



Census 2018 Report

Compiled for
WIRELESS ACCESS PROVIDERS' ASSOCIATION
By
Christopher Geerds: CEO of Christech

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Source: WAPA on Facebook

Methodology



Exco designed Questionnaire and agreed Basic Coverage Polygon would suffice.



Neutral industry advisor (Christech) commissioned to compile and analyse data



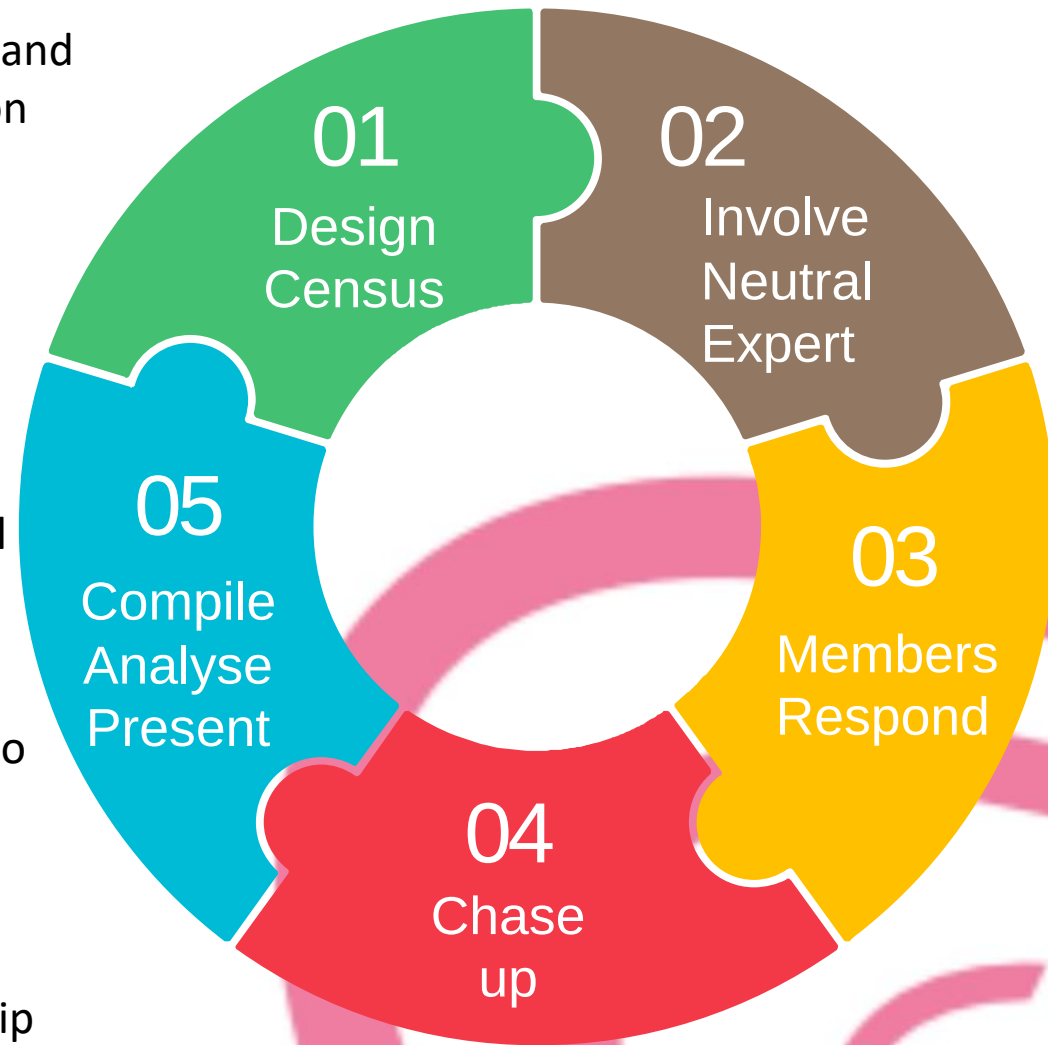
Members compiled info and returned to a dedicated email address



Members chased up by Secretariat, Christech and Exco

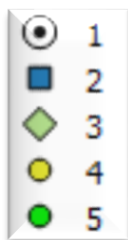


Information compiled in an anonymized manner and presented back to membership

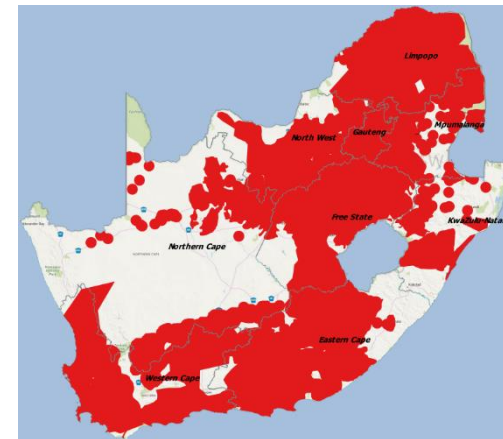


1. Coverage Charts

1. National Coverage
2. Provincial Coverage
3. 2011 Coverage (as reference)



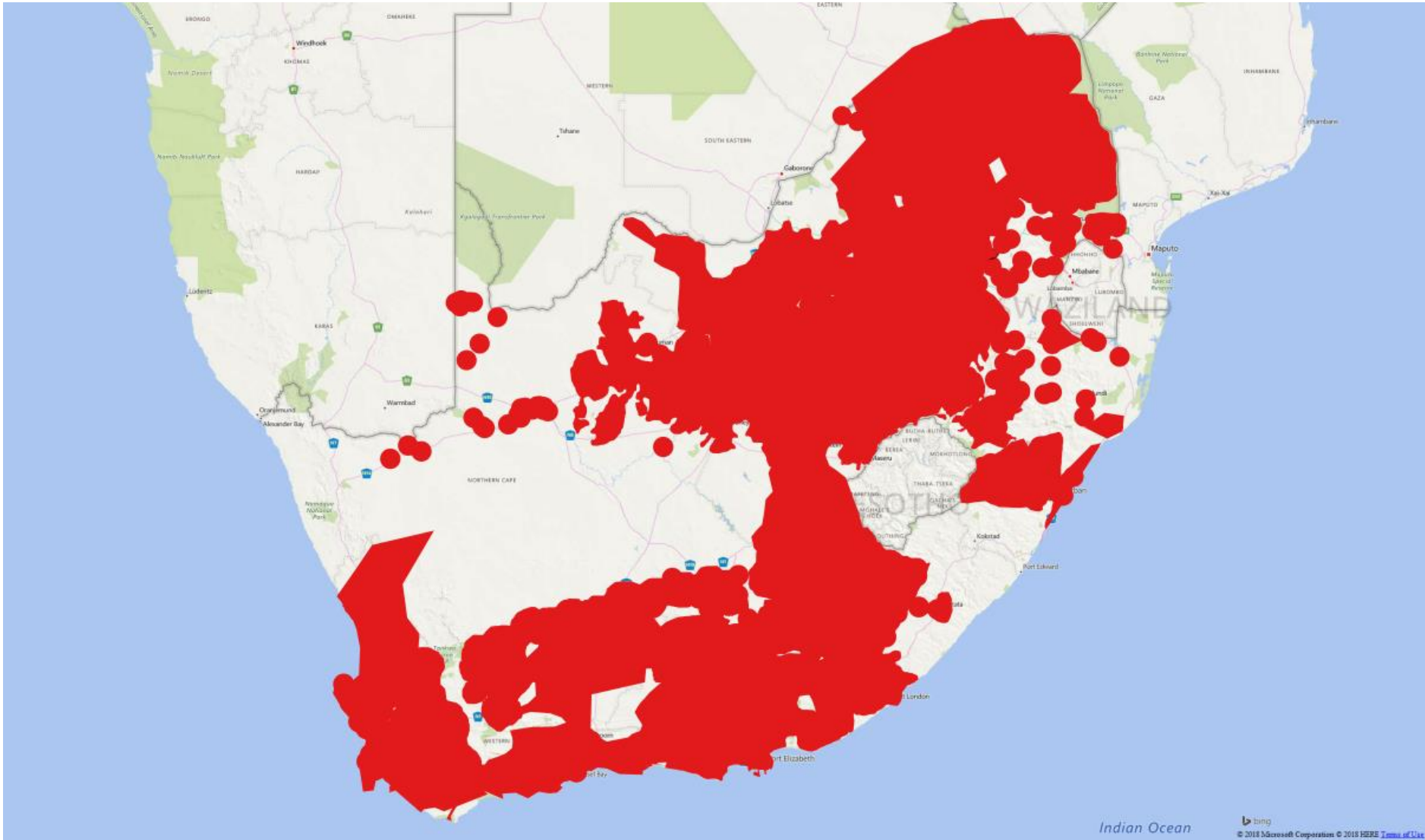
Legend (refers to the 'tier' of the city/town, ranging from 1 (metros and main cities), down to 5 being very small, towns'.



Notes

1. Coverage is based on member-supplied polygons.
2. If points (highsites) were given, an 18km radius buffer was created.
3. Information from member websites was sometimes added or used
4. Some highsite locations were estimated based on town names supplied on websites
5. Coverage gaps may exist in areas where members did not respond
6. The town classification (tiers 1-5) was chosen as it was an open-source, geocoded set. However the classification methodology is fairly arbitrary and a bit dated and does not include district municipalities. When showing the country (or provinces), as each additional tier of towns is added, the number of points increases exponentially. Therefore only tier 1 and tier 2 towns were generally shown, although the levels chosen for each provincial map were selected to balance detail with readability. A few additional options given in the Annex. Note that Soweto is set as tier 4, so does not appear unless the map is set to include tier 4 towns. Similarly, many important towns in KZN do not appear in high level maps.

2018 Coverage Map



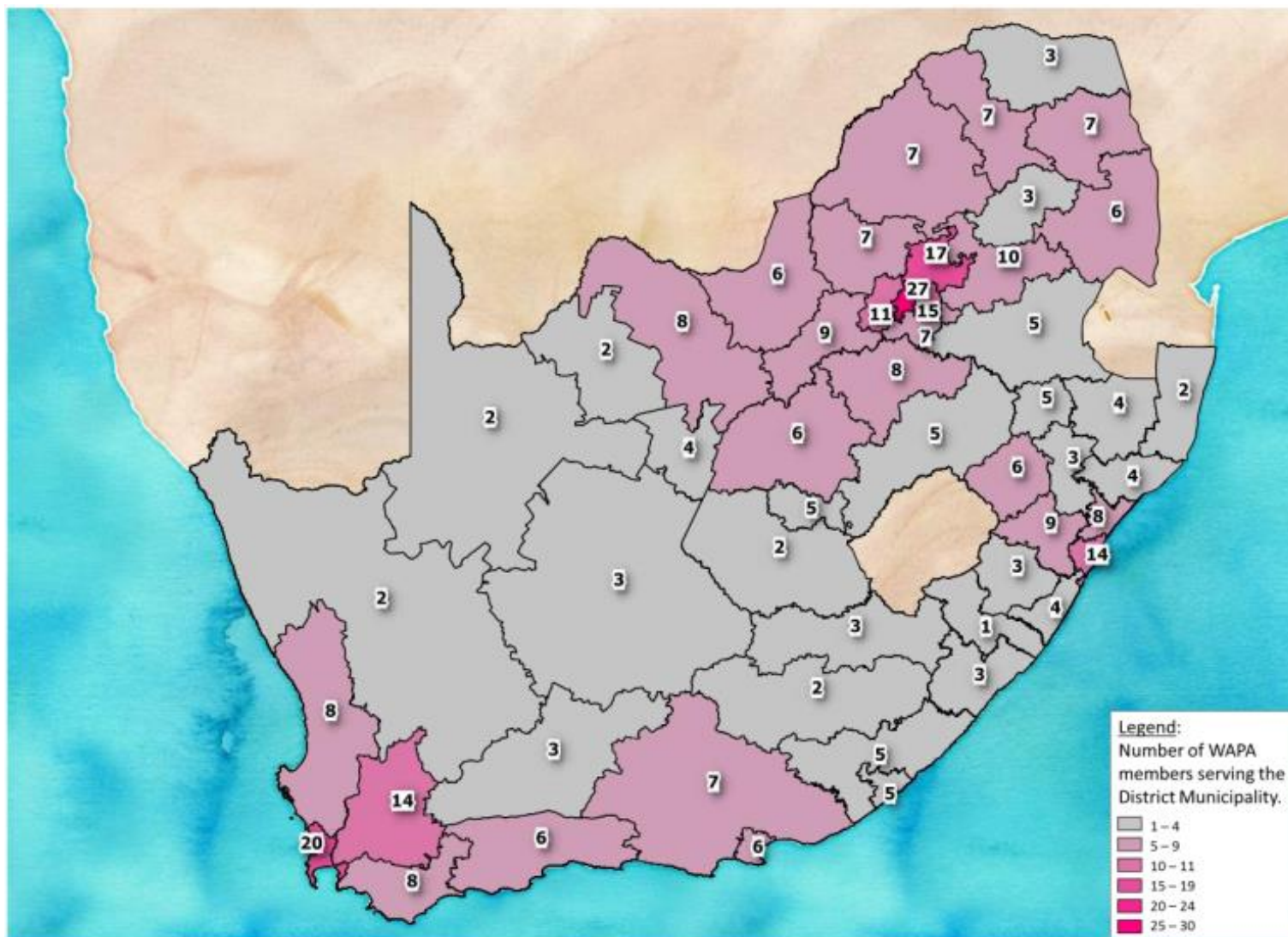
As at 5 May 2018

Indian Ocean

bing
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Coverage Map (2014)

