

How the unconnected are connecting themselves:

The case of Zenzeleni Networks in South Africa

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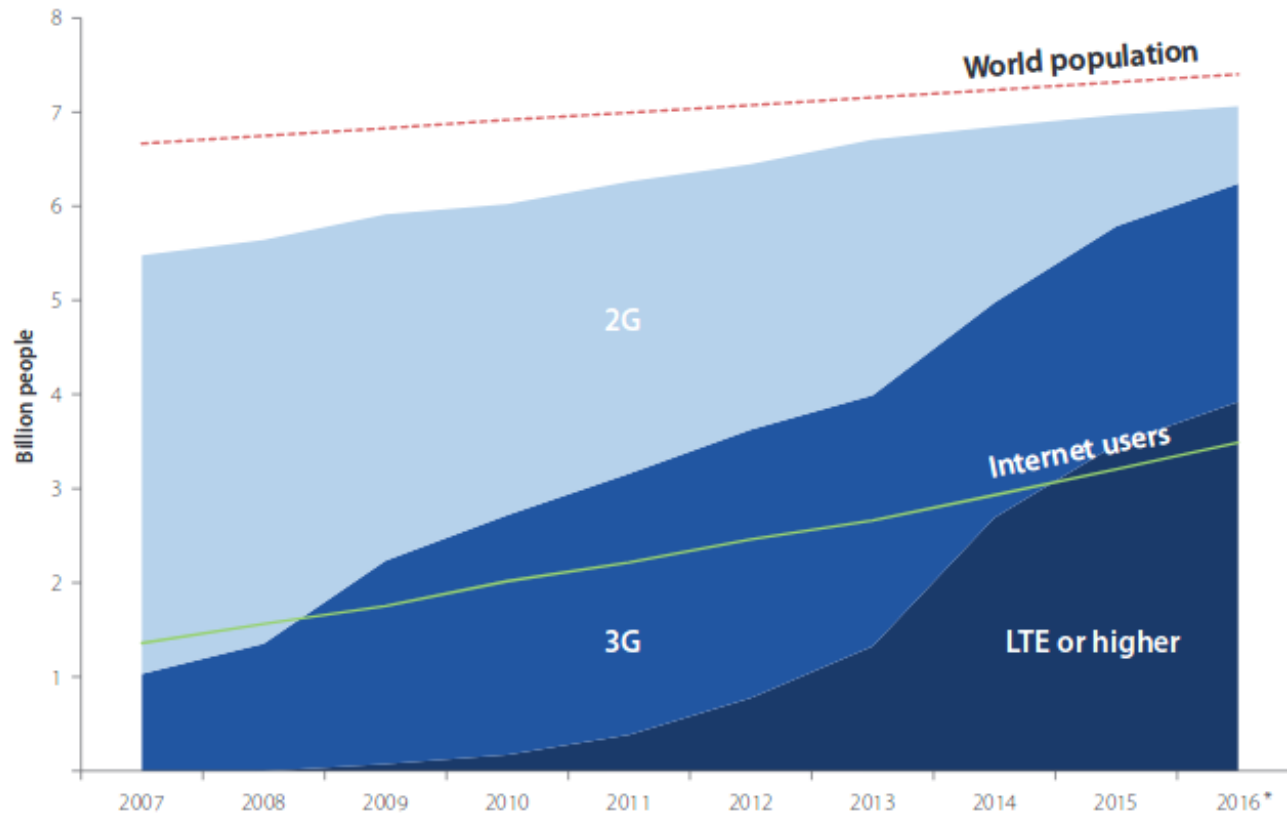
Association for Progressive Communications



21st Commission on Science and Technology for Development
15th May 2018, Geneva, Switzerland

