CITY-REGIONS for CULTURAL-ECONOMIC NOMADS

Leveraging transitory rural-urban networks in Nairobi's peripheries through regional agroecological systems;

A guide to city-region planning in Kenya

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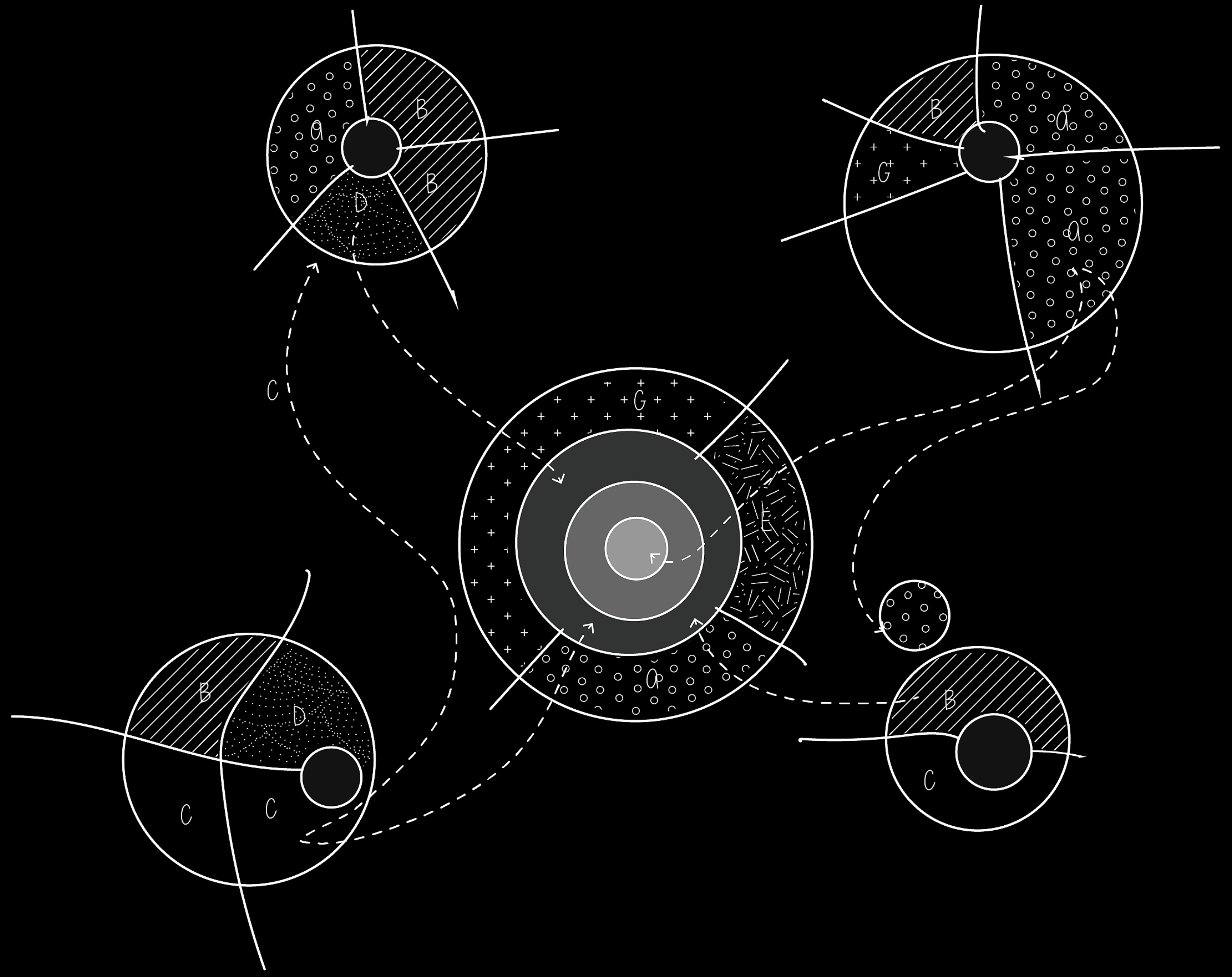
Prof. dr. Ellen van Bueren
Lucy Oates (PhD)- MBE

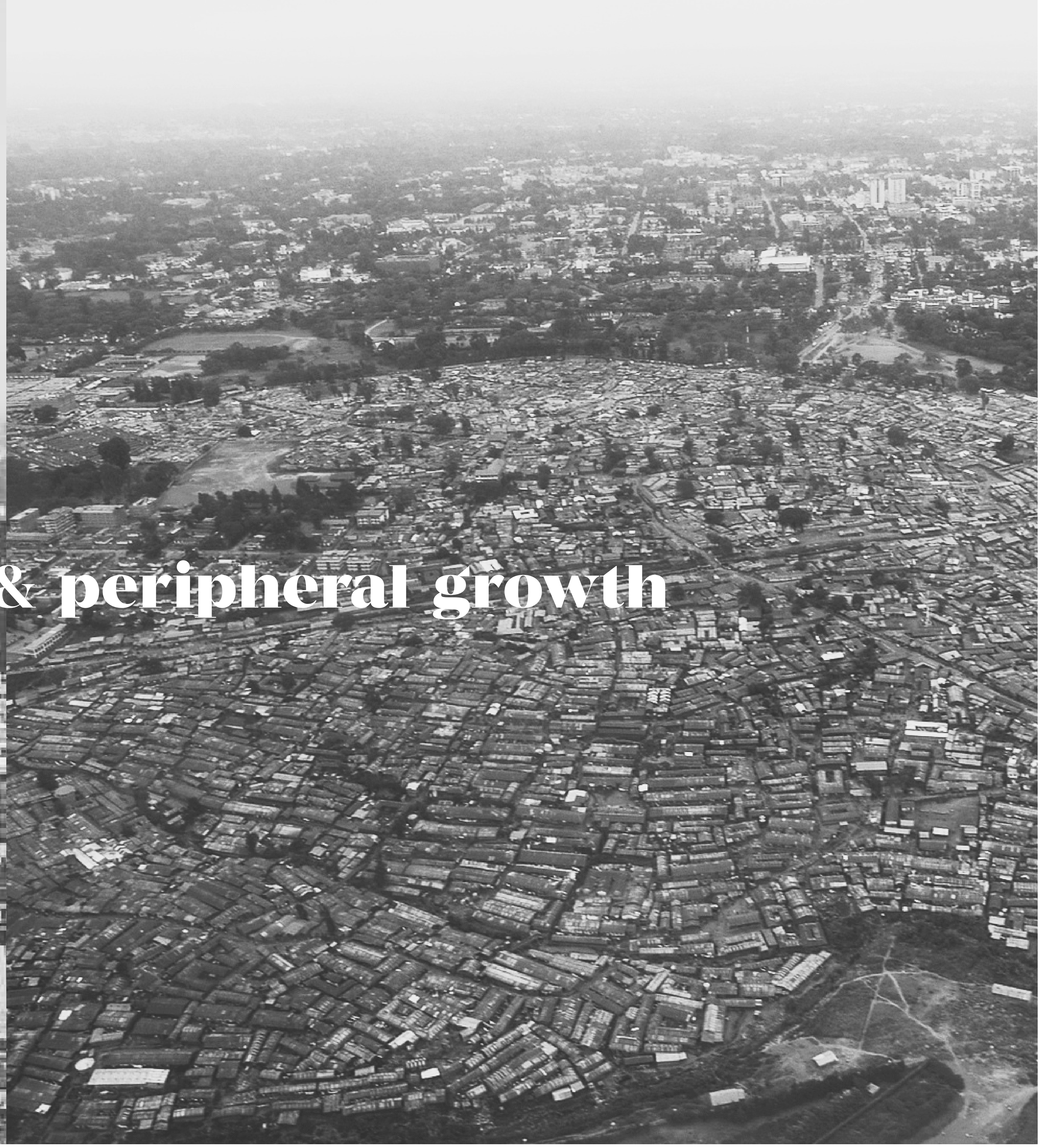
P5 Presentation, MSc AUBS- Urbanism Track.
June 2021

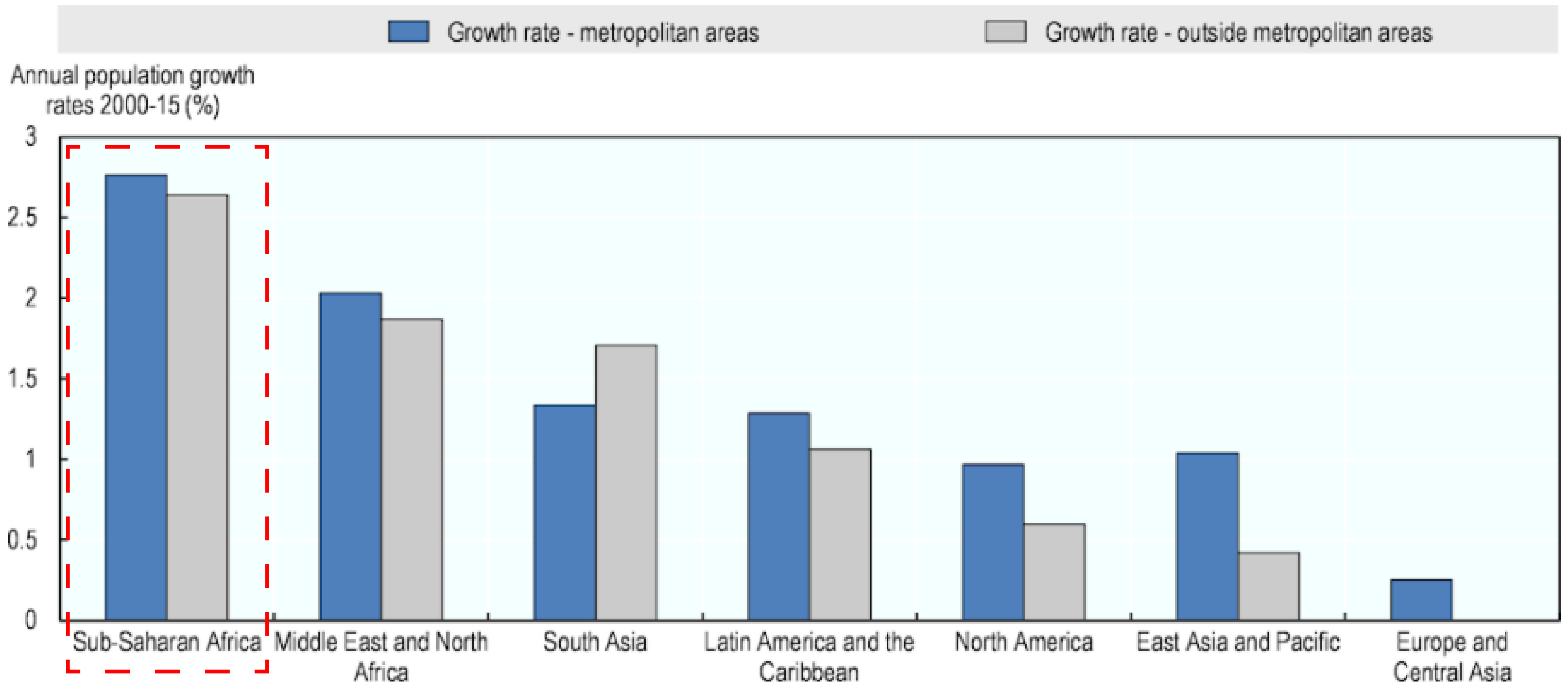


Structure of the presentation

problem definition

Urban primacy & peripheral growth

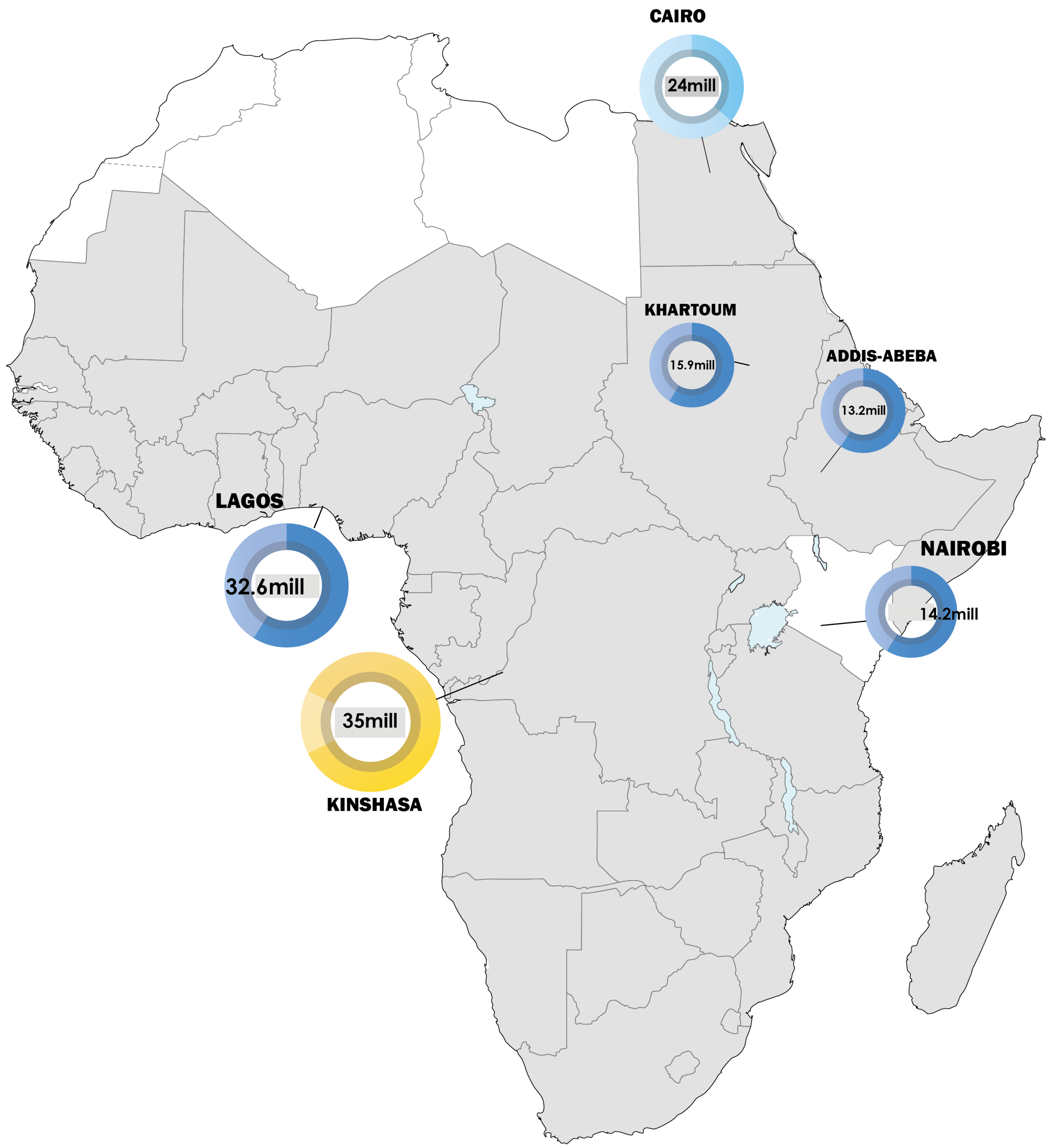


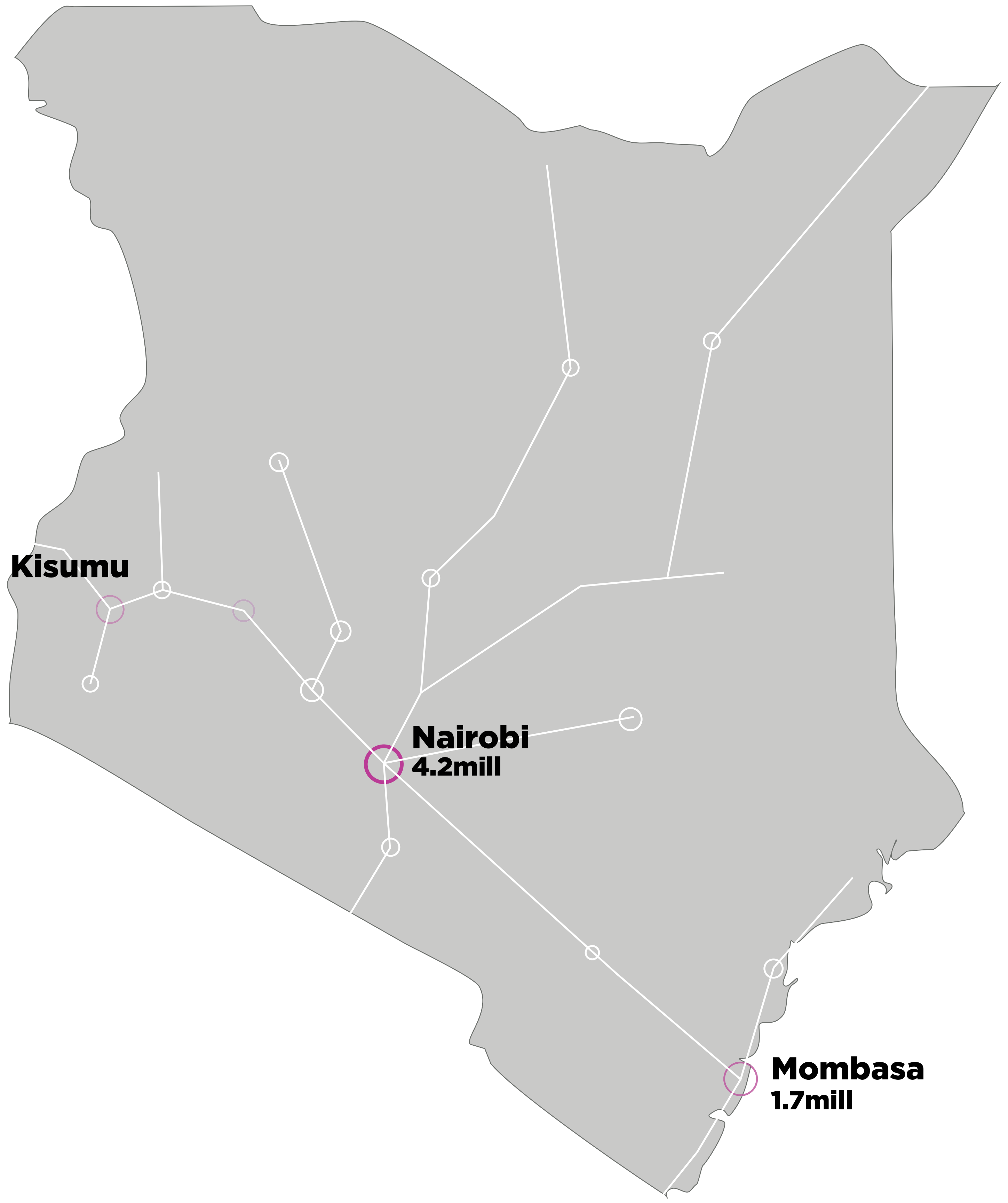



Note: This figure depicts annualised growth rates of the population in metropolitan areas that existed in 2000 and the population outside metropolitan areas by region between 2000 and 2015. The sample of existing metropolitan areas includes those that had an urban centre in 2000. These growth rates are calculated using the total population change by region and are therefore weighted by population. Borders of metropolitan areas are defined in 2015 and all population growth within metropolitan areas takes place within the 2015 borders.

total population growth rates and metropolitan area population growth rates by world region, 2000 and 2015

Source: OECD calculations based on the Urban Centre Database GHS-UCDB R2019A, Florczyk, A. et al. (2019[2]), GHS Urban Centre Database 2015, Multi-temporal and Multidimensional Attributes, R2019A, https://data.jrc.ec.europa.eu/dataset/53473144-b88c-44bc-b4a3-4583ed1f547e.





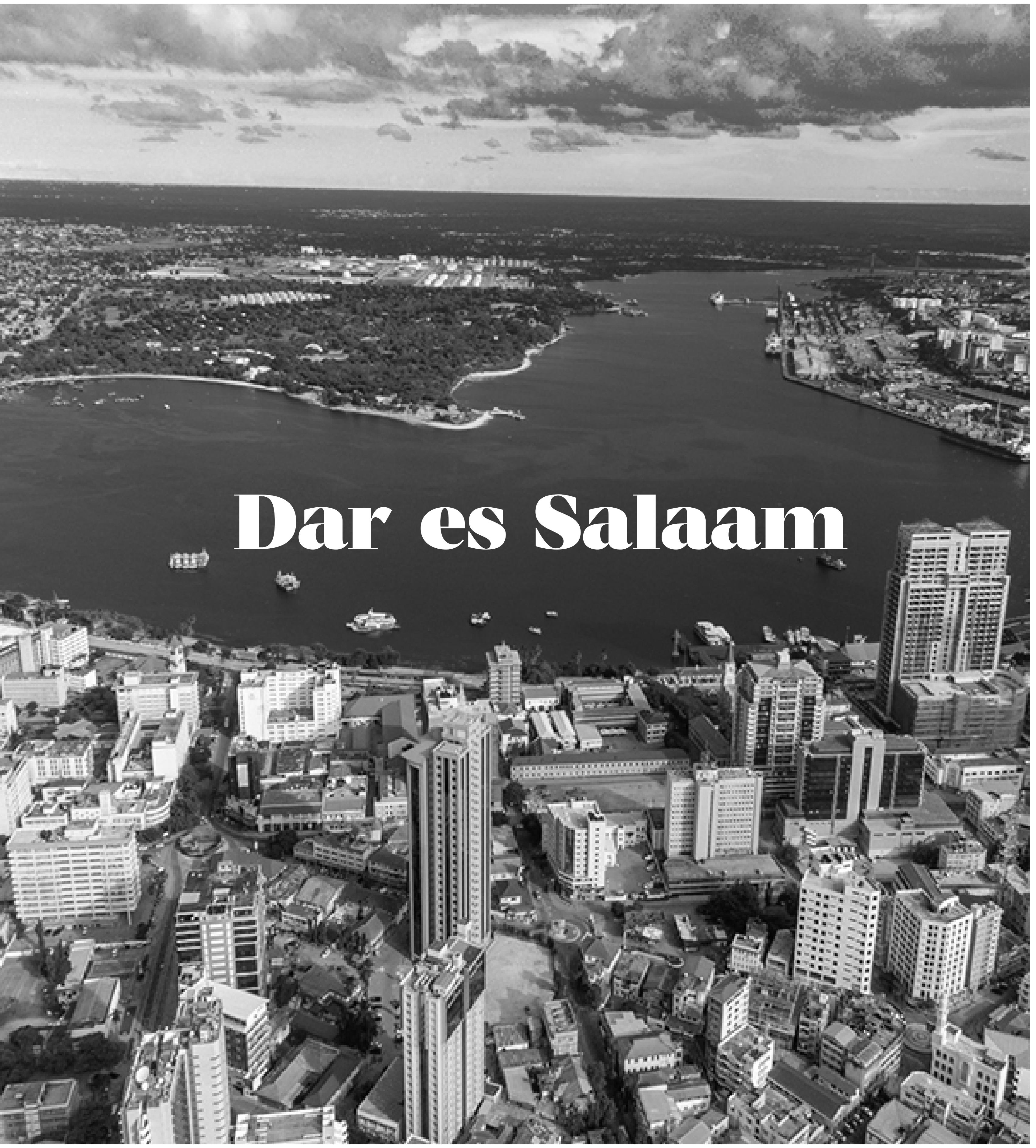
projected megacities' population by 2050(UNWorldCitiesReport,2016)

4.2 million population 'city proper' boundaries

30% of urban population in the country

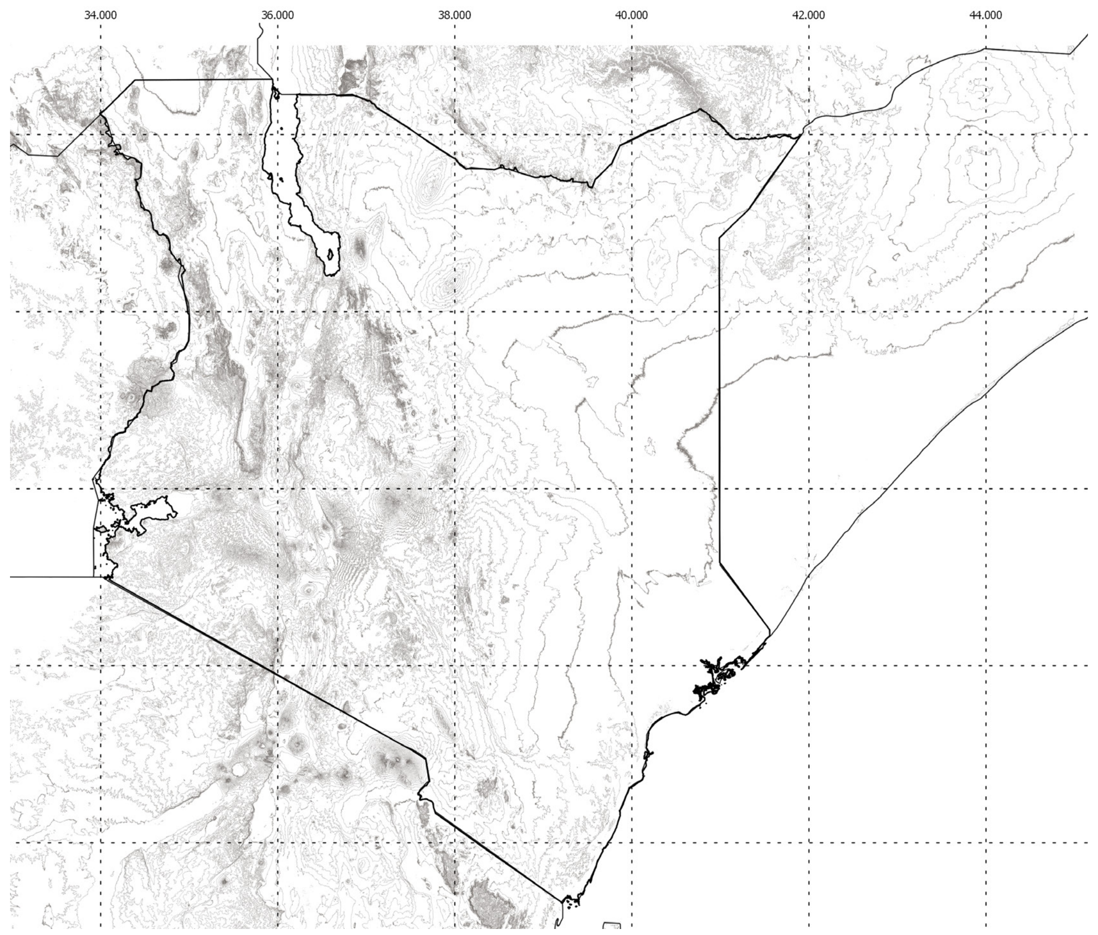
2.6% annual population growth rate

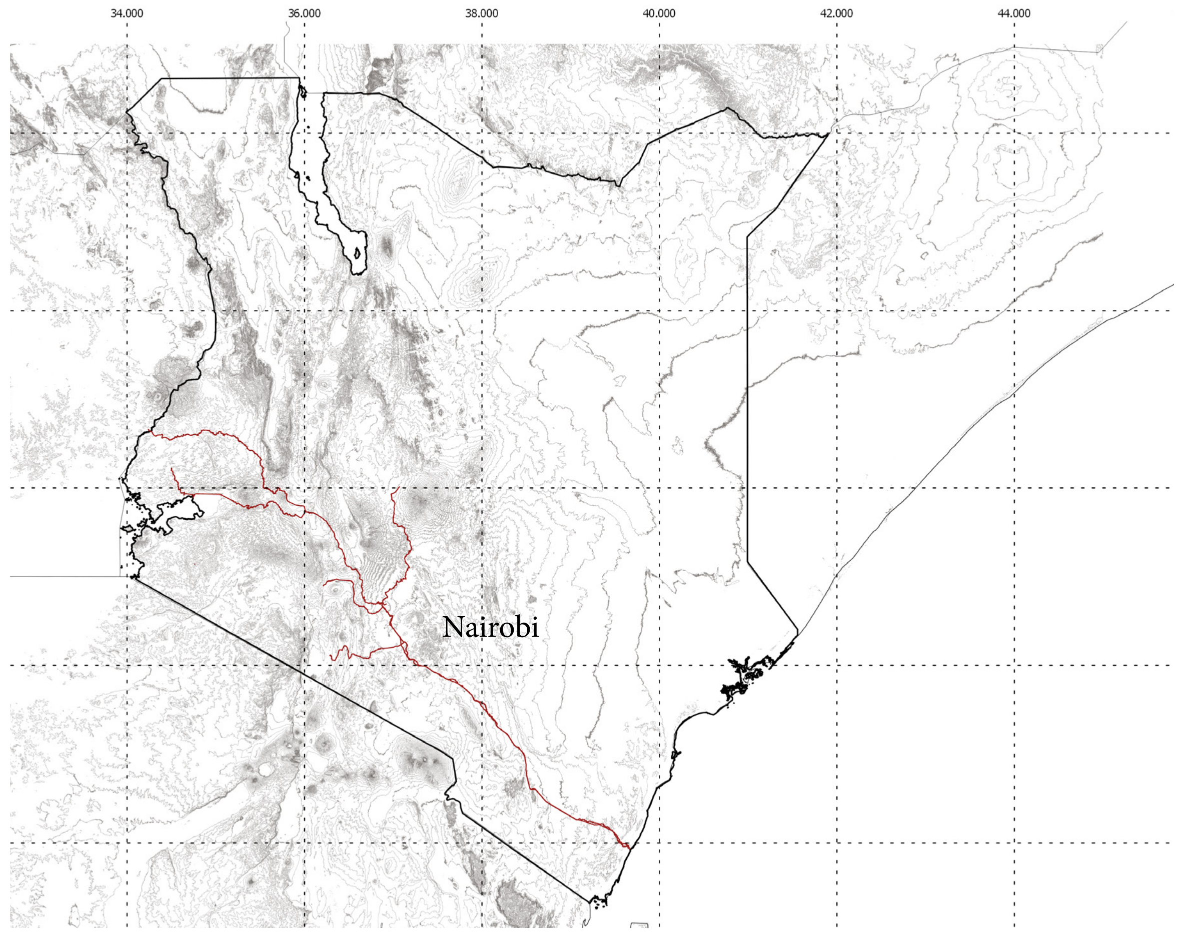
20% GDP



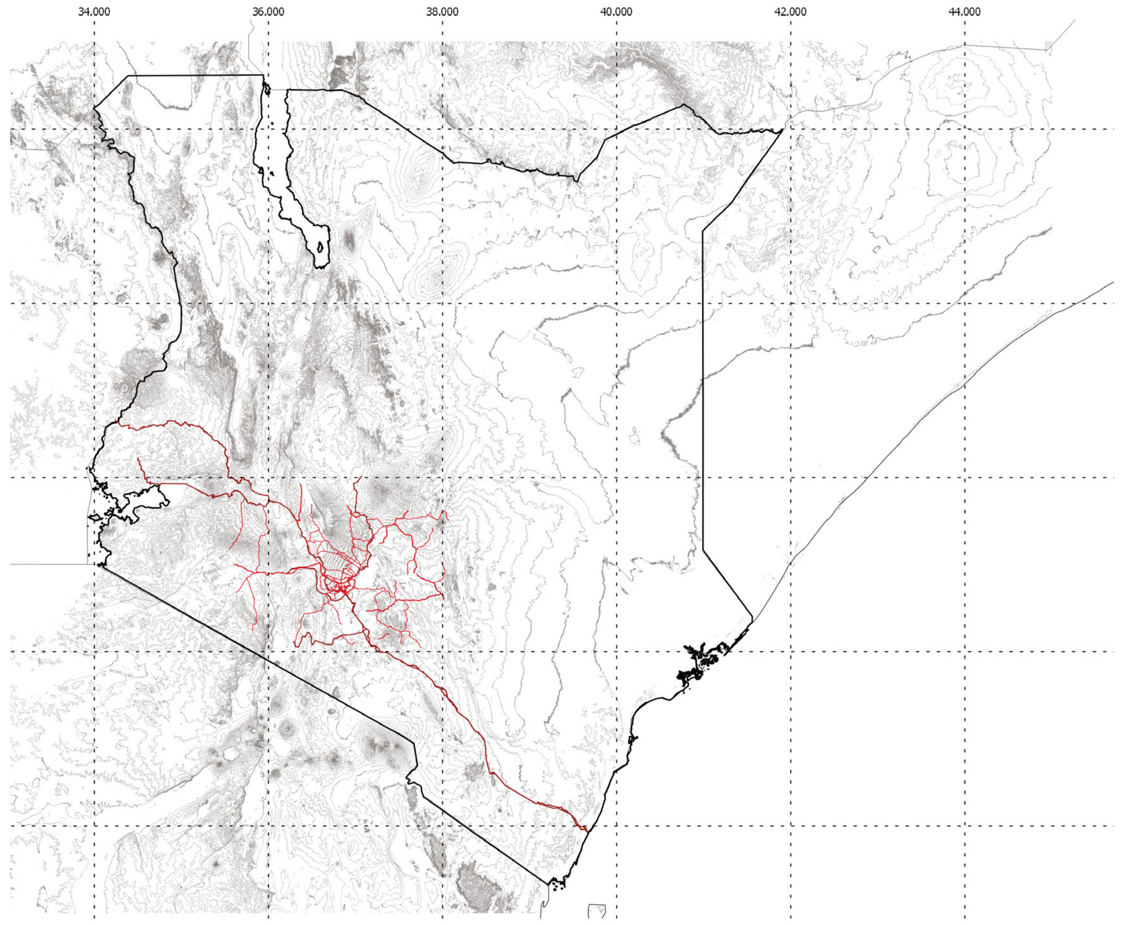
https://www.plataformamedia.com/en/2020/09/09/foreigners-working-in-angola-to-quarantine-at-home/
https://www.pinterest.com/pin/622904192192740310/
https://www.safaris-uganda.com/dar-es-salaam/

historical colonial growth of urban centres

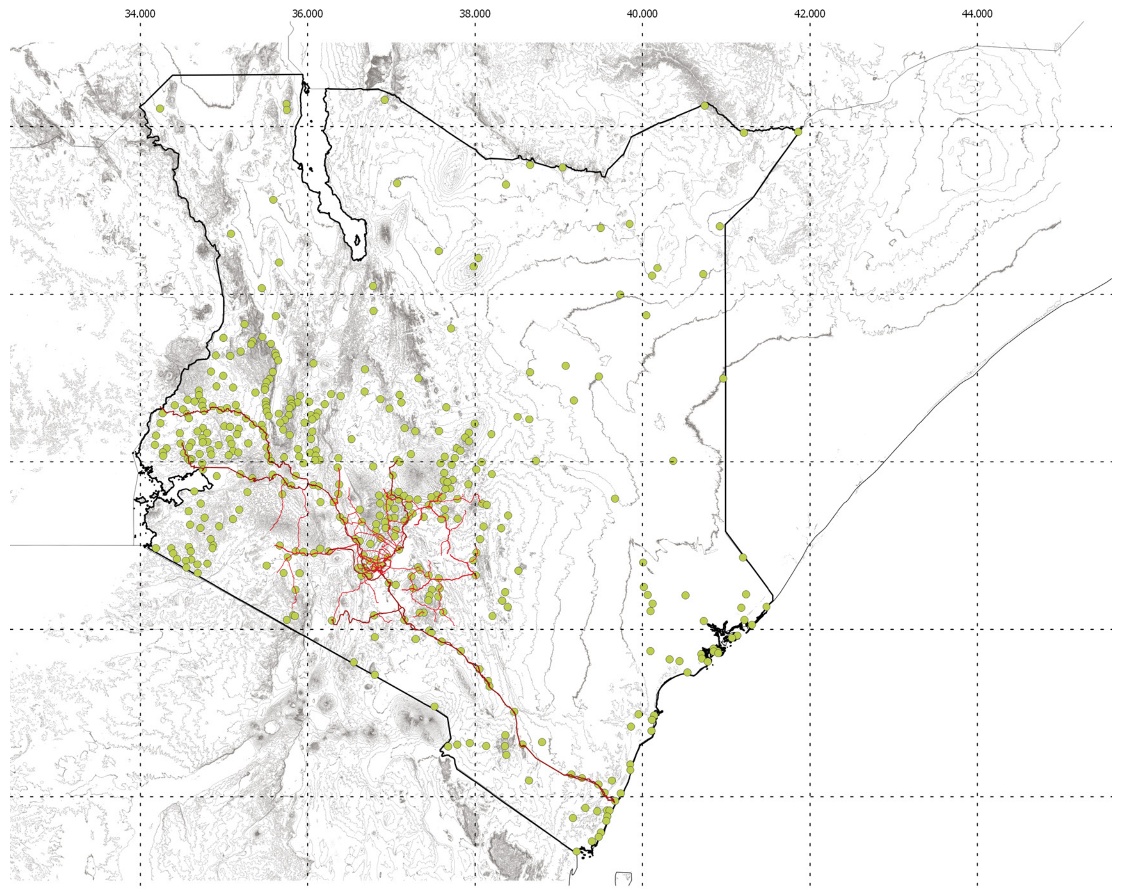




Kenya railway - Mombasa to Uganda (1896-1901)



Extension of resource extraction infrastructure

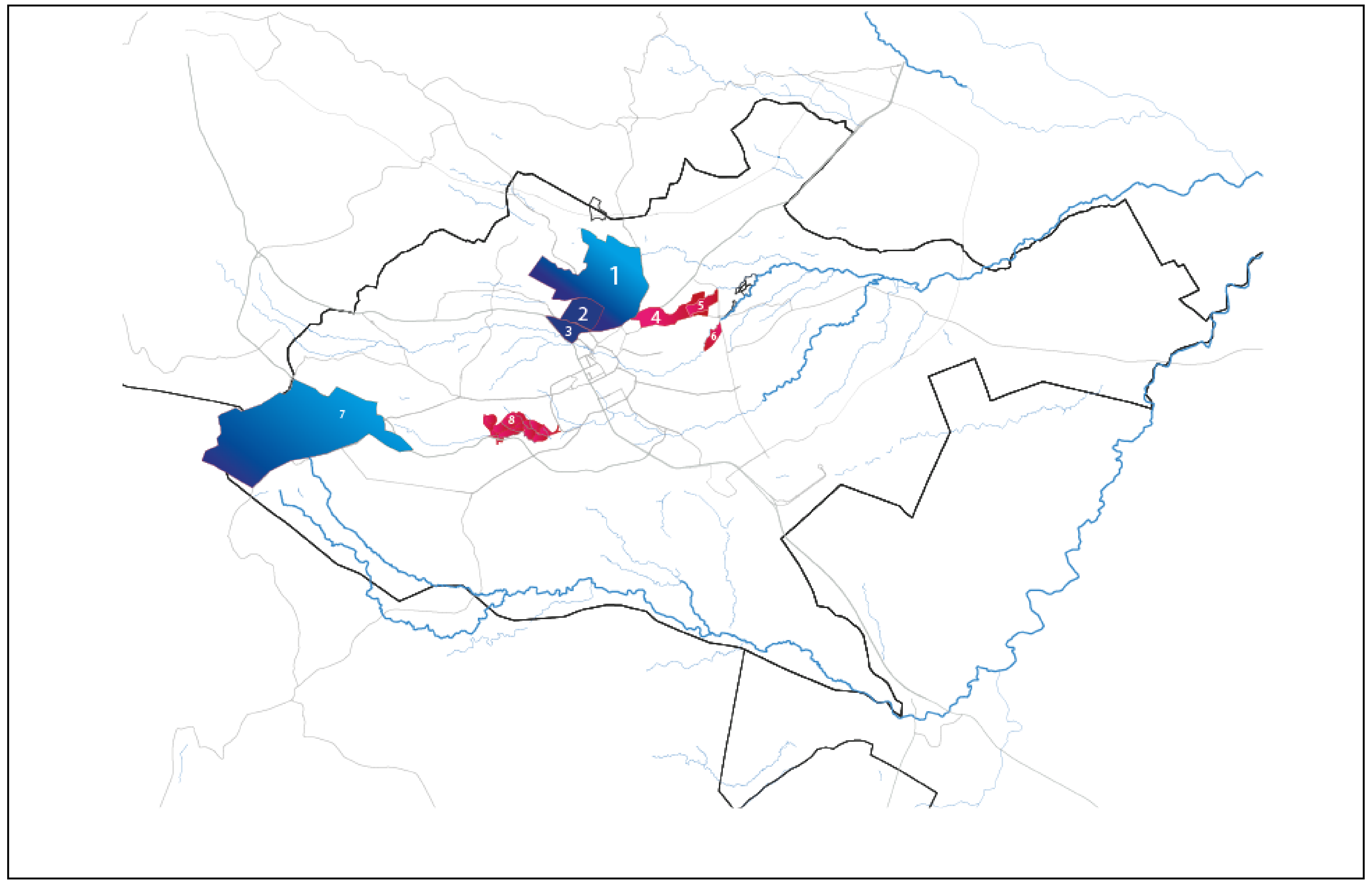


population distribution along active infrastructure lines

Inequality scenes of Metropolitan growth

Source: https://unequalscenes.com/nairobi

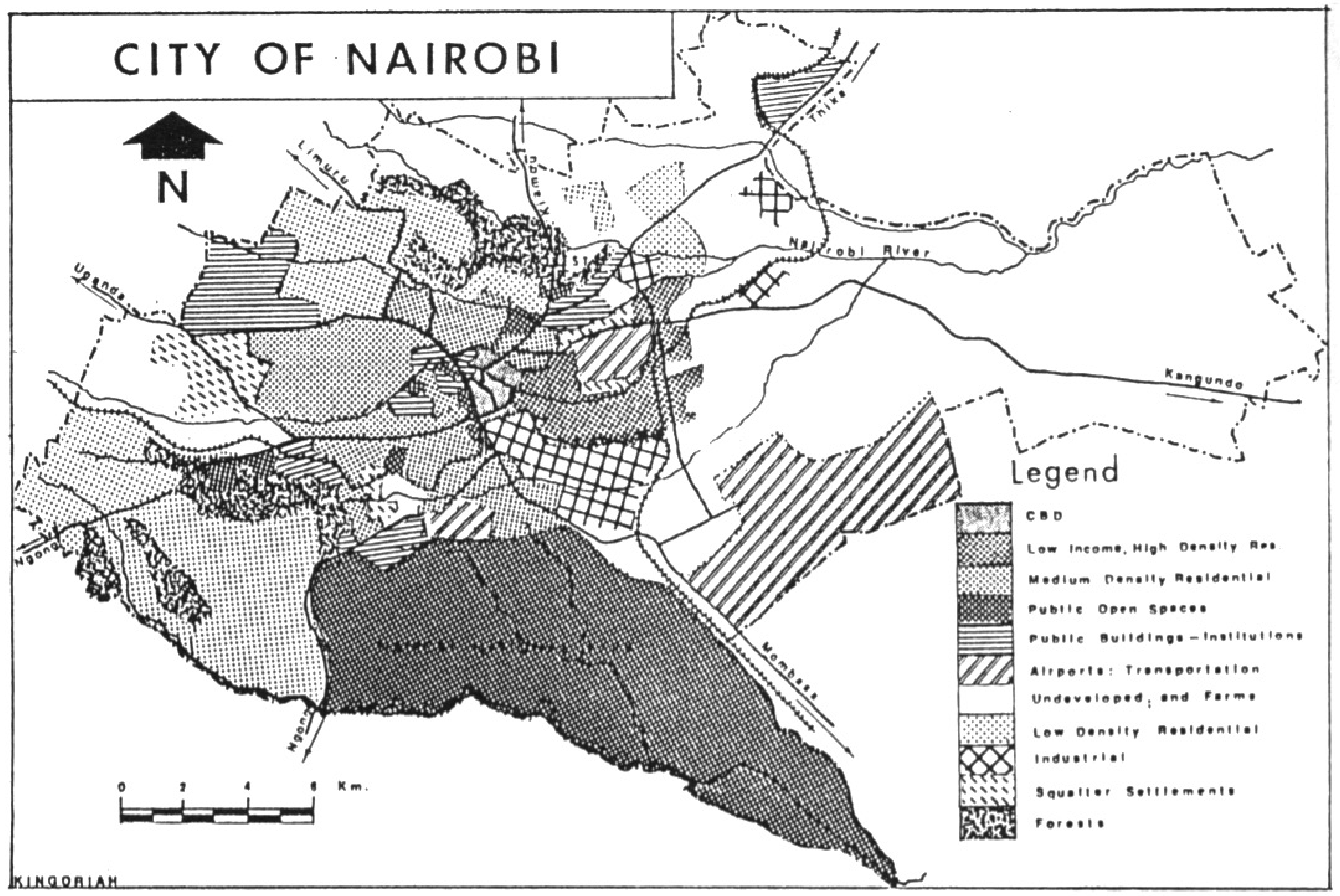
Source: https://unequalscenes.com/nairobi



1. Muthaiga - 536pp/sqkm.
2. Parklands - 2666 pp/sq.km
3. Westlands - 1601 pp/sq.km
4. Mathare - 57,950 pp/sq.km
5. Huruma - 81,771 pp/sq.km
6. Kiambiu -75,830 pp/sq.km
7. Karen - 911pp/sq.km
8. Kibera - 15,311pp/sq.km