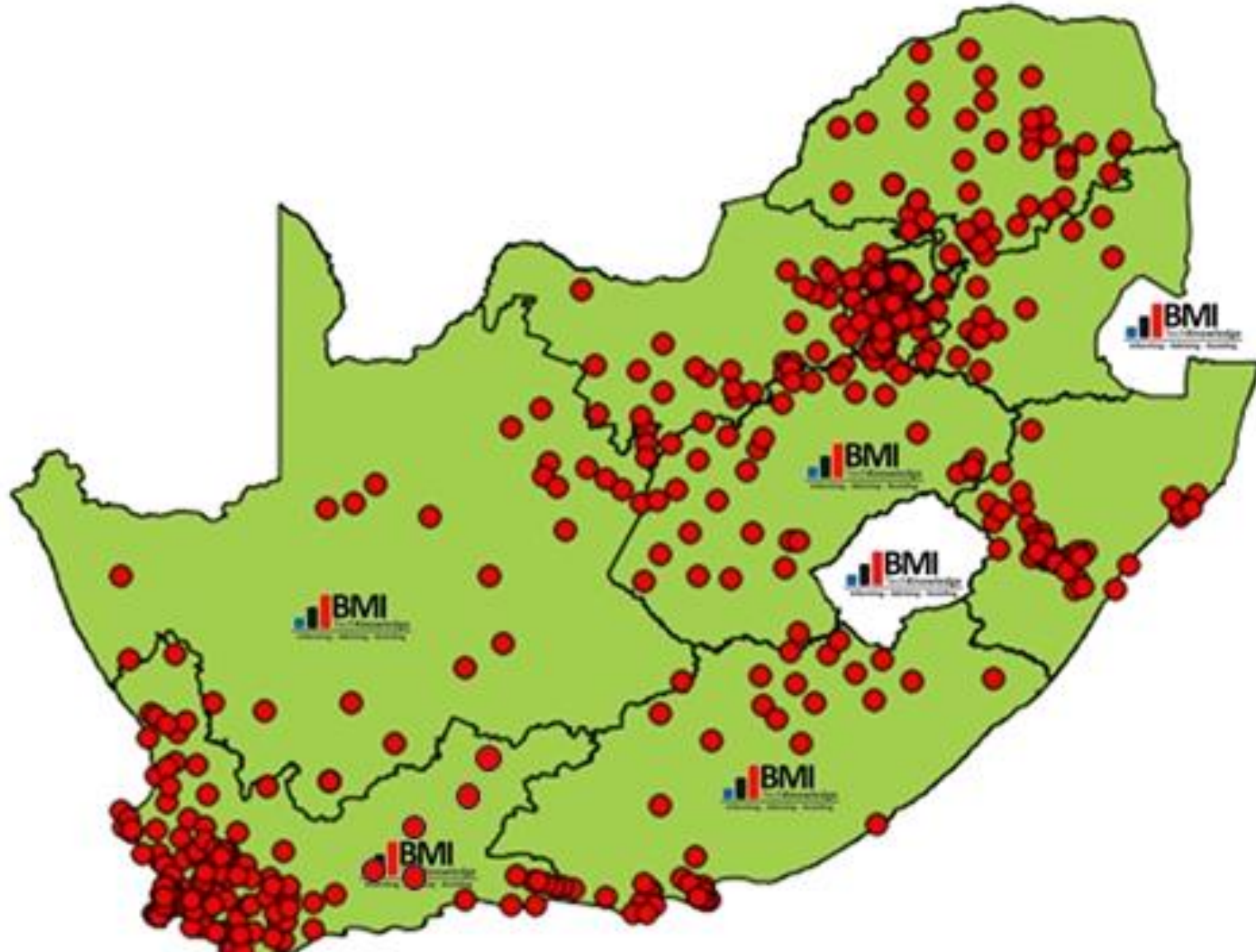
Historic Comparison



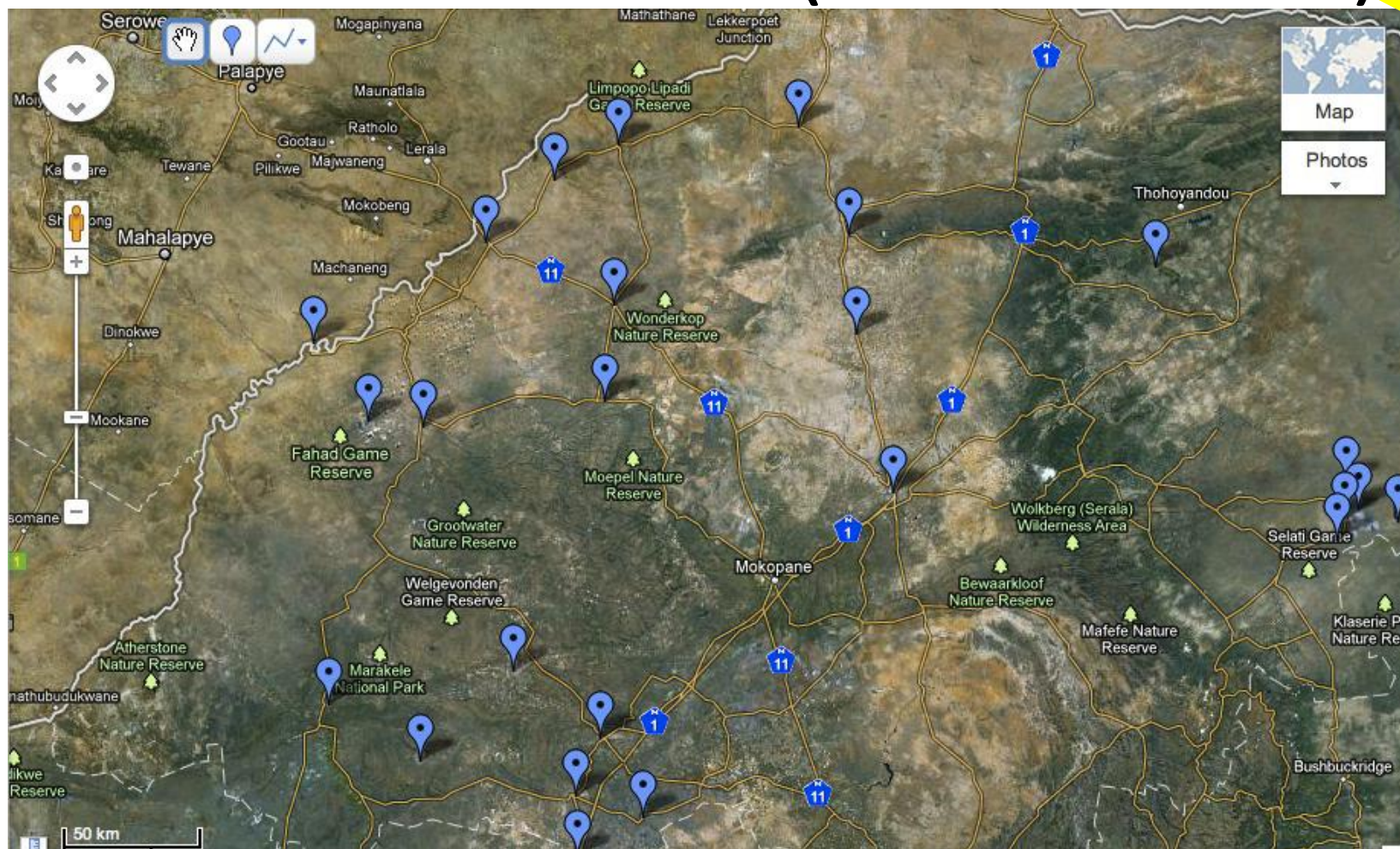
Source: BMIT (Census Analysis)

Coverage Map (2011)

Historic Comparison



COVERAGE MAP (2011- details)



An extract from 2011 – “Coverage in rural areas”

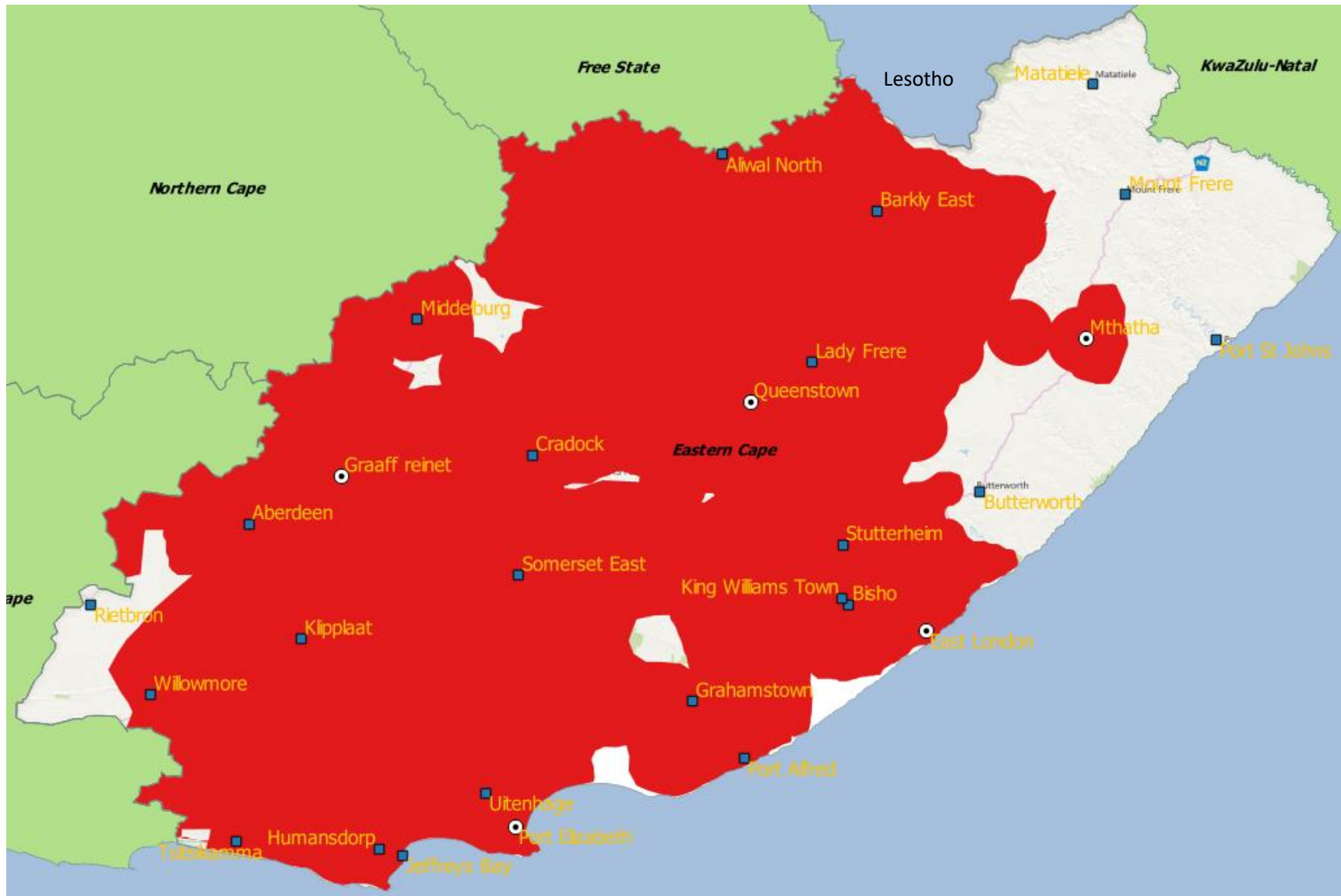
GP

Gauteng Shows
100% solid
coverage

Graphics with
more town detail
are shown in the
Annex



EC

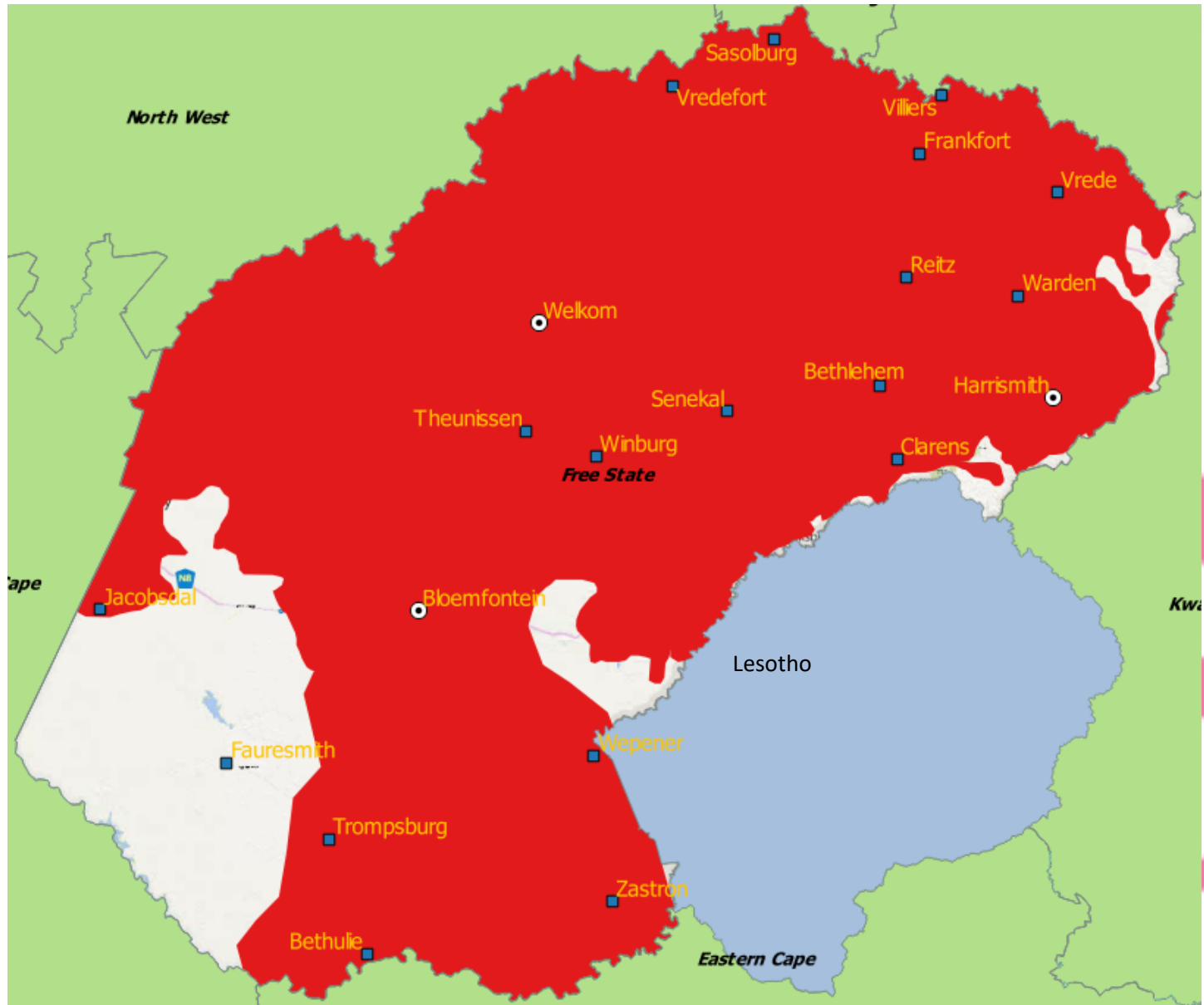


Most of area is covered, with gaps in the South East (previously the 'Transkei' area)

FS

Free State is well covered.

