South Africa's new national land and ecosystem asset accounts: a quick look

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Partners

stats sa
Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

SANBI
Biodiversity for Life
South African National Biodiversity Institute

United Nations

UN
environment

System of
Environmental
Economic
Accounting

2030
NDP

NELSON MANDELA
UNIVERSITY

rural development
& land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

NGI
NATIONAL
GEO-SPATIAL
INFORMATION
MAPPING OUR NATION

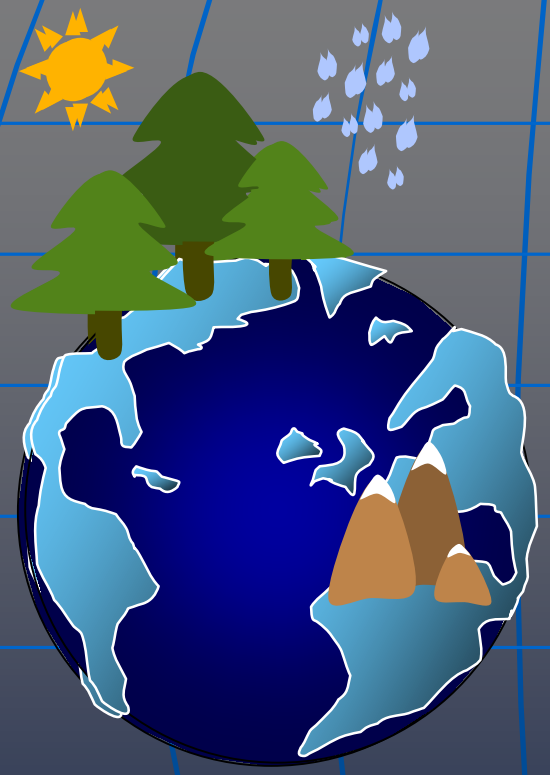
ANCHOR
research & monitoring

Flying Blind

Jul 24th 2003
The Economist

We Appear to Live in Two Worlds

Natural World



Self-Regulating

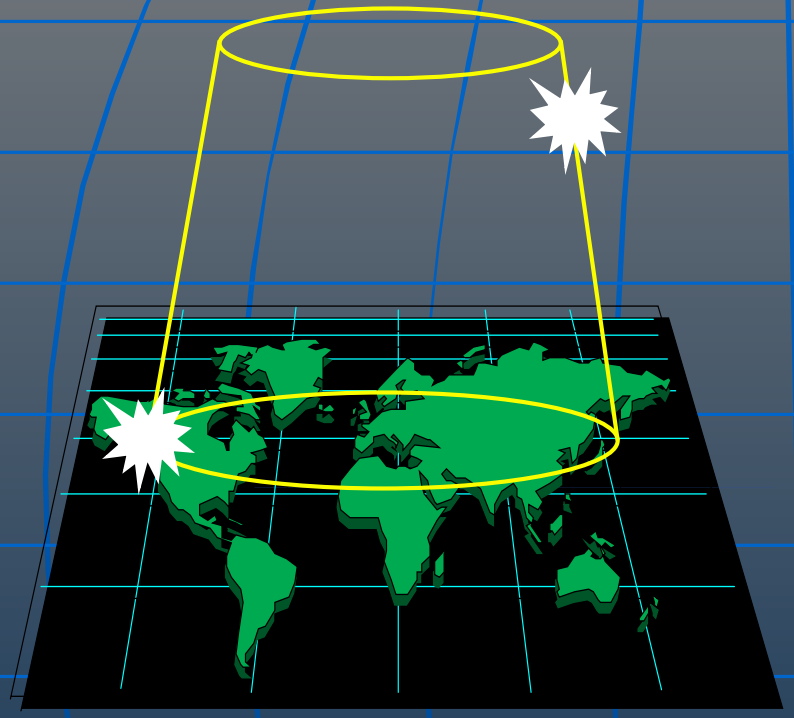
Constructed World

Managed

. . . Supposedly In Conflict

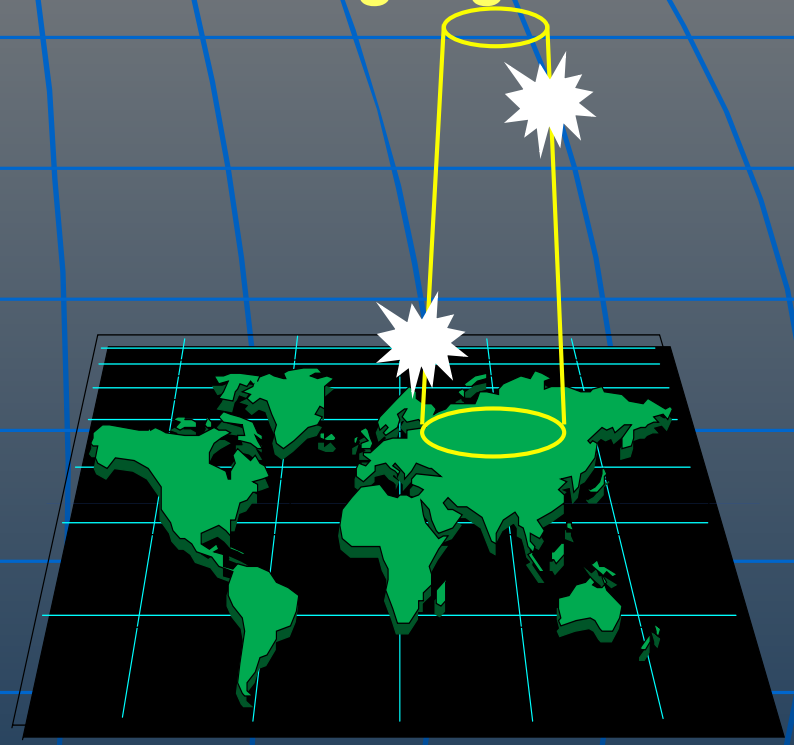
Context and Content

Seeing the Whole



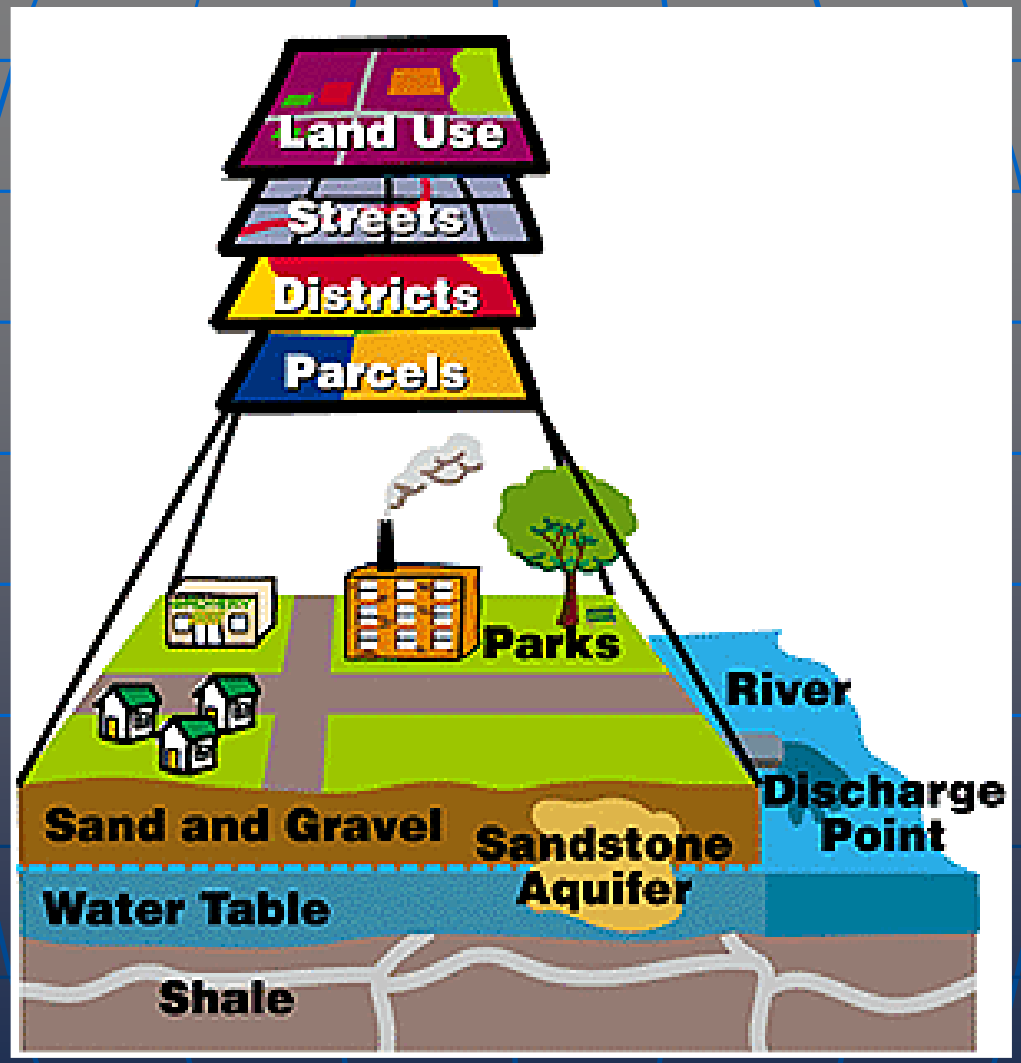
- Patterns
- Linkages
- Trends

Managing Places

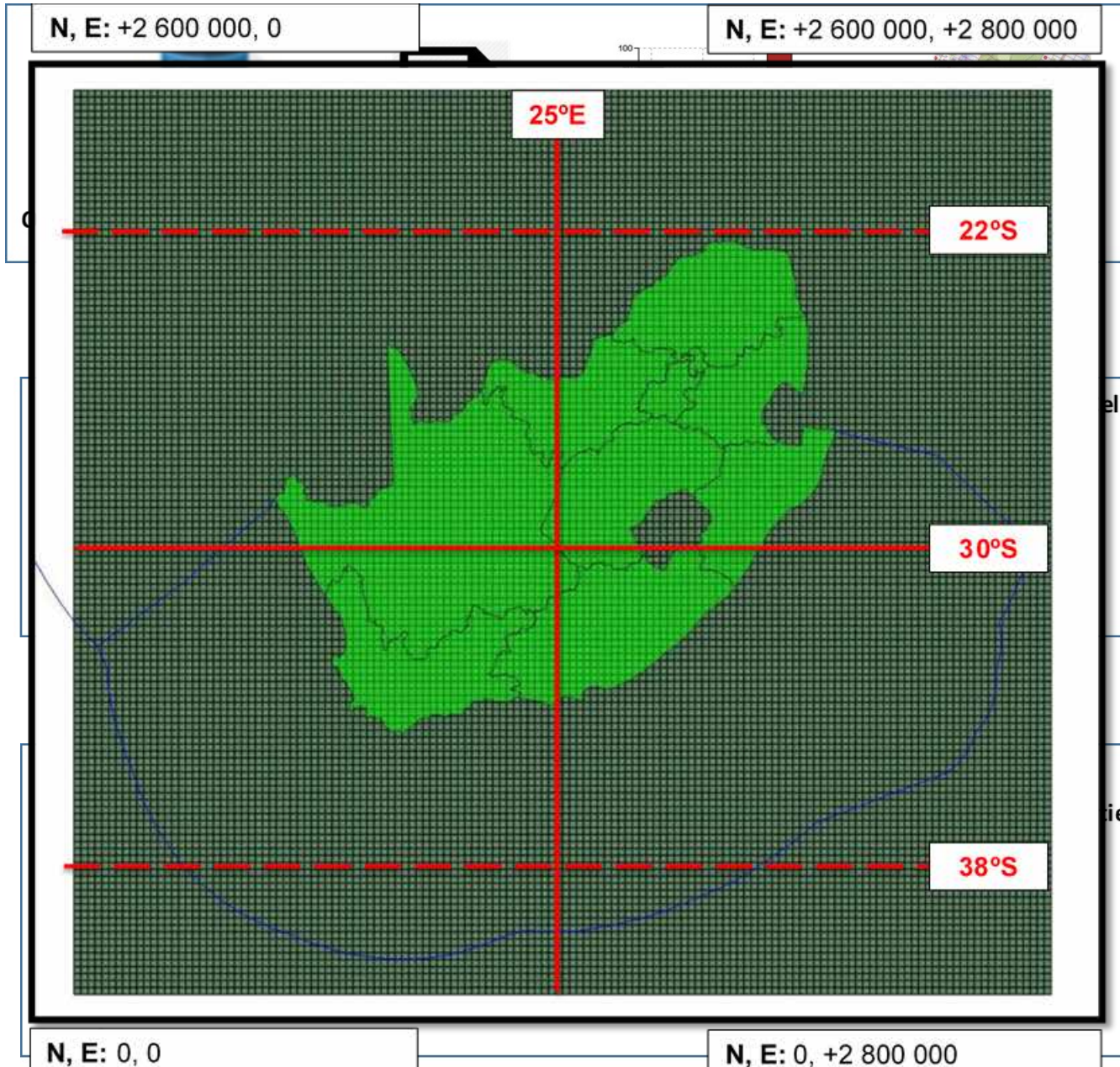


- Watersheds
- Communities
- Neighborhoods
- Districts

Abstracting the Real World



The Accounts approach



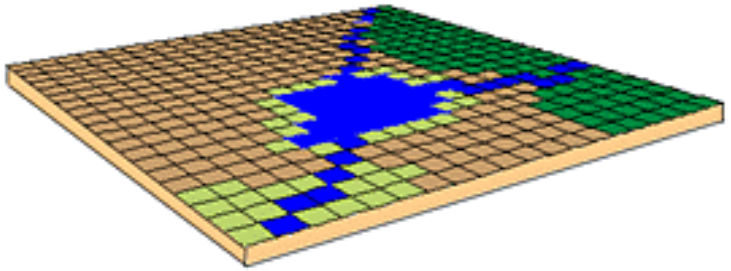
Latitude Extent : 18°S - 42°S (24°);
Longitude Extent: 10°E - 40°E (30°);
Std Parallels: 22°S & 38°S;
Origin : 30°S & 25°E.

