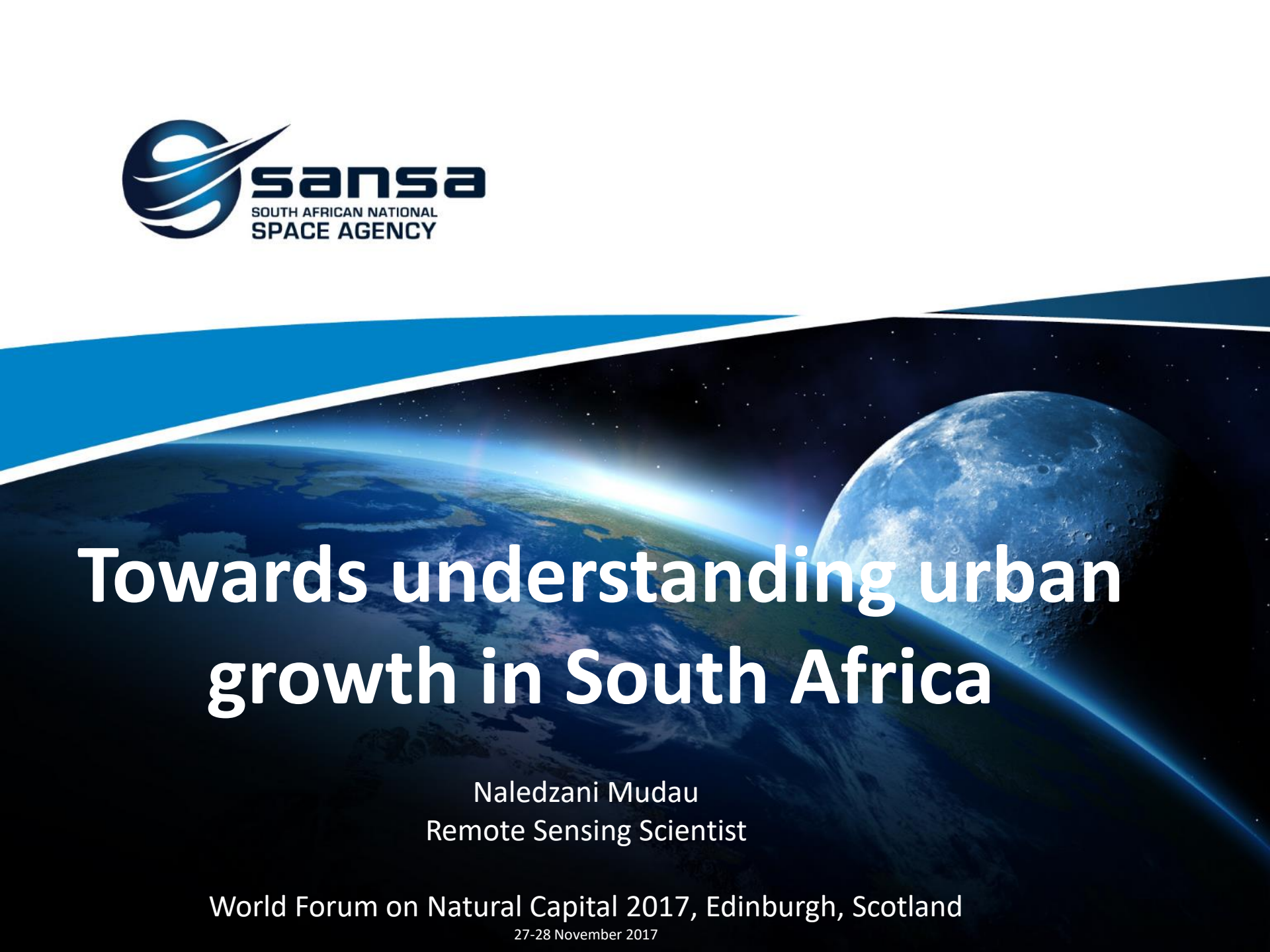




Towards understanding urban growth in South Africa

Naledzani Mudau
Remote Sensing Scientist

World Forum on Natural Capital 2017, Edinburgh, Scotland

27-28 November 2017

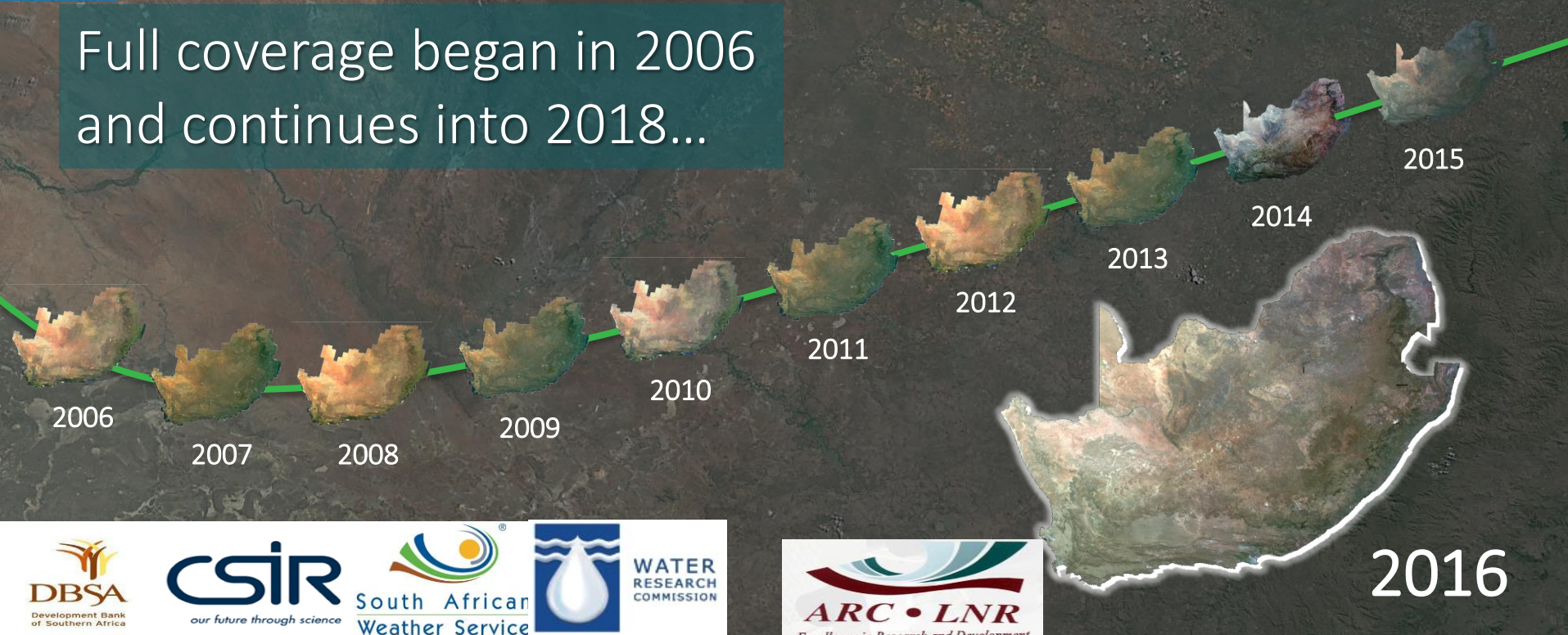
Introduction

- Urbanisation has increased from 52% in 1990 to 62% in 2011 in South Africa (South African Institute of Race Relations, 2013)
 - South Africa is urbanising rapidly :
 - rural-urban migration, abolishment of apartheid laws
 - natural population growth
 - Urbanisation in South Africa results in urban sprawl , proliferation of informal settlements, inequality and environmental degradation
 - Need for accurate and up-to-date geospatial data to support land use planning, monitoring and management
- 

National Mosaic Project



Full coverage began in 2006 and continues into 2018...