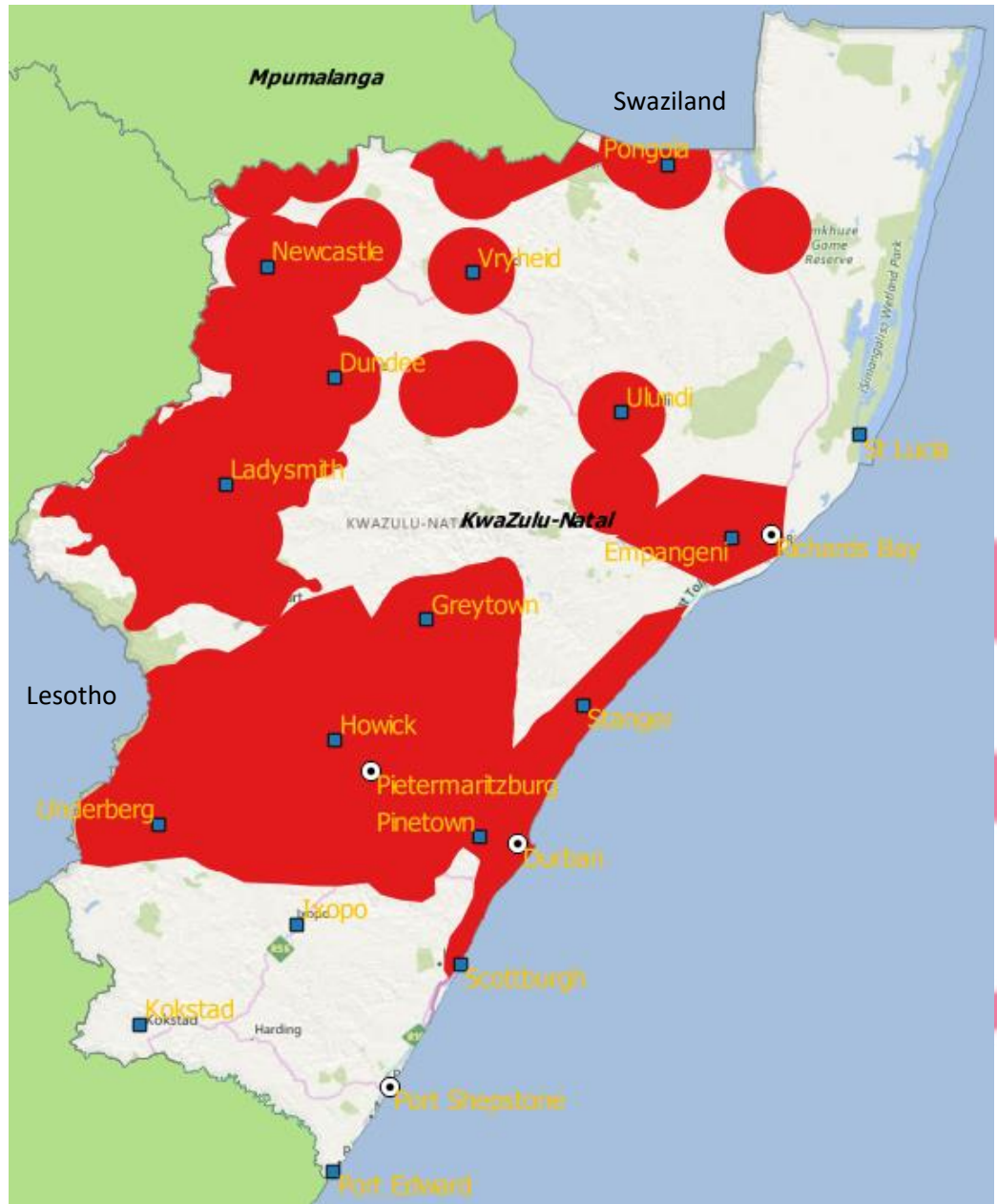
The gap in the West includes one 2nd tier town (Fauresmith) and six 3rd tier towns and so there may well be a WAPA member who has not reported but has coverage there



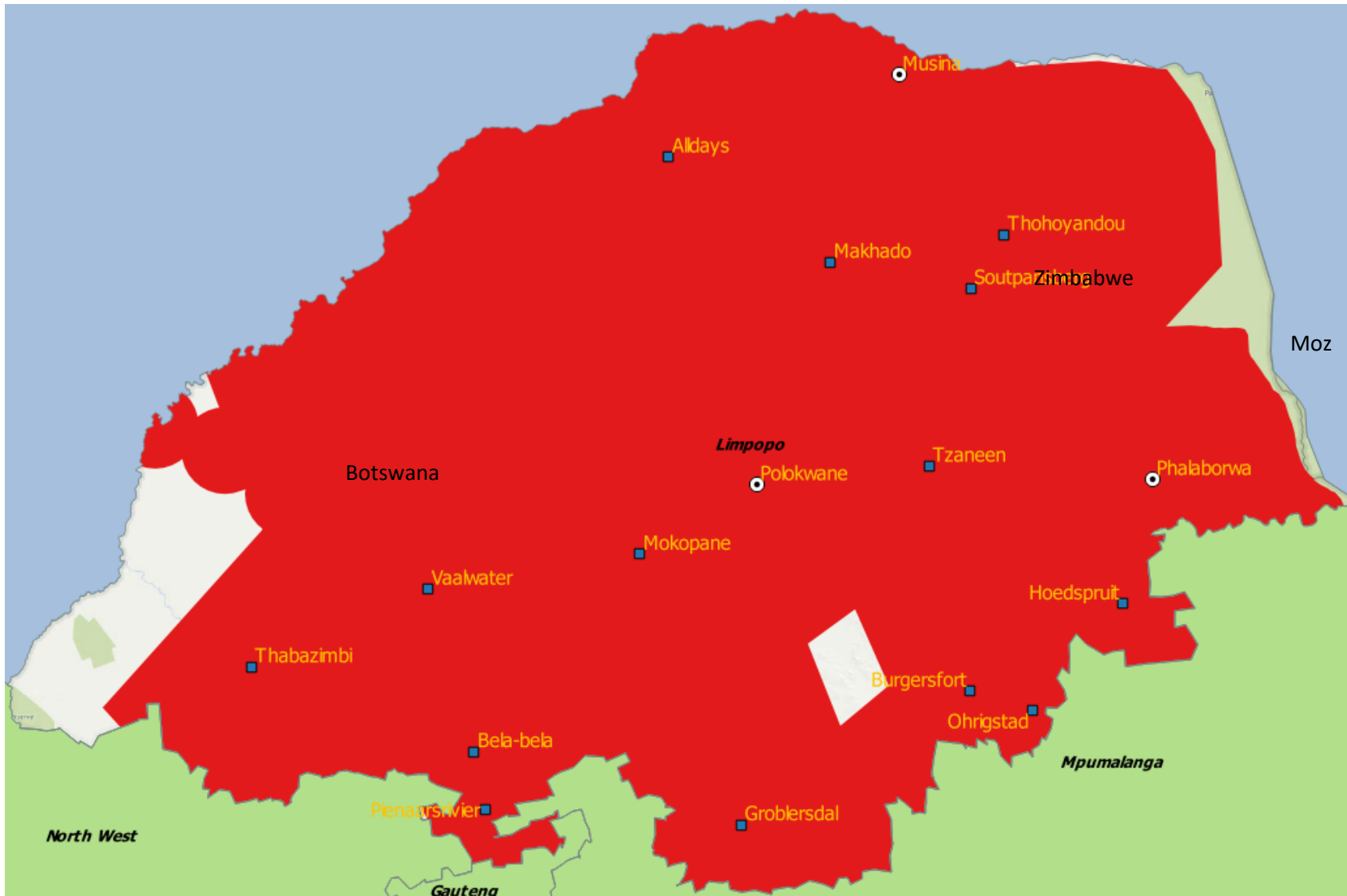
KZN

KZN's coverage is focused on the top tier towns

(There is a level of coverage is in Tier 3 towns – see Annex)



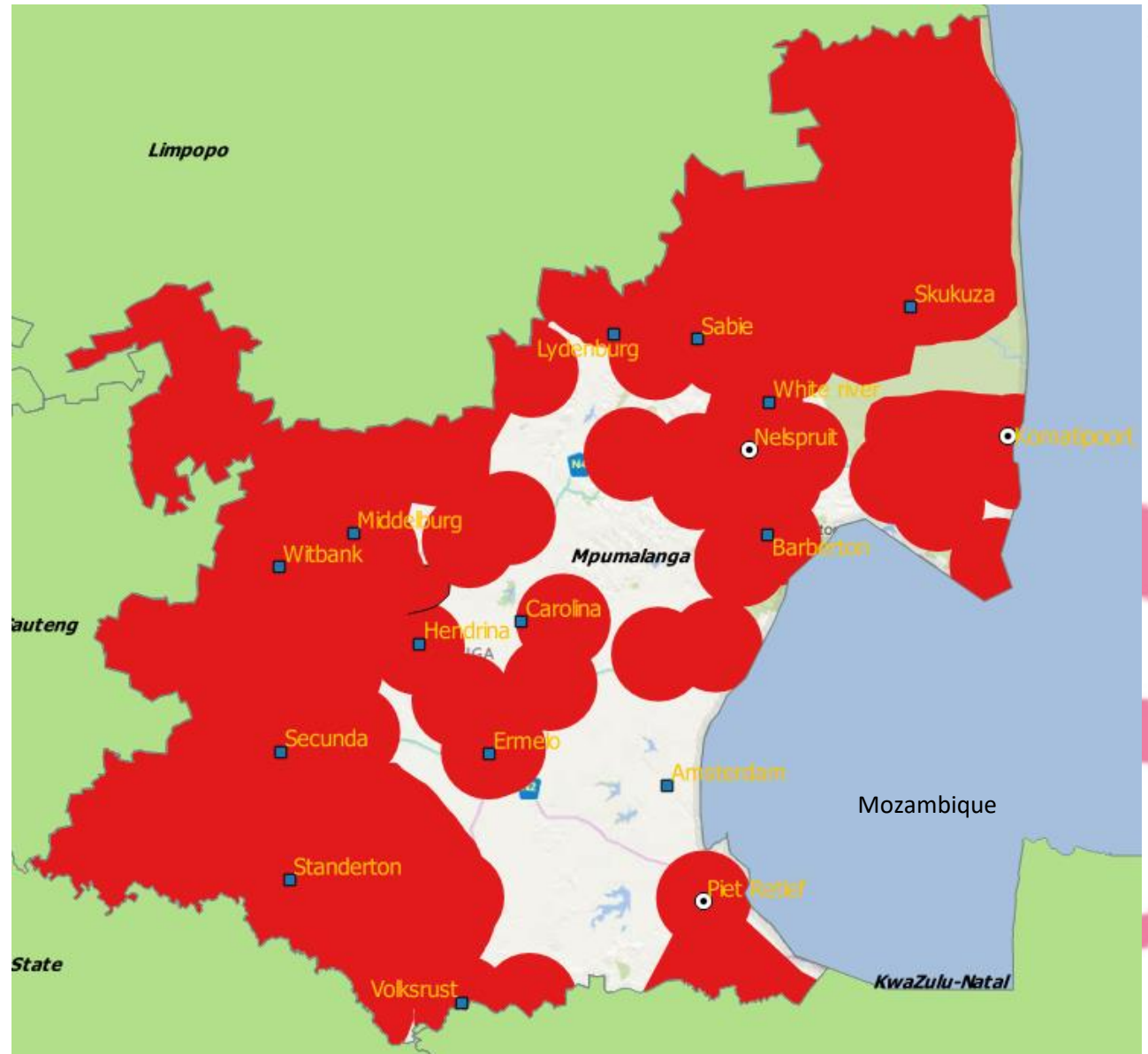
LIM



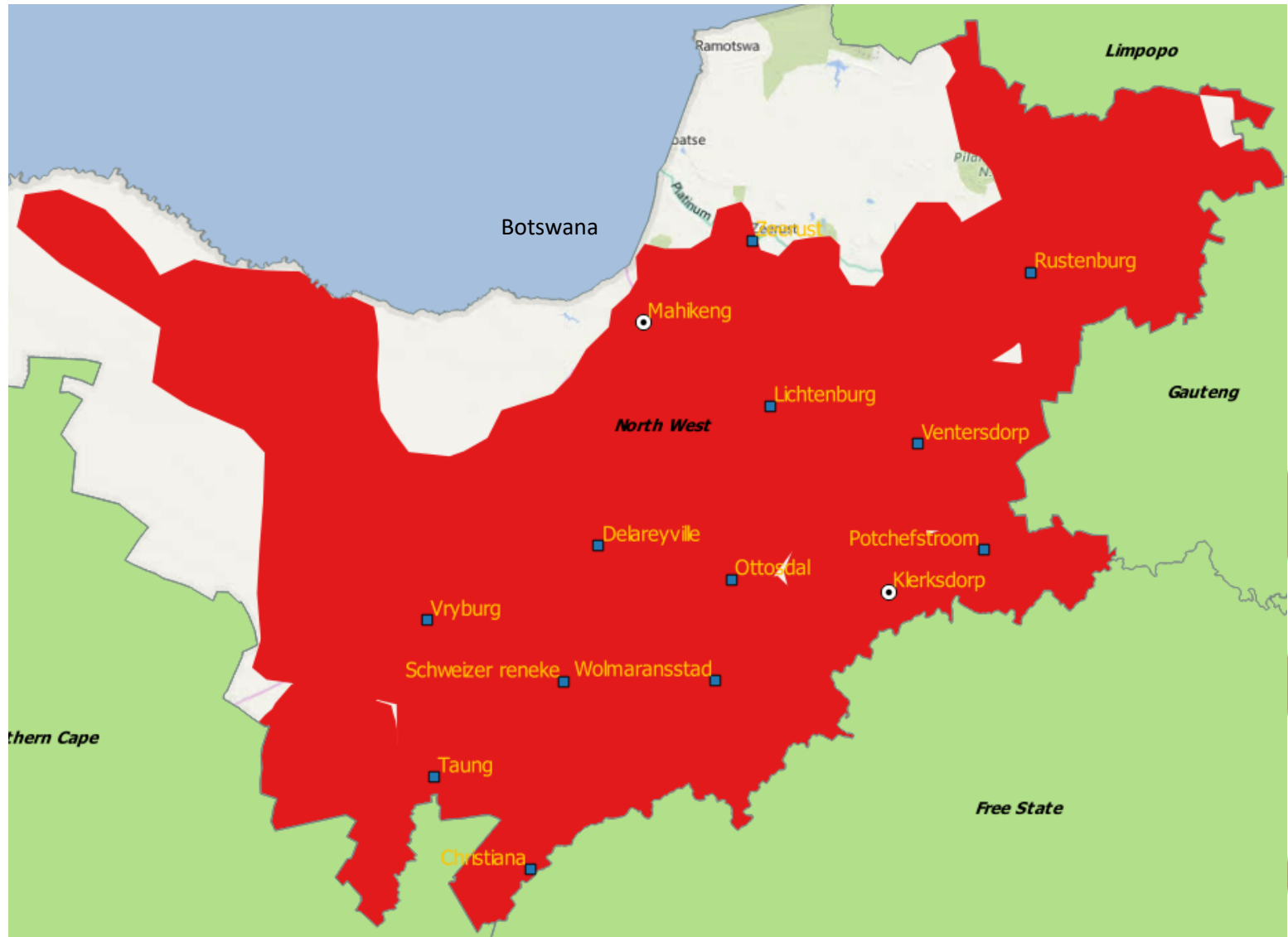
Limpopo is well covered. The areas shown with coverage gaps are do not contain towns (down to tier 5) (i.e all significant towns are covered)

MP

Mpumalanga has coverage gaps, including Amsterdam, Lothal, Dirkiesdorp and Dullstroom.



