

ALBATROSS

Advancing knowledge for Long-term Benefits
and Climate Adaptation through Holistic Climate
Services and Nature-based Solutions

WP2 –Demographic and Urbanisation Trends in Sub Saharan African Cities

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WP2 – Achievements (D2.5)

Goal (Task 2.3): Migration trends and urbanisation patterns under current and project climate scenarios

Urbanisation model

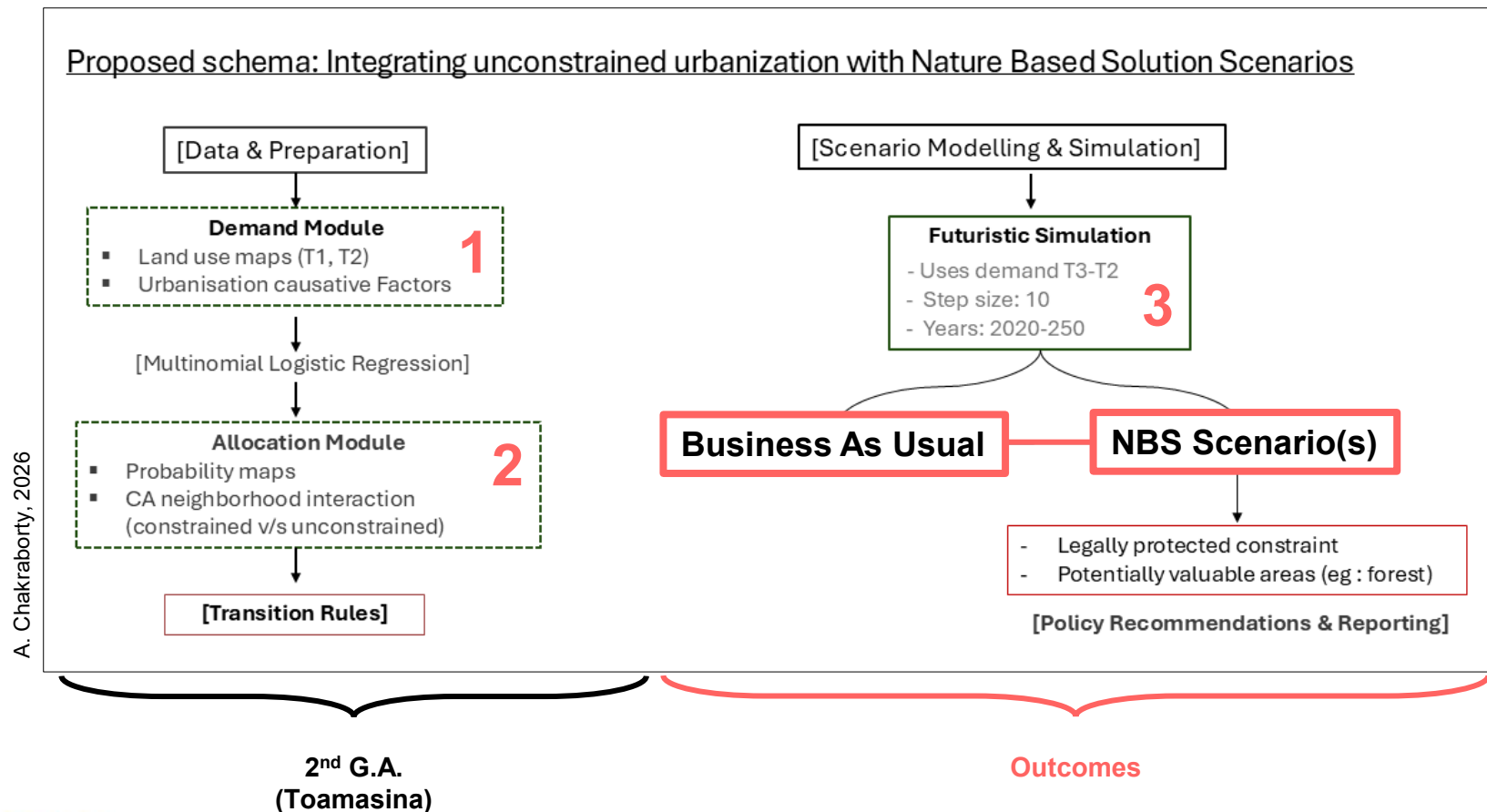
- **Disaggregate** projections
- **Cellular automaton model** for urbanisation patterns up to **2050**
- **Dar-es-Salaam, Kumasi**