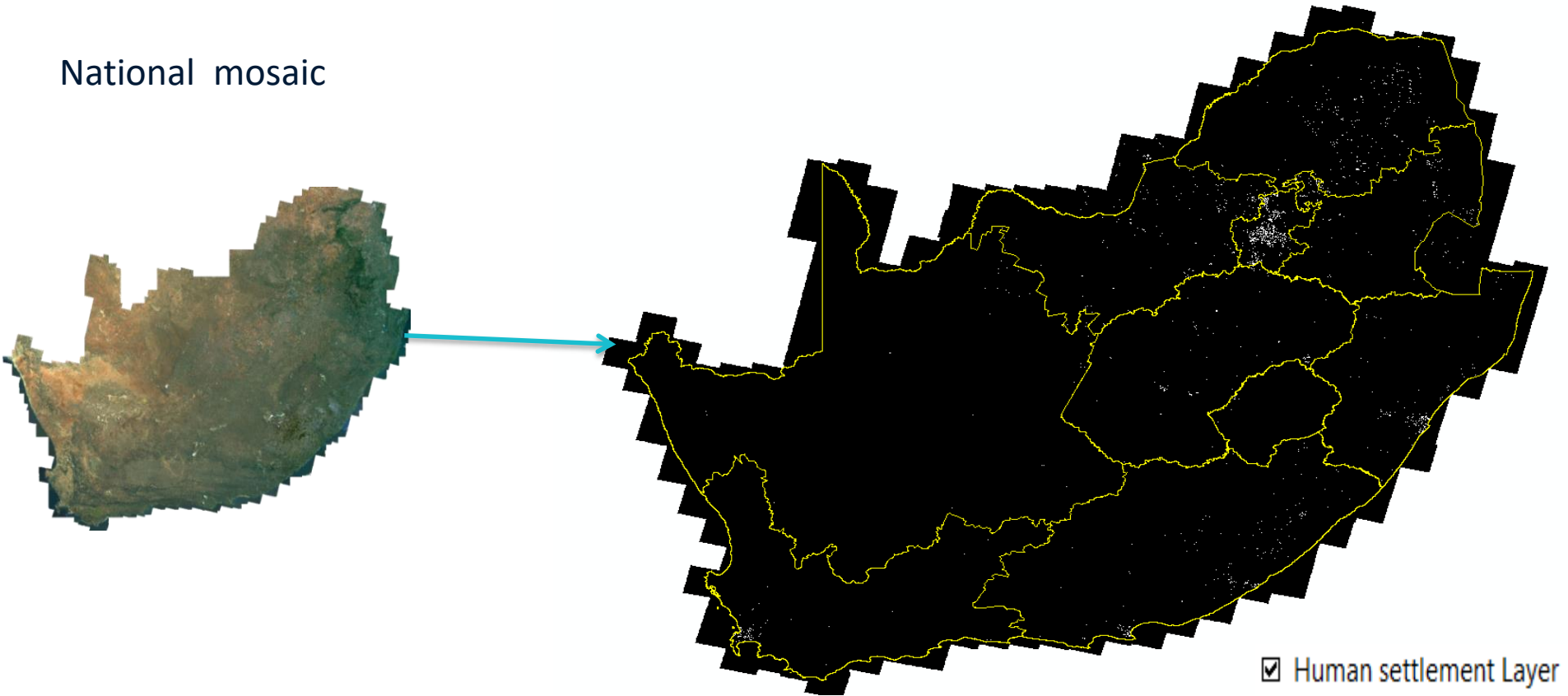
National Base Products

- Satellite imagery
- Agriculture
- Forest
- Water
- Human settlements
- Flood risk