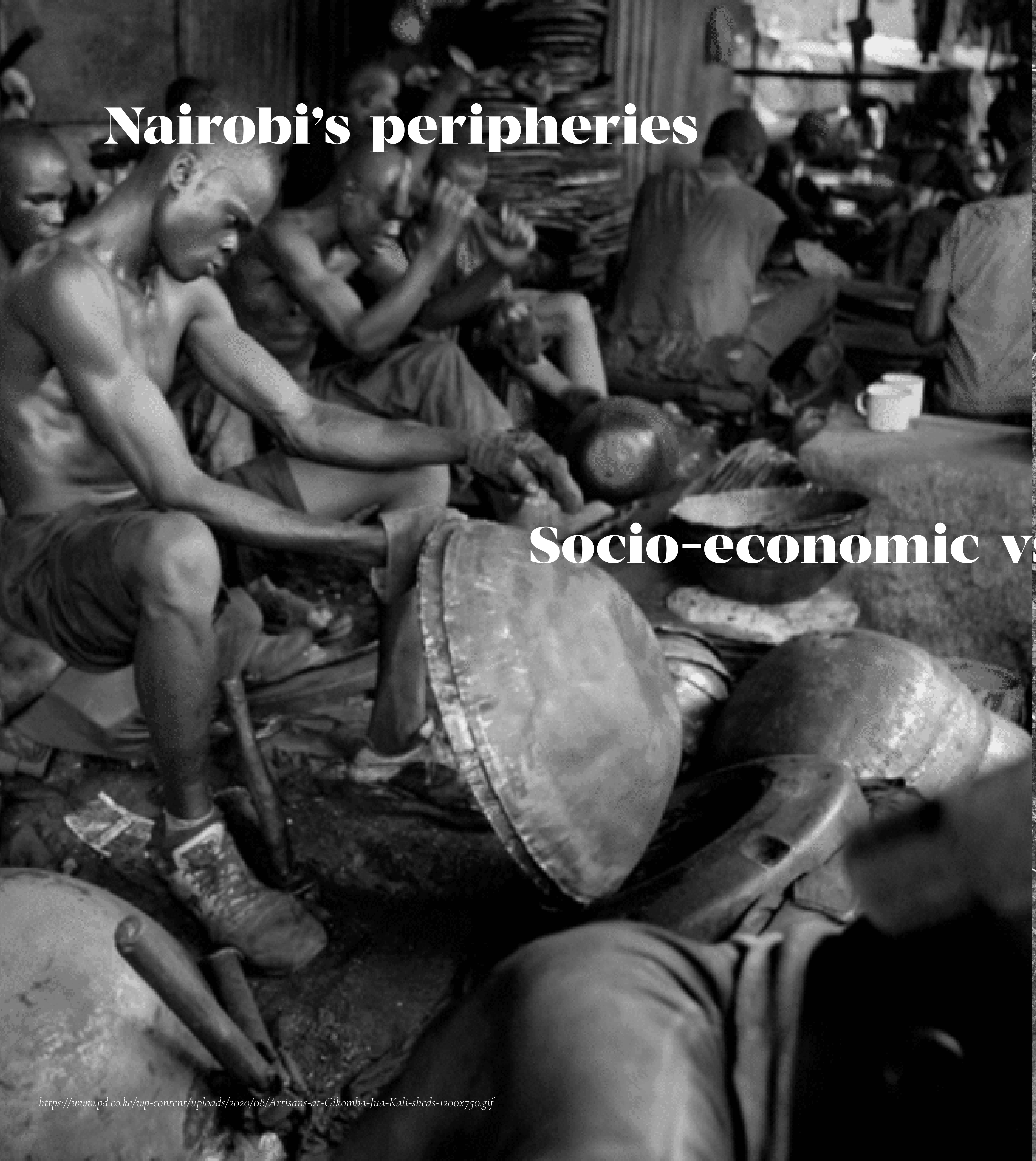
Nairobi averarge density - 6247 pp/sq.km

(Source: KNBS,2020 & QGIS)



Source: (Kingoriah, 1984)

Nairobi's peripheries



https://www.pd.co.ke/wp-content/uploads/2020/08/Artisans-at-Gikomba-Jua-Kali-sheds-1200x750.gif

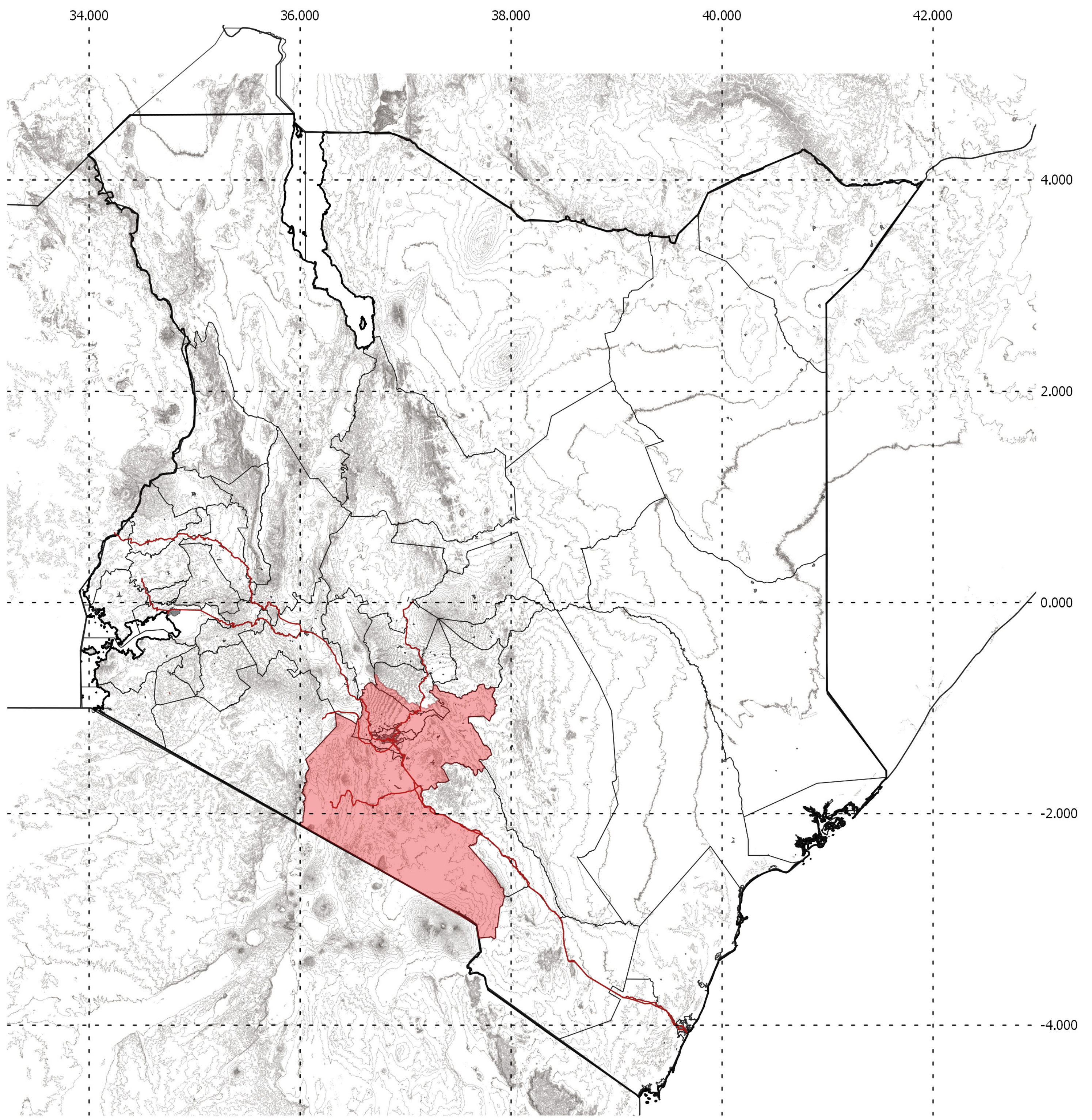
Socio-economic vs Spatial peripheries

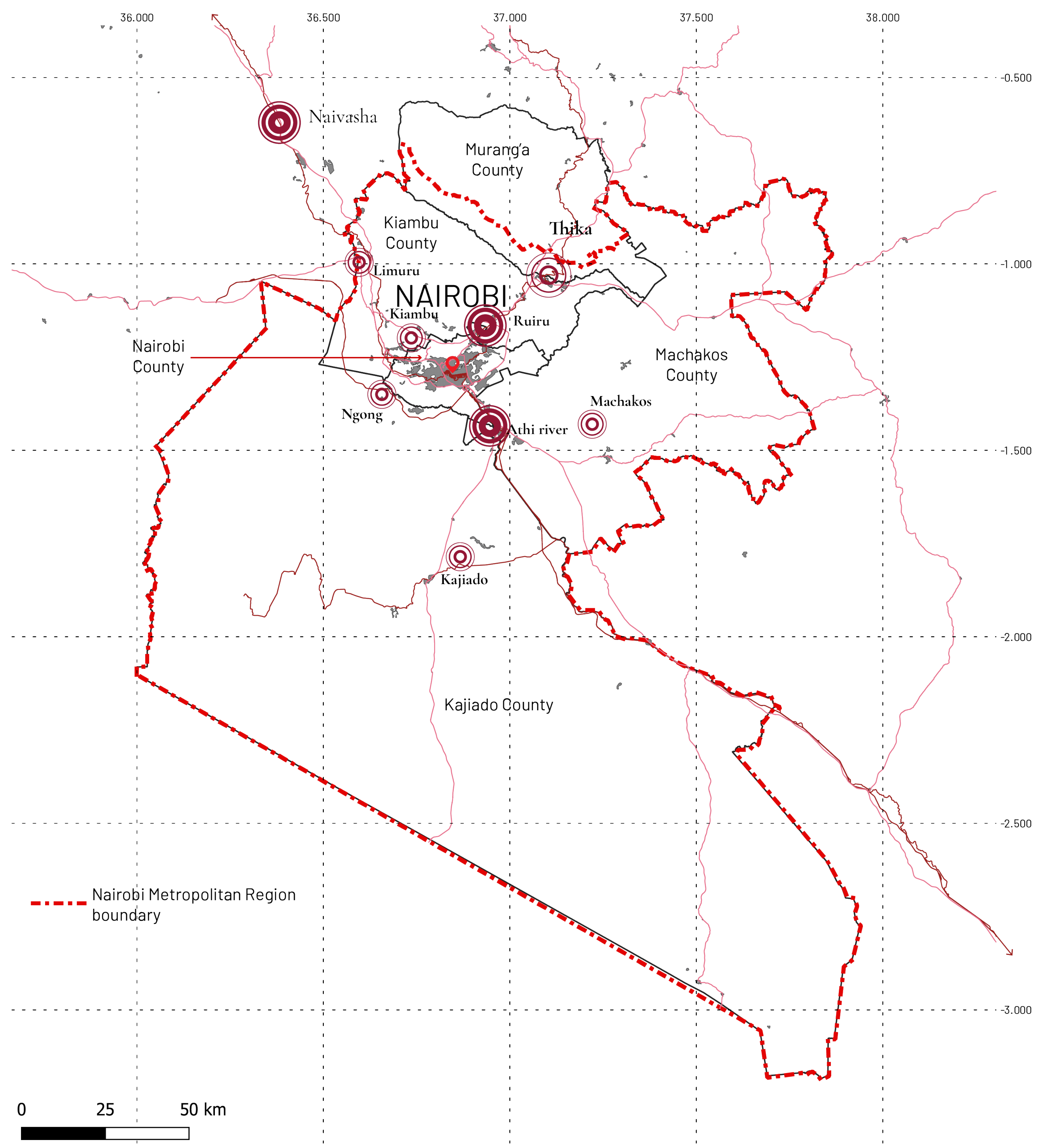
Nairobi's peripheries

Nairobi's population catchment area - 4.7million
Nairobi metropolitan area- 9.3million
Conty councils;
- *Kiambu,*
- *Olkejuado,*
- *Masaku and*
- *Thika;*

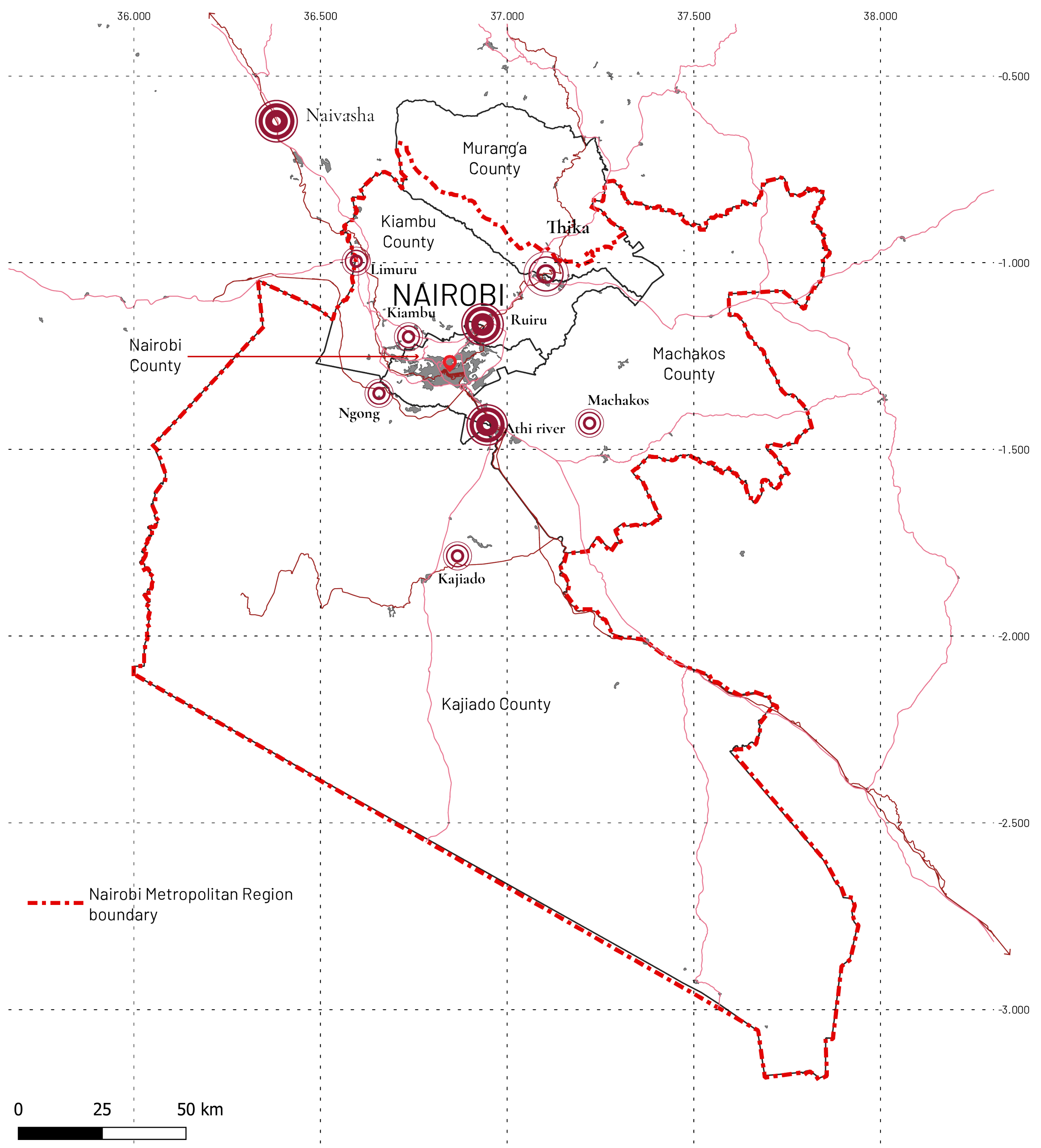
Municipal Councils of
- *Ruiru,*
- *Thika,*
- *Kiambu,*
- *Limuru,*
- *Mavoko, and*
- *Machakos; and*

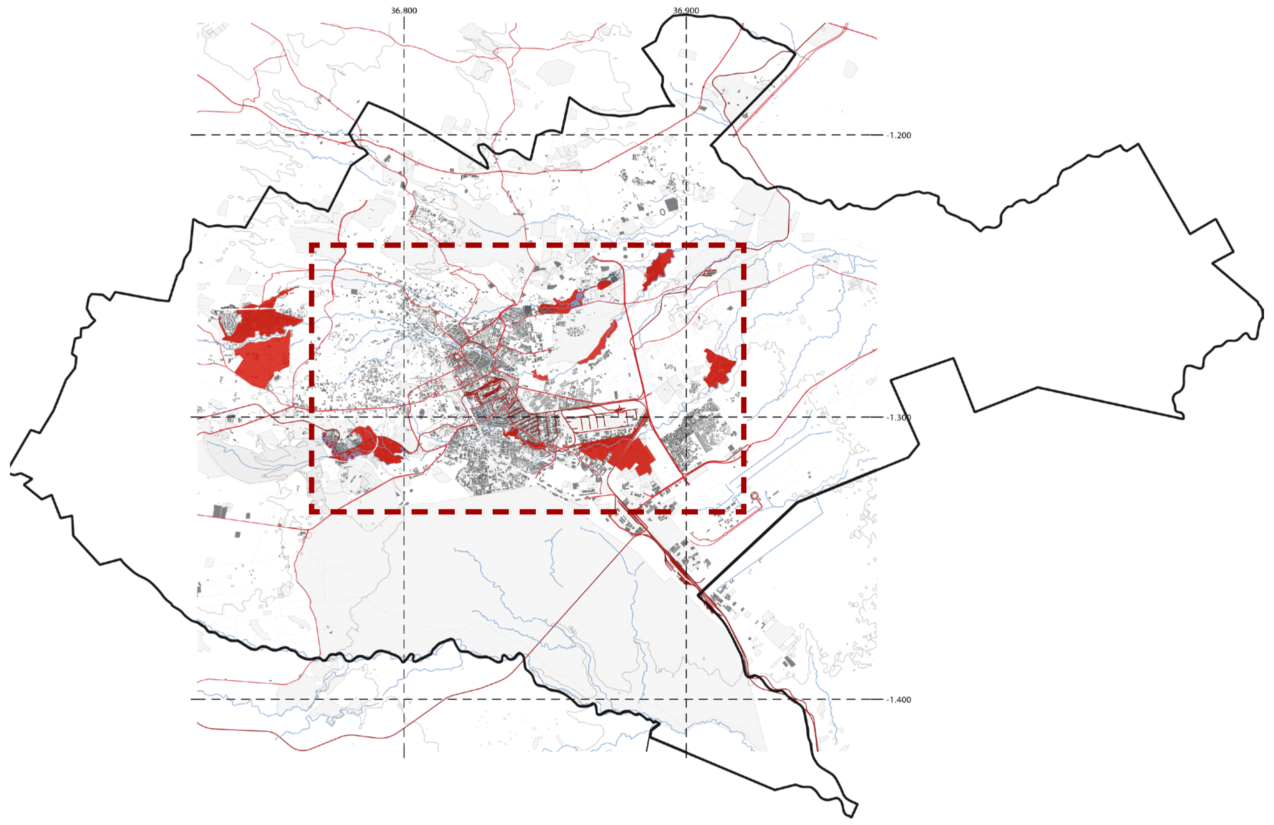
Town Councils of
- *Karuri,*
- *Kikuyu,*
- *Kajiado, and*
- *Kangundo*



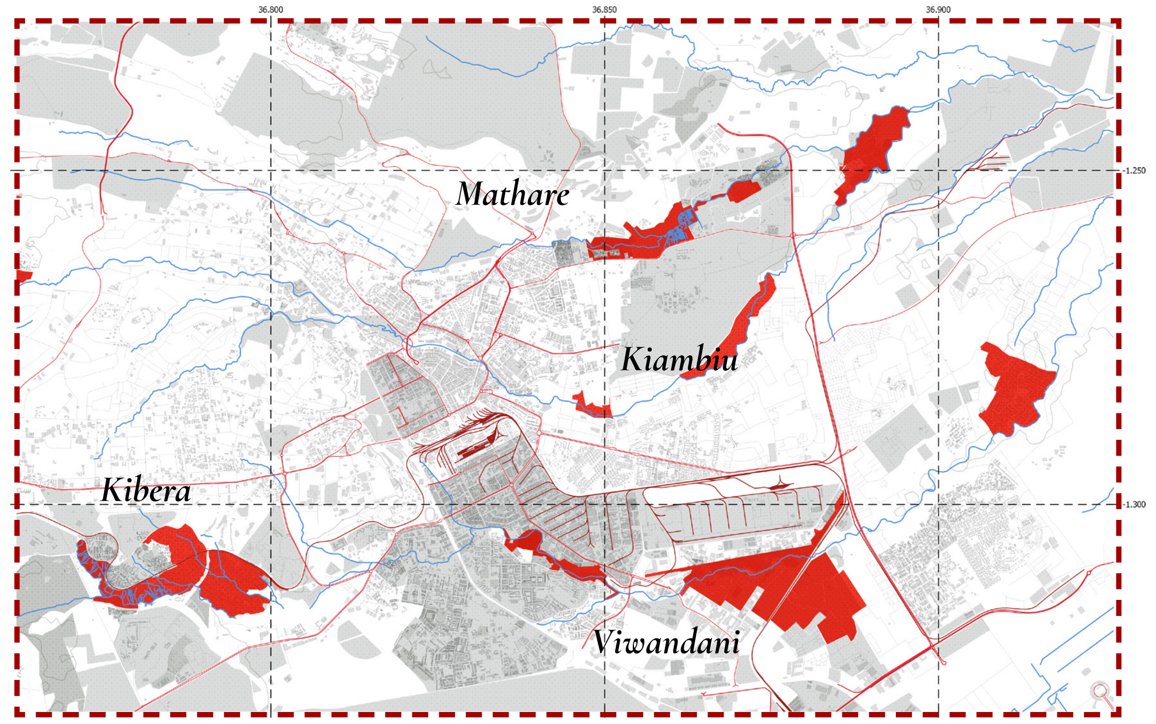


Nairobi's peripheries





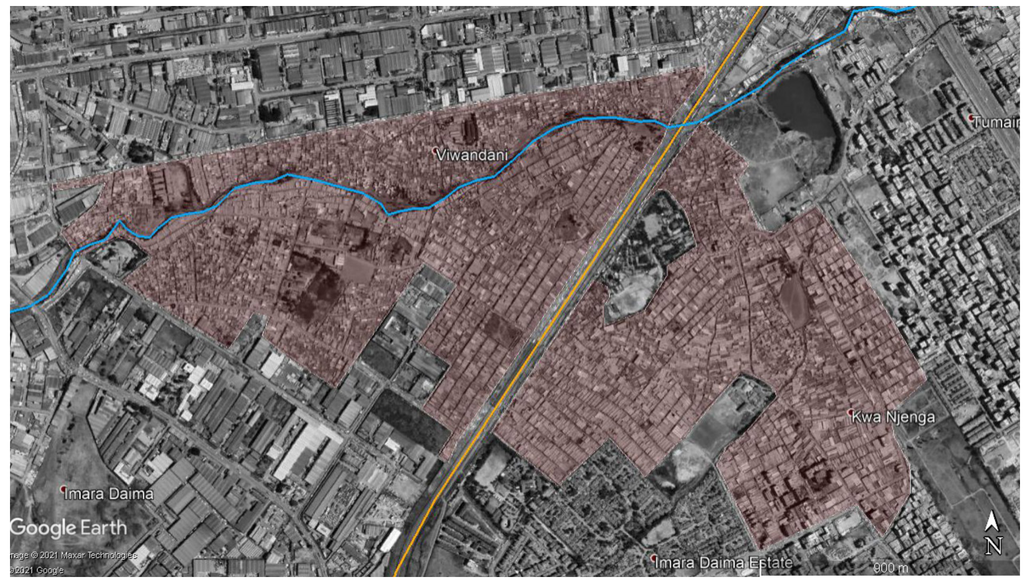
Nairobi City county



Nairobi informal settlement distribution (1:50000)

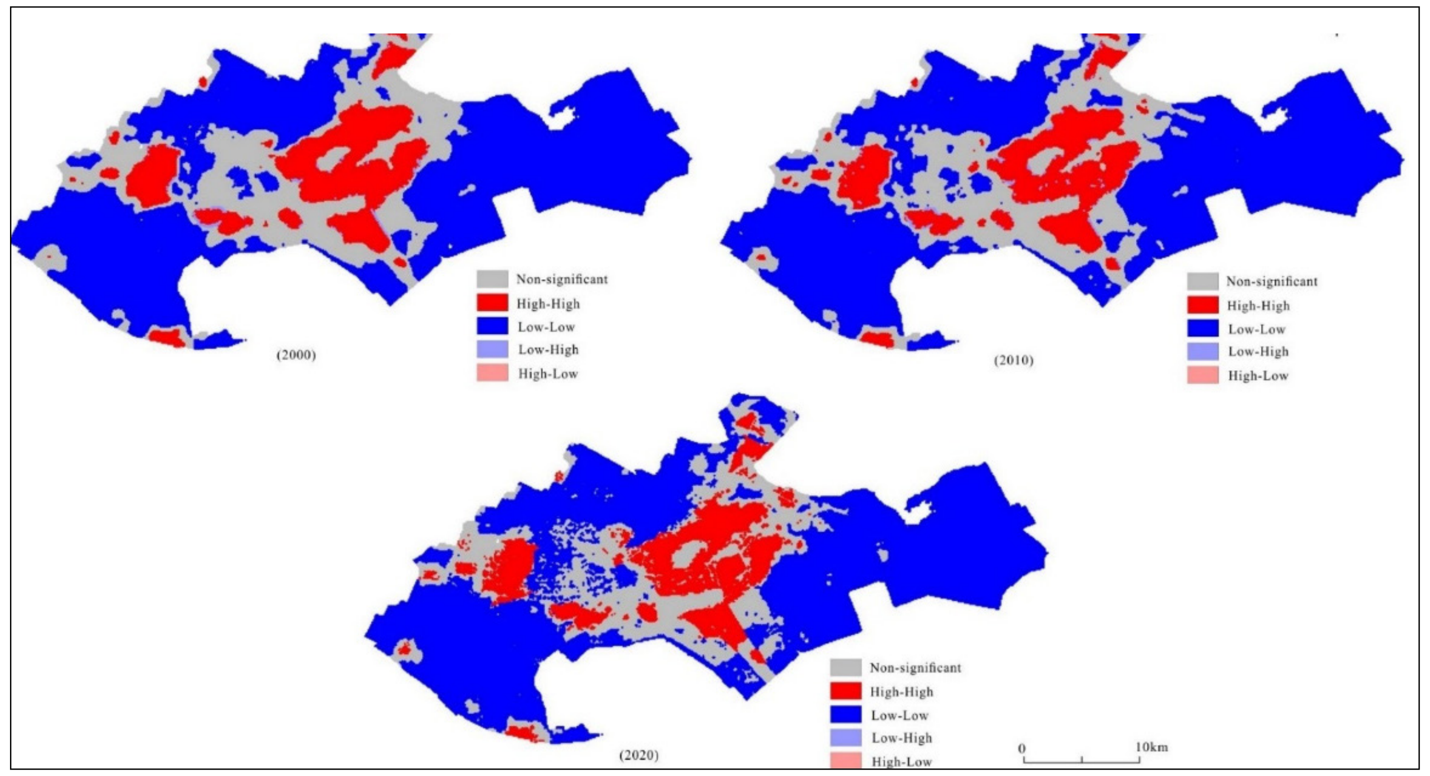
Nairobi's peripheries

Kibera

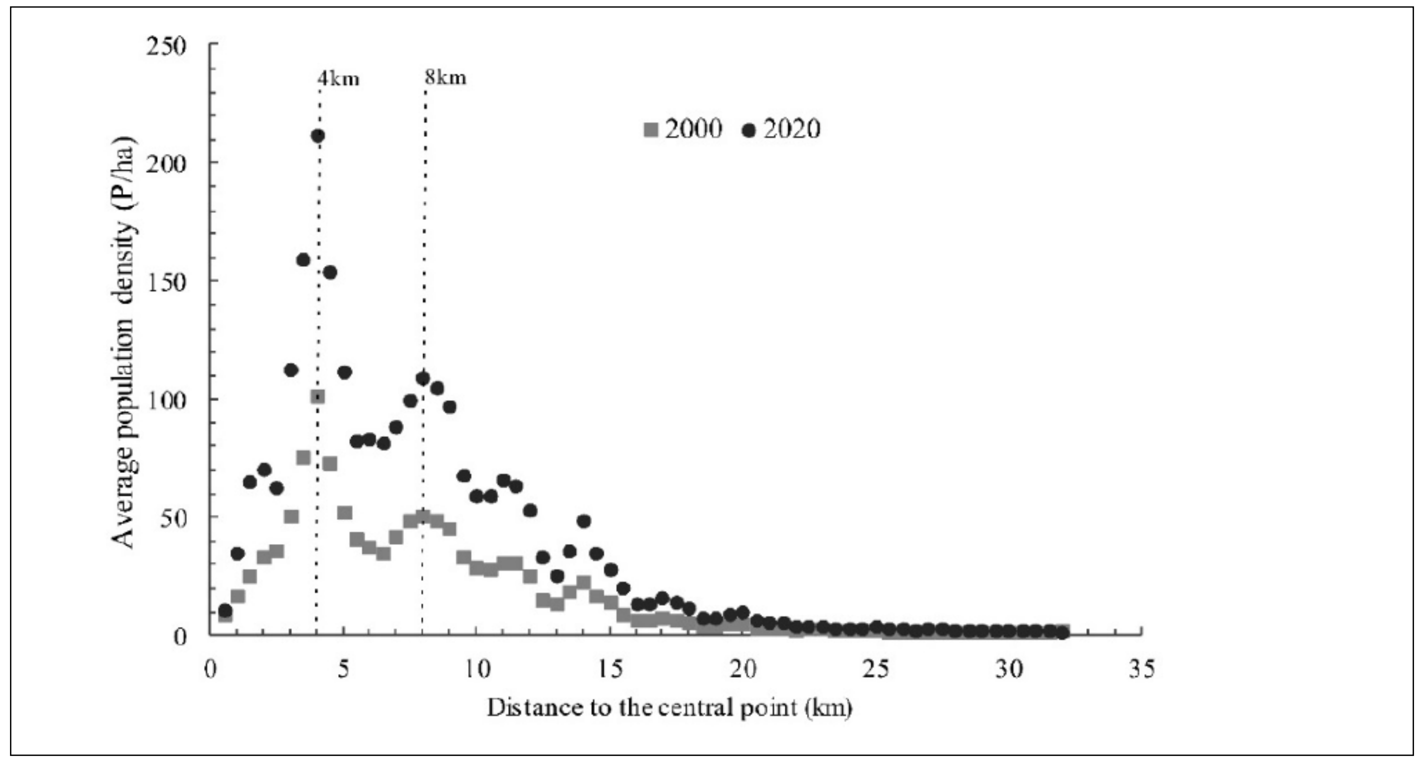


Viwandani

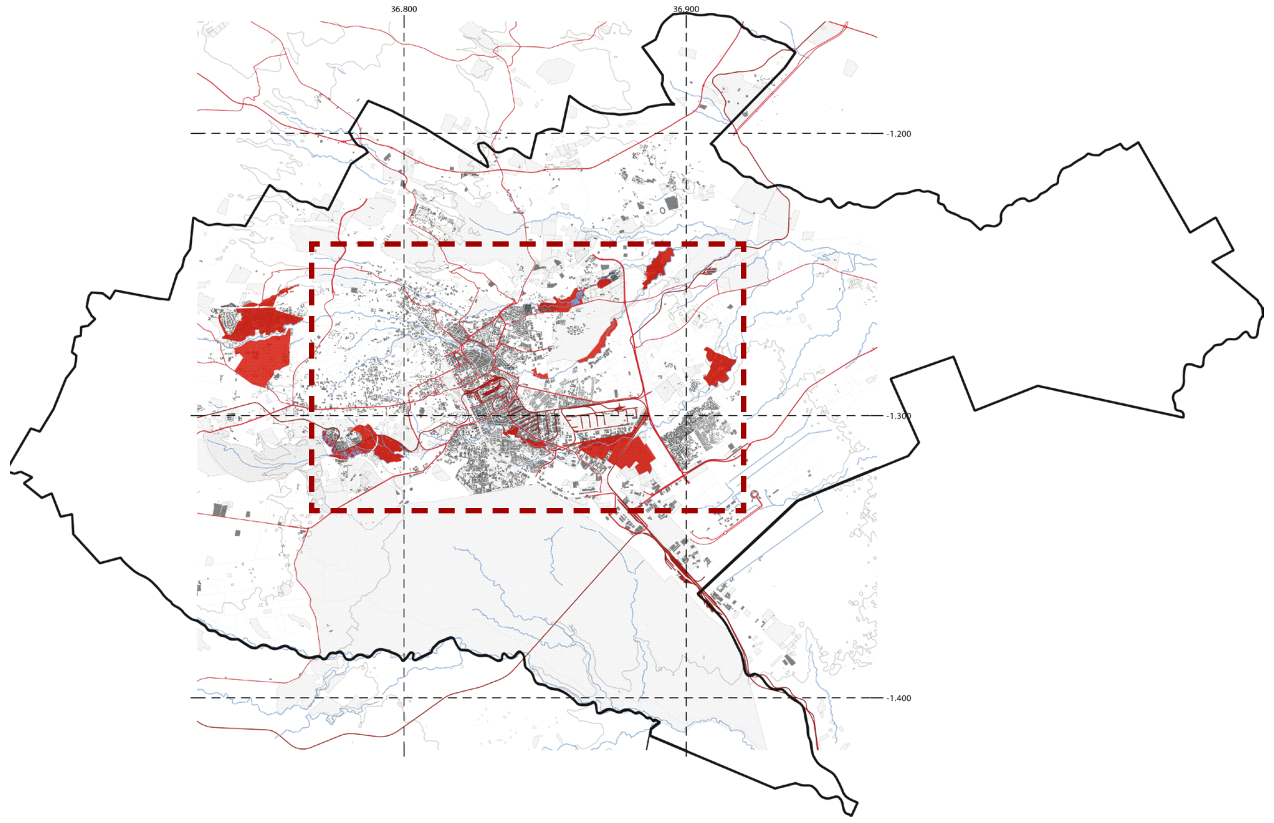
Mathare



Local Moran's I cluster map of Nairobi's population density (excluding the national park) in 2000, 2010, and 2020.



Relationship between population density and distance to Nairobi's city center.



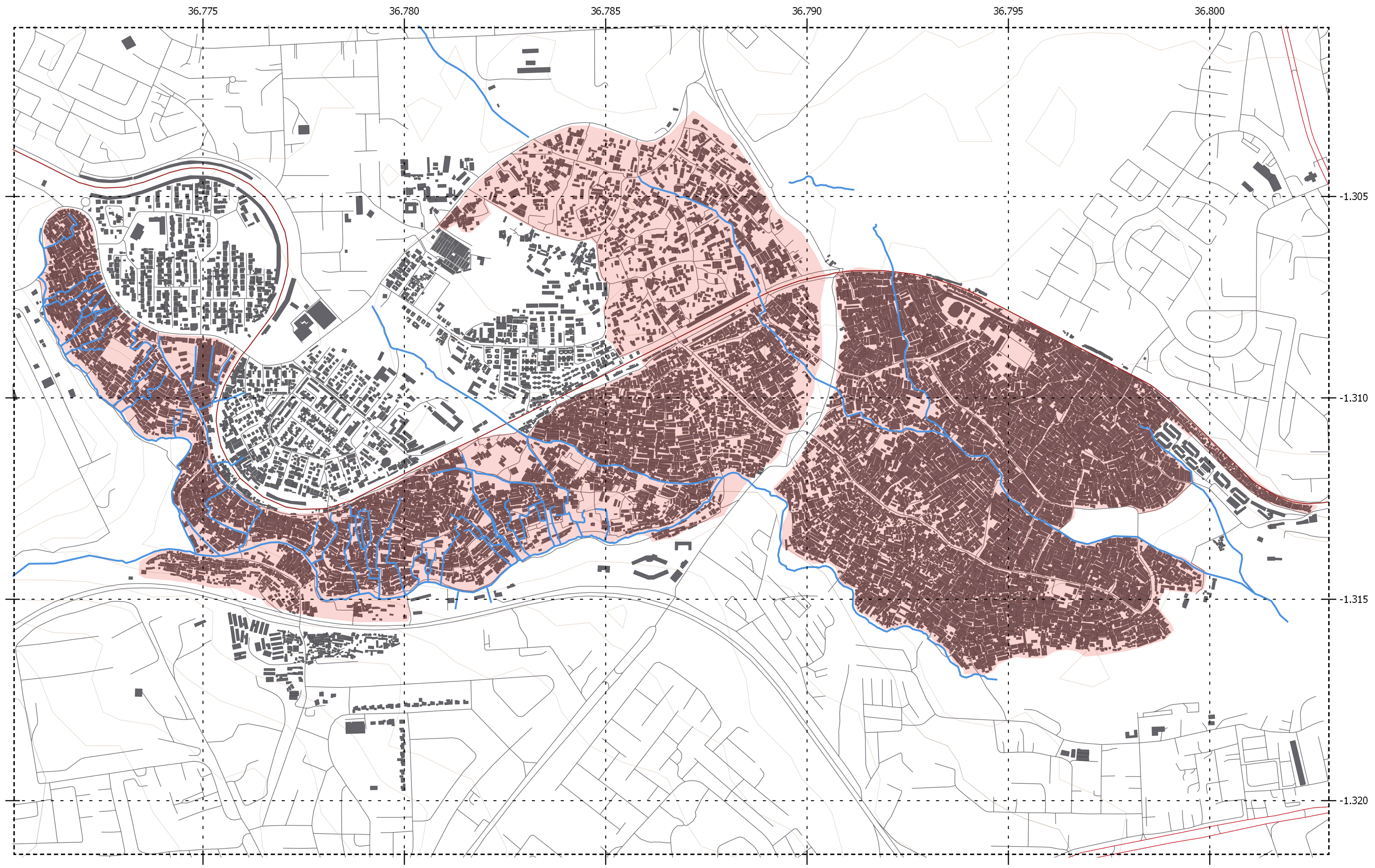
Nairobi City county

Nairobi's peripheries

Kibera

Viwandani

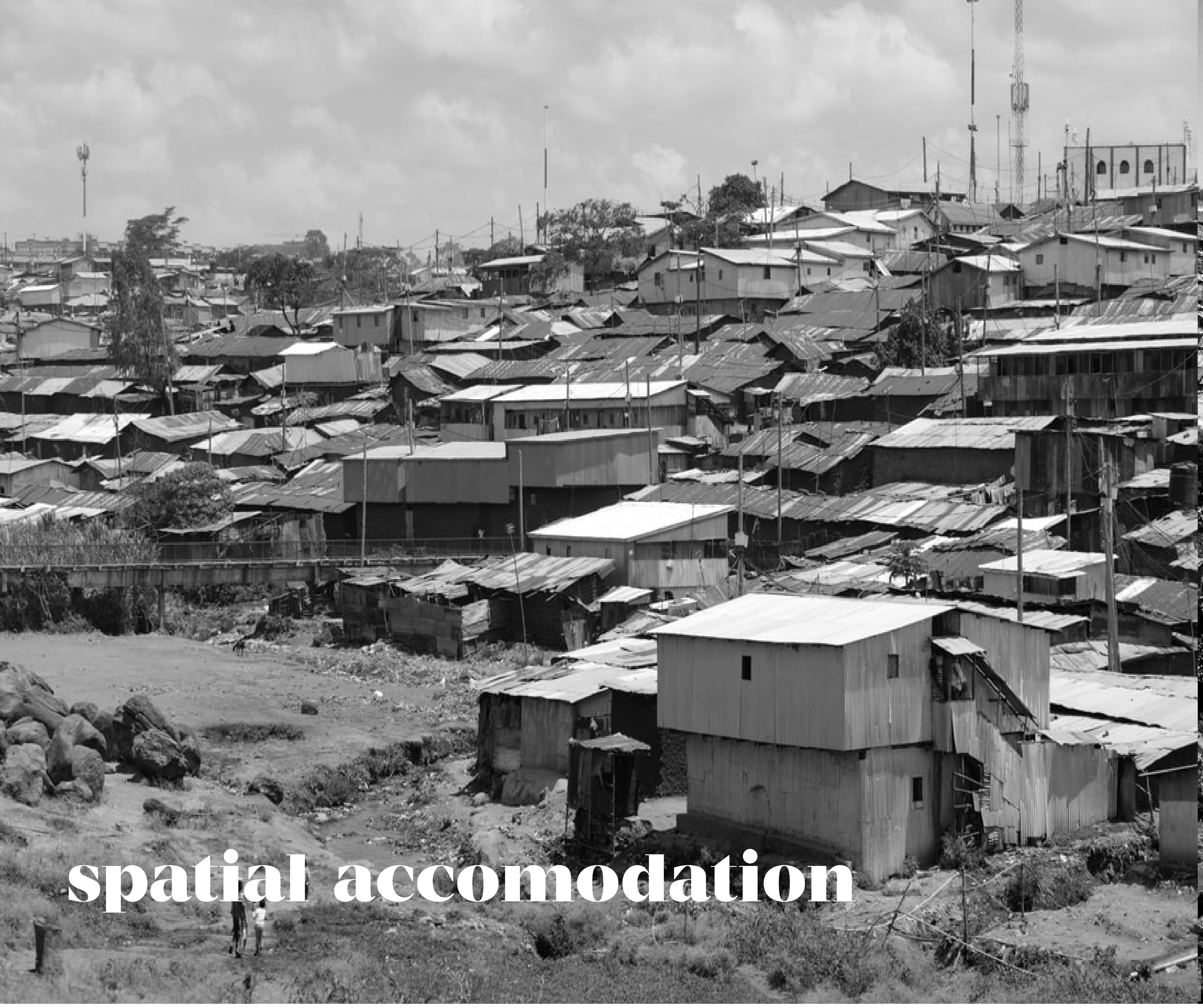
Mathare



Kibera settlement

Ngong river

Nairobi Railway


spatial accomodation



socio-economic activities
TCB SACCO

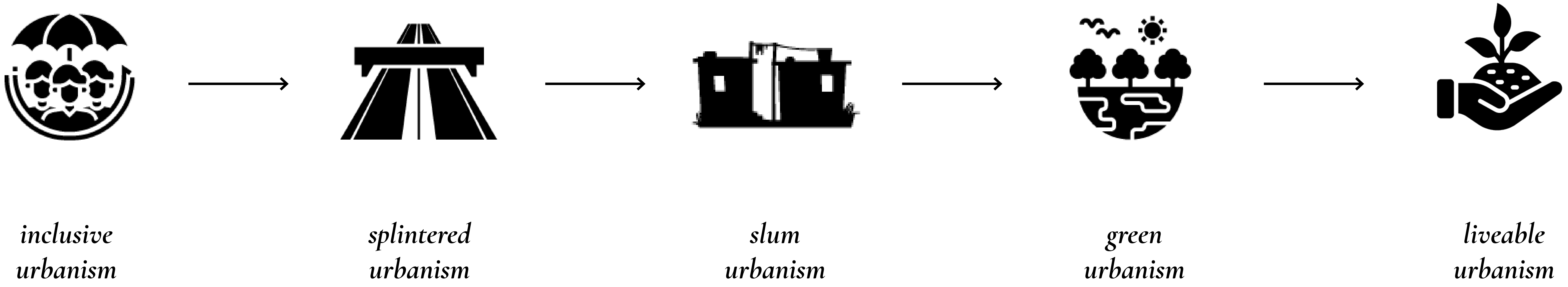
utopian modernist city visions

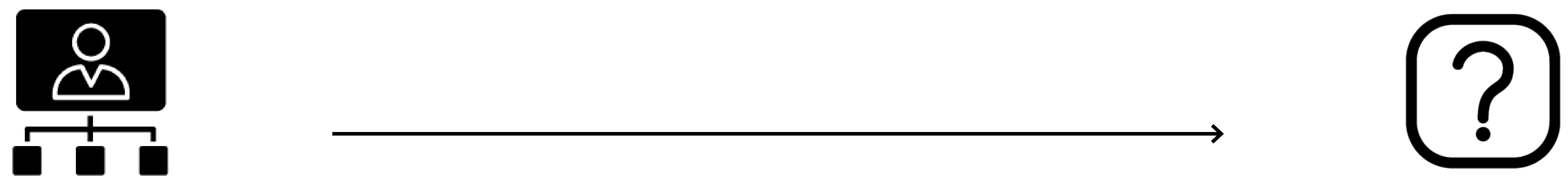
Westlands, Nairobi

proposed Railway city

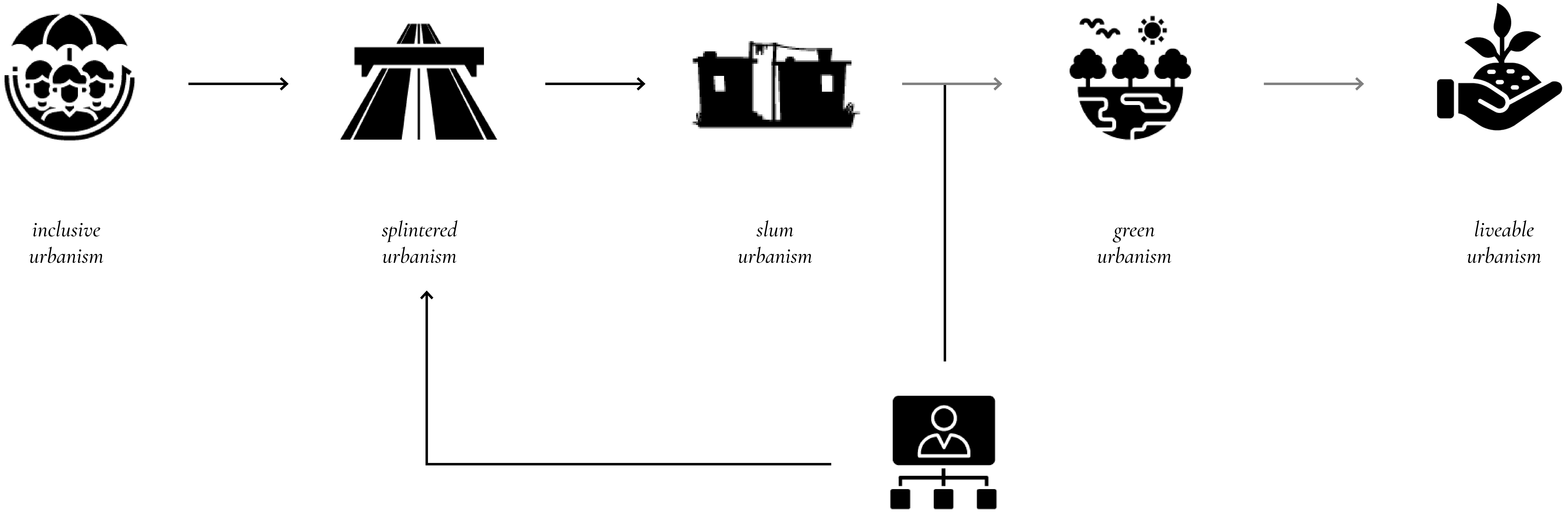
proposed Konza city

local realities


inclusive urbanism
splintered urbanism
slum urbanism
green urbanism
liveable urbanism