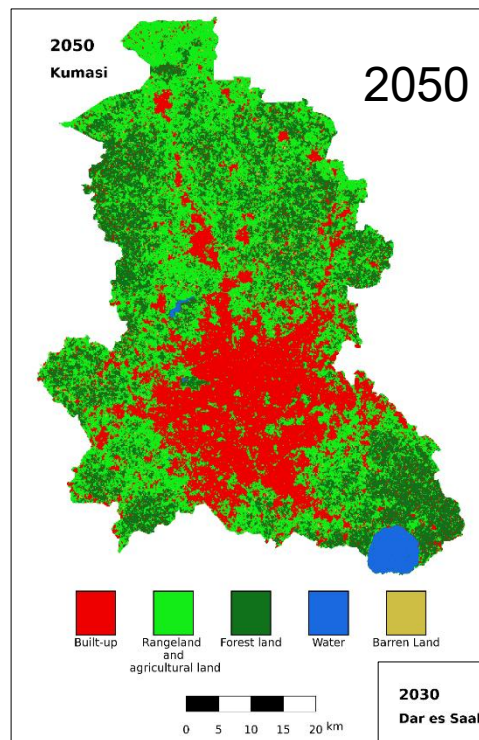
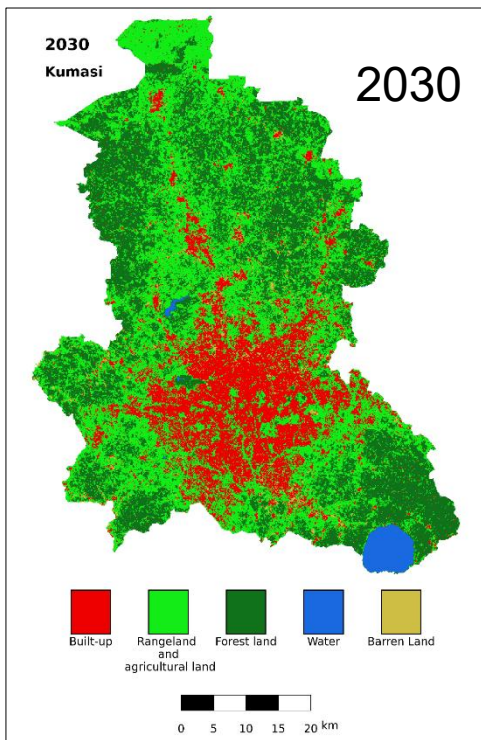
Demographic model

- **Aggregate** projections
- **Temporal analysis** up to **2050**
- **National scale** for 7 hubs

1. Urbanisation model

Methodological overview





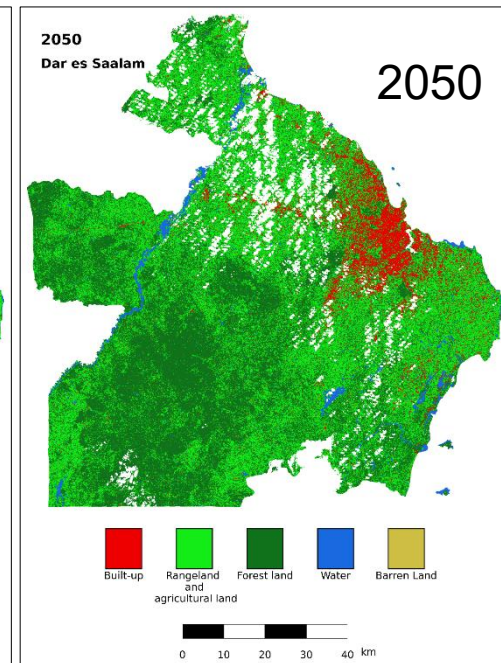
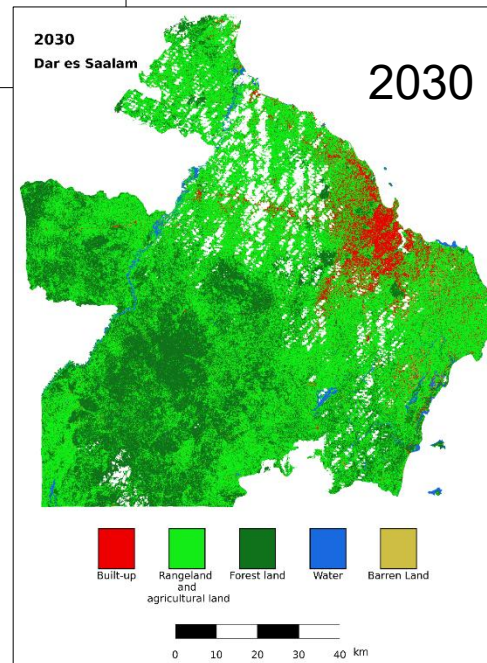
Continuation of existing processes

