

Some regulatory agencies are already starting to support new strategies. Countries such as Mexico, Argentina, and South Africa have begun to recognize and empower local service providers. This is in line with ITU-D Recommendation 19 which states:
"*10. that it is important to consider small and non-profit community operators, through appropriate regulatory measures [...]*
11. 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."

Spectrum auctions are growing in popularity on the continent and are often attractive to governments as a direct source of revenue but have downsides particularly for rural access which include excluding access to spectrum for small to medium size operators, inhibiting rural roll-out, and raising the overall cost of access[4].

Fibre optic capacity has expanded dramatically on the continent to the extent that there is now over a million kilometres of terrestrial fibre in African countries. However, most of this fibre optic capacity is underutilised due to high costs and/or a lack of Open Access policies.

The television broadcast industry is changing as OTT / Pay TV operators begin to provide services in markets traditionally dominated by terrestrial and satellite broadcasting.

Question 2

[4] https://manypossibilities.net/2019/04/spectrum-auctions-are-killing-competition-and-failing-rural-access/

What regulatory initiative(s) would you recommend UCC to consider in order to improve entry into the telecommunication market in Uganda?

Responses to this question are covered by the answers to Question 12.

Question 4
What recommendations would you make to ensure effective and efficient utilization of spectrum assigned to a licensed operator?

Guidelines on Radio Spectrum Hoarding[5] are a good first step in the direction of ensuring effective and efficient utilization of spectrum assigned to a licensed operator. However, this is not enough, as the licensed operator may not use the spectrum in places it deems unprofitable such as more sparsely populated, lower-income rural areas. This prevents people in those places from being connected as well as precluding organizations with alternative and cheaper business models use the spectrum to provide access in the area to provide services.

We recommend that the concept of White Spaces[6] or secondary access to spectrum as described in the Draft TVWS Guidelines for Uganda[7] is explored for the delivery of IMT services in underserved regions. Spectrum sharing to promote optimum utilization of spectrum is within the scope of the Radio Spectrum Management Guidelines[8].

Question 5
What gaps have you identified in the existing licensing framework in respect of spectrum assignment and utilization? How would you recommend UCC to address the identified gaps?

In Section 5.3 the background paper for the consultation states that “UCC recently issued a comprehensive consultative paper regarding a new spectrum assignment framework (Please refer to the consultation paper available at http://www.ucc.co.ug), which is complementary to the review of the licensing framework.” This paper does not appear to be available anywhere on the UCC website. We would be happy to provide more detailed commentary if this document is made available.

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[5] https://www.ucc.co.ug/wp-content/uploads/2017/09/spectrum-hoarding-guidelines.pdf

[6] “*White spaces are radio spectrum resources that are unused at particular times and locations and which can be utilized by other radio communications services through spectrum sharing arrangements. These techniques enable the coexistence of multiple wireless systems within the same frequency band and in turn better utilization of the already scarce radio frequency resource*”

[7] https://www.ucc.co.ug/wp-content/uploads/2017/09/TVWS-Guidelines-for-Consultation-9th-July-2018_v2.pdf

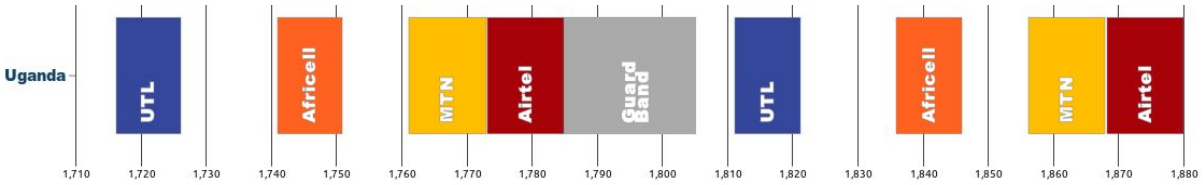
[8] https://www.ucc.co.ug/wp-content/uploads/2018/04/UCC_Spectrum_Management_Guidelines_June_2017.pdf

The main gap is a lack of regulation to enable affordable access to spectrum by specialised operators (both for-profit and not-for-profit) providing access to the underserved, especially in rural areas.