governance


inclusive urbanism
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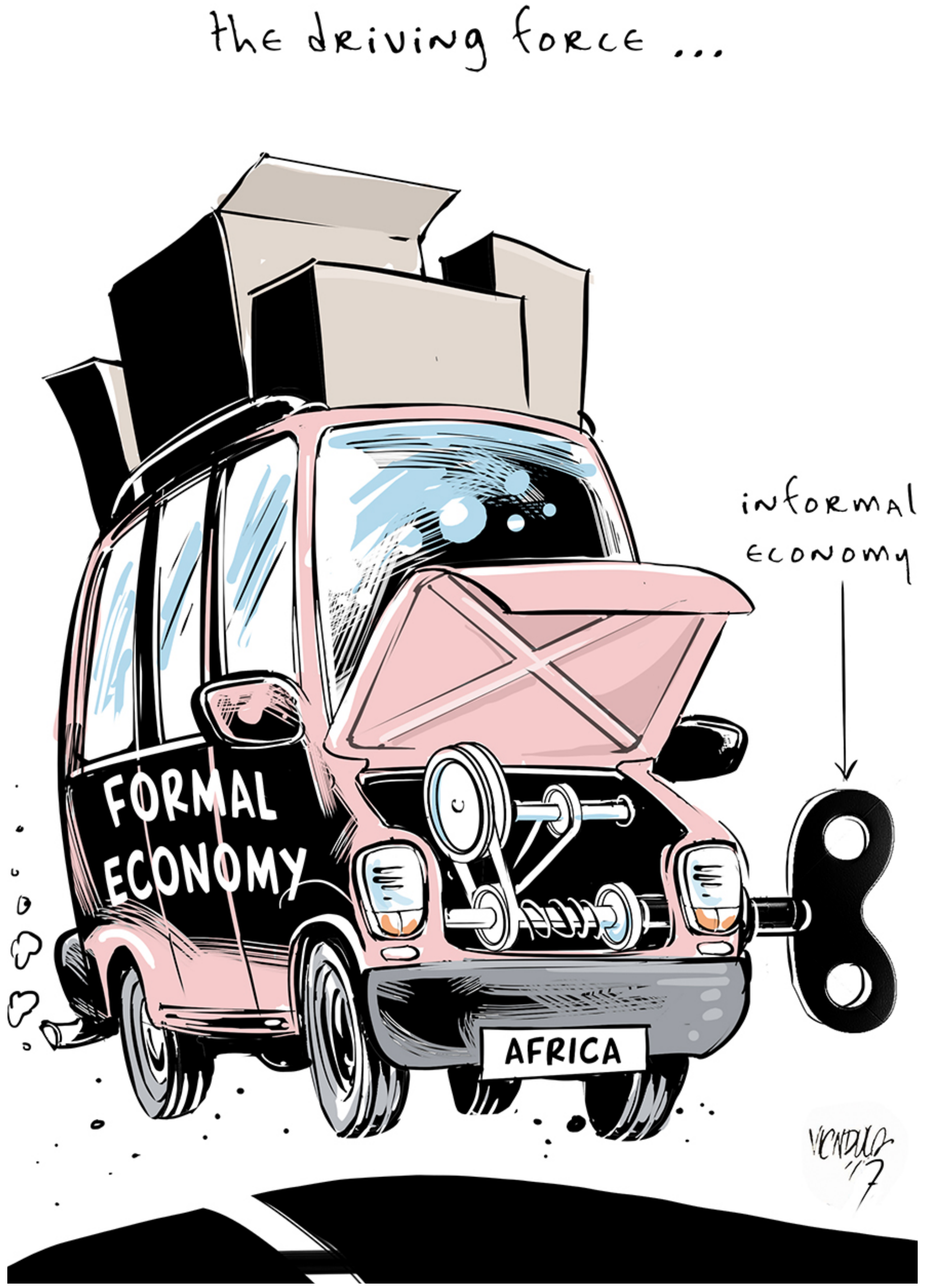
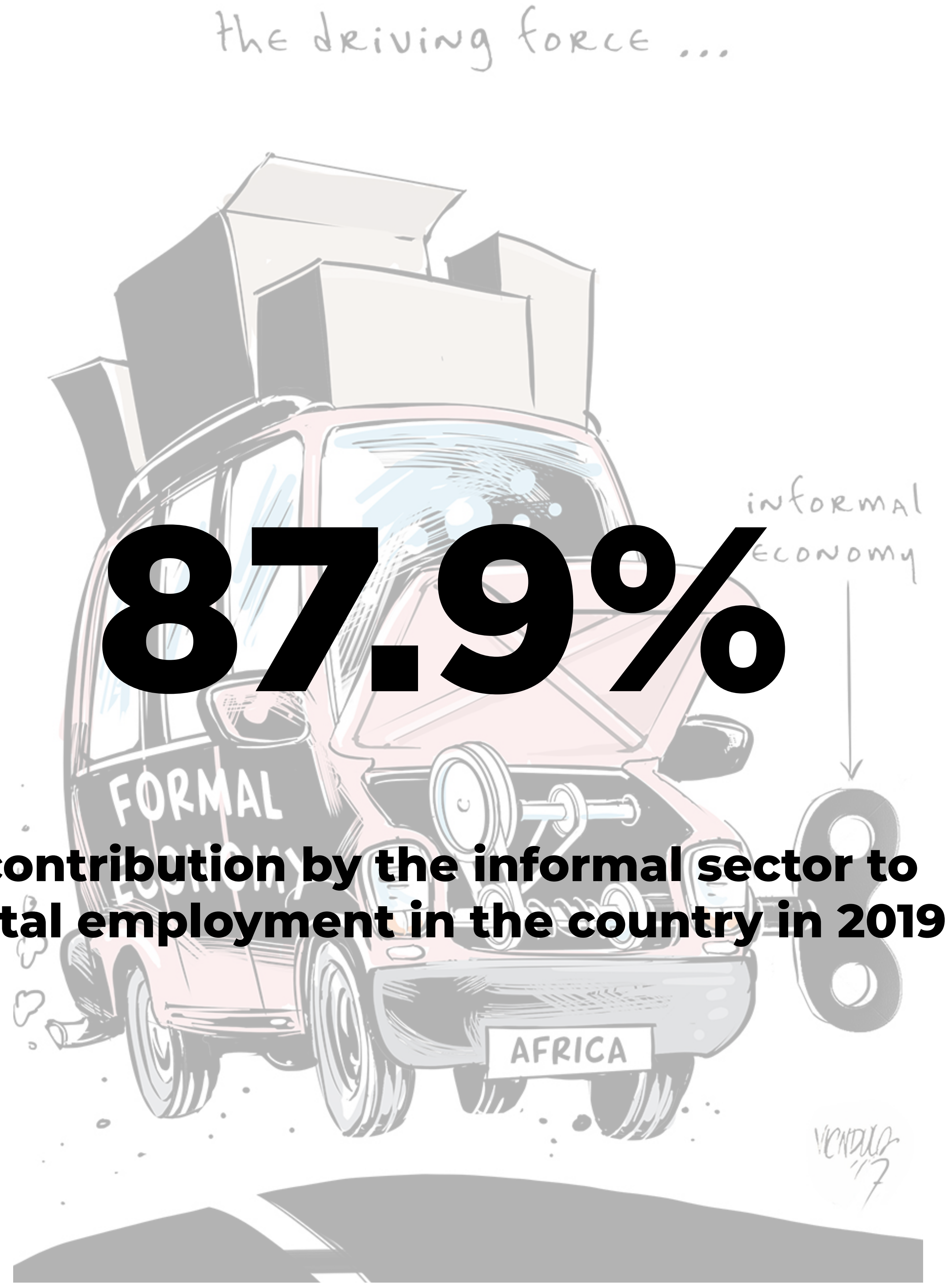
slum urbanism
green urbanism
liveable urbanism



local realities

Source: Ndula Cartoon, Issue 43

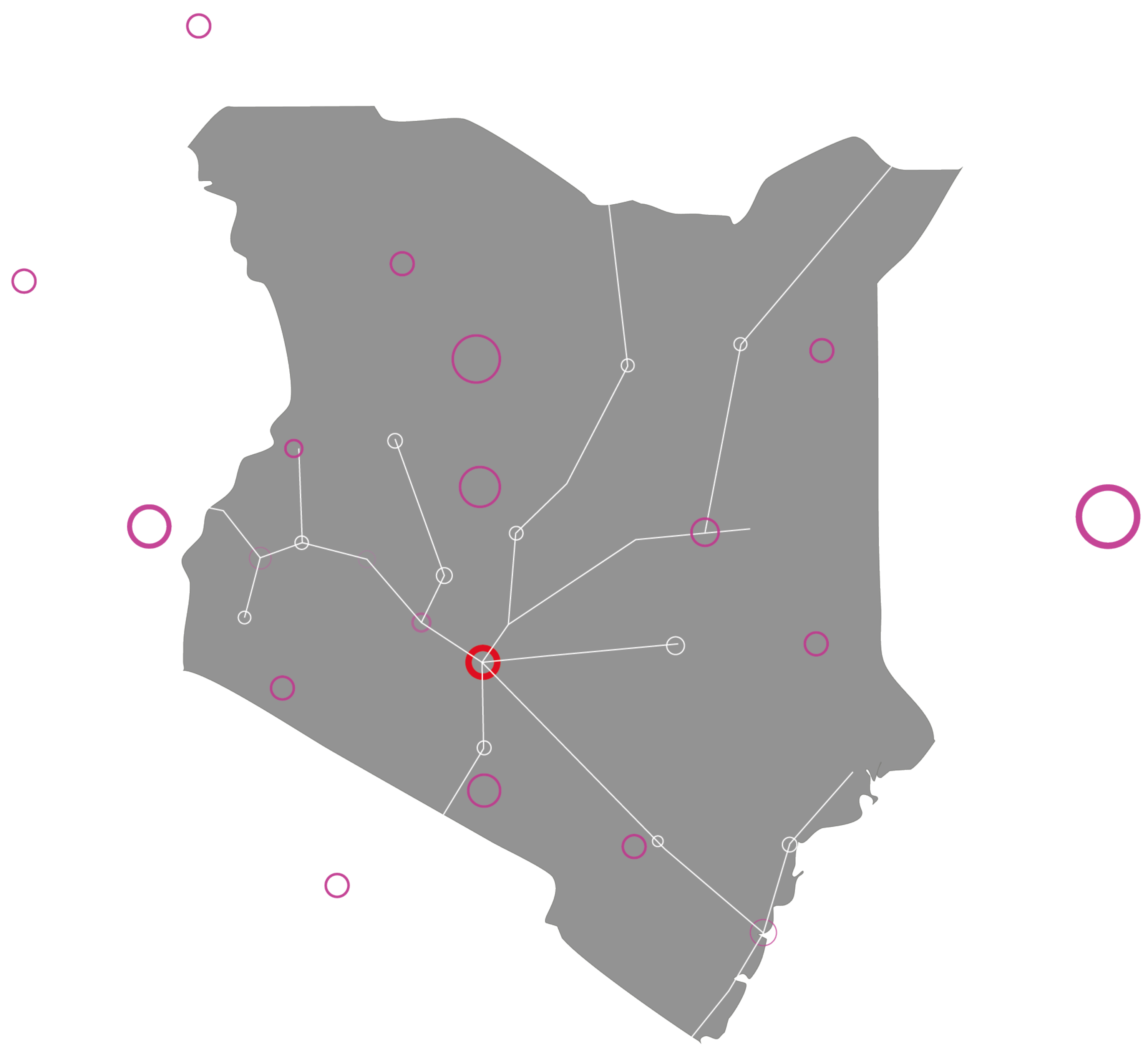


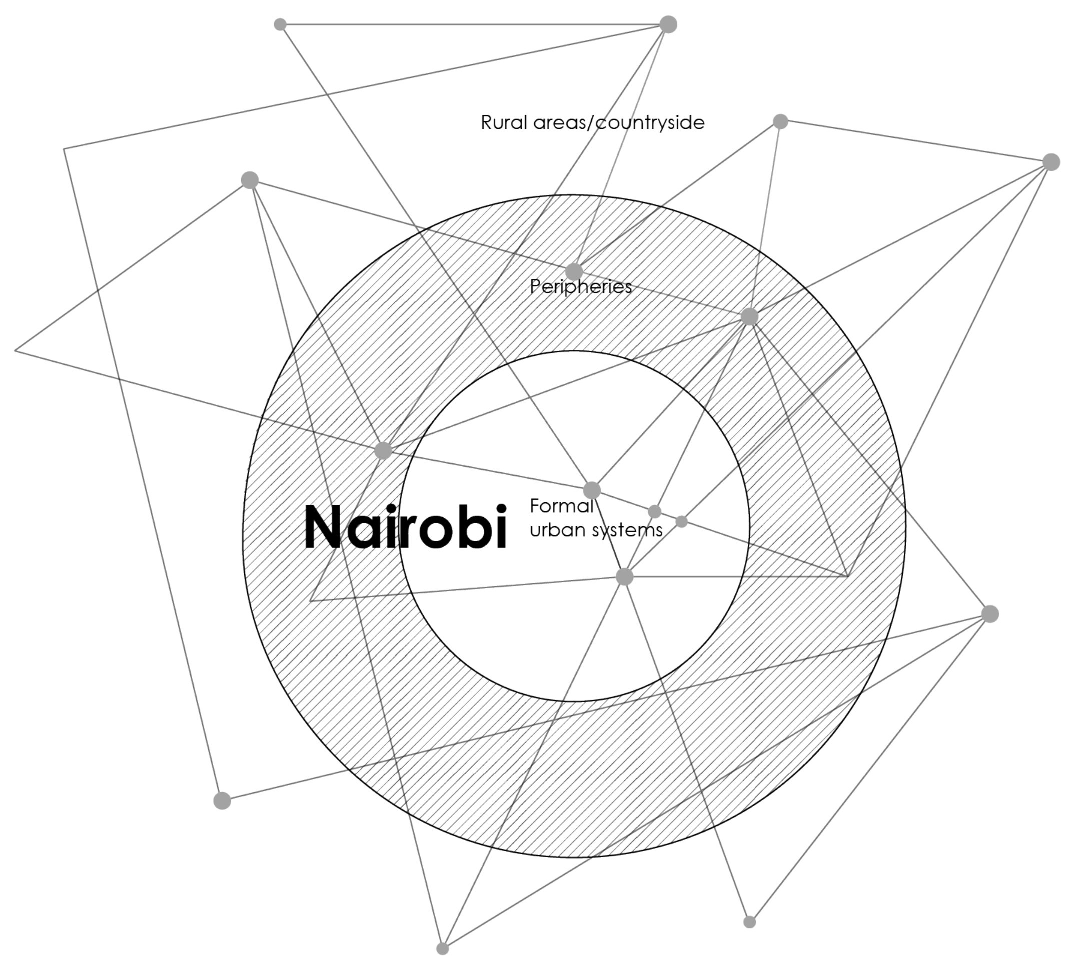
87.9%

contribution by the informal sector to total employment in the country in 2019

local realities

Source: Ndula Cartoon, Issue 43/ Kenya economic survey- KNBS, 2020

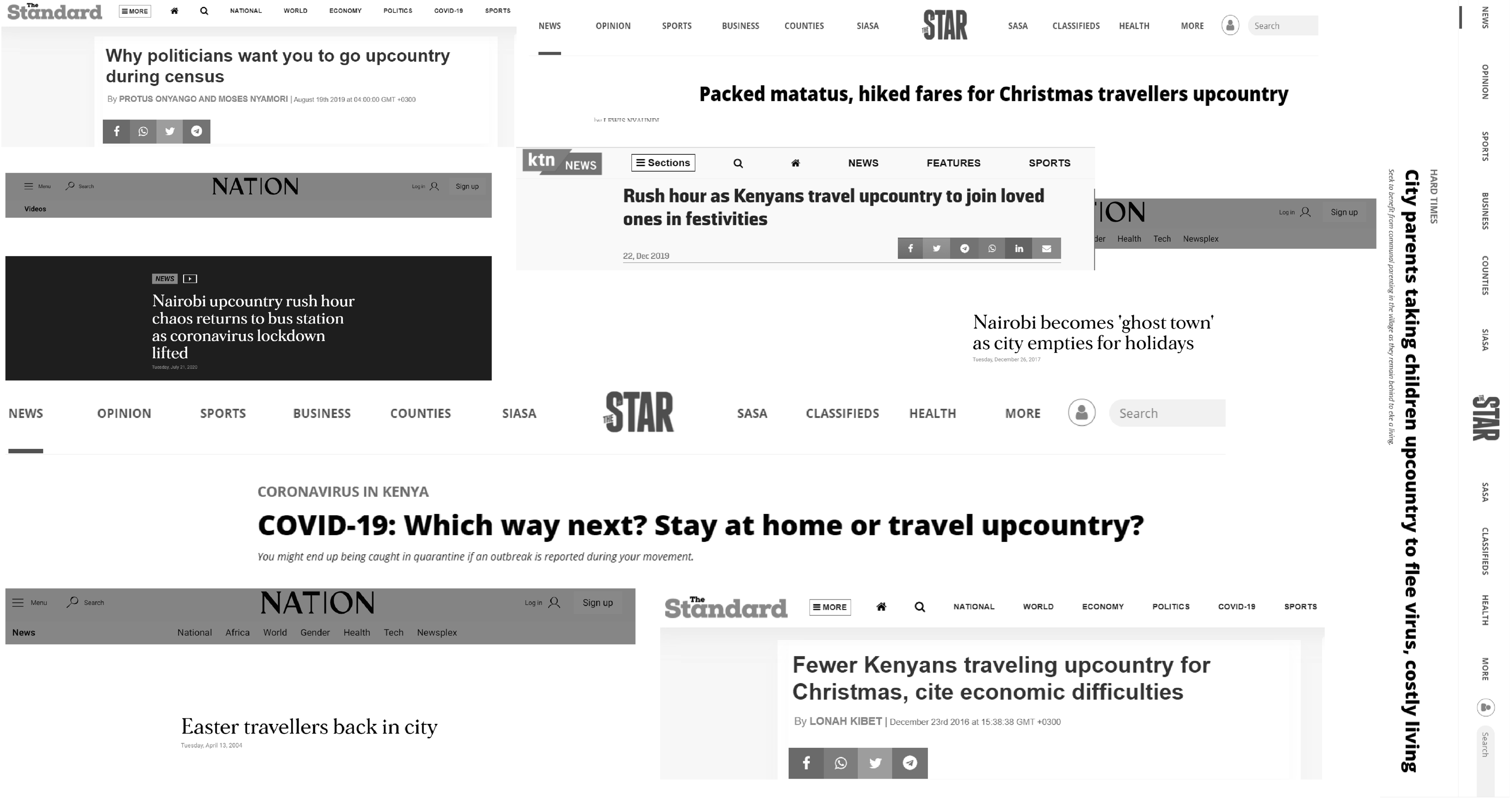




functional node in a **regional network**

of flows for **goods,**

services and people.


The Standard
Why politicians want you to go upcountry during census
By PROTUS ONYANGO AND MOSES NYAMORI | August 19th 2019 at 04:00:00 GMT +0300
The STAR
Packed matatus, hiked fares for Christmas travellers upcountry
ktn NEWS
Rush hour as Kenyans travel upcountry to join loved ones in festivities
22, Dec 2019
NATION
Nairobi upcountry rush hour chaos returns to bus station as coronavirus lockdown lifted
Nairobi becomes 'ghost town' as city empties for holidays
HARD TIMES
City parents taking children upcountry to flee virus, costly living
CORONAVIRUS IN KENYA
COVID-19: Which way next? Stay at home or travel upcountry?
You might end up being caught in quarantine if an outbreak is reported during your movement.
Easter travellers back in city
Fewer Kenyans traveling upcountry for Christmas, cite economic difficulties
By LONAH KIBET | December 23rd 2016 at 15:38:38 GMT +0300

ethnic

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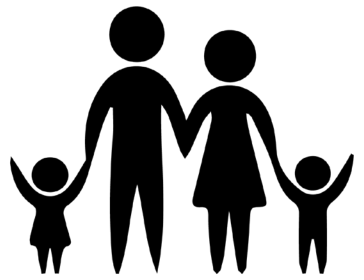

family

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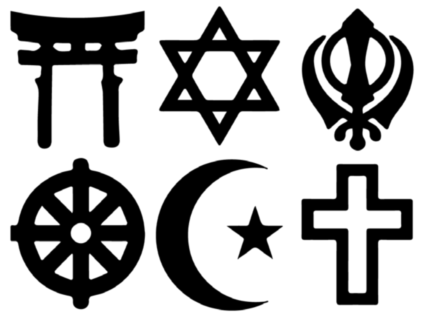
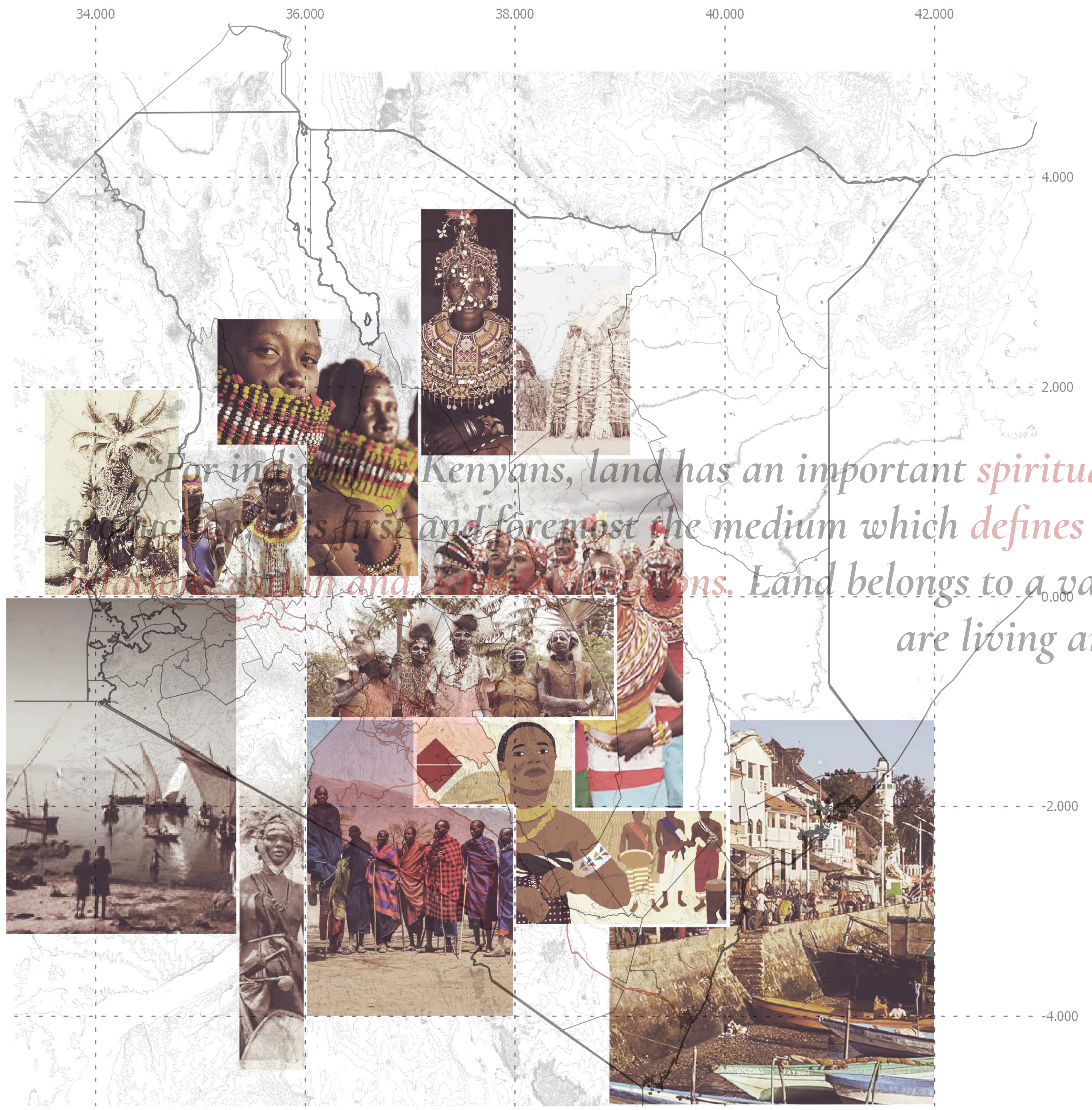


religious

"For indigenous Kenyans, land has an important spiritual value, for it is not merely a factor of production; it is first and foremost the medium which defines and binds together social and spiritual relations within and across generations. Land belongs to a vast family of which many are dead, few are living and countless members are still unborn"

(Njonjo Commission Report 2002:19)



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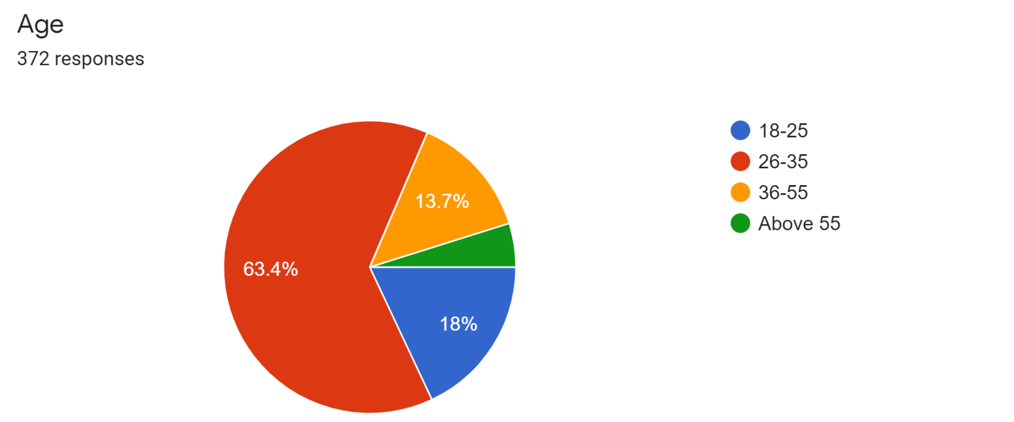
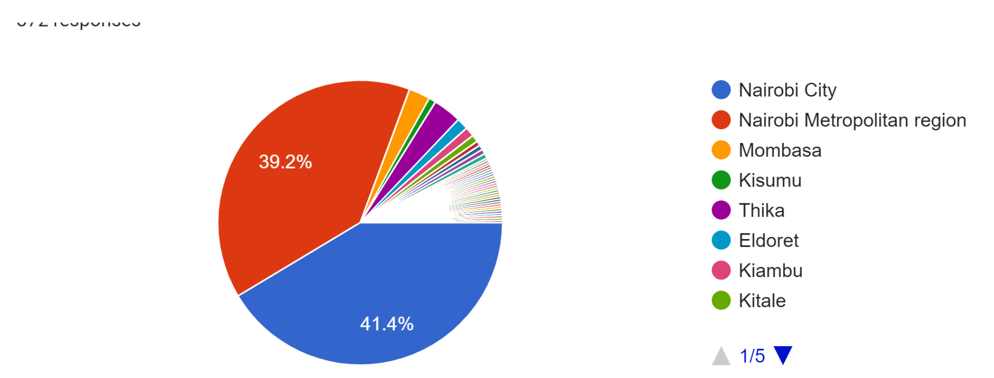
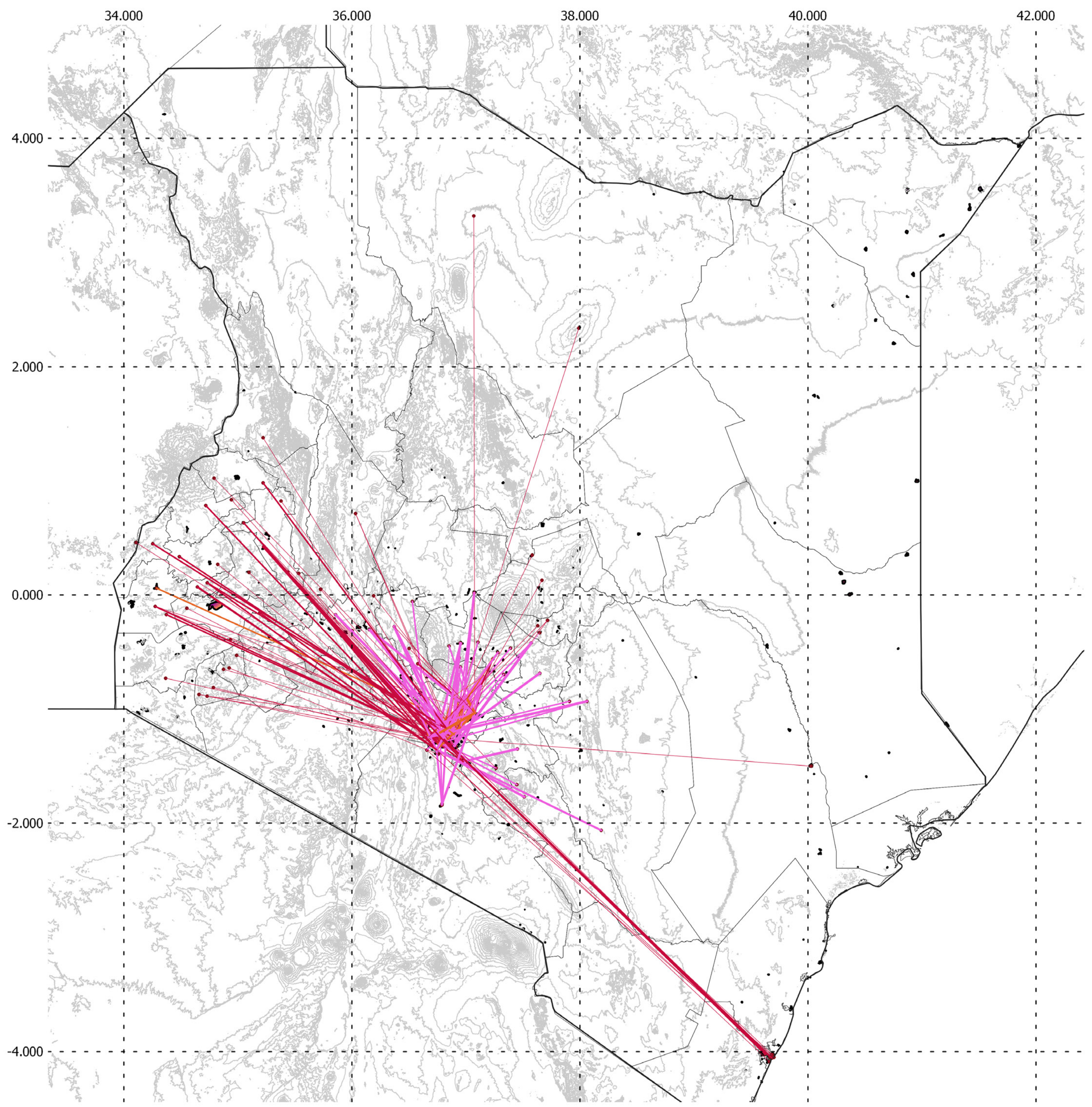
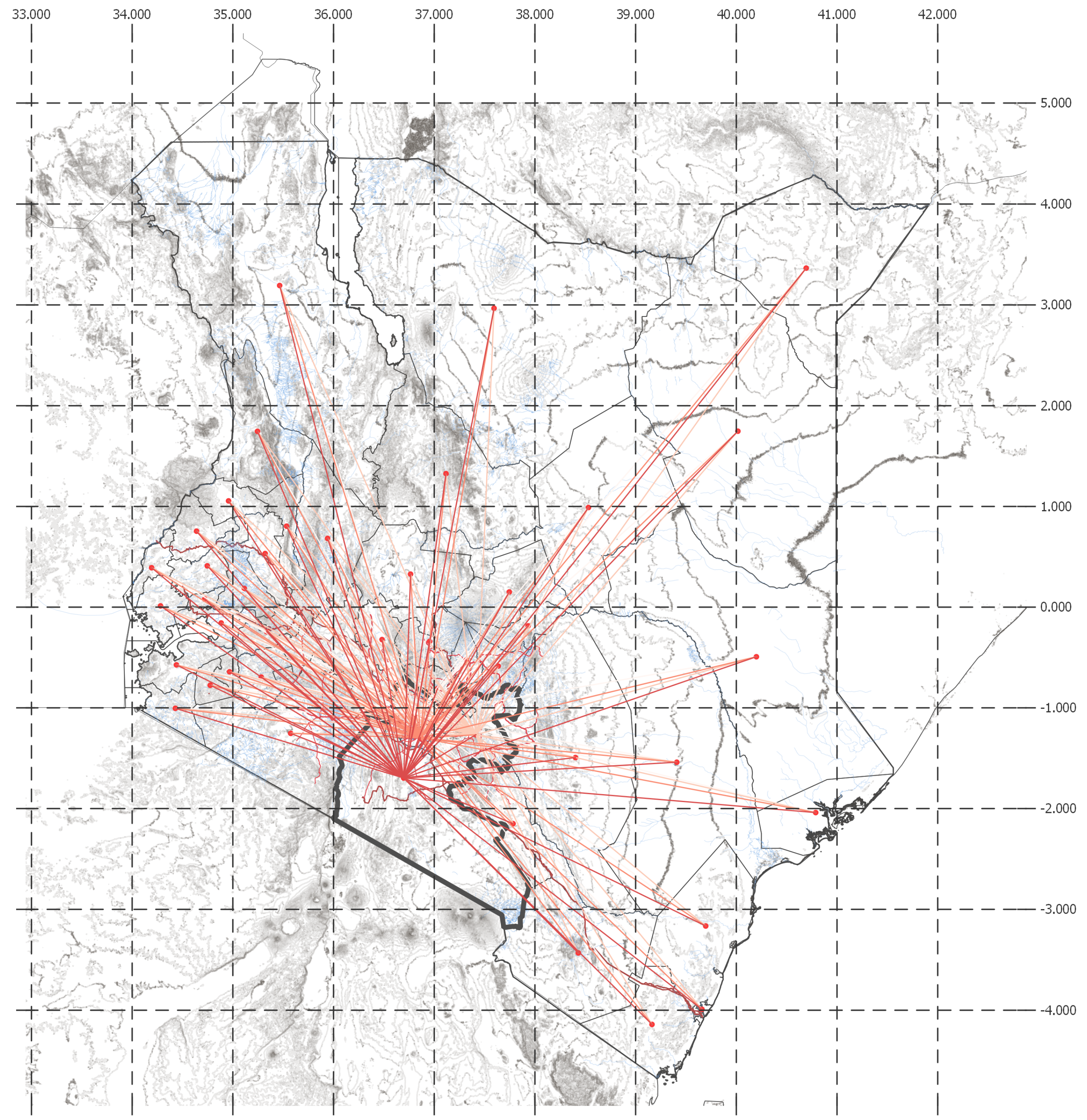






Online questionnaire responses



UN Internal migration data for Kenya, filtered for Nairobi region

Kenya Internal Migration Flows, Nairobi Metropolitan (2000-2015) Source; www.migrationdataportal.org

Agriculture

Energy

Tourism

"Agriculture remained the dominant sector, accounting for slightly over a third of the total value of the economy." (KNBS, 2020)

34.1% **of GDP in 2019**

Small-scale agriculture
Subsistence farming > commercial farming

Agriculture

Agriculture

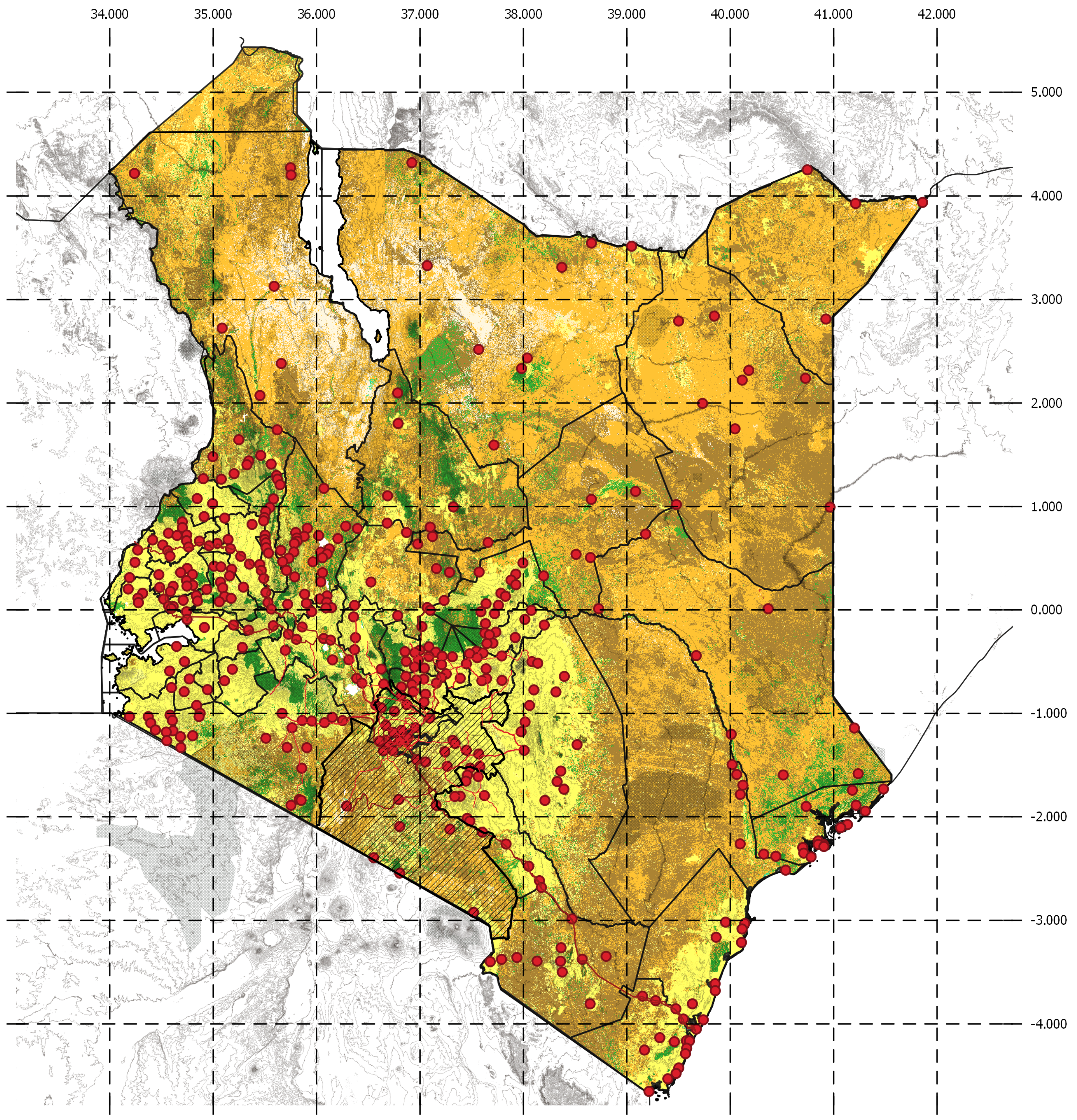
Subsistence farming

small scale retail trading

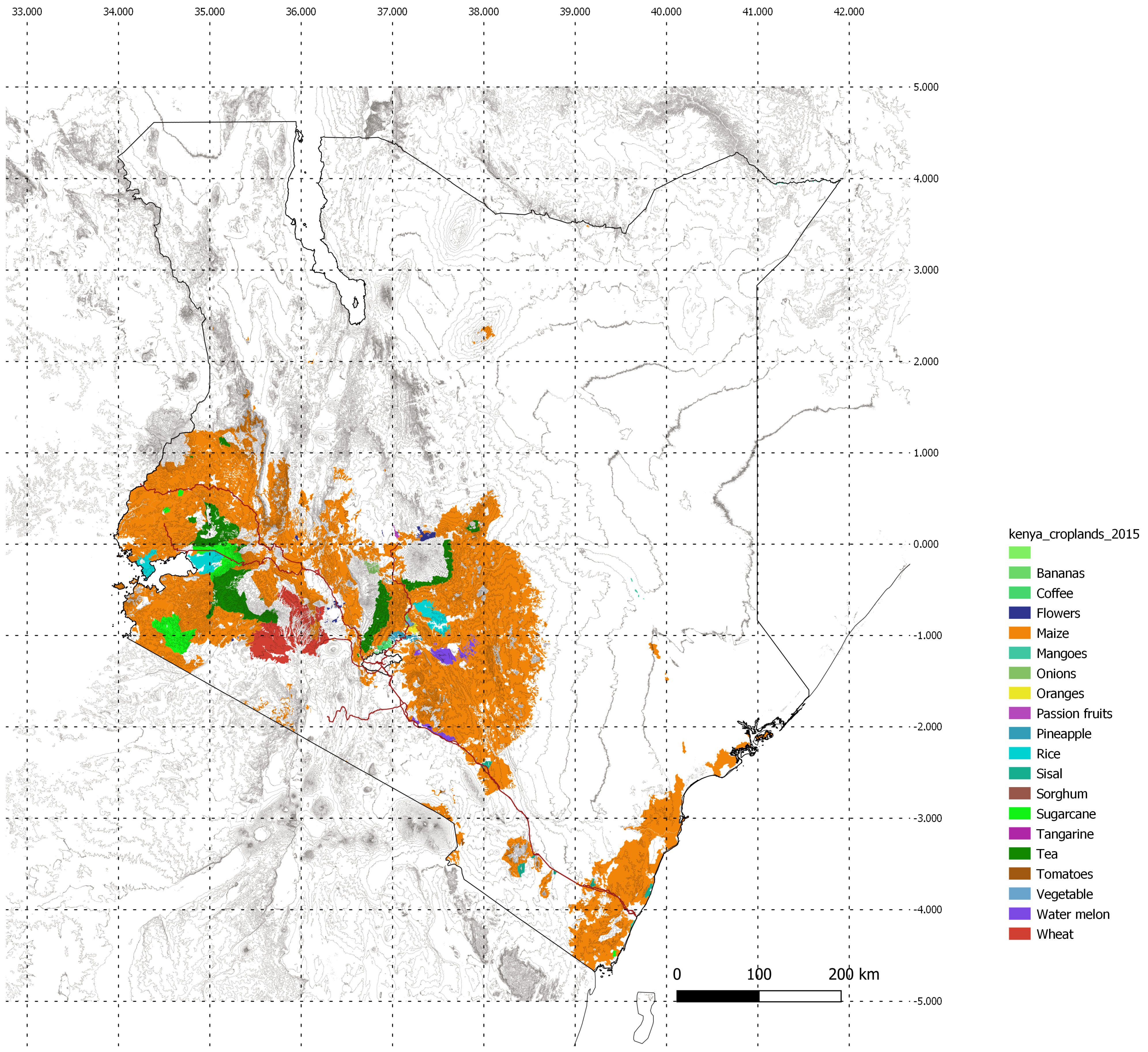
Urban Agriculture/farming less than 20%

Source: https://www.scidev.net/sub-saharan-africa/news/urban-agriculture-could-transform-food-security/

Regional farming practices

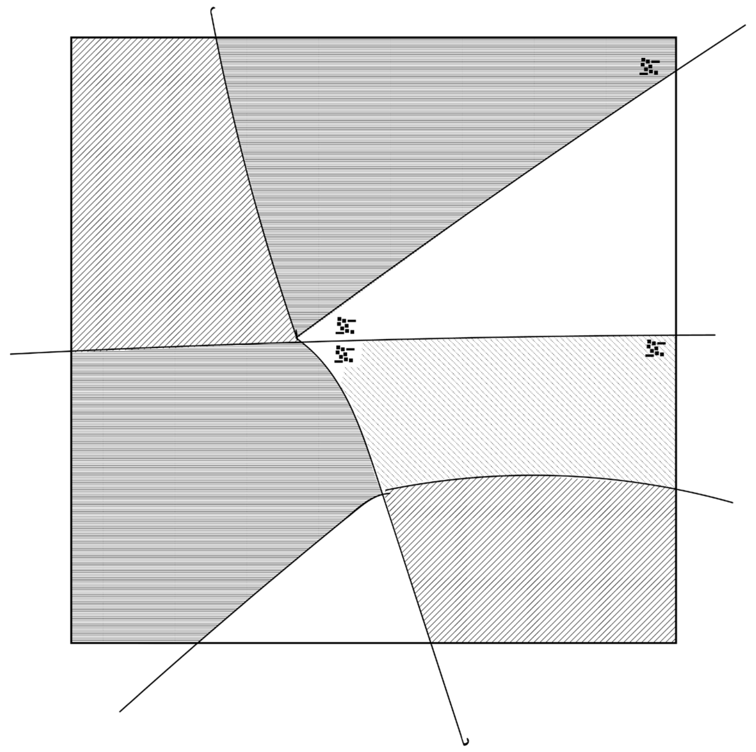


Distribution of population across the productive agroecological landscapes

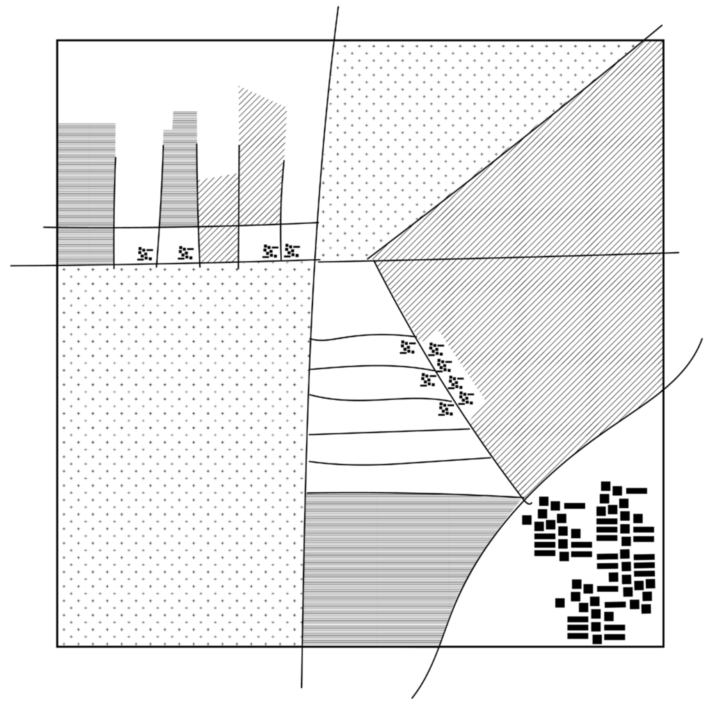


Distribution of cropland in the agroecological production zones of Kenya showing the extent of monocrop cultivation currently undertaken in the region.

