



rural development  
& land reform

Department:  
Rural Development and Land Reform  
REPUBLIC OF SOUTH AFRICA

# The morphological / settlement pattern classification of South African settlements based on a settlement catchment approach, to inform facility allocation and service delivery

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# Project Focus and Background

- CSIR contracted to undertake research & develop **access & threshold standards** to guide the development of social facilities in **rural RSA**.
- Key focus: development of **differentiated provision standards** for government provided social facilities and emergency services.
- Purpose is to support application & planning for new investment & prevent “unsustainable” investments / White elephants.

# Outputs

- National set of service delivery catchments
- **Profile information per individual catchment**
- Ranking of catchments
- Prioritisation of nodes for middle / higher order facility investment
- Revised and differentiated facility provision packages
- Electronic tool for viewing catchment information and calculating facility demand

# Key project informants

- Services: **optimally located, accessible & equitably distributed.**
- Provision: based on **facility access and population threshold.**
- **Insufficient funding** to provide all towns, settlements and rural areas with the same level of facilities.
- Emphasis on differentiated access to different service types based on demand / threshold and settlement structure/ distance

# Catchment / service centre approach

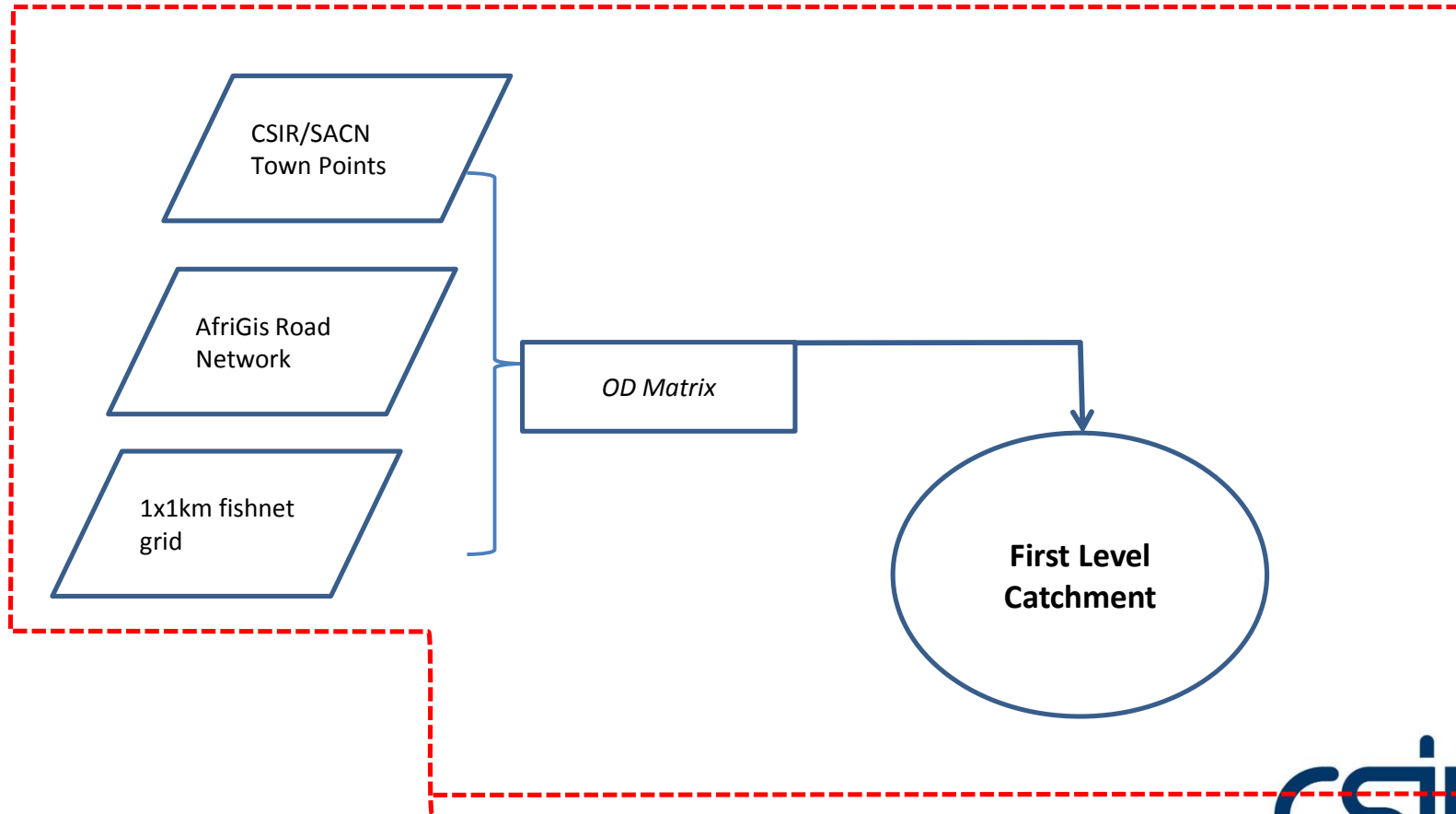
- Settlements play a key role in serving their surrounding areas.
- Central place concept, accessible service reach and economic agglomeration approach applied to define service catchment areas for South Africa.