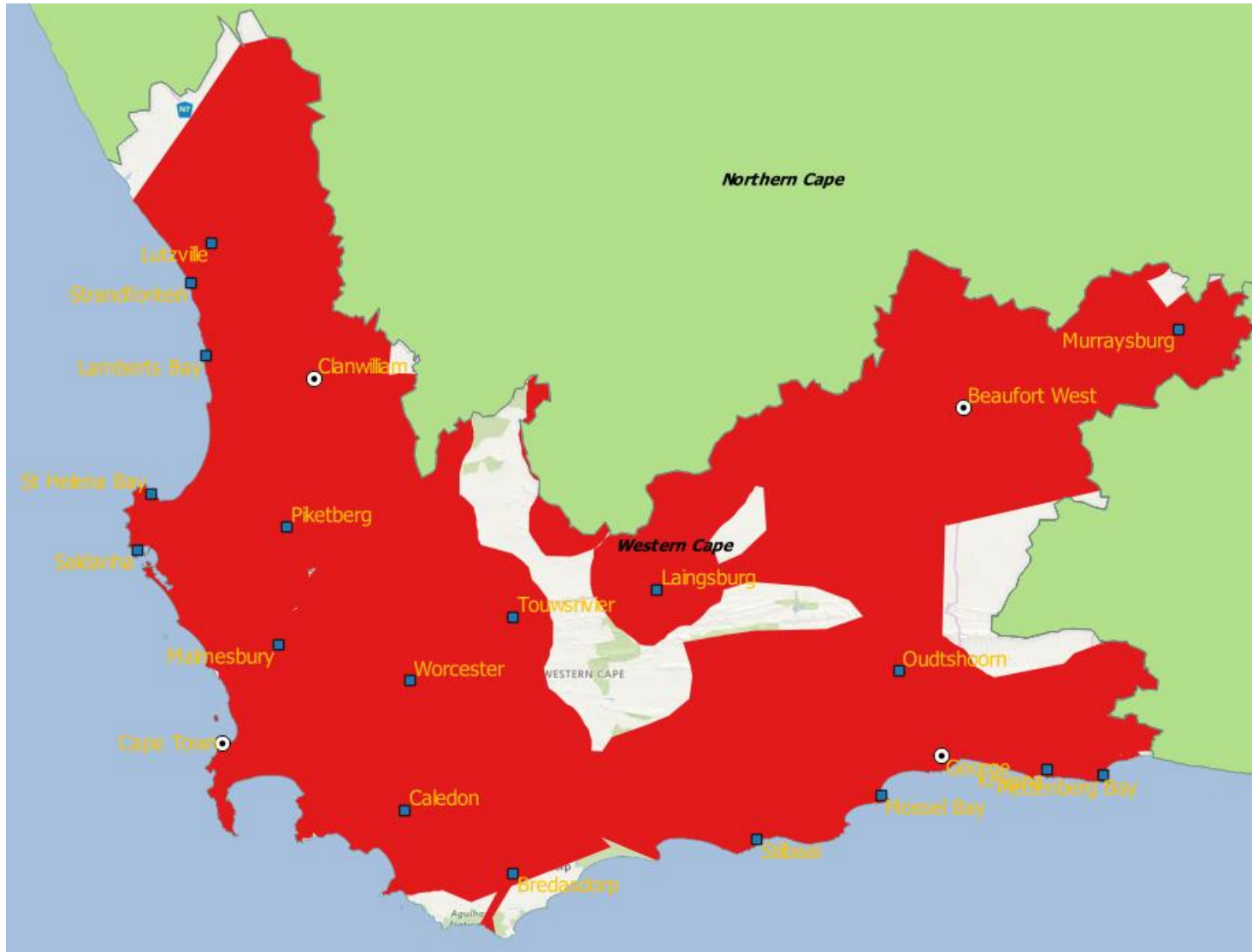
NW



North West Province is well covered in the central corridor but has coverage gaps in the West (border with Botswana)

The map displays the Northern Cape province of South Africa, bordered by Botswana to the west and north, and North West and Free State to the east. The province is characterized by a vast, arid landscape. A large number of red dots, representing sampling locations, are scattered across the province. A significant cluster of dots is located in the northern region, particularly around the town of Upington. Another major cluster is situated in the eastern part of the province, extending from the town of Kimberley southwards towards the border with the Free State. Other notable sampling locations include areas around Kuruman, Pofadder, and the southern coastal region. The map also shows major roads (N1, N10, N12, N13, N14, N15, N16, N17, N18, N19, N20, N21, N22, N23, N24, N25, N26, N27, N28, N29, N30, N31, N32, N33, N34, N35, N36, N37, N38, N39, N40, N41, N42, N43, N44, N45, N46, N47, N48, N49, N50, N51, N52, N53, N54, N55, N56, N57, N58, N59, N60, N61, N62, N63, N64, N65, N66, N67, N68, N69, N70, N71, N72, N73, N74, N75, N76, N77, N78, N79, N80, N81, N82, N83, N84, N85, N86, N87, N88, N89, N90, N91, N92, N93, N94, N95, N96, N97, N98, N99, N100) and major towns such as Upington, Kuruman, Kimberley, Pofadder, and Springbok. The map also indicates the location of the Orange River and the Great Karoo.

WC



Western Cape is well covered, with some notable gaps - particularly in the Karoo, as well as smaller towns not labelled, such as Arniston and Struisbaai

2. Census Analysis

Profiles are charted, based on :

1. Revenue
2. Subscriber
3. Mast
4. Telephony
5. School Connectivity

84 operator-members responded to Census 2018

Estimation Methodology: Since responses were given as ranges and not values, the totals could not be summed for the industry. However estimated sums were calculated as follows:

Total (for one category) = Midrange value of option selected x number of respondents

e.g. If 5 members ticked the option R1m-2m for a category, the midrange for the option is

R1.5m so the estimated revenue is $R1.5m \times 5 = R7.5m$

Revenue Profile – Pie Chart



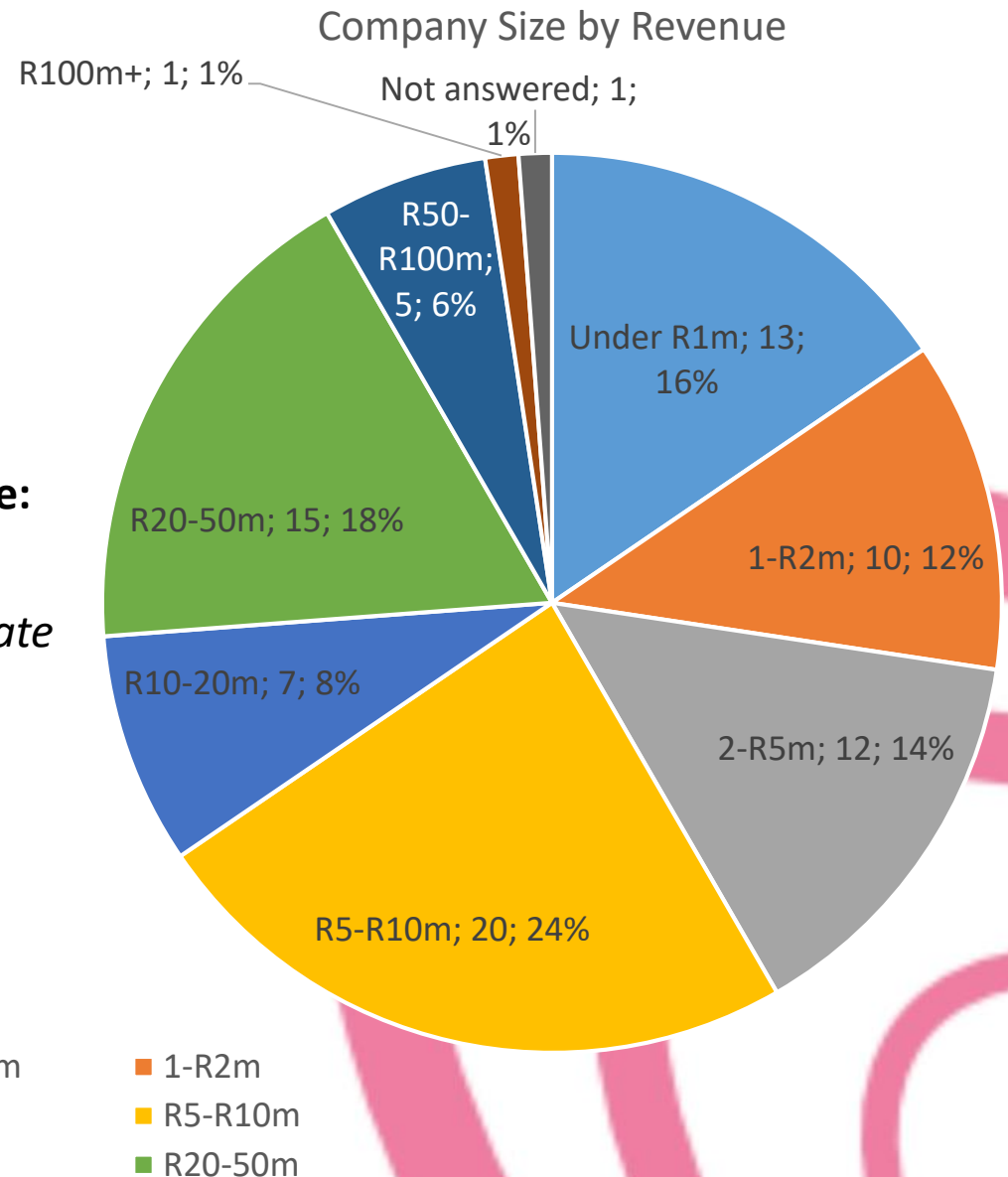
This chart shows quite an even spread of revenues

Almost a quarter of members earn in the R5-10m revenue bracket

The same information is shown on a different chart on the next slide

**Total Estimated Respondent Revenue:
R 1 243 500 000**

2011 Estimate : R160 000 000 (estimate of total base, not only respondents)



Revenue Profile - Histogram



Absolute Number (left axis) and % (right axis)

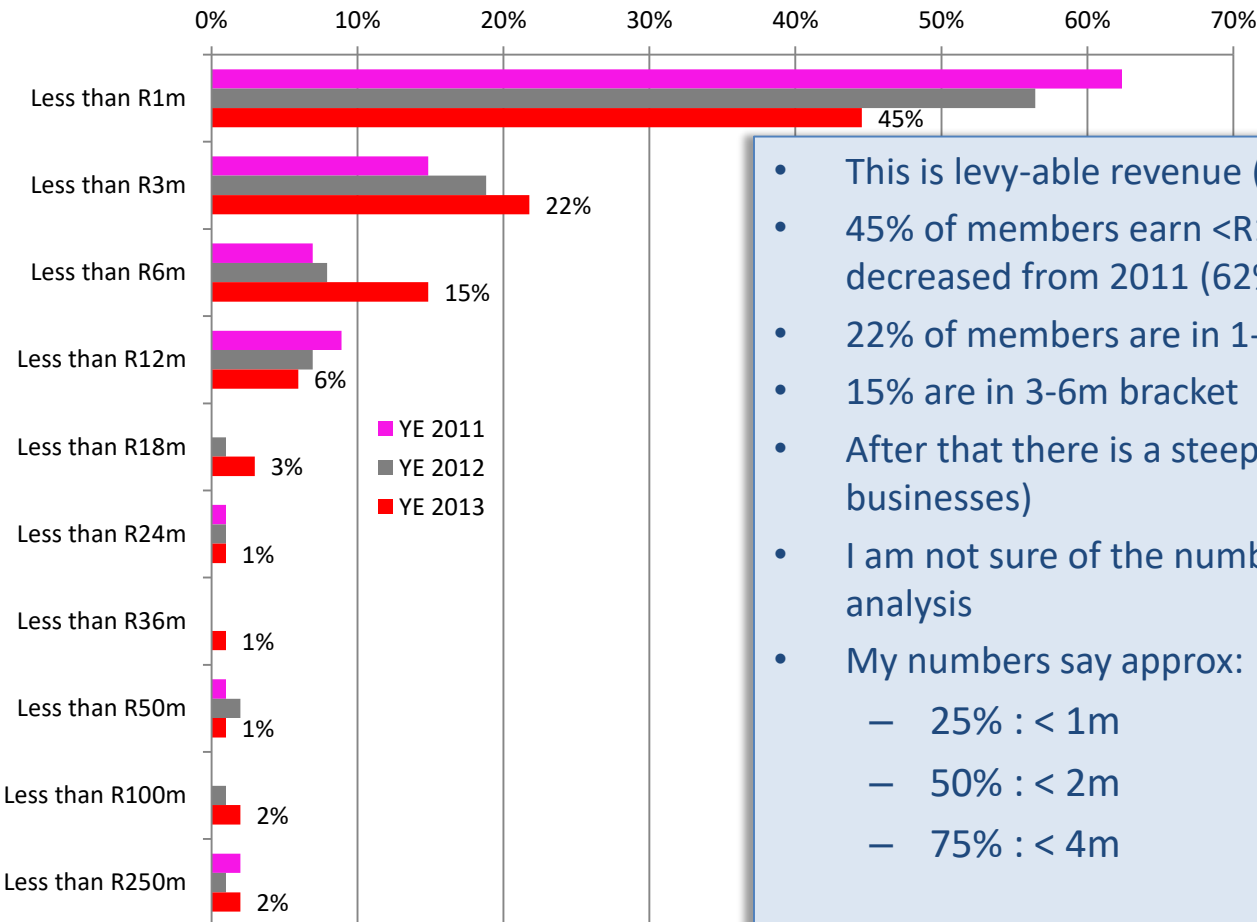


Revenue (2013 Census)



Historic Comparison

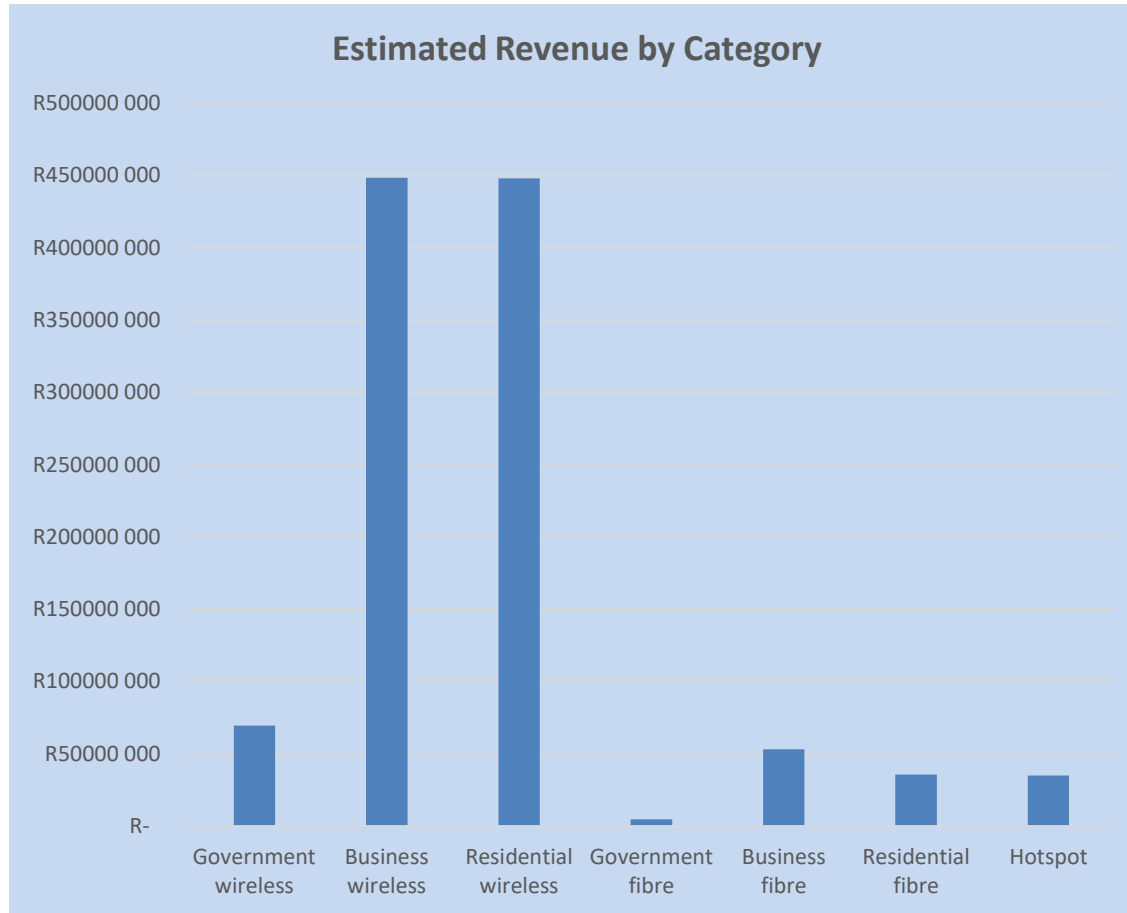
Revenue for YE2011/2012/2013 (less top 3 companies)