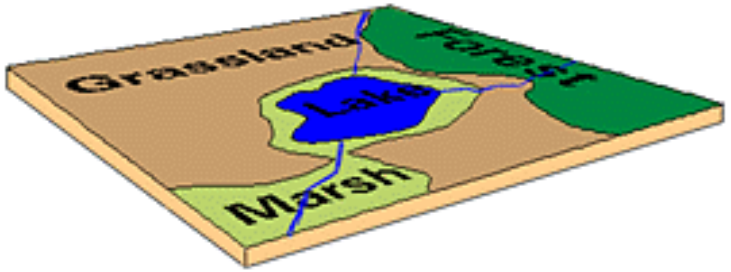
False Northing : +1 300 000
False Easting : +1 400 000
N Extent: 0 to +2 600 000;
E Extent: 0 to +2 800 000.

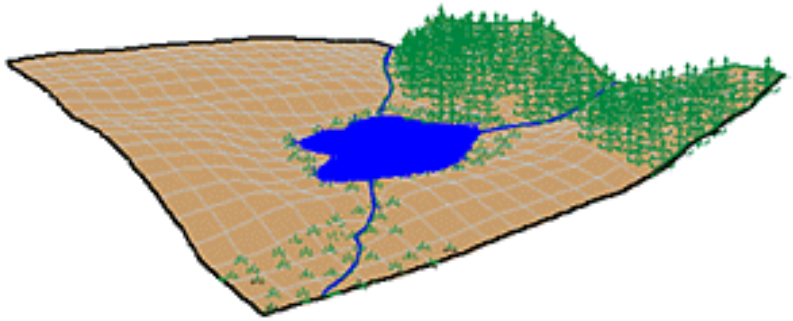
Data Sources

Included in the Accounts

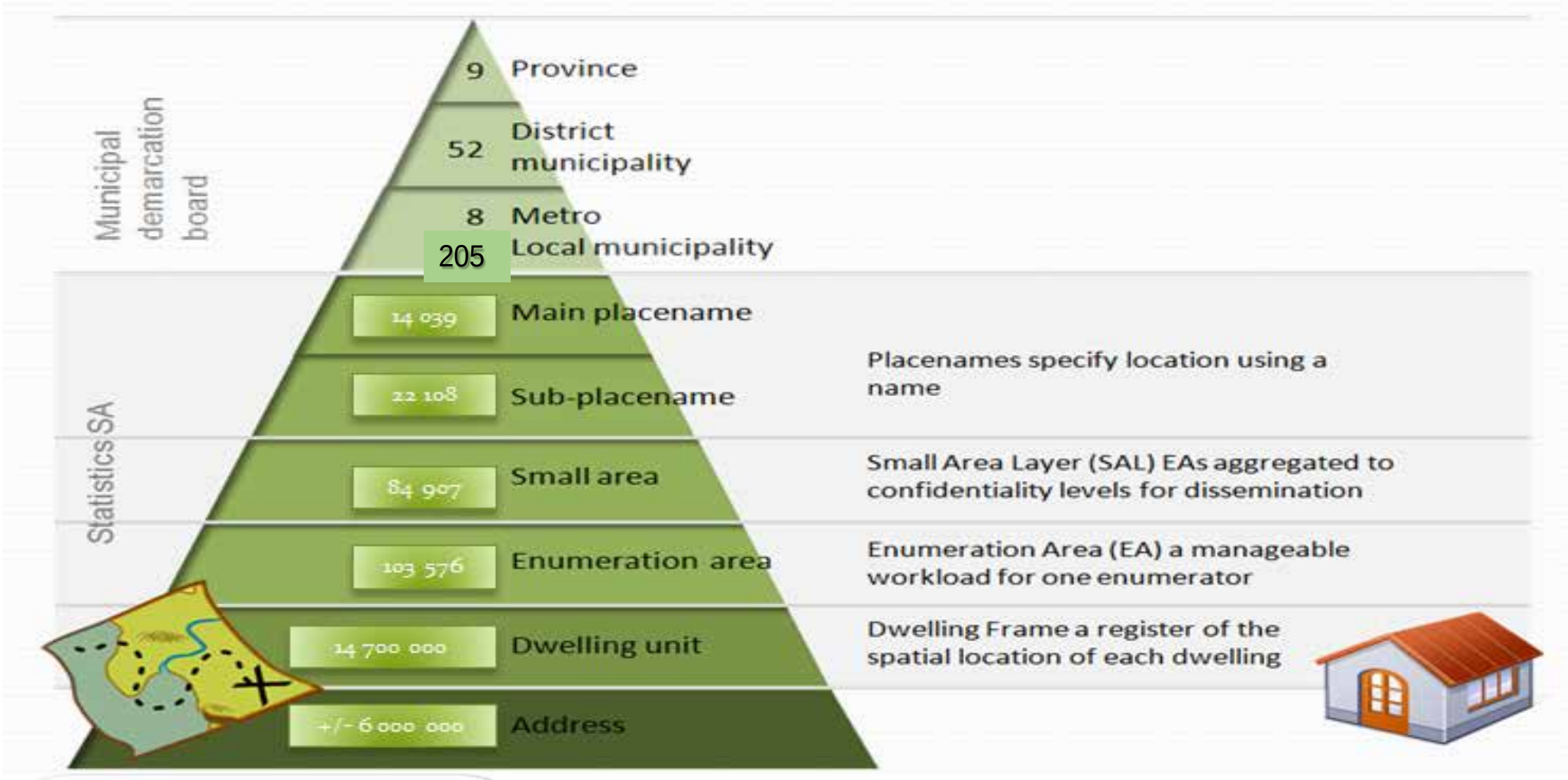
- National land cover
- Terrestrial vegetation types
- Census data (Population)
- Socio-Economic data
- Stats SA Geographic Information Frame







Geographic Information Frame



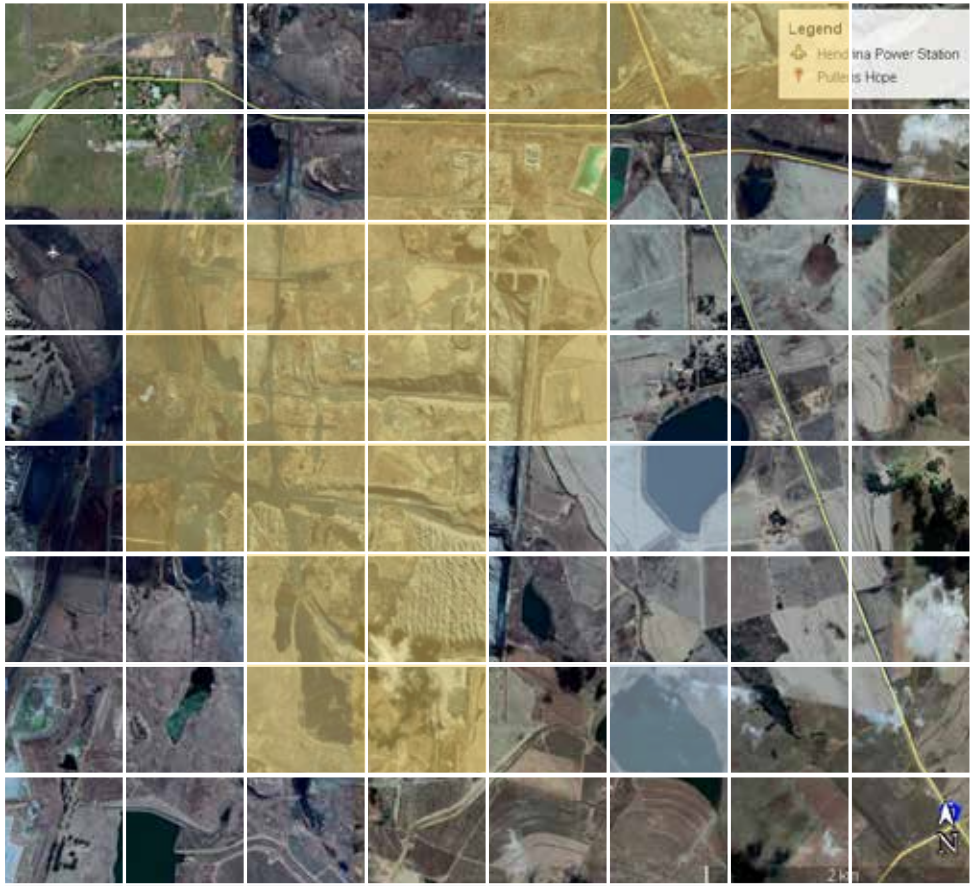
Use an accounting methodology

2009

12 mine
2 water
50 farm

2019

20 mine
2 water
42 farm



NET CHANGE
+8 mine
-8 farm

Land Cover_ 72 Classes

- Water seasonal
- Water permanent
- Wetlands
- Indigenous Forest
- Thicket /Dense bush
- Woodlan/Open bush
- Grassland
- Shrubland fynbos
- Low shrubland
- Cultivated comm fields (high)
- Cultivated comm fields (med)
- Cultivated comm fields (low)
- Cultivated comm pivots (high)
- Cultivated comm pivots (med)
- Cultivated comm pivots (low)
- Cultivated orchards (high)
- Cultivated orchards (med)
- Cultivated orchards (low)
- Cultivated vines (high)
- Cultivated vines (med)
- Cultivated vines (low)
- Cultivated permanent pineapple
- Cultivated subsistence (high)
- Cultivated subsistence (med)
- Cultivated subsistence (low)
- Cultivated cane pivot - crop
- Cultivated cane pivot - fallow
- Cultivated cane commercial - crop
- Cultivated cane commercial - fallow
- Cultivated cane emerging - crop
- Cultivated cane emerging - fallow
- Plantations / Woodlots mature
- Plantation / Woodlots young
- Plantation / Woodlots clearfelled
- Mines 1 bare
- Mines 2 semi-bare
- Mines water seasonal
- Mines water permanent
- Mine buildings
- Erosion (donga)
- Bare none vegetated
- Urban commercial
- Urban industrial
- Urban informal (dense trees / bush)
- Urban informal (open trees / bush)
- Urban informal (low veg / grass)
- Urban informal (bare)
- Urban residential (dense trees / bush)
- Urban residential (open trees / bush)
- Urban residential (low veg / grass)
- Urban residential (bare)
- Urban school and sports ground
- Urban smallholding (dense trees / bush)
- Urban smallholding (open trees / bush)
- Urban smallholding (low veg / grass)
- Urban smallholding (bare)
- Urban sports and golf (dense tree / bush
- Urban sports and golf (open tree / bush)
- Urban sports and golf (low veg / grass)
- Urban sports and golf (bare)
- Urban township (dense trees / bush)
- Urban township (open trees / bush)
- Urban township (low veg / grass)
- Urban township (bare)
- Urban village (dense trees / bush)
- Urban village (open trees / bush)
- Urban village (low veg / grass)
- Urban village (bare)
- Urban built-up (dense trees / bush)
- Urban built-up (open trees / bush)
- Urban built-up (low veg / grass)
- Urban built-up (bare)