# Methodology

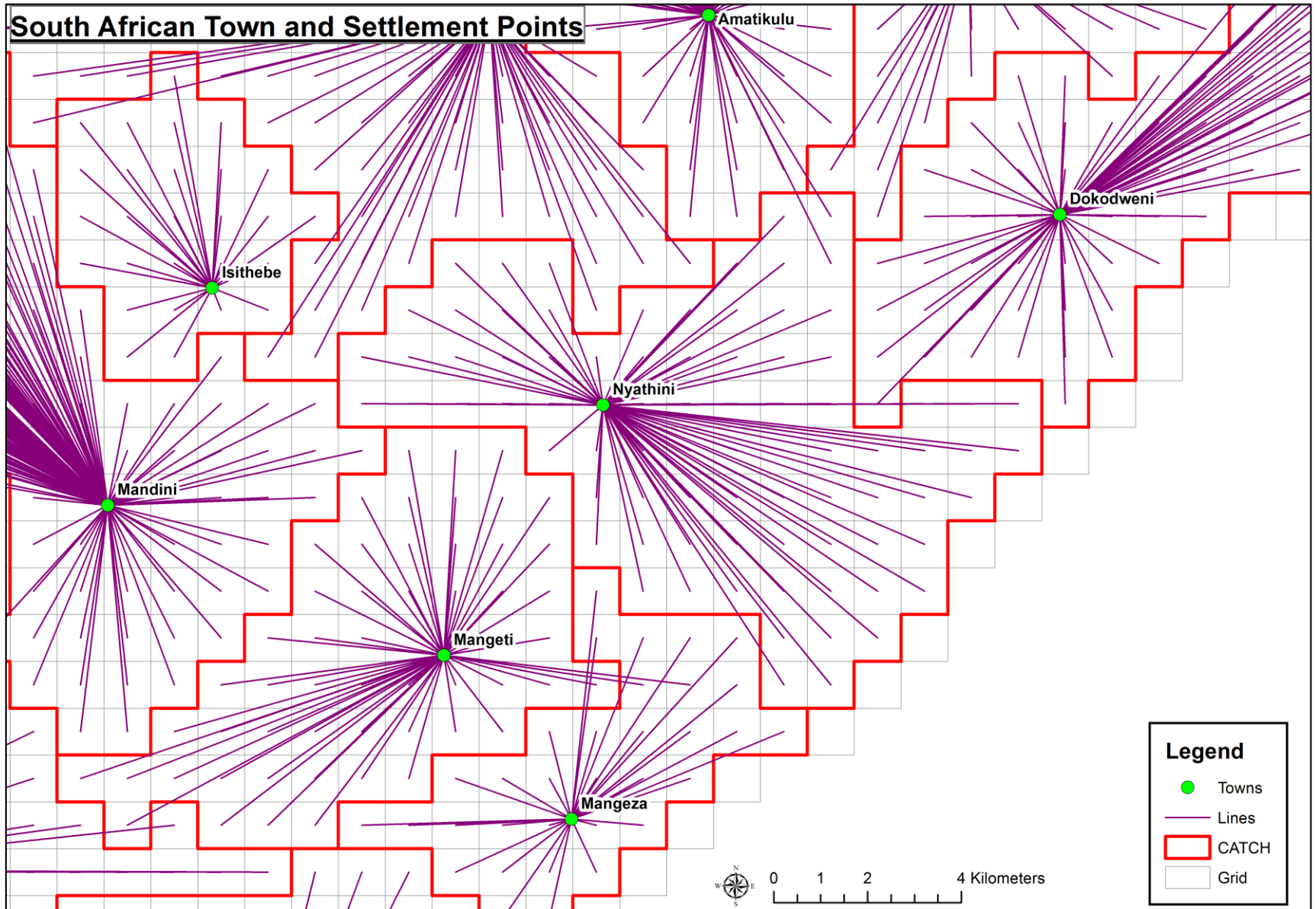
## Data used:

- SACN town and settlement points (Level 1 to 10)
  - Road network (AfriGIS)
  - StatsSA Census 2011 and Dwelling Frame (StatsSA)
  - Spot Building Count (Eskom )
  - 1x1km grid of South Africa (CSIR).
- 
- **Step 1** - Creation of the service catchments.
  - **Step 2** – Overlay Spot Building Count
  - **Step 3** – Visually inspect catchments and classify them according to settlement morphology.

