Geospatial knowledge platforms:
How do we deliver data for the SDGs?

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Introduction

- UNSD/ ESRI collaborative research initiative on SDGs reporting platform - South Africa amongst the initial 6 pilot Member States

- Aim: share data, knowledge and best practices in information management

- Focus:
    - Establish national SDG Data Hubs for data sharing and use
    - Deploy Global SDG UN Data Hub for the indicator framework
    - Strive for better data interoperability and integration
    - Enhance relationships between national and global data

Aim

- To share progress on SDG mapping by linking Statistical with Geospatial data

- Monitor the trends using the following:

  - ArcGIS Desktop & Server software (this is fully installed and configured)
  - Web-Based ArcGIS Portal (installed but not used as yet – will discuss under challenges)

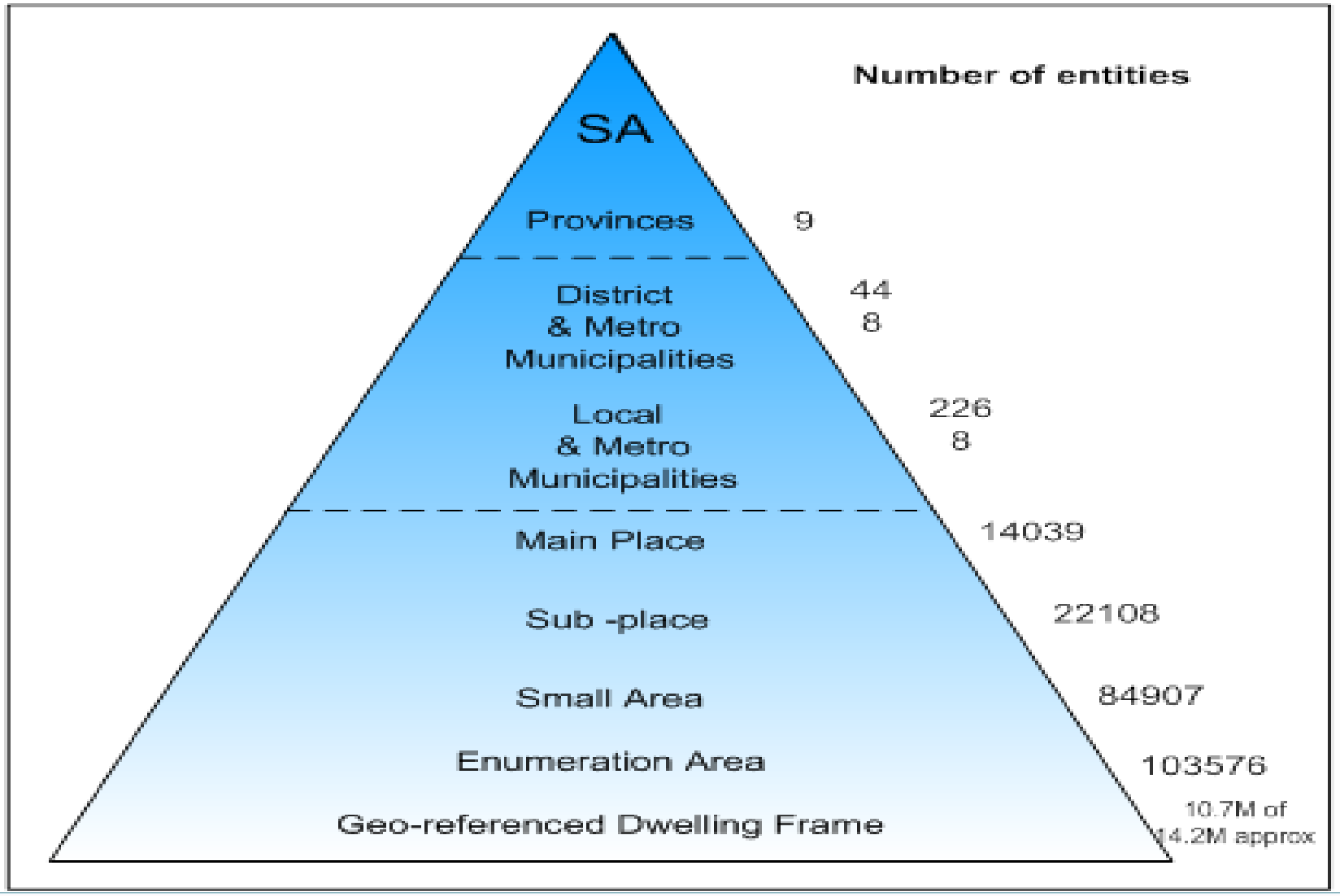
Case of Stats SA

- Statisticians are listing and thereafter draw samples to conduct surveys
- They use their own traditional ways of analyzing data from the field
- Use different programs like SAS and SuperCross to access raw records and cross-tabulate variables
- They conduct weighting, adjust and produce estimates in totals and percentages
- Information is then saved in a format of their choice, at times using spreadsheets

On the other hand:

- Geographers prepare maps for listing and field orientation
- Produce print and digital demographic atlases
- Maintain a hierarchy of geospatial datasets to support the SVC

