Country Name

This document is intended as a guide and a template for the country profiles. The goal of the country profiles is to provide anyone wishing to establishing a community network, cooperative, or commercial operator of telecommunications services with a broad understanding of the rules that govern the establishment and operation of these networks as well as what opportunities and obstacles exist.

The page is organised according to the categories that are expected within each country profile. In each category you will find key questions you should be seeking answers to, suggestions of where to find information, and examples of good practice in the various categories from around the world.

The wiki is also designed to capture some of the information as fields in a database that will allow for some comparative analysis across countries. These fields are entered below the wiki in the form fields and are displayed in the wiki page as a variable. Items highlighted like <btn size=“sm” icon=“glyphicon glyphicon-edit”>this</btn> below represent structured data stored in a database field. Database fields can be exported to spreadsheet, CSV, or JSON format.

<callout type=“question” icon=“true”>In each section below, you will see questions you should be asking to find out more</callout> <callout type=“success” icon=“true”>Examples of good practice are identified with a checkmark like this</callout>

	Name	**Acronym**	**URL**	**Contact**	**Twitter**
Regulator	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Name of Regulator</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Acronym</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>website</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>contact email</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>twitter account</btn>
Ministry	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Name of Ministry</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Acronym</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>website</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>contact email</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>twitter account</btn>
Universal Service	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Name of USAF</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Acronym</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>website</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>contact email</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>twitter account</btn>
Spectrum Agency	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Name (if different)</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>Acronym</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>website</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>contact email</btn>	<btn size=“sm” icon=“glyphicon glyphicon-edit”>twitter account</btn>

National Policy

In each country there are different set of policies that frame and give direction to the telecommunications sector, within which most small operators, and community networks operate. In those policies there might be provision that favor or disable the activities of this operators.

In some countries these provisions might be included all the way in the country constitution, so it is worthwhile to review articles there regarding special rights for indigenous people and other historically disadvantaged populations.

In most countries, the telecoms sector is framed around a Communications, Telecommunications, or ICT Act. Many times this is complemented by other Acts around access to private information, framing the role of the regulator, etc.

Finally, most governments establish the performance targets they want to achieve in the sector in

National Plans. Most countries have a Broadband plan, which is worth reviewing to understand the role governments expect from this small operators. Additionally, some times there are reference to them or the future they envision for rural and marginalized communities in broader National Development Plans.

In this section, you should provide links to key policies, acts, or even elements of the constitution that may have relevance for community networks and small-scale operators attempting to address the unserved.

This may include national ICT strategies/plans, national broadband strategies/plans. You may choose to reference adjacent legislation that is relevant to community networks such as universal service strategies/plans, national development plans, SMME policies, education policies. You may choose to excerpt relevant sections of documents in the country profile.

<callout type="question" icon="true">

- Is there any mention to rights of indigenous population with regards to sovereignty over their land and/or the use of other natural resources (i.e. spectrum)?
- Which mechanisms has your Administration implemented for the provision of telecommunication services/ICTs in rural and remote unattended or underserved areas? (ITU-D 19)
- Has your country shown progress or taken any action in the instrumentation of regulation to integrate small or non-profit operators to provide broadband connectivity to users in rural and remote areas? If yes, please describe the case and indicate sources for further information. (ITU-D 19)
- Does your Country have plans to implement any of these measures? If yes, please describe the case and indicate sources for further information. (ITU-D 19)
- Has your Country considered or implemented regulatory measures to allow small, non-profit or community operators access to spectrum resources and backbone networks? If yes, please describe the case and indicate sources for further information. (ITU-D 19)
- Has your Country published any studies or statistical information about small and non-profit community operators in rural and remote areas? (ITU-D 19)

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Operator Licensing

Laws and regulations vary from country to country in terms of what sort of license is or is not required to operate a communication network. This can range from no license requirement at all to a range of different kinds of licenses. As a general trend, regulators are moving away from technology or application-specific licenses to more generic licenses that accommodate a range of players and services. Under a unified licensing regime, an operator is permitted to provide any type of communications service that is technically capable of providing. This matches the trend to communications technologies and services trending towards having internet protocols as their underlying protocol.

This trend is known as a unified licensing regime and while the ultimate end of unified licensing might be a single type of license, the most common formulation of unified licensing is to have one license for infrastructure (the physical assets e.g. cables, base stations, routers, earth stations, etc. that make up the network) and a license for services (bandwidth services, packet switching, VoIP,

steaming media, etc delivered over the network). Somewhat confusingly there is no common standard for how these two license types are named. Some regulators further subdivide the 'services license' into an 'application service license' e.g. internet and 'content service license' e.g. streaming media.

New technology has blurred the boundaries for some of these licenses. Inexpensive WiFi equipment is technically “infrastructure” but doesn't often fit well under the license definition of infrastructure that was created with national networks in mind.