# Methodology cont...

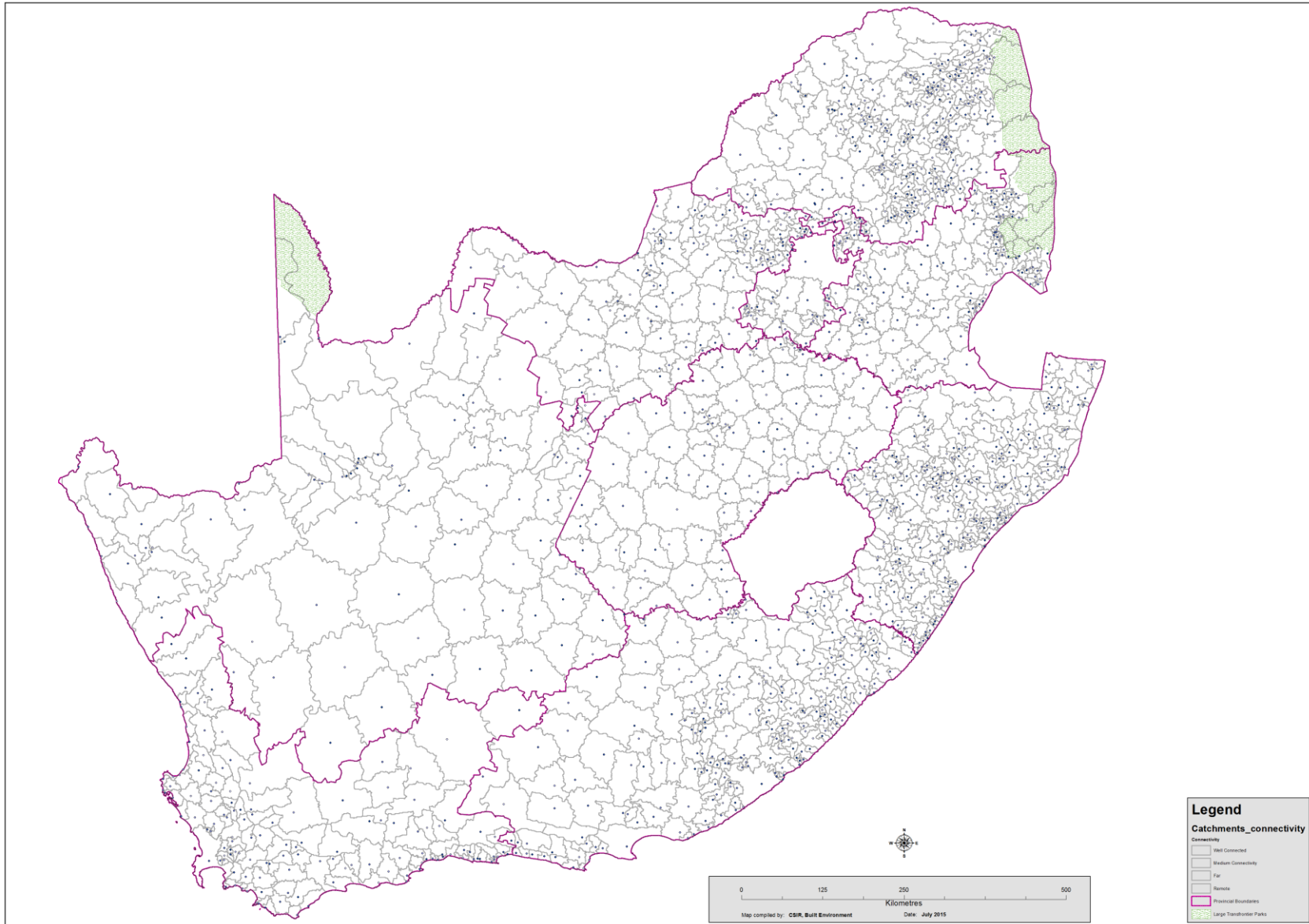


# Catchment approach





# National set of service catchments



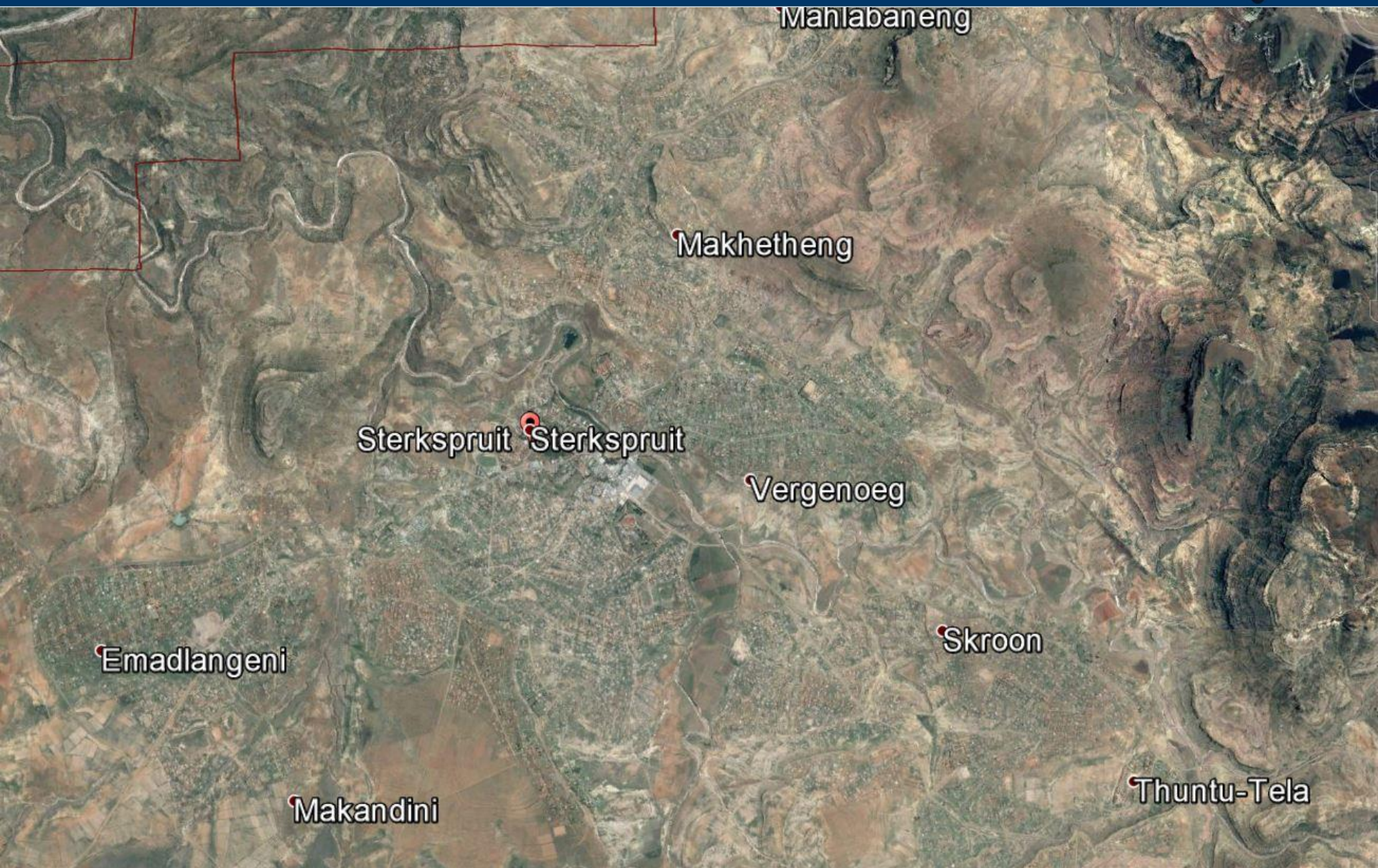
# Morphological profile

- Settlement distribution and density is a key informant together with total population of how available service capacity should be distributed.
- Each catchment was classified based on the morphological / settlement structure through visual interpretation of the dwelling frame point data.
- 9 Major classes were identified: MonoCentric, BiCentric, PolyCentric, Scattered Clusters, Scattered Dense, Scattered Sparse, Dense, Sparse Linear and Dense Linear.