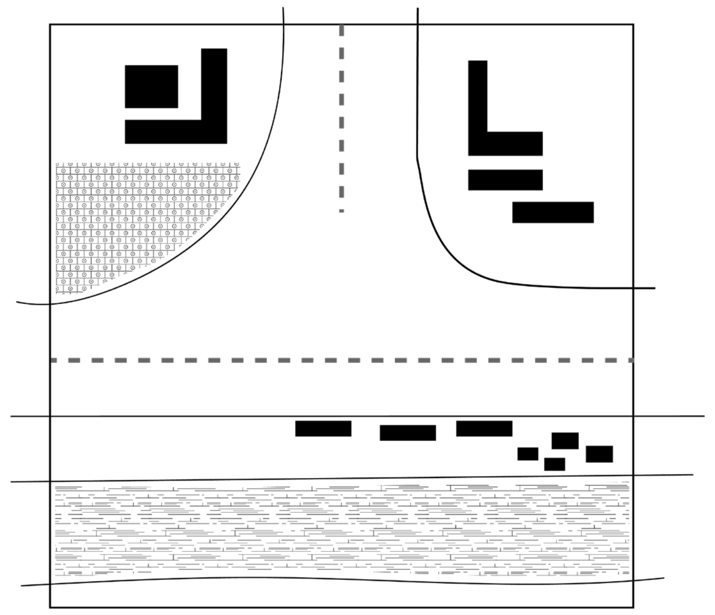

Rural
Peri-urban
Urban



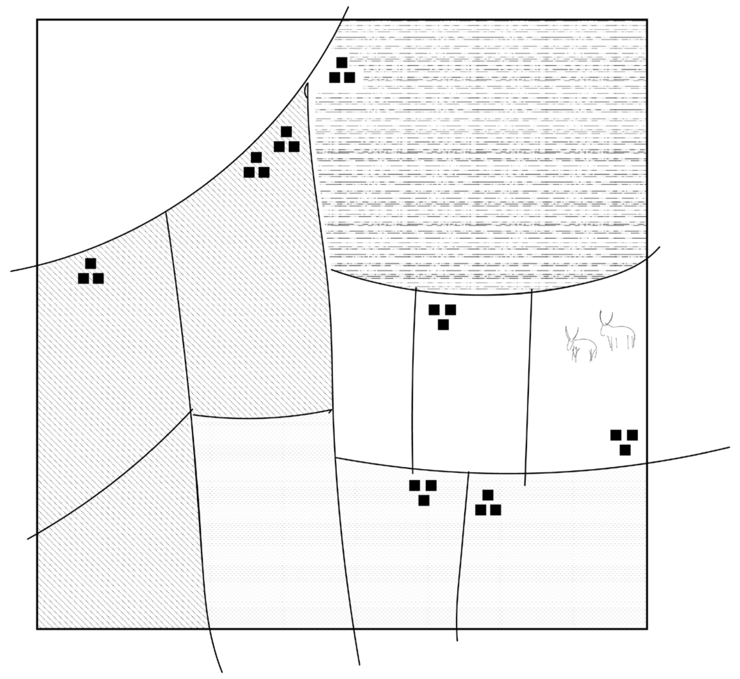
rural large-scale industrial producers



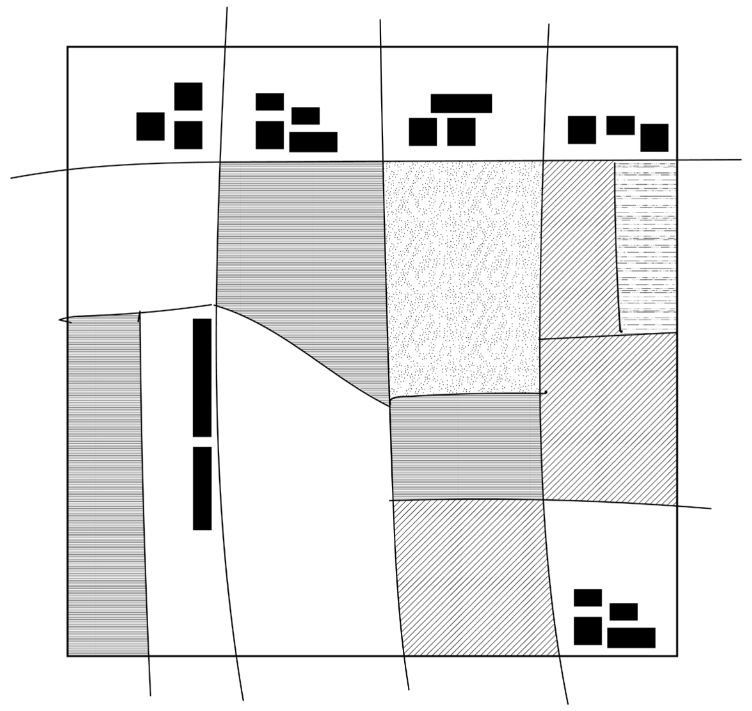
peri-urban large-scale industrial producers



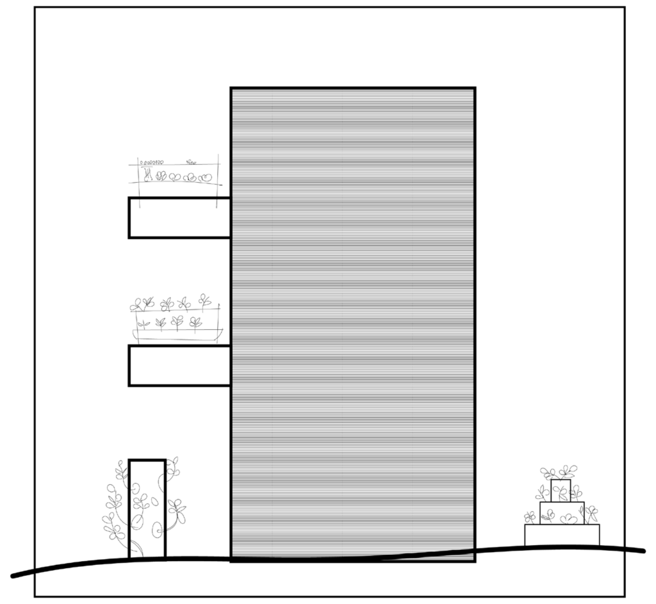
urban small-scale informal commercial producers



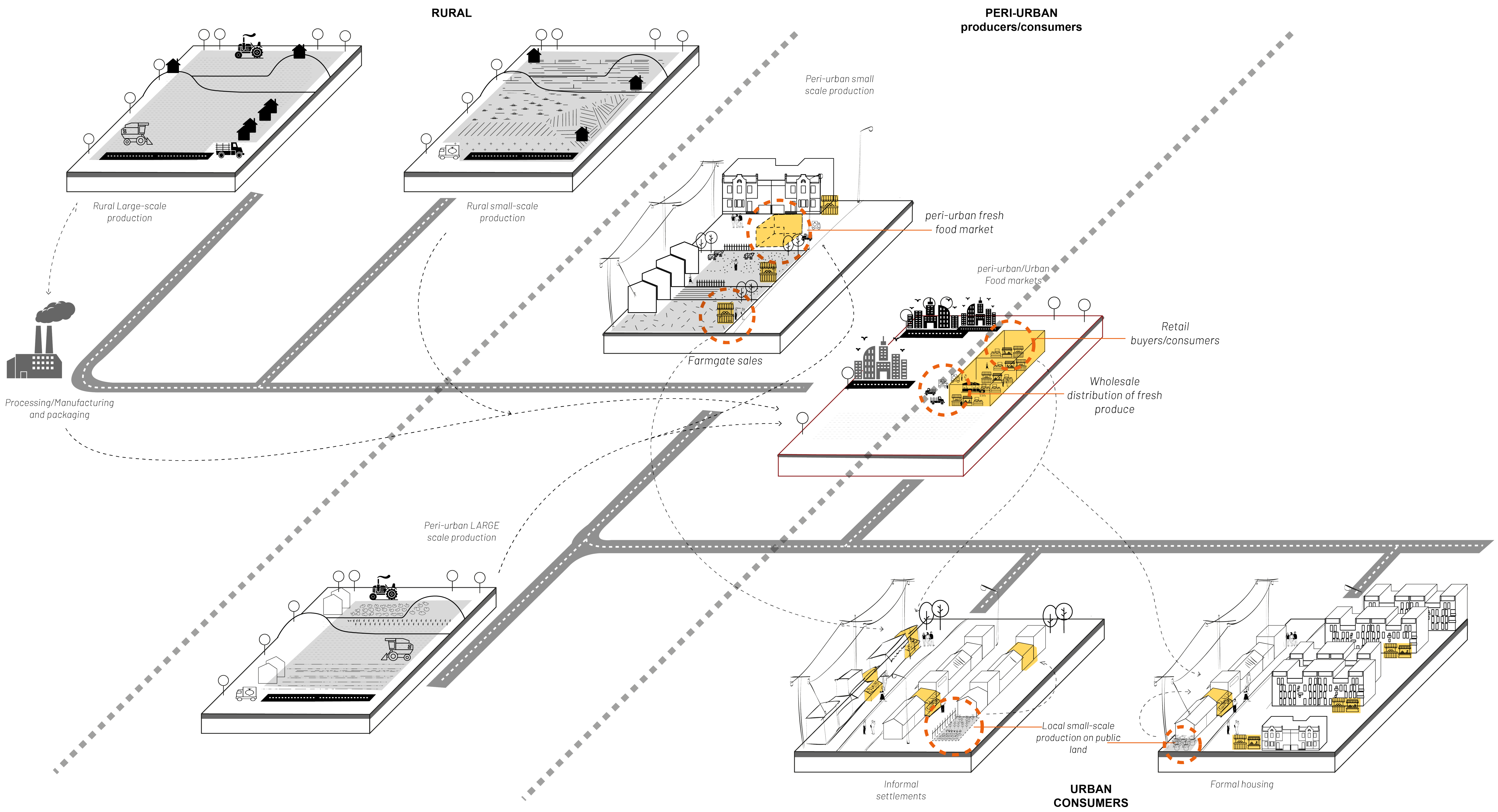
rural small-scale commercial &
subsistence producers



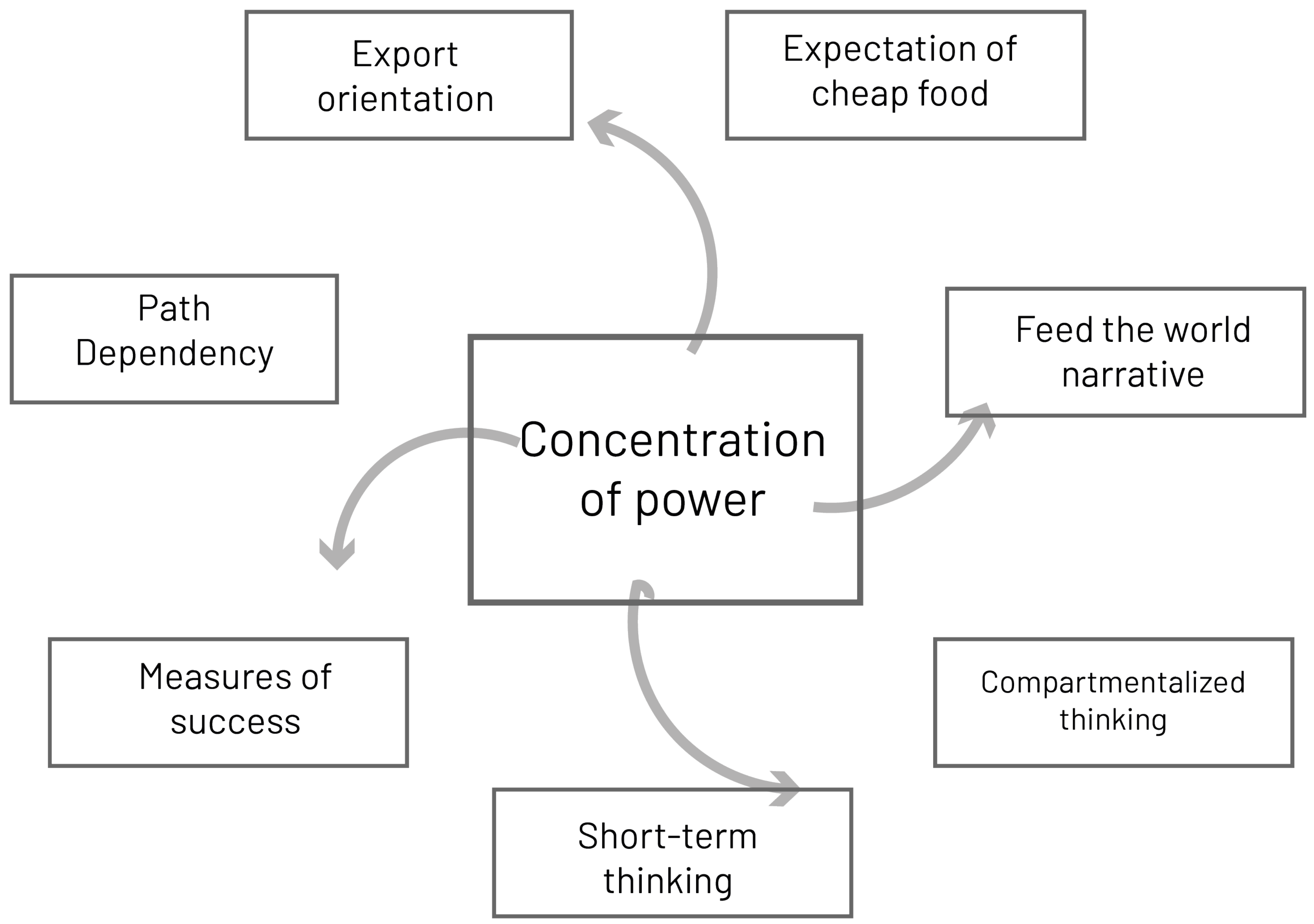
peri-urban small-scale commercial &
subsistence producers

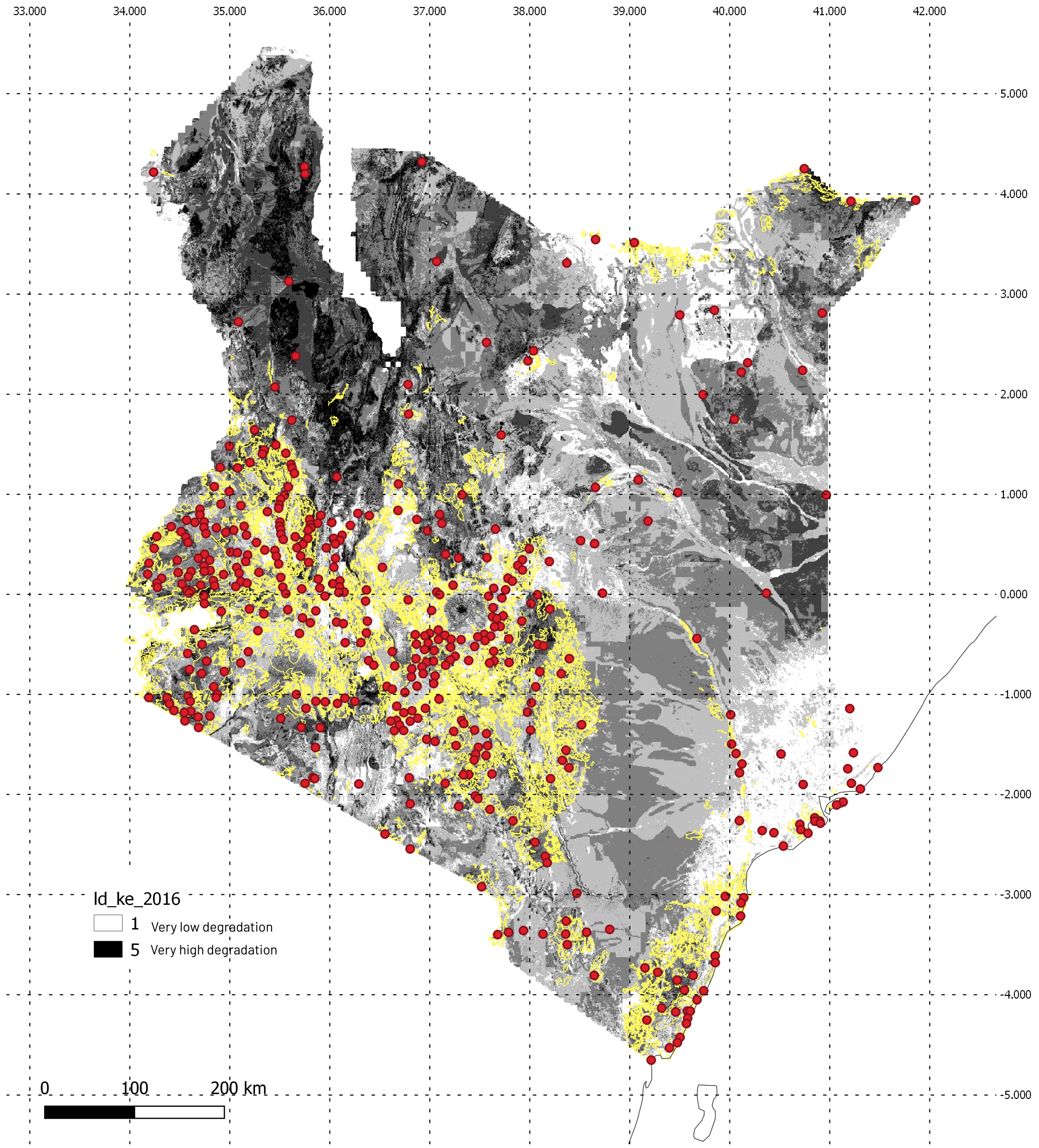


urban small-scale subsistence pro-
ducers


RURAL
PERI-URBAN
producers/consumers
Peri-urban small
scale production
Rural Large-scale
production
Rural small-scale
production
peri-urban fresh
food market
peri-urban/Urban
Food markets
Retail
buyers/consumers
Wholesale
distribution of fresh
produce
Farmgate sales
Processing/Manufacturing
and packaging
Peri-urban LARGE
scale production
Local small-scale
production on public
land
Informal
settlements
URBAN
CONSUMERS
Formal housing

8 Key Lock-ins of industrial agriculture





Distribution of population across the productive agroecological landscapes overlayed on the soil degradation index map showing extent of soil degradation across the region

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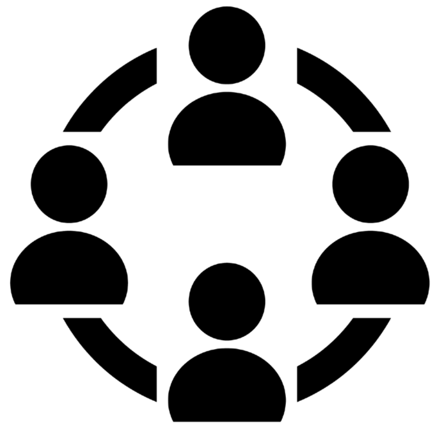

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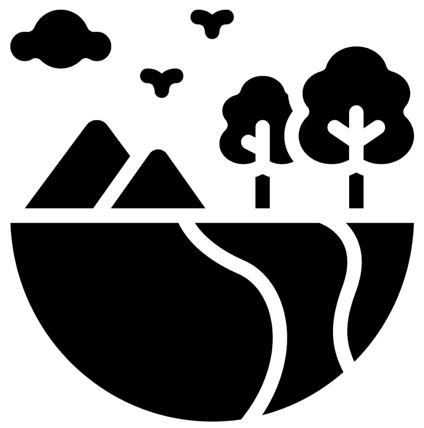


agro-food systems

network of actors involved

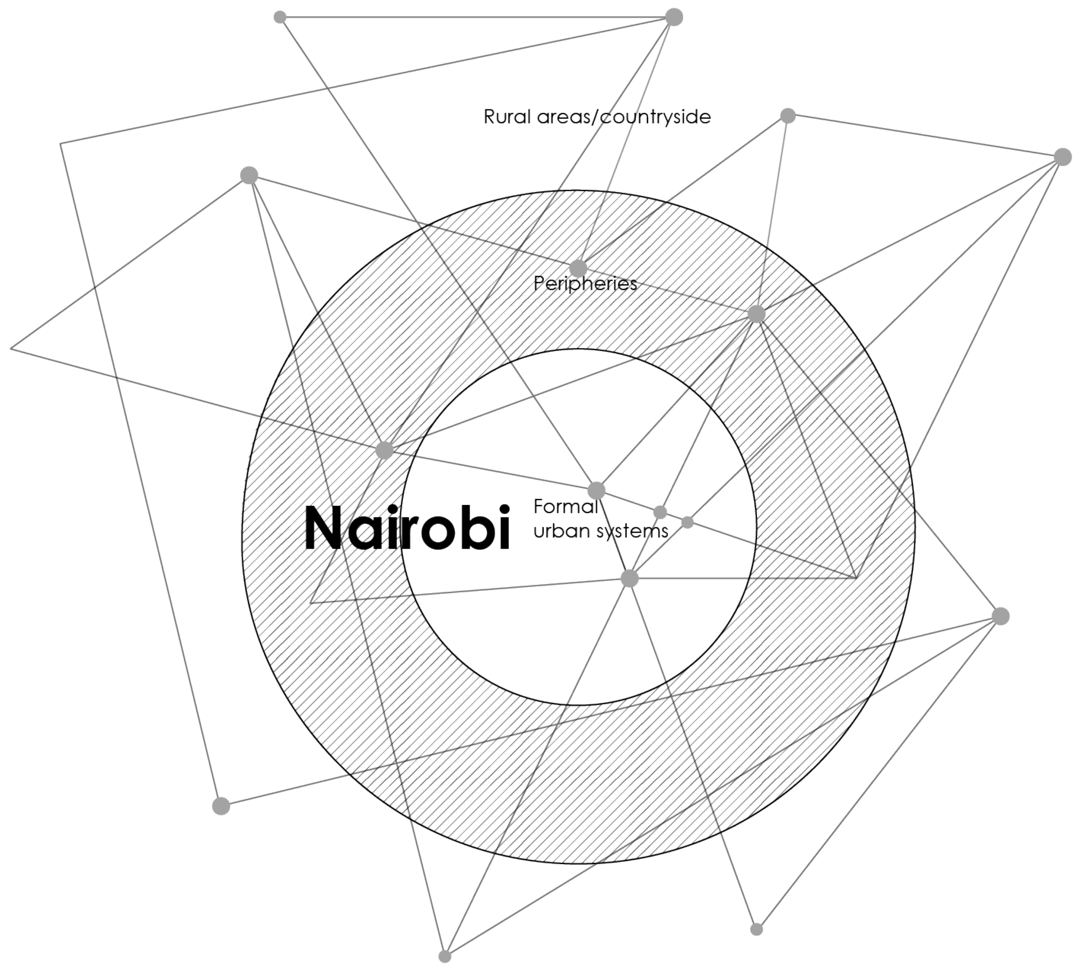
environment

agroecology

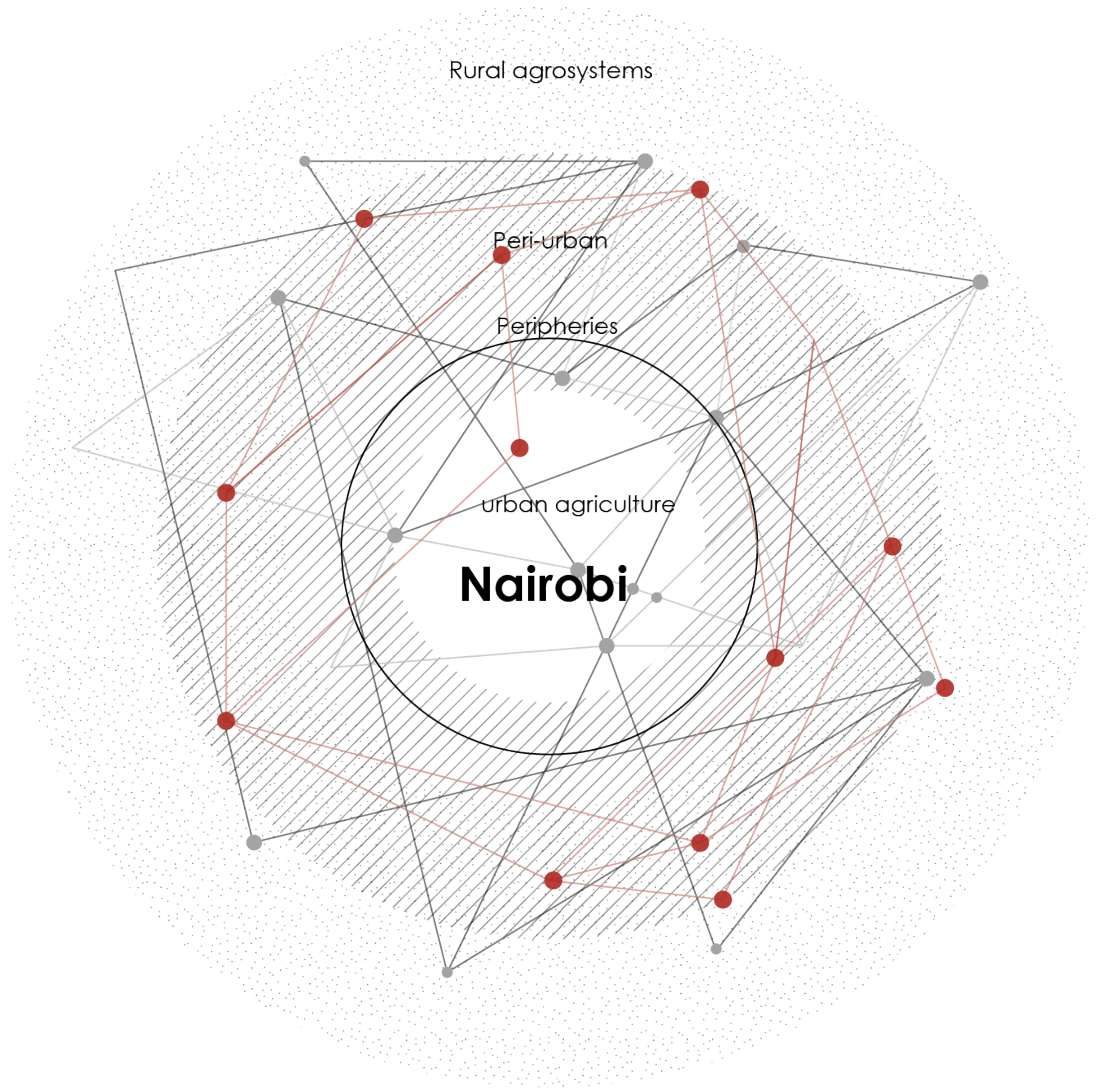
is "not just an agricultural method: it is a 'package' of value-based practices which are explicitly addressing social and environmental justice, are culturally sensitive, non-extractive, resource conserving, and rooted in non-hierarchical and inclusive pedagogical and educational models that shape the way food is produced and socialised across communities and generations."

Tornaghi and Dehaene (2020)

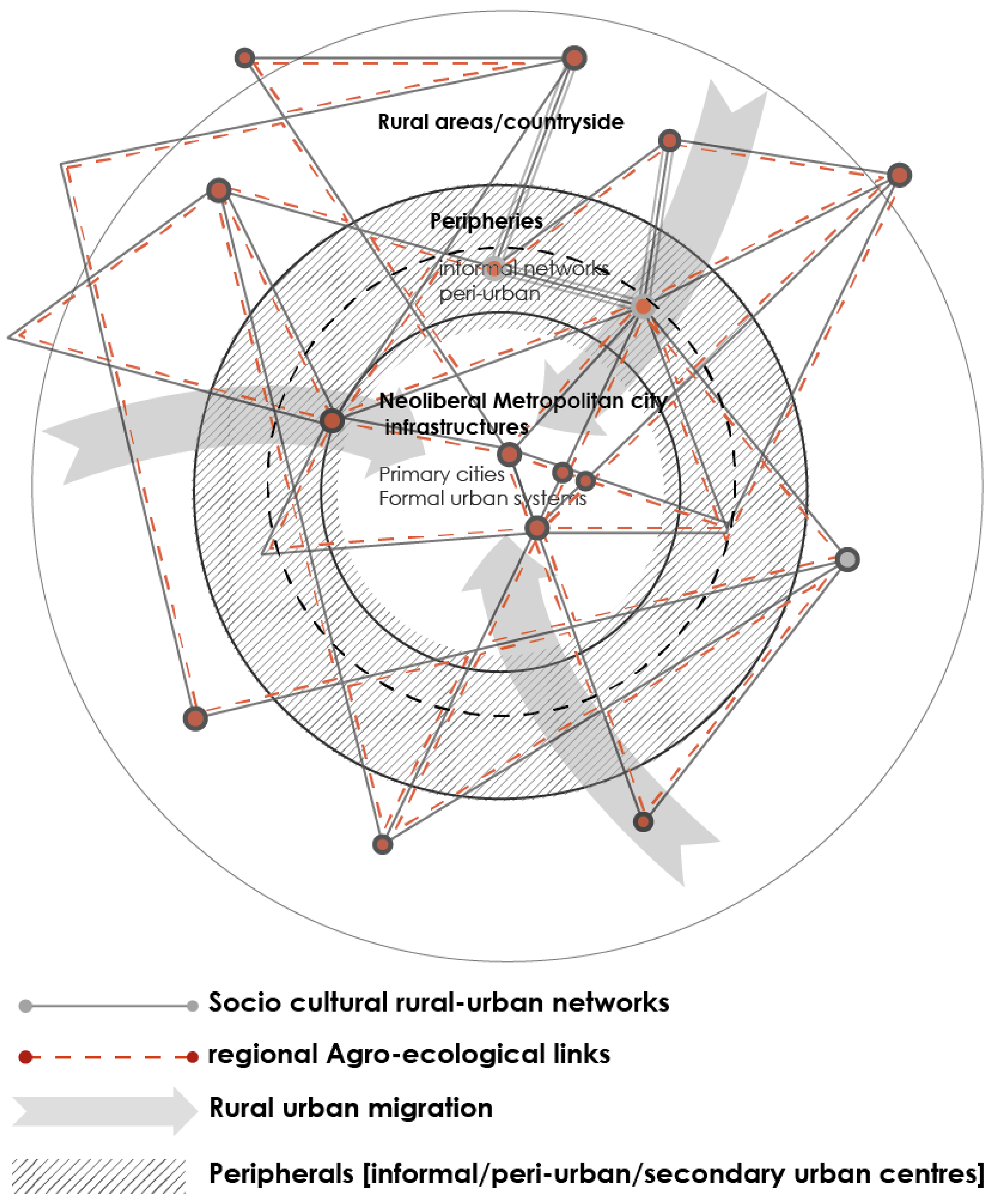
Source: https://www.soilassociation.org/causes-campaigns/a-ten-year-transition-to-agroecology/what-is-agroecology/



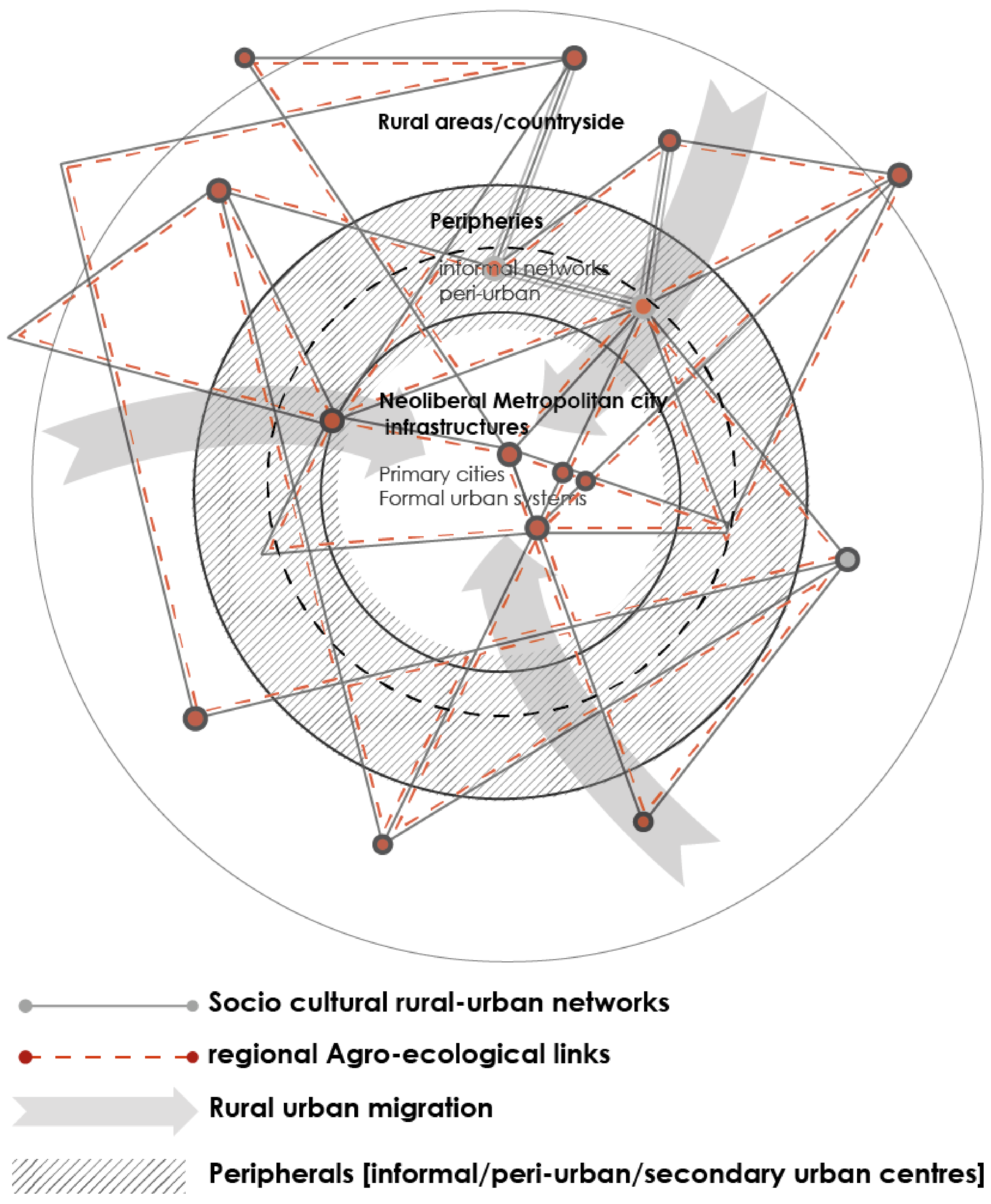
rural-urban socio-cultural links



sustainable regional agricultural systems



empowering socio-cultural patterns through just socio-technical systems



empowering socio-cultural patterns through just socio-technical systems

just regional transition

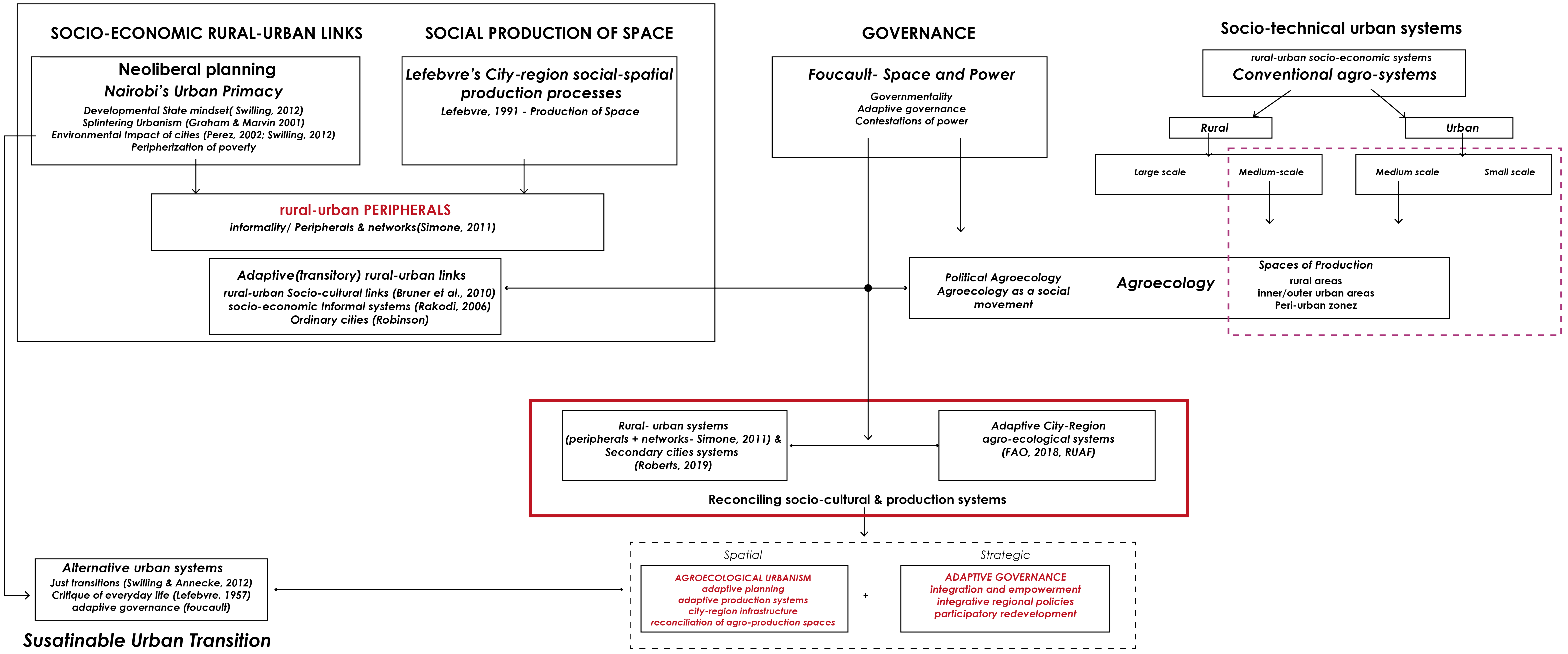
- socio-cultural & economic processes
- ecological processes
- political practices
- spatial practices

How can regional agroecological systems leverage the rural-urban socio-cultural and economic links prevalent in Nairobi's peripherals to promote sustainable and just regional urbanisation?

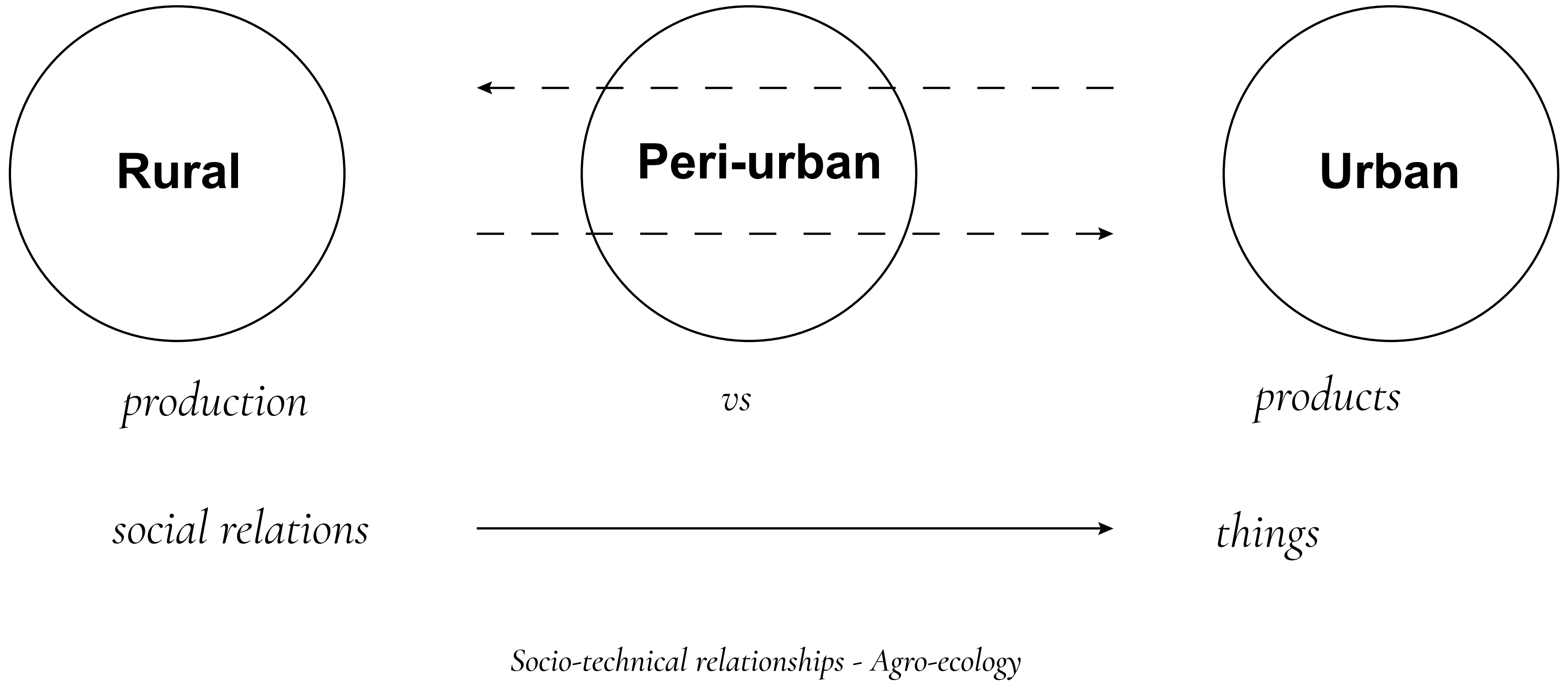
methodology

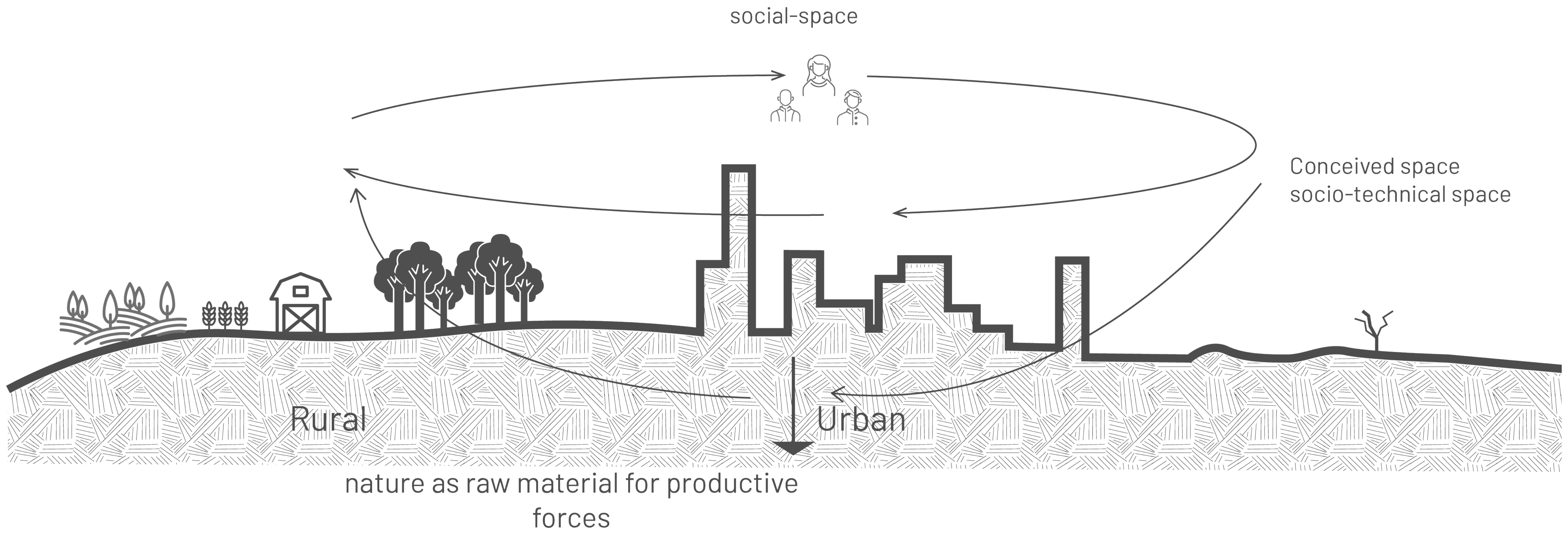
Literature Review	+	Online questionnaire	+	Fieldwork	+	Mapping	+	Document Analysis
		372 respondents		Semi-structured Interviews Photography Trajectory mapping		GIS mapping Google maps		Constitutional Acts Policy Documents Strategic plans

theoretical framework


SOCIO-ECONOMIC RURAL-URBAN LINKS
SOCIAL PRODUCTION OF SPACE
GOVERNANCE
Socio-technical urban systems
Neoliberal planning
Nairobi's Urban Primacy
Developmental State mindset(Swilling, 2012)
Splintering Urbanism (Graham & Marvin 2001)
Environmental Impact of cities (Perez, 2002; Swilling, 2012)
Peripherization of poverty
Lefebvre's City-region social-spatial production processes
Lefebvre, 1991 - Production of Space
Foucault- Space and Power
Governmentality
Adaptive governance
Contestations of power
rural-urban socio-economic systems
Conventional agro-systems
Rural
Urban
Large scale
Medium-scale
Medium scale
Small scale
rural-urban PERIPHERALS
informality/ Peripherals & networks(Simone, 2011)
Adaptive(transitory) rural-urban links
rural-urban Socio-cultural links (Bruner et al., 2010)
socio-economic Informal systems (Rakodi, 2006)
Ordinary cities (Robinson)
Political Agroecology
Agroecology as a social movement
Agroecology
Spaces of Production
rural areas
inner/outer urban areas
Peri-urban zonez
Rural- urban systems
(peripherals + networks- Simone, 2011) &
Secondary cities systems
(Roberts, 2019)
Adaptive City-Region
agro-ecological systems
(FAO, 2018, RUAF)
Reconciling socio-cultural & production systems
Spatial
Strategic
AGROECOLOGICAL URBANISM
adaptive planning
adaptive production systems
city-region infrastructure
reconciliation of agro-production spaces
+
ADAPTIVE GOVERNANCE
integration and empowerment
integrative regional policies
participatory redevelopment
Alternative urban systems
Just transitions (Swilling & Annecke, 2012)
Critique of everyday life (Lefebvre, 1957)
adaptive governance (foucault)
Susatinable Urban Transition

Geographies of productivity

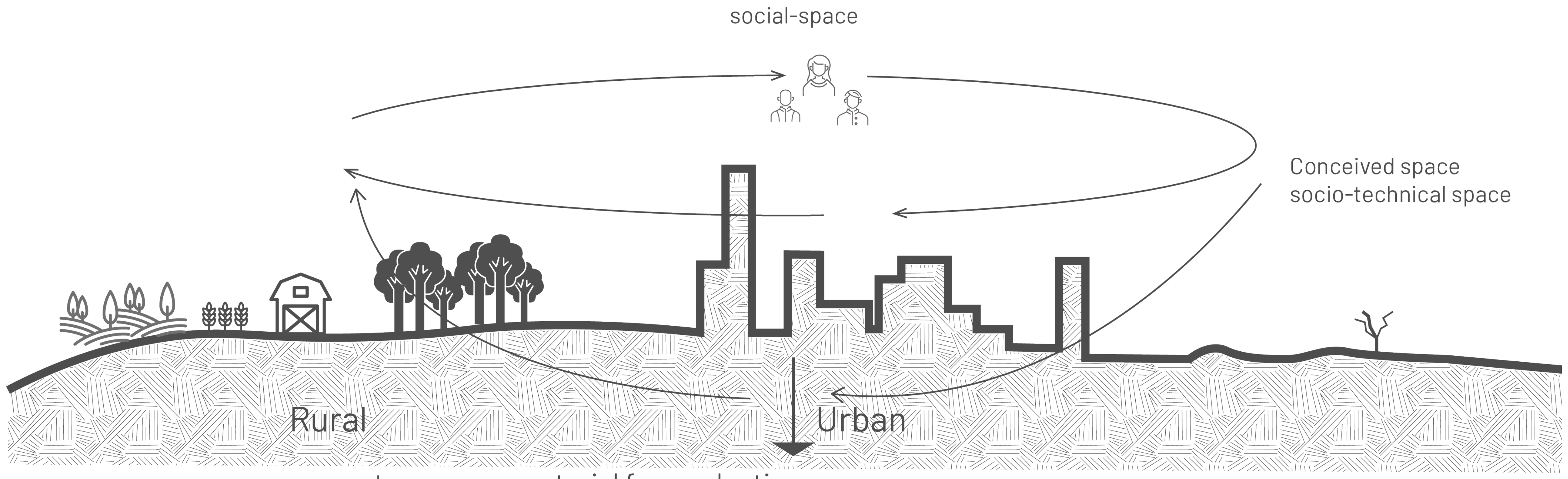




rights

to the

city → city-region

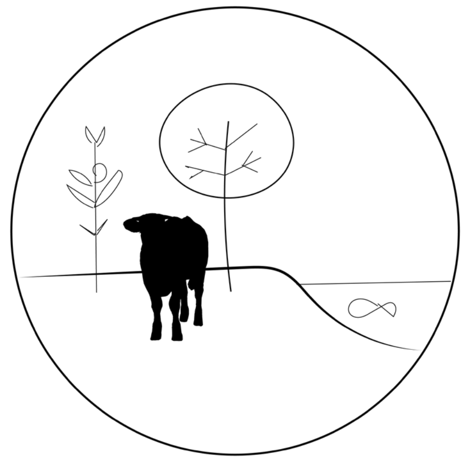


nature as raw material for productive forces

Defining City-Region planning

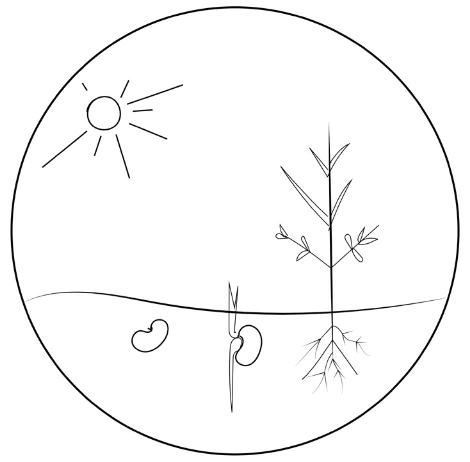
How can regional agroecological systems leverage the rural-urban socio-cultural and economic links prevalent in Nairobi's peripherals to promote sustainable and just regional urbanisation?

