Review of the EGI constraints matrix

Provincial consultation round 1

12 May – 3 June 2014

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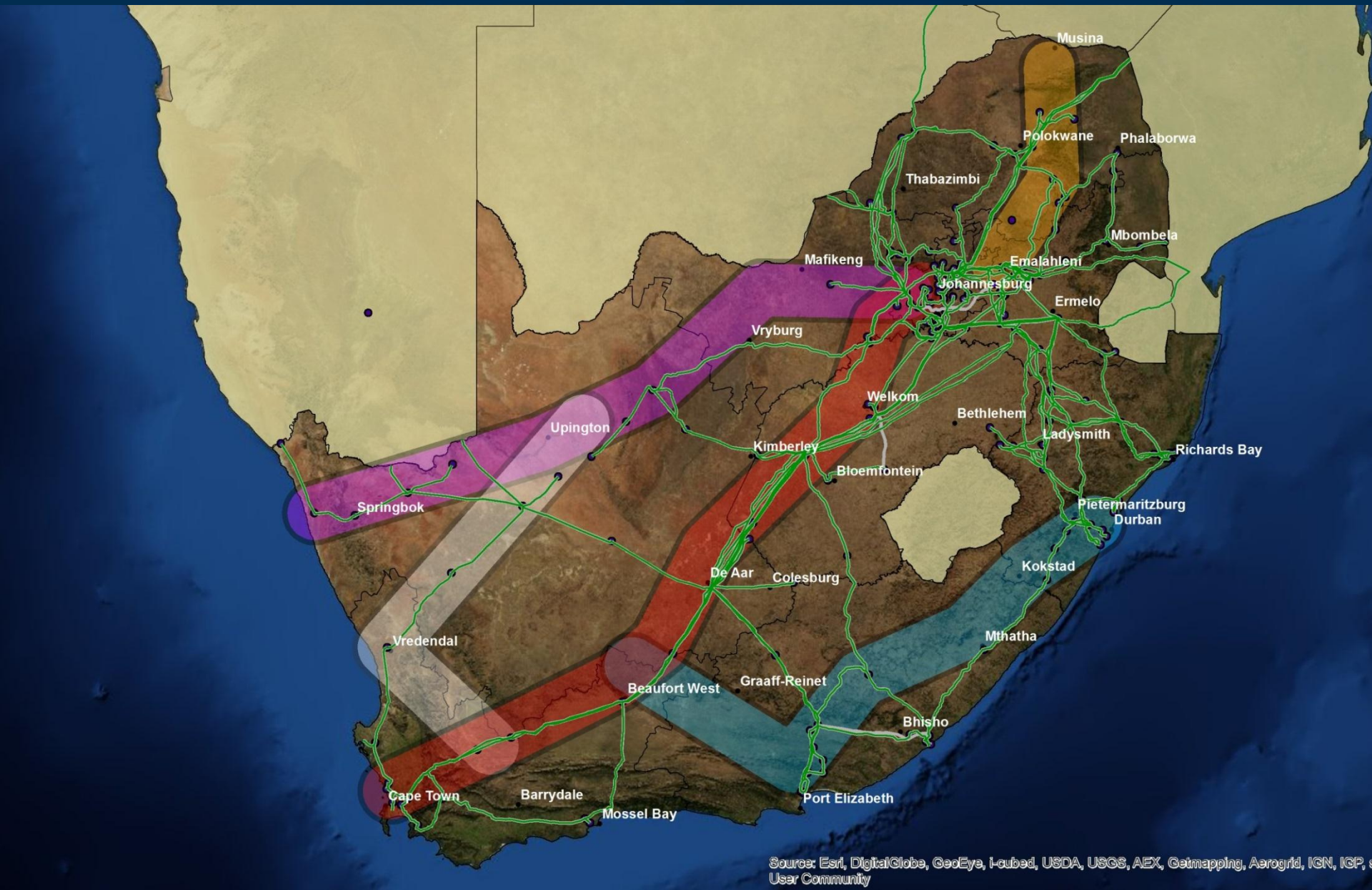
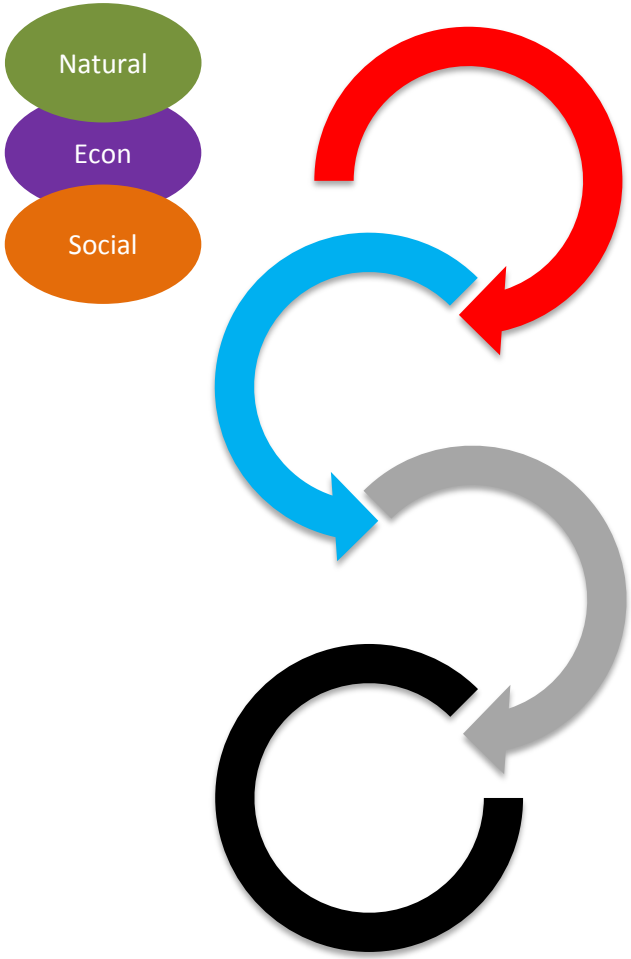
Current footprint and study area



Process



Environmental Constraints mapping

Socio-economic opportunity mapping (incl. opportunity cost to ESKOM)

Route optimisation analysis

Refining corridors for gazetting

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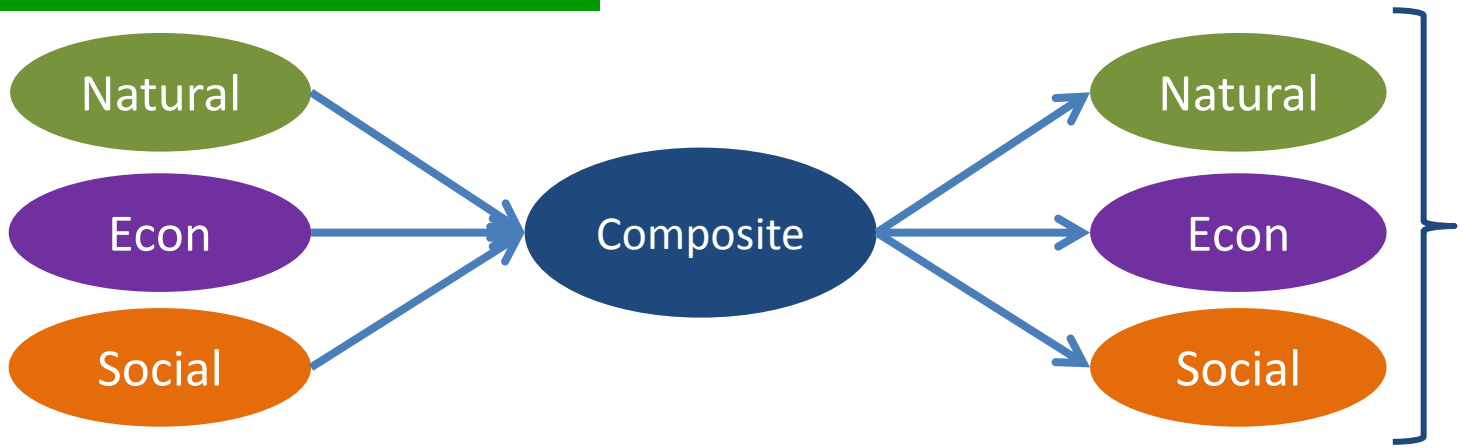
Constraints mapping methodology

Impact on EGI on Environment: Constraints Categorisation	
Level of Constraint	Description
'No- Go'	The area is rated as extremely sensitive to the negative impact of development. As a result the area will either have very high conservation value, very high eixisting/ potential socio-ecocomic value or hold legal protection status.
High	The area is rated as being of high sensitivity to the negative impact of development. As a result the area will either have high conservation value and or existing/potential socio-economic value.
Medium	The area is rated as being of medium sensitivity to the negative impact of development. As a result the area will either have mediums levels of conservation value and or medium levels of existing/potential socio-economic value.
Low	Area is considered to have low levels of sensitivity in the context of electricity grid infrastructure development.

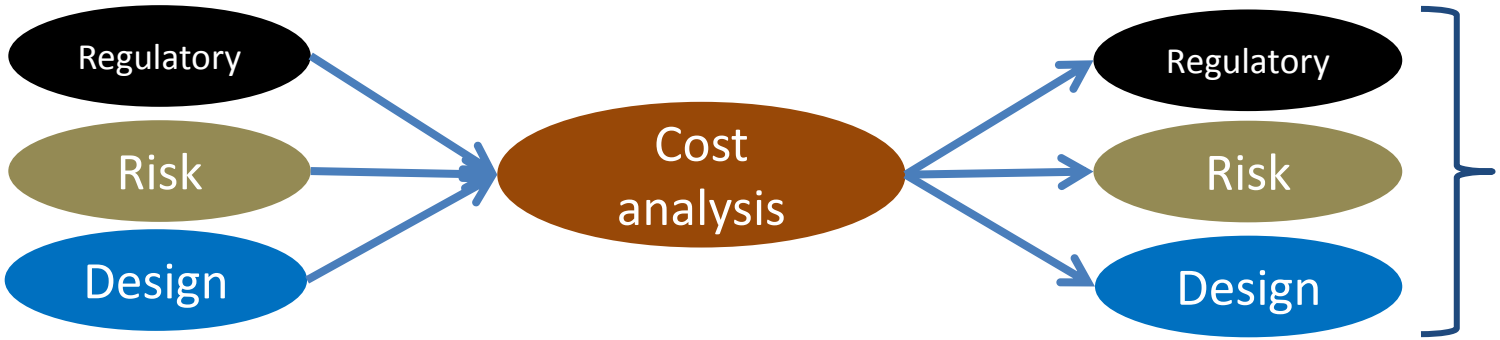
Impact of Environment on EGI: Constraints Categorisation	
Level of Constraint	Description
'No- Go'	The lifetime cost associated with development in this area is greater than 3 times the baseline lifetime cost index. OR The land use in this area excludes EGI development completely.
High	The lifetime cost associated with development in this area is between 2.0 times and 3.0 times the baseline lifetime cost index.
Medium	The lifetime cost associated with development in this area is between 1.5 times and 2.0 times the lifetime baseline cost index.
Low	The lifetime costs associated with development in this area is less than 1.5 times the baseline lifetime cost index.