SA-National Human Settlement Layer

National Human Settlement Layer

National mosaic



☒ Human settlement Layer

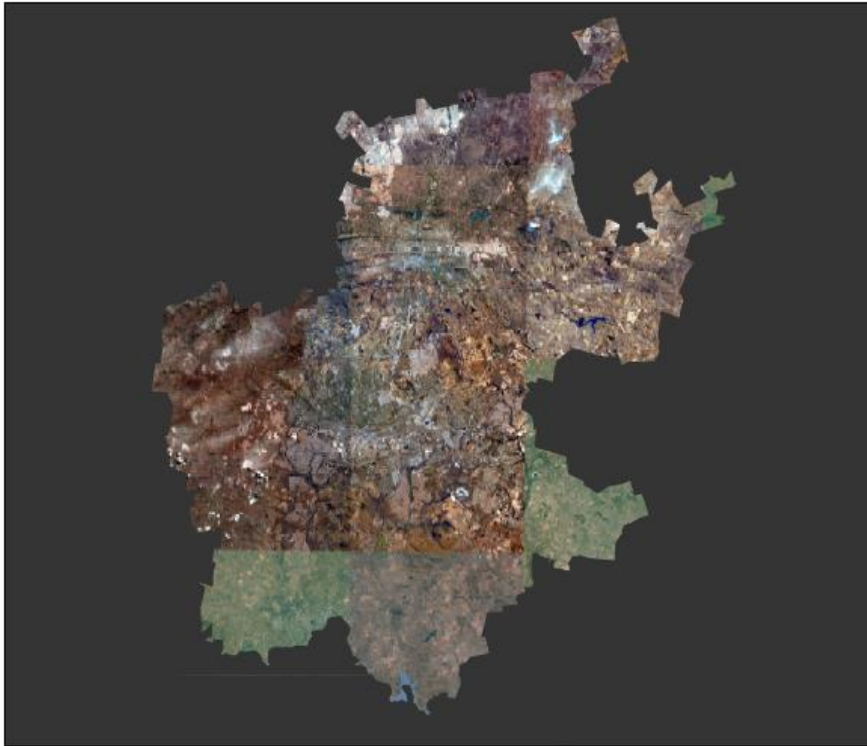
Value

☒ Non built-up

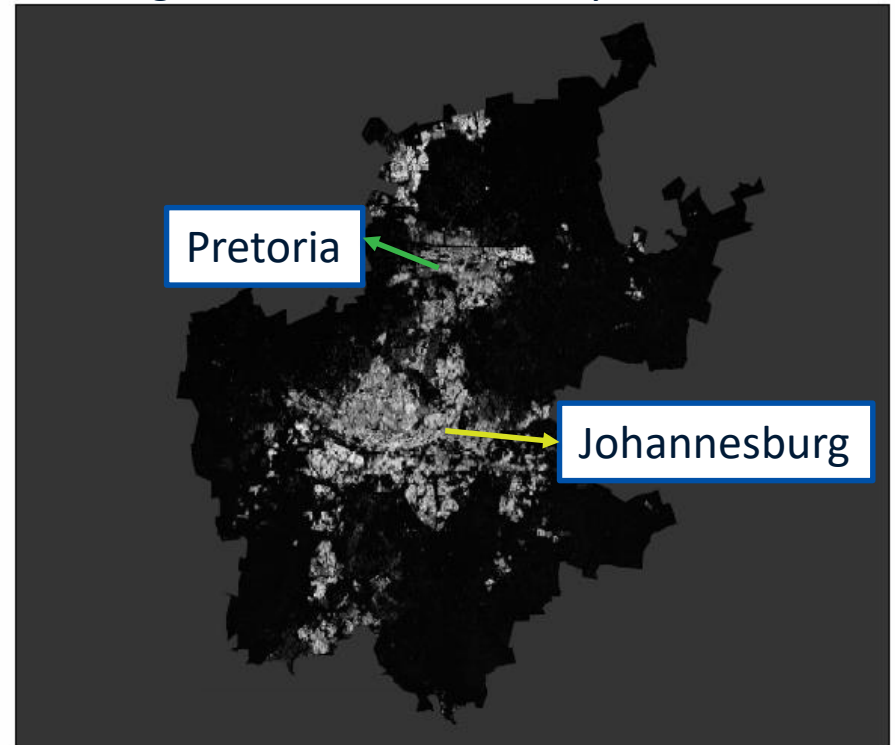
☐ Human settlements

SA-National Human Settlement Layer

Gauteng SPOT 5 Mosaic



Gauteng human settlement layer



☒ Human settlement Layer

Value

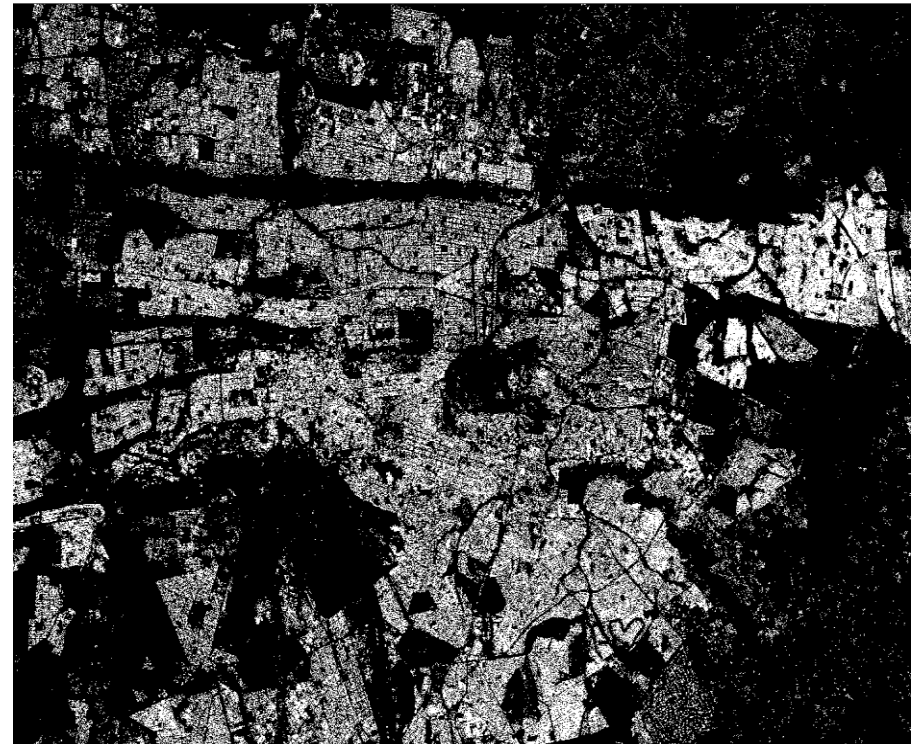
☐ Non built-up

☐ Human settlements

National Human Settlement layer



Tshwane, Pretoria, South Africa



☒ Human settlement Layer

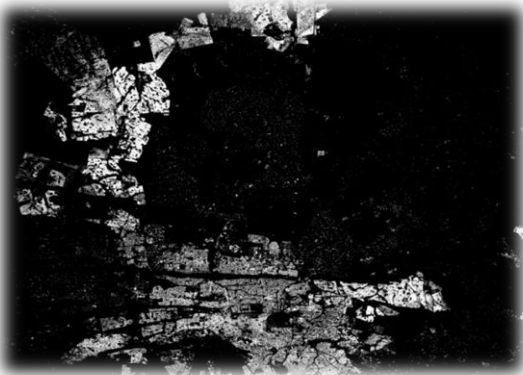
Value

☐ Non built-up

☐ Human settlements

South African Cities National Human Settlement Layer

Tshwane: Pretoria



Cape Town



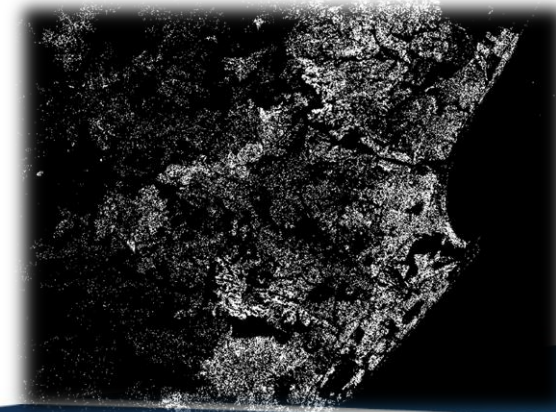
Johannesburg



Mangaung:
Bloemfontein



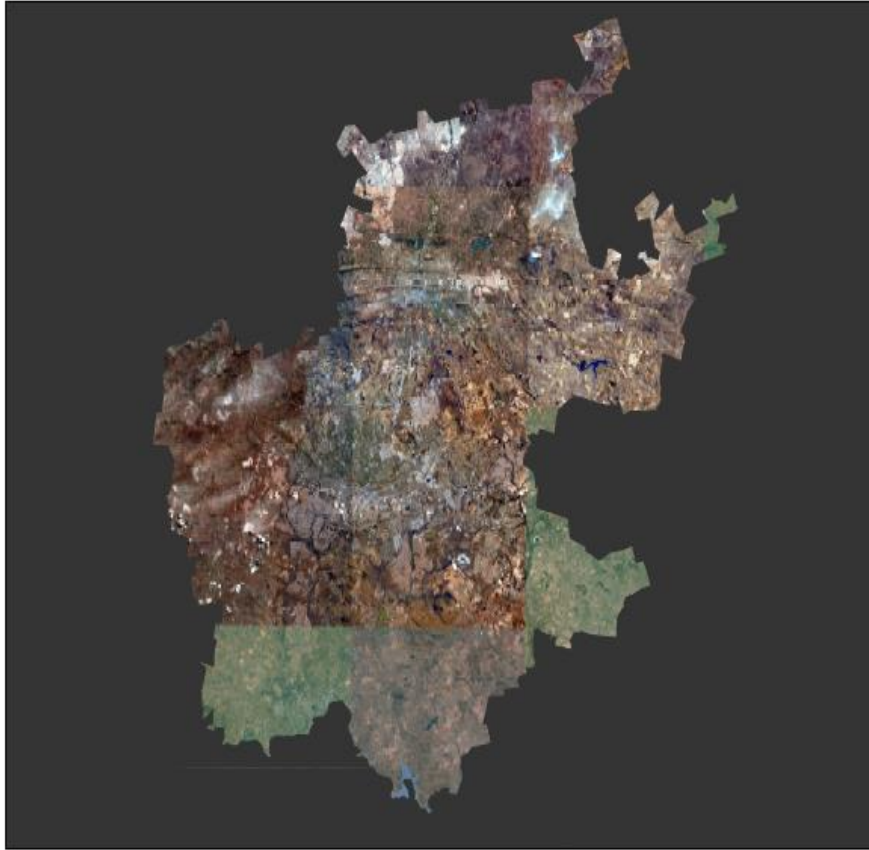
Durban



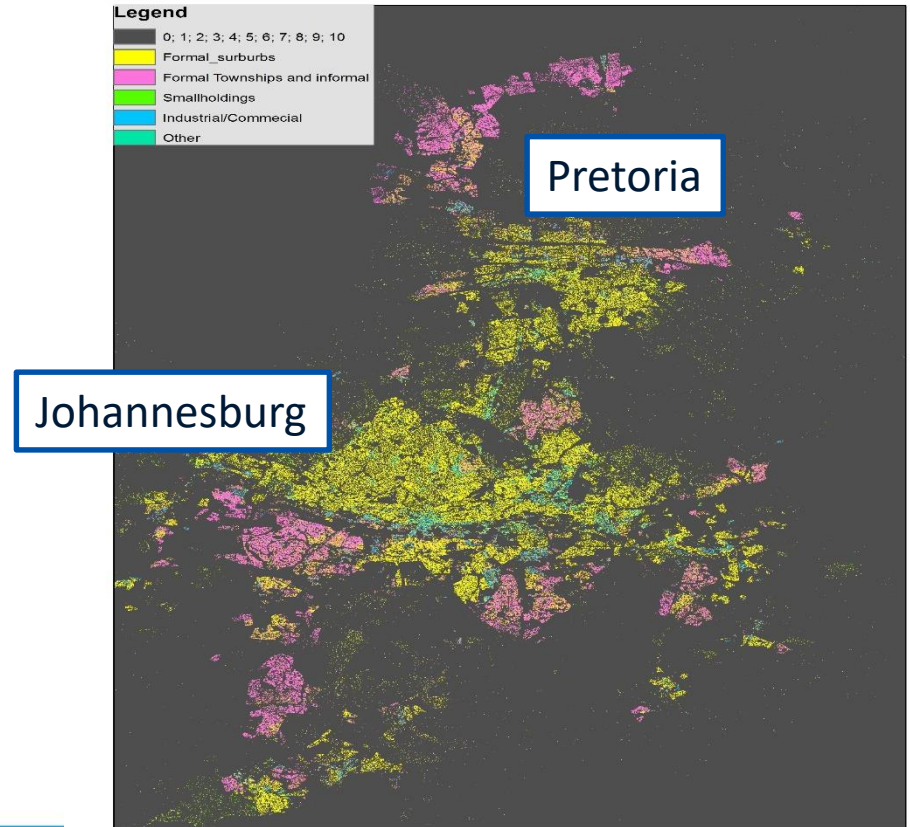
- ☒ Human settlement Layer
- Value
- ☐ Non built-up
- ☐ Human settlements