Sustainable regional agroecology



Diversity

Enhancing nutrition; Economic and environmental resilience through;
Crop rotation/diversity
Agro-forestry
mixed Livestock & fisheries

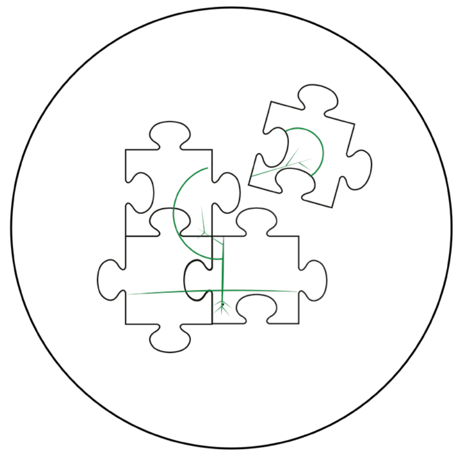


Efficiency

Reduced dependancy on external resources.
Reduced environmental pollution and degradation.

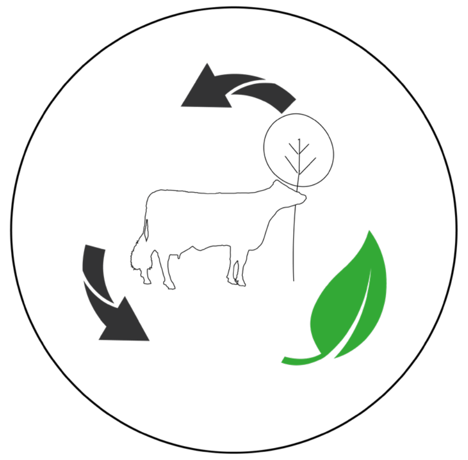
Responsible Governance

Based on adaptive and shared knowledge.
Empowering local systems
Policy and strategy support for innovative agroecological systems



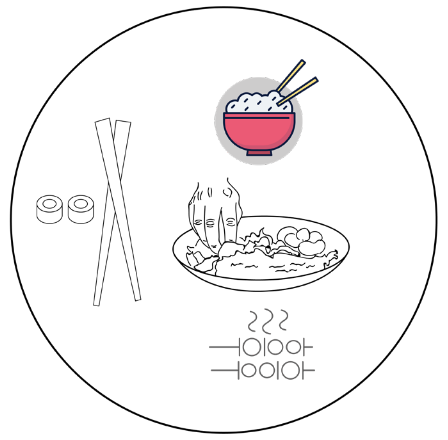
Co-creation and sharing of knowledge

Sharing traditional and indeginous knowledge of crop and livestock production for environmental resilience agricultural practice & governance



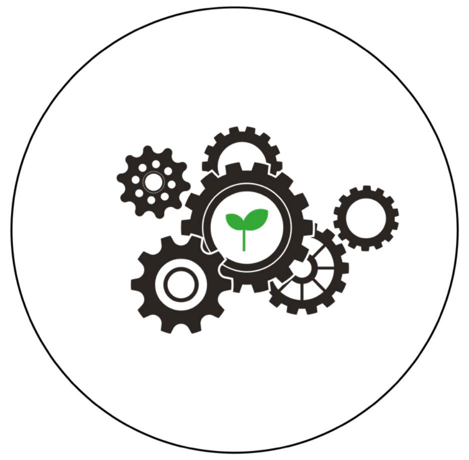
Recycling

Crop livestock systems
Closed nutrient cycles for environmental protection



Culture and Food traditions

overcome mismatch between food habits and culture.
Enhancing identities/sense of place linked to food landscapes and cultures

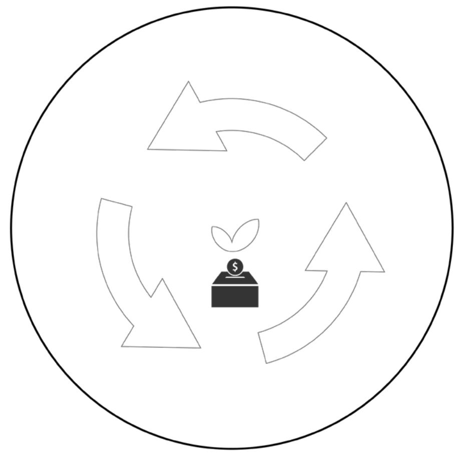


Biological synergies

Enhancing climate resilience through circular agriculture practices

Human and Social Values

Dignity, Equity, Inclusion and Justice
overcoming poverty, hunger, malnutrition and gender inequality.



Circular and Solidarity economy

Short food circuits
Promoting agritourism and resource efficiency

How can regional agroecological systems leverage the rural-urban socio-cultural and economic links prevalent in Nairobi's peripherals to promote sustainable and just regional urbanisation?

Sustainable regional agroecology

Spatial dimension

- **diverse productive landscapes**
- **shorter food supply chains**
- **ecological biodiversity**
- **circularity**

Sustainable regional agroecology

Spatial dimension

- **diverse productive landscapes**
- shorter food supply chains
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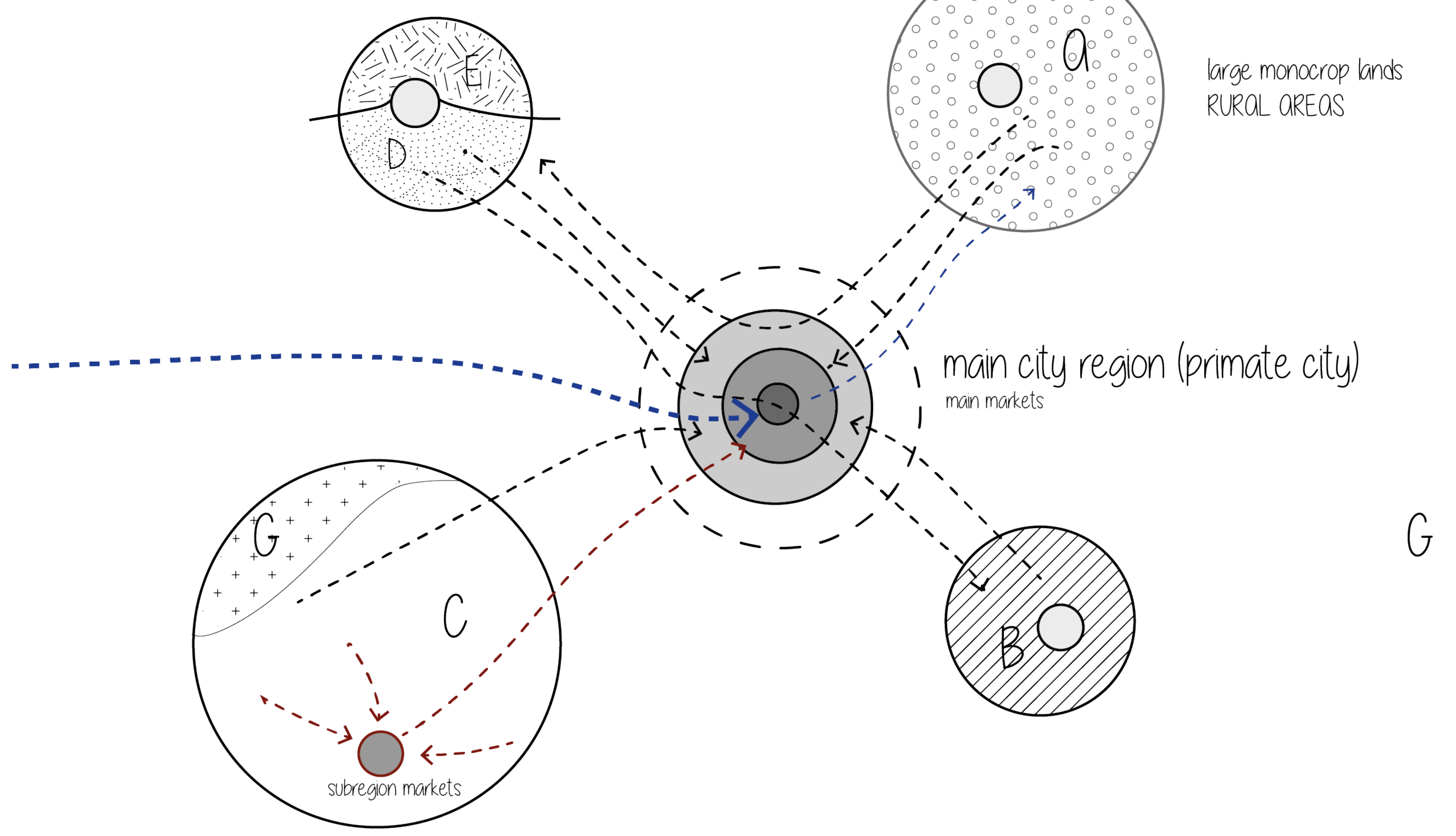
Conventional Agriculture Systems



Sustainable regional agroecology

Spatial dimension

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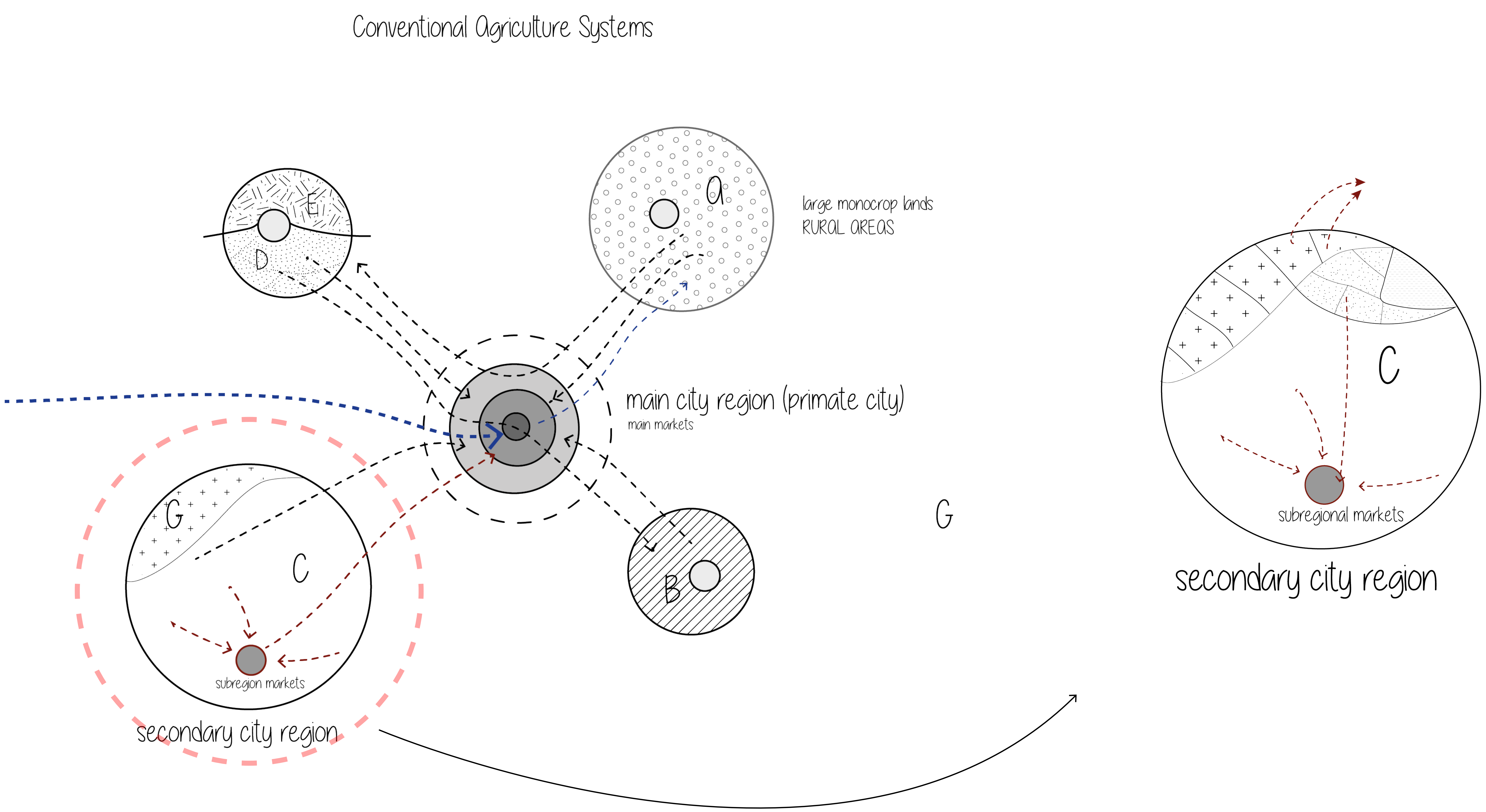

Sustainable regional agroecology

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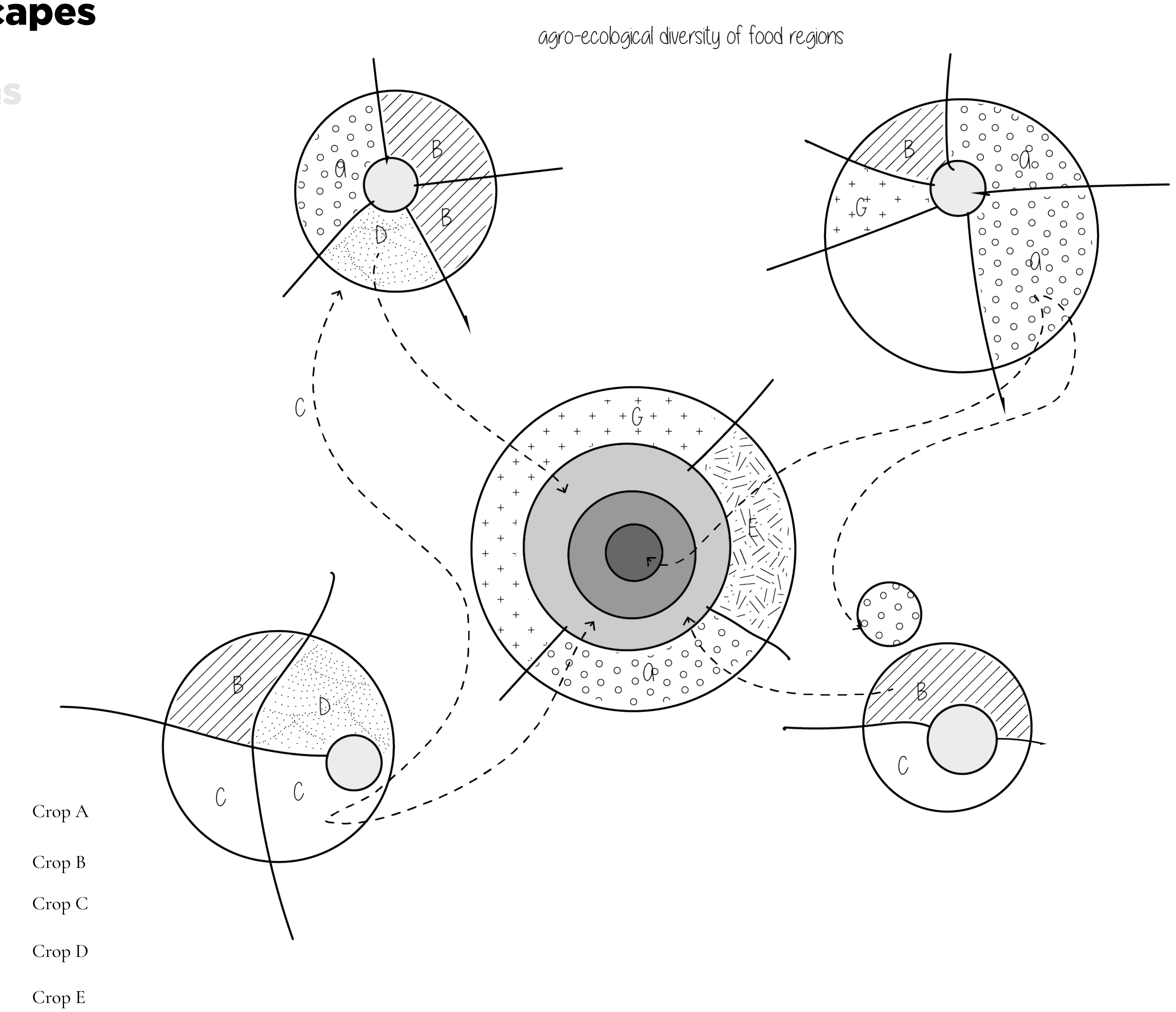
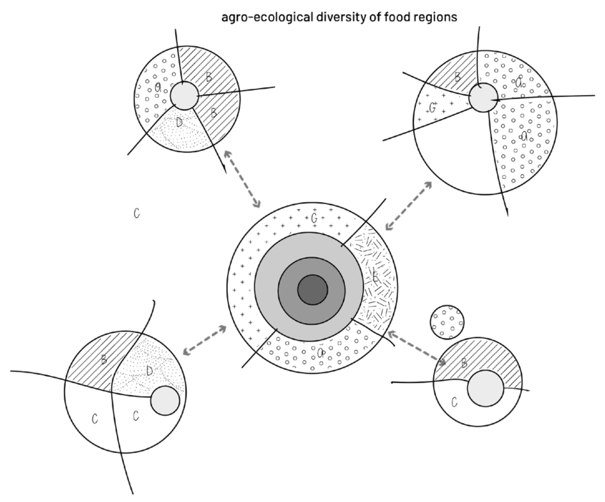
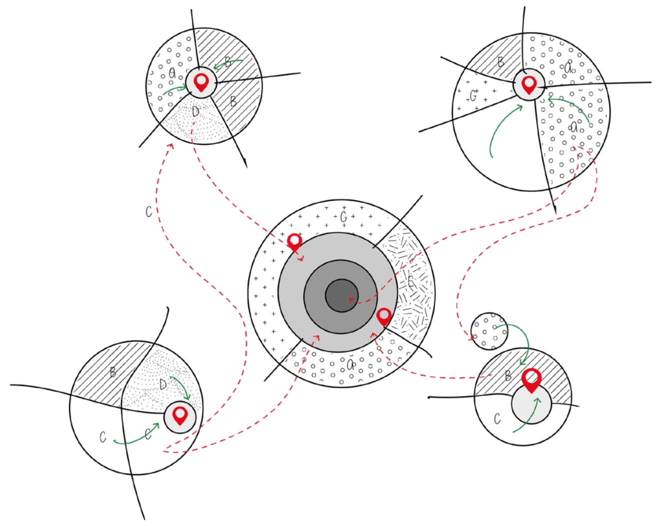
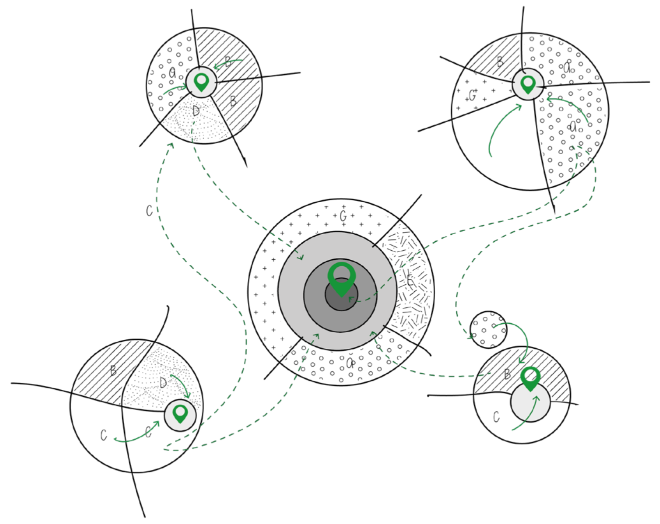




Production



Processing, Manufacturing & Distribution

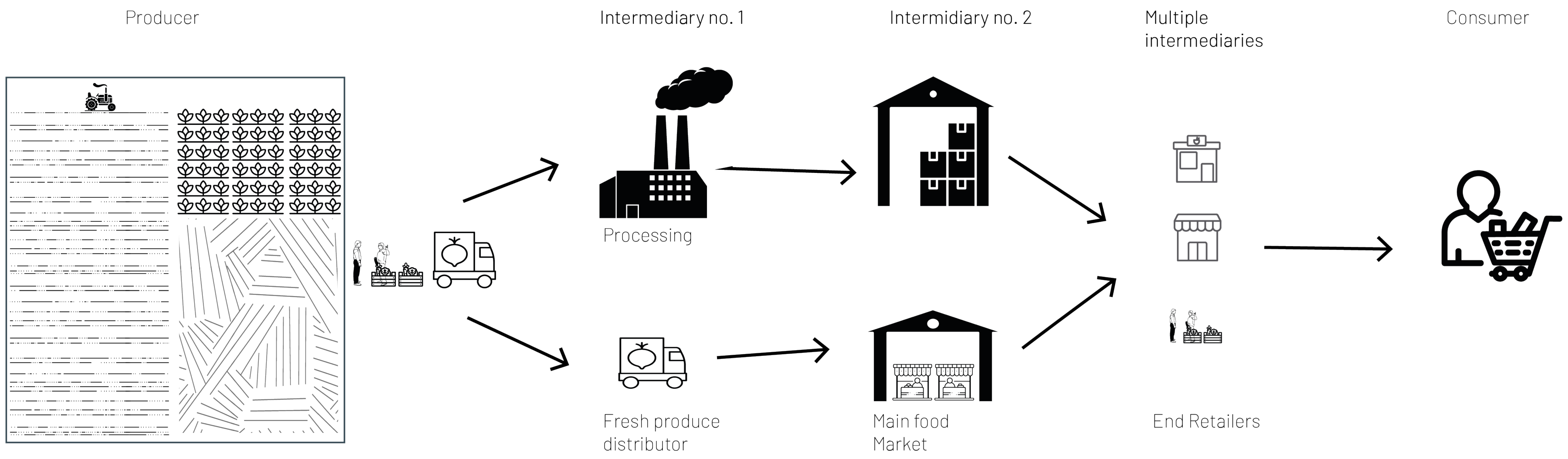


Markets

Sustainable regional agroecology

Spatial dimension

- diverse productive landscapes
- **shorter food supply chains**
- ecological biodiversity
- circularity



Sustainable regional agroecology

Spatial dimension

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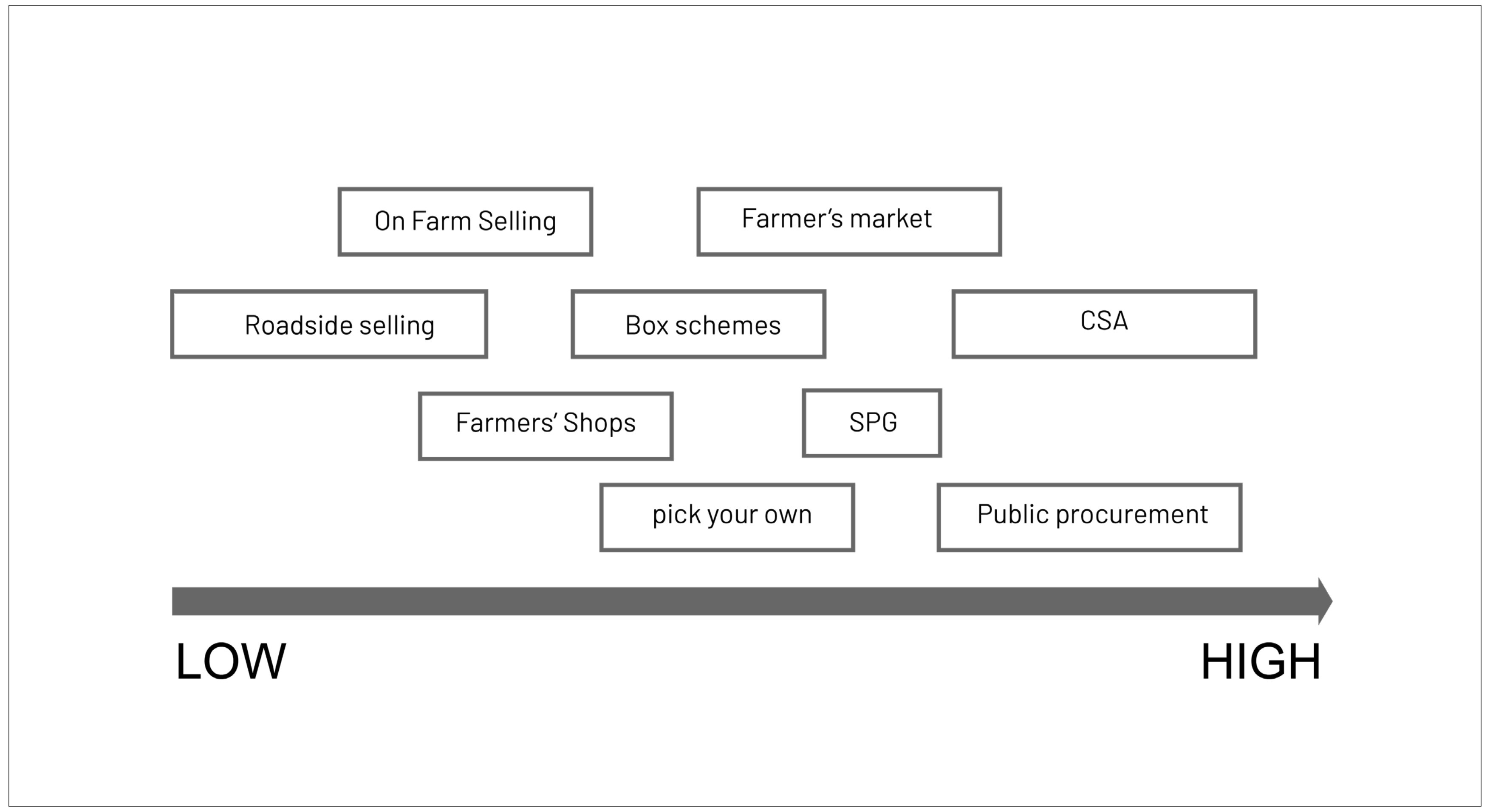

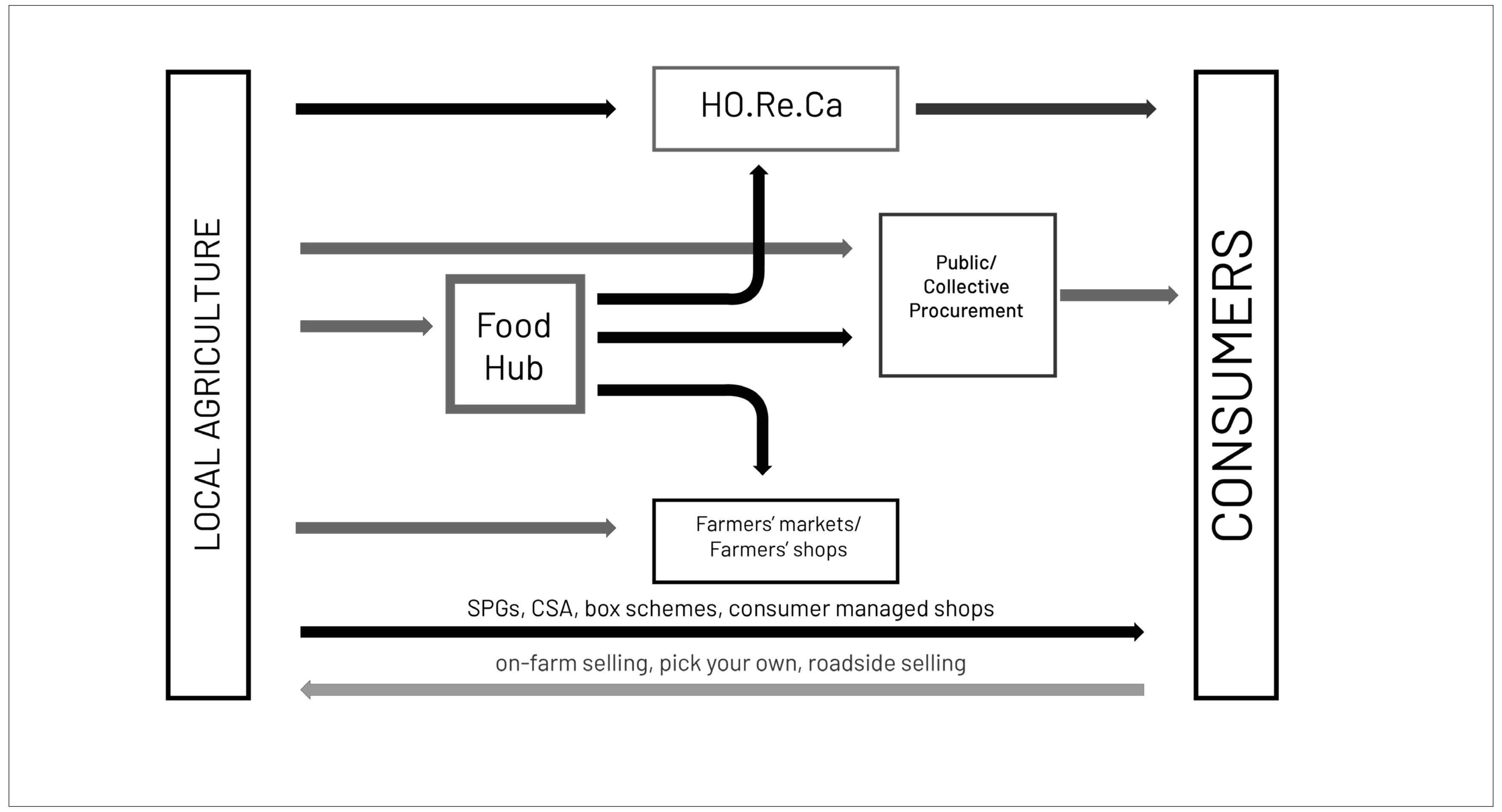

Sustainable regional agroecology

Spatial dimension

- diverse productive landscapes
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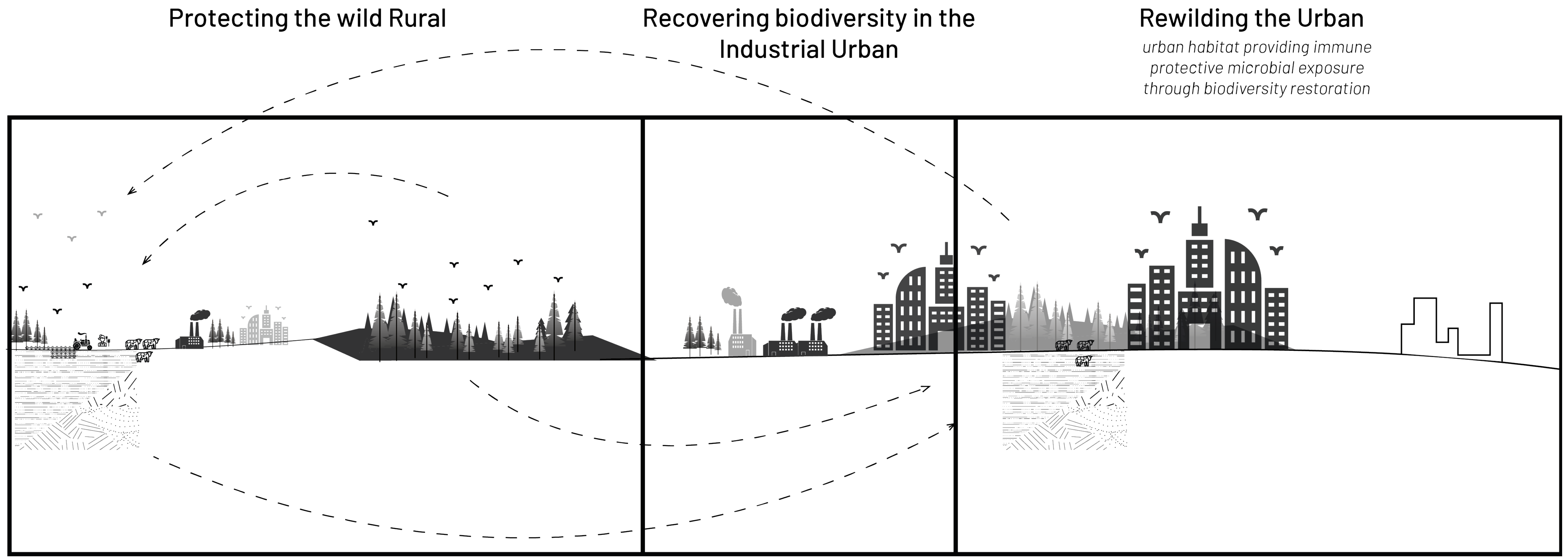

Sustainable regional agroecology

Spatial dimension

- diverse productive landscapes
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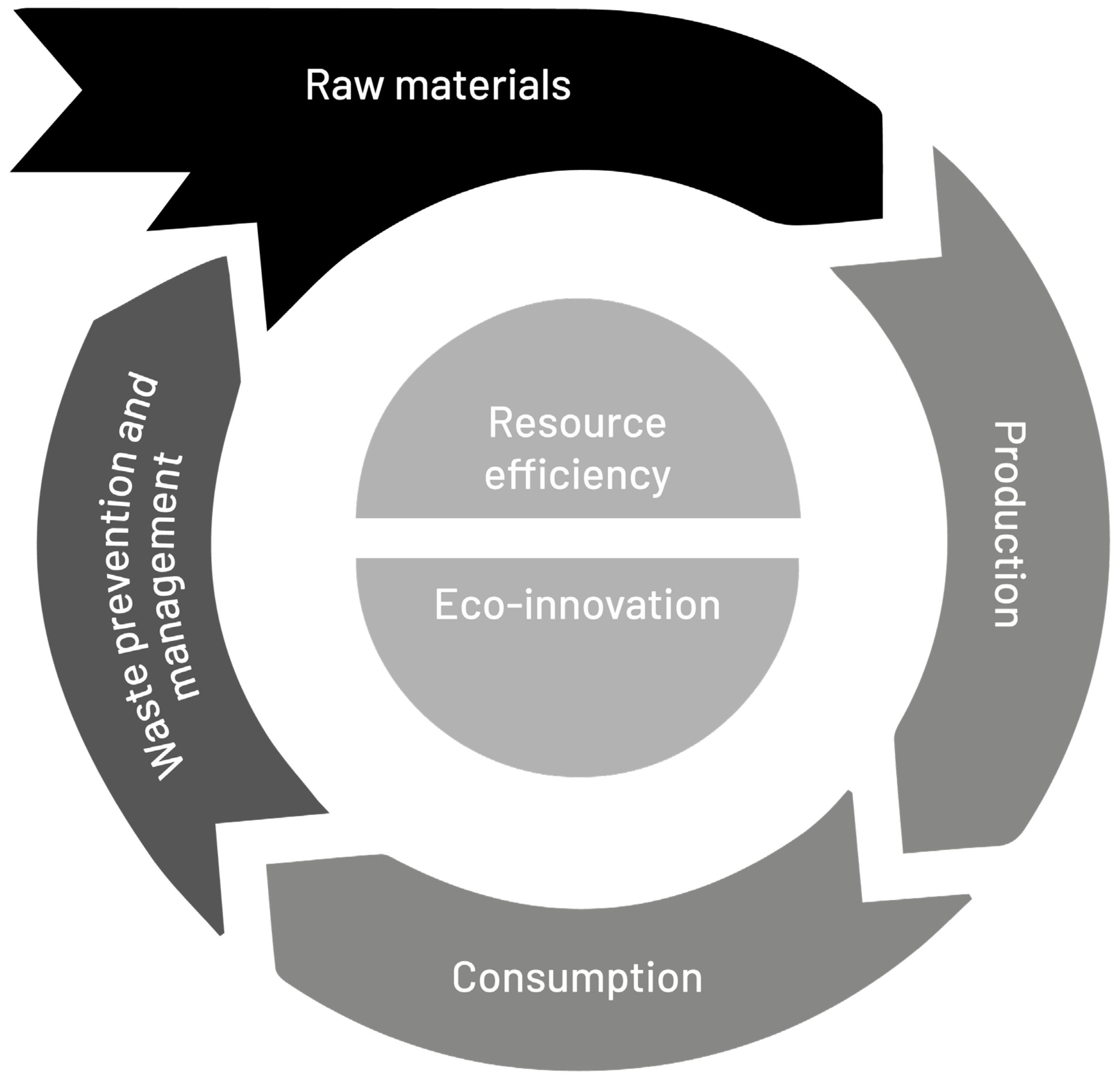
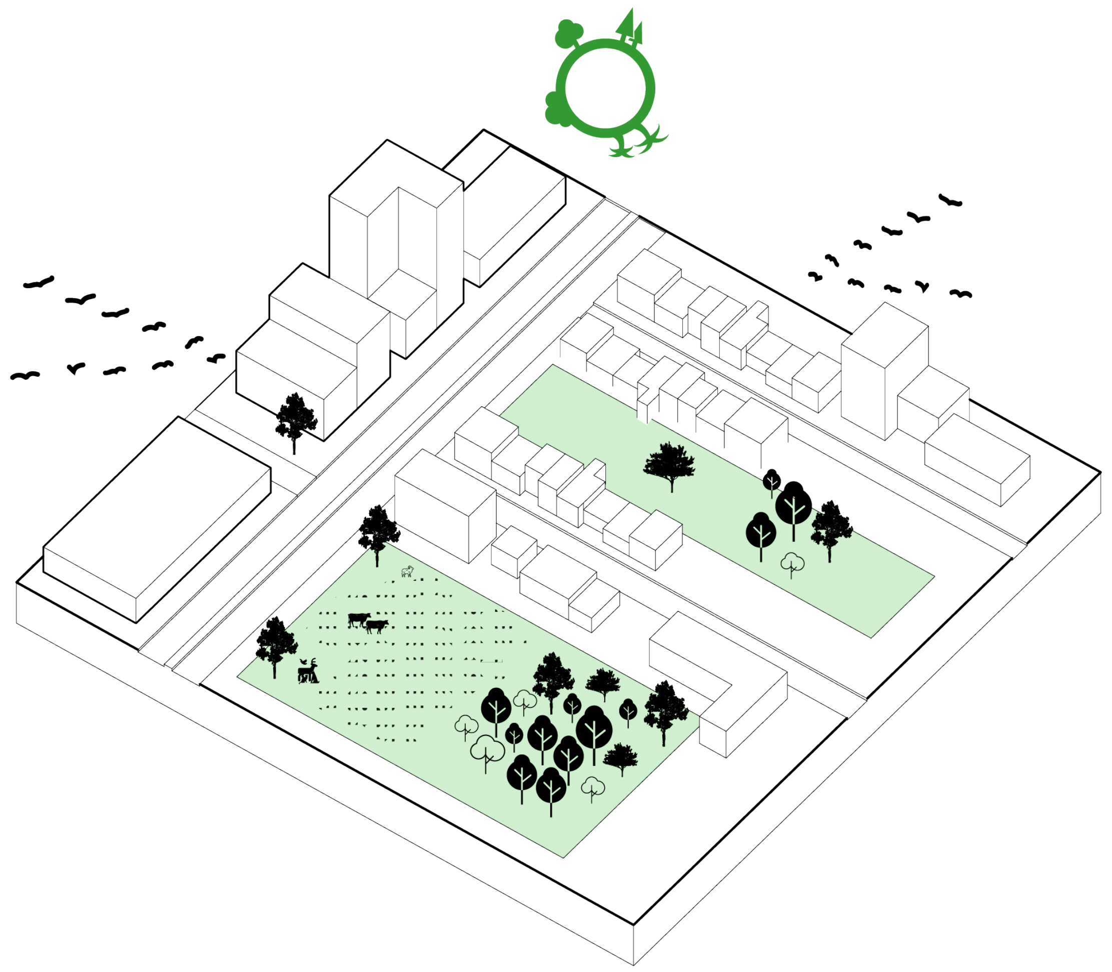
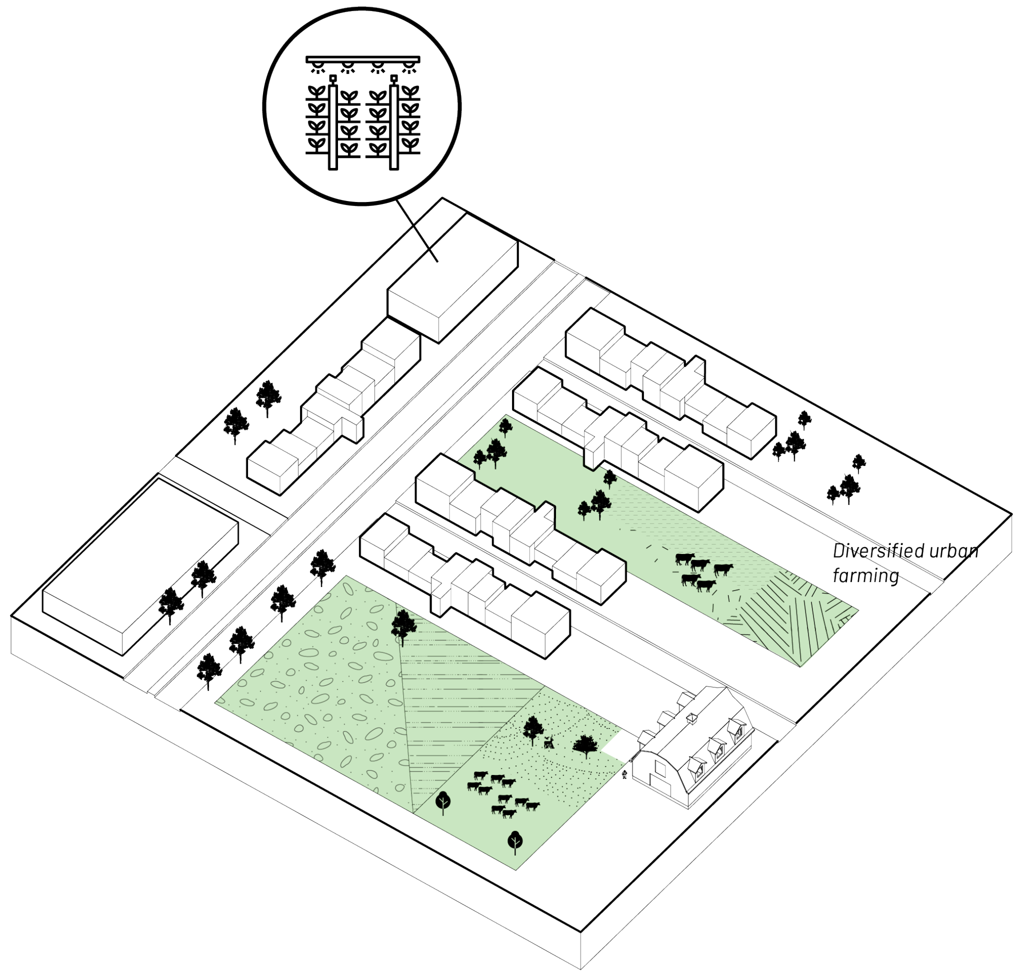
- **circularity**