Constraints framework

Impact of EGI on Environment



Impact of Environment on EGI



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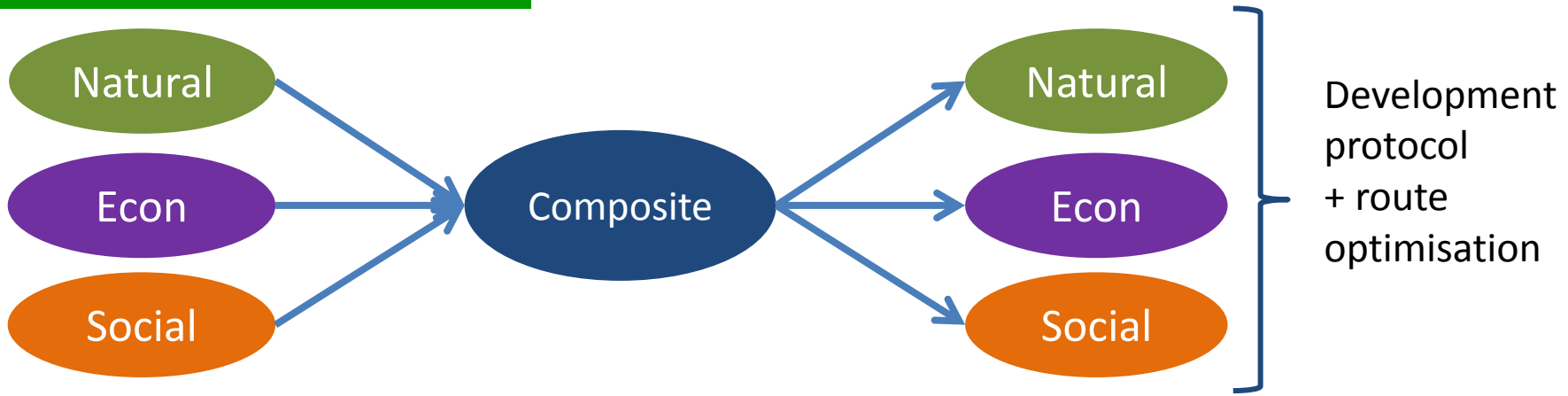
Impact of EGI on Environment



Natural

EGI impacts on Env constraints inputs

Protected Areas

- National Parks
- Prov NRs
- Contract NRs
- Forest Act PAs
- Special NRs
- MCAs
- PEs
- PA expansion*
- PA buffers*

Terrestrial

- Natural Forest
- Thicket
- Thr spp localities
- CBAs
- Special habitats

Freshwater

- All wetlands
- Rivers*
- Dams
- Estuaries

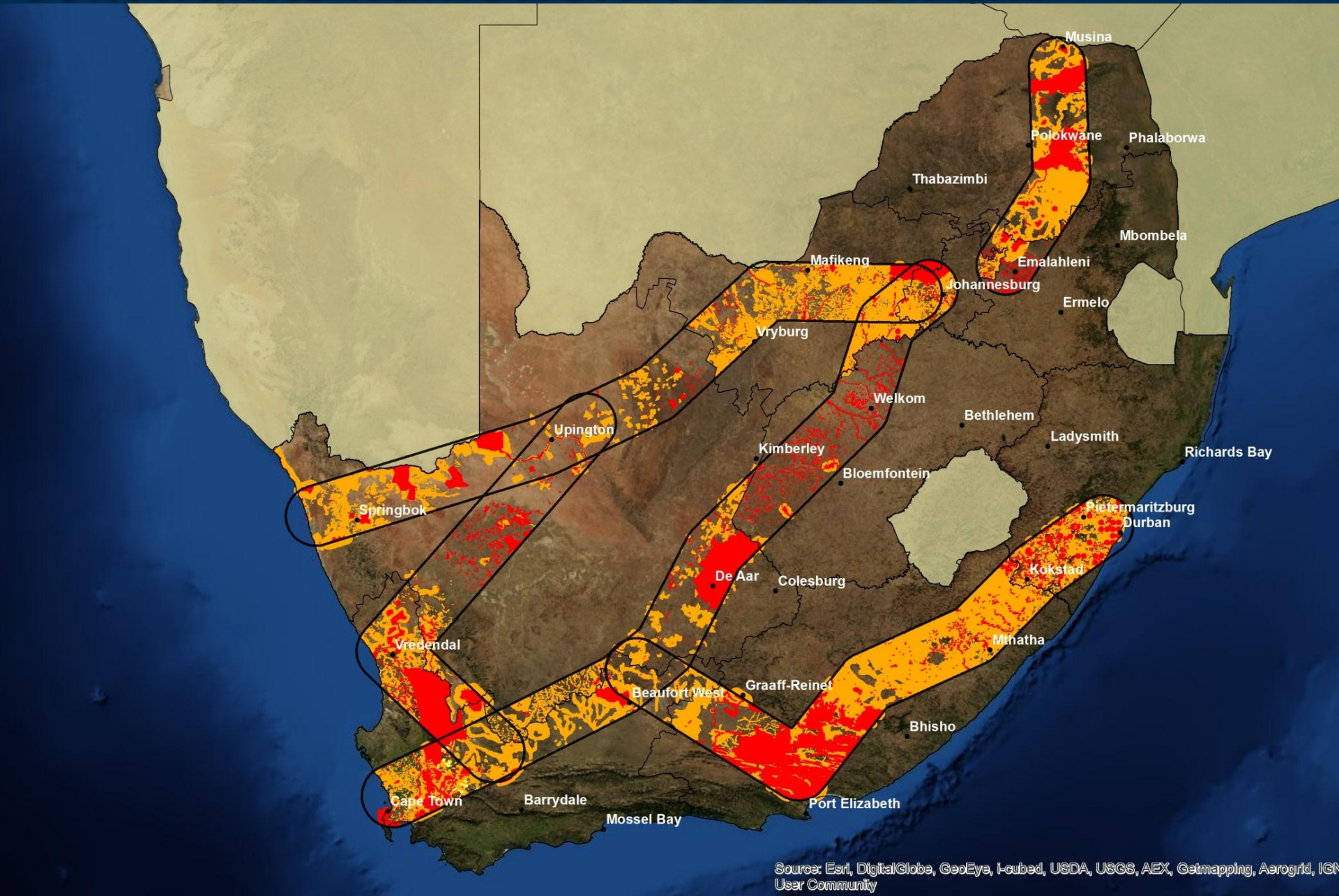
Degradation

- Eroded areas
- Soil erodibility

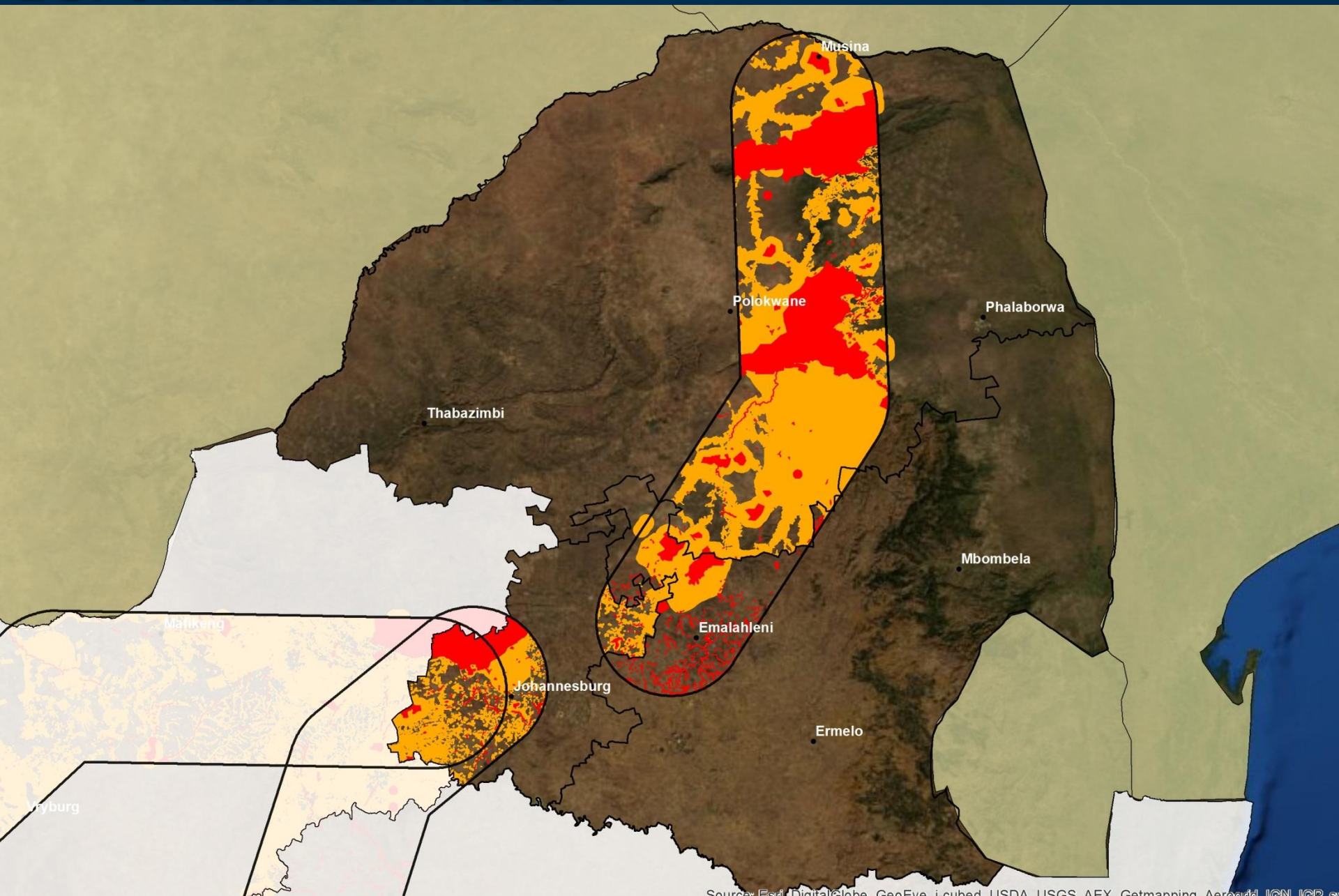
Avifauna

- IBAs*
- nb areas – large birds
- Bat roots (2km)