SA-National Human Settlement Layer

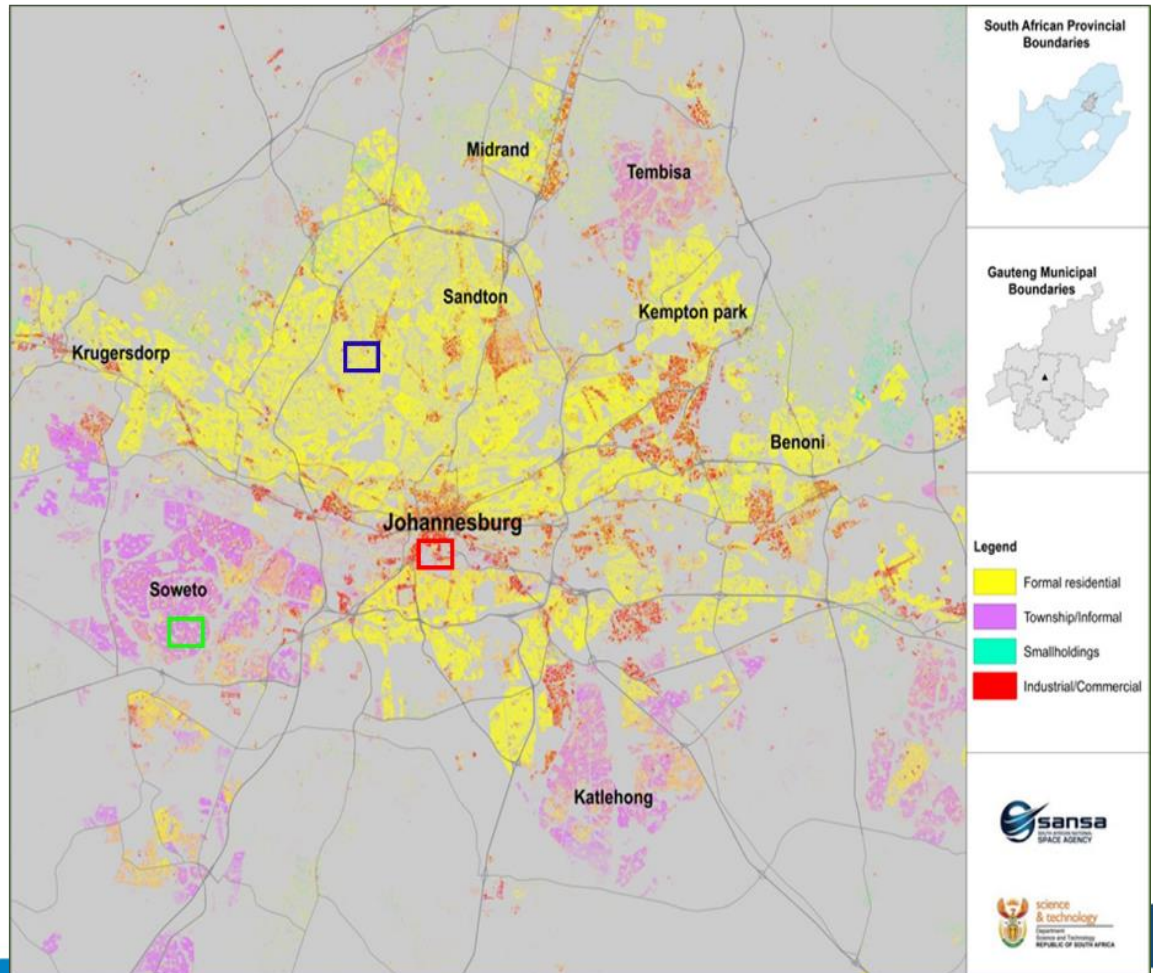
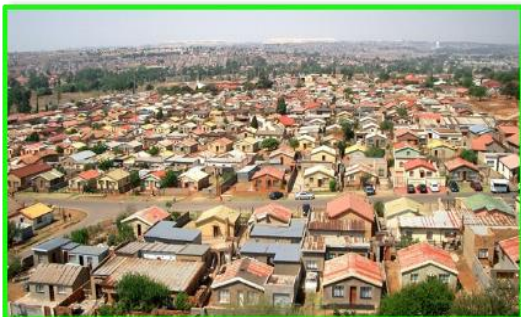
Gauteng Mosaic



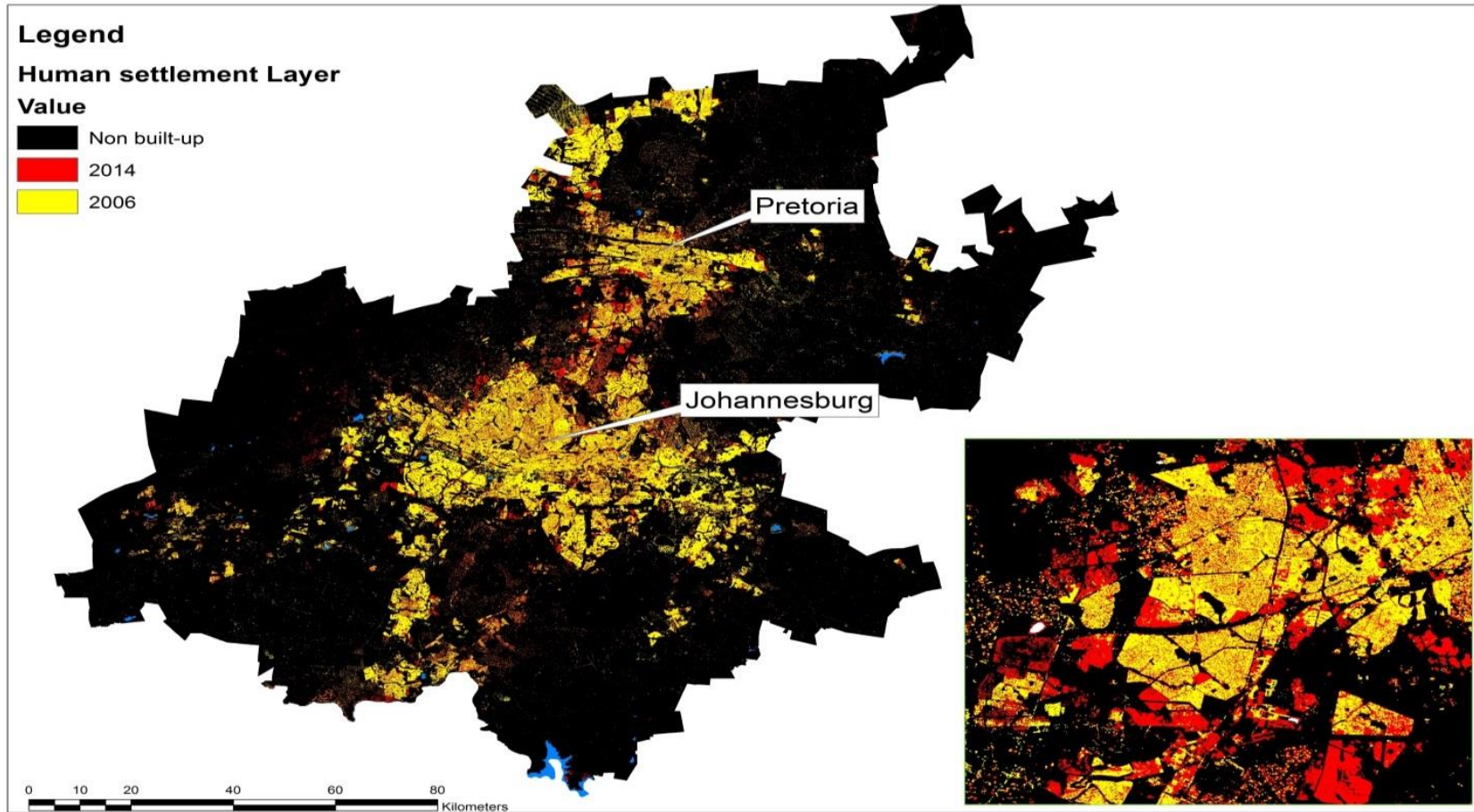
Gauteng human settlement types



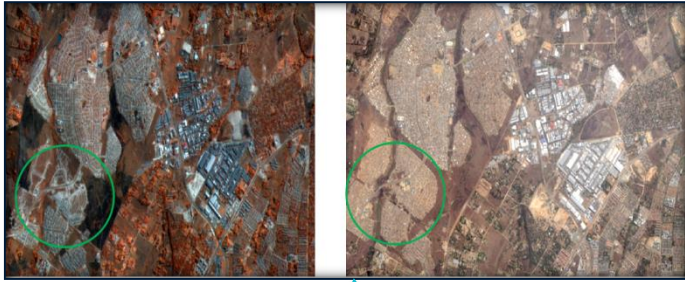
Classification of human settlement types