Land Cover_ 5 Classes

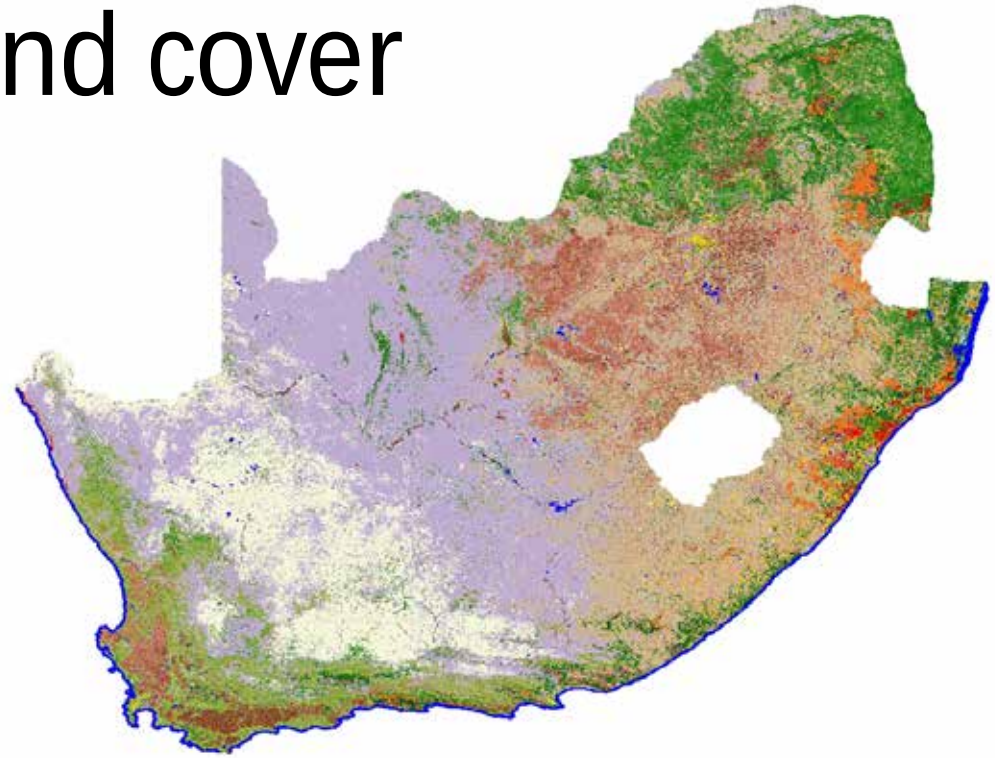
Land Cover

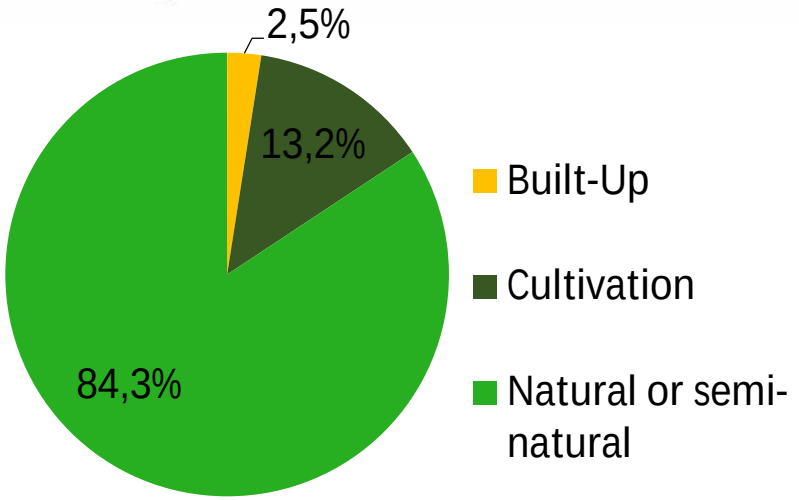
- Natural/ Near Natural
- Cultivation
- Plantations
- Mines
- Built-Up