Another key criterion for licensing relates to whether the operator is providing commercial services to a third-party. Commercial operators are the most common kind of licensed operator. However, there are also private networks that engage in the self-provisioning of services. This type of operator provides services to its constituency. This might be a corporation operating a national network connecting their offices. It might be a cooperative or a non-profit community network that offers local that self-provides it own capacity.

License may also be broken down according to the turnover generated by the organisation.

Another type of organisation is one that owns communication infrastructure but which does not operate the infrastructure. This might be a commercial company that trenches fibre but does not “light” it. It might be a municipality that invests in ducts and fibre infrastructure or even just ducts but does not operate a network themselves. It might also be a non-profit organisation such as the Guifi.net foundation which holds infrastructure in commons for its members but which does not itself operate a network. Typically none of these require a license from the regulator as they do not operate a telecommunications network. However they may require other licenses such as way leaves / rights of way, etc.

The above licenses may all be national in scope or they may have both a national and a sub-regional version. Sub-regional versions of the above licenses are intended to be less onerous both administratively and financially for the operator and facilitate a more granular approach to service delivery.

Finally, there may be license exemptions that are available for any of the above categories based on specific criteria such as operating as a not-for-profit or providing services to underserved regions.

Technical and Administrative Requirements

The technical and administrative requirements for licenses vary from country to country but typically requirements may include some combination of:

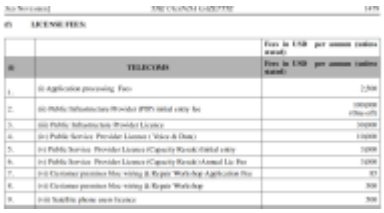
- proof of incorporation in the country
- proof of duly registered office and permanent address
- details of shareholders and directors
- proof of local ownership/investment
- proof of tax compliance
- network design
- business model

Different licenses may have different types of requirements.

Licensing Fees

A table is often useful to break down the fees associated with different kinds of licenses. This might look like Kenya's:

or Uganda's



<callout type="question" icon="true">

- Has your Administration considered specific licensing mechanisms that facilitate the deployment of broadband services in rural and remote areas? (ITU-D 19)
- Does your Country have licenses to attend specifically underserved areas, such as rural operator license, social license, small operator license, community operator license, etc.? (ITU-D 19)
- Is there a specific license for the provision of services in remote or underserved areas in your Country? (ITU-D 19)
- What kinds of operator licenses are there? Unified? Technology agnostic?
- Are there licenses for small operators?
- Do ISPs have specfic licenses?
- What kinds of organisations qualify for license exemption?

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Access to Spectrum

Technical and Administrative Requirements

Point to the spectrum allocation framework. *Agree first thing here is the National Frequency Plan, some generalities about the nature of spectrum (shorter wave lengths travel shorter distances, wider band more data can be transmitted) and maybe a guide on how to read it... cause the columns for each sub-band normally lead to the info that is required below.*

then an intro about the regulated nature of the use of spectrum, and the different ways it may take: licence exempt vs licensed, but also the different ways that licencing may happen both in the process (auction, vs application/registration vs other) and in the scope (national, regional, point to point).

In all the sections below, it would be interesting to look for special dispositions in terms of spectrum planning or spectrum assignment for community networks, small operators, or those operating in rural and remote areas.

I think the sections below should cover E.I.R.P., band sizes, and other technical requests (DFS?, geolocation database), from an spectrum assignment point of view. I guess there is something similar to Licensing... Technical vs Administrative characteristics of using spectrum.

Licensed

I would call this category licensed, and i would talk about it in terms of backhaul (11GHz, 7 GHz, not all of them, just the most common ones) and access (all the IMT), I know the IMT can be used for backhaul as well... but they are mainly an access technology, measured in terms of existence and volume of end-user devices. We can make a note about it. Each of the band, may be licensed differently, see intro above. Maybe here we can dig a bit deeper in terms of secondary access, trading, etc...

- URL for spectrum assignments for mobile operators
- List major operators and their spectrum assignments
- Point to coverage maps

Access Networks

Operator	800MHz	900MHz	1800MHz	2100MHz	2600MHz	3500MHz
XYZcom	None	2×10	2×15	2×10	None	None

PtP Networks

License-Exempt

Access Networks

Frequency	Power Limit	Transmit Power
2.4GHz		
2400 – 2483.5 MHz	2.4EIRP	
5GHz		
5150-5250 MHz	5.1EIRP	
5250-5350 MHz	5.2EIRP	
5470-5725 MHz	5.4EIRP	
5725-5800 MHz	5.8EIRP	

PtP Networks

Frequency	Power Limit	Transmit Power
2.4GHz		
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5GHz		

Frequency	Power Limit	Transmit Power
5150-5250 MHz	5.1EIRP	
5250-5350 MHz	5.2EIRP	
5470-5725 MHz	5.4EIRP	
5725-5800 MHz	5.8EIRP	

- Point to rules for license-exempt spectrum use?
- Is registration required for WiFi?
- What is the process for homologation / type approval?