Urban Growth 2006-2014



2006-2014 Urban Growth Assessment

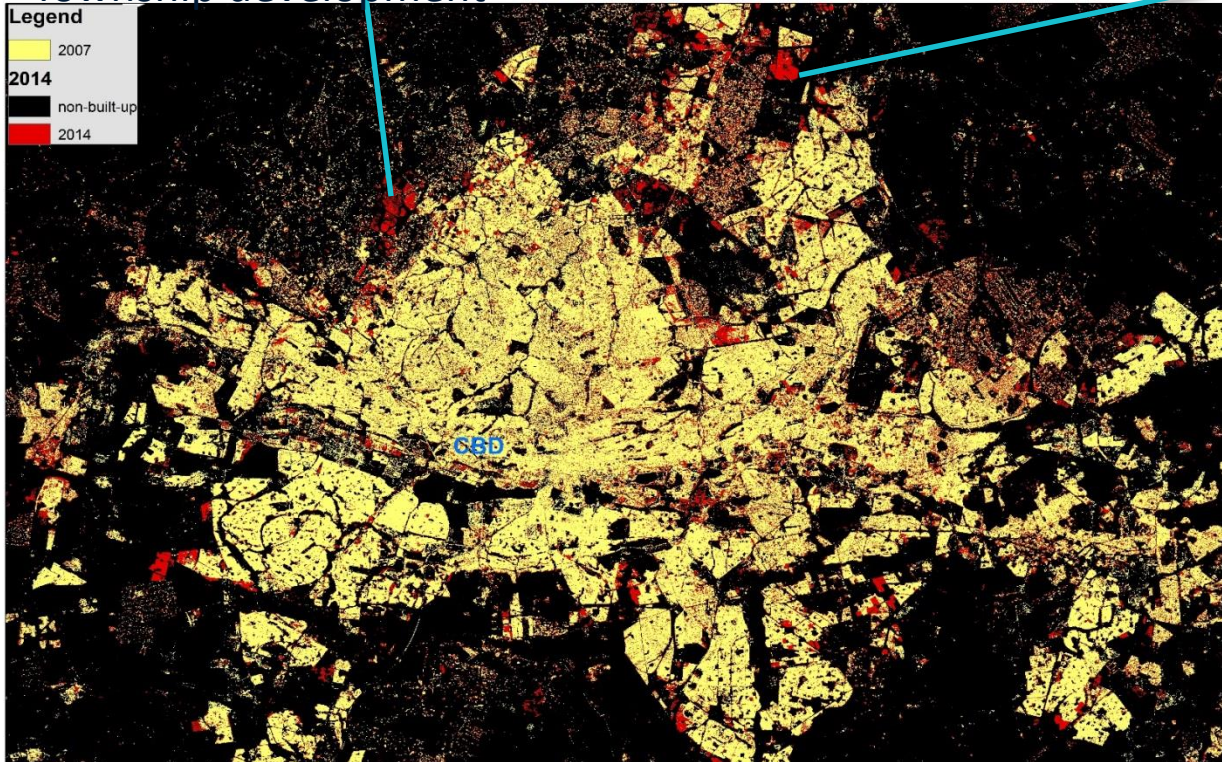


Township development



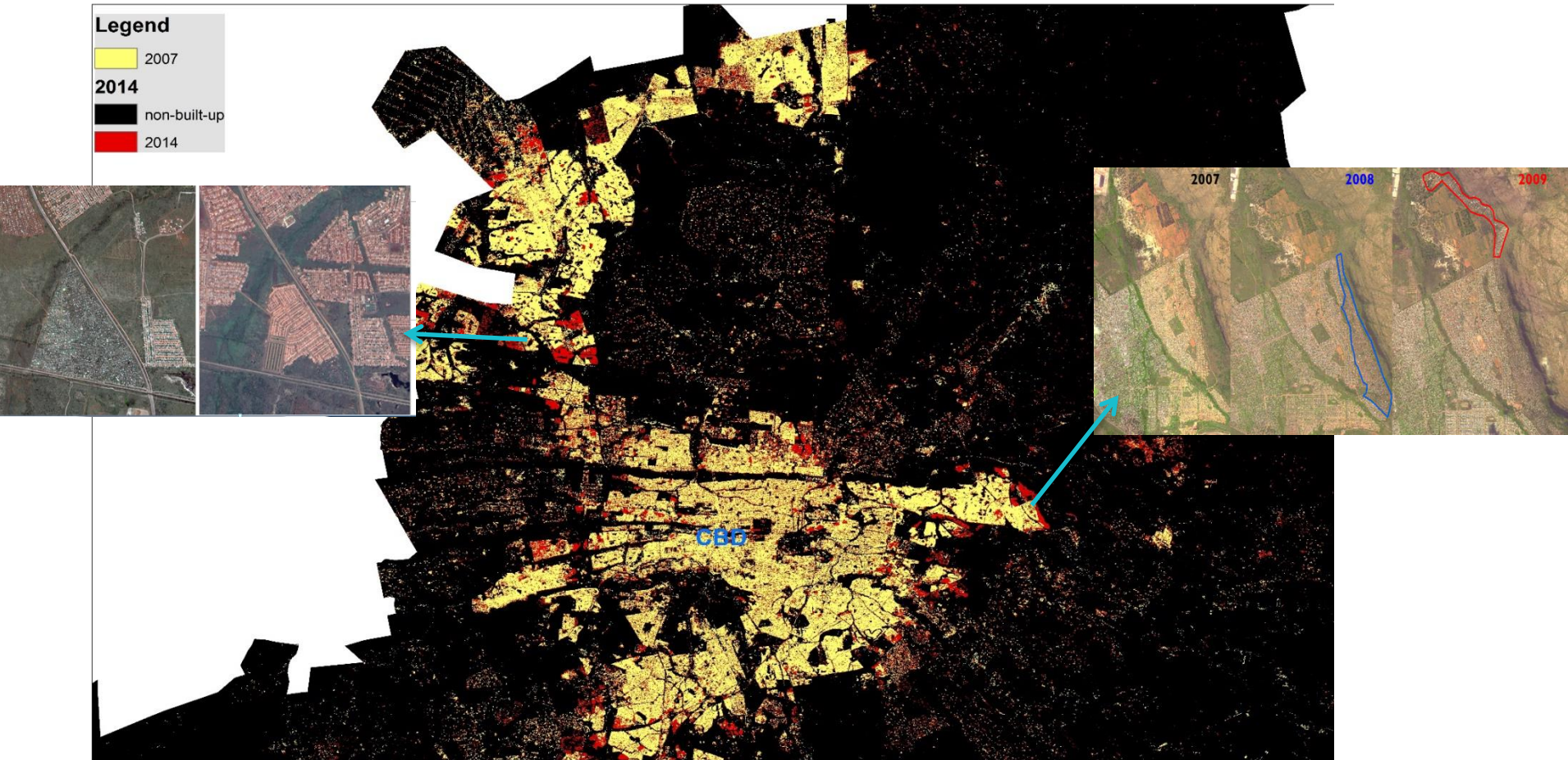
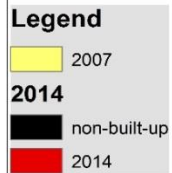
Suburb development