A look at some preliminary outputs

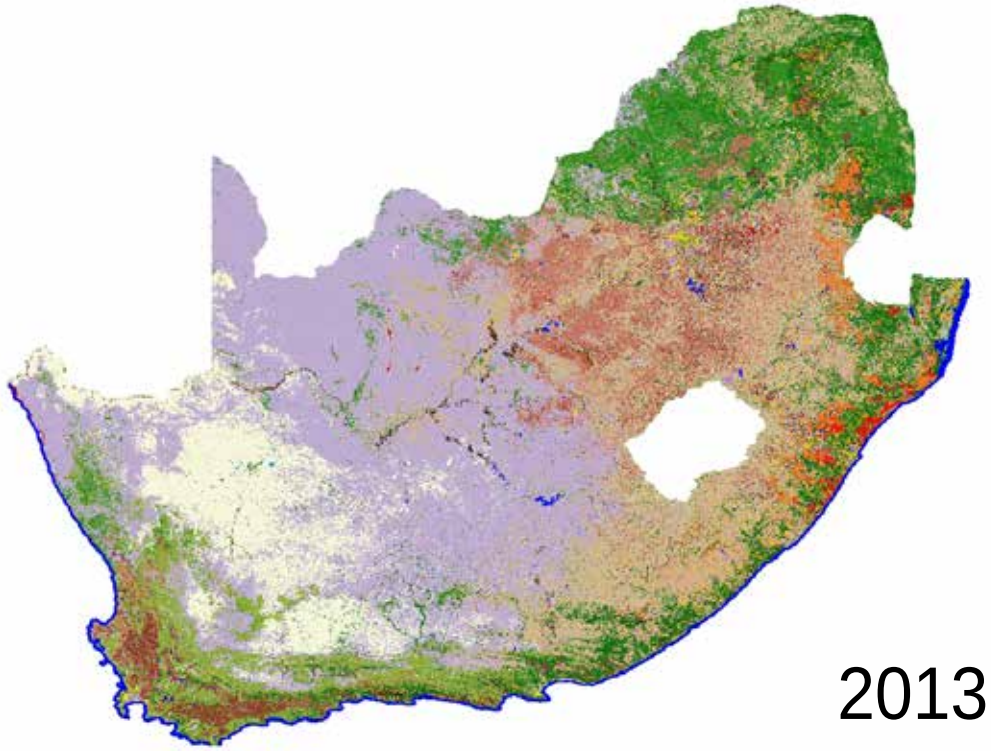
Land cover

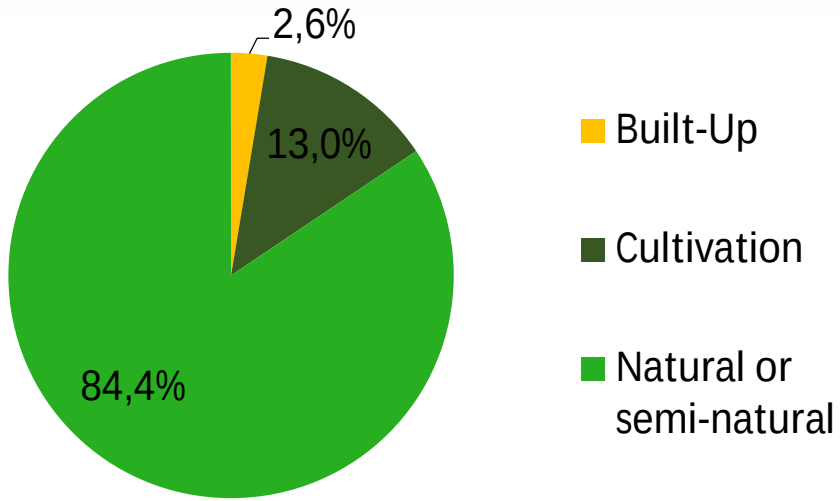
1990





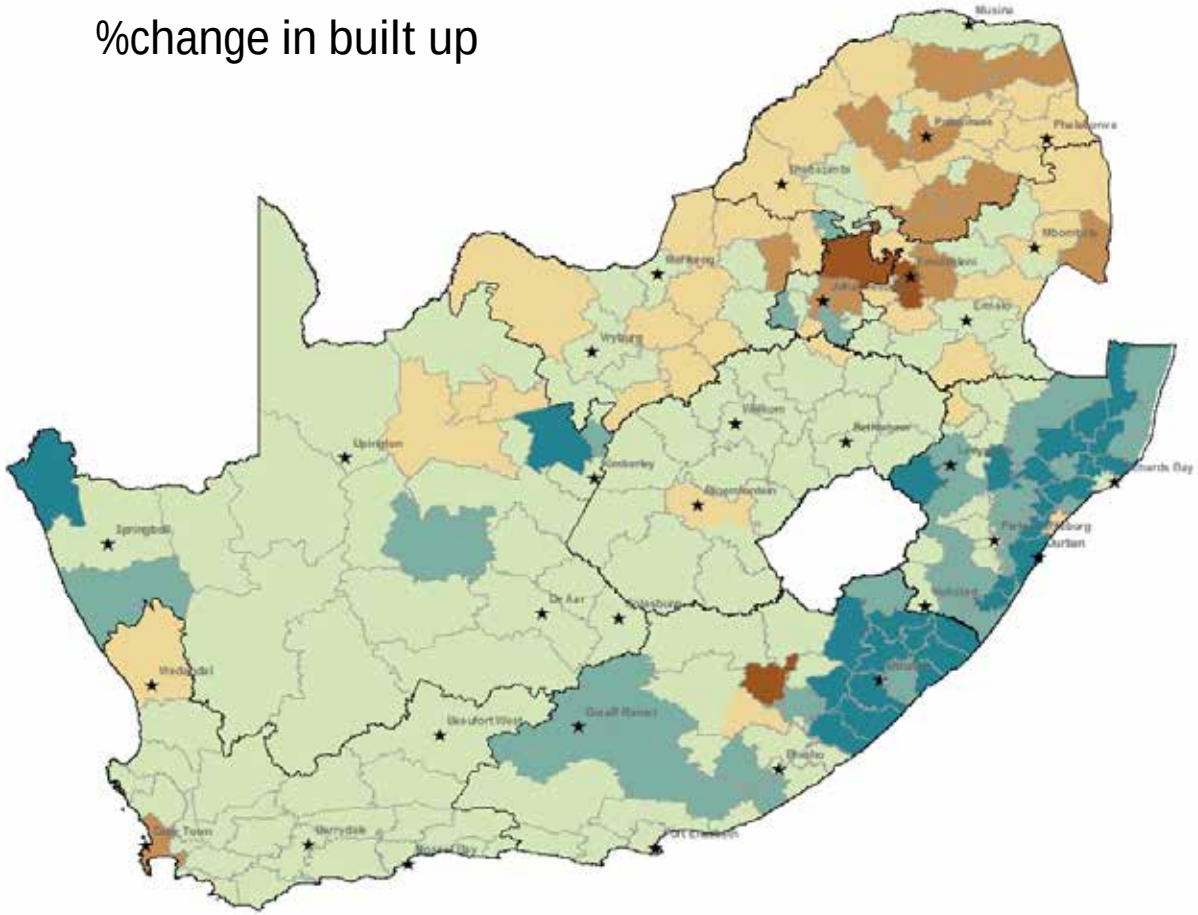
2013/14



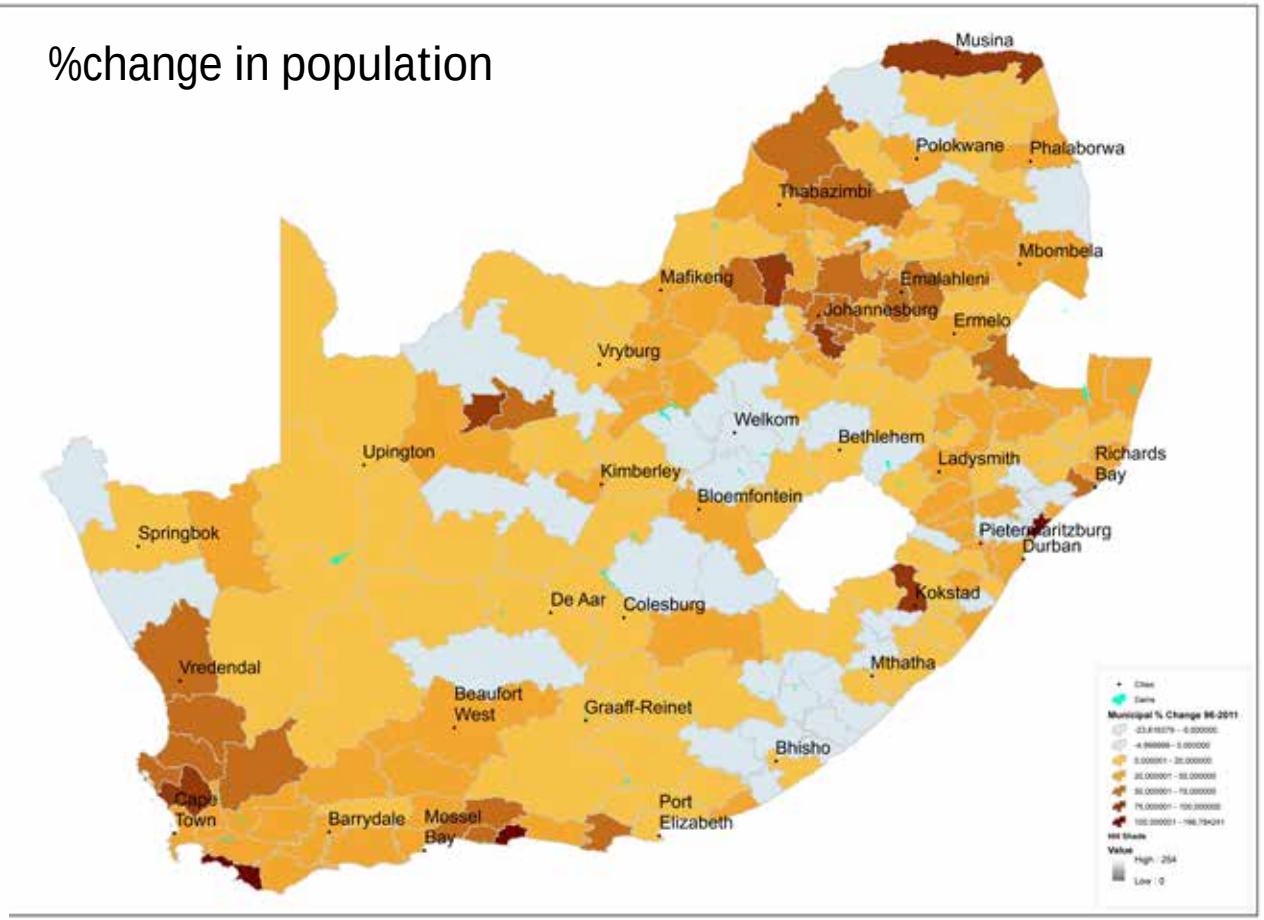


Change is happening

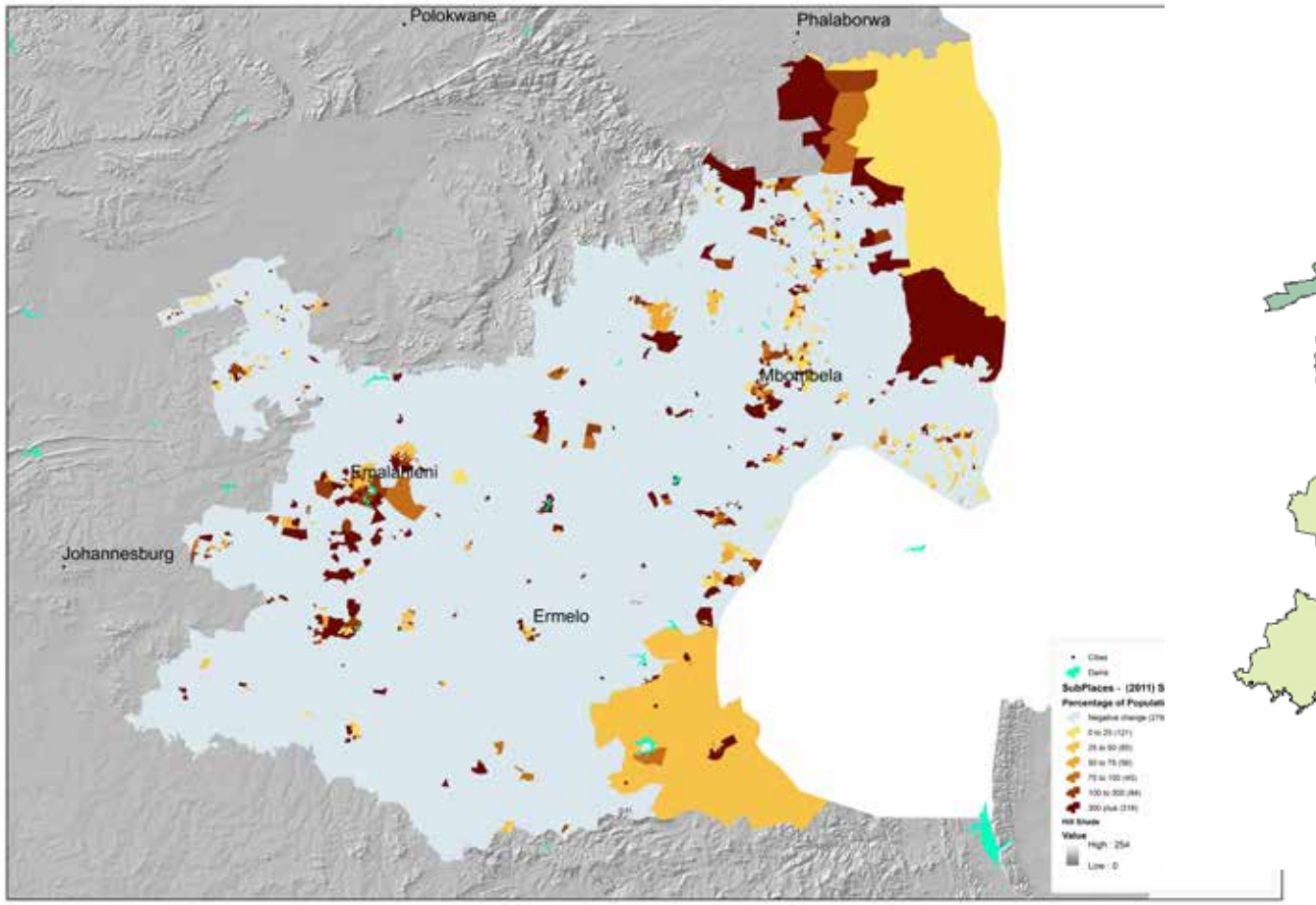
%change in built up

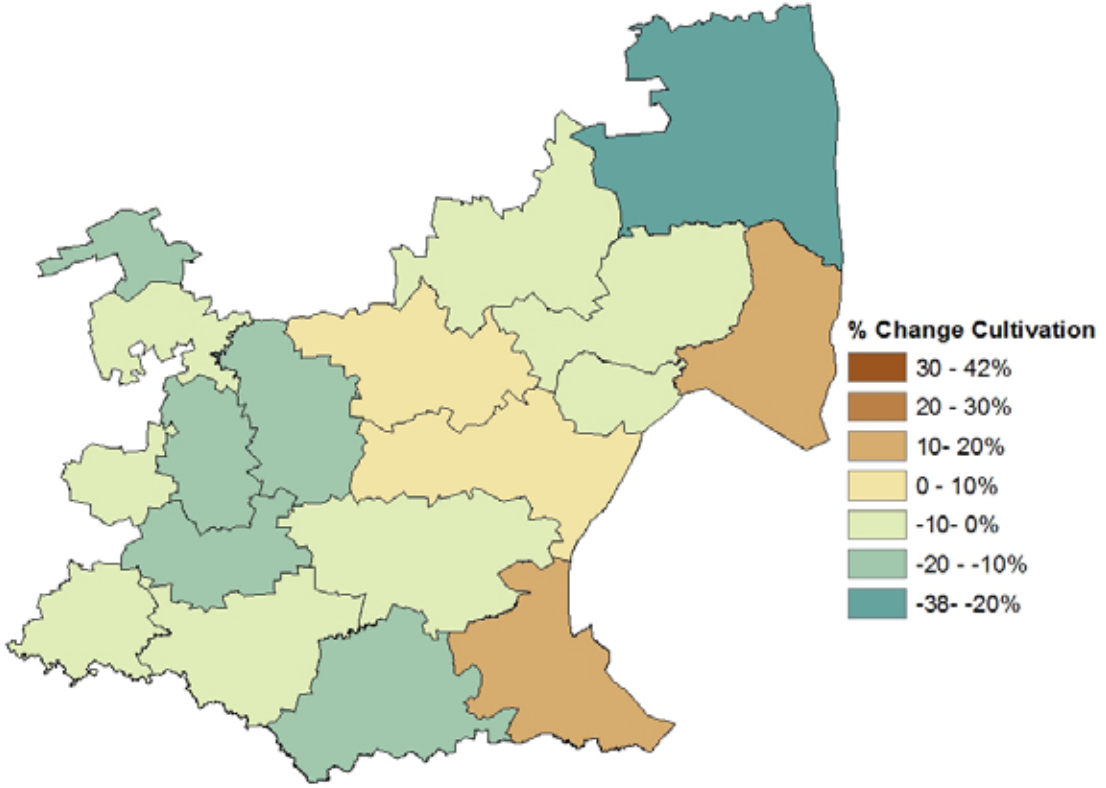


%change in population

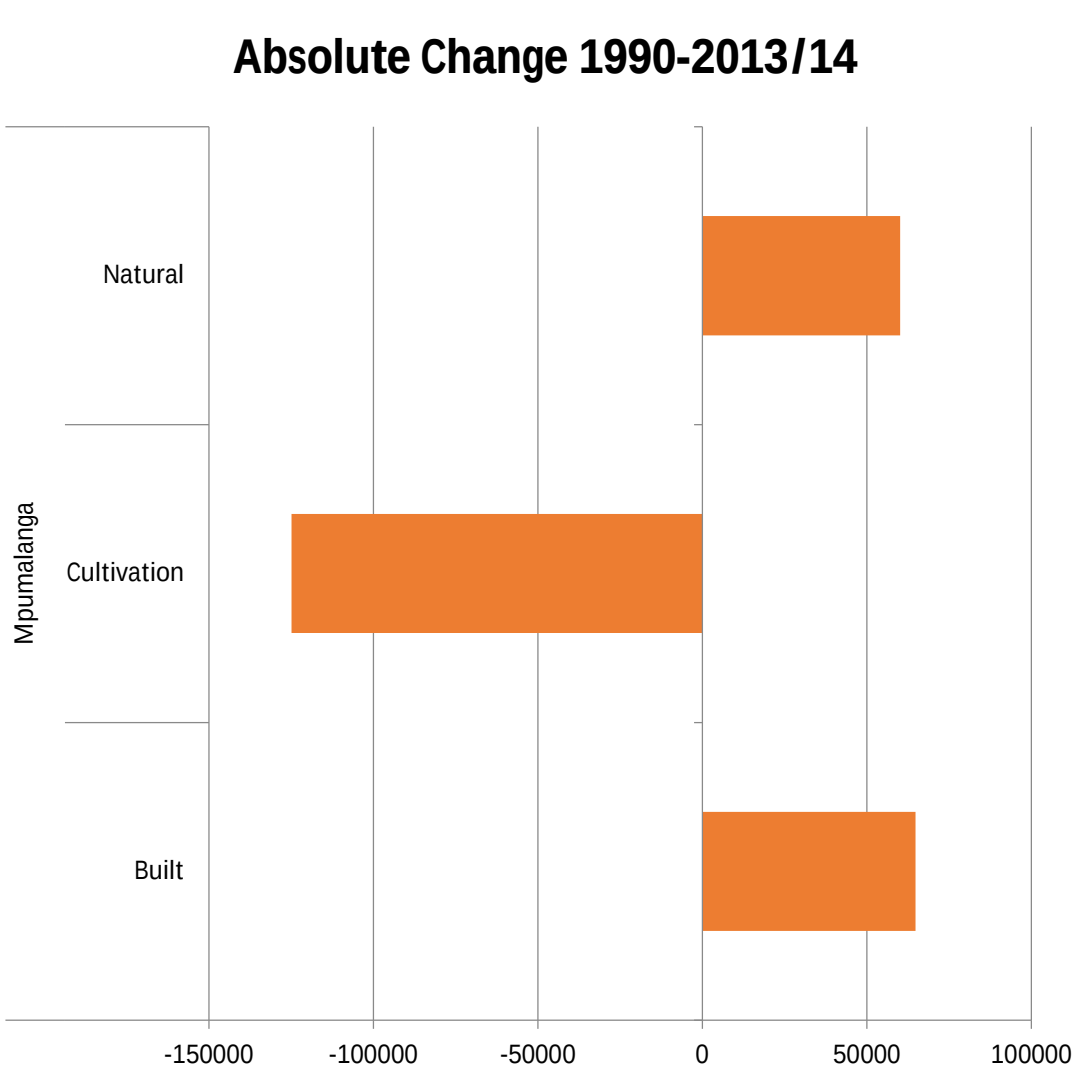


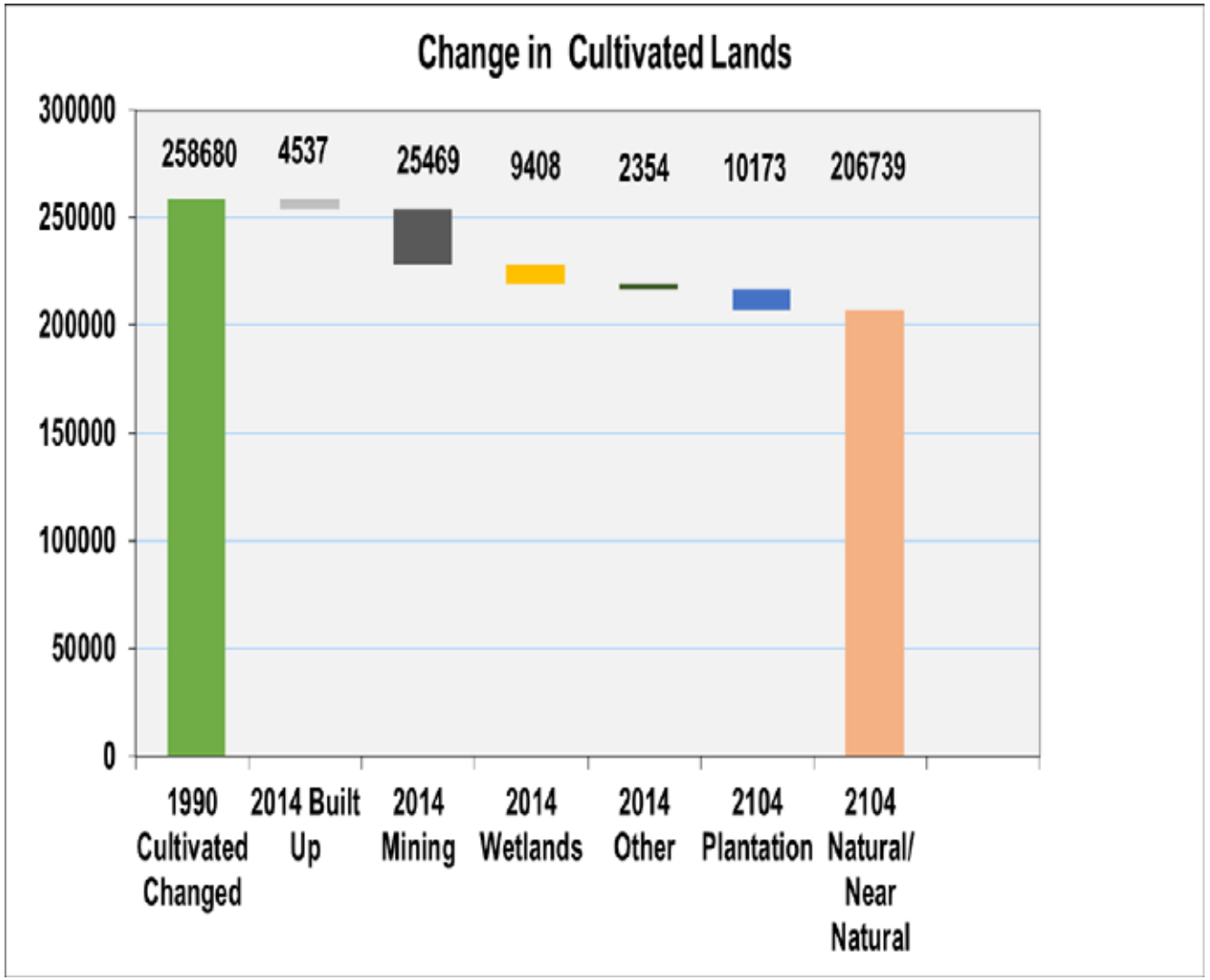
Mpumalanga


Polokwane
Phalaborwa
Mbombela
Emalahleni
Johannesburg
Ermelo