The geospatial hierarchy



STATS SA
STATISTICS SOUTH AFRICA

2030 NDP

THE SOUTH AFRICA I KNOW, THE HOME I UNDERSTAND

Approach

- This is how we get the data from the statisticians in tabular format

	A	B	C	D
1	**Statistics South Africa**			
2	**Descriptive_Sub_Place**			
3	**Table 1**			
4	**Geography by Population group**			
5	**for Person weighted**			
6				
7		**2001**	**2011**	**2016**
8	DC10: Cacadu	6.9	3.9	2.2
9	DC12: Amathole	6.6	3.7	2.6
10	DC13: Chris Hani	7.4	3.9	2.6
11	DC14: Joe Gqabi	7.0	3.2	2.8
12	DC15: O.R.Tambo	3.8	2.0	2.9
13	DC44: Alfred Nzo	13.0	4.6	3.0
14	BUF: Buffalo City	4.8	2.5	3.1
15	NMA: Nelson Mandela Bay	6.2	2.4	3.1
16	DC16: Xhariep	9.4	3.9	3.5
17	DC18: Lejweleputswa	9.1	3.7	3.5
18	DC19: Thabo Mofutsanyane	14.8	6.6	3.8
19	DC20: Fezile Dabi	9.6	4.2	4.1
20	MAN: Mangaung	13.8	5.2	4.5
21	DC42: Sedibeng	18.2	7.5	4.7
22	DC48: West Rand	21.1	5.6	4.8
23	EKU: Ekurhuleni	16.7	5.2	4.9
24	JHB: City of Johannesburg	12.4	4.4	4.9
25	TSH: City of Tshwane	14.7	4.8	5.0

Data is in a raw format not suitable for use with ArcGIS directly/immediately

Approach cont…

- As a start, We have chosen Poverty as our core SDG theme as we had data for 3 years
- Used the Poverty Headcount to measure the trends on poverty
- Poverty Headcount is the percentage of the total population living under the poverty line (average R700/ $54 per person per month)

- Cleaned the initial data and mapped it spatially

- South Africa as depicted in the hierarchy comprises of 9 Provinces, 8 Metros 44 District Municipalities, 213 Local Municipalities, 4 277 Wards)