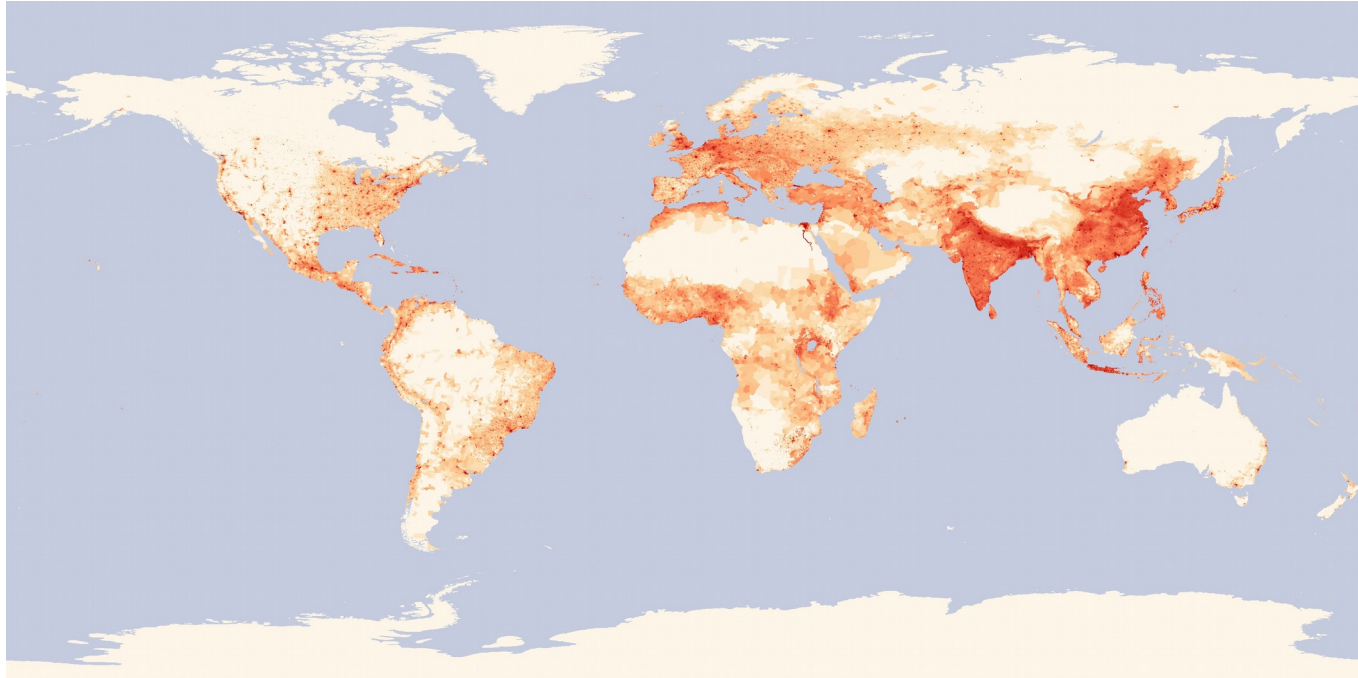
Did you know...?

- 1 billion without access to basic telephony
- 4 billion people without access to the Internet