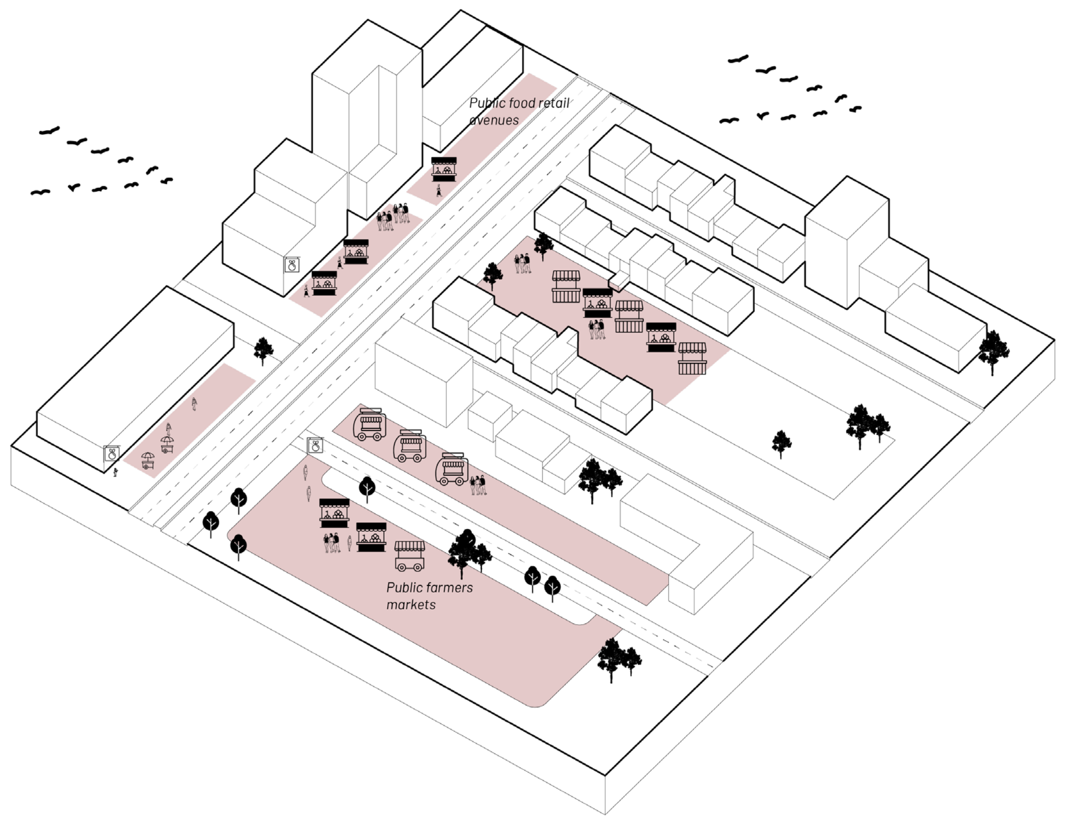
towards a regional agroecological urbanism



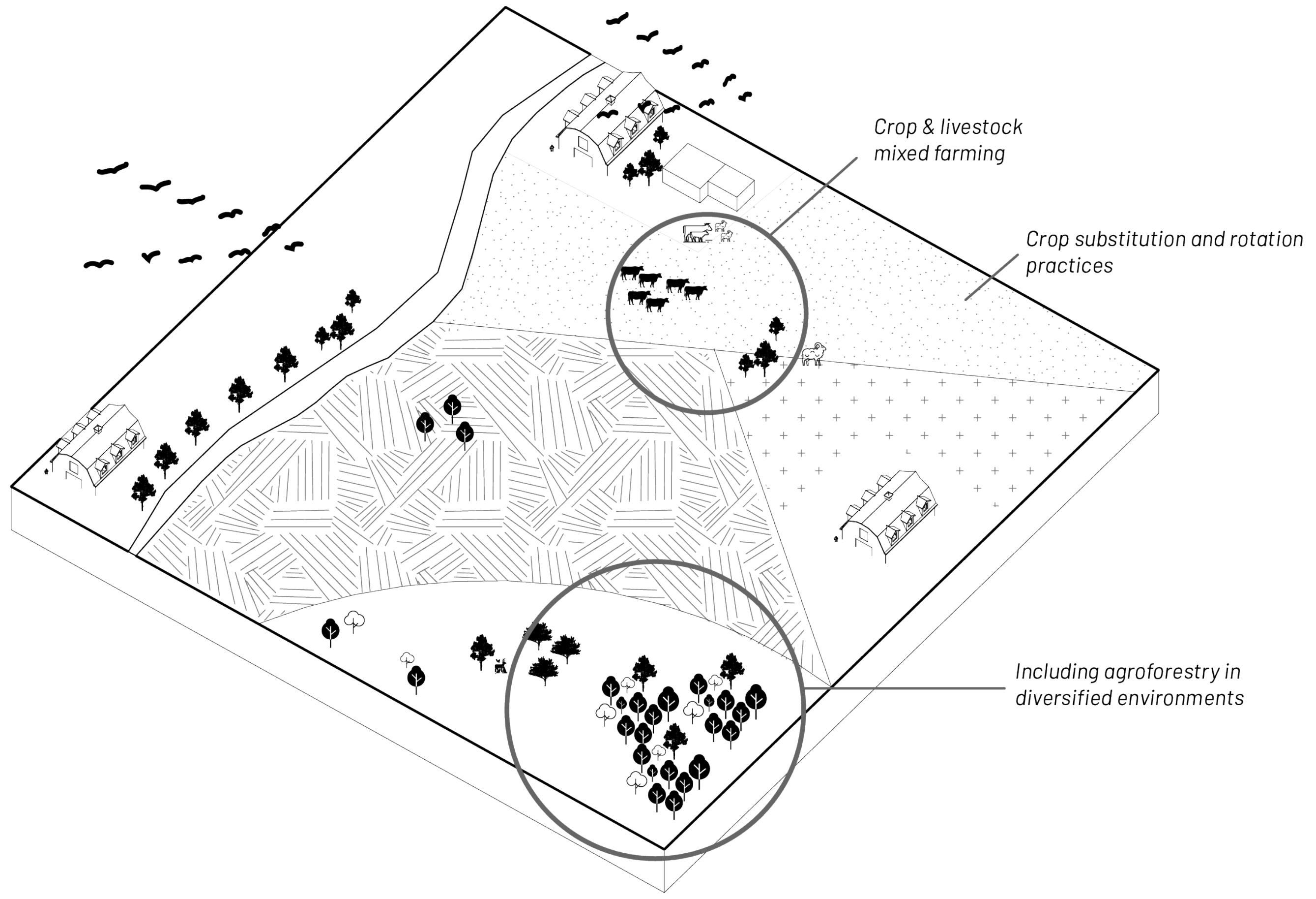
Urban bio-diversification



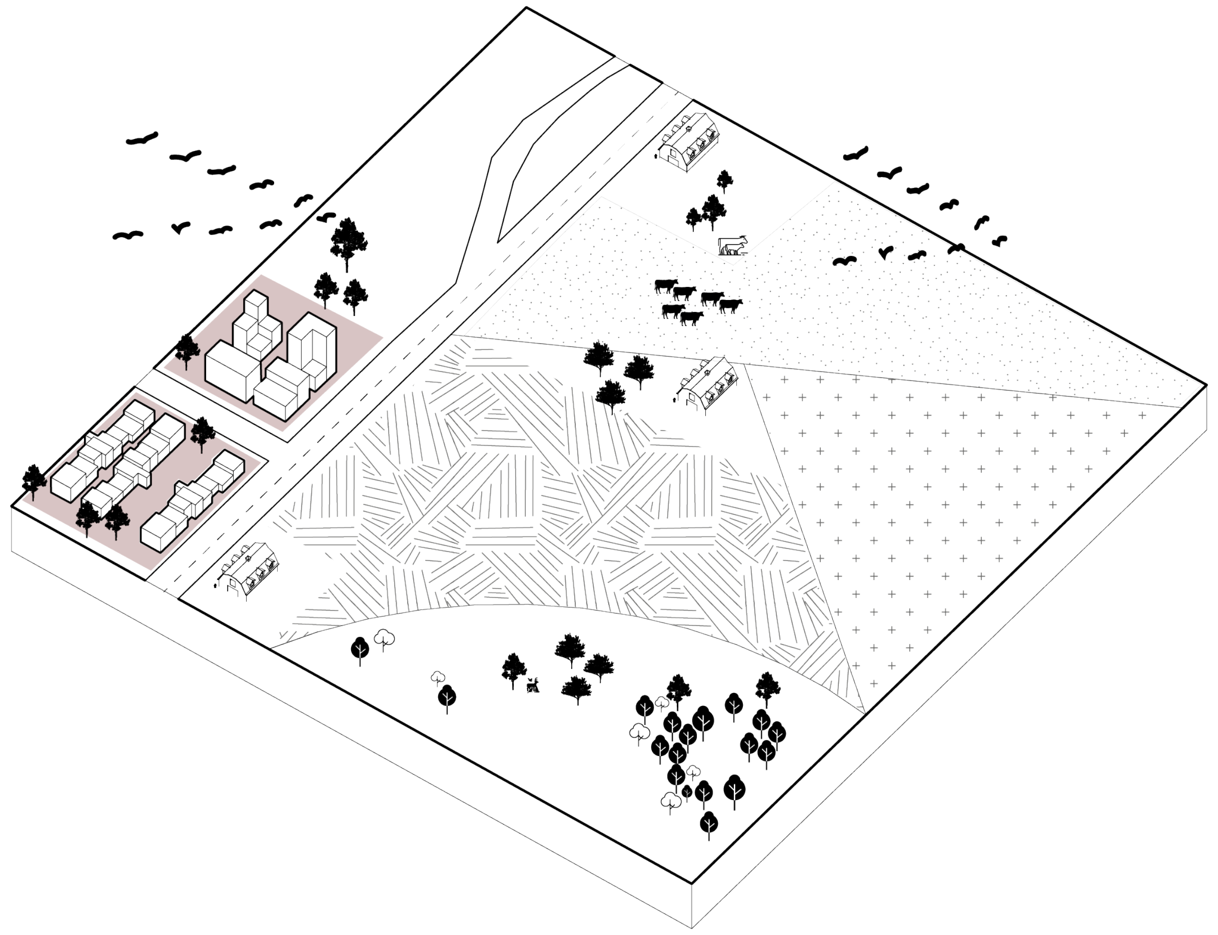
Urban and Peri-urban Agriculture



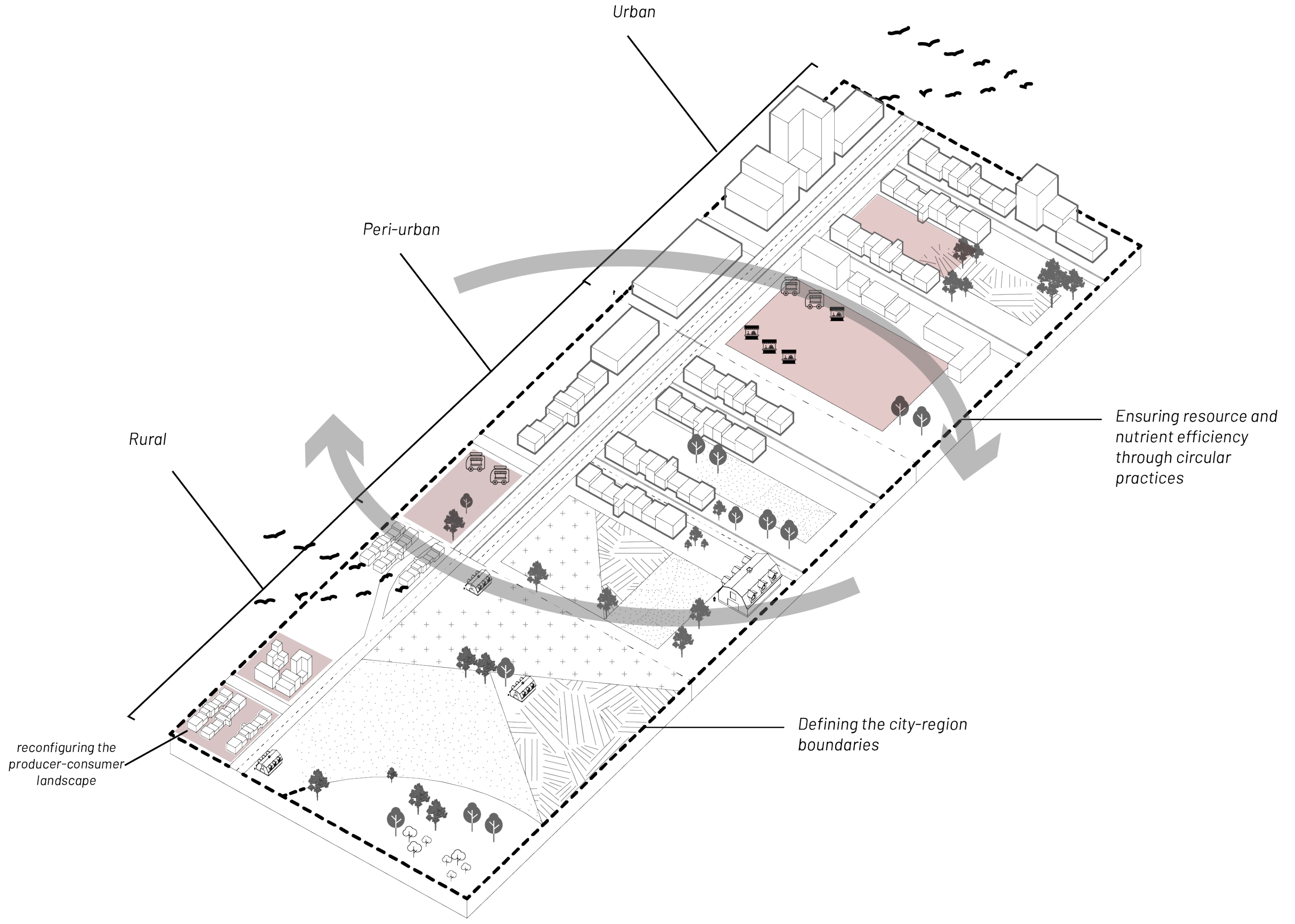
Reconfiguring public urban space for
small-scale producers and retailers



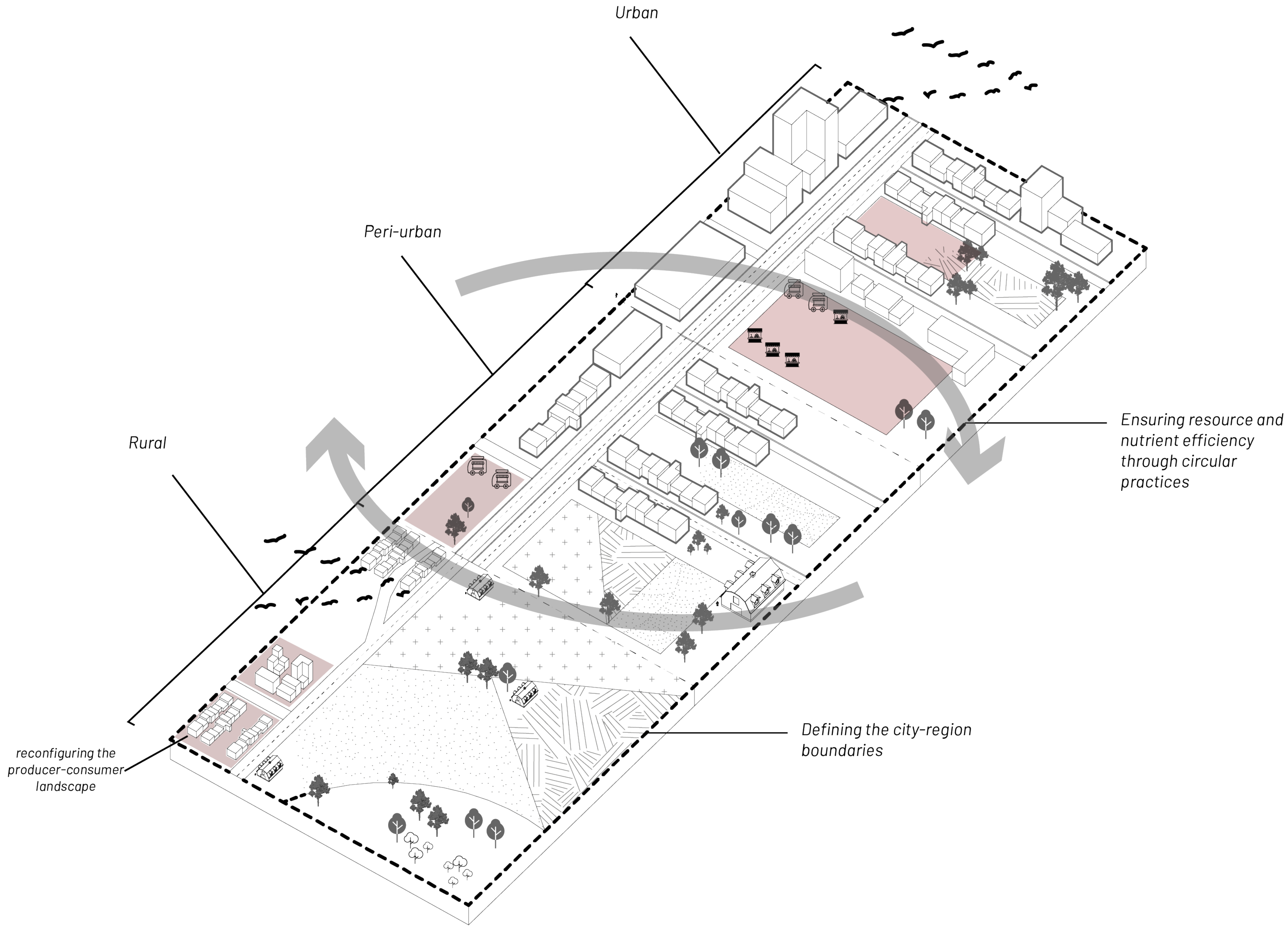
Rural production diversification through
indeginous and shared knowledge



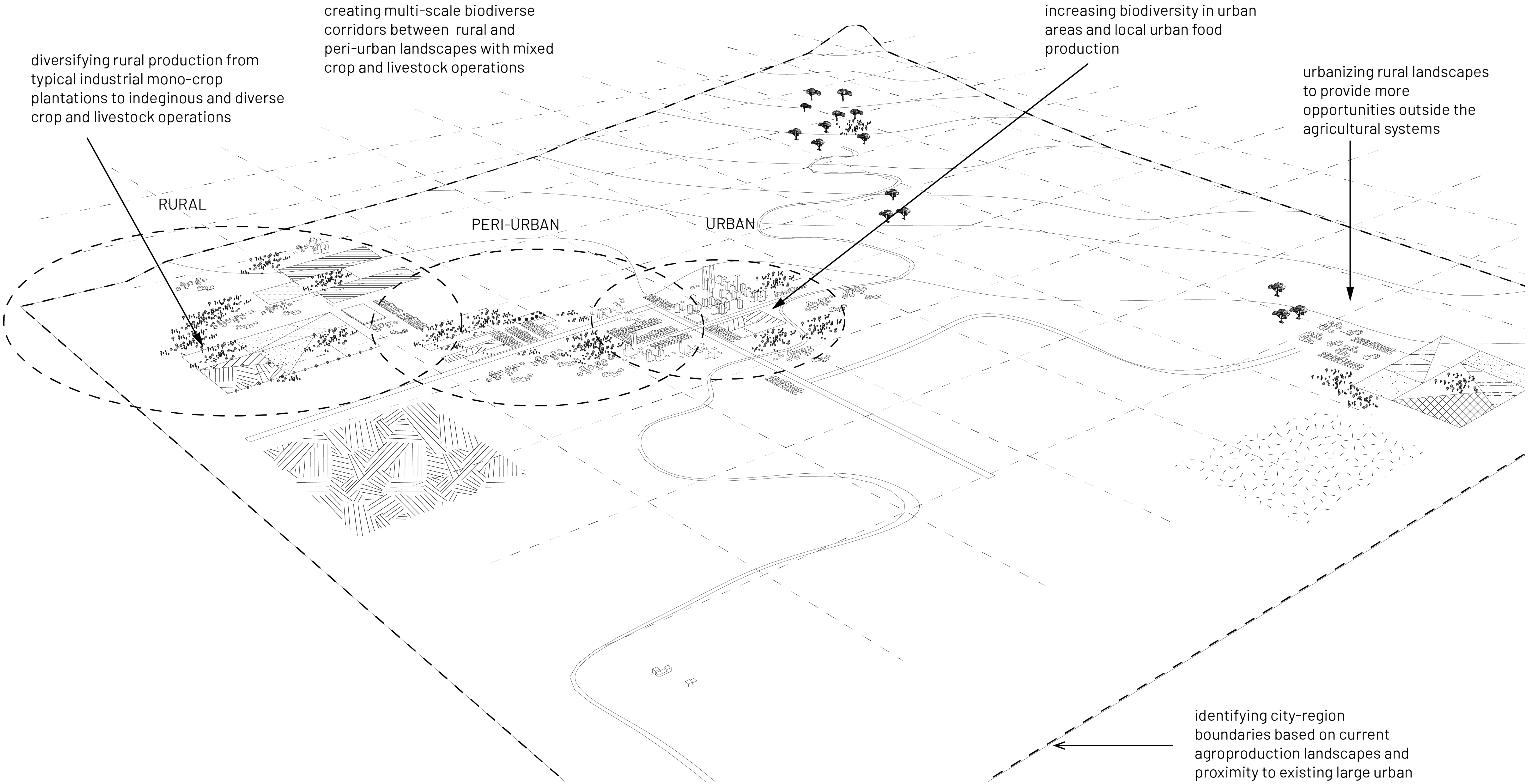
Urbanising rural landscape through
adaptive & diversified planning



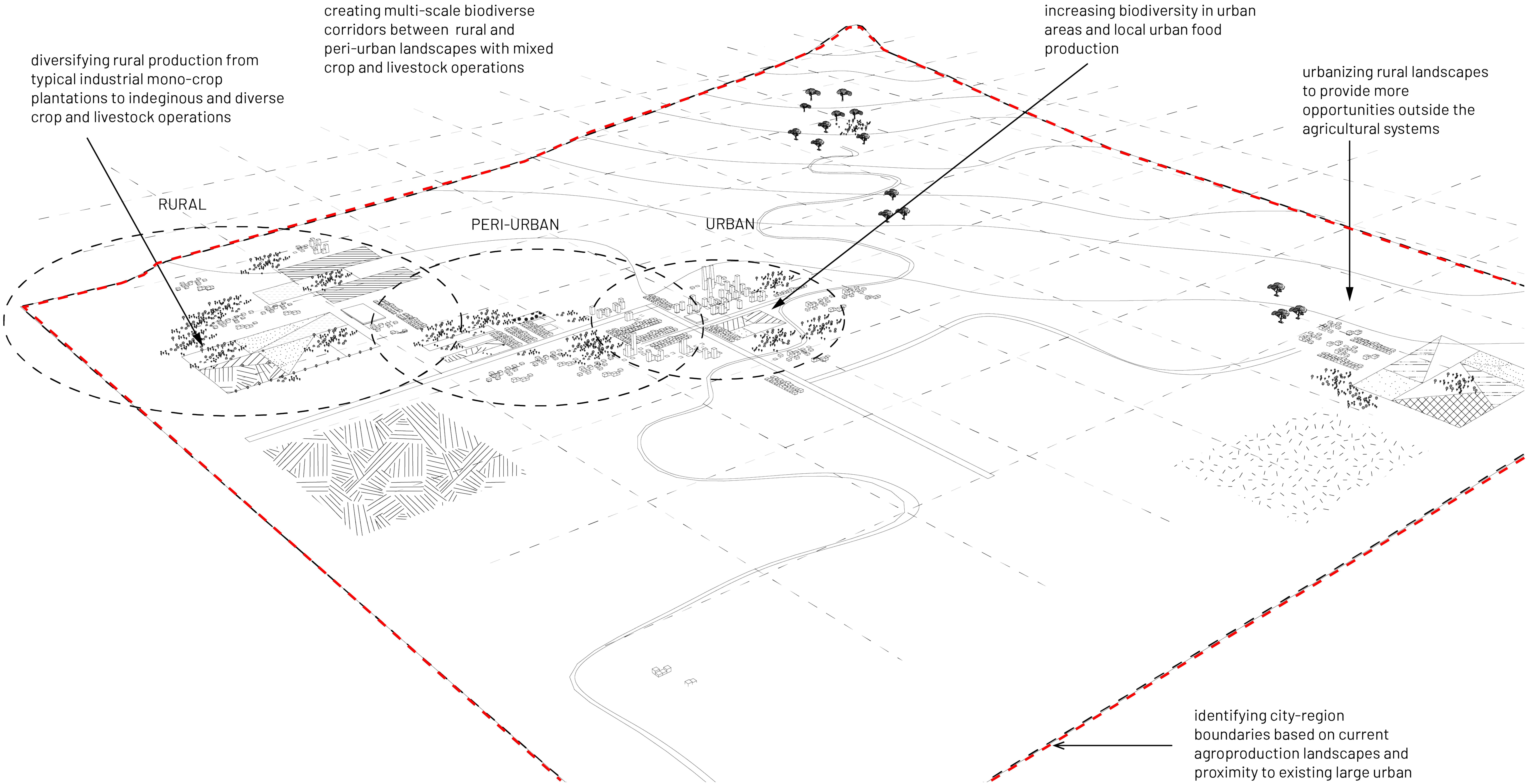
Blurring the rural-urban boundaries in agro-ecological
city-regions



Blurring the rural-urban boundaries in agro-ecological city-regions



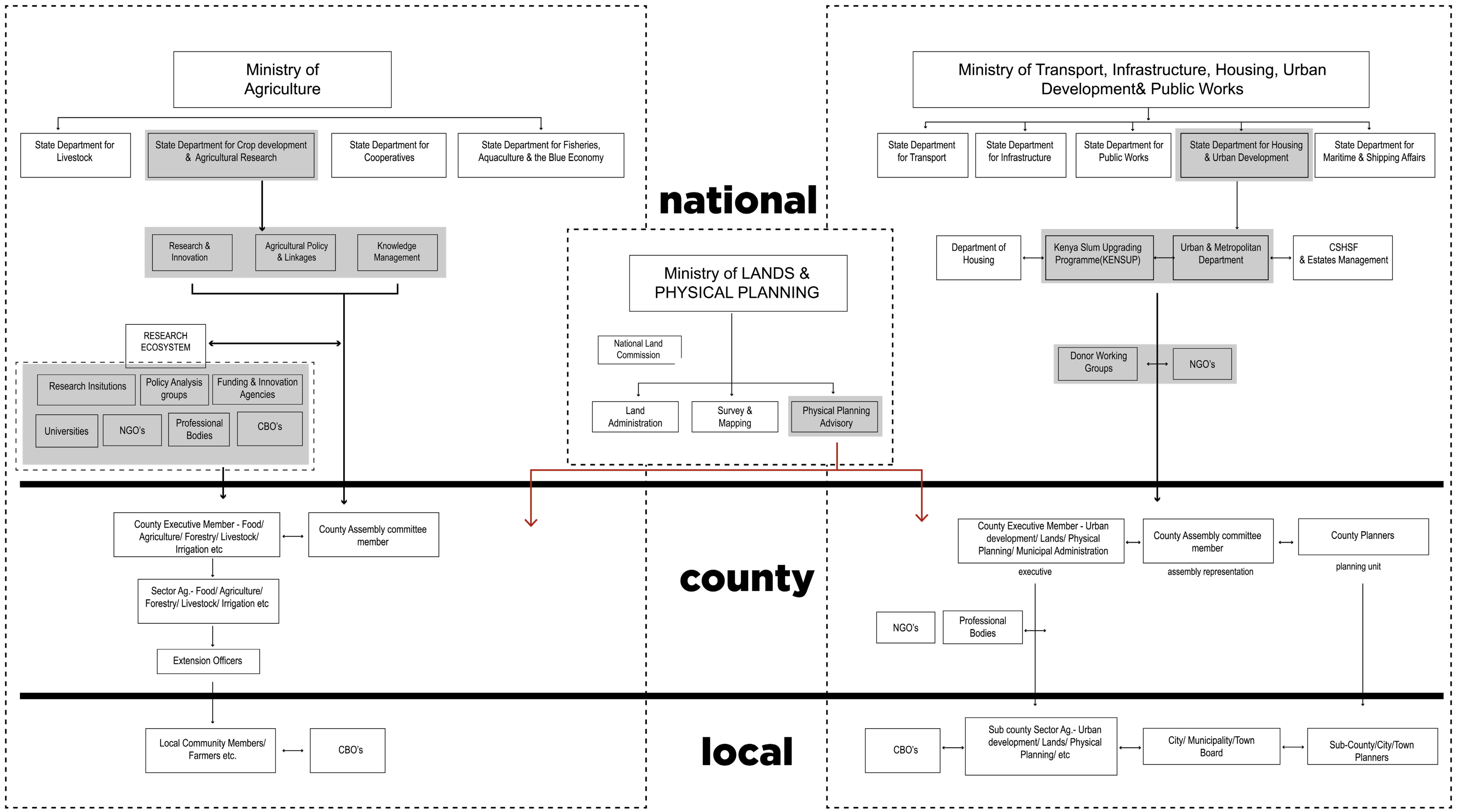
Defining the agroecological city-region through integrated landscapes

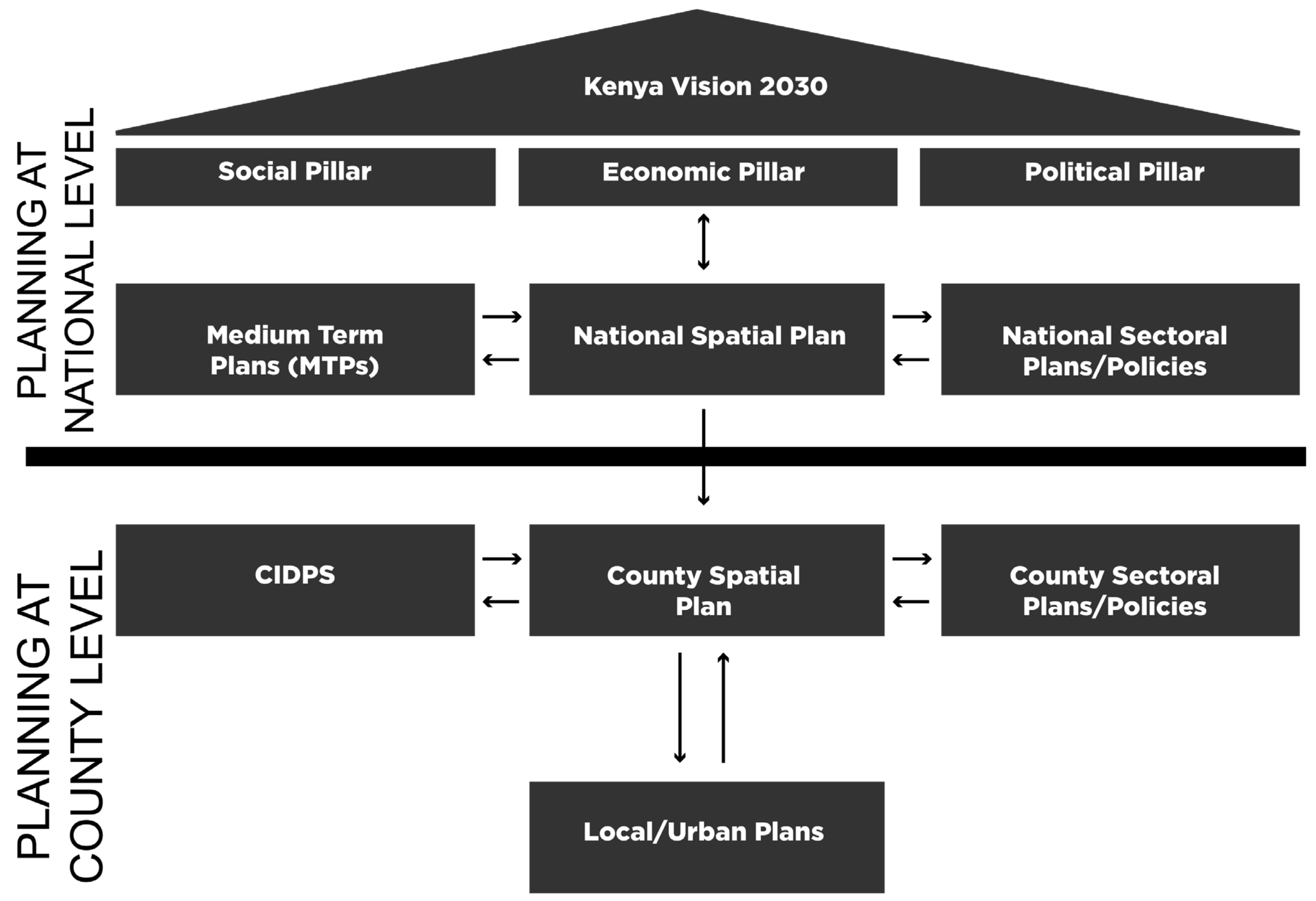


diversifying rural production from
typical industrial mono-crop
plantations to indeginous and diverse
crop and livestock operations
creating multi-scale biodiverse
corridors between rural and
peri-urban landscapes with mixed
crop and livestock operations
increasing biodiversity in urban
areas and local urban food
production
urbanizing rural landscapes
to provide more
opportunities outside the
agricultural systems
RURAL
PERI-URBAN
URBAN
identifying city-region
boundaries based on current
agroproduction landscapes and
proximity to existing large urban

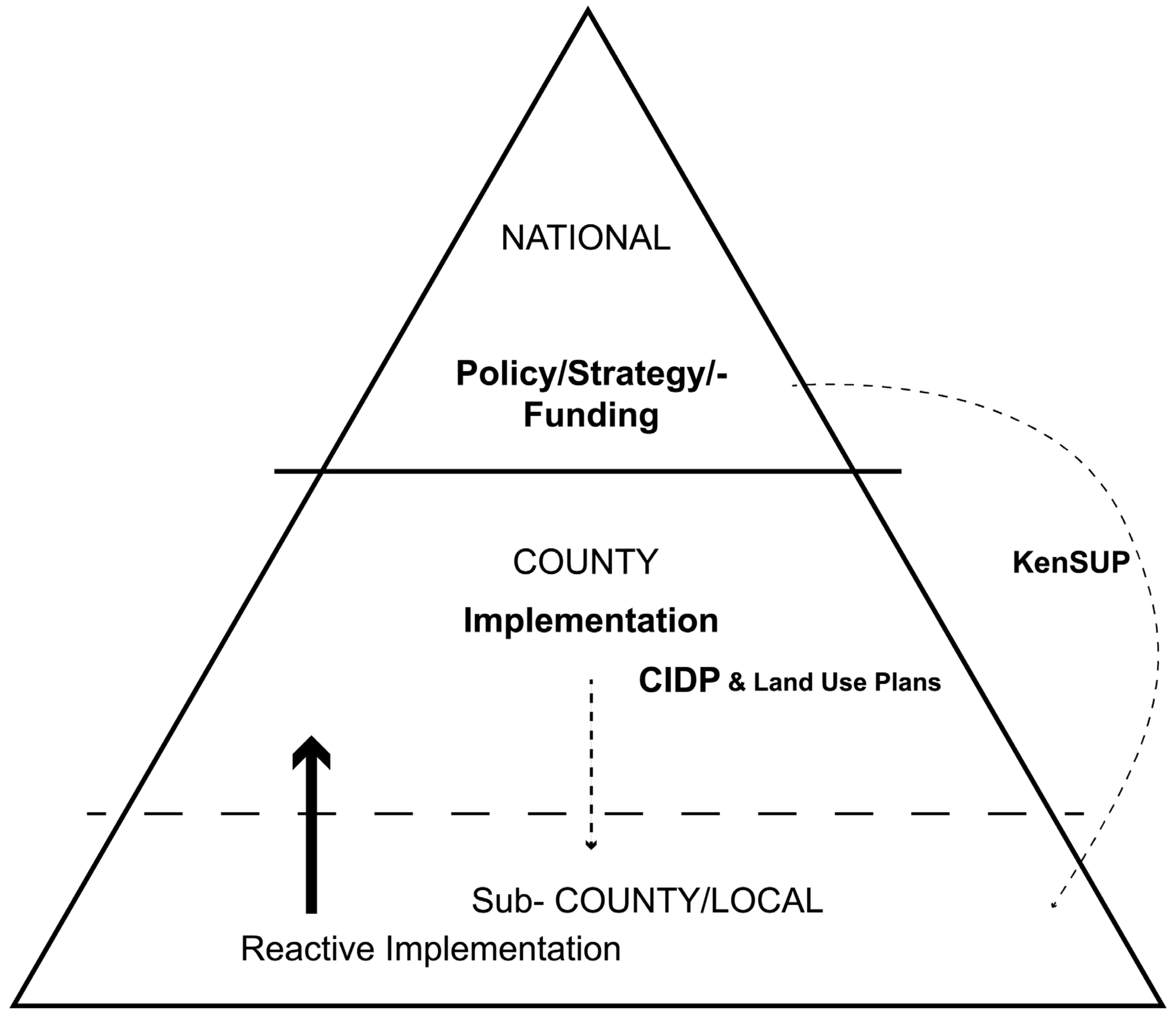
creating a regional agroecological governance framework