- This is levy-able revenue (so not from ancillary sales)
- 45% of members earn <R1m, although this percentage had decreased from 2011 (62%) (2018 = 16%)
- 22% of members are in 1-3m bracket (2018 – 3m not used)
- 15% are in 3-6m bracket
- After that there is a steep drop-off (2018 there are more large businesses)
- I am not sure of the numbers – I get this table) from my own analysis
- My numbers say approx:
 - 25% : < 1m
 - 50% : < 2m
 - 75% : < 4m

CG Histogram	#	%	Cum %
<1m	26	35%	35%
1-2m	14	19%	53%
2-3m	8	11%	64%
3-4m	9	12%	76%
4-5m	5	7%	83%
6-9m	3	4%	87%
10-15m	5	7%	93%
20-30m	2	3%	96%
30-40m	0	0%	96%
40-60m	2	3%	99%
60-0m	1	1%	100%
TOTAL	75	100%	

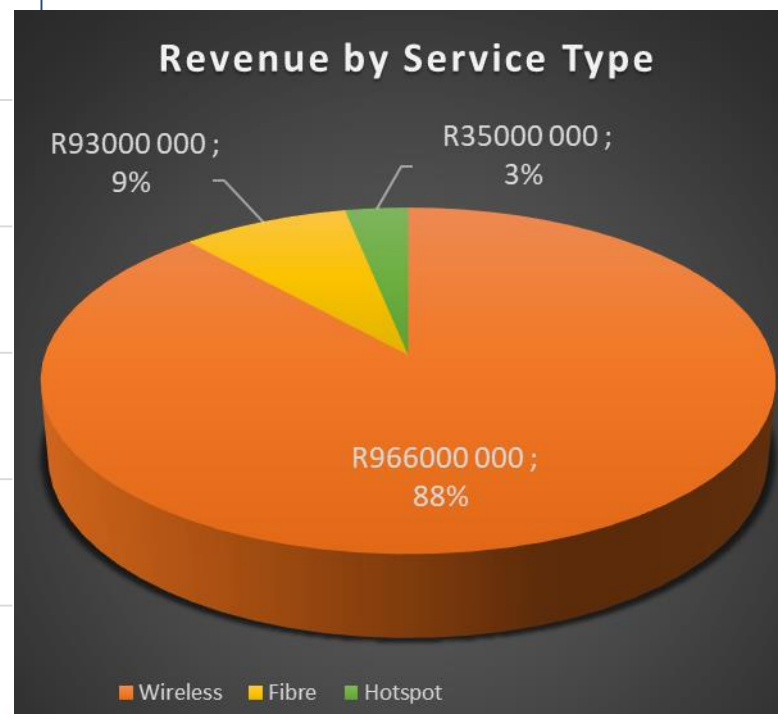
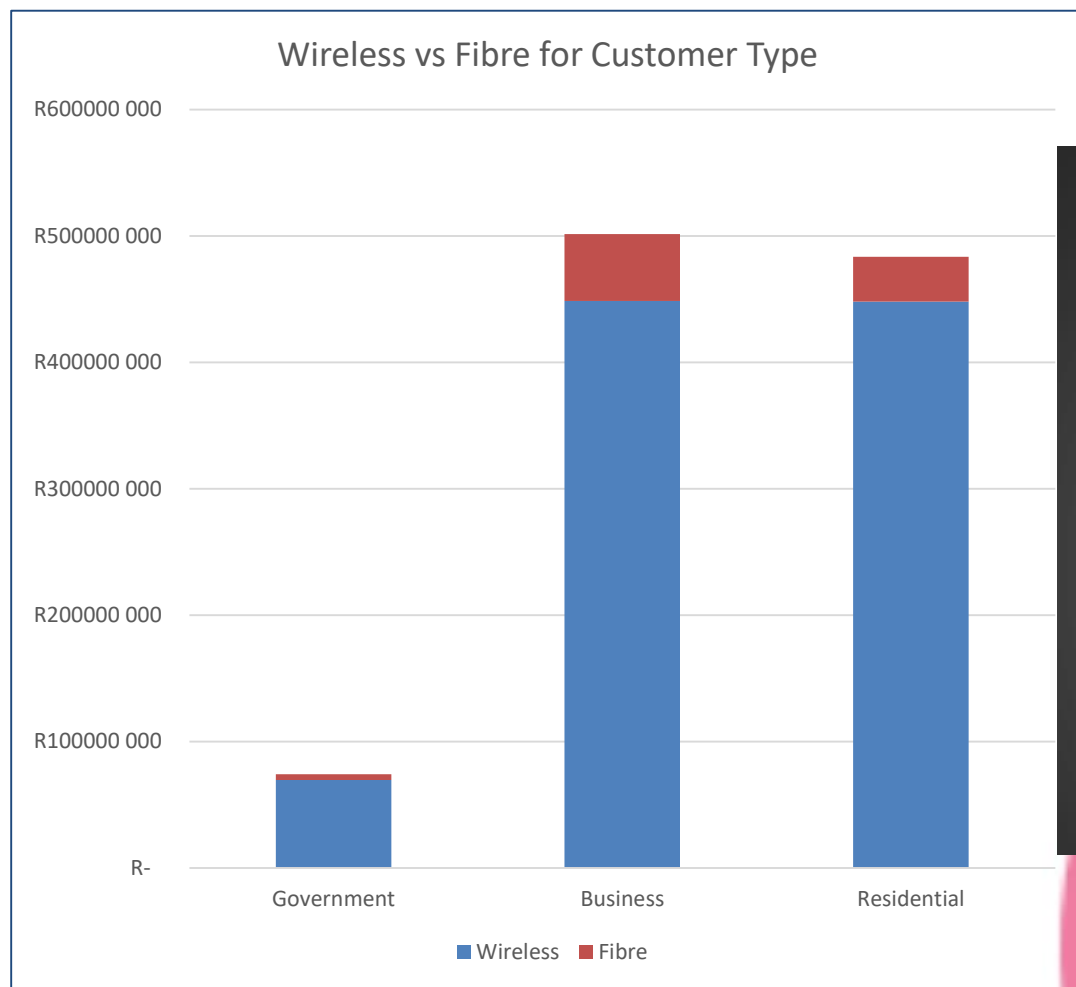
Revenue Estimates by Customer Type



Customer Type	Revenue Estimate
Government wireless	R 69 500 000
Business wireless	R 448 500 000
Residential wireless	R 448 000 000
Government fibre	R 4 500 000
Business fibre	R 53 000 000
Residential fibre	R 35 500 000
Hotspot	R 35 000 000

The bulk of member revenue is from business and residential wireless, in equal proportions

Revenue Estimates by Service Type



Fixed-wireless revenue remains strongly dominant, at 88% of total revenue (91% if hotspots not included), but fibre is an emerging contributor to total revenue, particularly with business.

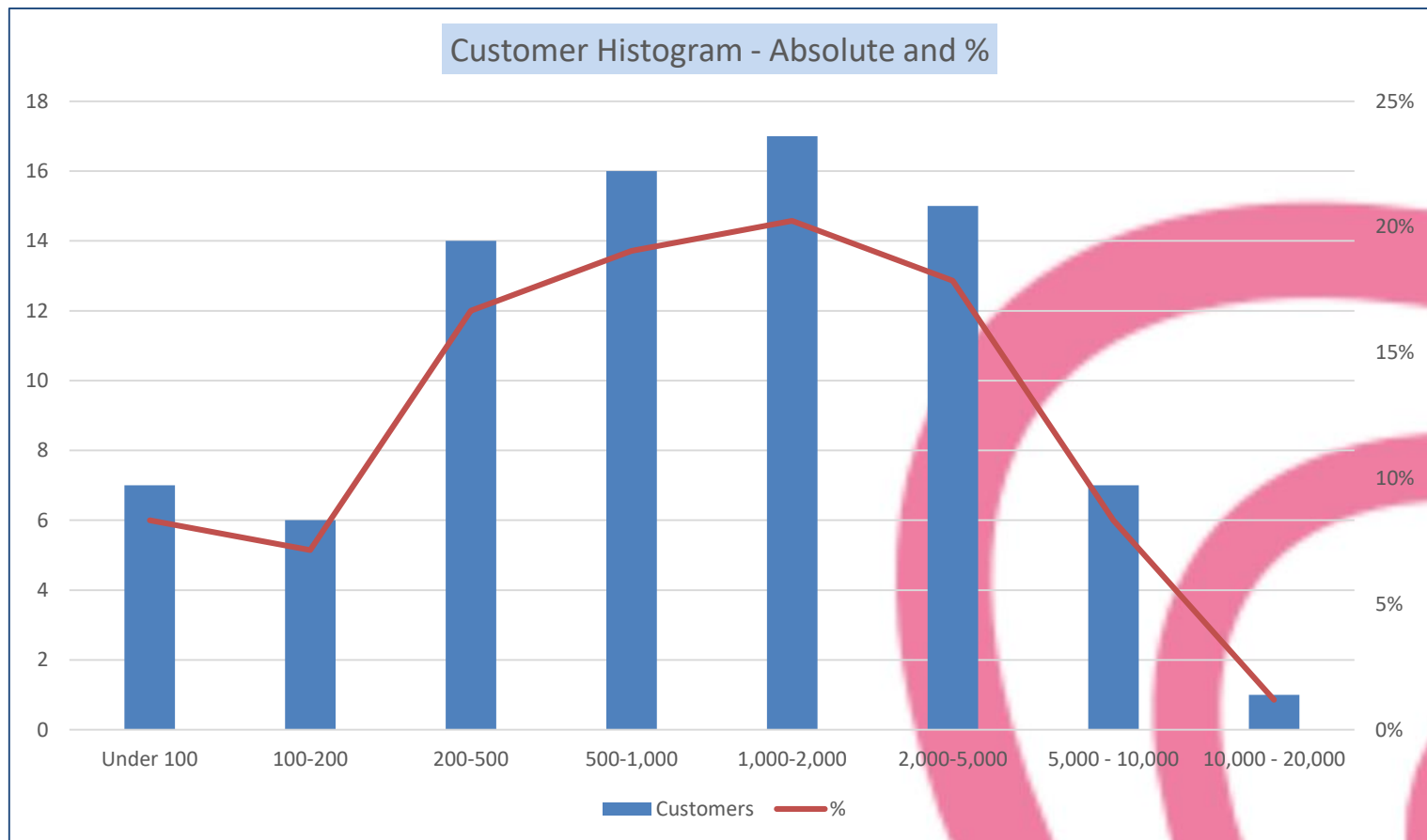
Although large Hotspot operators responded, hotspot revenue is estimated at 3% of total (Project Isizwe's significant revenue was received but excluded from this result)

Customer Profile - Histogram



Members who responded serve an estimated 164 000 customers

2011 Census: 80 000 subscribers (estimate of total membership numbers), in 2008 it was 13 000 and in 2007 it was 8 200.

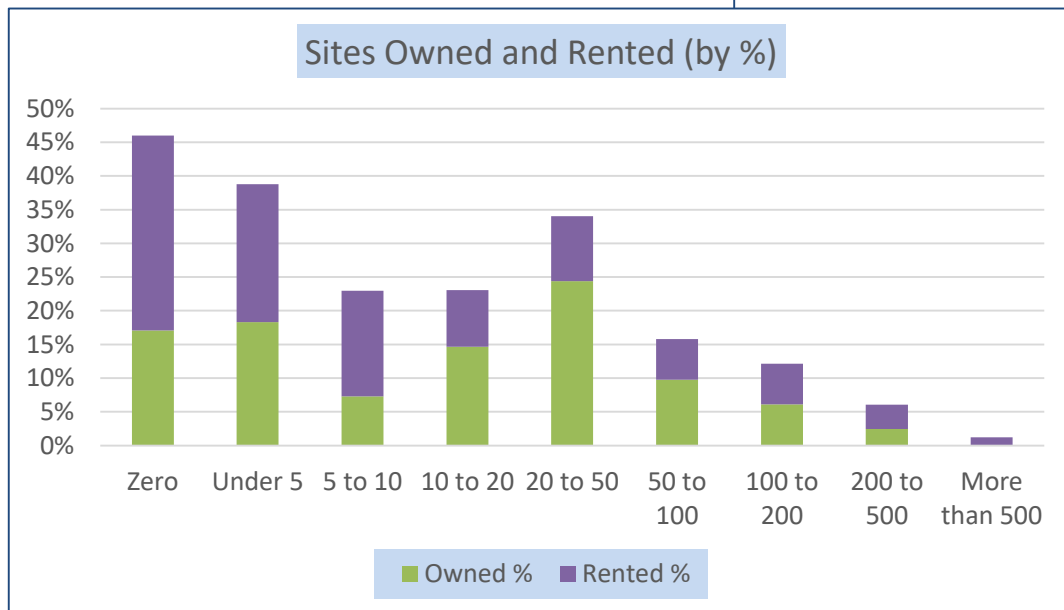
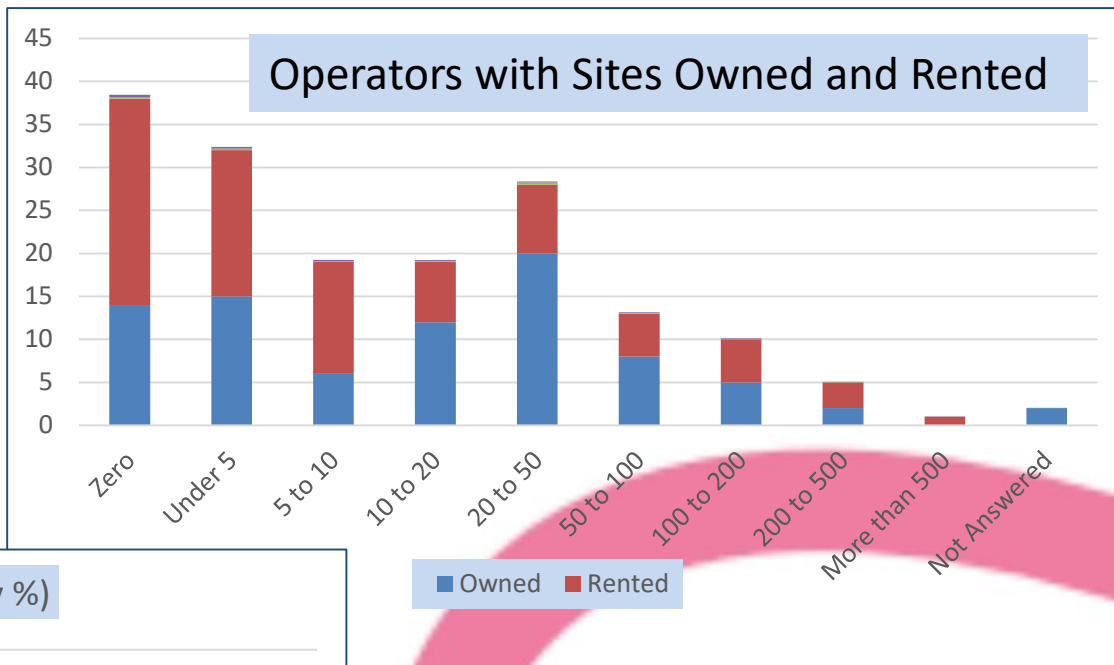


High Site Profiles – Owned and Rented



Members (who submitted) are estimated to

- **own 2610 sites**
- **rent 2870 sites**
- **utilise 5480 sites in total** (in 2008, this was 860 sites).