Constraints framework for EGI on Env

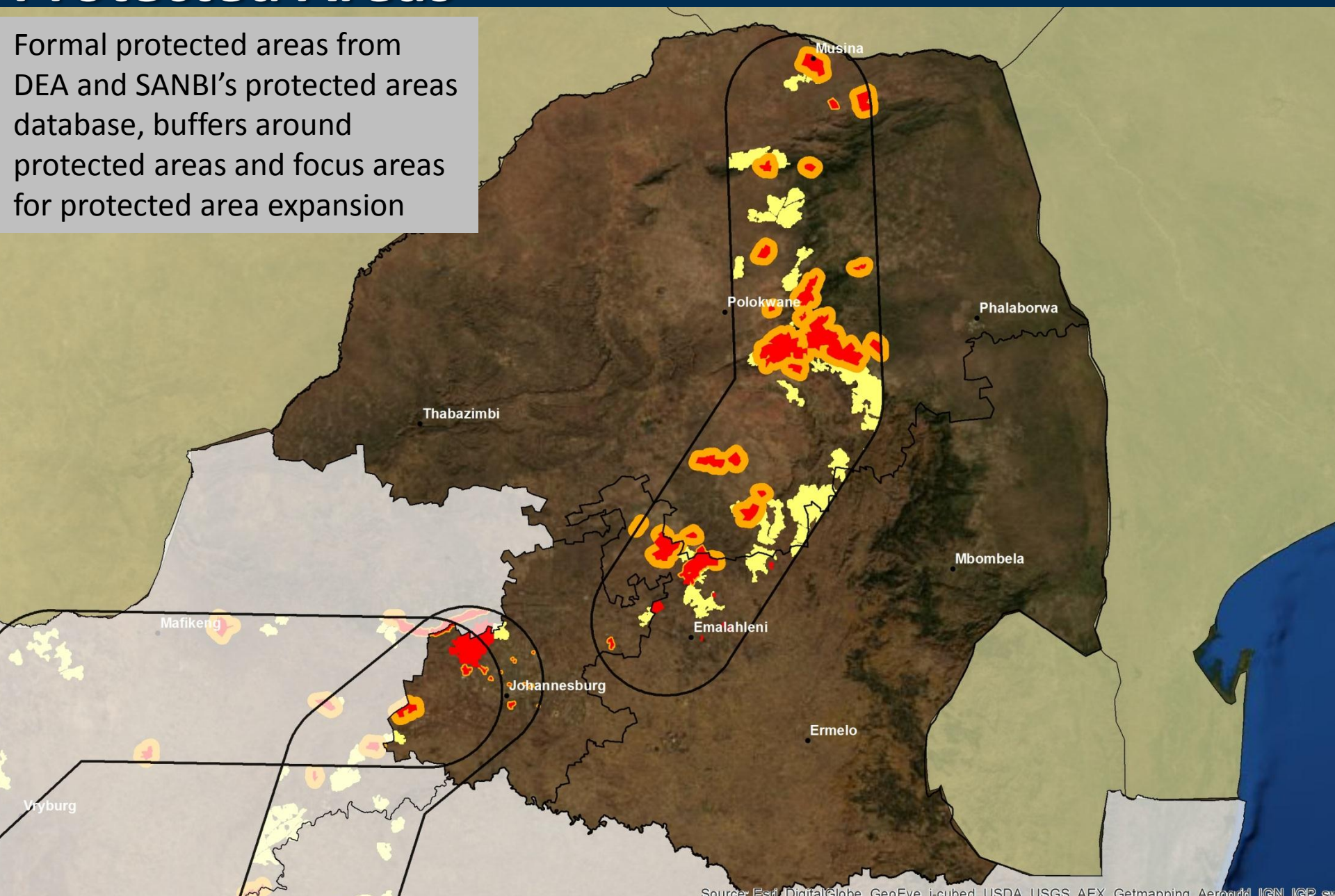


EGI on Environment



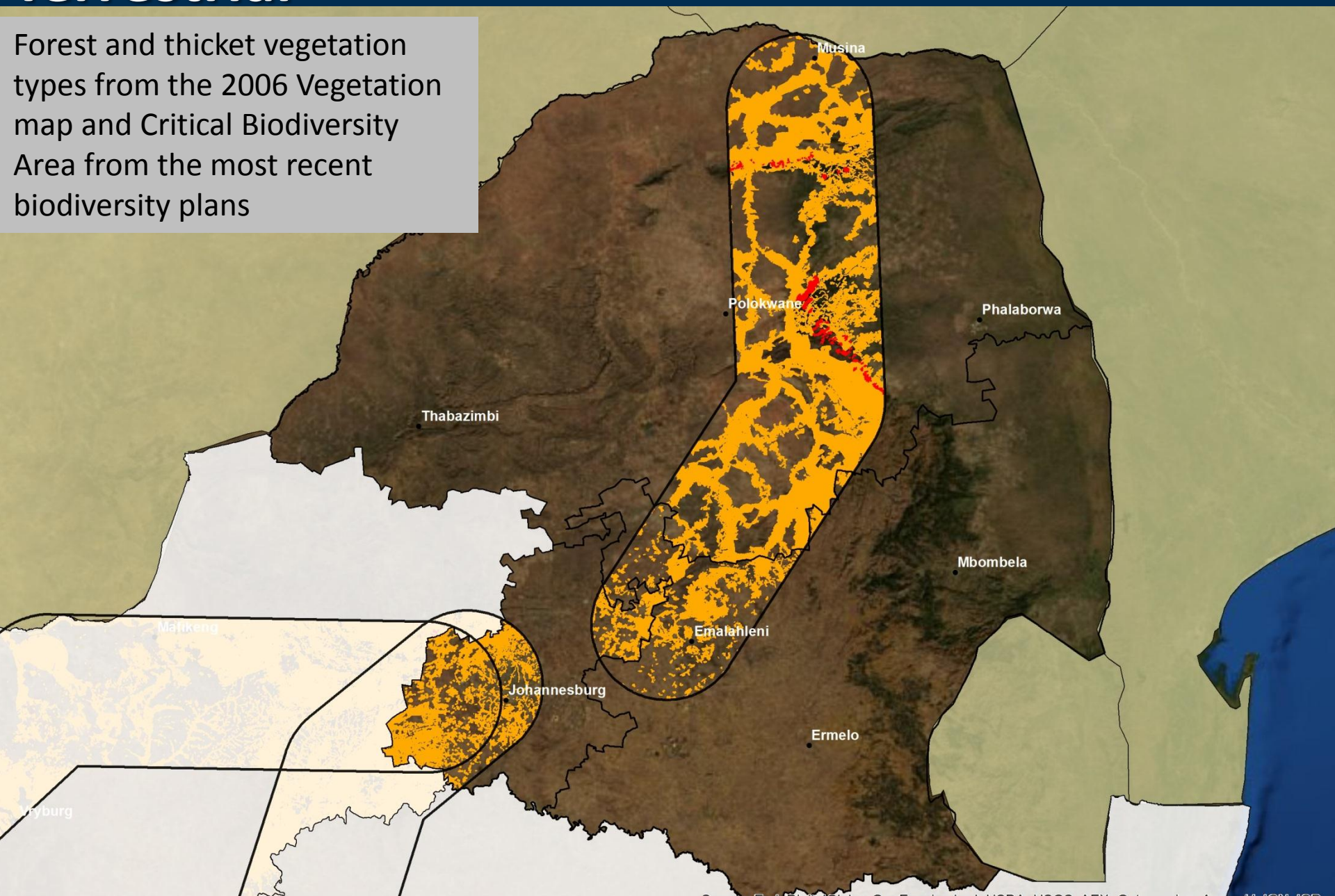
Protected Areas

Formal protected areas from DEA and SANBI's protected areas database, buffers around protected areas and focus areas for protected area expansion



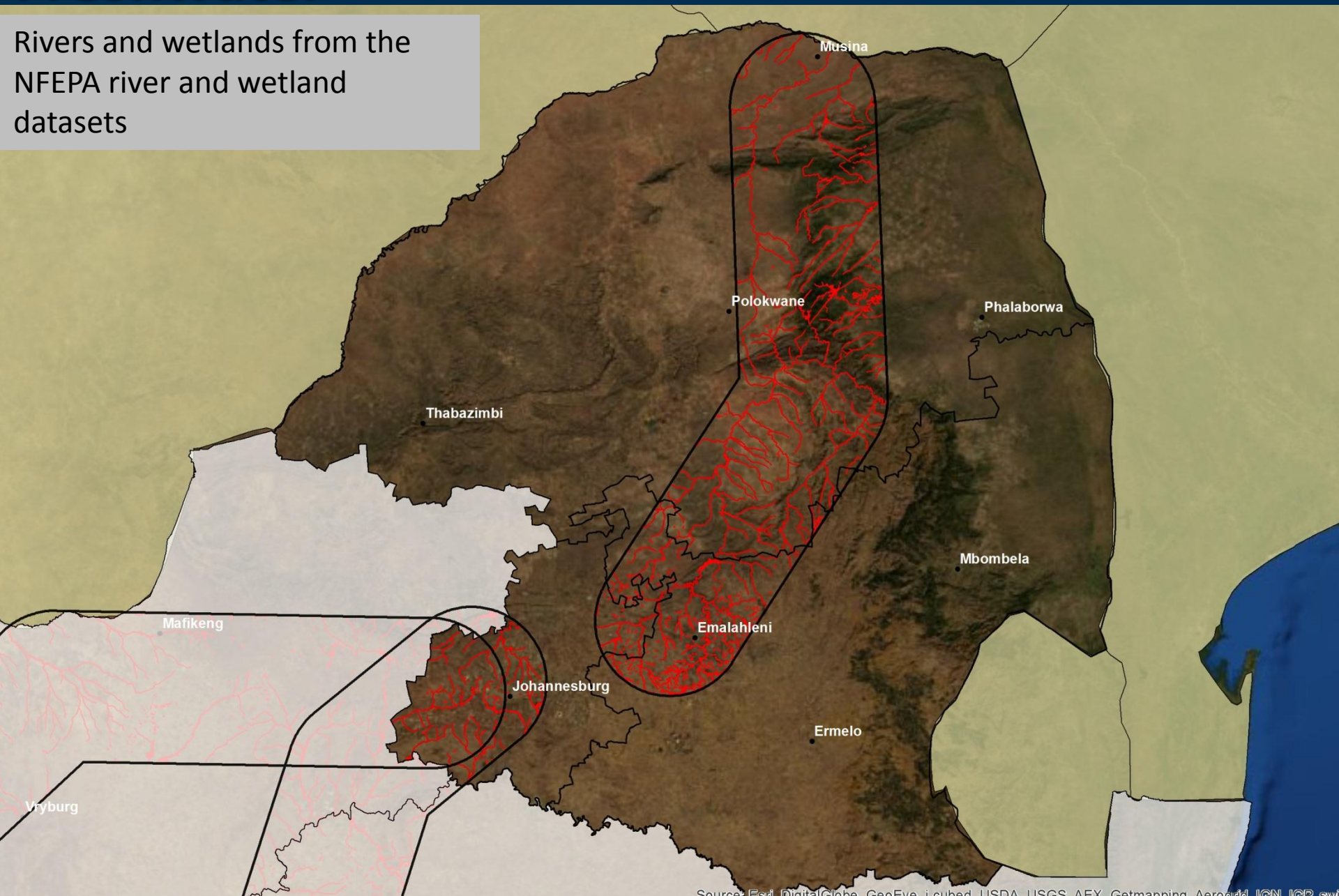
Terrestrial

Forest and thicket vegetation types from the 2006 Vegetation map and Critical Biodiversity Area from the most recent biodiversity plans