Agree with 1 and 3, as they apply to all license-exempt bands, not only WiFi, anything on WiFi, would have to go under WiFi.

Then I would add a subcategory for WiFi /ISM Bands and potentially two tables one for access and one for backhaul, so they don't get too crowded. Some bands within wiFi may only be “allowed” for access. Do we want to get into the advantages throughput-wise of using “wider” channels.

In the table I would allow for EIRP, but also for TxPower, and also for some explanations... like increase your Gain by X everytime you reduce your TxPower by Y

I wonder what do we do with 900 MHz, for instance.

Maybe add a subcategory for potential articles or discussions on the expansion of this band?

Maybe add a subcategory on examples in this band (Cns, small operators, and the like)

If we refer to bands, I would call this section mmBand? and would only focus on the license-exempt component of them (in the case of SA there are some, maybe we can use the ones in the Spectrum paper that we have identified to be exempted elsewhere (24.05 – 24.25 GHz, 57 -64 GHz, 64 - 71 GHz, 71 – 76 GHz, 81-86 GHz), I would move 11GHz to licensed...

Frequencies for microwave links outside of 2.4GHz and 5GHz 11GHz 24GHz 60GHz and other

Secondary Use

Access Networks

PtP Networks

- Information on TVWS or other dynamic spectrum pilots.
- Pending rules for TVWS

Spectrum Fees / Costs

Application

Annual

Auction

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- UK Regulator (OFCOM) Spectrum Information Portal
- Nigerian Communications Commission - Frequency Assignment Tables

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similar to the above I will add subcategory of news items points to a potential change as well as potential examples using this band.

As with the licensing, I would add here another subgatery about compliance and other costs...

For instance, it is here were I would use the USOs. The more I think about it, the more I think that license obligations (including USOs) should be a subcategory of the spectrum licensing framework. At least if we use SA for the prototype, as they are part of the spectrum licenses they receive... I have some as example.

But also the taxes on the benefits of using the spectrum, which was a big thing in the last court case won by Rhizomatica, and that it exists in others. One thing is the cost of getting it assigned to you, and another one the taxes on the benefits from its use... It's a bit like CAPEX and OPEX.

Both here and in the Fees above, we can explore whether a given Administration offer incentives that include lower rates of payment for the use of spectrum when it is to be used in isolated and underserved areas?

Backhaul

This is a 4th category for me: 1. National Policy, 2. Licensing Framework, 3. Wireless Spectrum Regulation, 4. This. I believe there might be a 5th one about interconnection and the like? and another one about funding opportunities/reources. Other infrastructure sharing, transparency OTD, and the like . Other one about Gender, Other about SMMEs...

- links to backhaul service providers
- Open Access policies
- infrastructure sharing policy and regulation

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- UK Infrastructure sharing
- Mexico regulations on infrastructure sharing

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Gender

- links to national gender and ICT policies and initiatives
- gender at the regulator
    - number of men in senior management at regulator `regMen`
    - number of women in senior management at regulator `regWomen`

<callout type="success" icon="true">OFCOM's policy on Gender and Diversity</callout>

Universal Service

- Point to universal service policies and obligations.
- Have Universal Services funds been used to support community networks? How?

Does your Country offer support for local entrepreneurs that are implementing sustainable business models for the development of rural communications, either through the Universal Service Fund or other initiatives?

As said, not sure about this... I would add them in different parts of the document...

* Obligations where they belong, (in the case of SA they are part of the spectrum licensing framework, I would add them to "administrative requirements" * contributions to the fund where they belong, (In the case of SA they are part of the licensing framework, I would add them in "other administrative costs" * opportunities to apply for them, where they belong. (as mentioned, it would be interesting to list some sort of potential sources of funding)

If you want to keep this section, maybe just an introduction on the top about their nature, and the agency, agencies that manage each of the different aspects about, and then refer to the potential sections where they might be included.

Cooperatives

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- Does cooperative legislation exist?
- Are there tax relief / incentives available for cooperatives?
- Are there any limitations on cooperatives providing telecom/internet?

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Resources / References

- Other relevant web resources, reports, analysis.

Coding examples

This could be used to frame specific questions that should be asked

<callout type=“tip” icon=“true”>This could be for hints / tips / tricks on finding information, what to look for etc.</callout> <callout type=“question” icon=“true”>A question</callout> <callout type=“success” icon=“true”>A good practice example might look like this</callout> <callout type=“danger” icon=“true”>A bad practice to be aware of might look like this</callout>