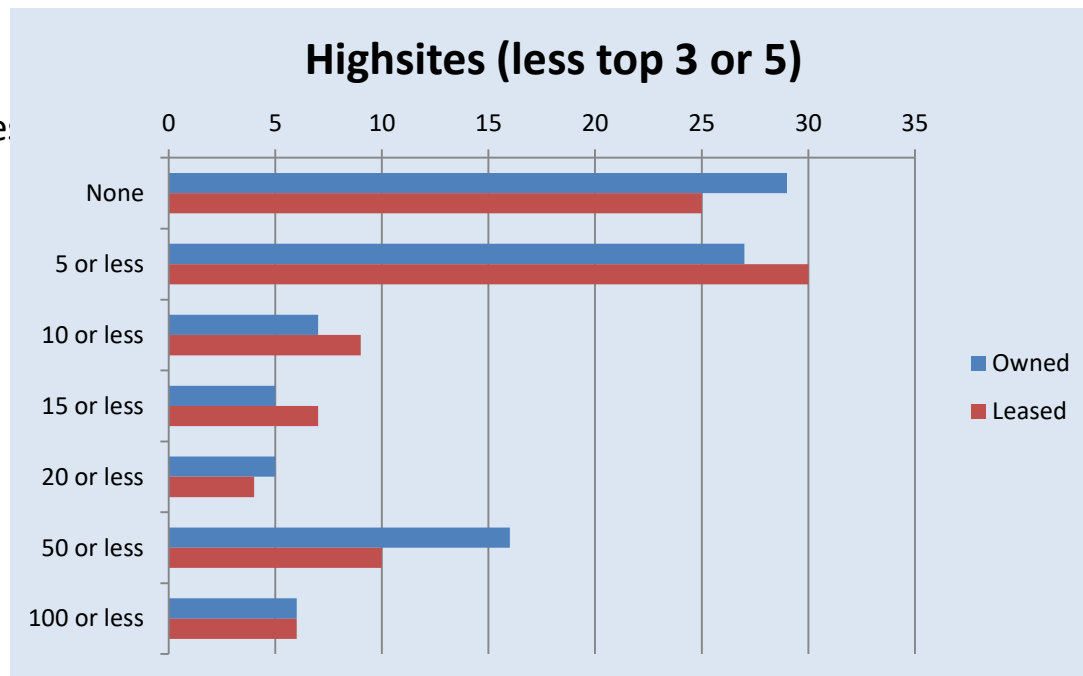


Note :although the graphs are shown as 'stacked', response categories cannot be truly 'added' to give total tower numbers

High Site Access (2013 Census)

- 30% of members do not own sites.
- 26% of members do not lease sites.
- 26% of members neither own or lease site.

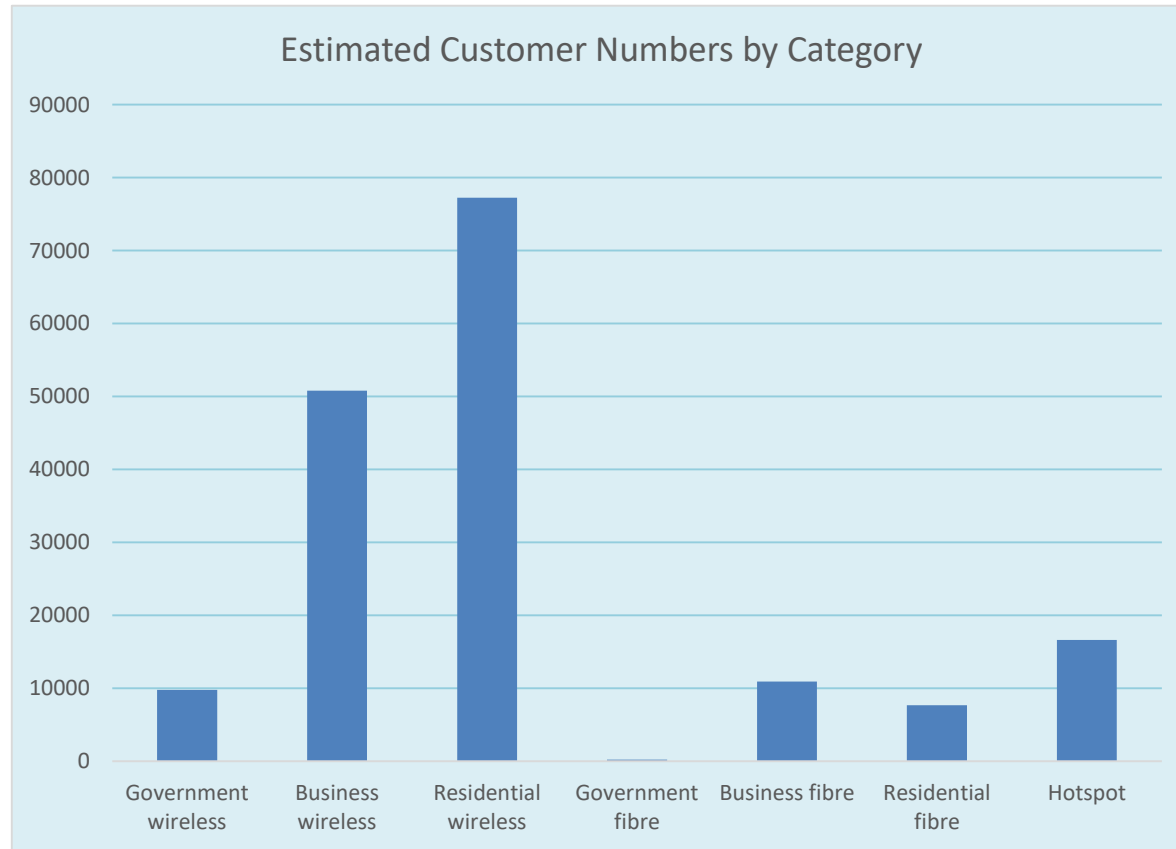
	Own	Lease
• Average excl top 5	10	12



Hotspots (not sure if Wi-Fi AP's or pt to pt)

- Excl top 5 Total: 465 . Average: 6.1

Customer Numbers by Customer Type



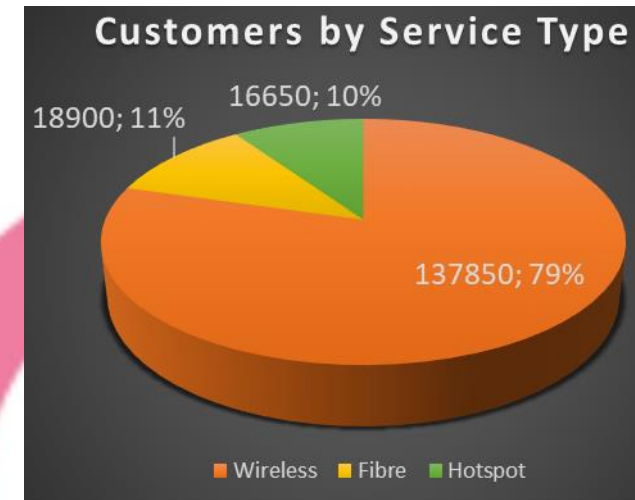
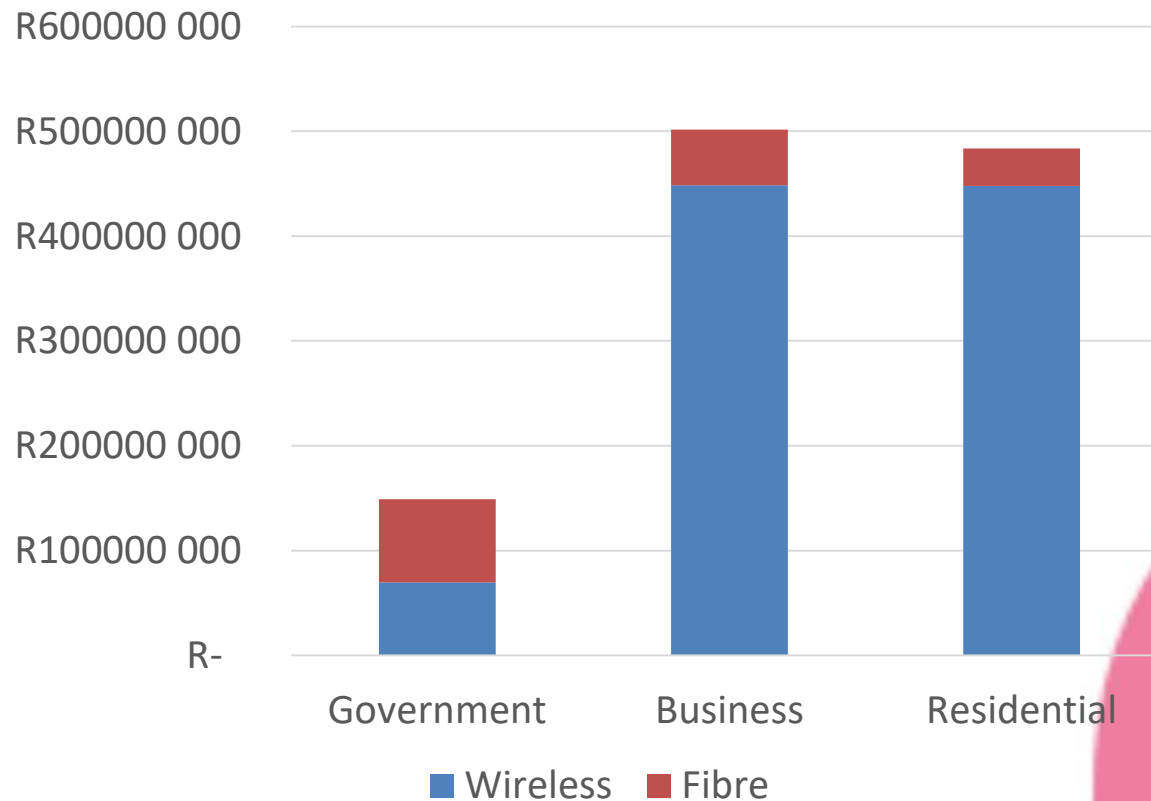
Customer Type	Number Estimate
Government wireless	9 800
Business wireless	50 800
Residential wireless	77 250
Government fibre	250
Business fibre	10 950
Residential fibre	7 700
Hotspot	16 650

Residential dominates, but obviously a single government or business client can be very large, so customer numbers are not directly comparable

Customer Estimates by Service Type

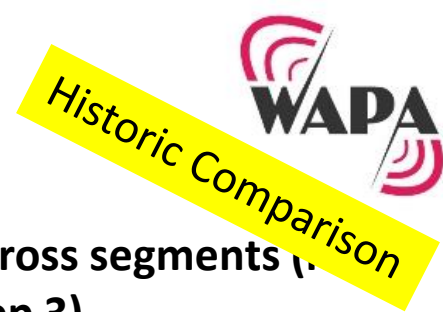


Wireless vs Fibre for Customer Type

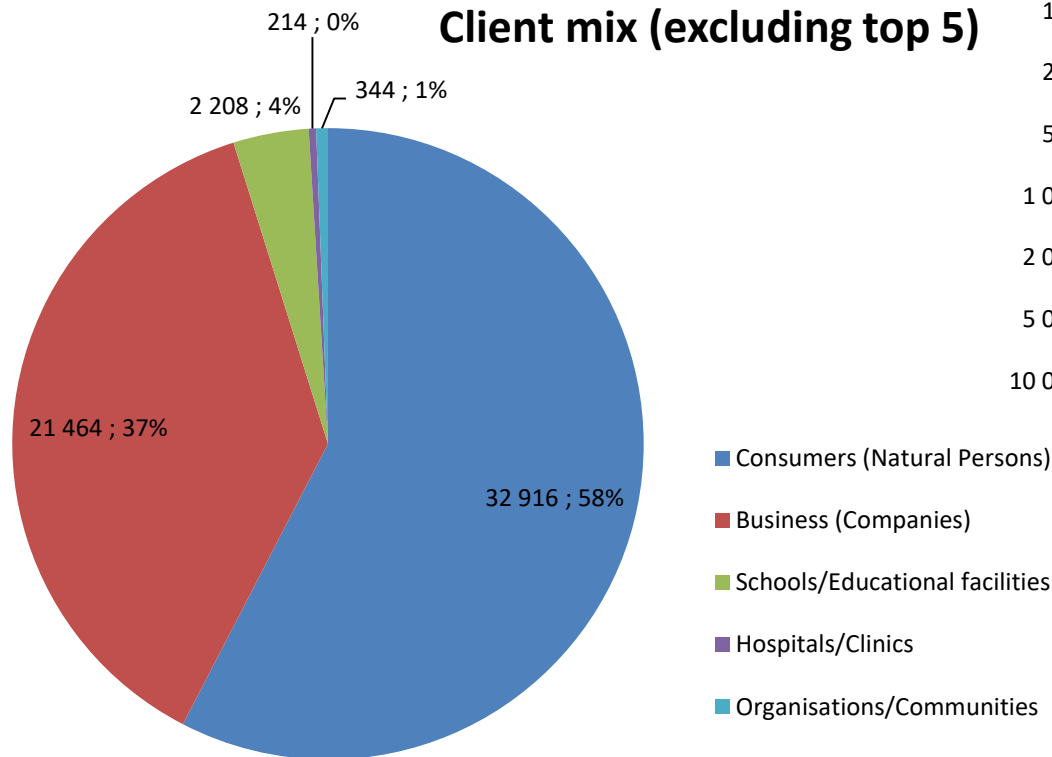


Almost 80% of the customer base remains wireless-based, but 10% fibre is probably a reasonable jump from the zero base a few years ago.