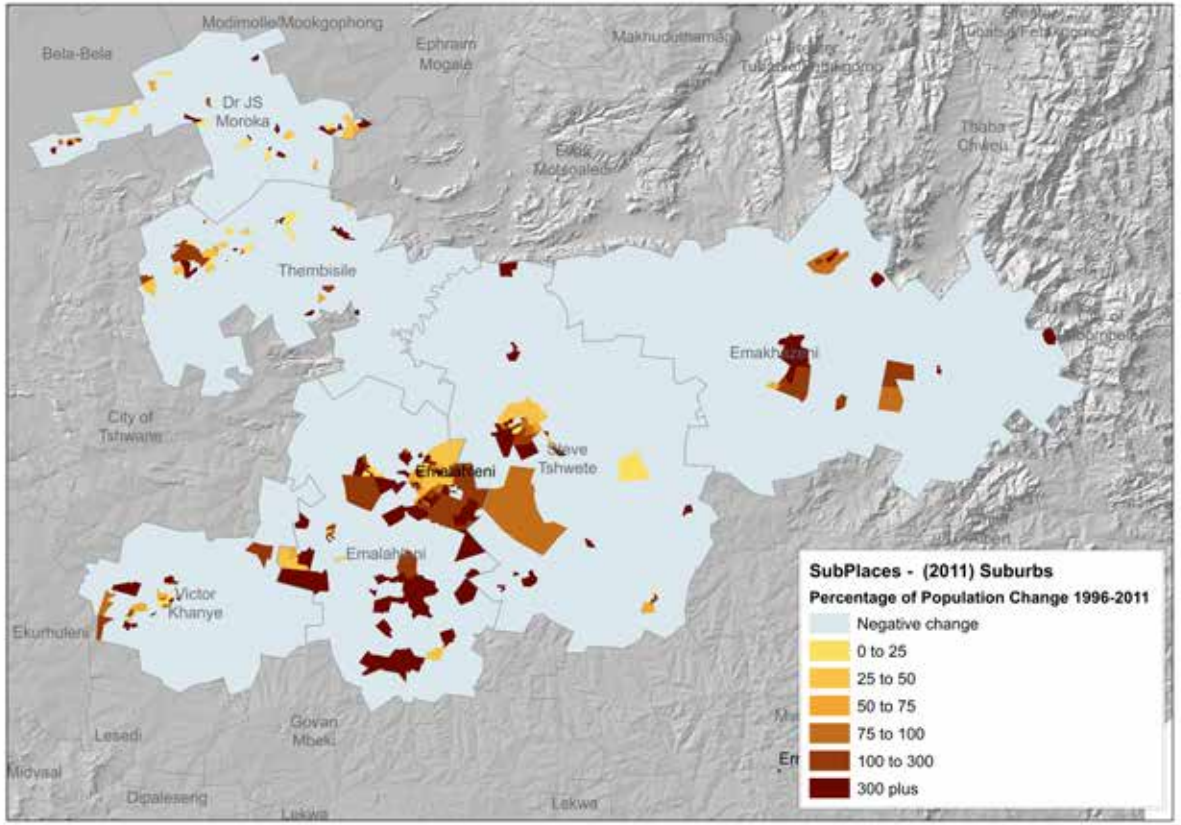

% Change Cultivation
30 - 42%
20 - 30%
10- 20%
0 - 10%
-10- 0%
-20 - -10%
-38- -20%

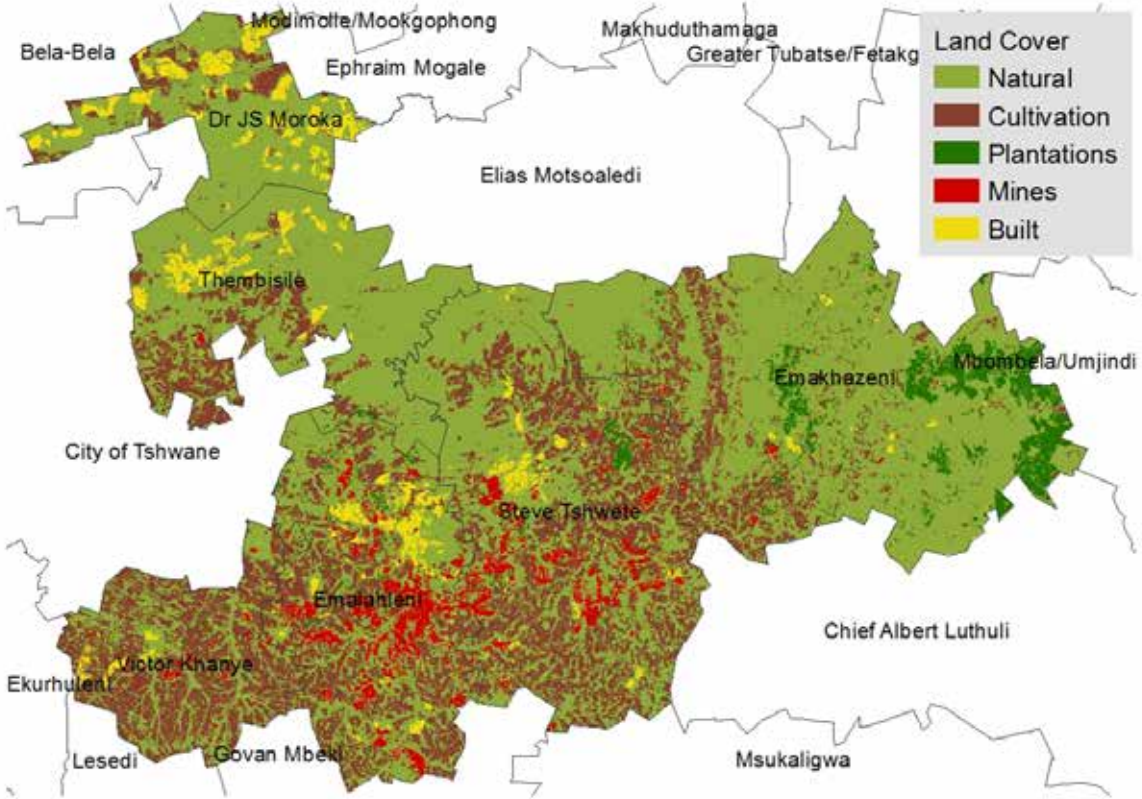
Mpumalanga


Absolute Change 1990-2013/14
Natural
Cultivation
Built
Mpumalanga
-150000
-100000
-50000
0
50000
100000

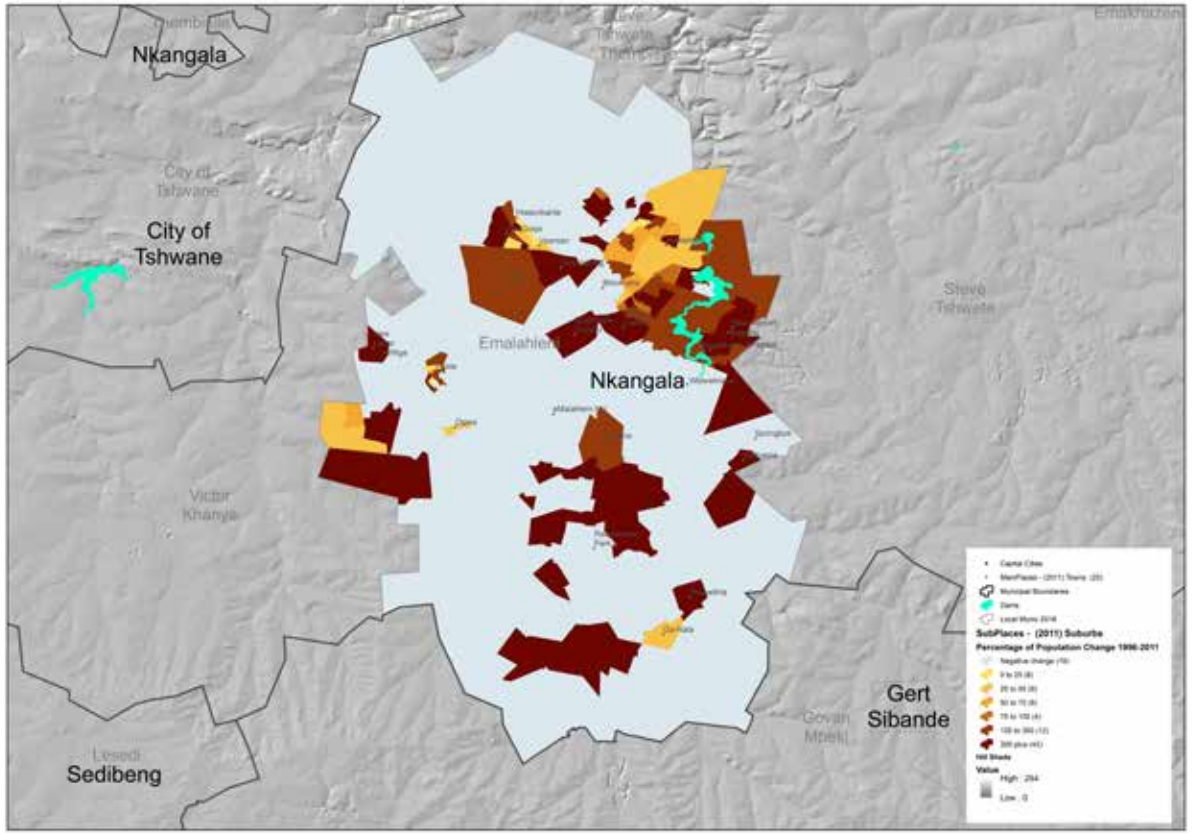

Change in Cultivated Lands
300000
250000
200000
150000
100000
50000
0
258680
4537
25469
9408
2354
10173
206739
1990 Cultivated Changed
2014 Built Up
2014 Mining
2014 Wetlands
2014 Other
2104 Plantation
2104 Natural/ Near Natural