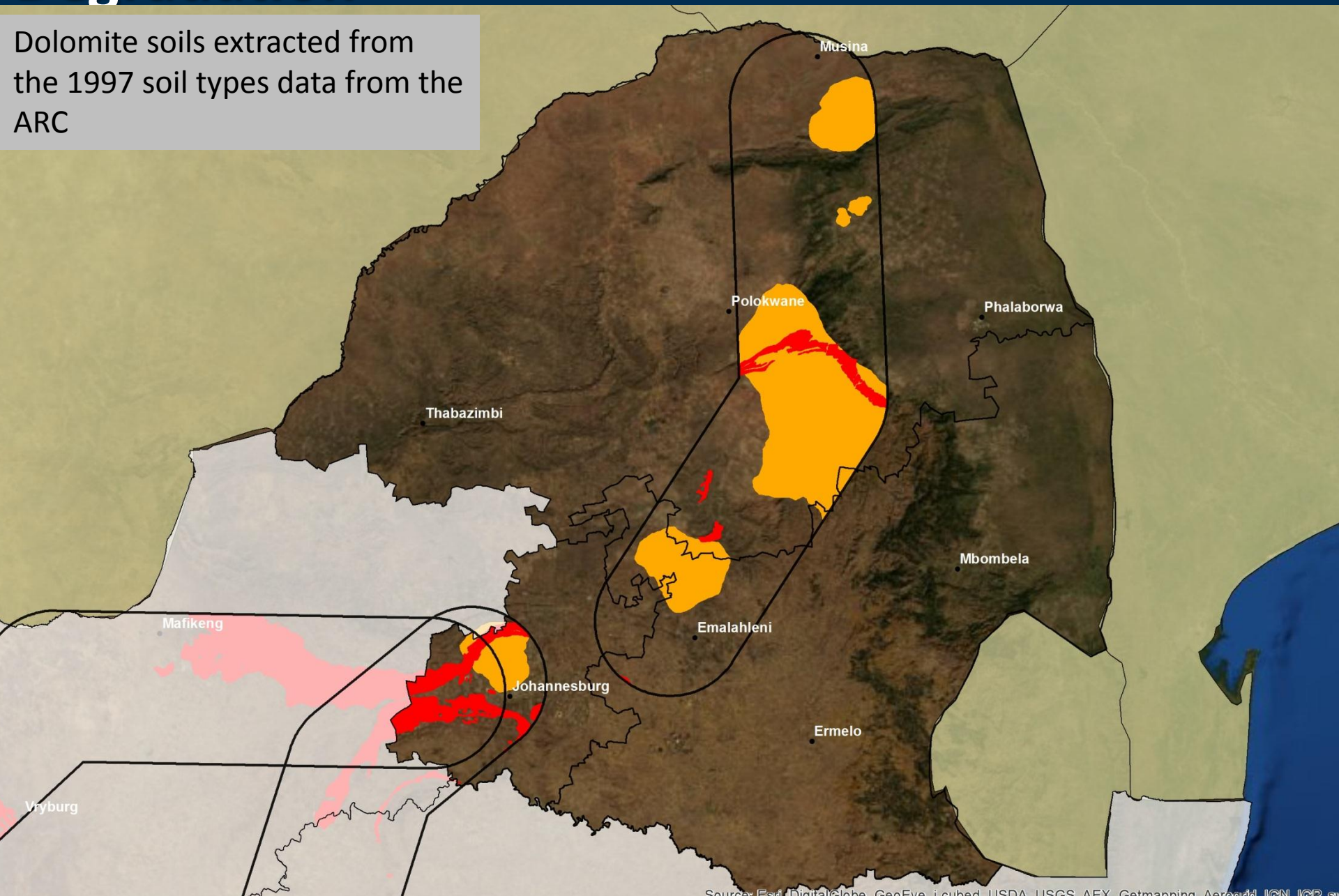
Freshwater

Rivers and wetlands from the NFEPA river and wetland datasets



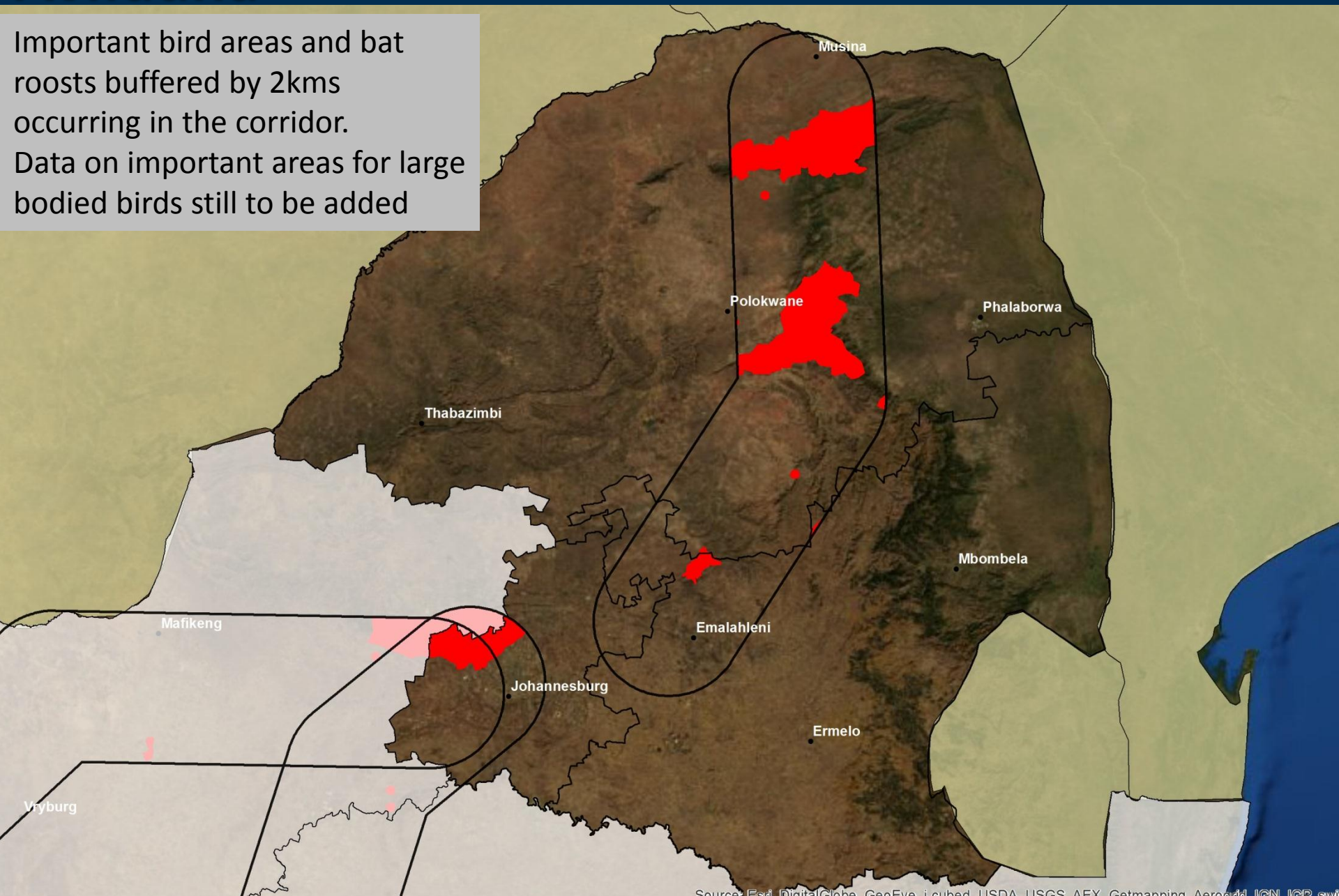
Degradation

Dolomite soils extracted from the 1997 soil types data from the ARC



Avifauna

Important bird areas and bat roosts buffered by 2kms occurring in the corridor.
Data on important areas for large bodied birds still to be added



Social Econ

EGI impacts on Env constraints inputs

Production Landscape

- Commercial Forestry
- Forestry expansion
- Sugar cane fields*
- Irrigation pivots > 500m
- Other agri fields*

Cultural Landscape

- Heritage Sites*
- Landscape integrity*

Infrastructure and Industrial

- Square Km Array
- Industrial areas*
- Industrial expansion*
- Roads
- Railways
- Pipelines

Wildlife economy

- Buffers around PAs
- Game Farms, Pvt NRs
- Buffers around game farms, Pvt NRs

Urban and settlements

- Rural Settlement*
- Urban areas
- Urban Expansion*

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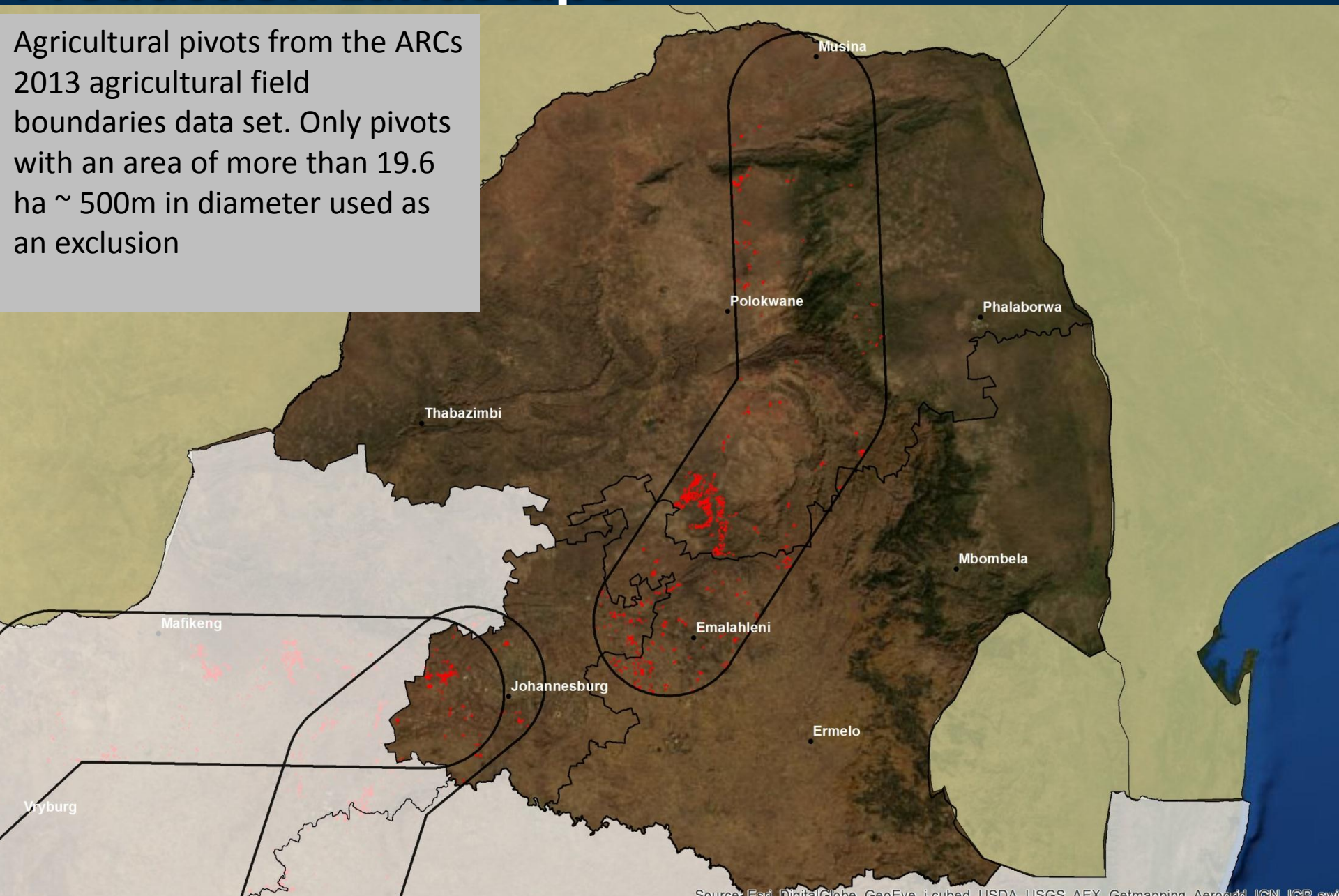
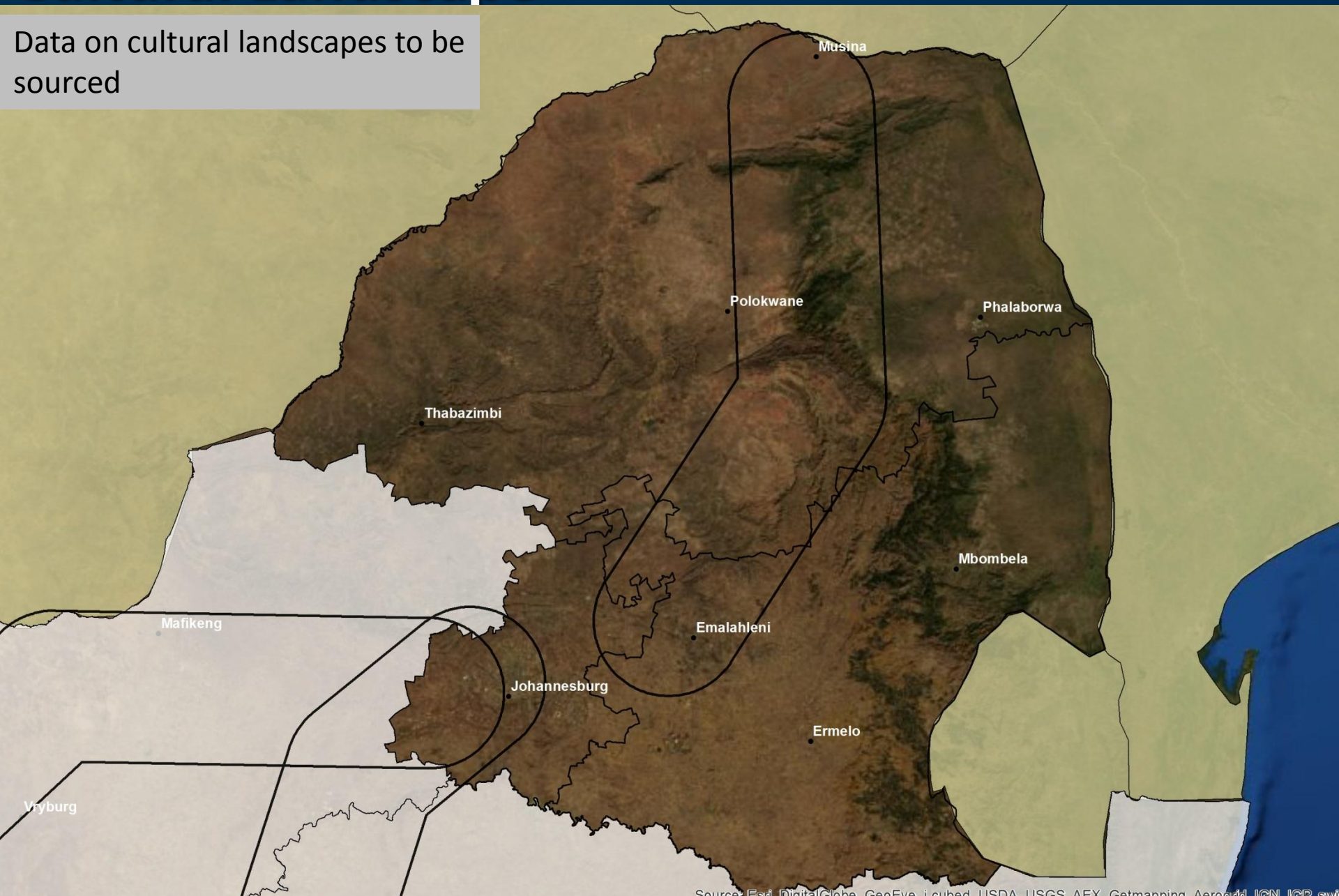
Production Landscape