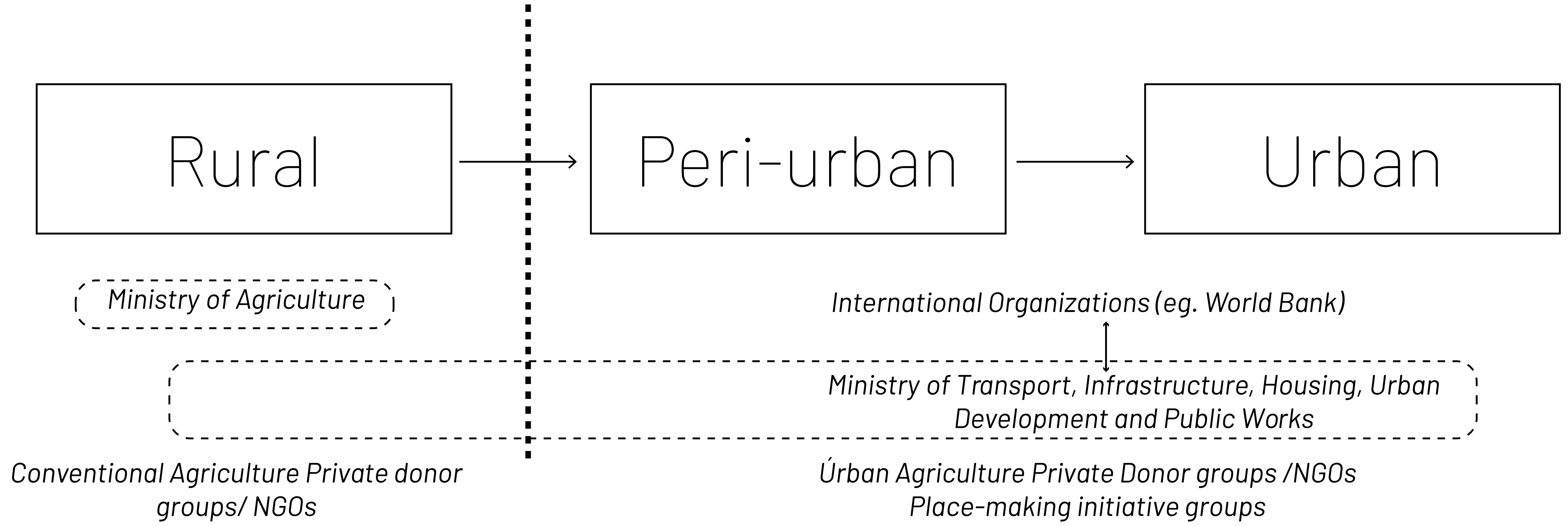
Stakeholder Analysis



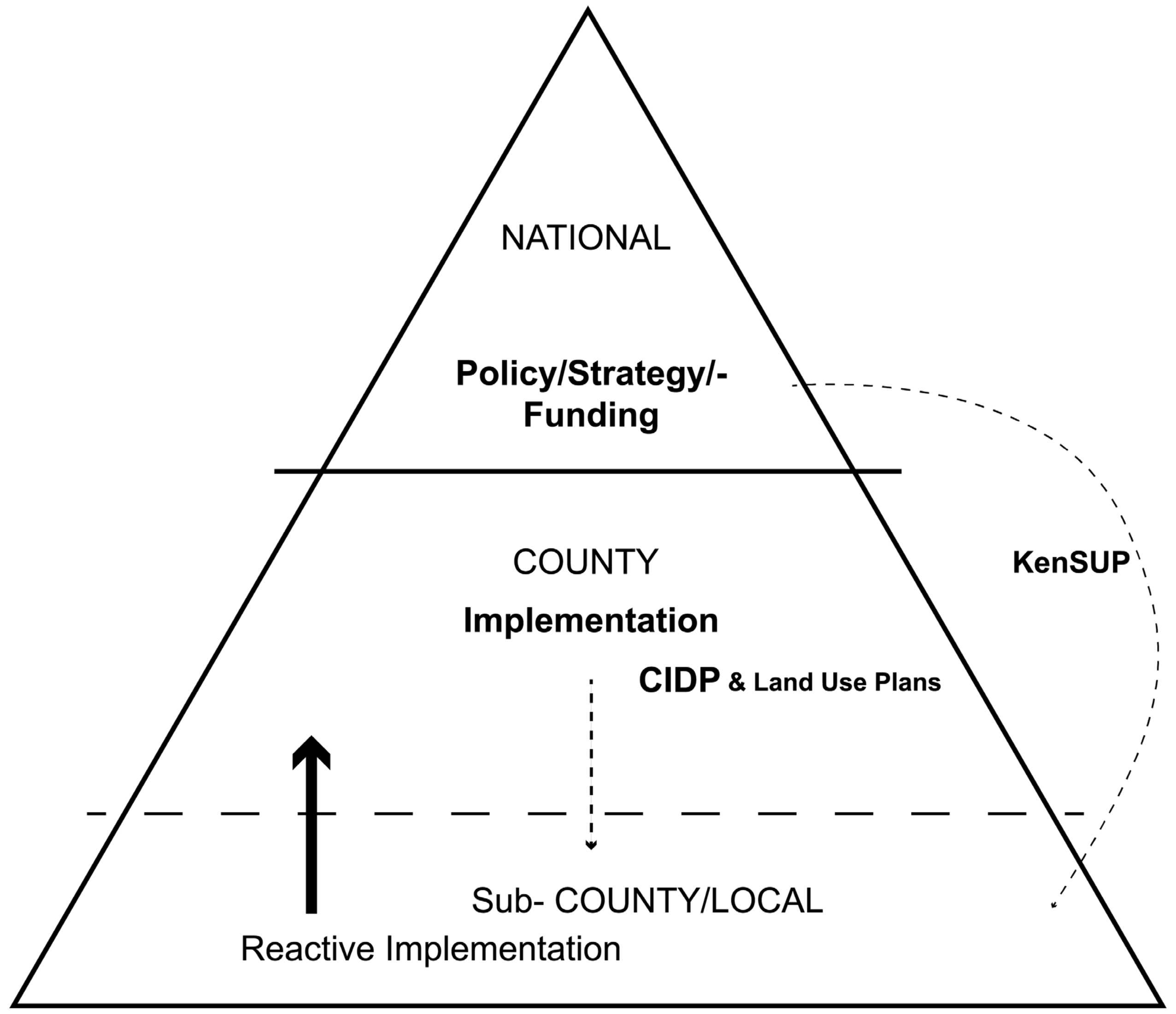


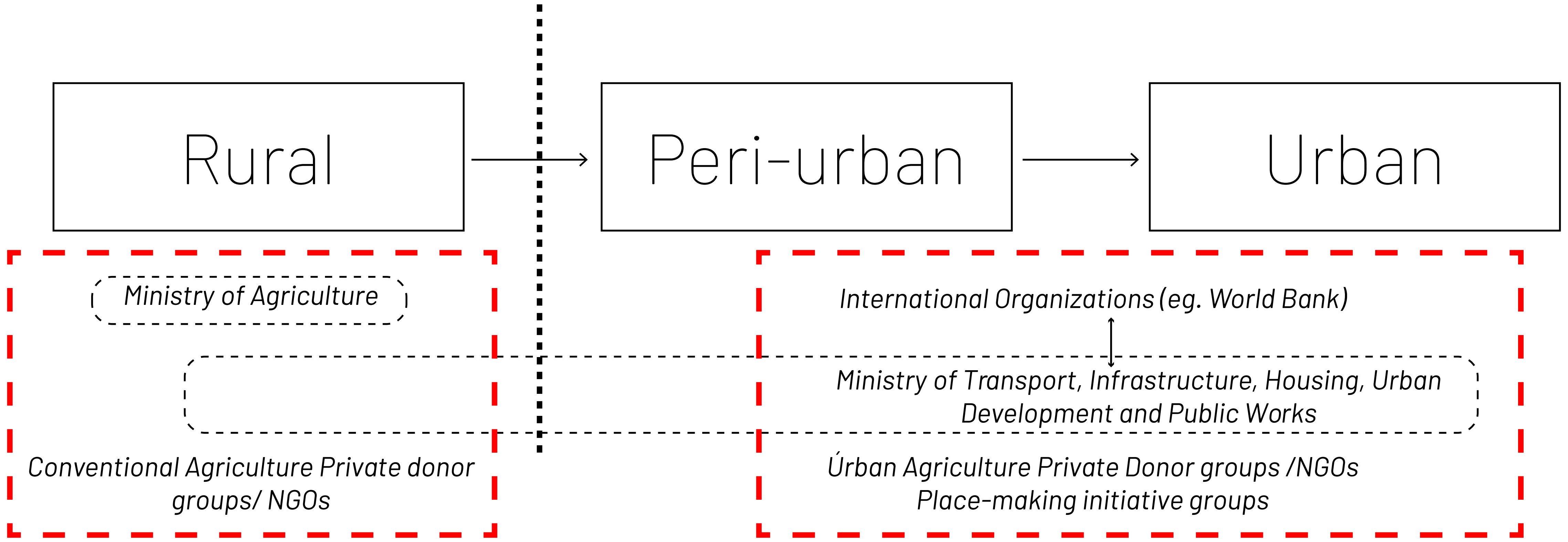
Stakeholder Analysis

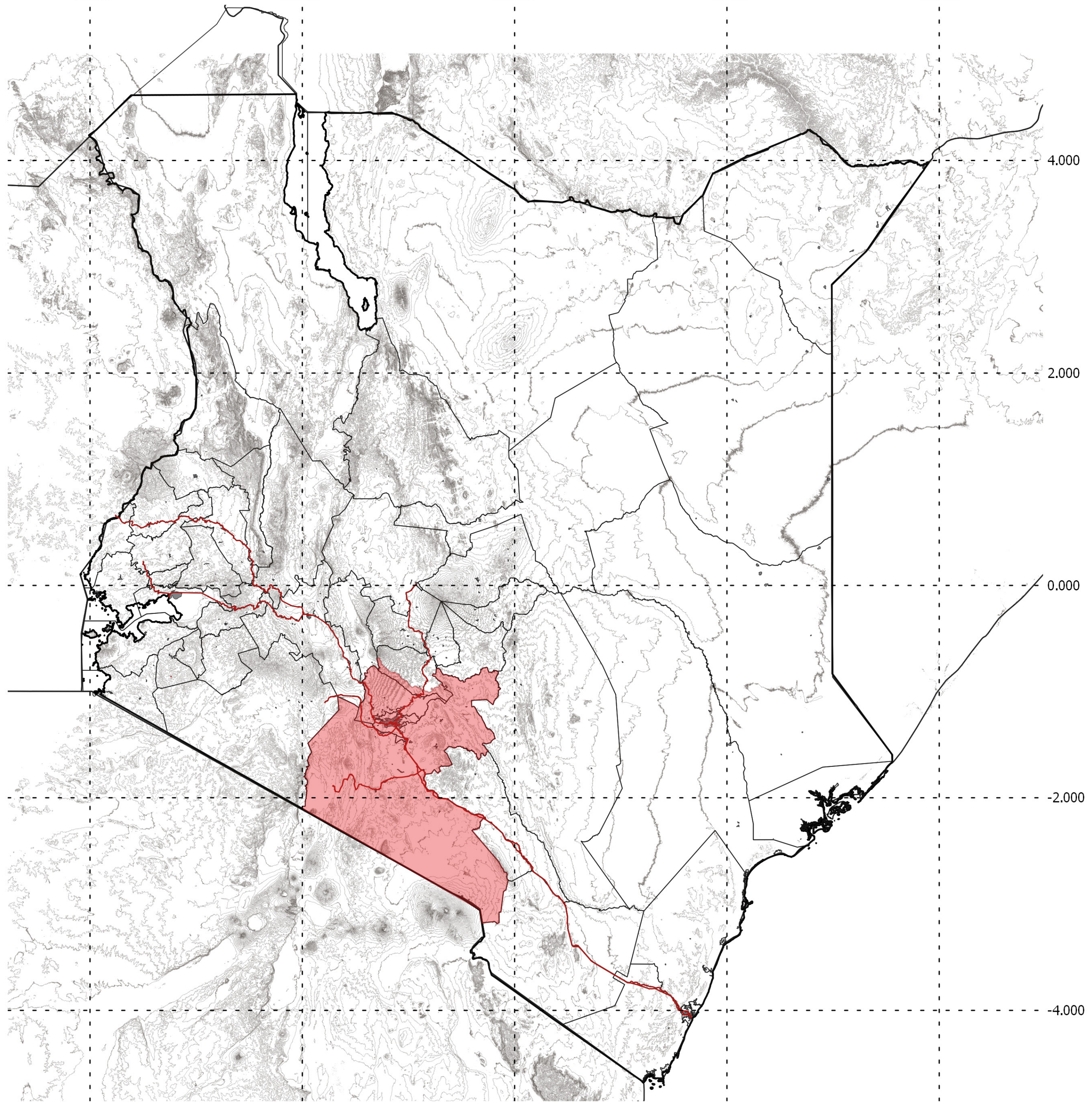




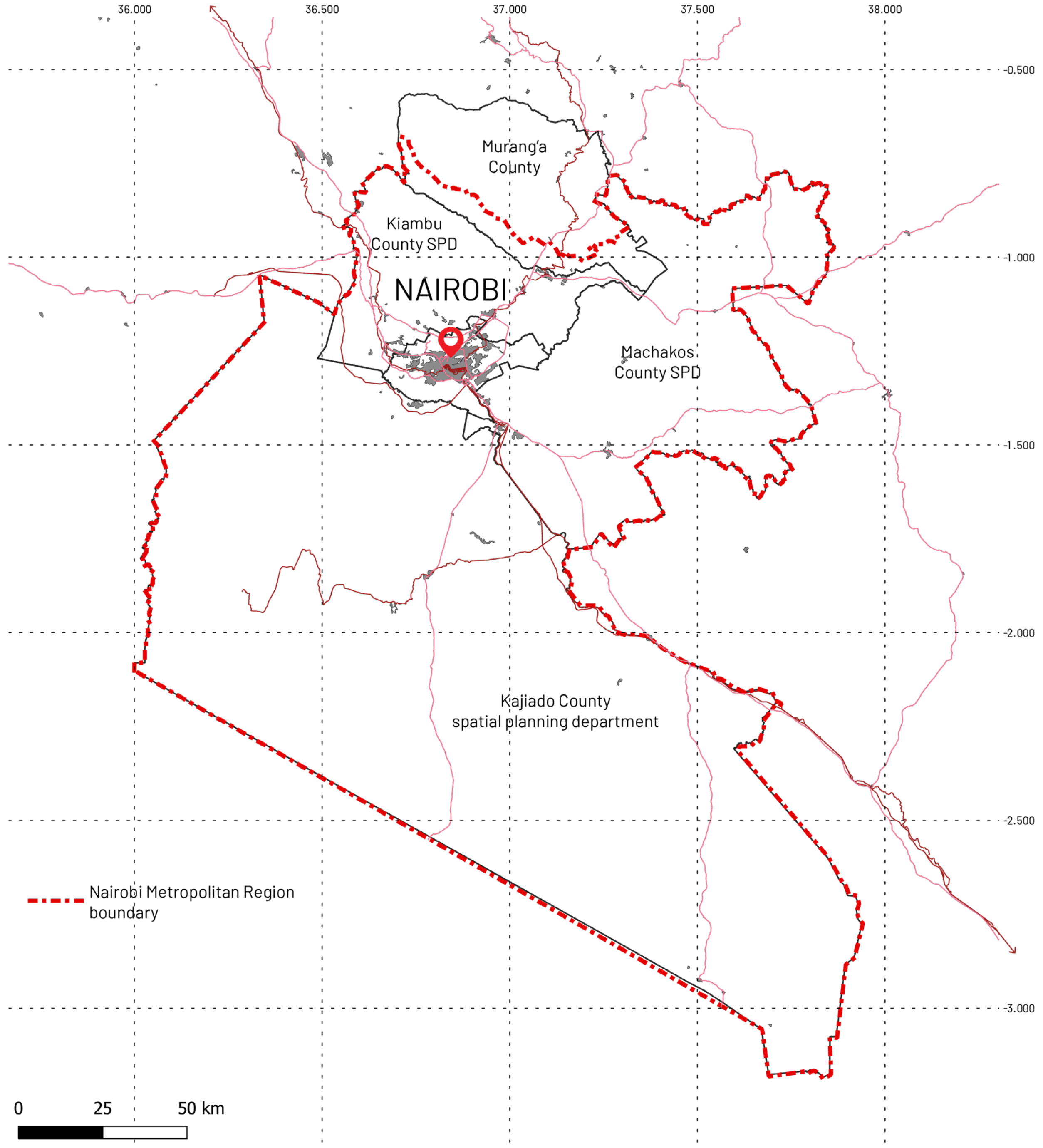
Stakeholder Analysis



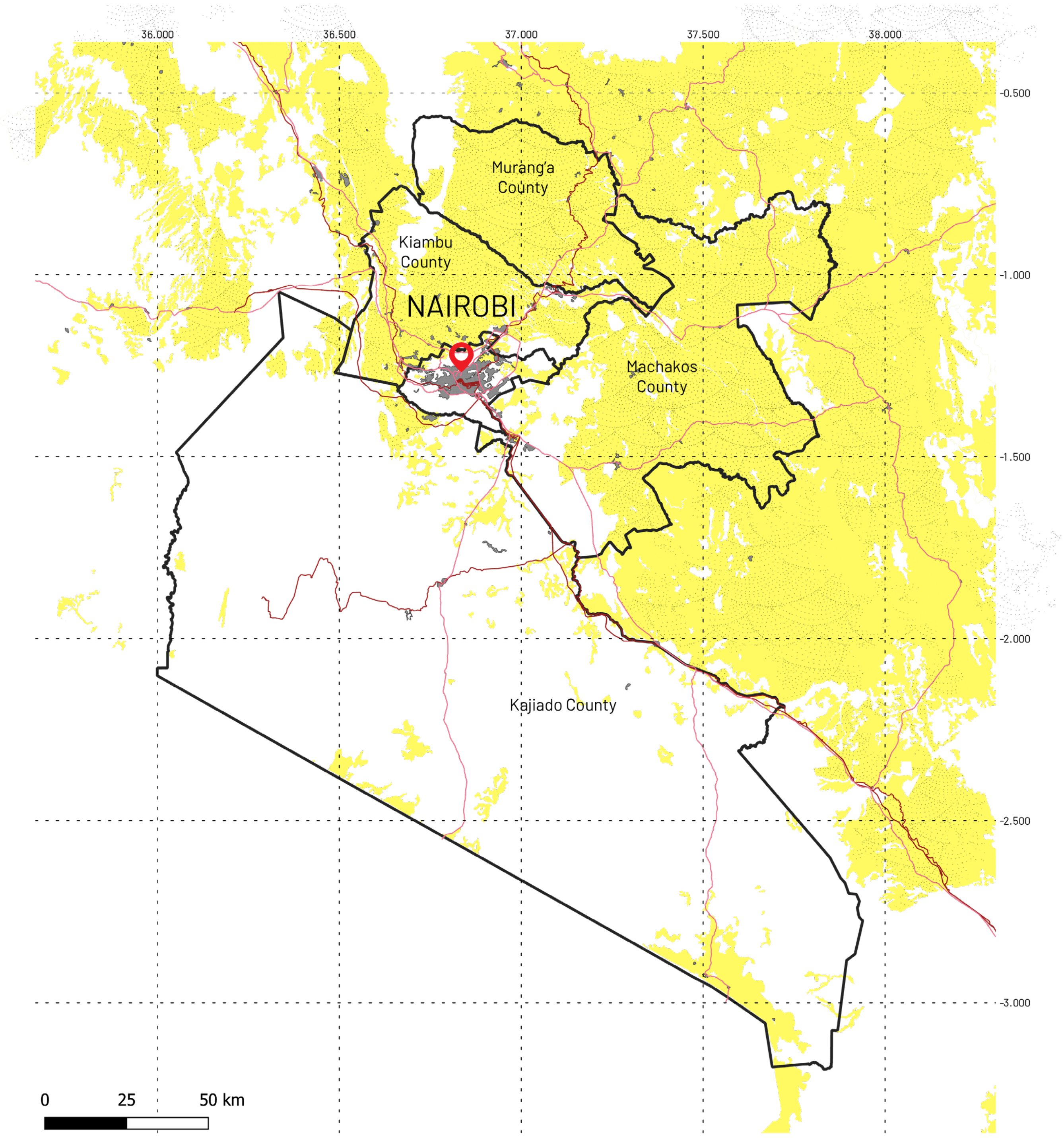




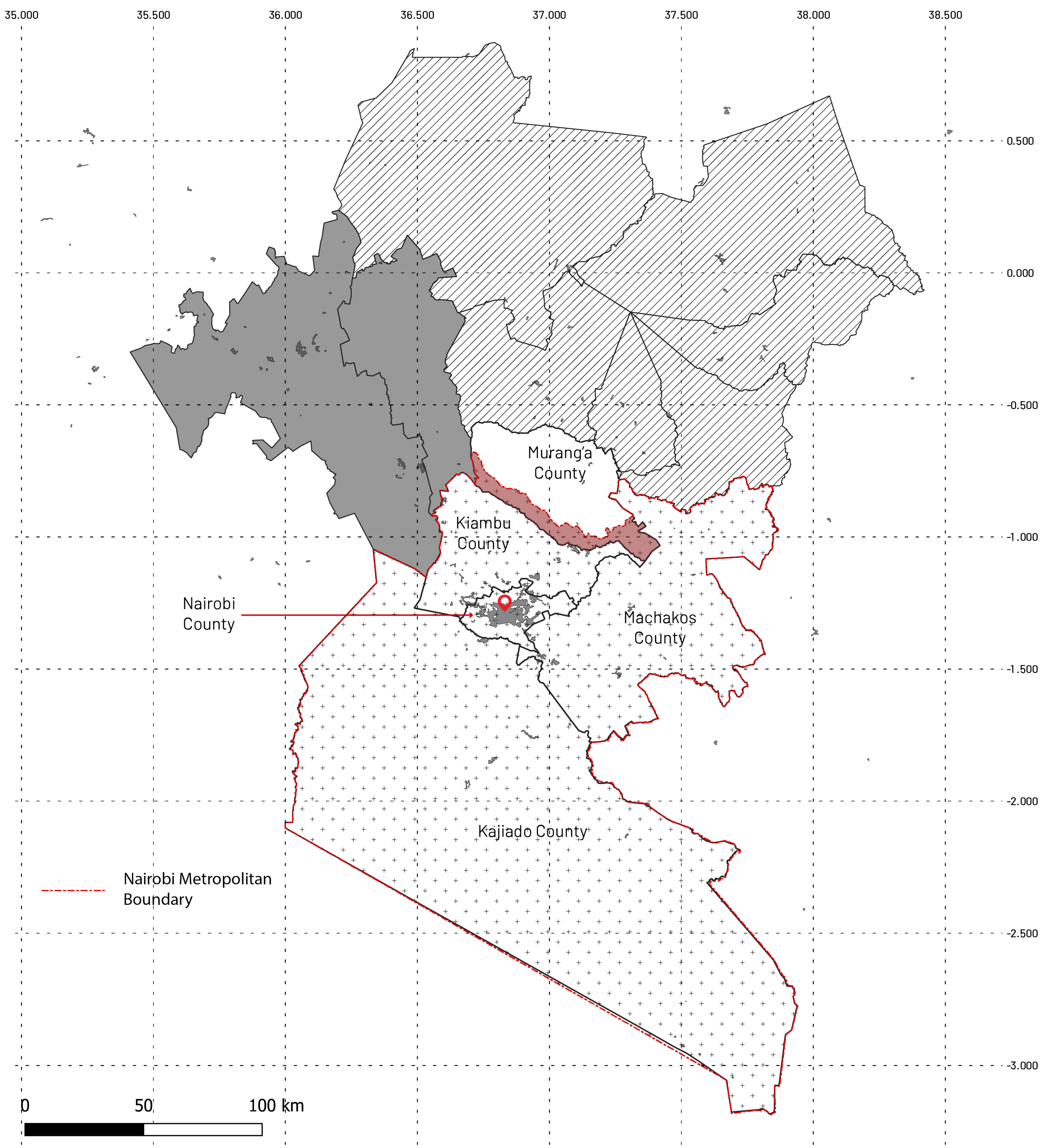
47 counties



Nairobi Metropolitan Region

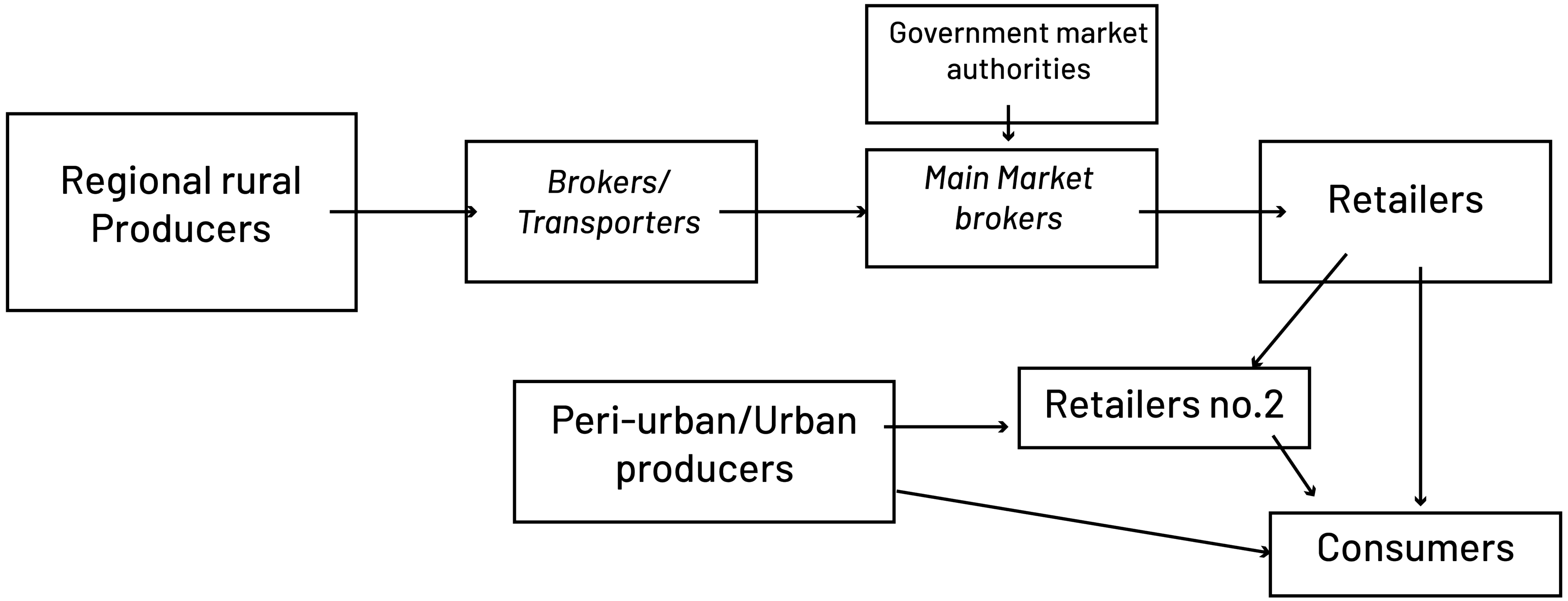


Agricultural hinterlands of Nairobi Metropolitan Region

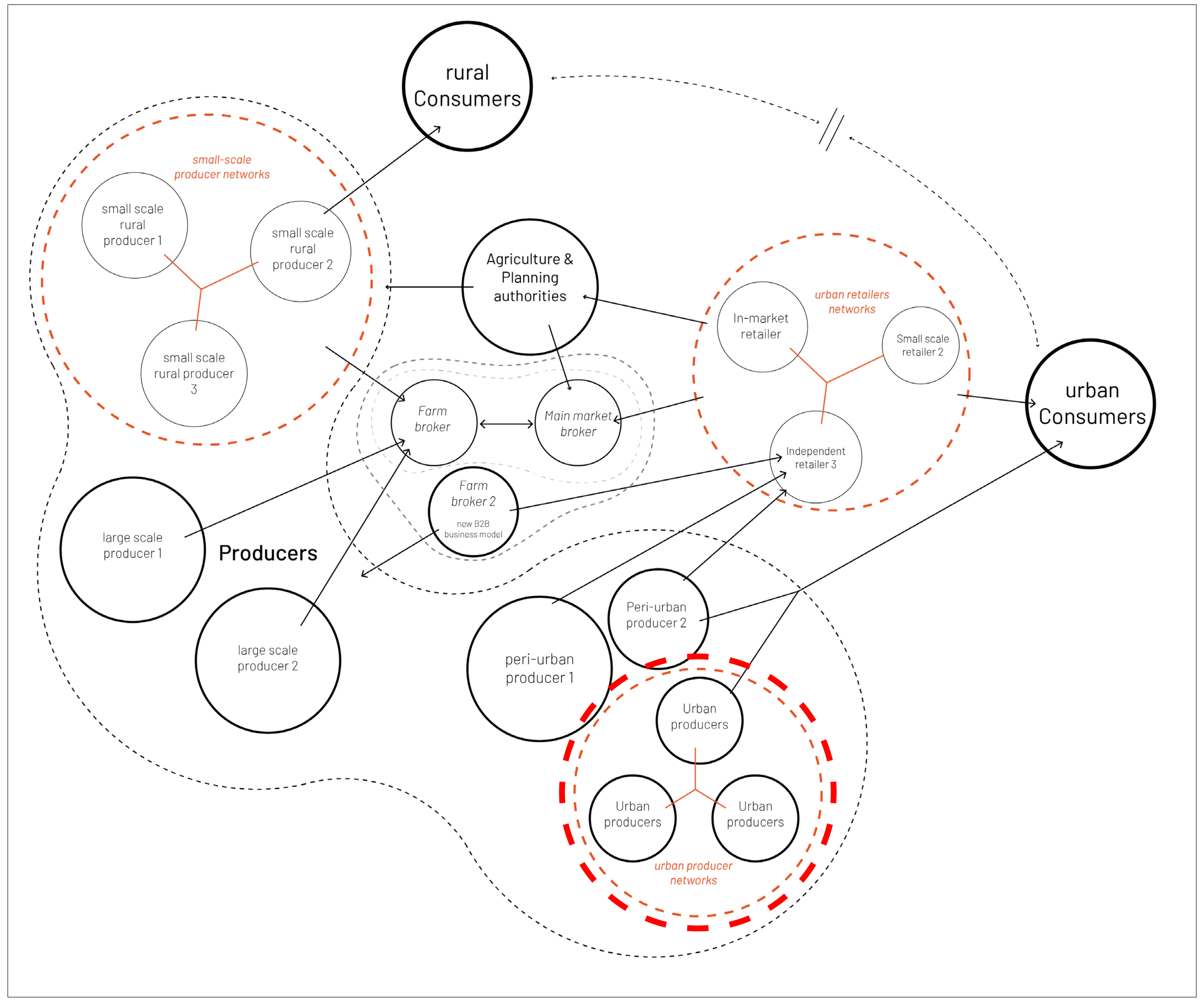


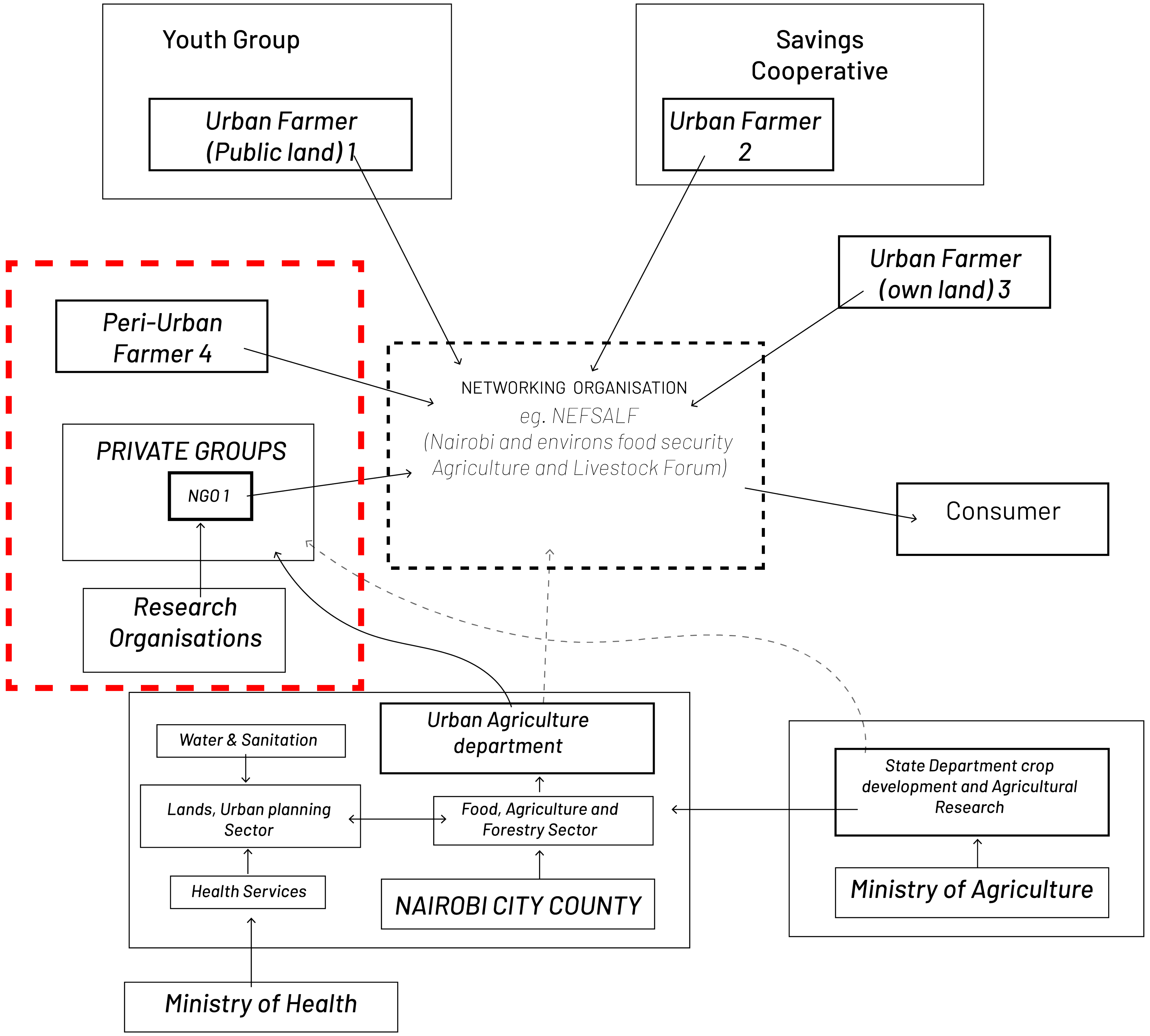
challenges of uncordinated metropolitan zoning

Stakeholder Analysis



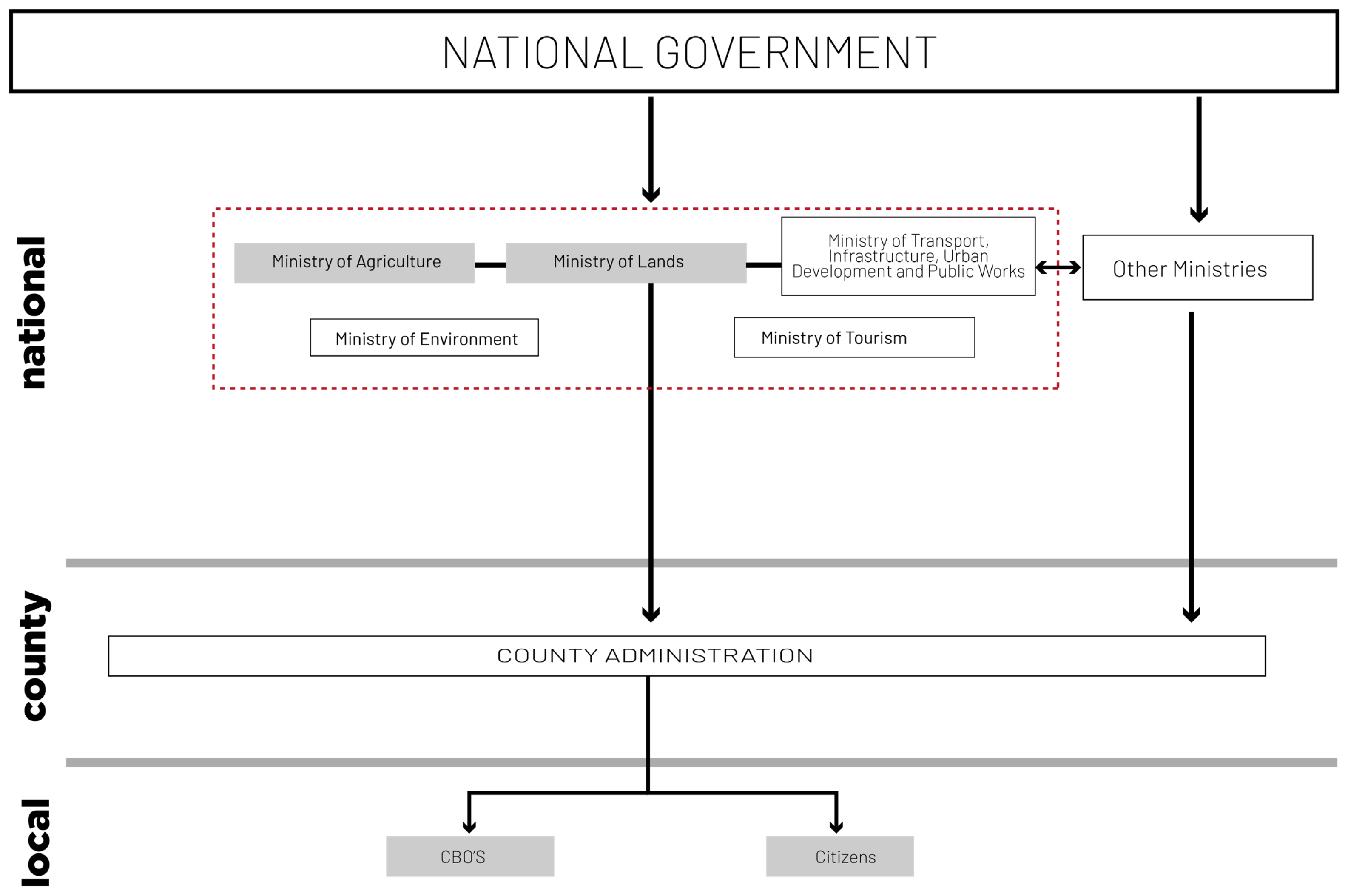
Stakeholder Analysis

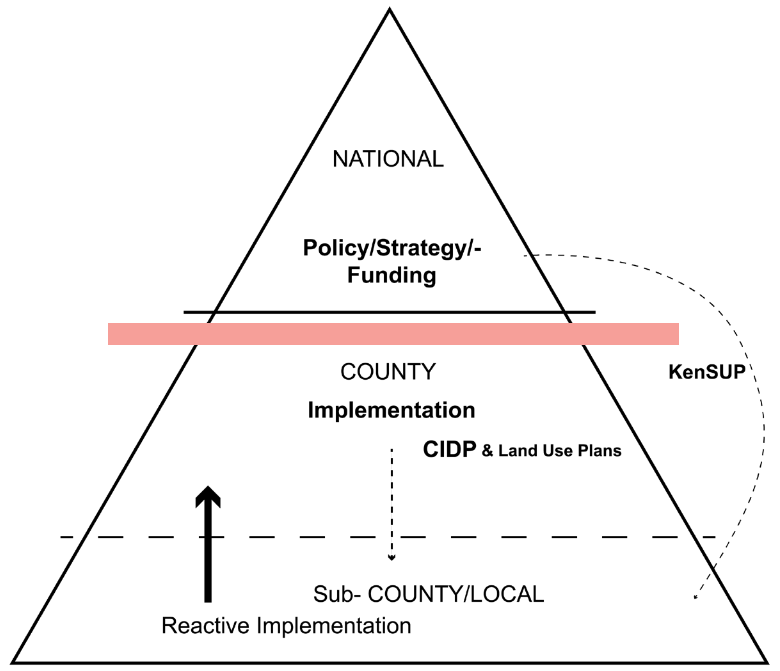


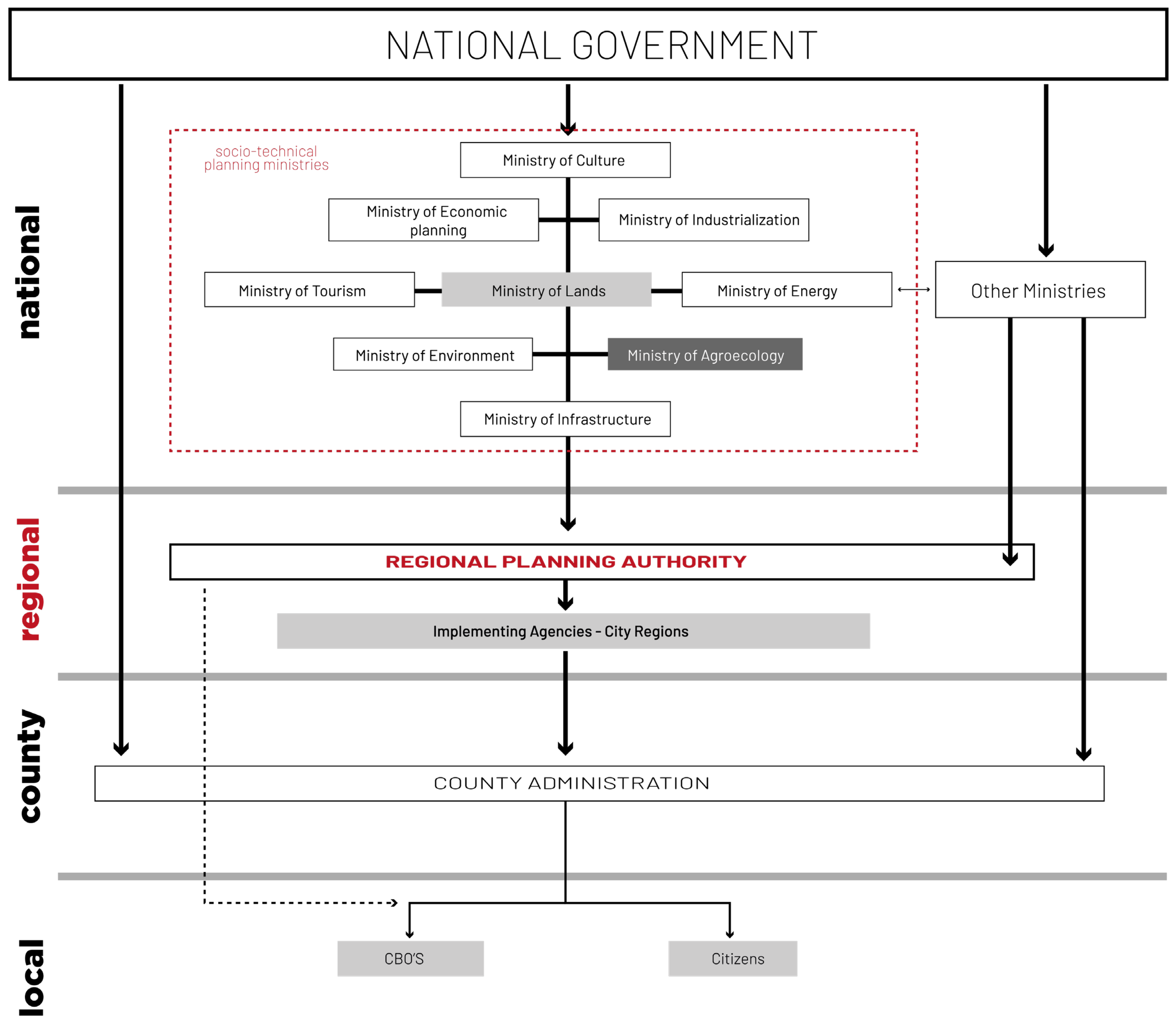


Agroecological governance

restructuring regional governance



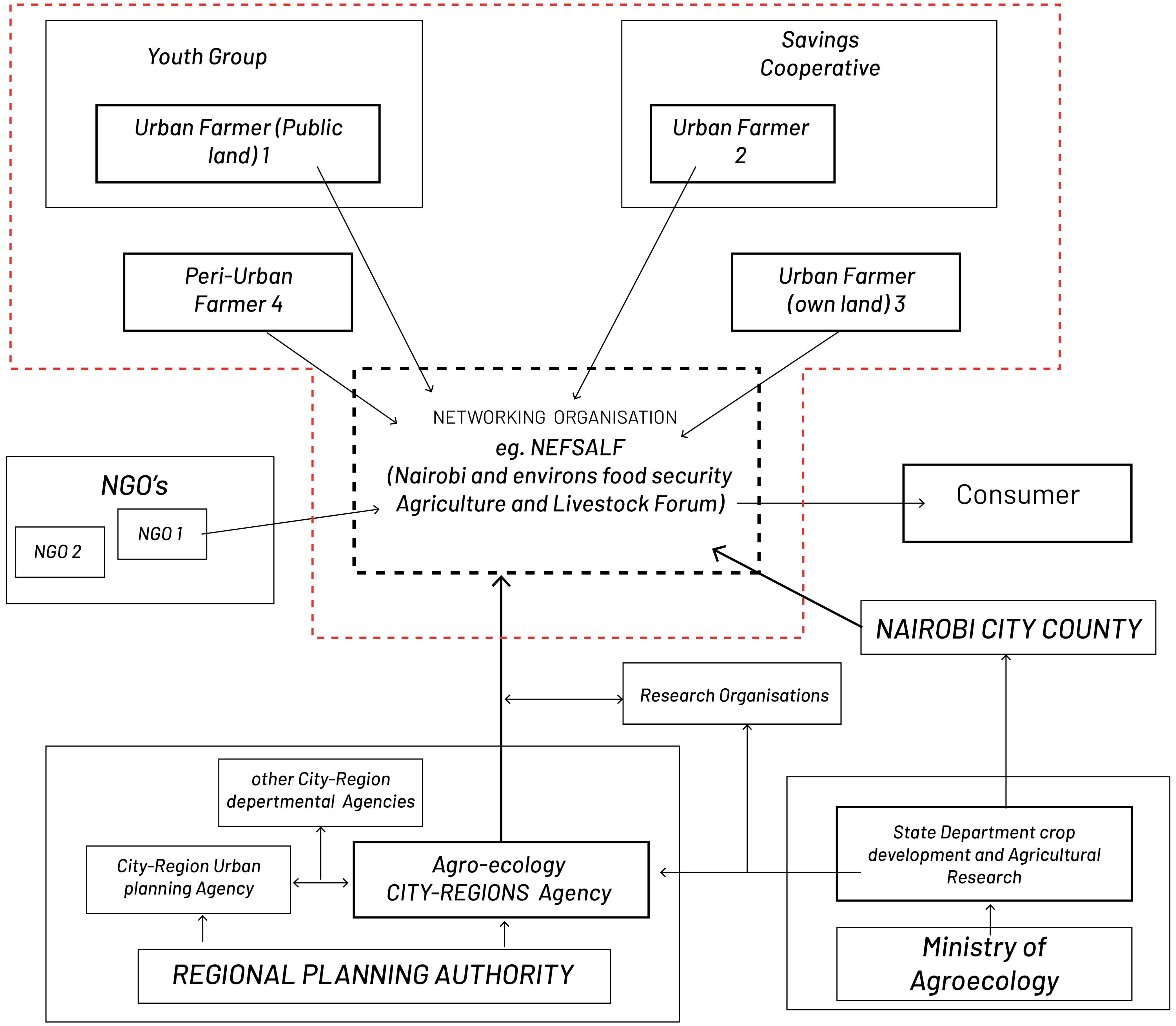




current national and local governance structure

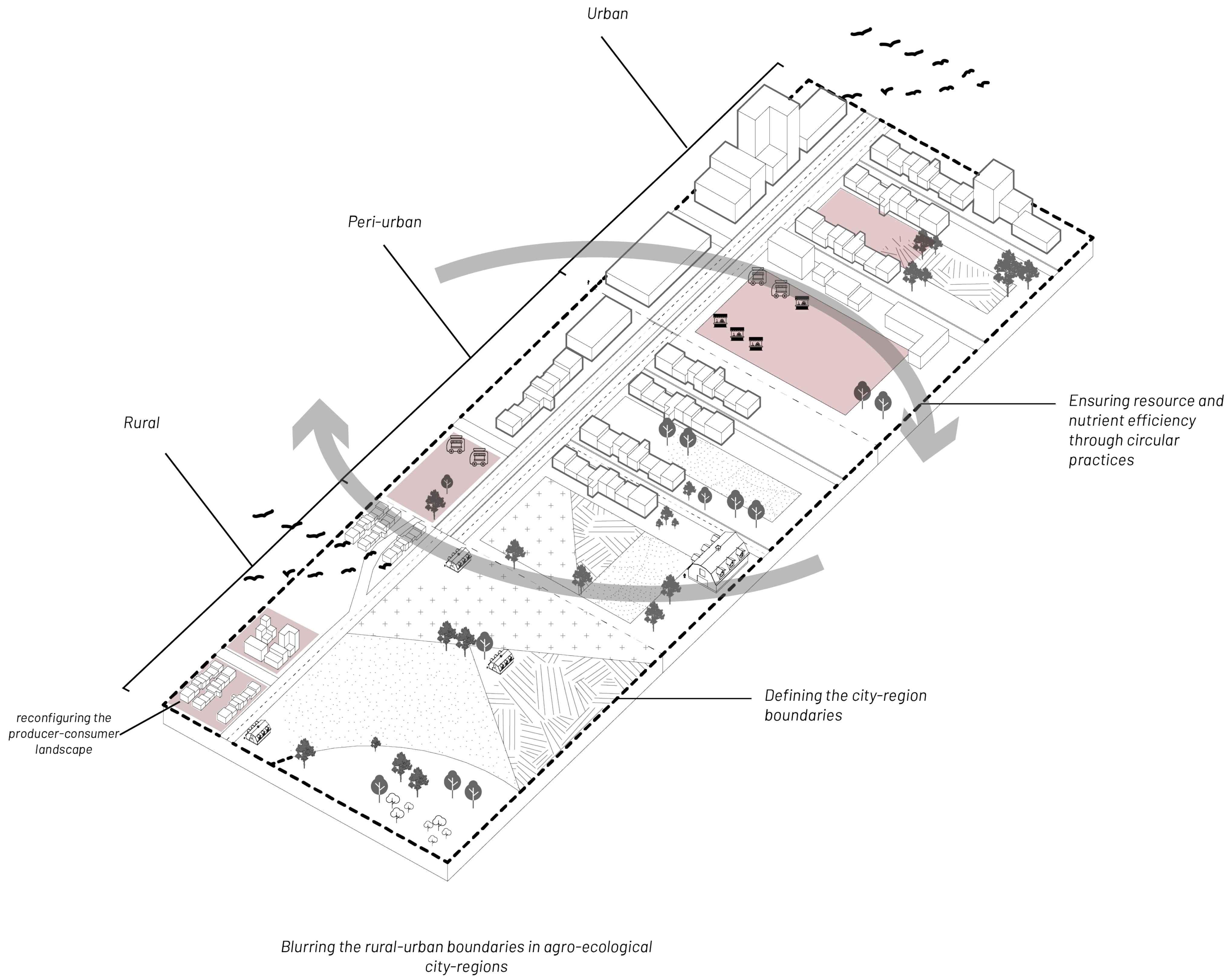
proposal for reconfiguring regional governance

restructuring regional governance

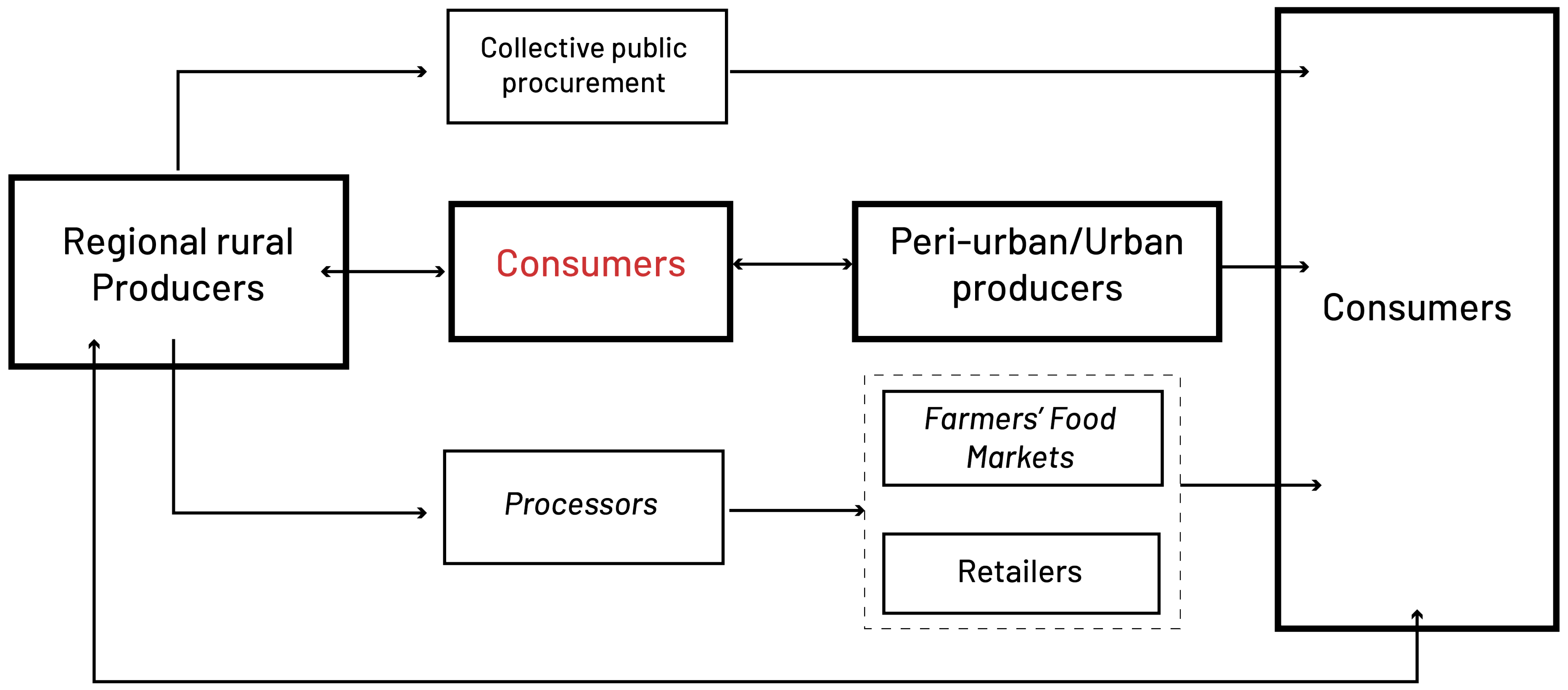


reconfiguring local producer networks to integrate regional governance structures and reduce para-state dependency