In particular, it would be useful to enable regulation for secondary use of spectrum. Enacting the Draft Guidelines for TV White Spaces for Uganda[9] would be a good step in that direction. In addition it is recommended to extend that White Spaces concept to other bands, in particular for those for mobile telephony and data services. As described in our answer to Question 1, there is evidence in other countries of the positive impact that inclusion of these provision in the licensing framework have for increasing access.

In addition, spectrum set-asides for small organizations, both for-profit and not-for-profit, aiming at providing services to areas not covered by existing national or regional operators, should be considered. This recommendation is fully aligned with the Radio Spectrum Policy Guidelines for Uganda, where its Universal Access clause indicates that "The Commission shall reserve spectrum for deployment of wireless technologies in rural areas".[10]

Currently, there are spectrum blocks in the 1800 MHz band that are unassigned that could be allocated for social use in the conditions mentioned above. This, in turn, will allow to meet one of the principles of the Radio Spectrum Management Guidelines: "*maximize the public good from spectrum*"[11]. A similar approach, i.e. setting aside spectrum blocks for social use, should be considered when allocating spectrum in other IMT bands such as 700 MHz and 800 MHz[12].



It is recommended to eliminate the requirement of obtaining an authorization for the use of ISM bands. The potential delay on obtaining the authorization every time use of these frequencies are planned may deter operators from using these band. An alternative mechanism for registering the type of equipment, power, frequency and location of the hardware, as requested in the "Guidelines for Utilisation of the 5 GHz band for Wireless Access in Uganda"[13], might be

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9 https://www.ucc.co.ug/wp-content/uploads/2017/09/TVWS-Guidelines-for-Consultation-9th-July-2018_v2.pdf

10 https://www.ucc.co.ug/wp-content/uploads/2017/09/SpectrumPolicyGuidelines-1.pdf

11 https://www.ucc.co.ug/wp-content/uploads/2018/04/UCC_Spectrum_Management_Guidelines_June_2017.pdf

12 Source: https://opentelecomdata.org/spectrum-chart/

13 https://www.ucc.co.ug/wp-content/uploads/2017/09/Guidelines-for-use-of-5.8-GHz-ISM-band.pdf

through an annual report submitted at the end of the financial year, together with other administrative compliance submissions that might be expected.

Finally, the fee structure described in the Guidelines on Spectrum Reservation in Access Bands and Microwave Bands[14] appears to be counterproductive to goals expected to achieve from this licensing framework, as it is very likely to inhibit innovation. As highlighted above, national allocation of spectrum without provisions for secondary use, block it from use by other actors. Additionally, the monolithic fee structure does not incentivize those aiming at providing services where it is less profitable. A more granular approach to the spectrum fees, considering not only the nature of the spectrum, but the area where it is expected to be used, the type of the area (urban/rural), whether it is exclusive or shared use, among others it is recommended. For a good example on this, please consider reviewing the Spectrum Fee Regulations from South Africa where the formula used to calculate the fees[15] effectively introduces discounts for rural areas similar to the ones proposed in the Universal Access clause of the Radio Spectrum Policy Guidelines for Uganda: "*The Commission [...] shall give incentives that may include differential pricing for spectrum for deployment of services in such areas*"[16].

Question 6
What proposals do you have in respect of the implementation of national roaming under the proposed license regime? Please explain.

As highlighted in the Consultation Paper, national roaming has many advantages but it also has disadvantages. While it may contribute to delivering universal service, there is little evidence about it contributing to more affordable services. A recent review of the Data Market in South Africa highlights one of the main reasons for this: "unless roaming rates are more cost-orientated it will constrain price competition as more aggressive pricing by challengers will not be profitable if traffic occurs on roaming partners.", and recommends that "*national roaming arrangements with the smaller networks need to move towards more cost-orientated pricing levels to support the ability of the smaller networks to be more aggressive on price without incurring losses on the roaming side, whilst using roaming as a means to expand capacity to still deliver a high quality data service to new subscribers"*.[17]