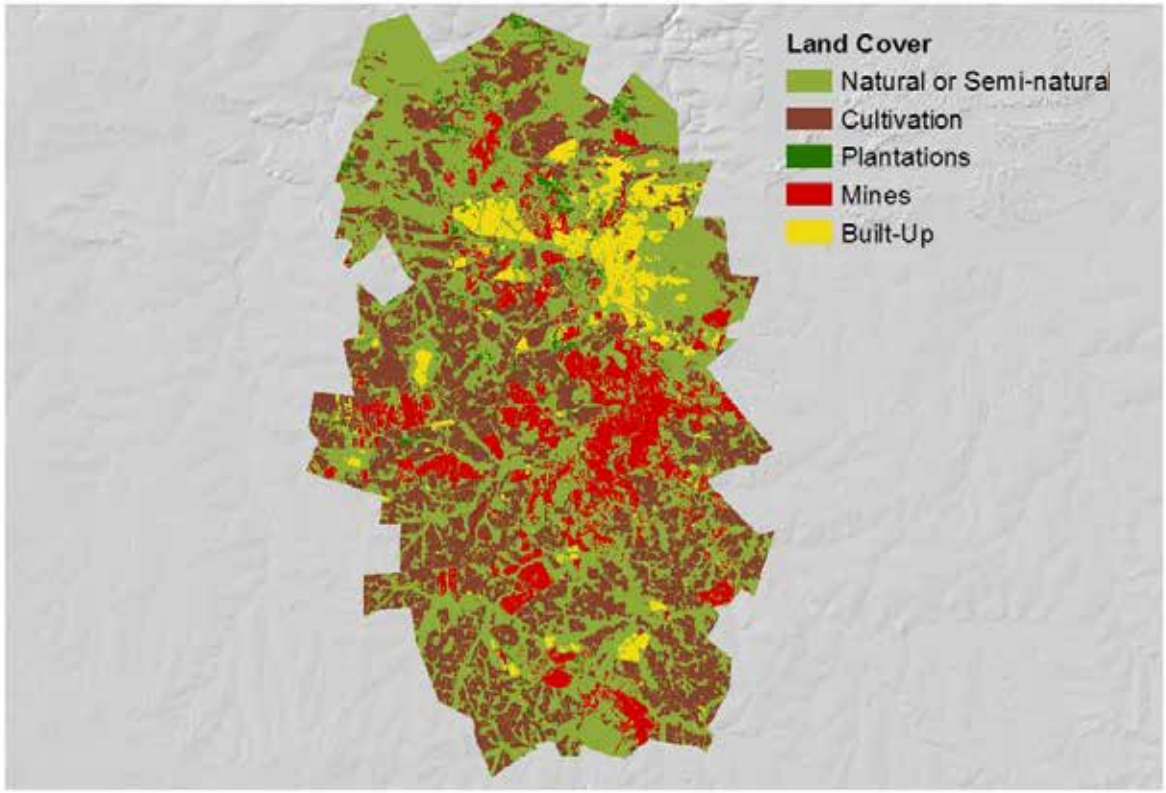
Zoom into Nkangala



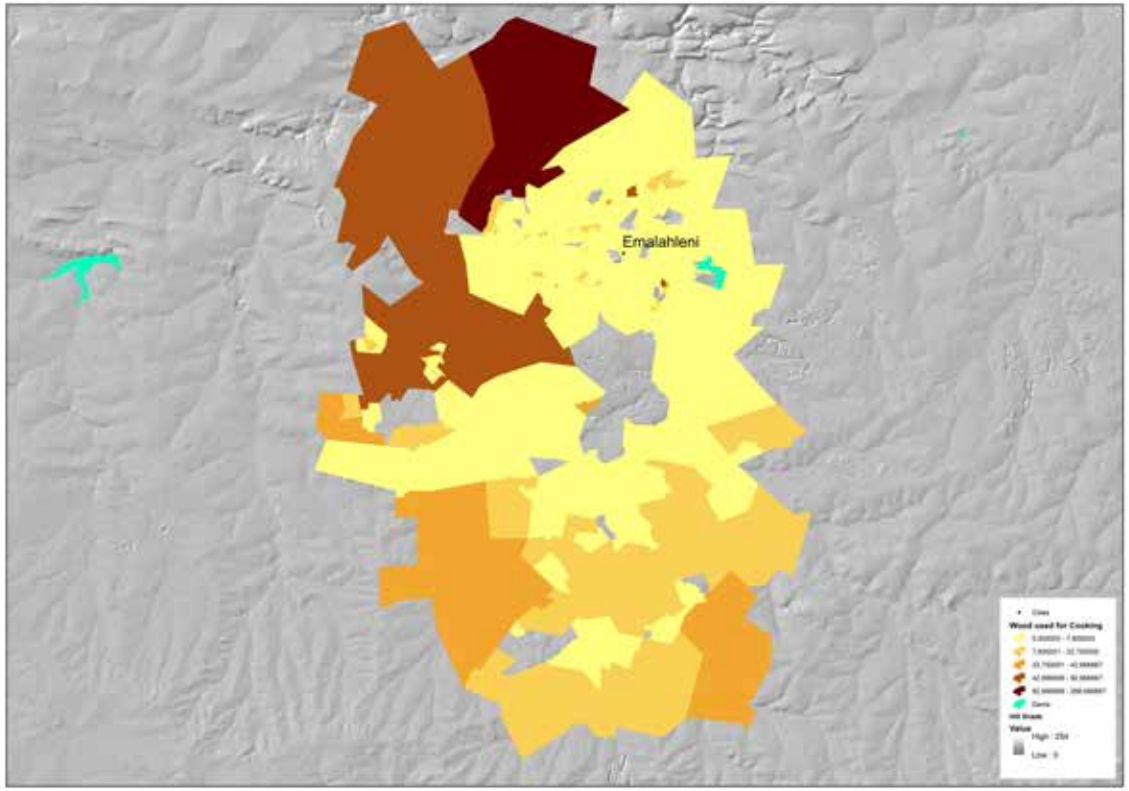


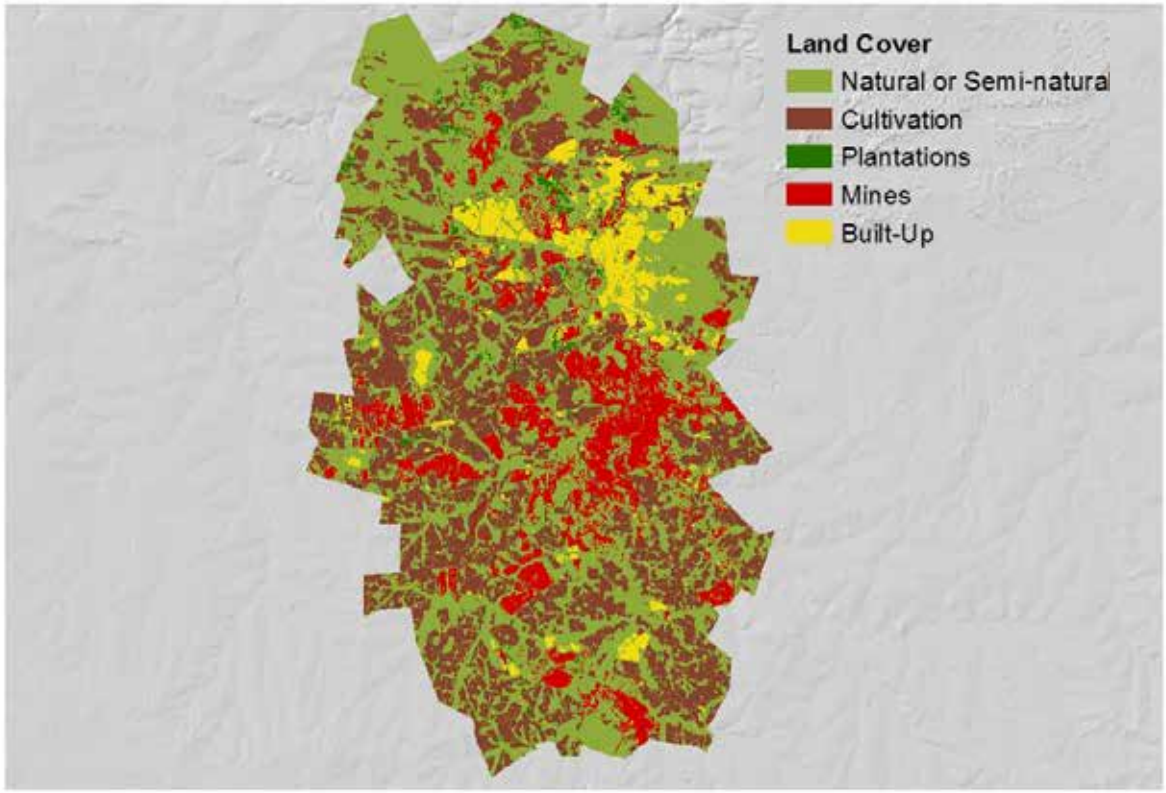
Zoom into Emalahleni



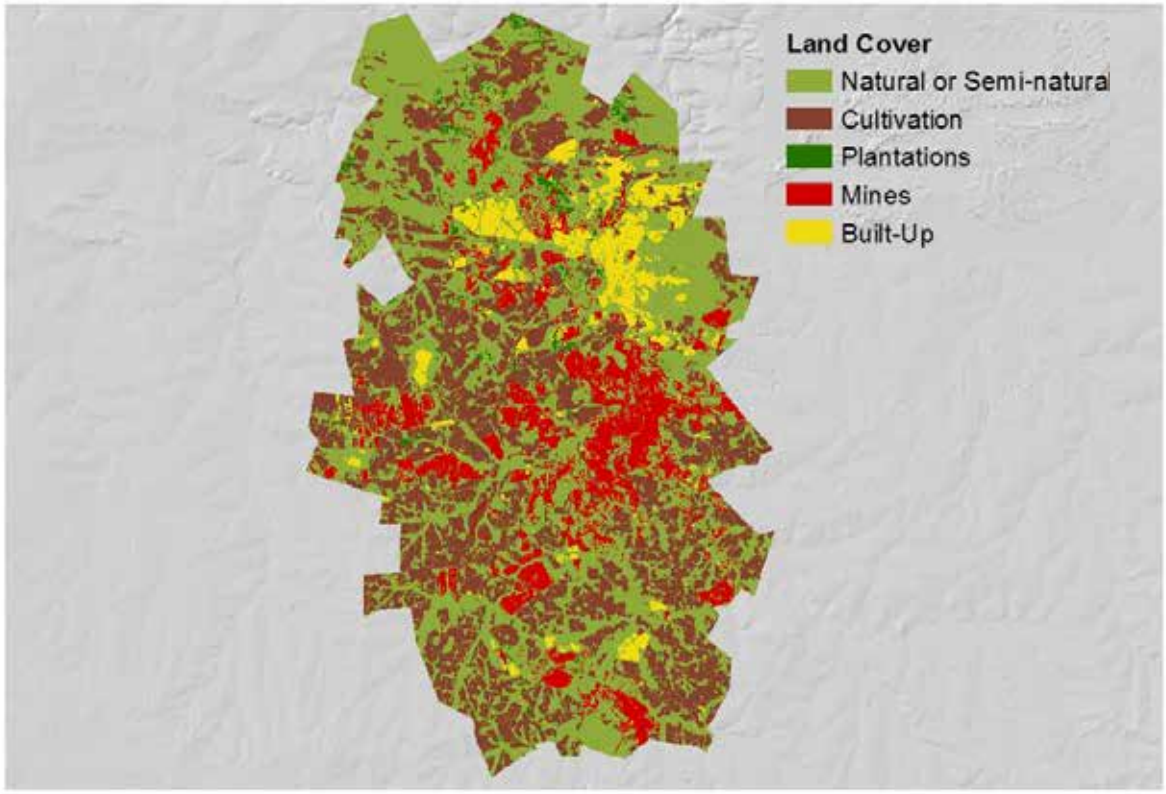


Zoom into Emalahleni

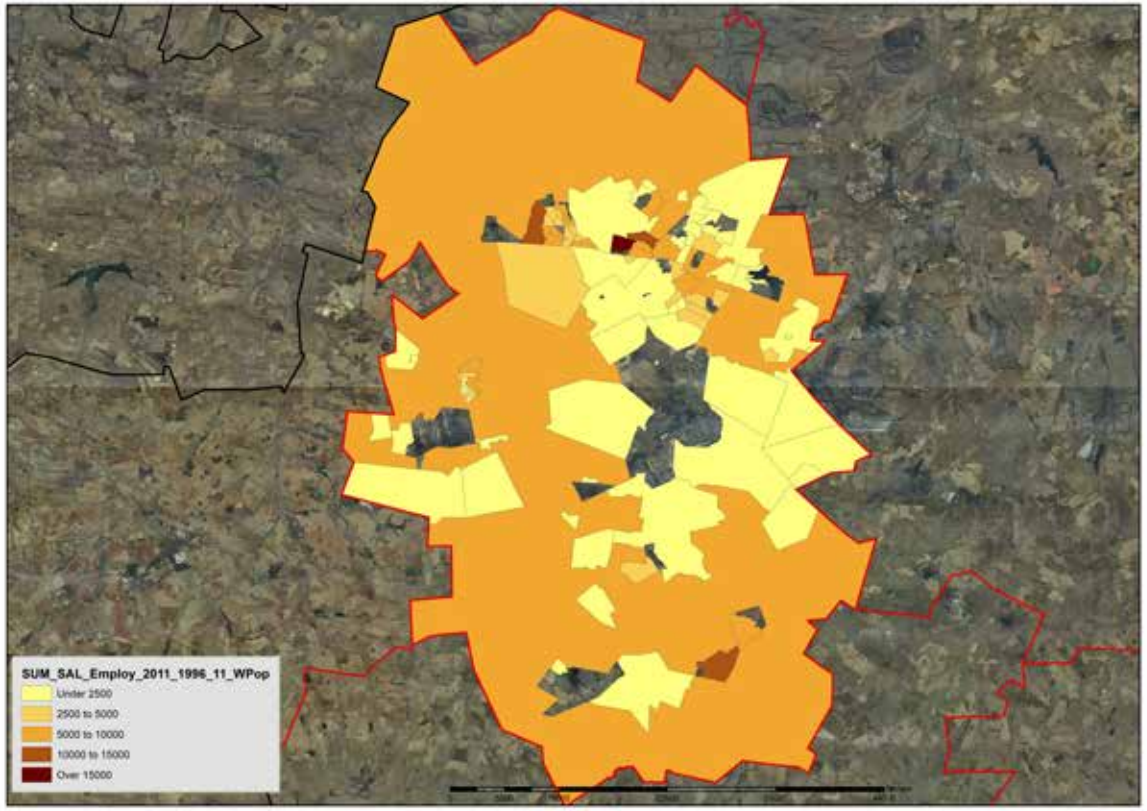


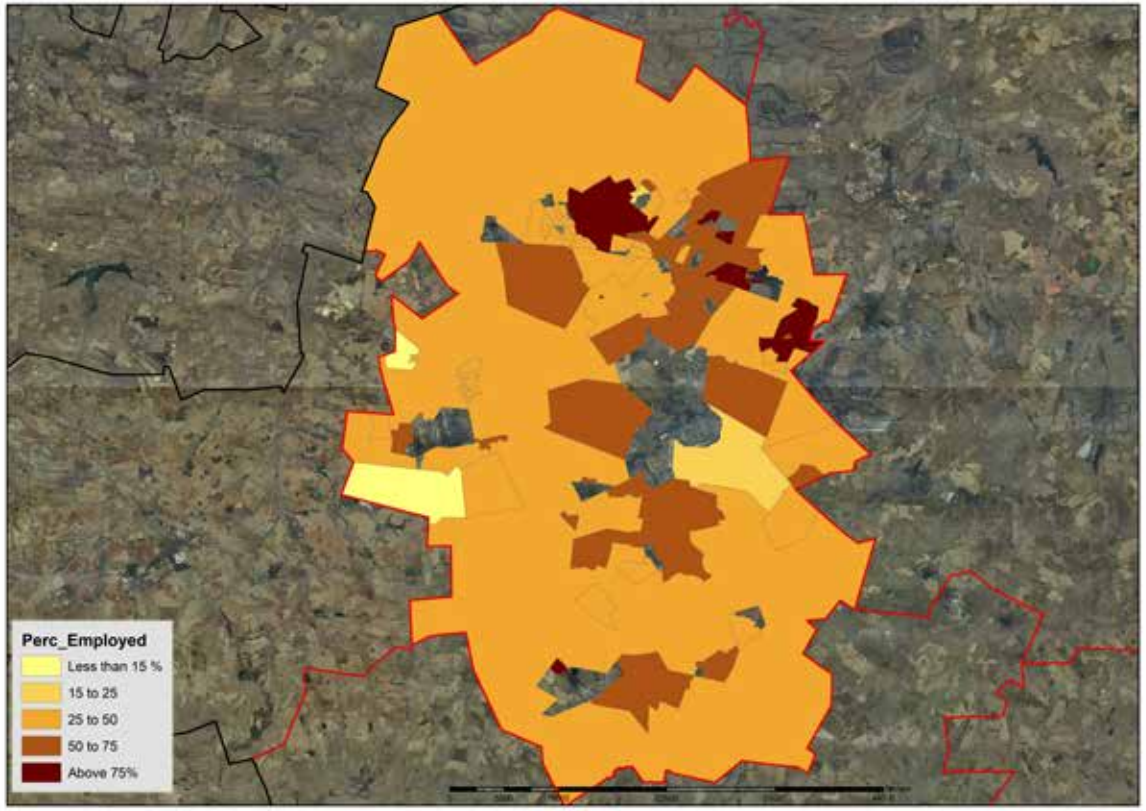


Zoom into Emalahleni

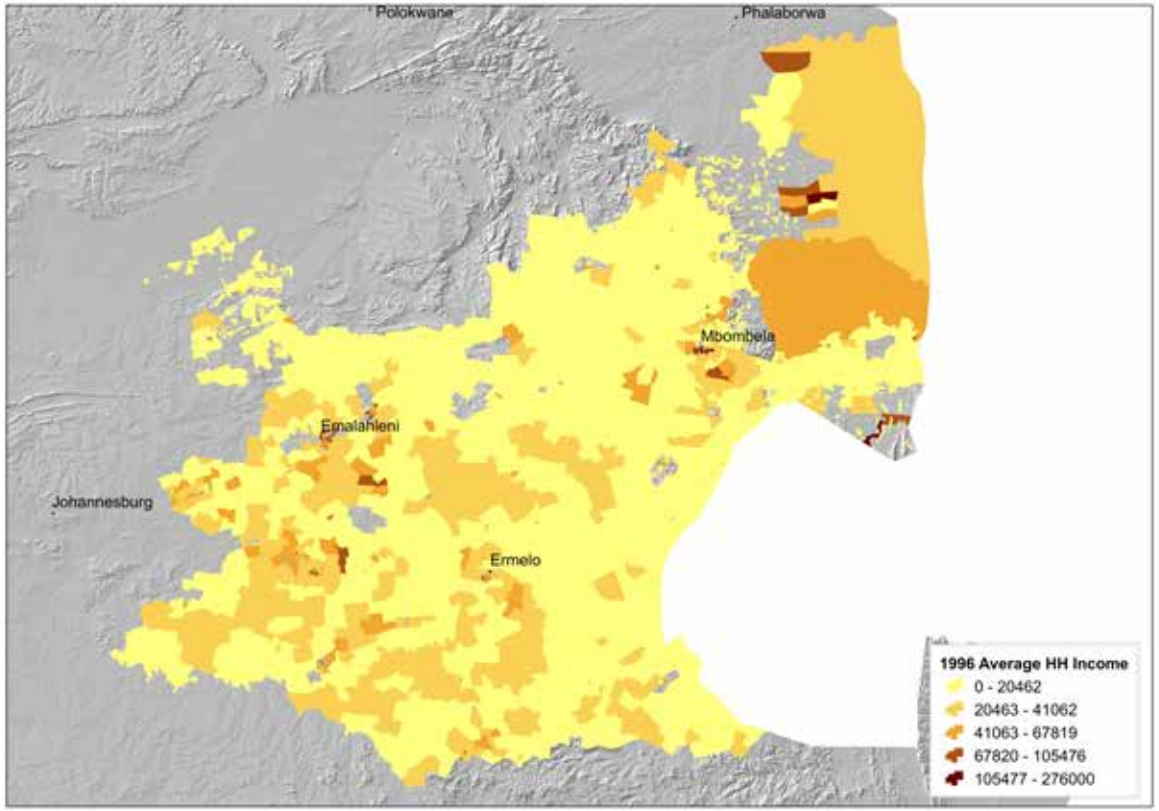


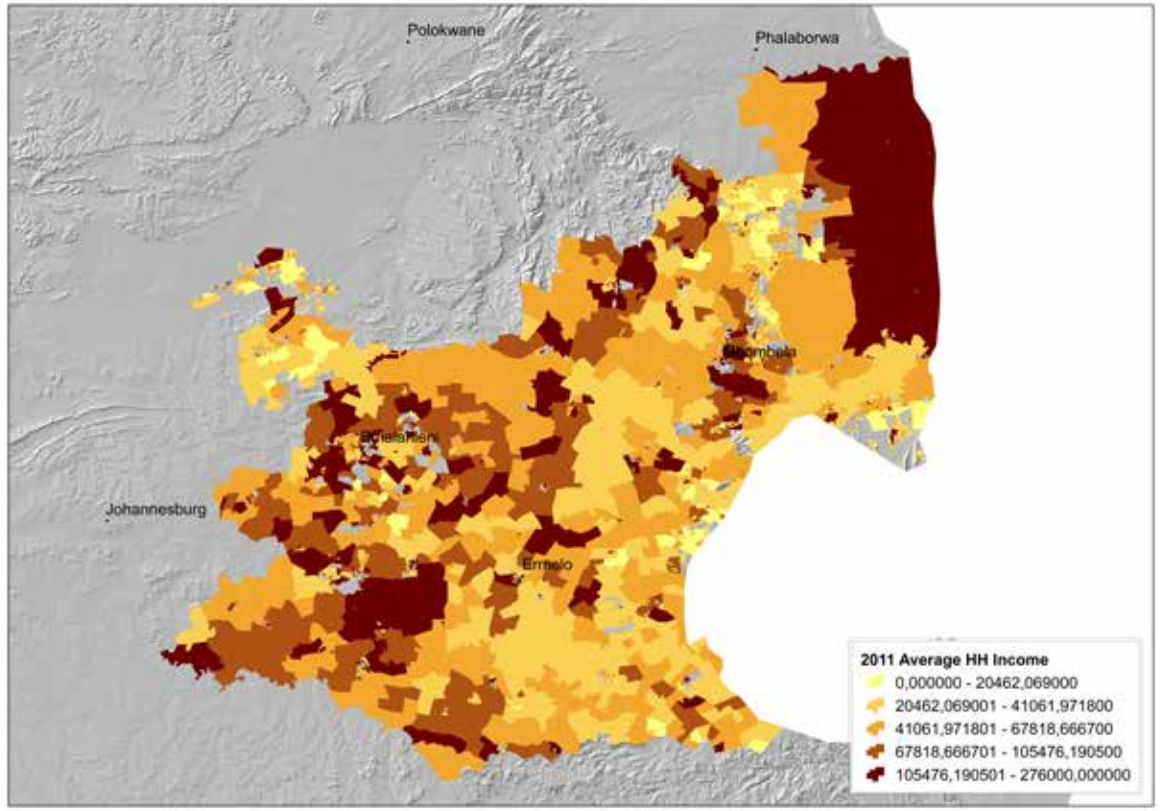
Zoom into Emalahleni



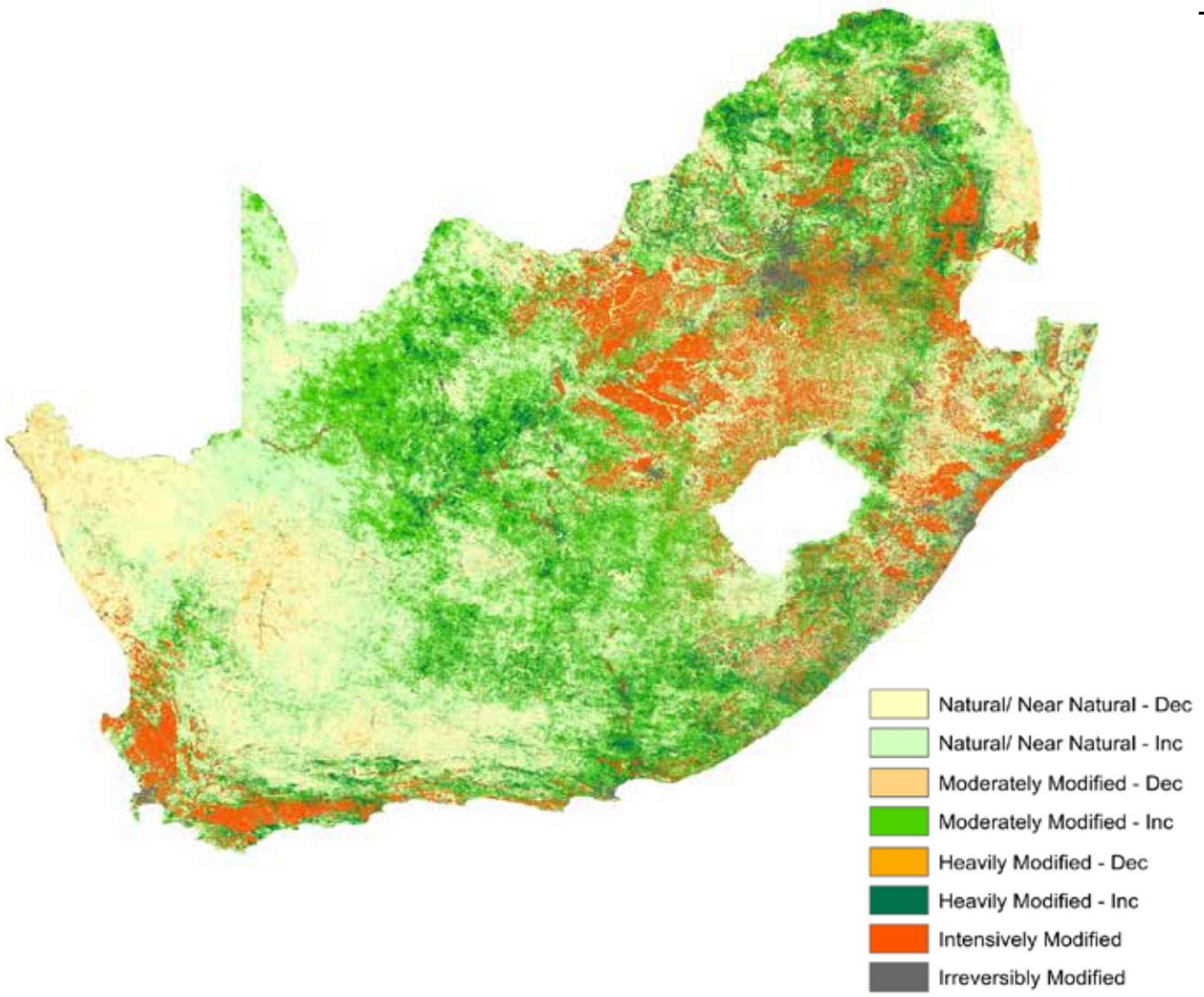


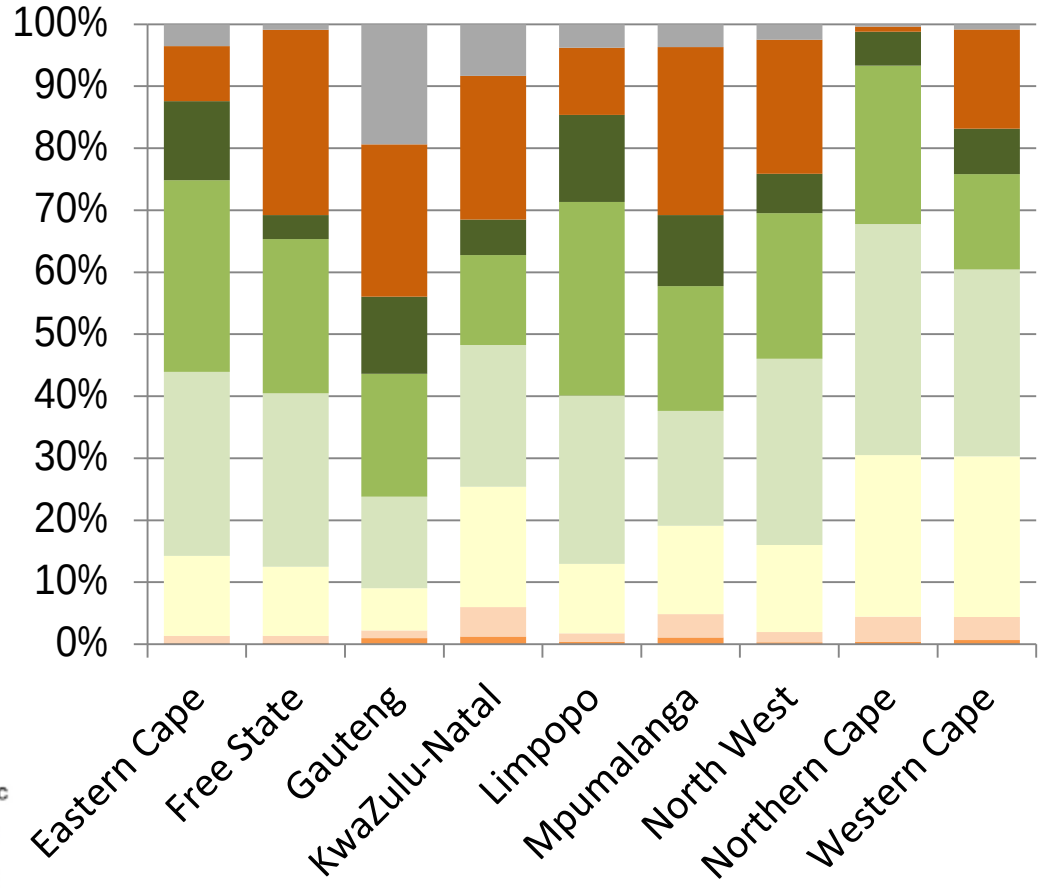
Mpumalanga