Approach cont…

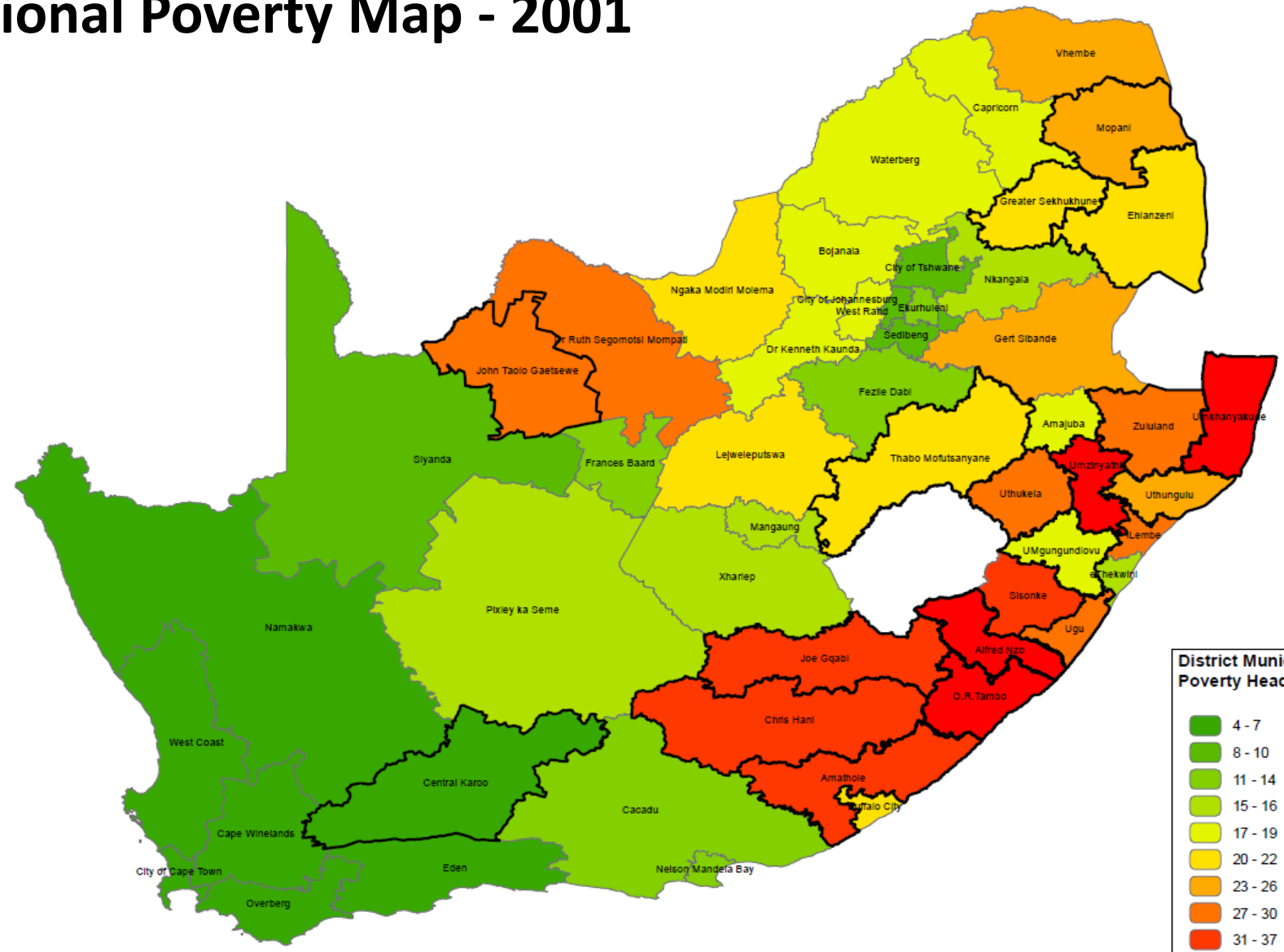
- We then arrive at this ArcGIS ready data:-