Agricultural pivots from the ARCs 2013 agricultural field boundaries data set. Only pivots with an area of more than 19.6 ha ~ 500m in diameter used as an exclusion



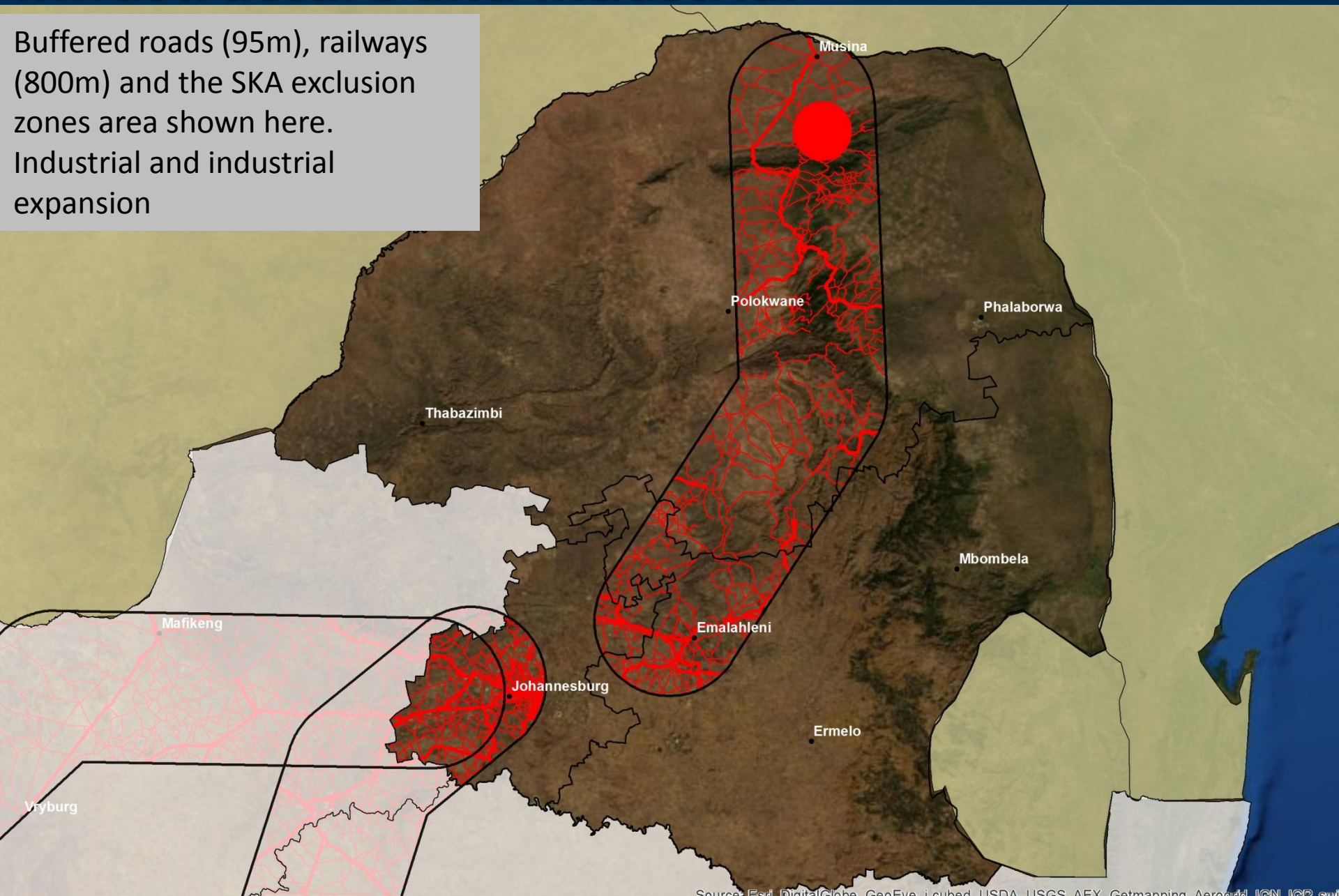
Cultural Landscape

Data on cultural landscapes to be sourced



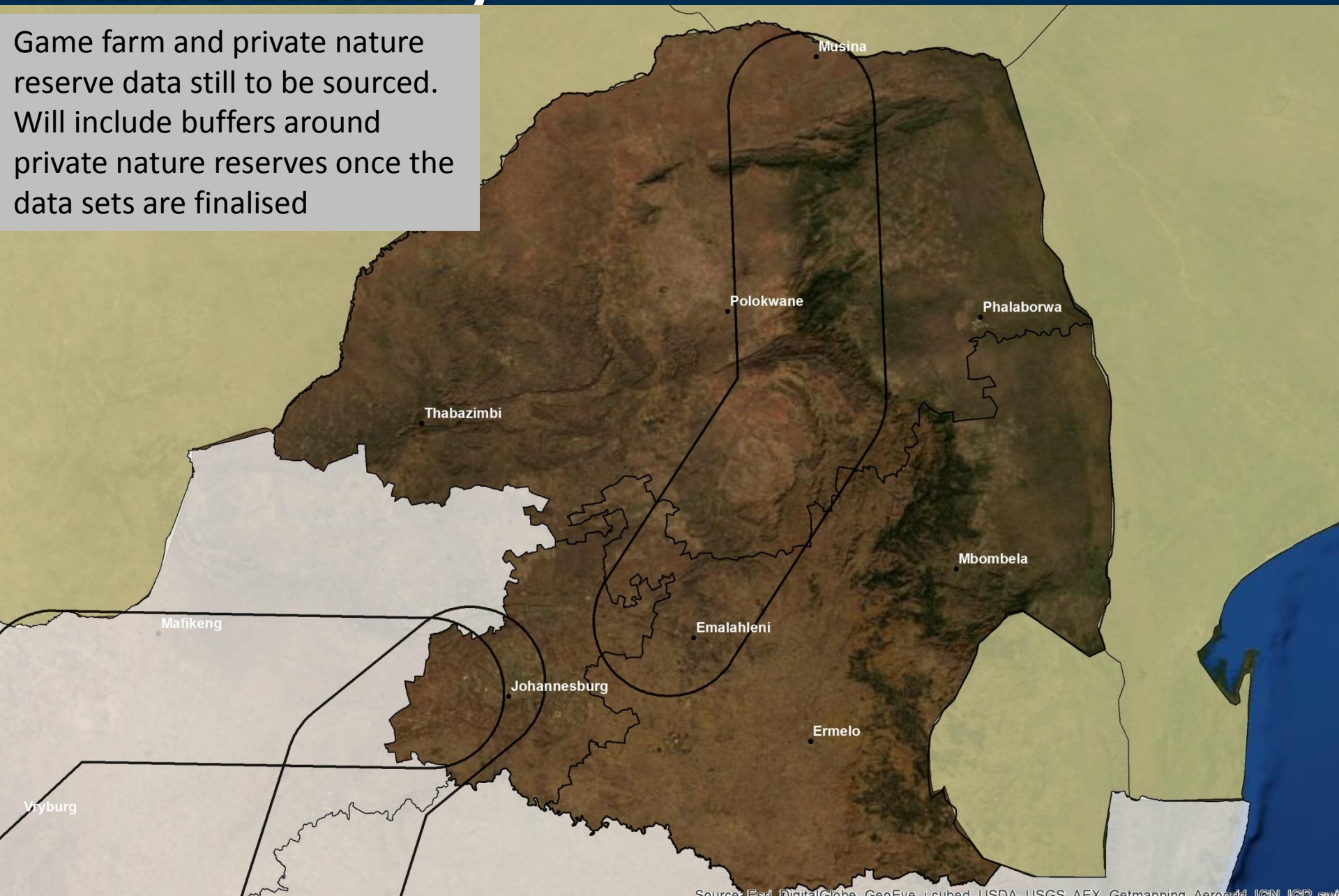
Infrastructure and Industrial

Buffered roads (95m), railways (800m) and the SKA exclusion zones area shown here. Industrial and industrial expansion