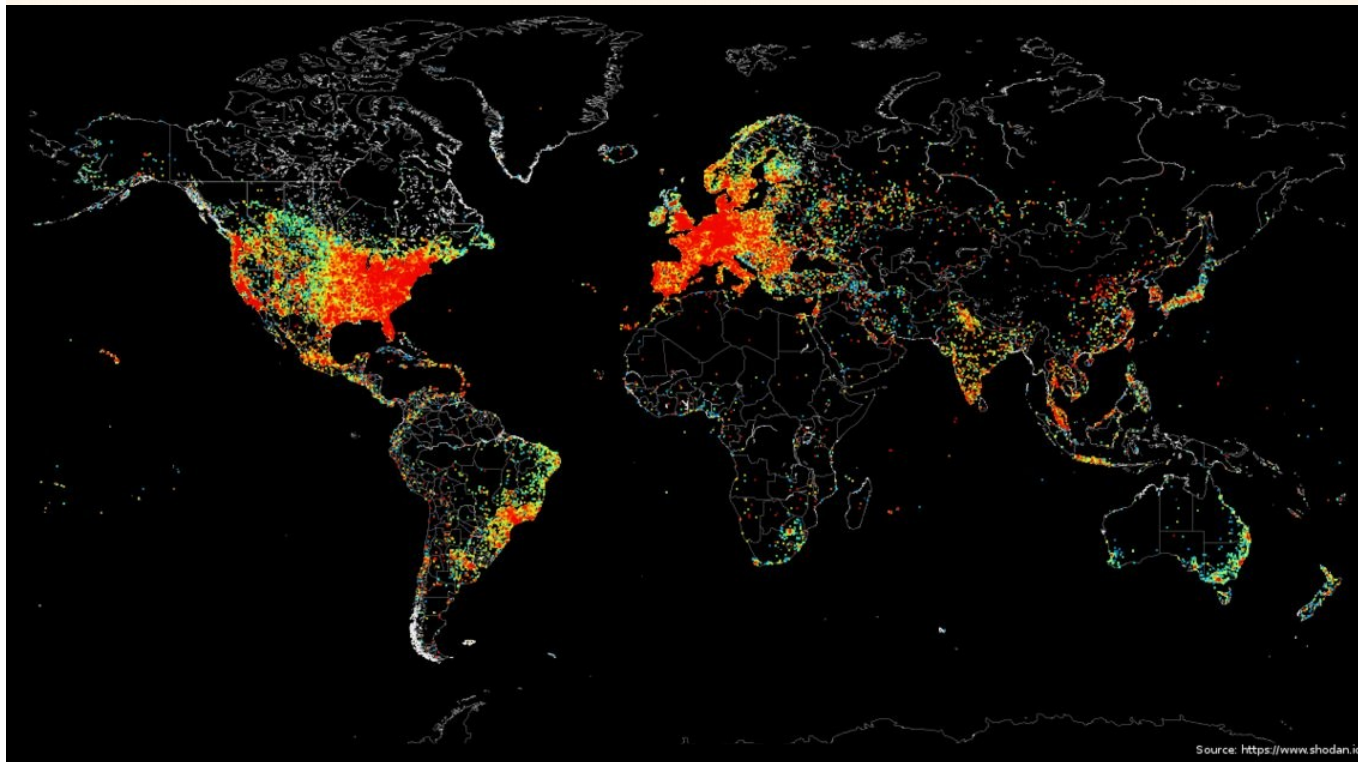


Source: ITU.

World population vs Internet distribution



Source: NASA

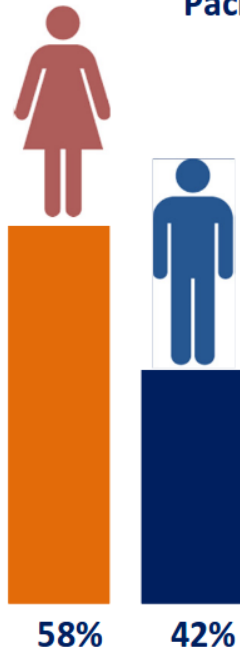


Source: Shodan

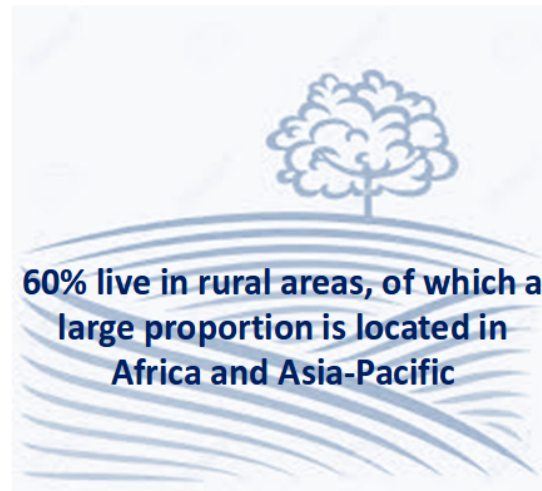
Source: <https://www.shodan.io>

Digital Divides

The Gender Gap is most pronounced in Africa, the Arab States and Asia-Pacific



Half have a GNI/capita of < US\$ (PPP) 6,500, a large proportion of which are located in Africa and Asia-Pacific