Polokwane
Phalaborwa
Mbombela
Emalahleni
Johannesburg
Ermelo
1996 Average HH Income
0 - 20462
20463 - 41062
41063 - 67819
67820 - 105476
105477 - 276000


Polokwane
Phalaborwa
Johannesburg
Ermelo
2011 Average HH Income
0,000000 - 20462,069000
20462,069001 - 41061,971800
41061,971801 - 67818,666700
67818,666701 - 105476,190500
105476,190501 - 276000,000000

Not just about extent but also about impact of different land uses on ecosystem condition





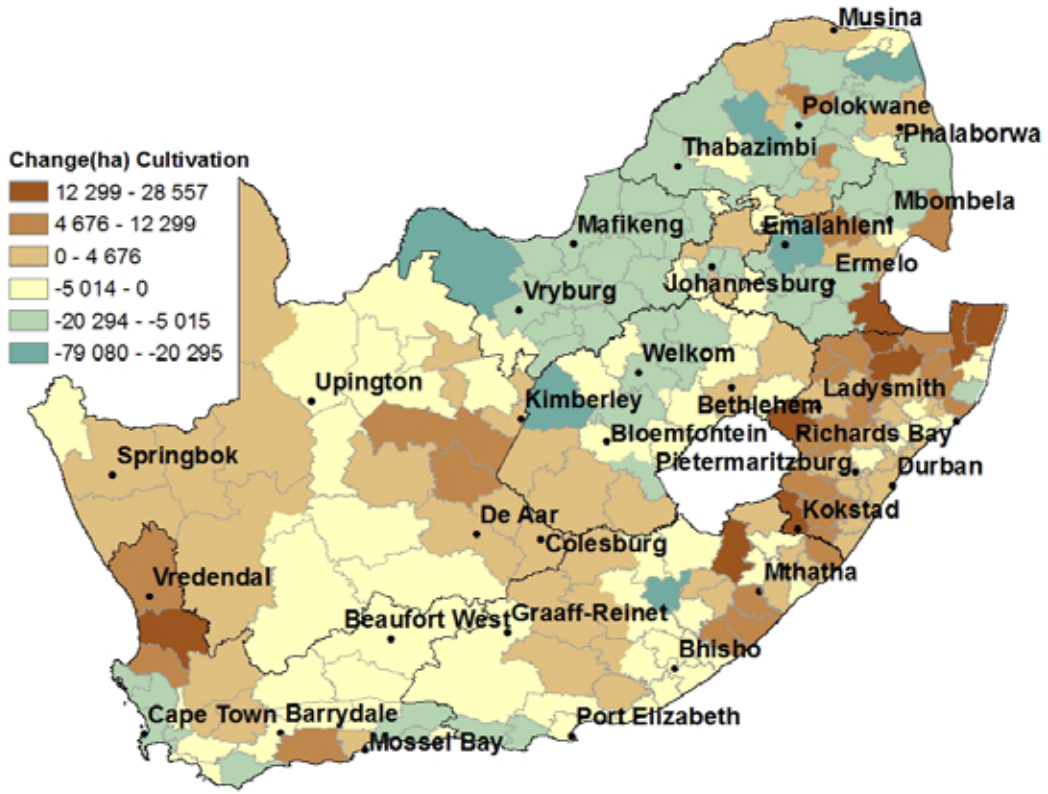
What does this mean for people's dependence on ecosystems?