Additionally, the report recommends, in line with the rest of this submission, "the development of alternative infrastructure to provide data services in lower income areas and smaller secondary cities and towns nationally will provide off-load opportunities from the mobile networks to free public Wi-Fi or even simply lower priced subscription Wi-Fi services. [Alternative infrastructure] will also provide an additional point of competitive pressure on mobile prices if there is a more

[14] https://www.ucc.co.ug/wp-content/uploads/2017/09/Spectrum-reservation-guidelines.pdf
[15] Republic of South Africa. Amendment of the Radio Frequency Spectrum Fees, 2010 in terms of the Electronic Communications Act, 2005. South African Government Gazette No. 38642, 2015.
[16] https://www.ucc.co.ug/wp-content/uploads/2017/09/SpectrumPolicyGuidelines-1.pdf
[17] Competition Commission of South Africa, "Data Services Market Inquiry", 24th April 2019. Available at: http://www.compcom.co.za/wp-content/uploads/2019/04/Data-Services-Inquiry-Summary.pdf

pervasive presence." These models may not need to scale beyond the community or village where the service is being provided affordably. Small operators offering more affordable services locally may have a greater impact on people in remote communities with fewer resources, and where women with the lowest access to the internet spend most of their time than roaming services. Thus, enabling these models have a significant impact in meeting the communication needs of the least connected populations, despite the fact that they may need to use a bigger, and potentially more expensive provider, outside the area covered by the community network or the small operator.

Question 8
Do you have any proposals on how infrastructure sharing can be implemented under the proposed licensing framework? If yes, please explain

The benefits of infrastructure sharing are well defined in the Consultation Paper, however its practical implementation can be challenging. Countries with existing guidelines for its infrastructure sharing are struggling to realize those benefits. As the recent review from the Competition Commission in South Africa points out: "Where there is inequity in passive infrastructure holdings between operators, there is often a resistance to infrastructure sharing by the incumbent holder of more infrastructure facilities. This is because a denial of access, or strategies that amount to a constructive denial, provides an incumbent with a competitive advantage over a newer rival and such strategic behaviour may also slow the expansion and competitive significance of the new rival. [...] The critique of current regulations is that they fail to address strategic behaviour by incumbents with a hold over a high proportion of facilities, namely that the regulations [...] do not regulate the price at which sharing takes place resulting in cost escalation."[18]

For any new entrants to benefit from infrastructure sharing, in addition to a regulated and cost-oriented pricing, an open, transparent and up-to-date database of the location and characteristics of that infrastructure, would help planning and designing the network, saving time and money that would likely contribute to more affordable services. This includes the location of towers, how they are equipped, where the ducts are, where the fiber is laid, where are the Points of Presence to access it, among others.

Question 10
(a): How would you recommend UCC to implement the mandatory listing of shares?
(b): Please share best practices from other markets where listing has been implemented and the challenges met. How can the identified challenges be avoided in Uganda?

[18] Competition Commission of South Africa, "Data Services Market Inquiry", 24th April 2019. Available at: http://www.compcom.co.za/wp-content/uploads/2019/04/Data-Services-Inquiry-Summary.pdf

In terms of best practice, we encourage direct local participation by enabling sale of shares through mobile money platforms as was the case in MTN's listing in Ghana in 2018[19].

We believe it would be beneficial to add clauses to increase and ensure the gender balance in the board of these companies as well. This will enable the active participation of women as decision makers in the processes for telecommunication service provision.

Another way to address "capital flight", as mentioned in the consultation document, is to create an enabling environment for small operators to thrive - such as through the proposals in response 8. Small operators realise multiple economic benefits from ownership to employment remain local and contribute to the local economy, "enabling the local populace to benefit from the profits emanating from national resources". A recent paper from the Association for Progressive Communications delves deeper into the social impact of these benefits[20].