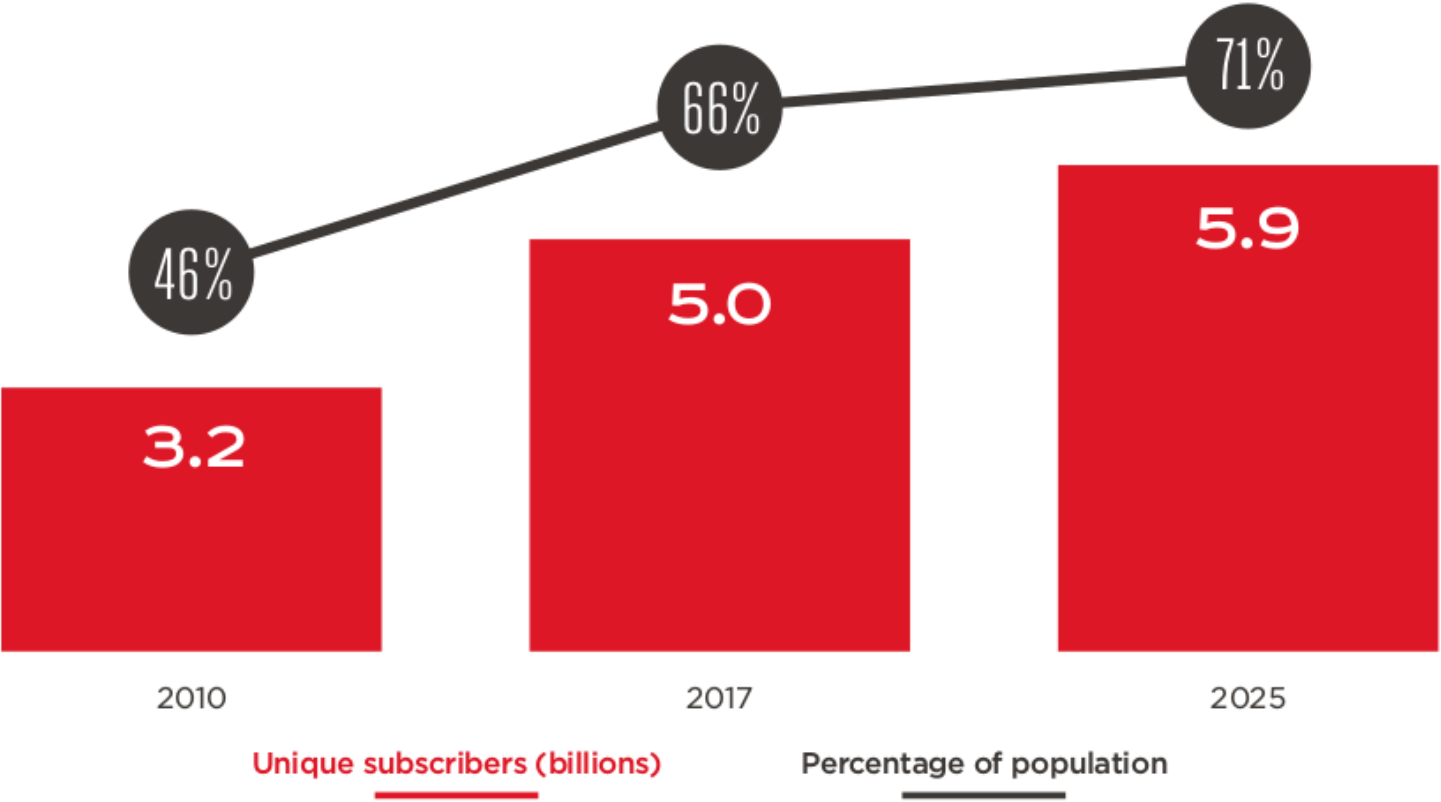
The elderly have much lower Internet penetration levels than the overall population across all regions



Individuals with low educational attainment often remain unconnected across all regions



Mobile Network Operator model plateauing



Source: GSMA Intelligence

What are community networks?

Telecommunications infrastructure installed, maintained and operated locally by the community (or some of its members) to meet their own communication needs



Benefits

- Access to communications where there is none
- More affordable access: e.g. Zenzeleni 5% of cost of existing mobile broadband
- Local economic development: creates employment and business opportunity
- Builds digital skills, local content, human and institutional capacity
- Self determination, control and governance
- Empowerment / confidence
- Opportunity to address gender from the outset

Mankosi, Eastern Cape, South Africa



- 12 villages, 580 households (around 3500 people) in around 30km² (between Coffee Bay and Port St. Johns)
- Low access to services (no tar roads, only 2.1% households connected to the electricity grid)
- Low income (average R388/month per person - \$31)
- Low level of education 13% of people secondary school