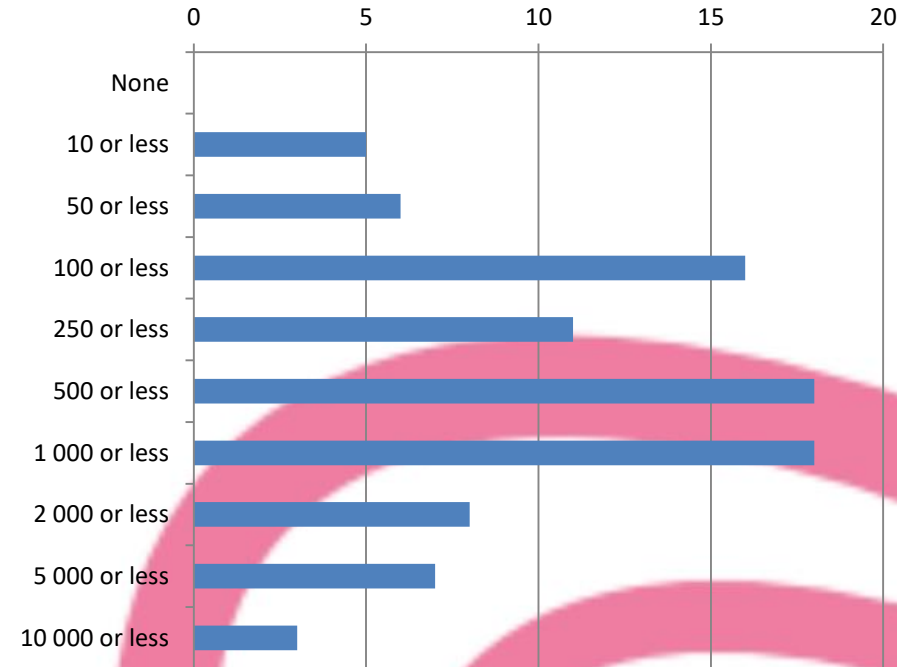
Customer Analysis (2013 Census)



- Official : 635 clients on average (-top 5)
- I get average 656, median of 355
- Most customers are residential with almost 40% business
- Schools are a small % but significant enough to plan for



Clients - total across segments (top 3)

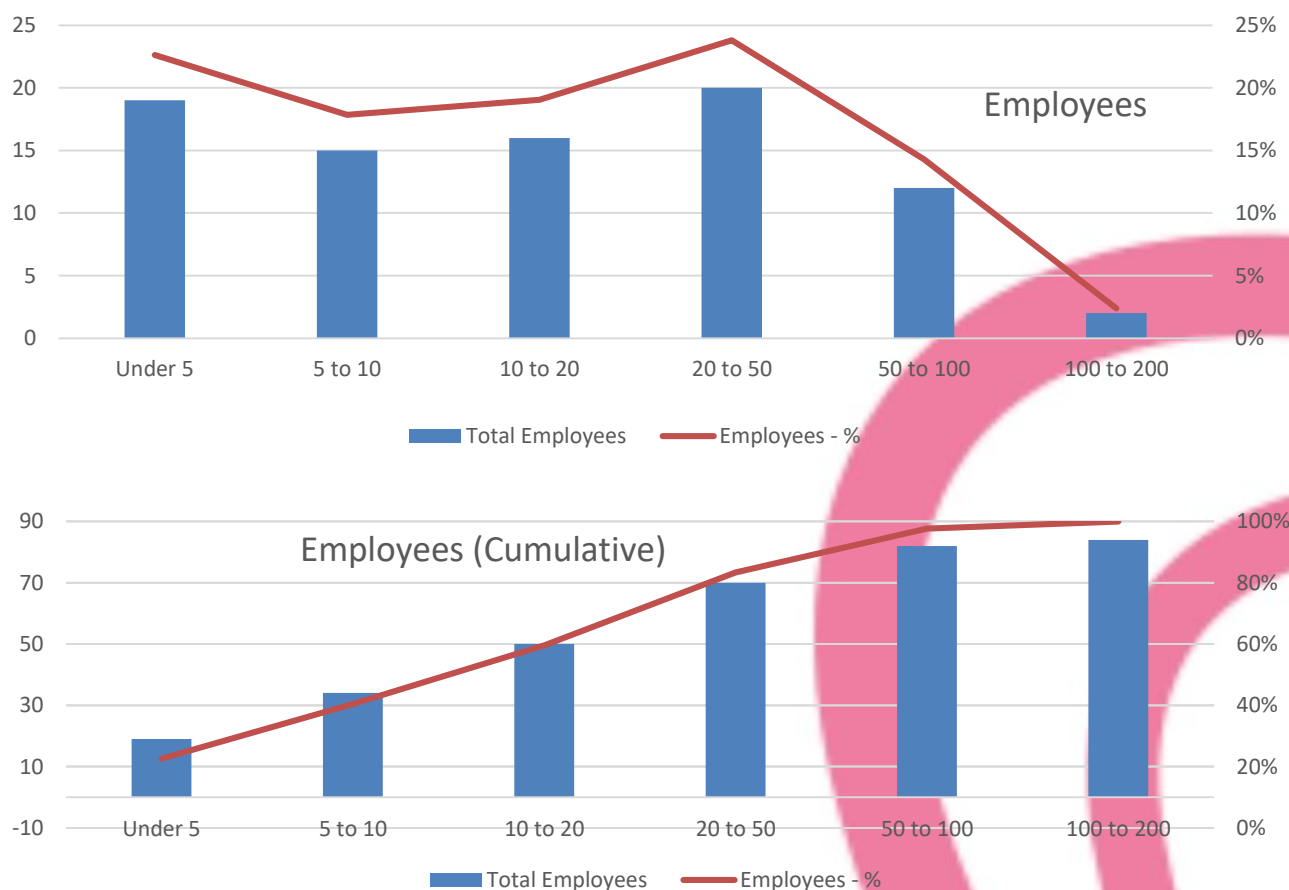


Staff Analysis

Histograms show absolute numbers and percentages

The lower chart shows the cumulative totals

Members who responded are estimated to **employ about 2300 staff***



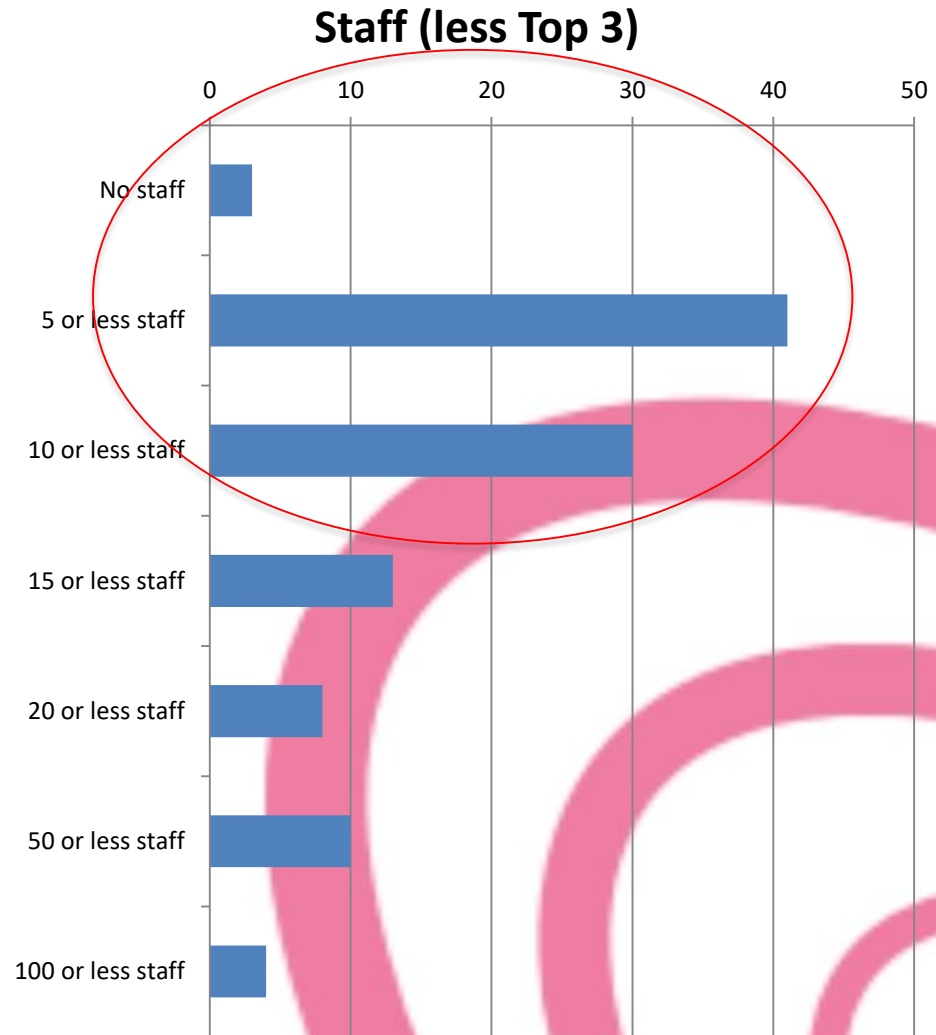
* In 2011, the estimate (for full membership) was 1000, in 2008 it was 375 & in 2007, 267 (perm and temp)

Staff Analysis (2013 Census)

Historic Comparison

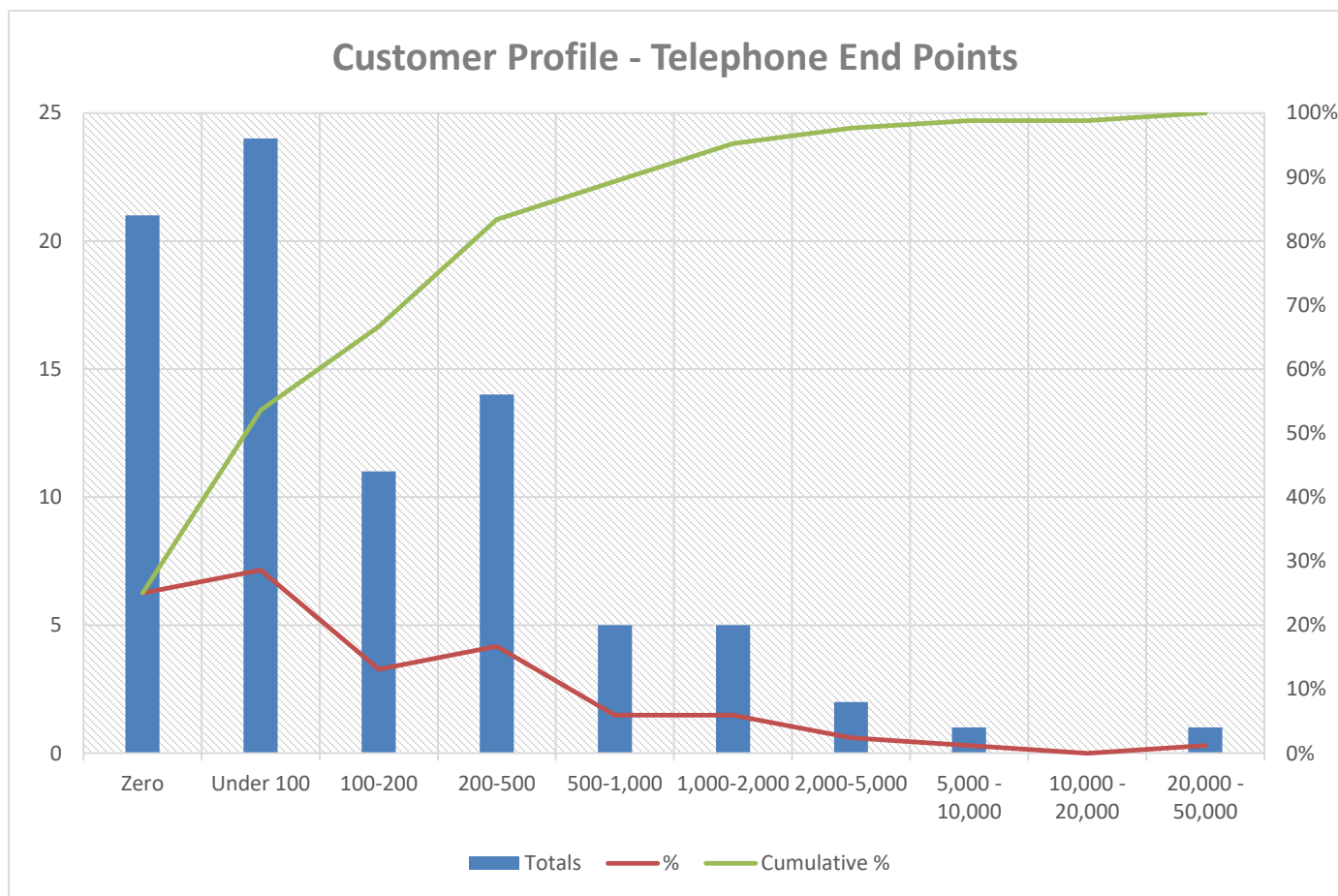


- The average is 10, with 69% of members below the average
- The median staff size is 7
- The top 13% employ half of all staff
- 74% have 10 staff or less, most of these with 5 or fewer



Telephone End Points

Over 20% of members offer no telephone service and over 25% under 100 lines. The cumulative line indicates over 80% of members have <500 lines but there are a few larger players. Total estimates of those who submitted are 102 000 lines.

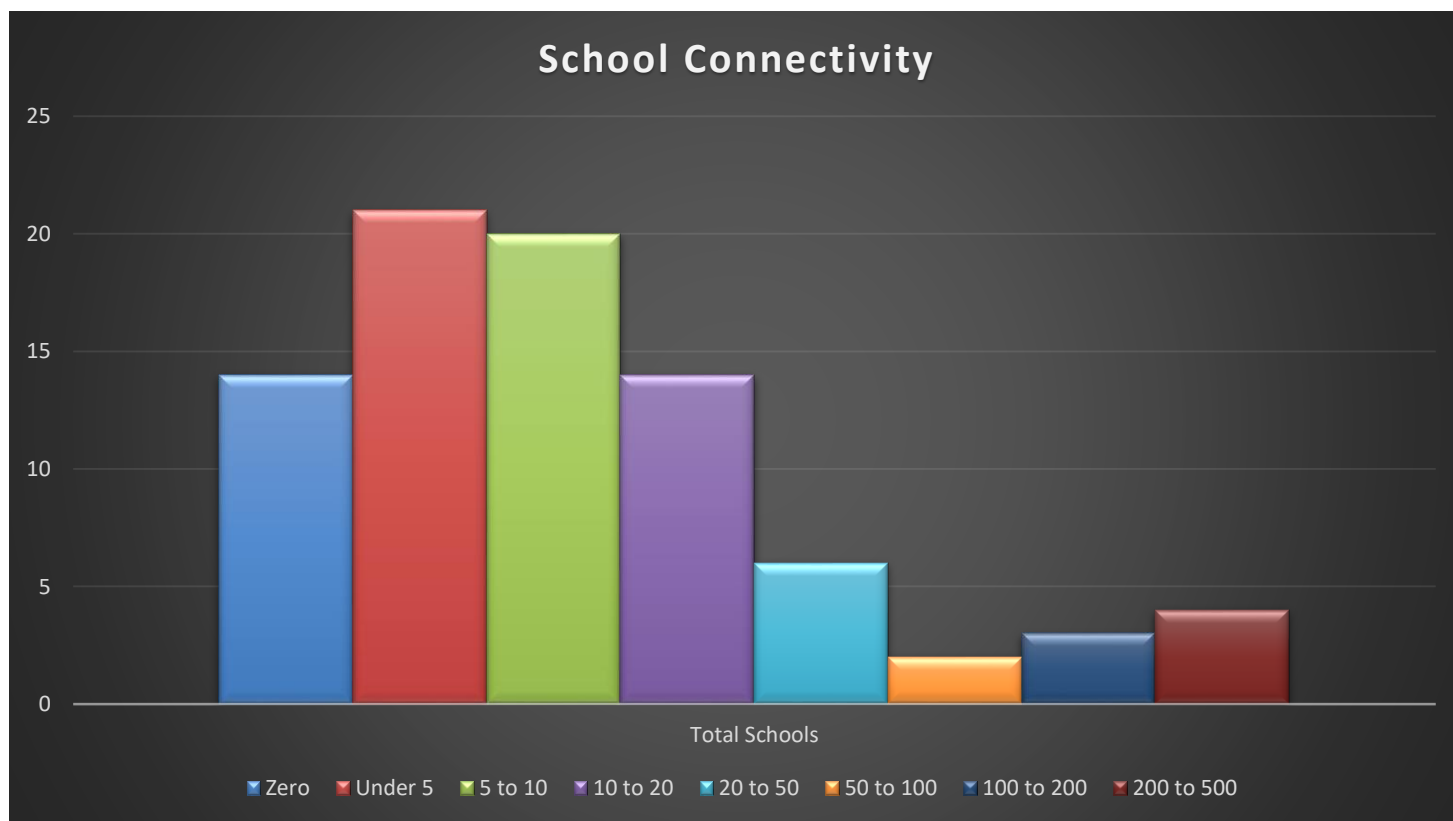


School Connectivity

The histogram probably reflects a mixture of WISPs who connect schools as:

- a social service
- ad-hoc customers, or
- contracted into a government programme (amongst those reporting larger numbers)

Total estimate (from members who submitted) is **2620 schools** connected (this would imply WAPA is connecting close to 10% of all schools, although the number represents a simplistic estimation).