Greater Johannesburg growth = 13%

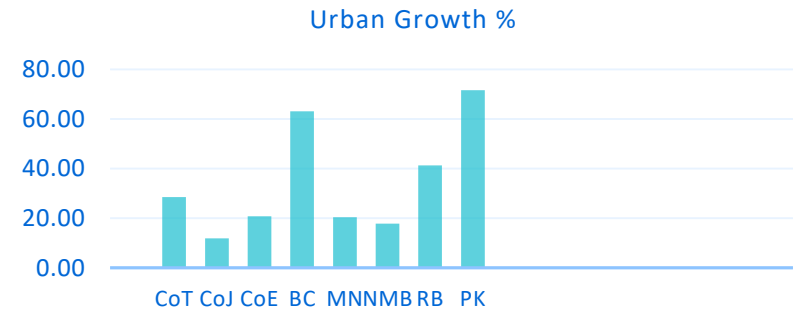


2006-2014 Urban Growth Assessment

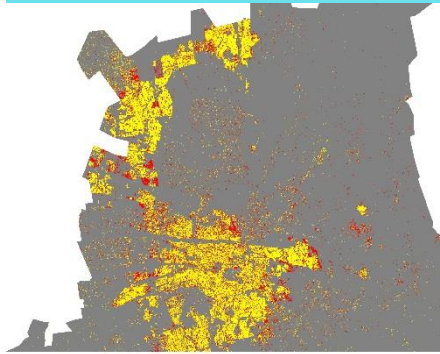
City of Tshwane urban growth = 22%



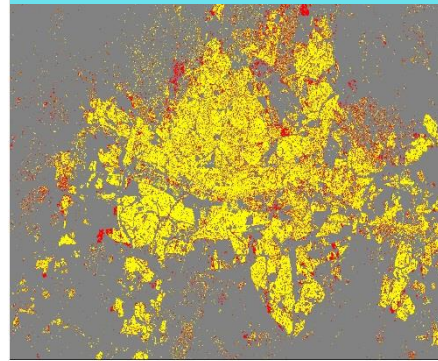
2007 -2014 urban growth



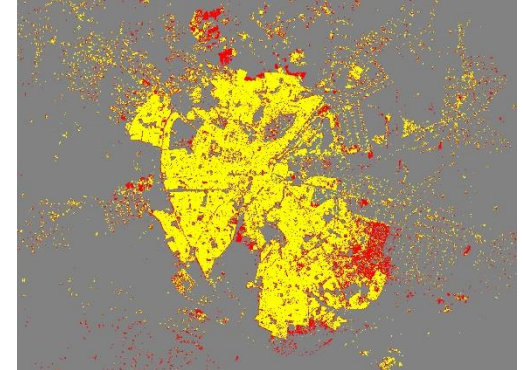
Tshwane



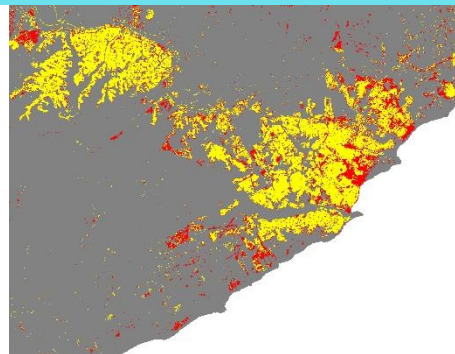
G. Johannesburg MA



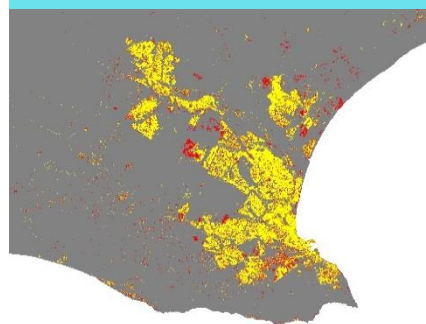
Mangaung



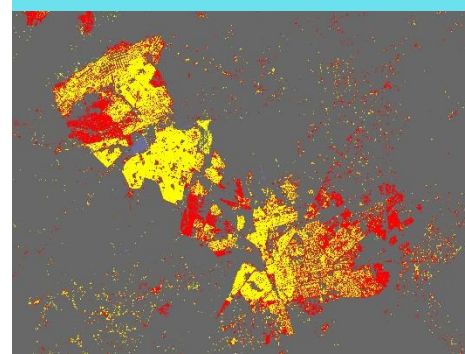
Buffalo city



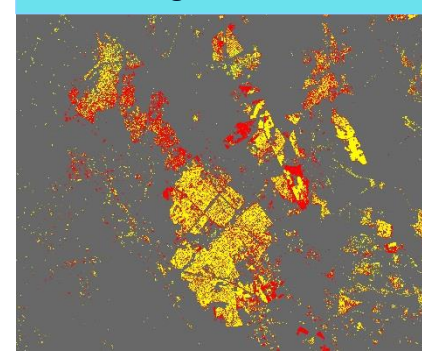