Constrained communications

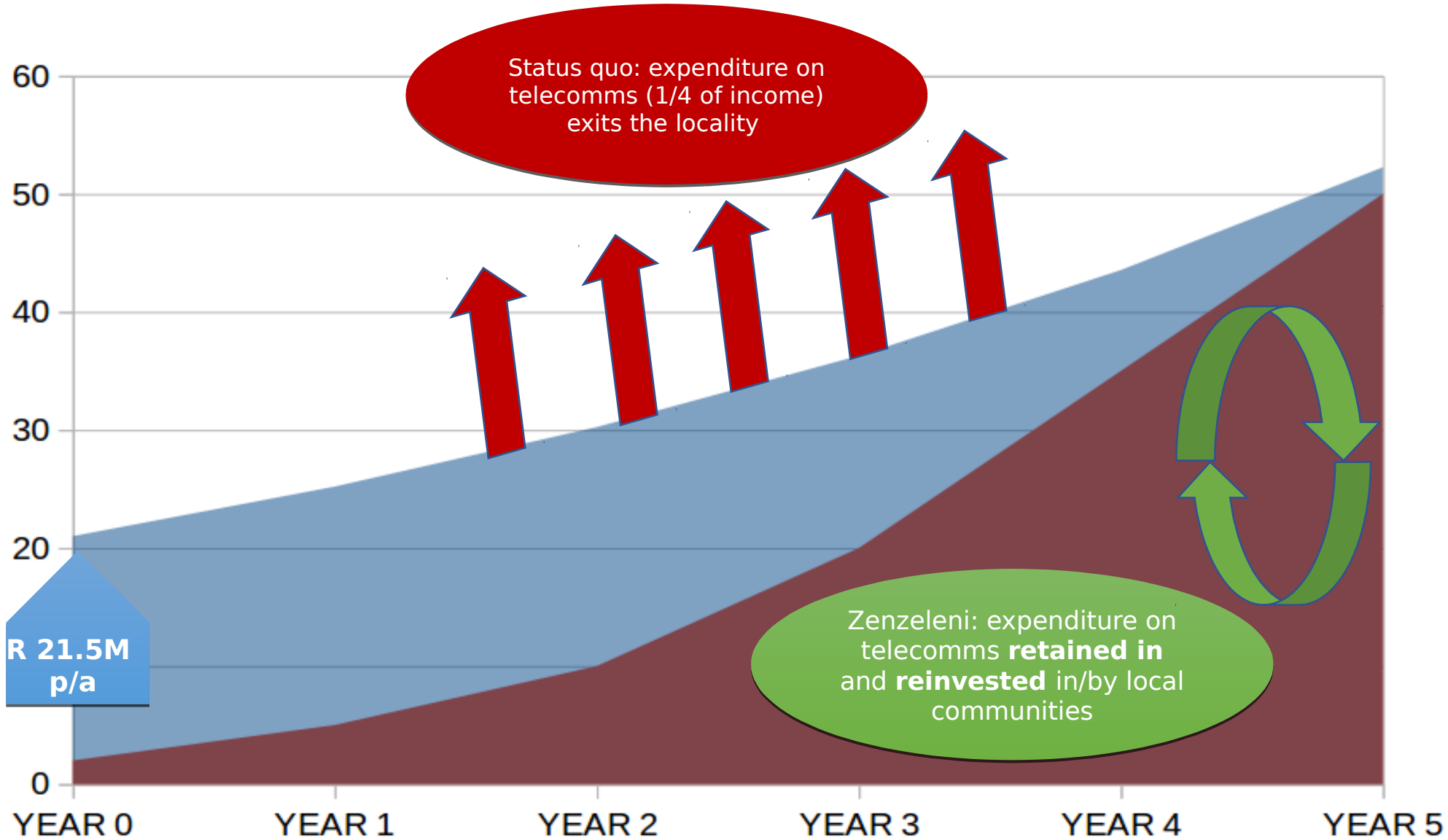


87% of population use mobile telephony on a weekly basis

22% of disposable income spent on mobile phone services (charging and airtime)

15% reported they sacrifice expenditure on basic food items to use mobile phone services

Zenzeleni Ownership: Retaining, re-investing





Certificate issued by the Commissioner of Companies & Intellectual
Property Commission on Monday, March 17, 2014 at 13:43



Companies and Intellectual
Property Commission
a member of the dti group

Certificate of Registration

CR10

Registration Number: 2014 / 002051 / 24
Enterprise Name: ZENZELENI TELECOMMUNICATIONS NETWORK PRIMARY CO-OPERATIVE LIMITED