DAR ES SALAAM

**Expansion/densification simultaneously
Multi-front urbanisation**

KUMASI

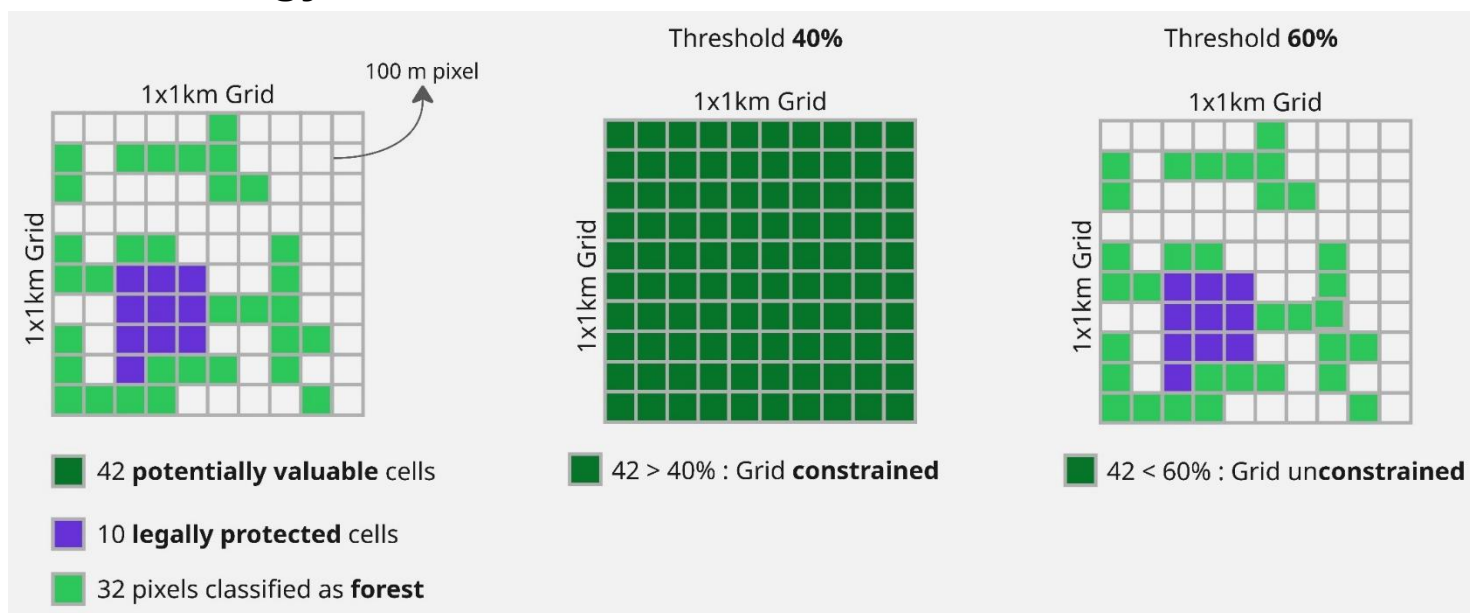
**Strong dependence on the trajectory
(historical configurations)
Beginning of spatial consolidation**