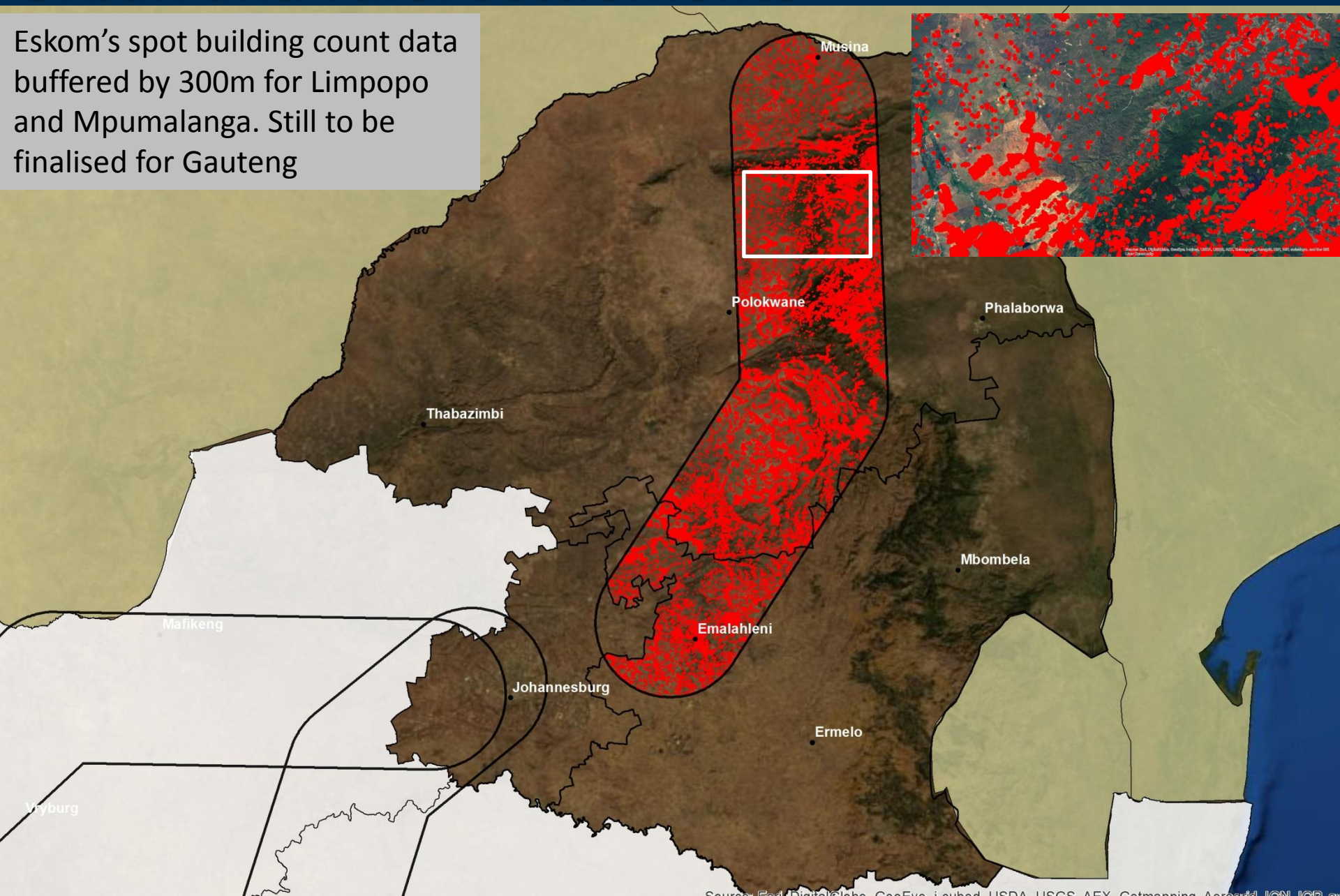
Wildlife Economy

Game farm and private nature reserve data still to be sourced. Will include buffers around private nature reserves once the data sets are finalised

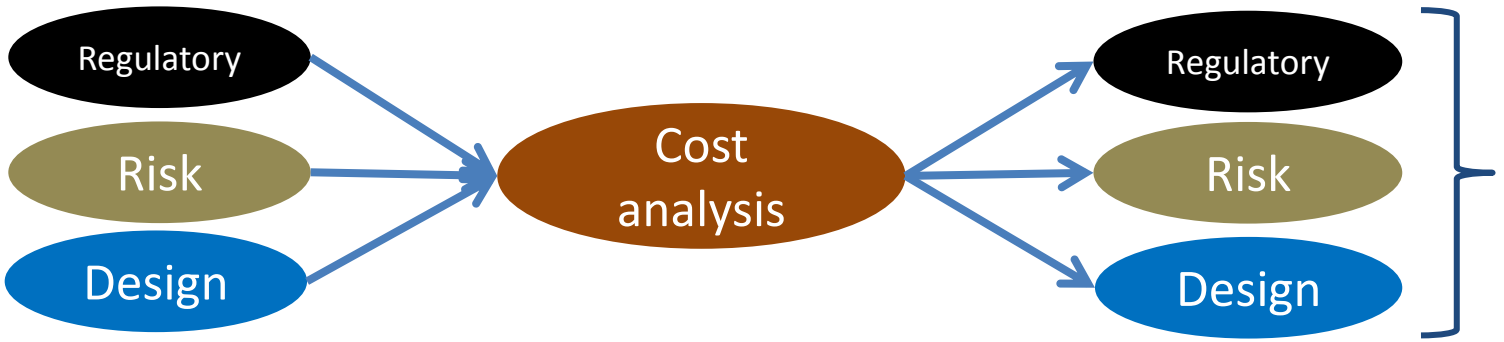


Urban and rural settlements

Eskom's spot building count data buffered by 300m for Limpopo and Mpumalanga. Still to be finalised for Gauteng