3. Review of Process Followed



Some reflections (especially w.r.t. any future Census)

1. It was useful to collate and do manually in order to understand the underlying dynamics.
2. Future surveys could be on Survey Monkey, but need more time, ability to test the questions, and clear process to ensure confidentiality of access. Perhaps trial this with an interim survey which is recommended to gain more detailed responses without being too taxing on members.
3. Calibrate the ranges used for selection options based on the 2018 results but allow for historic comparison
4. Coverage KML's were often of inadequate quality and needed to be redone or just created on behalf of the member. This aspect must be cleaned up in future:
 1. Some operators submitted high sites (points), others polygons. Either can be done but must be consistent (also coverage principles need to be reasonably standard). I did manual conversion of points to polygons, with 18km radius (buffer) around sites in order to 'create' polygons. See 2011 census slide for comparison – sites (circles) may be a better choice.
5. Technically I used a proper GIS system but perhaps rather use Google Earth to collate as it is more tolerant of formats (and was probably used by members to create their polygons).
6. The first question on high-sites should be an option for 'total' and then the owned/leased option, to assist with calculation of totals
7. By extending for many weeks, and with much persuasion, we did get over 80 respondents. It would have been useful to get 3 or 4 more larger players, so the numbers used (for revenue, staff, customers, schools) get close to actual full membership totals and to avoid gaps in coverage when in fact there are members in some areas.
8. The choice of options for the largest operators left some scope for confidentiality exposure, as well as cases where one or two operators cover an area exclusively (in some cases I just used info from Websites for coverage, whilst in others I asked the member(s) concerned.
9. The membership used to include operators with a primary focus on commercial Wi-Fi hotspots (Skyrove, Wish, Always On). A possible focus of an interim census could be to explore the current AP dynamic.
10. Overall, members were really good in supplying the info they did

Census 2018 Report.

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Christech (Pty) Ltd

"Instant Access to a World of Experience"

ANNEXURES

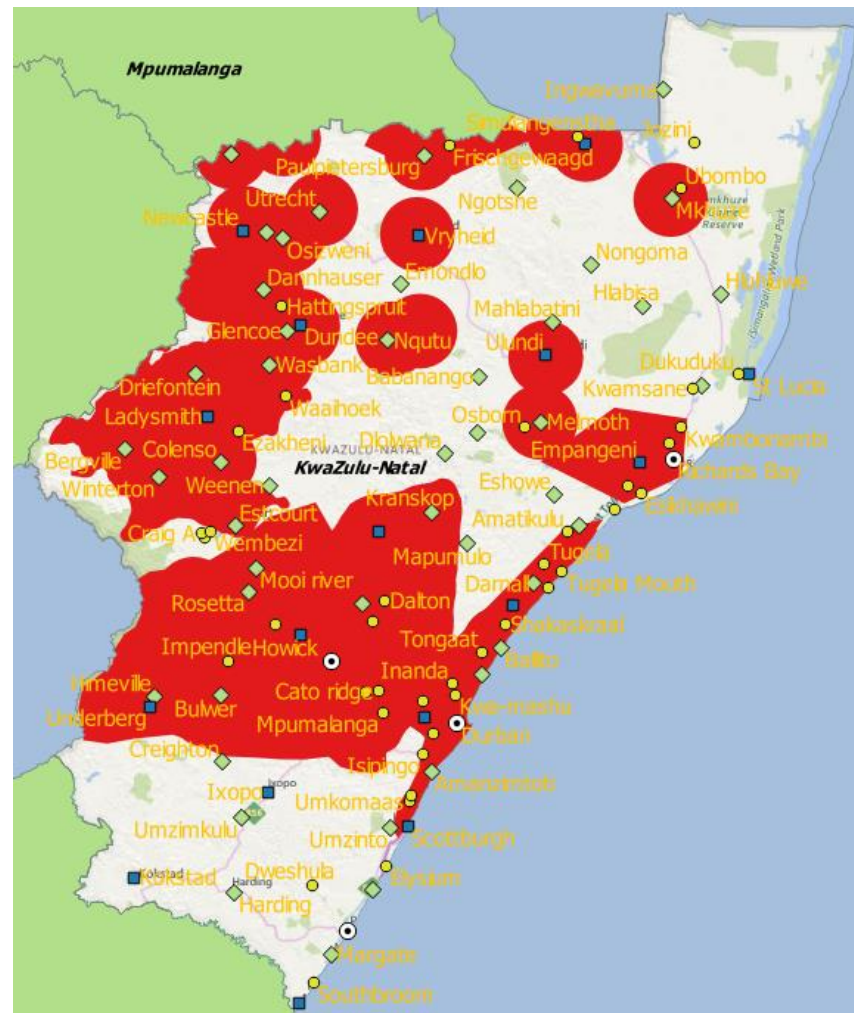
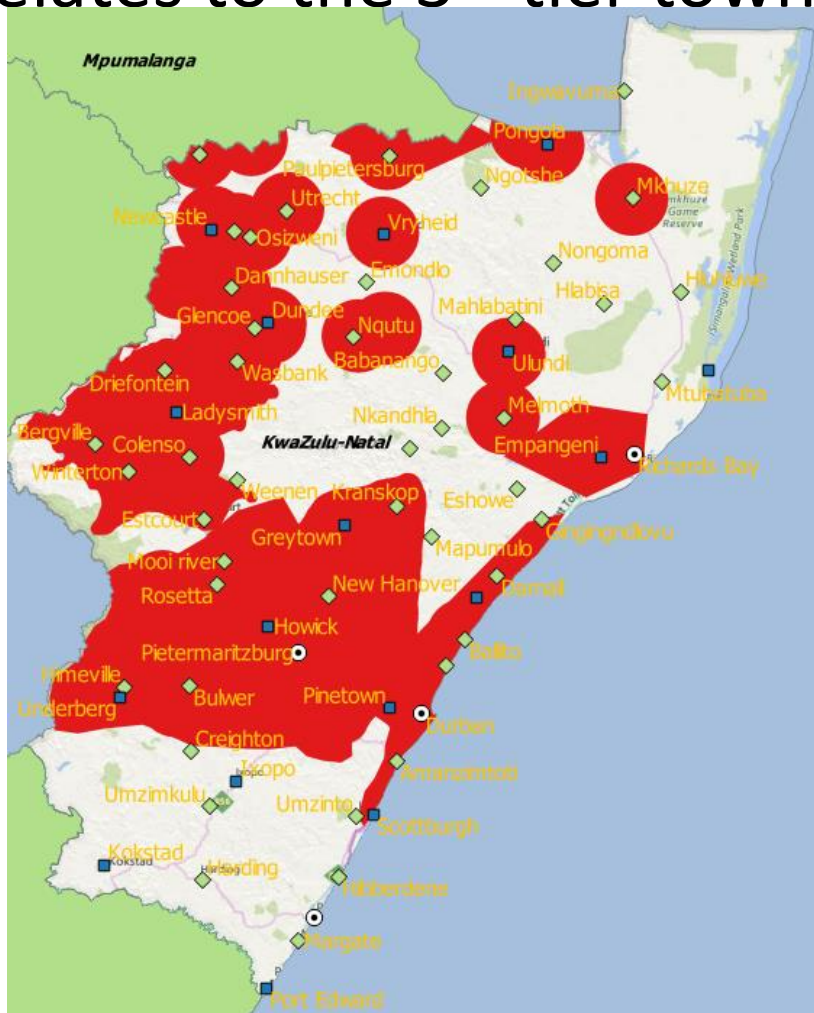


GP 4 and 5



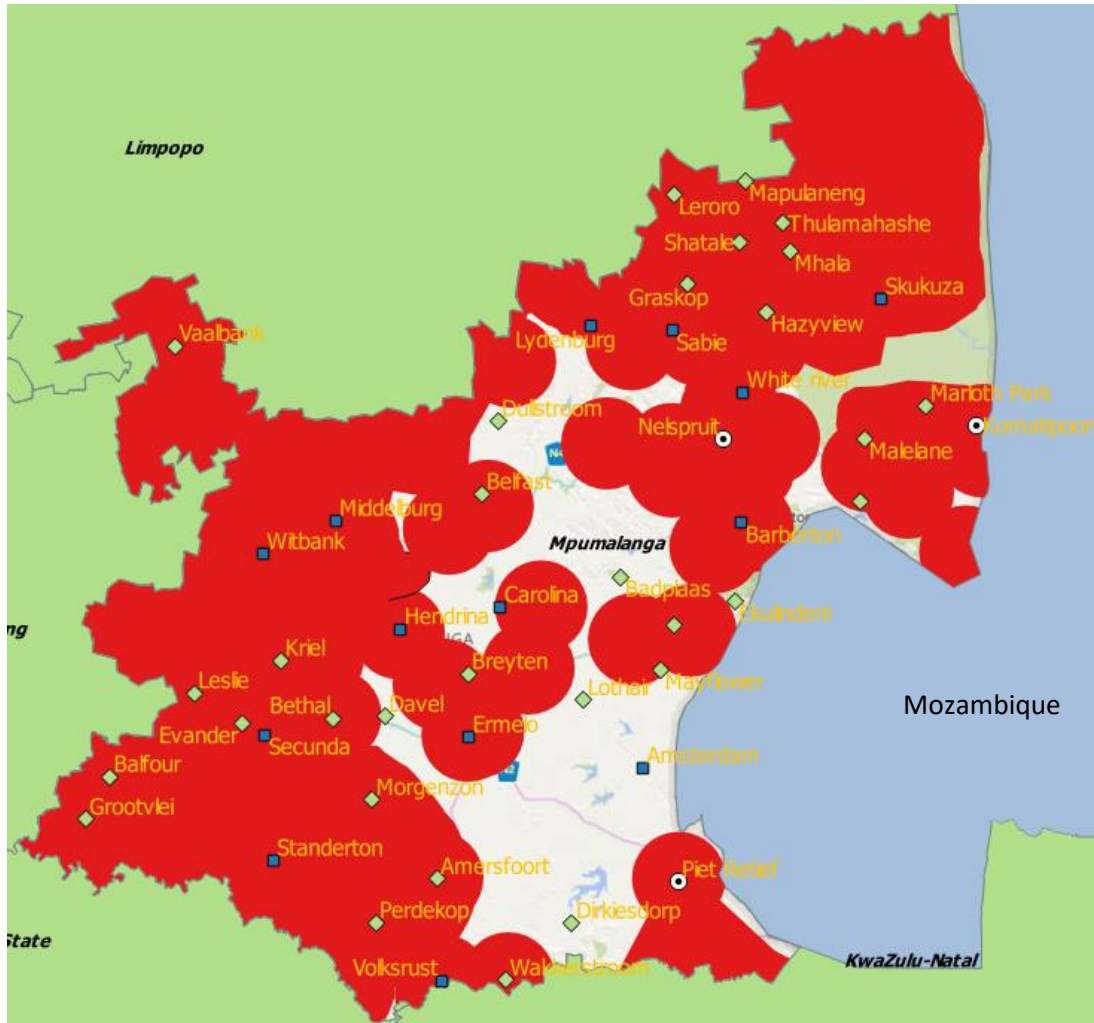
KZN 3 and 4

Tier 3 and 4 towns are shown here as some coverage relates to the 3rd tier towns



MP-3

MP has a few tier 3 towns not covered as shown below



The map illustrates the North West province of South Africa, which is colored in a light blue shade. It is bordered by Botswana to the north, Limpopo to the northeast, Gauteng to the east, Free State to the south, and Cape to the southwest. The province's capital, Potchefstroom, is marked with a red dot. Other significant towns and cities are indicated by red dots, including Tlokweng, Maun, and Klerksdorp. The map also shows the province's geographical features, such as the Orange River and the Tlokweng Dam. The surrounding provinces are labeled in their respective colors: Botswana (light green), Limpopo (light orange), Gauteng (light blue), Free State (light yellow), and Cape (light green).

Western Cape with smaller (3rd tier) towns included. Not very useful as none of the towns added now is in the non-coverage area



Typical WAPA member (2013 Census)

(This was my recollection although I didn't gain proper access to these results)

- **A few large members (Internet Solutions, Neotel)**
- **Averages*:**
 - Revenue : R4.4m pa (I also recall R5.6m but maybe that was skewed by higher earners)
 - Revenue : R1.95m (is the median, which looks more representative)
 - Clients : 635 (median 355), 57% consumer, 4% schools
 - Staff : 10

(* Averages excluded top 5 WAPA Members (my guest : iBurst, Neotel, Internet Solutions, ?)

2018:

Median revenue in 2013 was R1.95m

Median revenue in 2018 is estimated at R6.3m*

The growth **in the median revenue, from 2013 is therefore 27.8% CAGR**

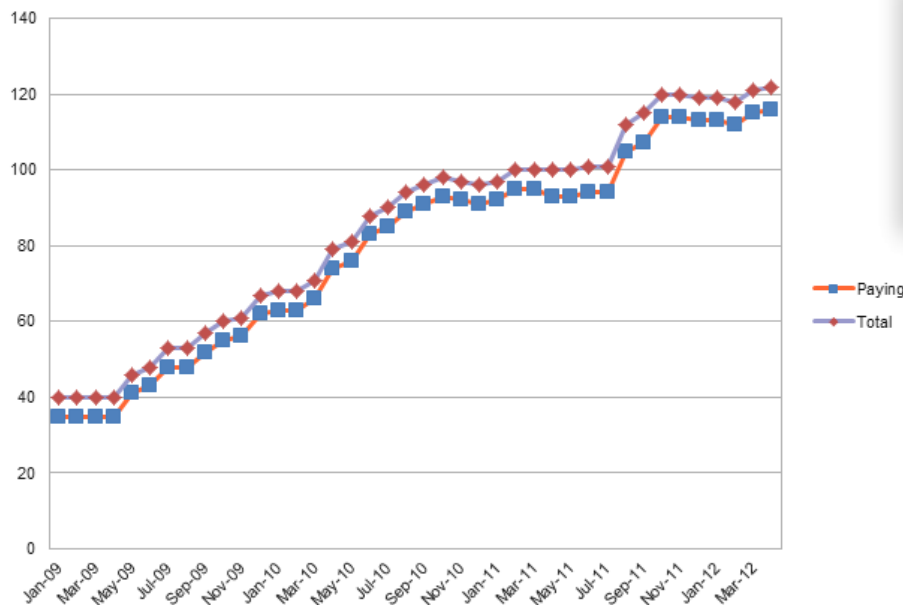
* “Median” means 50% of customers reported less income than this value and 50% more. The exact median is not known as 50% falls somewhere in the R5-10m bucket, but assuming an even spread within that bucket, the median would be R6.3m

A slide from the 2011 CENSUS

- Approximately 80 000 subscribers, including broadband and voice
- Free or discounted services
 - More than 150 hospitals and clinics
 - Approximately 550 schools
- BBBEE Rating within Levels 1 to 4 – approximately 50% of WAPA members
- Employ around 1 000 people
- Collective turnover: R160 million per annum
- More than 6 000 hotspots

Membership Growth

- 2012 “131 members & growing fast”



Current:
Total: 204
Paying: 182

- You may want to build on this graph that I used. Current (2018) status:
 - Full Members: 163
 - Vendor Members: 19
 - NPO's: 22
 - Total: 204