	A	B	C	D	E
1	DC_MDB_C_2011	DISTRICT	2001	2011	2016
2	DC4	Eden	6.9	3.9	2.2
3	DC3	Overberg	6.6	3.7	2.6
4	CPT	City of Cape Town	7.4	3.9	2.6
5	DC6	Namakwa	7.0	3.2	2.8
6	DC1	West Coast	3.8	2.0	2.9
7	NMA	Nelson Mandela Bay	13.0	4.6	3.0
8	DC2	Cape Winelands	4.8	2.5	3.1
9	DC5	Central Karoo	6.2	2.4	3.1
10	DC42	Sedibeng	9.4	3.9	3.5
11	JHB	City of Johannesburg	9.1	3.7	3.5
12	ETH	eThekwini	14.8	6.6	3.8
13	TSH	City of Tshwane	9.6	4.2	4.1
14	DC10	Cacadu	13.8	5.2	4.5
15	DC25	Amajuba	18.2	7.5	4.7
16	DC18	Lejweleputswa	21.1	5.6	4.8
17	DC40	Dr Kenneth Kaunda	16.7	5.2	4.9
18	DC20	Fezile Dabi	12.4	4.4	4.9
19	MAN	Mangaung	14.7	4.8	5.0
20	DC16	Xhariep	16.1	4.9	5.3
21	DC8	Siyanda	10.3	4.7	5.3
22	DC9	Frances Baard	12.7	7.2	5.4
23	DC22	uMgungundlovu	17.4	7.7	5.9
24	DC7	Pixley ka Seme	15.2	7.2	6.0

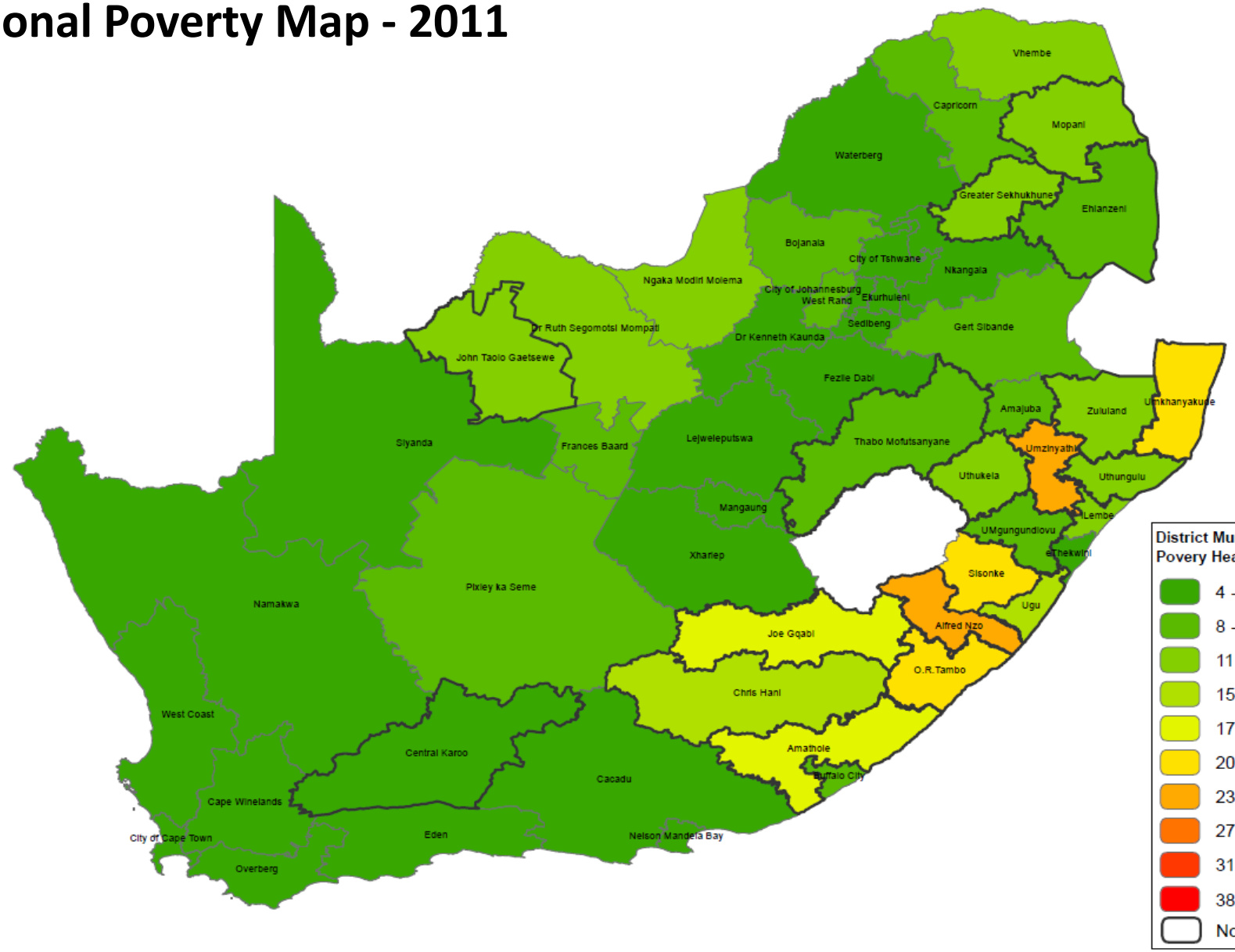
Table 2: Poverty Headcount in South Africa per District in 2001, 2011 and 2016