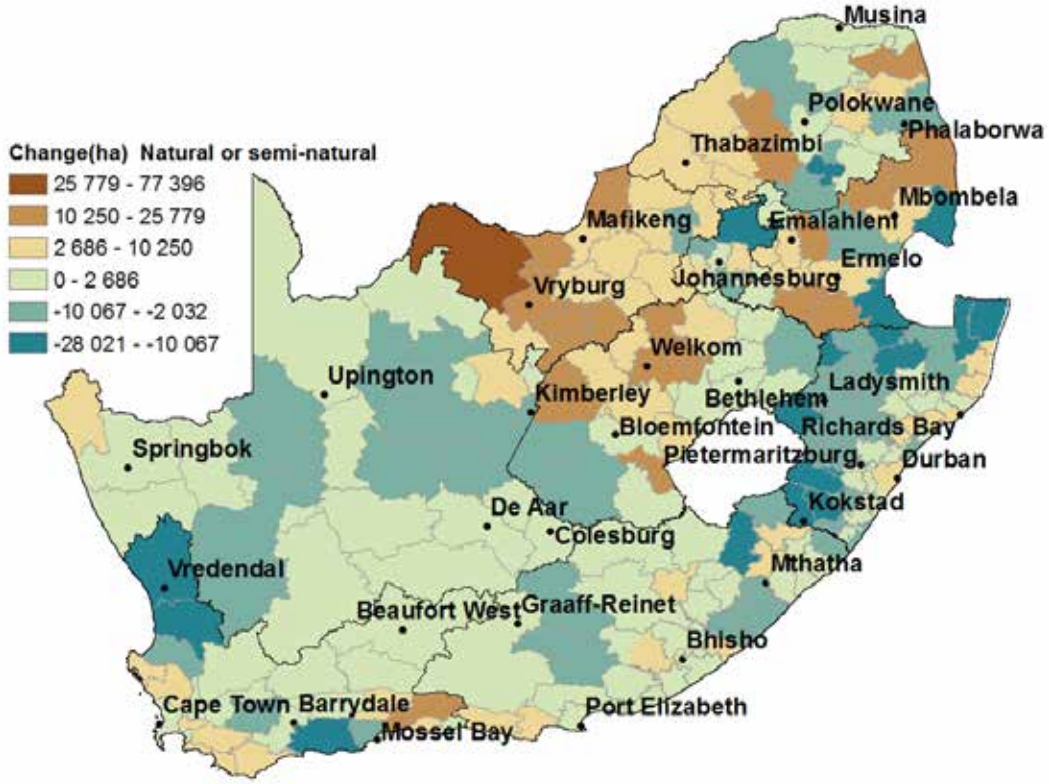
- Rural communities often rely on rivers for drinking water
- They are highly vulnerable to health hazards associated with agricultural and mining effluent

The NCA in context

- Integrator of data
  - Uses existing data sources and adds value
  - Allows interrogation at multiple scales
  - Allows for comparison of different types of data
- Supports questions about the relationship between nature, people and the economy
- Supports evidence based decision making

What questions do YOU have?





Thank You