Nelson Mandela Bay



Polokwane



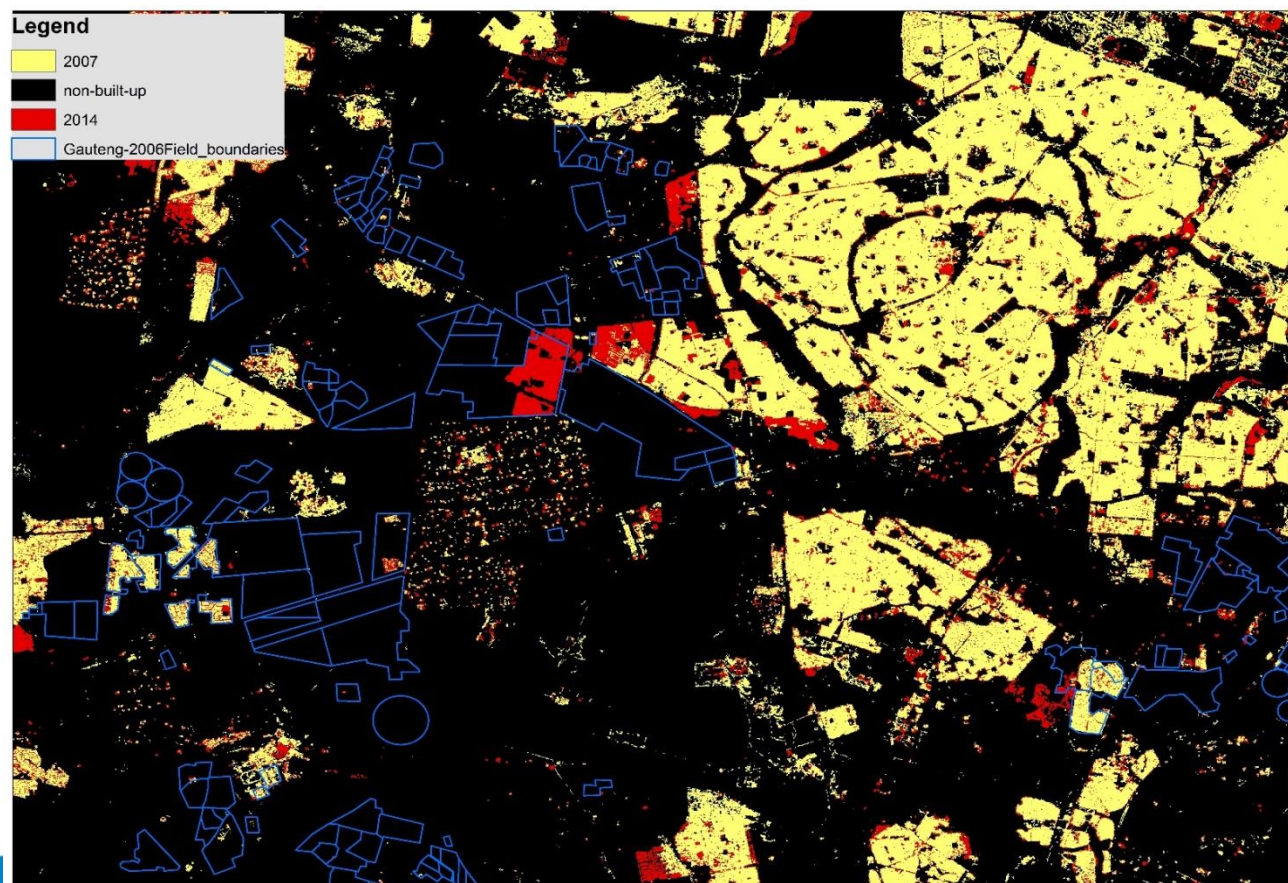
Rustenburg



Impact of Human Settlement Layer data

Monitoring of Agriculture: Conservation of Agriculture Act

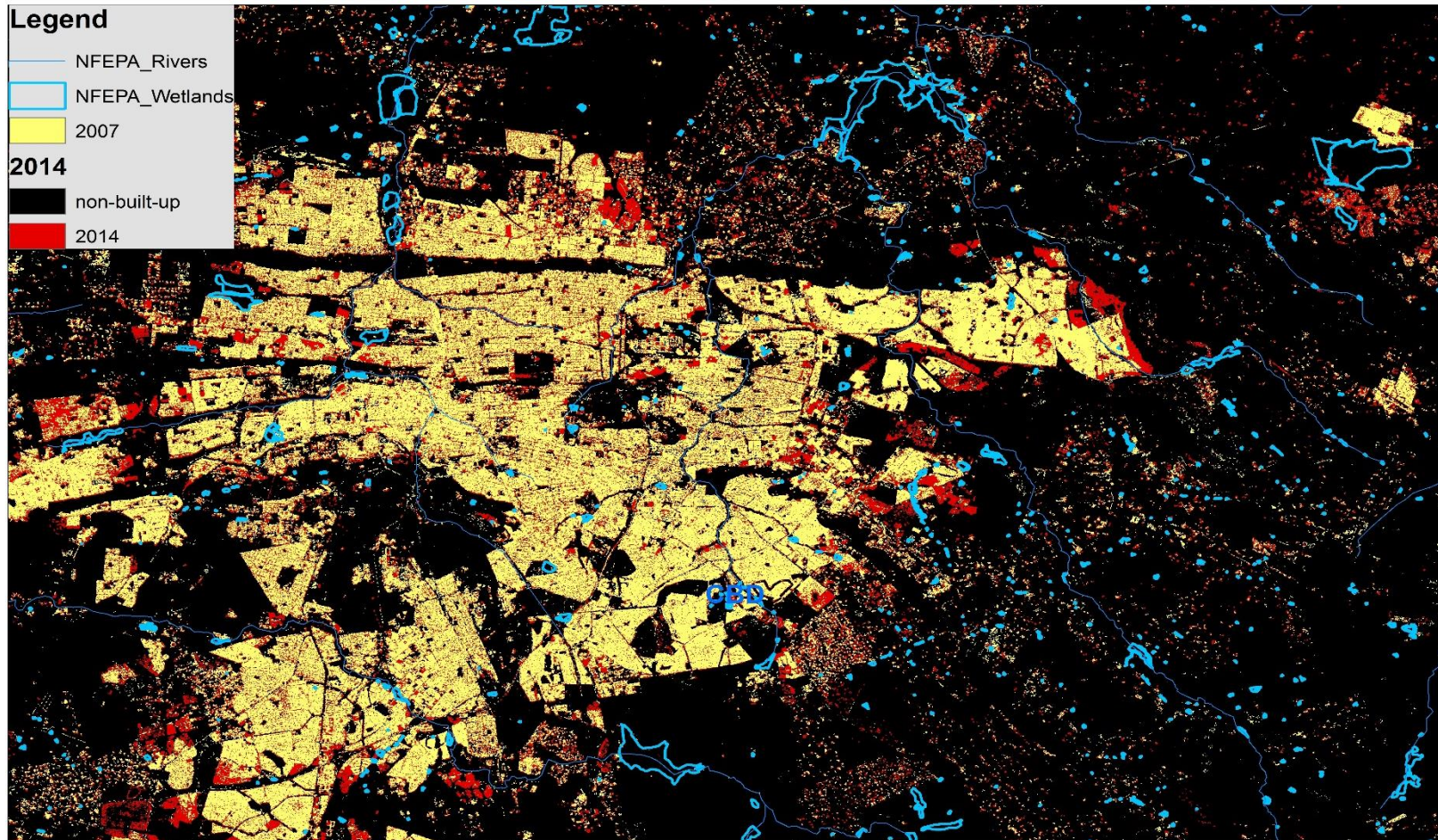
Only 12 % of South Africa's land is arable



Built-up areas located in land used for agriculture increased by 50% between 2007 and 2014

2006-2014 Urban Growth Assessment

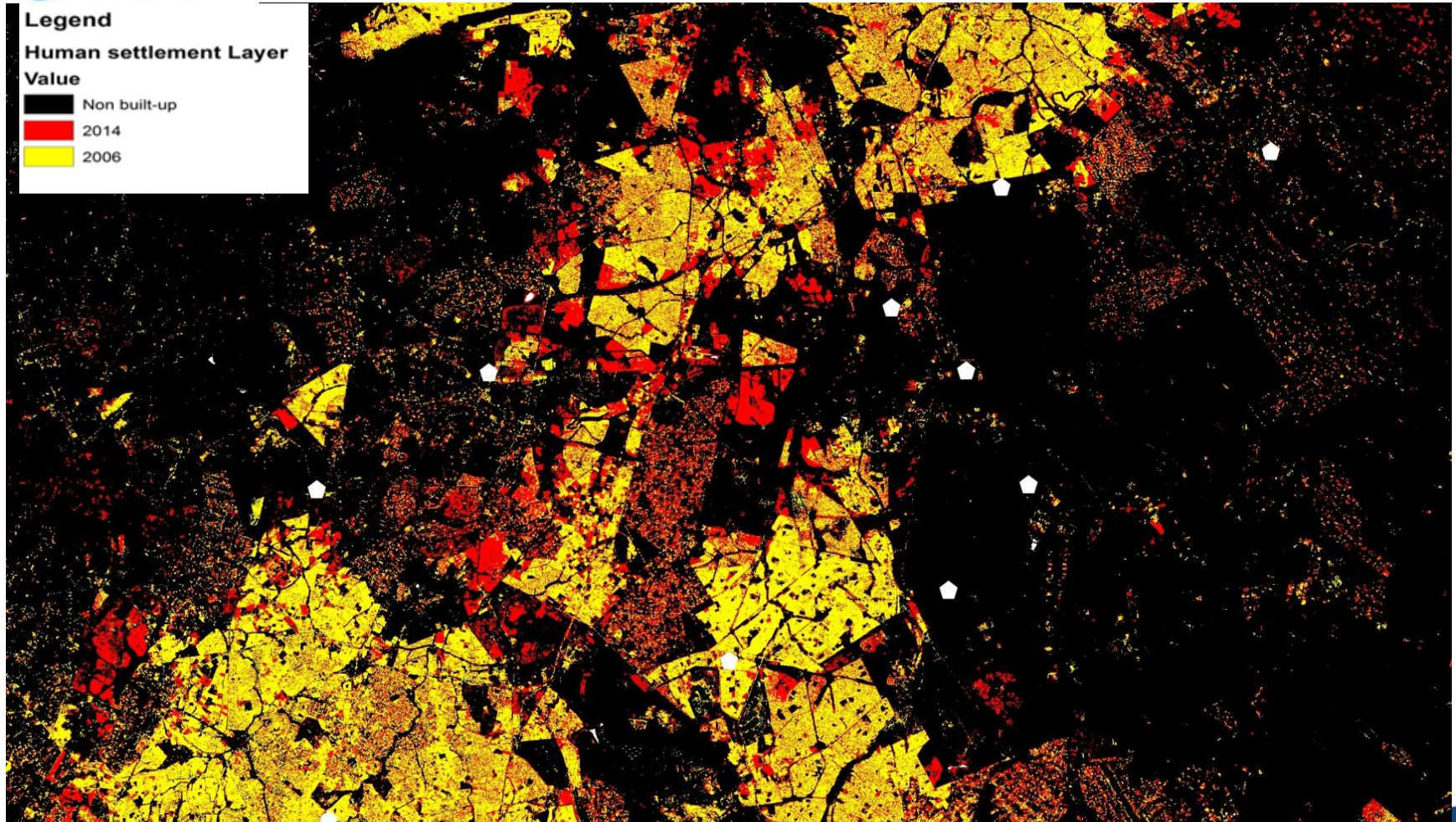
NEMA : conservation of hydrological System