REPUBLIC OF SOUTH AFRICA
CO-OPERATIVES ACT, 2005

CERTIFICATE OF REGISTRATION
OF A CO-OPERATIVE
(SECTION 7)

I hereby certify that

ZENZELENI TELECOMMUNICATIONS NETWORK PRIMARY CO-OPERATIVE LIMITED

was registered on

5/2/2014

under Section 7 of the Co-Operatives Act, 2005 (Act 14 of 2005),
with registration number

2014 / 002051 / 24

as a Primary Co-Operative with a limited liability.
Its constitution was also registered on the same date.

I further certify that

ZENZELENI TELECOMMUNICATIONS NETWORK PRIMARY CO-OPERATIVE LIMITED

is with effect from 5/2/2014 entitled to commence business.

REGISTRAR OF CO-OPERATIVES

Page 2 of 2

Physical Address
the dti Campus - Block F
77 Meintjies Street
Sunnyside 0001

Postal Address: Co-operatives
Private Bag x237
Pretoria
0001

Docex: 256
Web: www.cipc.co.za
Contact Centre: 086 100 2472 (CIPC)
Contact Centre (International): +27 12 394 9500



Independent Communications Authority of South Africa
Pinmill Farm, 164 Katherine Street, Sandton
Private Bag X10002, Sandton, 2146

Licensing and Compliance
Tel: +27 11 566 3645
Fax: +27 11 566 3646
Email: ahlabioa@icasa.org.za
Ref: PECN/0018/2014/ECSLE/0003/2014

Masibulele Siya

Zenzeleni Telecommunications Network
Primary Co-Operative Limited
Mankosi Administrative area
Ward 26, Nyandeni Municipality
Eastern Cape