Impact of Environment on EGI



Constraints for Env on EGI

Regulatory

Variable

- Forest Clearing permits*
- WULAs
- Road Access

Established norm

- Airports
- Astronomic Exclusion

Risk

Asset

- Coastal
- Soil erodibility
- Unstable geology
- Mining areas

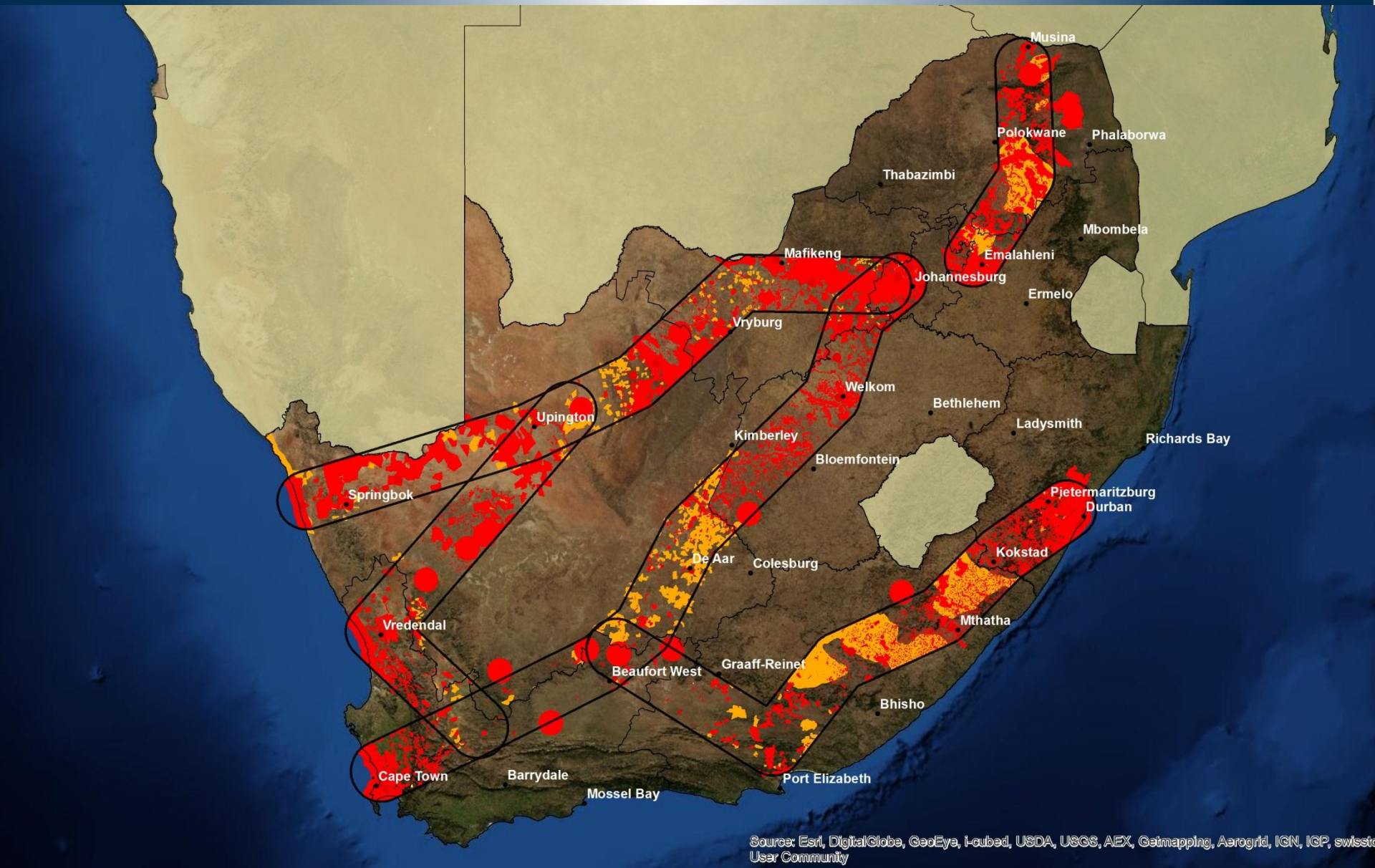
Negotiation

- Rural settlements
- Game Farming
- Servitudes and Road Access

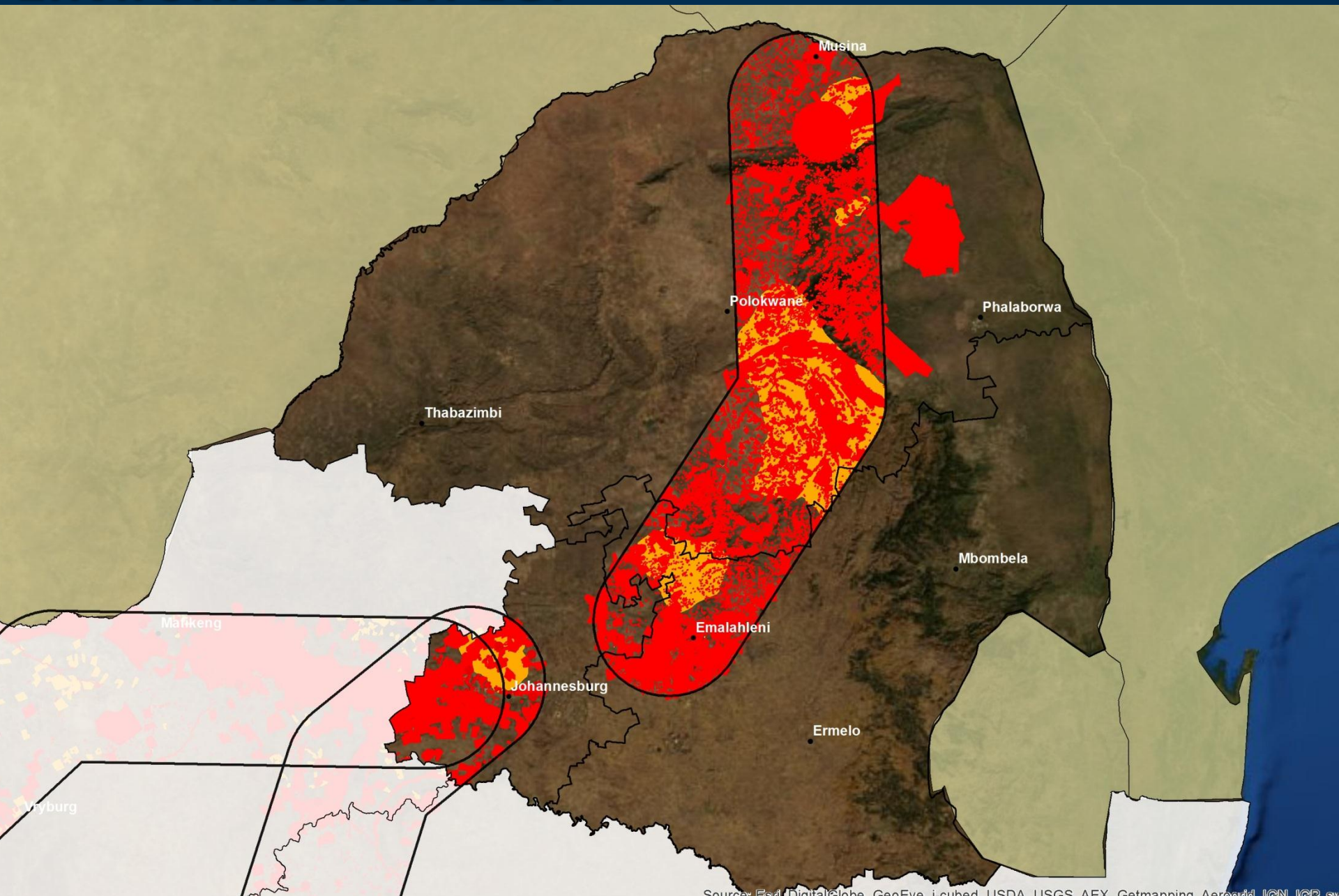
Design

- Lightning strikes
- Veld &field fires
- Extreme temp
- Prolonged ice
- Slope

Constraints of Environment on EGI

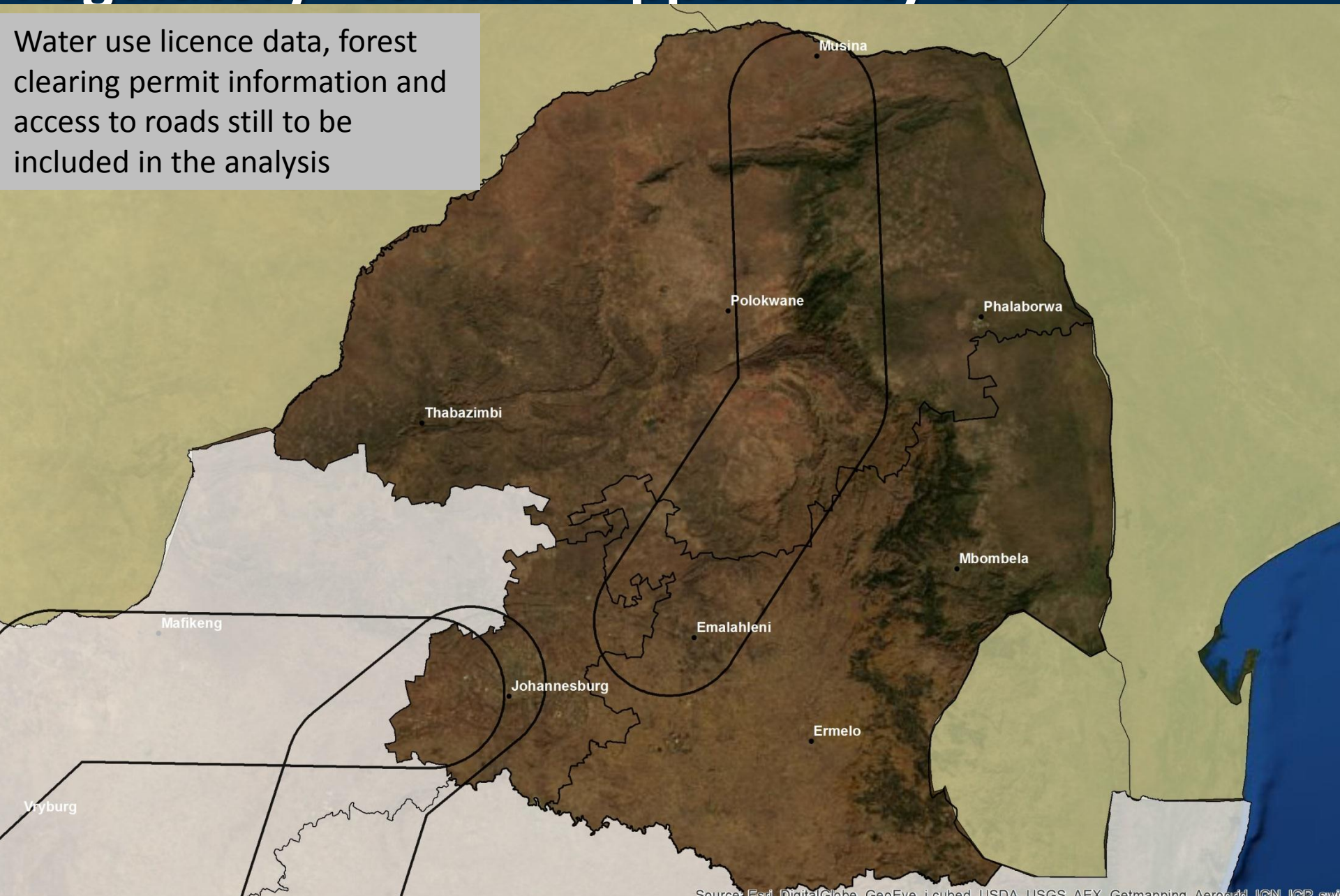


Environment on EGI



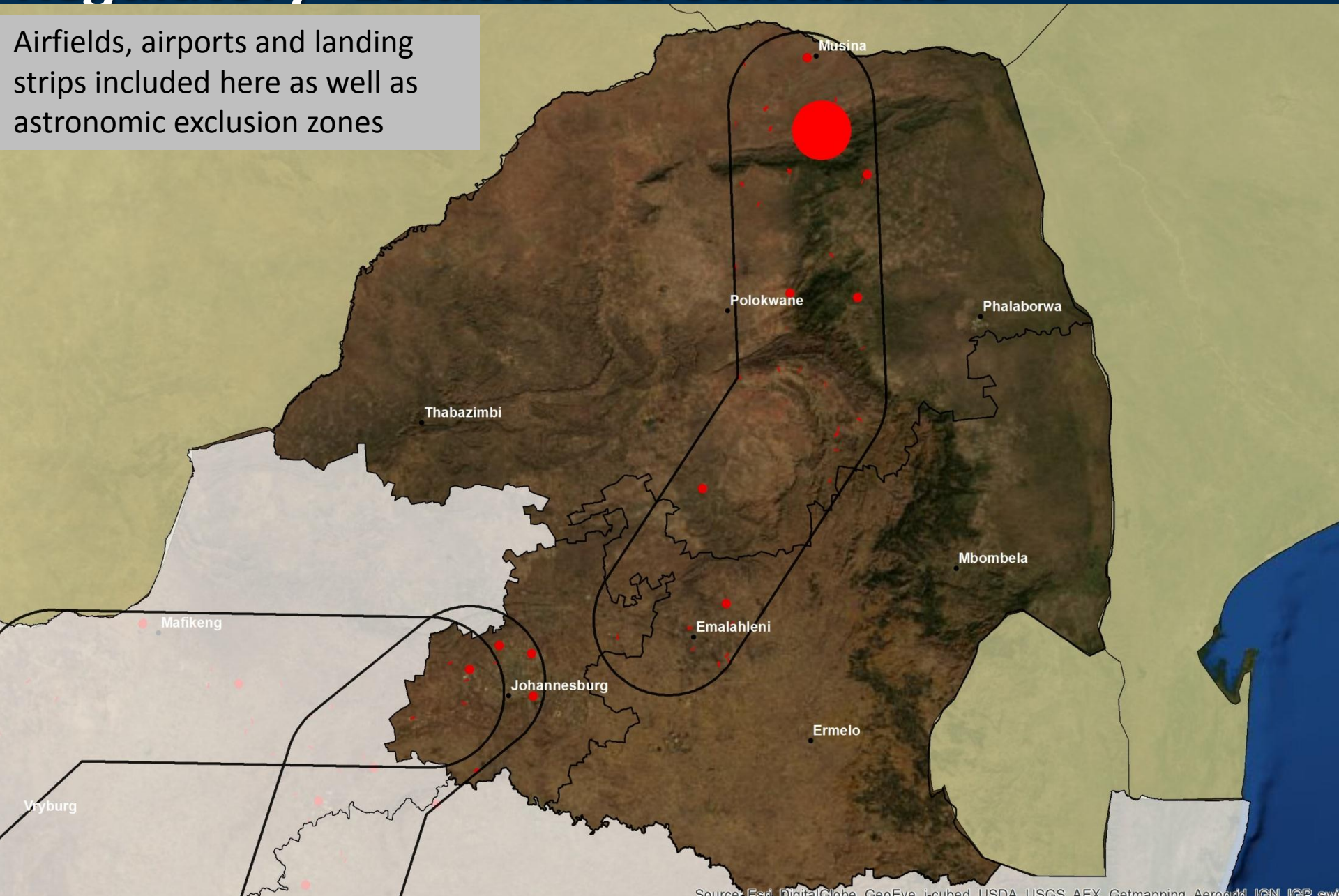
Regulatory- Variable opportunity costs

Water use licence data, forest clearing permit information and access to roads still to be included in the analysis