1. Urbanisation model

Greenfield Scenario

Methodology



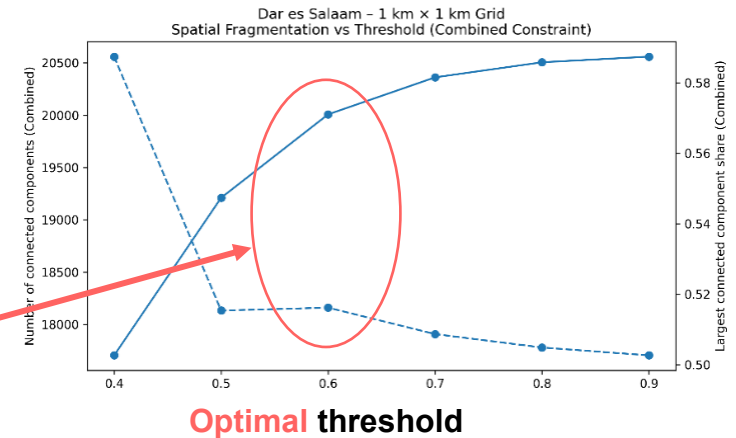
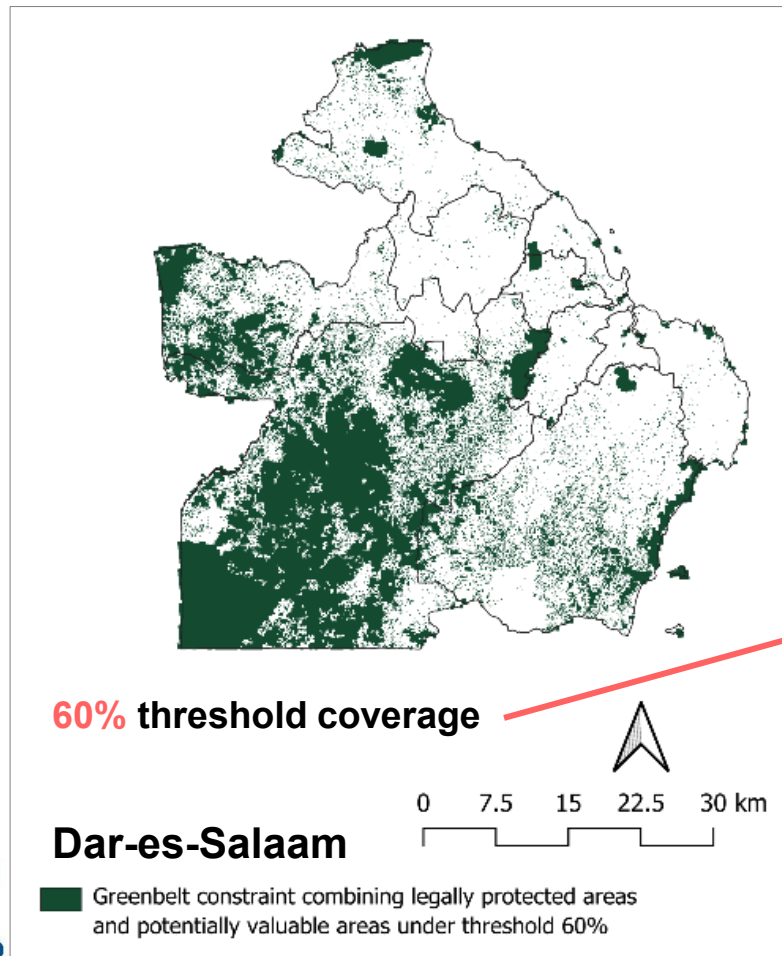
Nicolas Greiner (2026)

1. Urbanisation model

Sensitivity analysis

Greenfield scenario

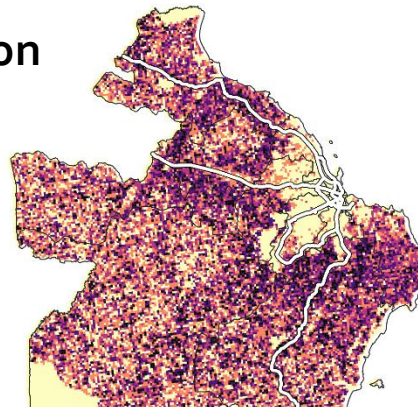
Threshold (%)	40	80
Constrained area (%)	19	25



Expansion



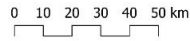
BAU scenario



Greenfield scenario

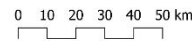
□ District boundary of Dar-es-salaam
— Highways

Expansion (number of cells)

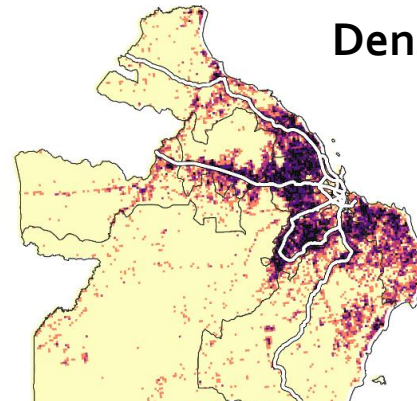


□ District boundary of Dar-es-salaam
— Highways

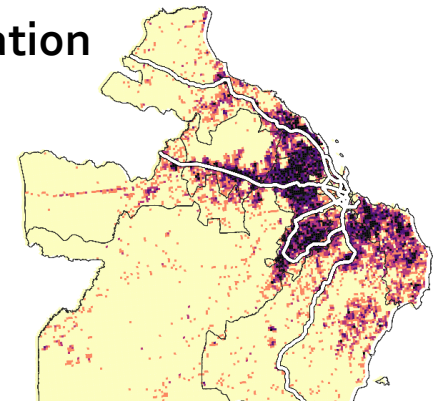
Expansion (number of cells)