Question 11
What are your comments on the proposed fee structure? Please explain

While the proposed fee structure is an improvement, particularly in the establishment of regional as well as national licenses, the fees are still very high for small startup networks. The Uganda Investment Authority has recognised[21] the tremendous potential of SMEs to drive the economy. The cost of broadband communication technologies has dropped to the point where it is within the reach of SMEs while the spread of fibre optic backbones within the country are levelling the playing field for smaller operators. Yet, from a regulatory point of view, fees are still out of proportion with the cost of technology for SMEs. We suggest that SME's below a certain threshold of turnover should be exempt from fees. A healthy telecommunications sector is an ecosystem that should have old and new growth. But newly sprouted businesses need time to put down their roots that will give them strength to growth. Creating a protected space for new SME broadband operators is essential to enabling a healthy, competitive environment for broadband.

Regional Fees are considerably higher than in countries with a similar tiered approach, i.e. South Africa[22], both initial and annual. The smaller fee has contributed to the creation of a thriving small wireless ISPs industry, with more than 200 companies[23], bringing competition and affordable data services in many places.

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[19] MTN Ghana rolls out historic mobile money-based IPO. 04 Jun 2018. AfricaNews. https://qz.com/africa/1377917/mtns-successful-ipo-in-ghana-shows-the-far-reaching-potential-of-mobile-money-in-africa/
[20] N. Bidwell and M. Jensen, "Connectivity Strategies Where People Matter: Community-led small-scale telecommunication infrastructure networks in the global South", Association for Progressive Communications 2019. Available at: https://www.apc.org/en/node/35445/
[21] http://www.ugandainvest.go.ug/smes-driving-economy/
[22] Republic of South Africa. Electronic Communications Act (36/05): General Licence Fees Regulation, 2012. South African Government Gazette, 573(36323), 2013.
[23] https://wapa.org.za/members/list

In the transition from the current framework, to the proposed one, some authorization categories have been dropped, such as Private networks. Section 4.2.3 General Authorisation states that providers of non-core telecommunications services are not subject to license fees. Would it be possible to get an explanation of why the General Authorisation has been removed from the framework? We suggest maintaining this category, which exists in many other national licensing frameworks. For instance, South Africa offers licence exemptions for both infrastructure and services license to non-profit organisations, and extend it to other categories[24]. Such an authorisation could usefully apply to a community network or other not-for-profit network operator such as BOSCO Uganda (http://boscouganda.com/) providing free services in unserved parts of Gulu. In the absence of a General Authorisation, are there other mechanisms that might provide for license exemption for community networks. If not, we propose that a regulatory mechanism for this purpose be introduced.

Question 12
What in your opinion are the most important considerations the proposed licensing framework should address?

Enable players of different sizes and with different economic models, smaller than the ones proposed in the background paper (i.e. subregional), through the use of General Authorizations, and a reduction of fees for SMEs with a turnover below a given threshold. As currently conceived, the proposed framework and its fees seems unlikely to incentivize the level of innovation and entrepreneurship required to deliver affordable access to the poor and to remote rural areas..
Enable affordable access to spectrum and other resources by specialised operators (both for-profit and not-for-profit) providing access to the underserved, especially in rural areas. This includes:

- Set-asides of IMT spectrum.
- Secondary use of spectrum using White Spaces concepts in both TV bands as well as IMT band.
- Remove the need to obtain an authorization prior to deploy WiFi equipment.
- Create a spectrum fee structure that is more granular and conducive.
- Transparency in the location of Fibre networks, their Points of Presence, location of towers, and its characteristics and equipment.
- Regulating infrastructure sharing pricing as well as creating a framework for cost-oriented roaming agreements.

Finally, it is unlikely that the existing gender access gap will be bridged in Uganda if the policies and regulations do not actively enable the participation of more women in the telecommunication industry. To address this, we recommend adopting a gender sensitive framework and guidelines. Generally, gender neutral methods for licensing may end up exacerbating the existing gender disparity in access. Clauses like "*women are encouraged to*

[24] Republic of South Africa. Regulations Regarding License Exempt Electronic Communication Networks. South African Government Gazette, (31289), 2008

apply” should be used. And given equal conditions, women led applications should be given priority.