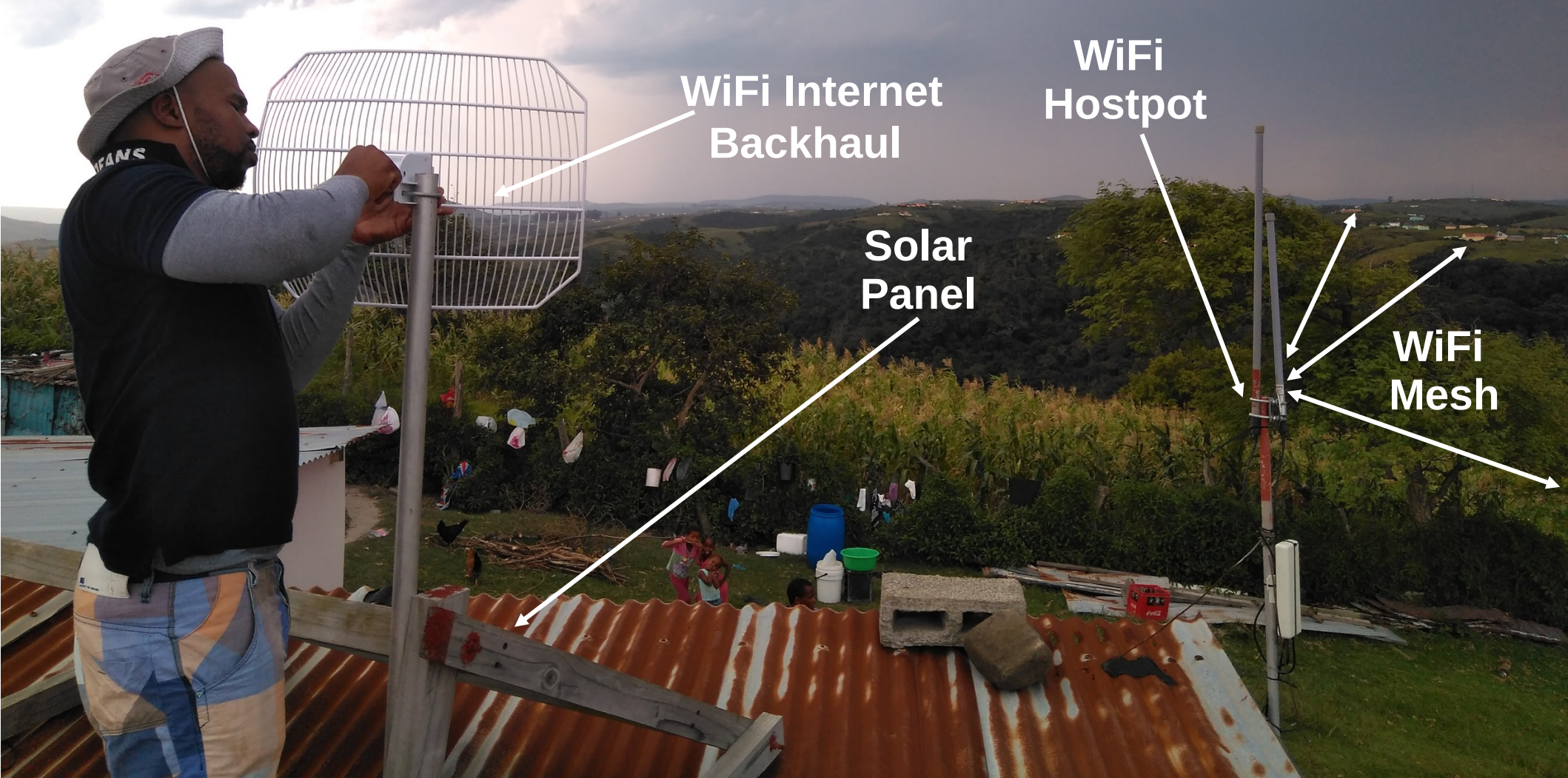
Per email: iaysiya26@gmail.com

Dear Masibulele Siya

**RE: APPLICATION FOR PECN AND ECS LICENCE EXEMPTIONS:
ZENZELENI NETWORK**

1. We refer to your application received on 14 April 2014 for Private Electronic Communications Network Service (PECN) and Electronic Communications Service licence exemption.
2. We advise that the Authority has granted Zenzeleni Telecommunications Network Primary Co-Operative Limited a licence exemption to construct, maintain and operate a PECN to be used principally for or integrally related to the internal operations of Zenzeleni Network.

Dr SS Mncube (Chairperson), NA Batyi, WH Currie, JM Lebooa, MR Mohlaloga, N Ndhlovu, KGS Pillay,
Dr MM Socikwa, WF Stucke (Councillors), PK Pongwana (CEO)



WiFi Internet
Backhaul

WiFi
Hostpot

Solar
Panel

WiFi
Mesh

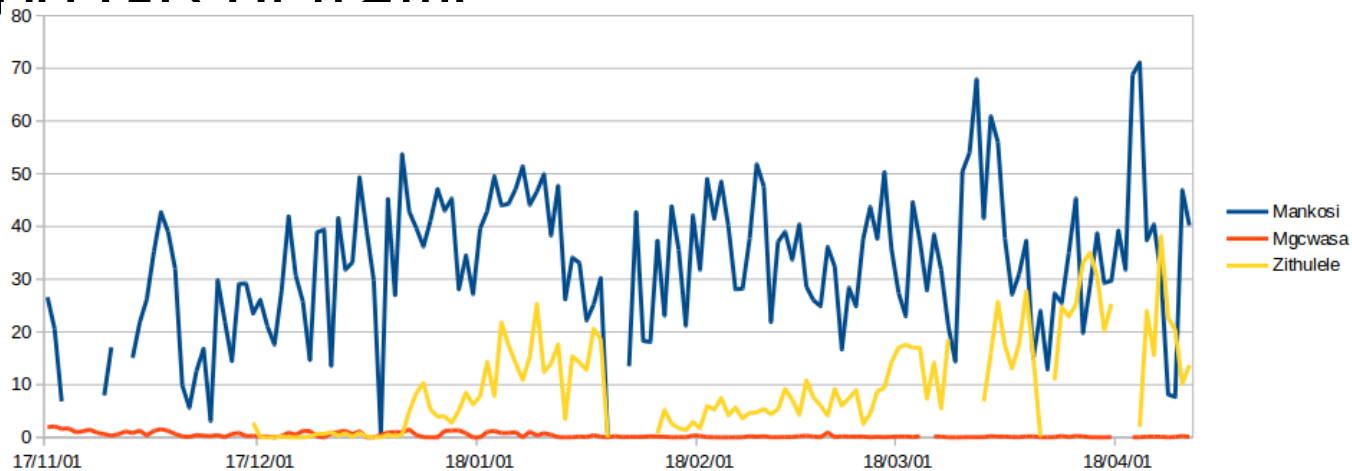
- Solar Powered
- WiFi Internet Backhaul, Mesh & Hotspot