Densification



BAU scenario



Greenfield scenario

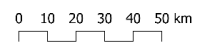
□ District boundary of Dar-es-salaam
— Highways

Densification (number of cells)



□ District boundary of Dar-es-salaam
— Highways

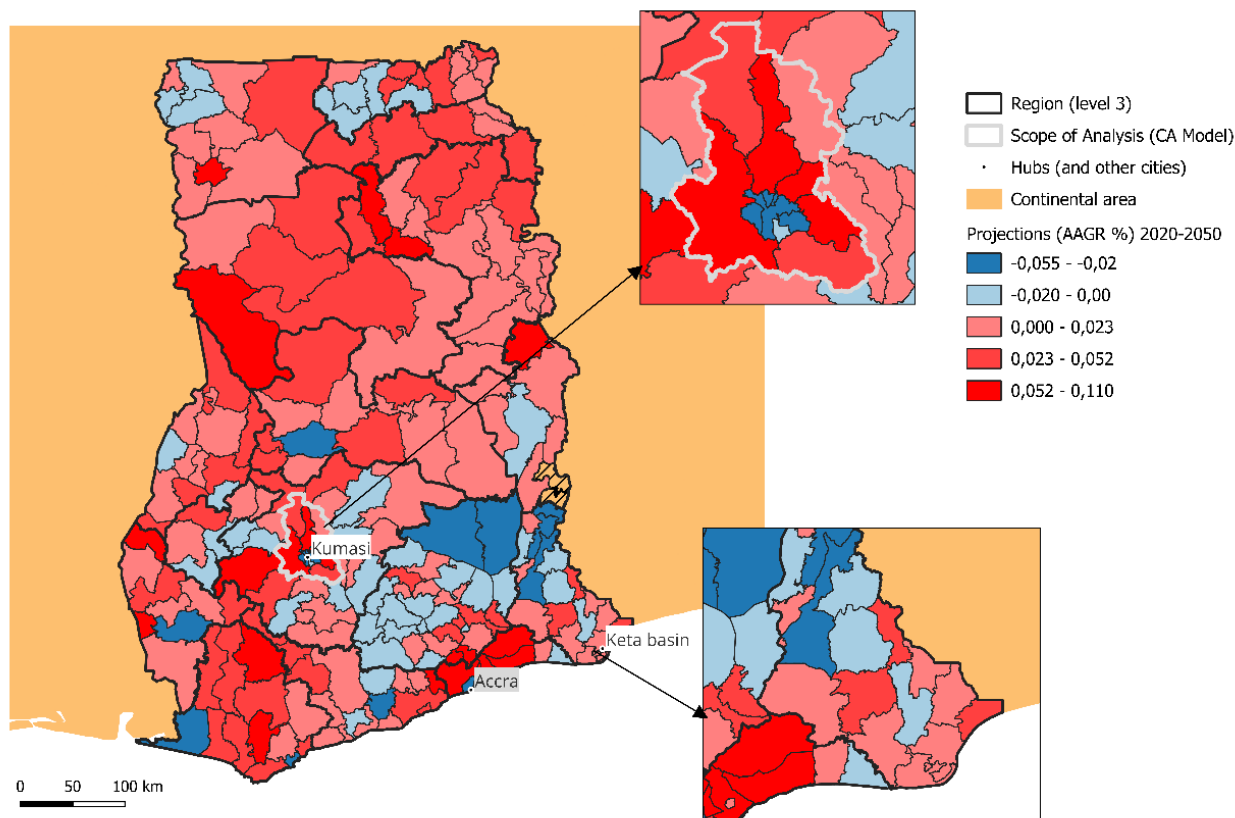
Densification (number of cells)



2. Demographic projection

District level analysis

Projected AAGR by district (2020-2050)
Medium fertility scenario in Ghana



3. Perspectives

Impact of Greenfields

- Urban growth towards **alternative locations**
- **Higher-density** development
- Does not reduce overall demand but **alters spatial distribution** (flexibility)

Population projections

- Strong population growth (**outlying districts**)
- A **shrinking** urban **core**
- A **decline in the AGRR** is already underway (**population peak** around **2070**)
- Main factors: rural exodus and demographic transition; **climate-induced migration will compound these factors**