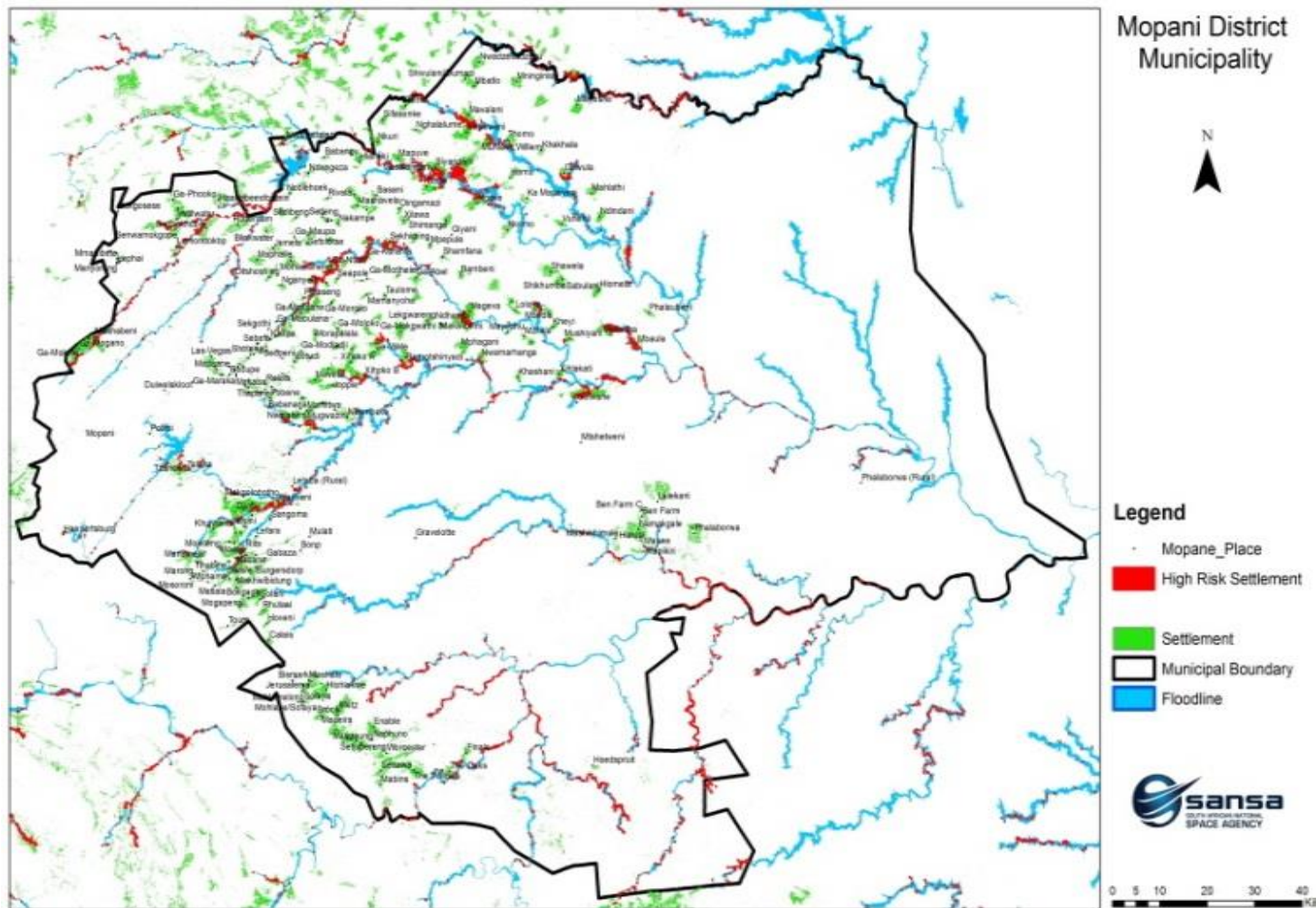
Electricity grid planning



Electricity Act

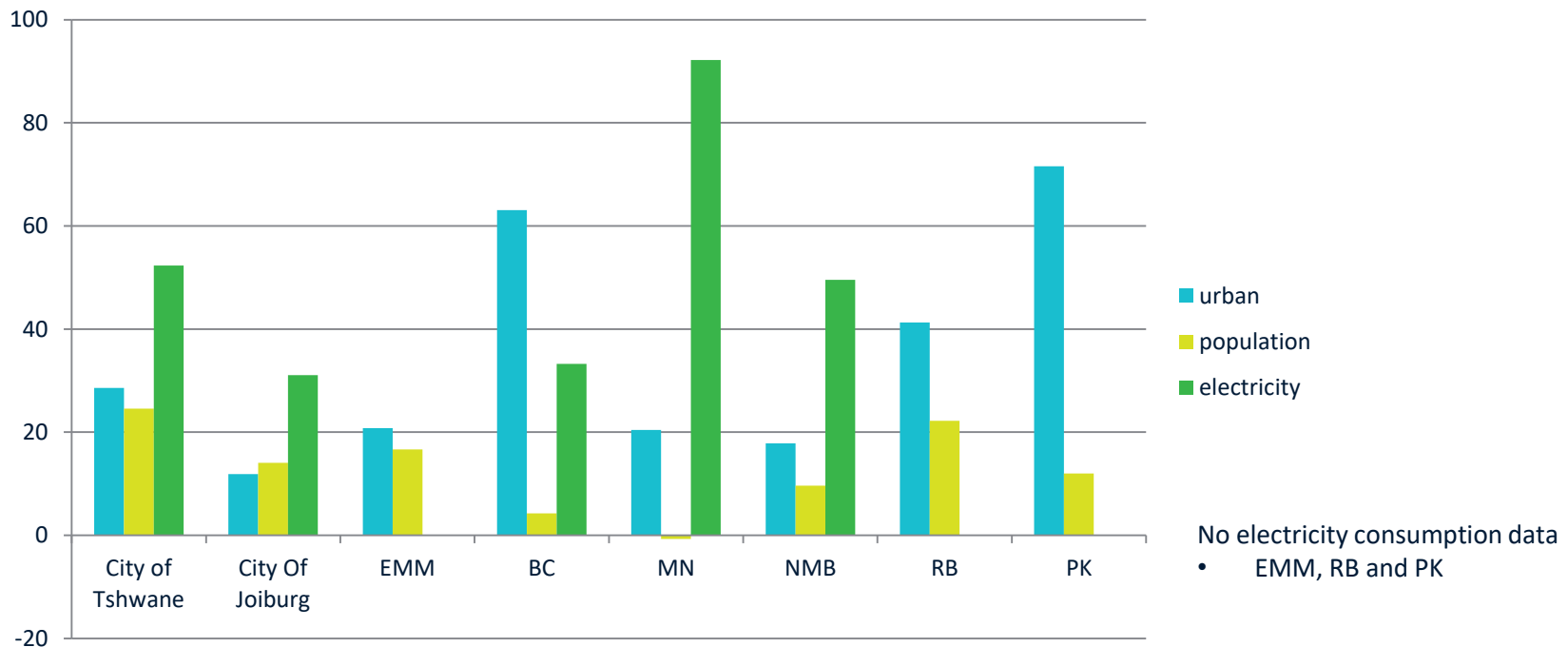


Flood Risk assessment



Planning and Reporting

- National development plan, UN SDGs, Au Agenda



Legislation supported by human settlement data

Organisation/Departments	Applications
National Department of Human settlement, provincial, district -local	Informal settlement upgrade planning and monitoring, low cost housing verification/progress assessment
Eskom	Electrification planning and load forecasting
Municipalities	Spatial planning and infrastructure development
Statistics South Africa	Population estimate and census planning
Independent Electoral Commission	Voting districts mapping/update
Housing Development Agency	Habitable land assessment
Department of Performance Monitoring and Evaluation	Performance monitoring of publicly funded projects/tracking government's investments in infrastructure projects
Municipal Demarcation Board	National demarcation boundaries update
Rand Water	Infrastructure monitoring and planning
Rural Development and Land Reform	Cartographic map update, land management
Department of Environment Affairs	Human settlement encroachment into protected areas
Department of Agriculture	Human settlement encroachment into agricultural land
Provincial Government Dept.	Informal settlement upgrade planning and monitoring, low cost housing mapping, etc



Thank you

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