25	DC48	West Rand	16.5	7.8	6.3
26	EKU	Ekurhuleni	13.3	6.4	6.6
27	DC19	Thabo Mofutsanyana	21.1	7.1	7.0
28	DC30	Gert Sibande	23.5	8.4	7.2
29	BUF	Buffalo City	20.9	9.3	7.3
30	DC28	uThungulu	25.7	11.1	7.7
31	DC32	Ehlanzeni	22.1	8.9	7.8
32	DC31	Nkangala	14.9	6.3	8.2
33	DC35	Capricorn	18.7	7.2	8.5
34	DC37	Bojanala Platinum	18.4	8.2	8.8
35	DC36	Waterberg	18.1	6.5	9.0
36	DC29	iLembe	27.4	13.2	10.1
37	DC23	uThukela	27.0	13.7	10.1
38	DC26	Zululand	30.3	12.9	10.4
39	DC38	Ngaka Modiri Molema	21.0	12.3	10.6
40	DC21	Ugu	28.3	15.1	11.9
41	DC45	John Taolo Gaetsewe	28.6	11.4	12.3
42	DC34	Vhembe	25.0	13.0	12.8
43	DC39	Dr Ruth Segomotsi Mompati	28.6	13.7	12.8
44	DC33	Mopani	25.6	11.3	13.1
45	DC14	Joe Gqabi	34.0	16.8	13.4
46	DC47	Sekhukhune	22.1	11.3	13.6
47	DC43	Sisonke	36.8	19.3	14.3
48	DC24	uMzinyathi	42.5	23.7	15.5
49	DC27	uMkhanyakude	40.1	20.4	15.7
50	DC13	Chris Hani	32.0	15.6	16.4
51	DC12	Amathole	34.9	18.7	18.7
52	DC15	OR Tambo	43.6	21.1	19.2
53	DC44	Alfred Nzo	44.7	25.57	22.03