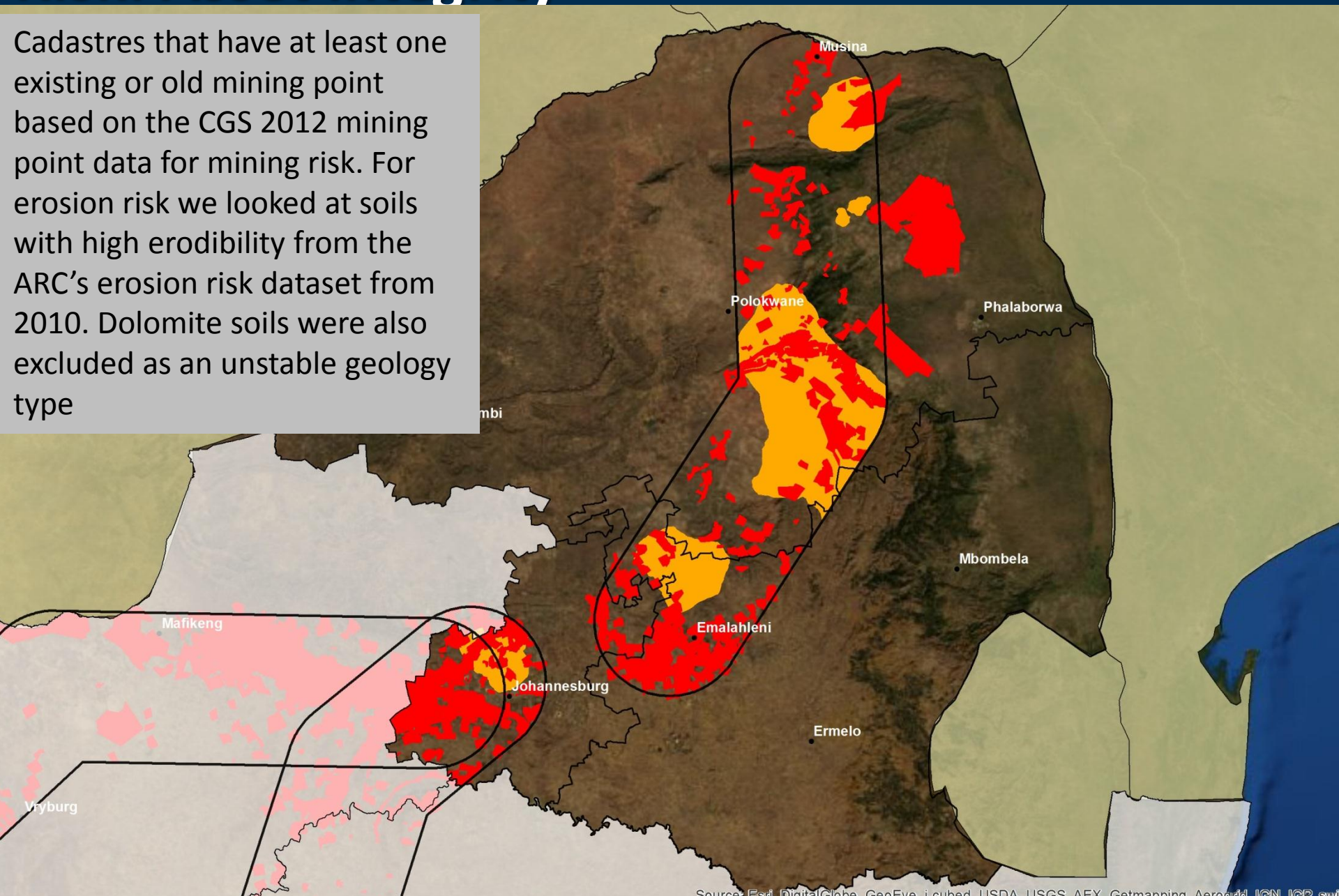
Regulatory- Established standards

Airfields, airports and landing strips included here as well as astronomic exclusion zones



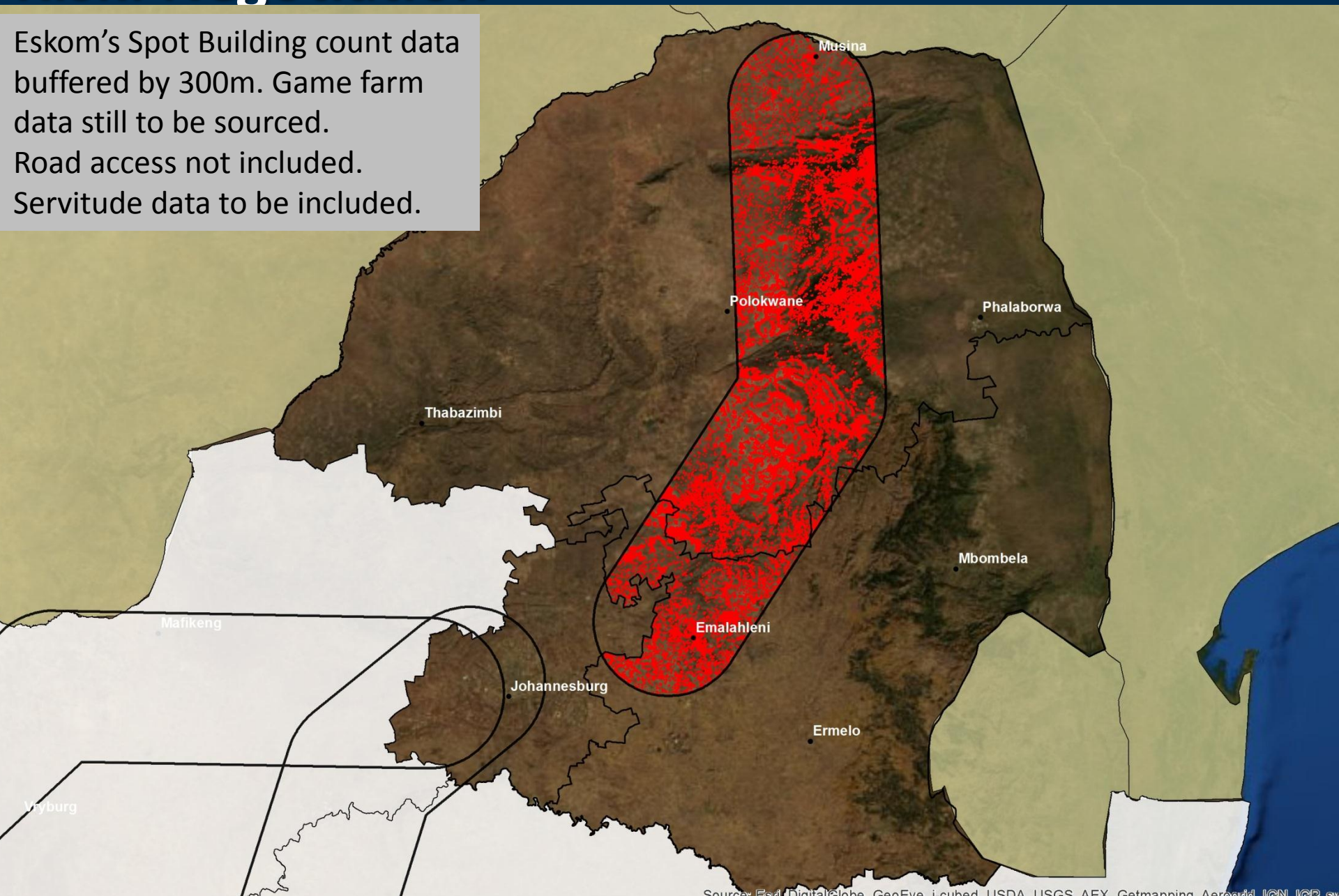
Risk: Asset integrity

Cadastres that have at least one existing or old mining point based on the CGS 2012 mining point data for mining risk. For erosion risk we looked at soils with high erodibility from the ARC's erosion risk dataset from 2010. Dolomite soils were also excluded as an unstable geology type



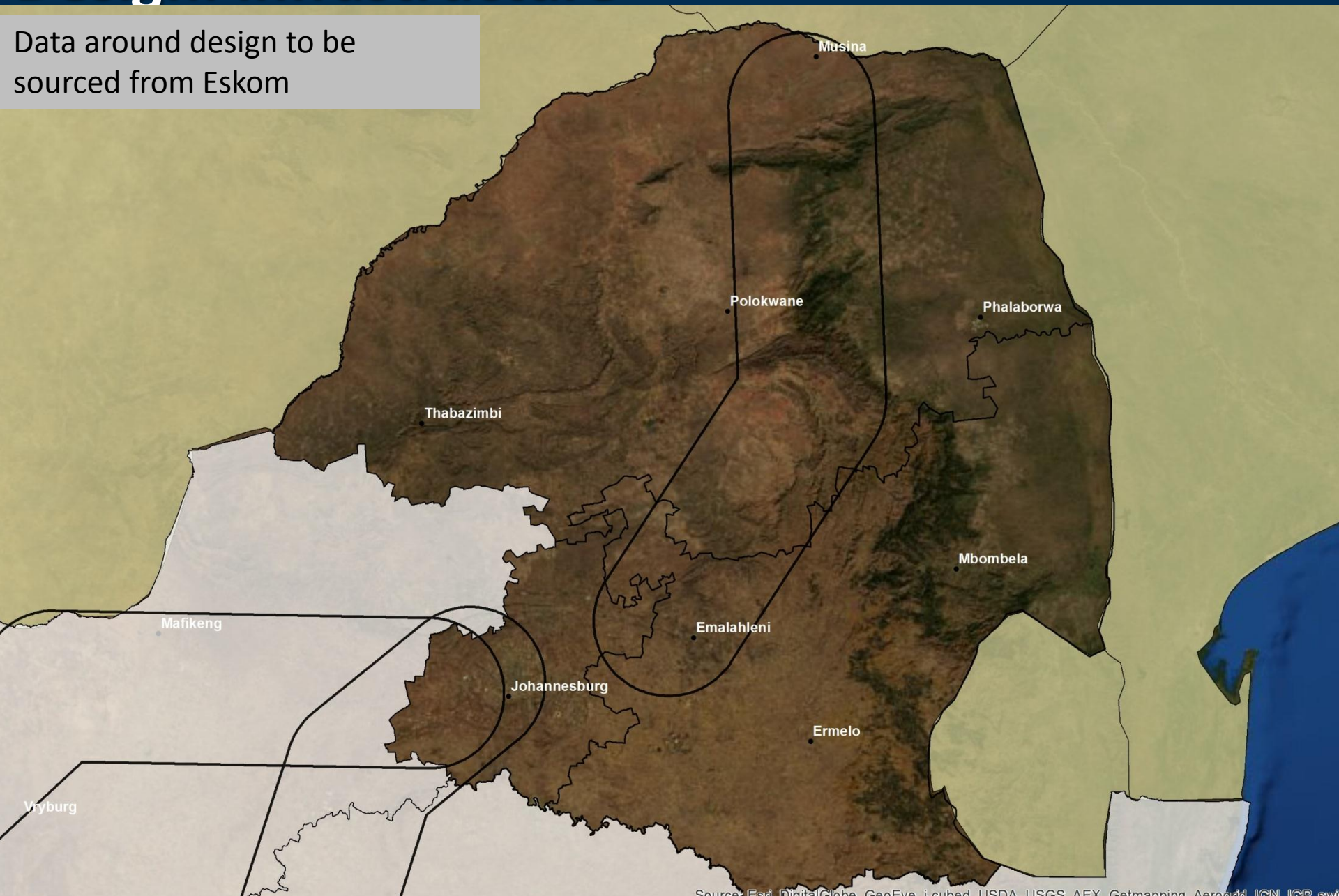
Risk: Negotiation

Eskom's Spot Building count data buffered by 300m. Game farm data still to be sourced.
Road access not included.
Servitude data to be included.



Design: Infrastructure

Data around design to be sourced from Eskom



In the next two months….

- Update constraints framework based on inputs from provincial consultation
- Source and Update data throughout consultation process
- Engage ESKOM and refine matrix
- Present output at next ERG and consult stakeholders

- Identify key datasets and build layers for opportunity matrix during provincial consultation

Questions and Discussion