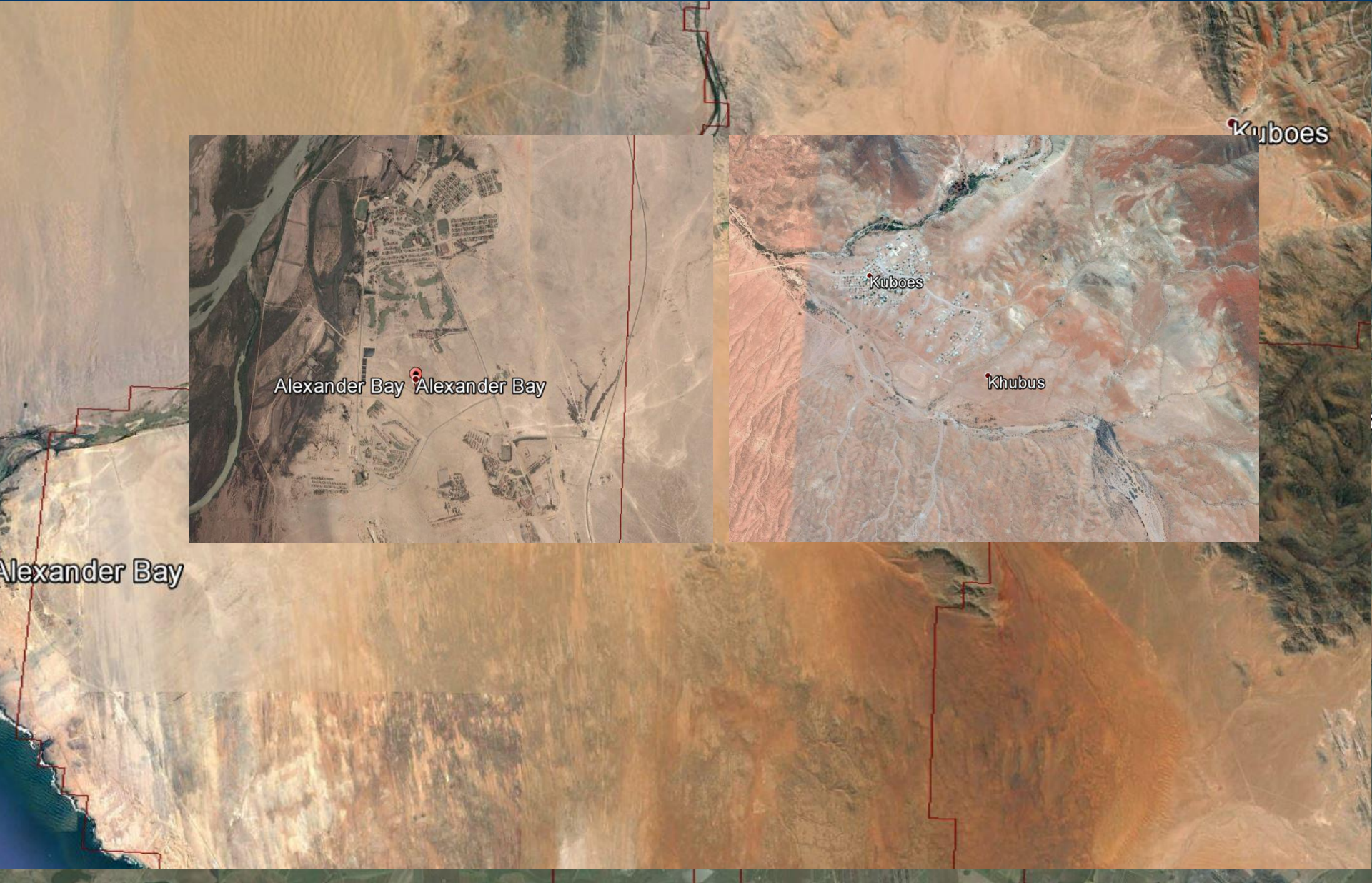
# Monocentric | Bicentric



# Polycentric | Scattered Dense



# Scattered Clusters | Scattered Sparse



Alexander Bay Alexander Bay

Kuboes

Khubus

Kuboes

Alexander Bay

# Dense | Dense Linear



# Sparse Linear



Leerkrans Leerkrans

Karos

Karos Settlement

# Usefulness of the morphology data

## Citizen perspective

### Objective 1:

Improvement of service accessibility and availability from the perspective of existing and potential customers

## Service provider perspective

### Objective 2:

Attraction of the threshold volume of customers needed to cover the overheads and make the service viable

**BALANCE**

**Explore & adjust facility locations & sizes in relation to planning considerations and standards:**

- settlement morphology & nodal hierarchy
- distance to higher order settlements
- population density
- spatial distribution of demand
- threshold targets
- other facilities /clusters/ nodes



# Usefulness of the morphology data

- Localized data – good for detailed planning.
- Targeted service delivery and social facility allocation.
- Urban – rural distinction (somewhat obsolete).
- Help balance efficiency with demand – minimize white elephants.

**Thank you  
Questions?**

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