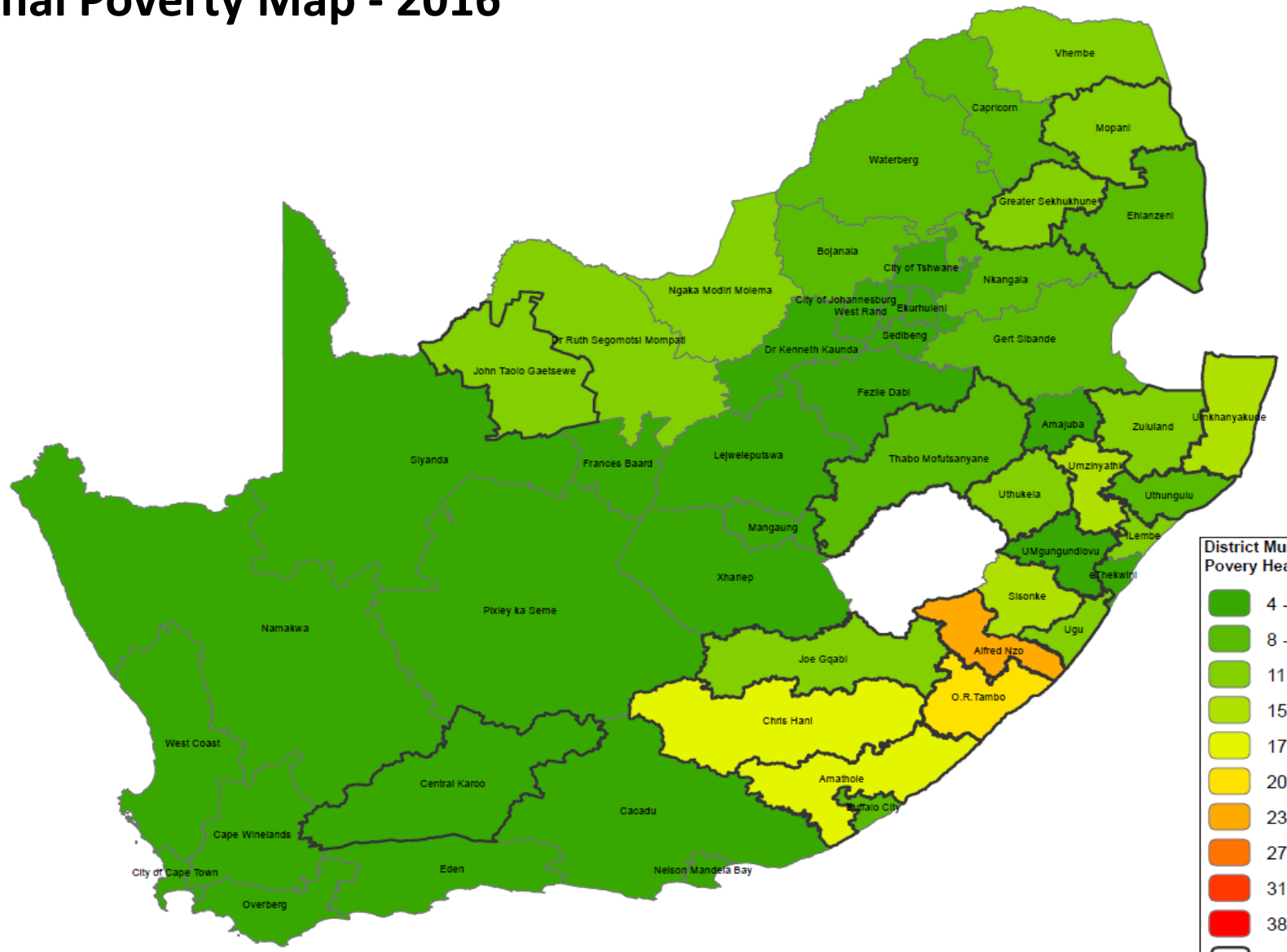
National Poverty Map - 2001



National Poverty Map - 2011



National Poverty Map - 2016



Challenges

- Integration of data is dependent on availability of data by data providers
- A different Section within Stats SA responsible for SDG reporting
- Silos still prevalent
    - Hard to spatially link data as data outdated or not georeferenced or tabular that does not contain links to spatial
    - Most recent or reoccurring surveys only report data at very high levels

- Data confidentiality as per the Statistics Act makes online sharing and reporting of information difficult

- ICT infrastructure : Not really appropriate
    - Security
    - Bandwidth

Thank You