Local committee meeting monthly since 2013

Some exciting facts

- November 2017 to May 2018 :
 - 10 new institutional public sector and business users: NGOs, backpackers, schools, clinic
 - 5000 unique devices connected
 - 7000 GB of traffic



- Cost up to 20 to 100 times cheaper than other options (in Mankosi ZAR10/month - \$0.81) for unlimited internet)

What policy makers can do

- Do not take connectivity for granted – many people are still not connected
- Consider multiple models to achieve access4all
- Market driven models have limitations
- Public access in libraries, schools etc. is vital
- Community networks: more than just access
- Partnerships
- Policy and regulation

Innovative Licensing

the guardian

home › world › americas asia australia africa middle east cities developn ≡ all

World news Half full: solutions, innovations, answers

'It feels like a gift': mobile phone co-op transforms rural Mexican community

In indigenous communities like Nuyoó, where almost every family has members who have migrated for work, low-cost phone calls are seen as an essential service



People gather in Santiago Nuyoó's main square to hear about the new mobile phone network. The TIC social cooperative has a licence to install networks in 356 marginalised municipalities. Photograph: Nina Lakhani

- Mexico – In 2015 IFETEL set aside 2x5MHz in the 850MHz band for Social Purpose Licences.
- With 2x2 MHz Rhizomatica has enabled 20 communities to provide themselves with voice services
- SMMEs like Zenzeleni already have ECS and ECNS exemption, “only” a spectrum licence (exemption) needed
- From 22% to 3% of disposable income

Increase Transparency and Visibility of Telecom Infrastructure

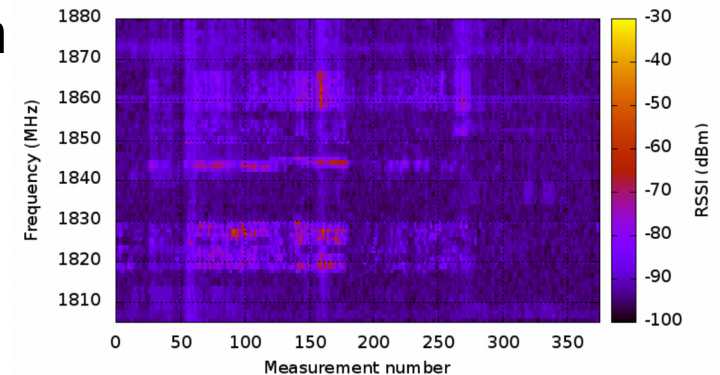
- Open Data Telecoms & The size of the problem

- Spectrum allocations and use

- 1.4 MHz & 10 MHz in 900 MHz
- 2.5 MHz unassigned in 1800MHz plus a lot not used

- Location of Fibre PoP and towers.

- Fibre cost rate cards (WAPA 100fold difference in KZN)



- South Africa member of the Open Government Partnership

- Open to public the databases in:

- Section 20B (3a)
- Section 30 (2g)

Other spectrum management suggestions to benefit CNs

- Expand licensed exempted spectrum
- Evidence of its potential - WAPA, R5billion
- FCC and OFCOM looking at 6GHz for license exempt
- Dynamic Spectrum Management
- TVWS regulations (expedite release in South Africa)
- 3.5 GHz – Citizen band radio service
- High Demand Spectrum,
 - consider spectrum as a commons and managed for the “public interest”
 - allow spectrum re-use per area.



Elinor Ostrom
“Governing the Commons”
Nobel Prize in Economics

ITU-D Resolution 19

- 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;

“Use or lose it” vs “Use it or share it”
approach to spectrum management

Other suggestions to benefit CNs

- Include SMME Associations and experts in regulatory and policy proceedings
 - WAPA, ISPA, BBC, BP ICT, etc.

Public support for SMMEs targeting universal affordable access

- Universal Service Obligations and use of USAF-DDF should have a mandate-focus on local SMMEs / development
- Welcome SMME strategy on 30% state procurement from SMMEs (local if possible)

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