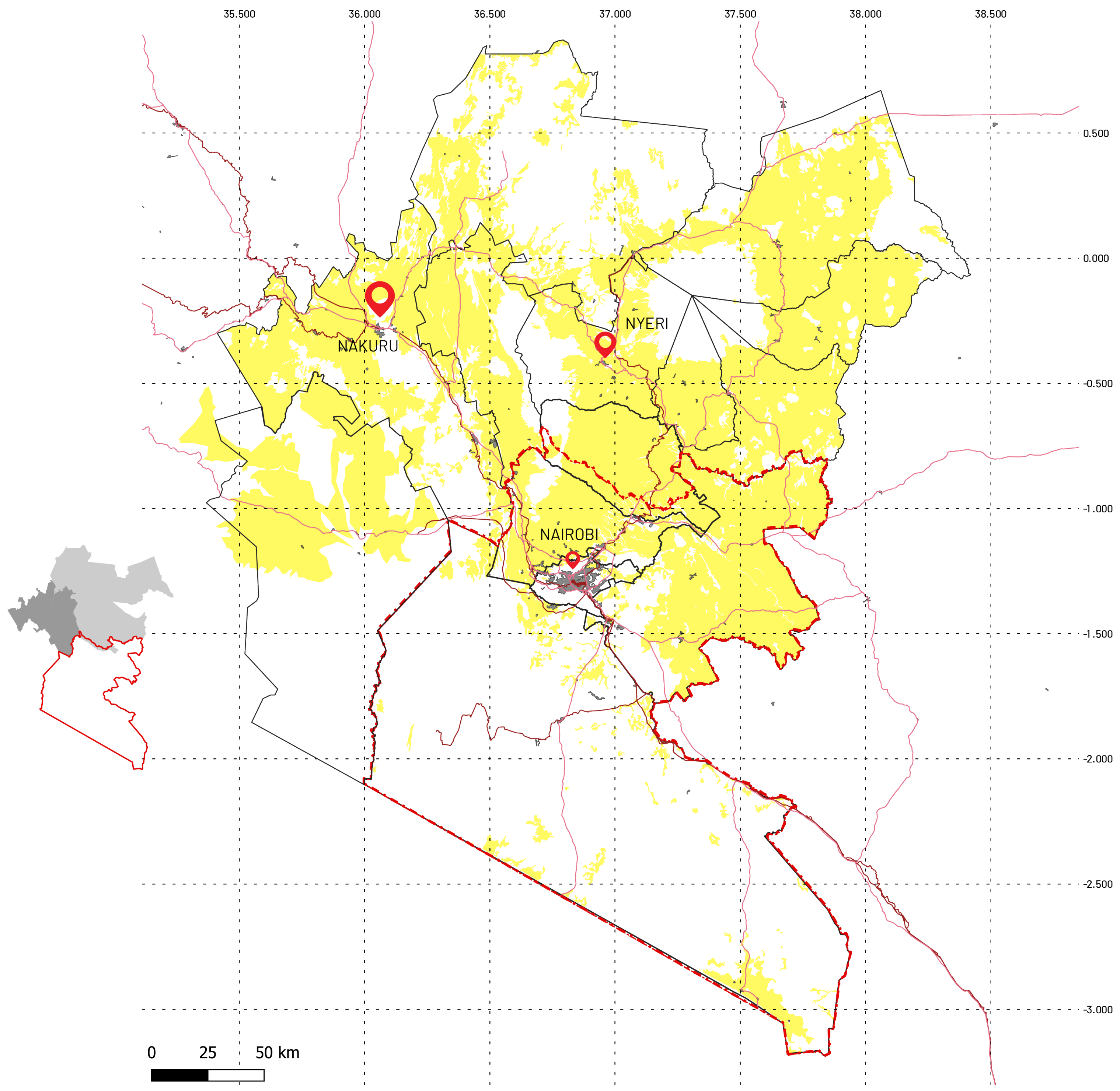
restructuring regional governance



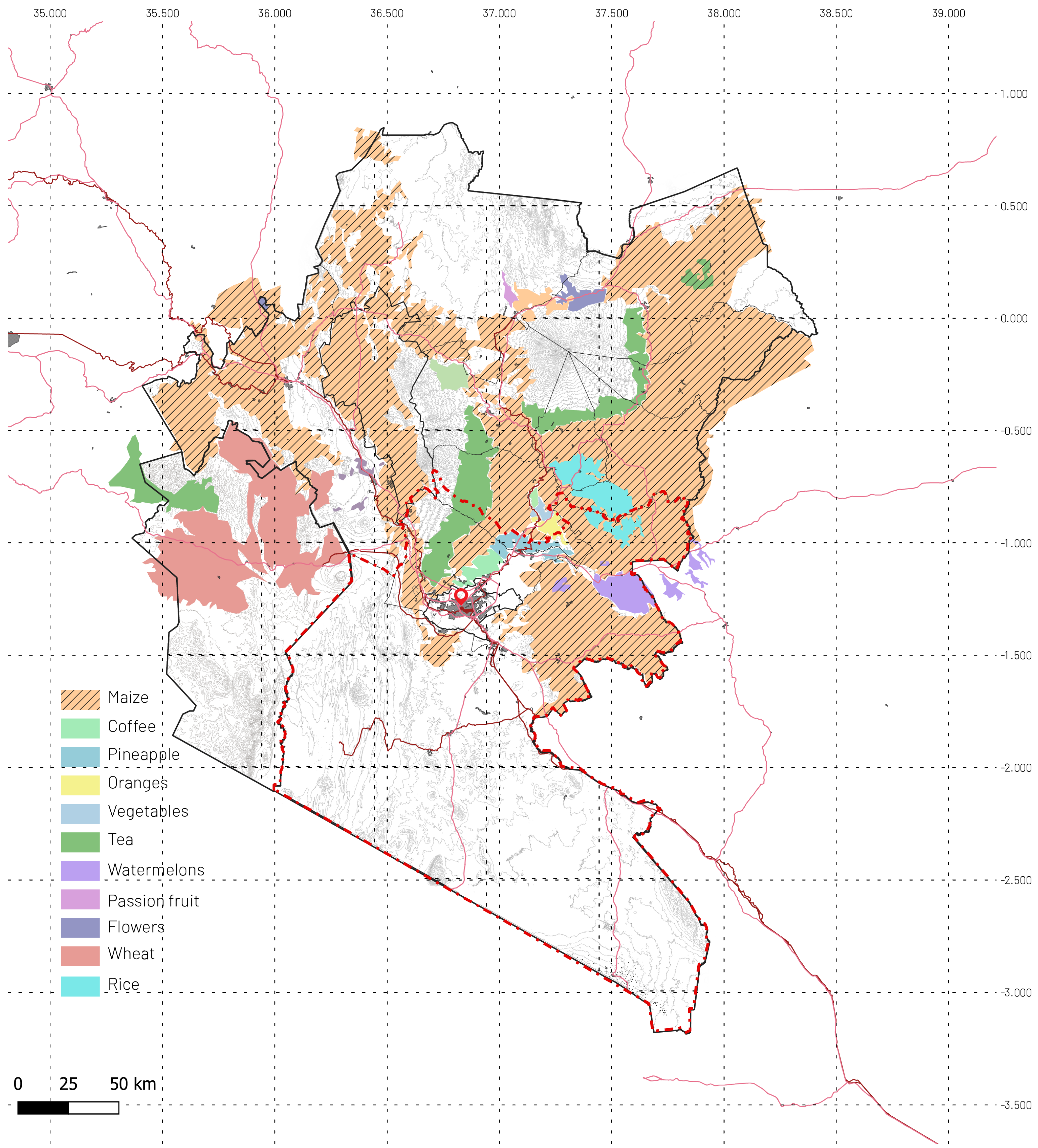
proposal for blurring urban-peri-urban rural boundaries in the city-region context



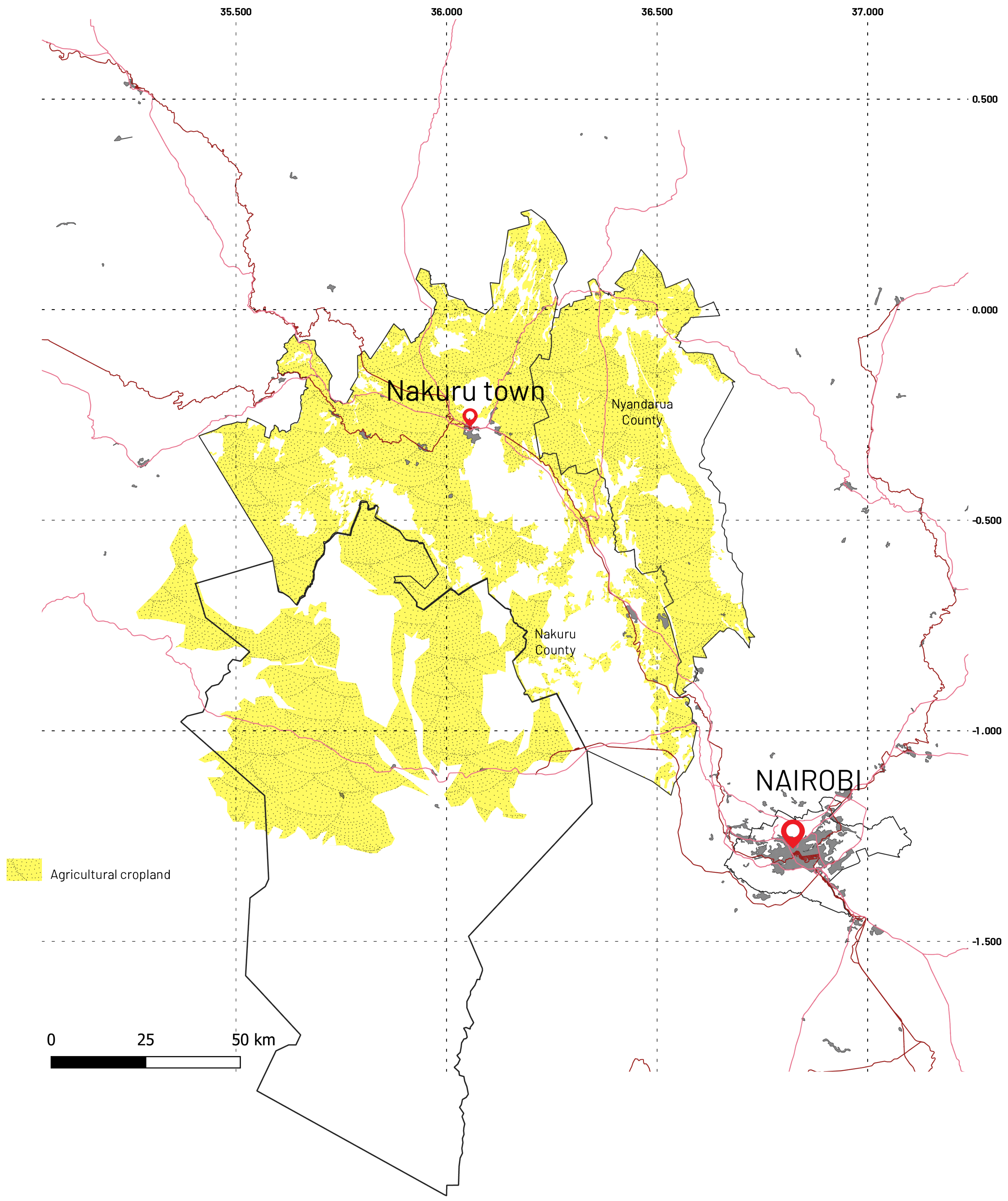
proposal for inclusion of new rual consumer networks through rural urbanisation



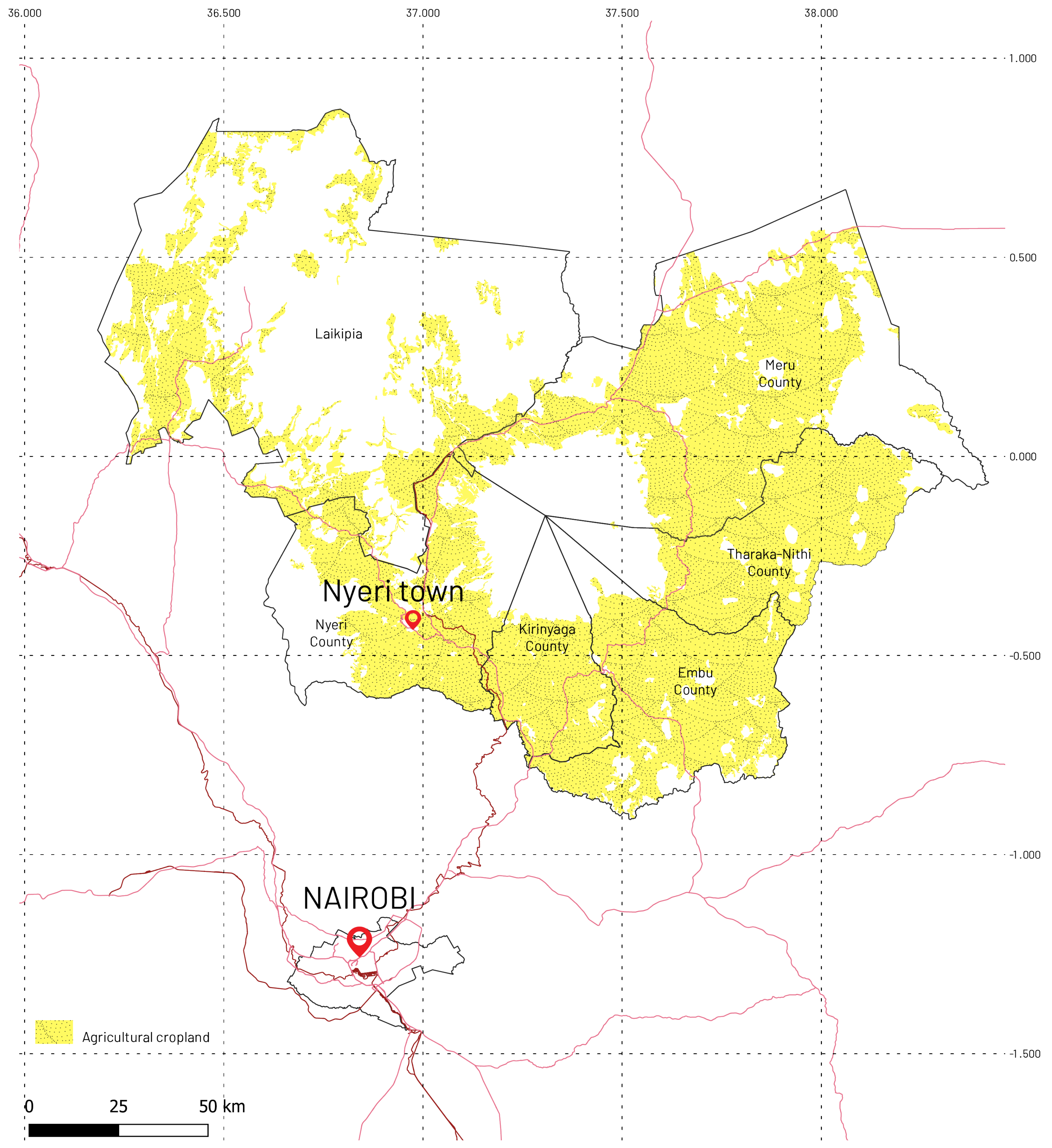
Current immediate regions that Nairobi's food system relies on. This covers an area adminsitered through 12 administrative divisions (counties).



Crop diversity in the regional hinterlands of Nairobi metropolitan's influence zone.

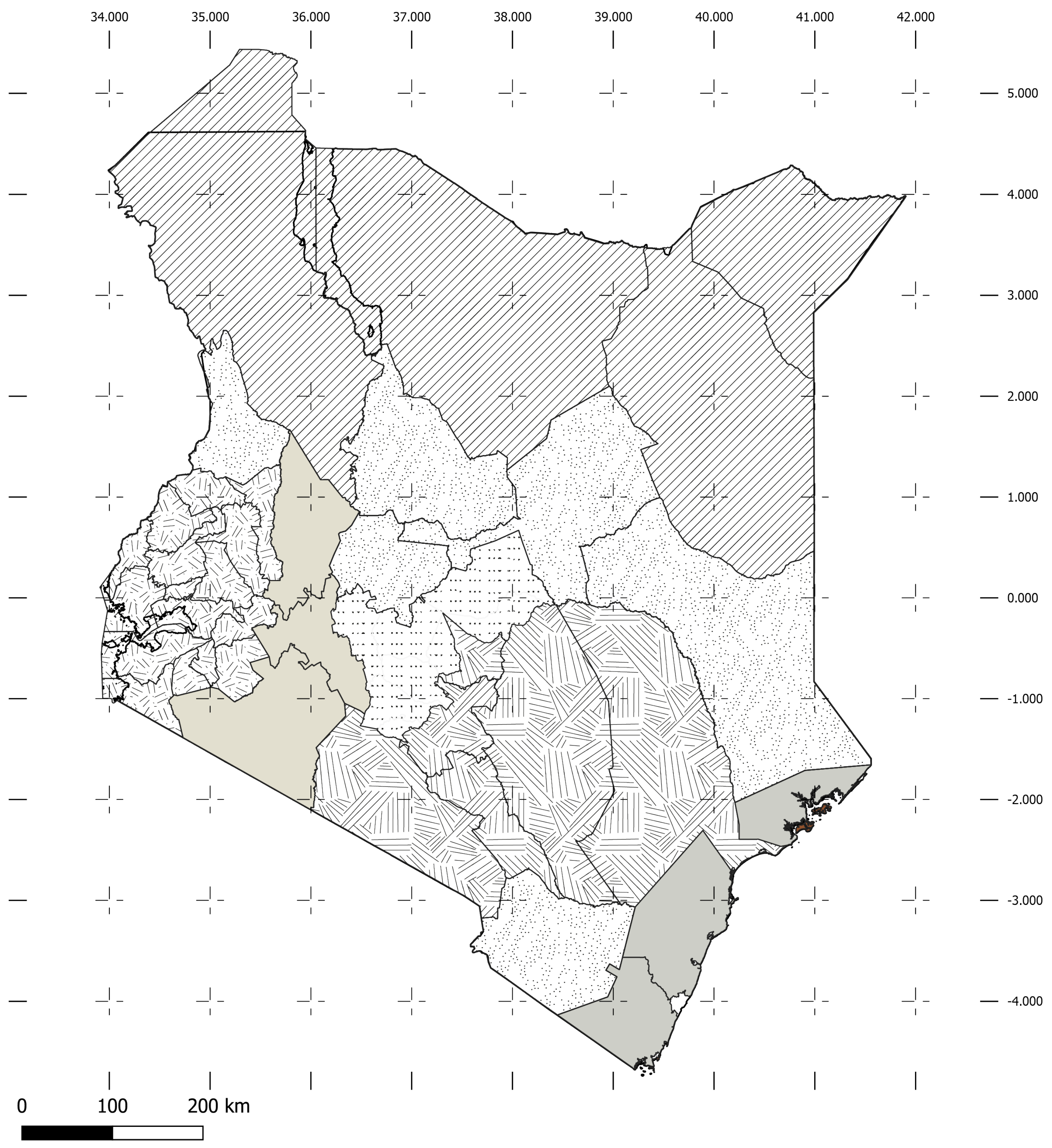


the Nakuru city-region

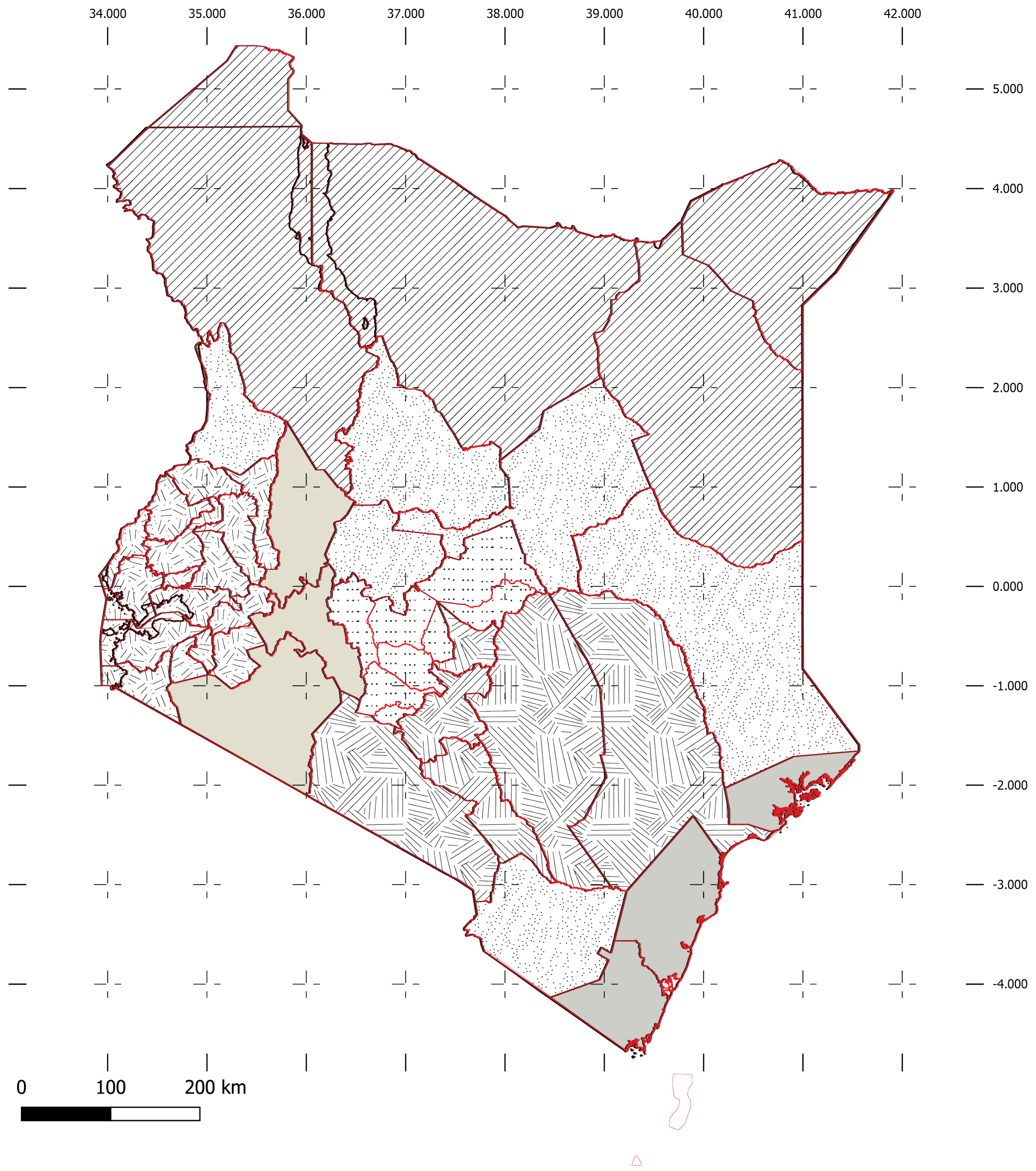


the Nyeri city-region

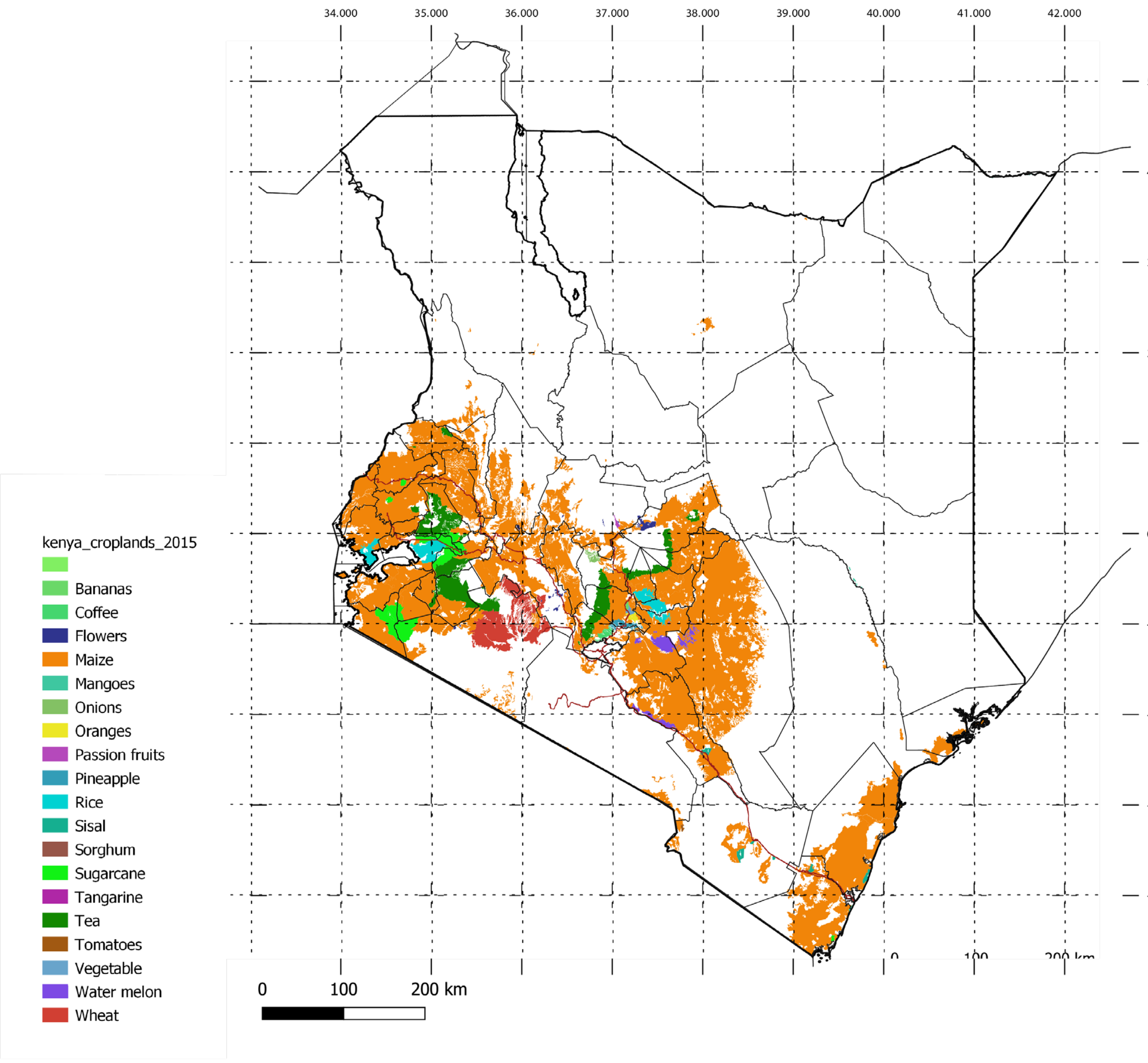
Vision for City-Region planning in Kenya



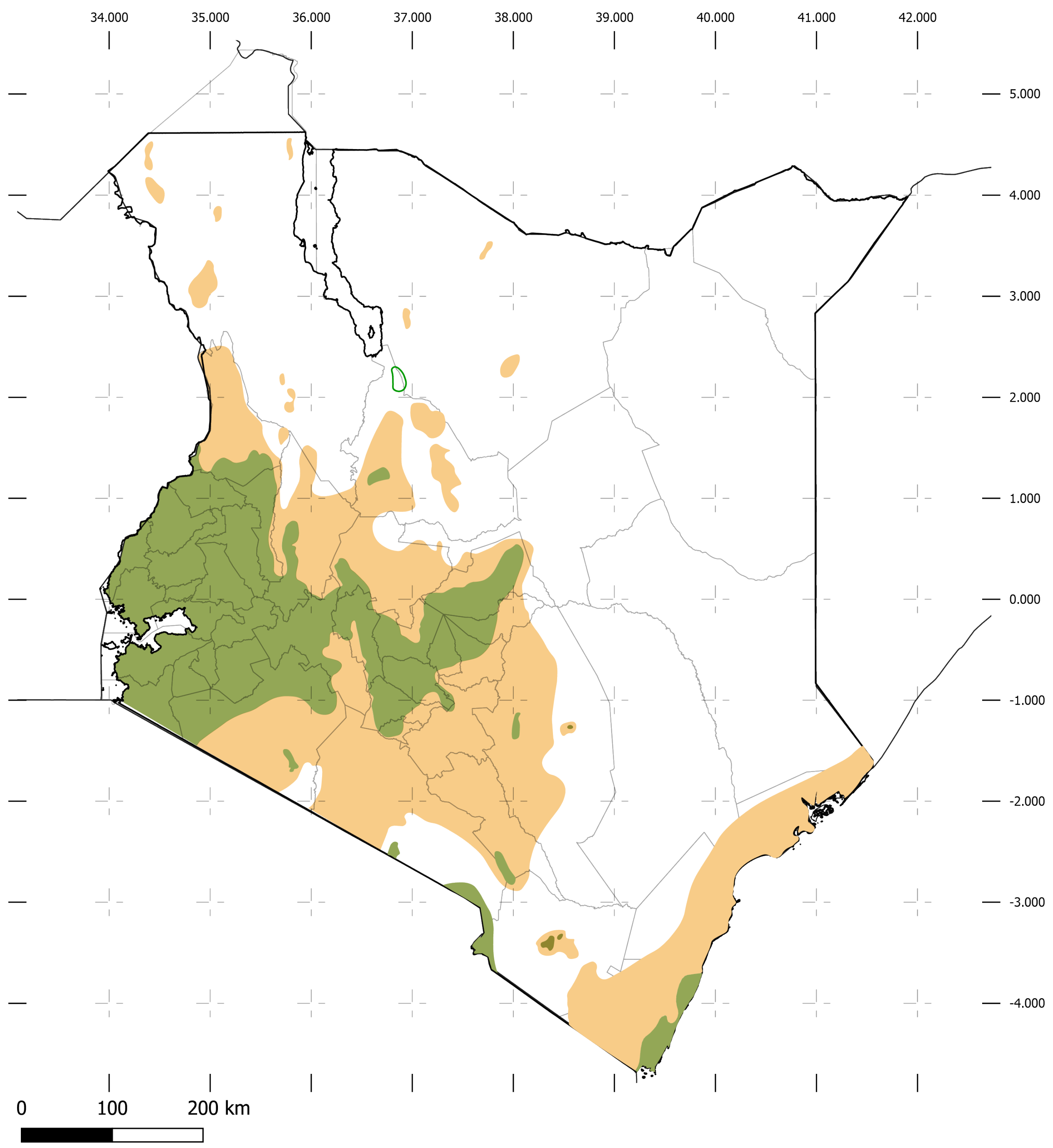
Types of farmers across the different agroecological landscape, according to the Agricultural Sector Transformation and growth strategy



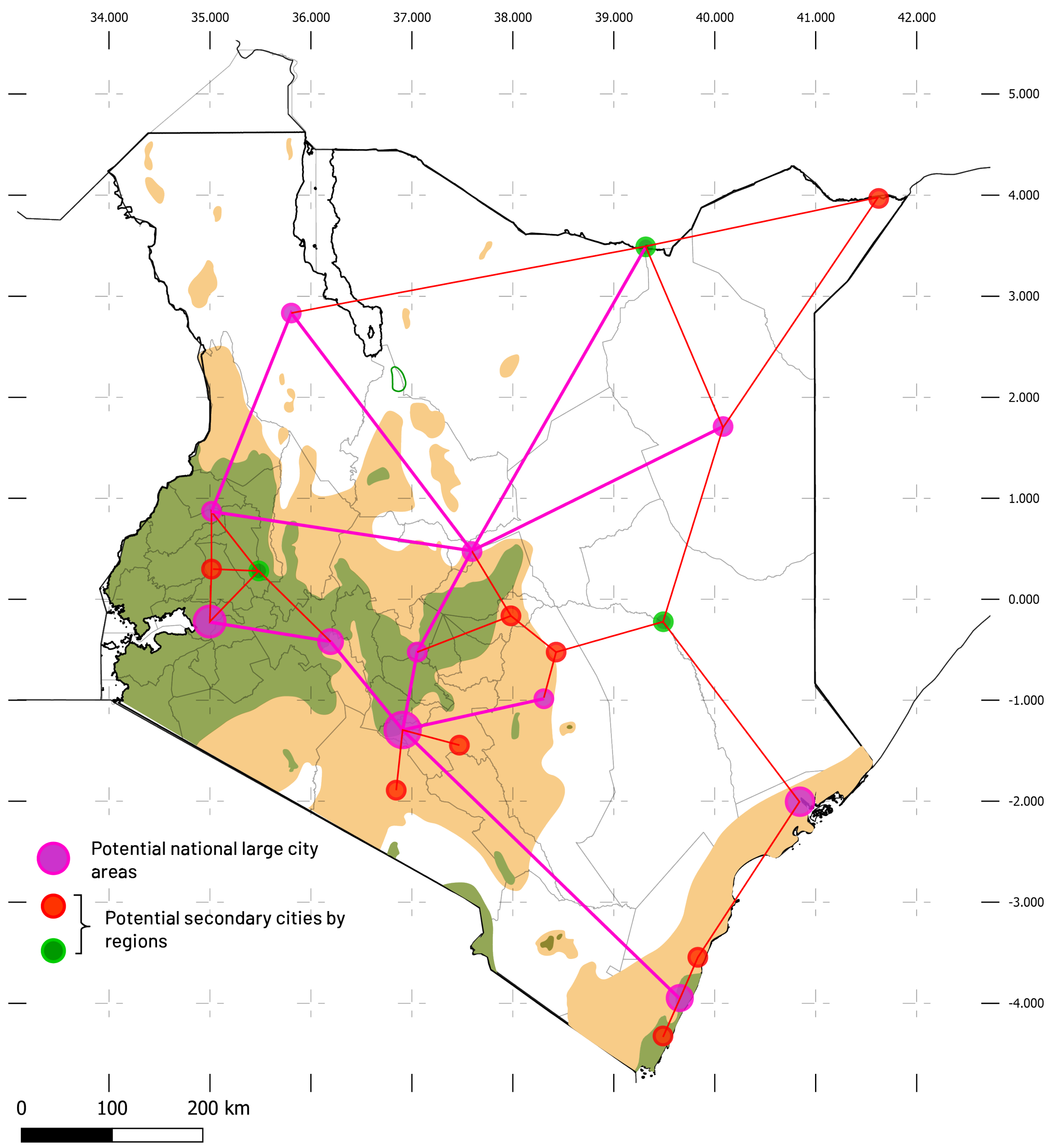
Types of farmers across the different agroecological landscape, against existing county administrative boundaries



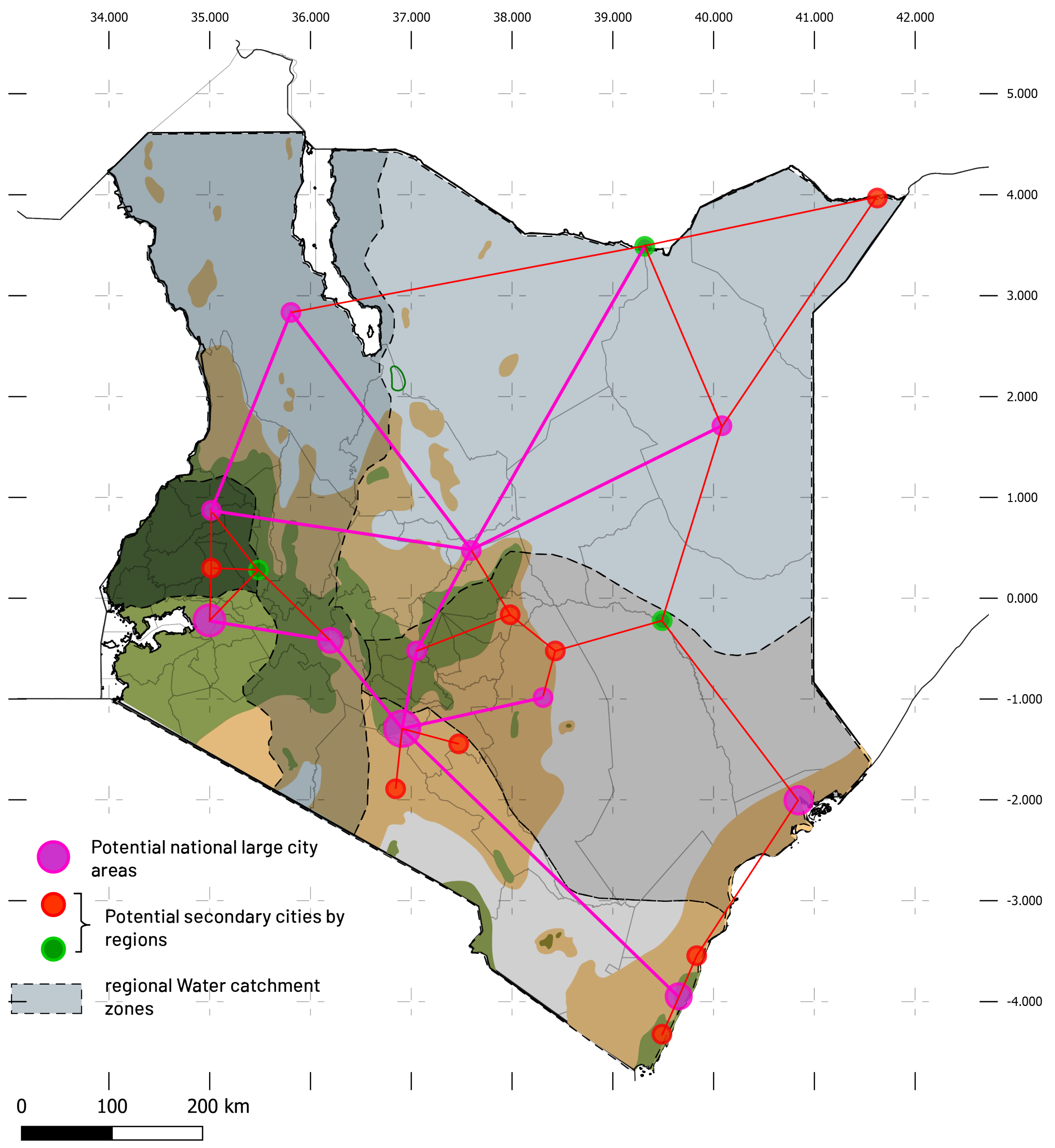
Current crop diversity distribution across the entire region within different county administrative boundaries.



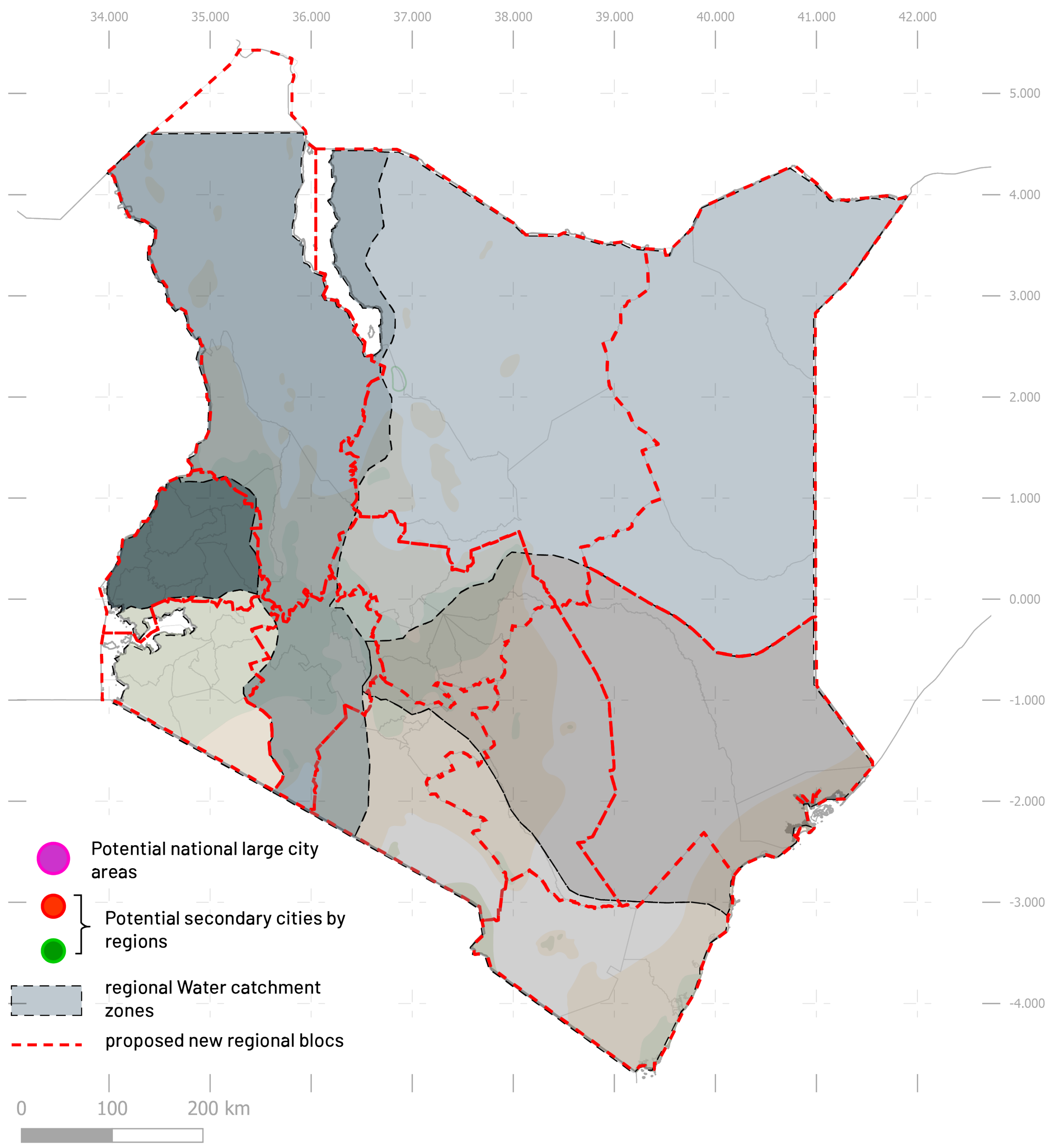
Agroecological zone distribution in Kenya (source; rcmrd.org



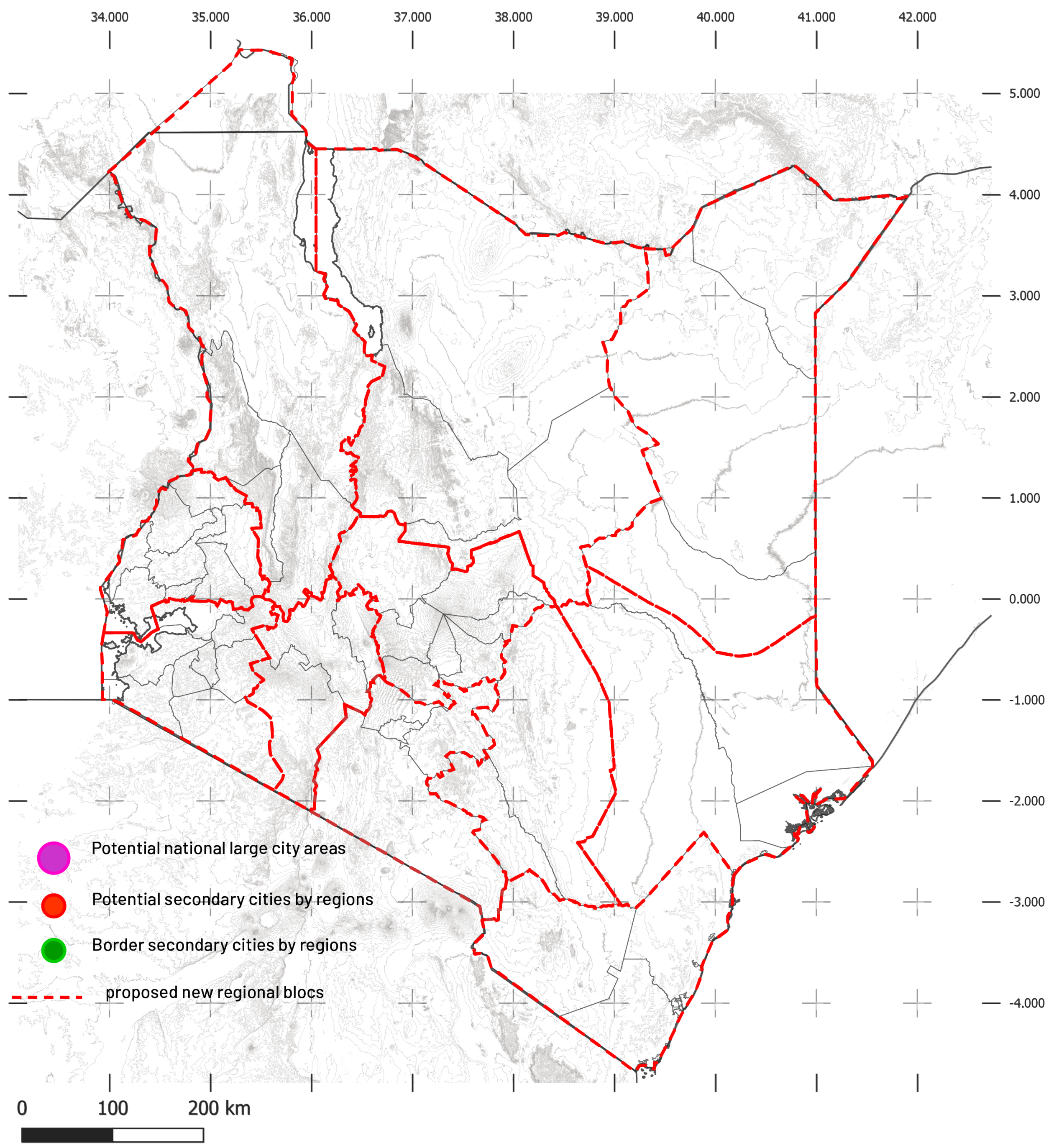
Current and potential national urban growth centres based on the National Spatial Plan (Source: Department of Planning, 2015)



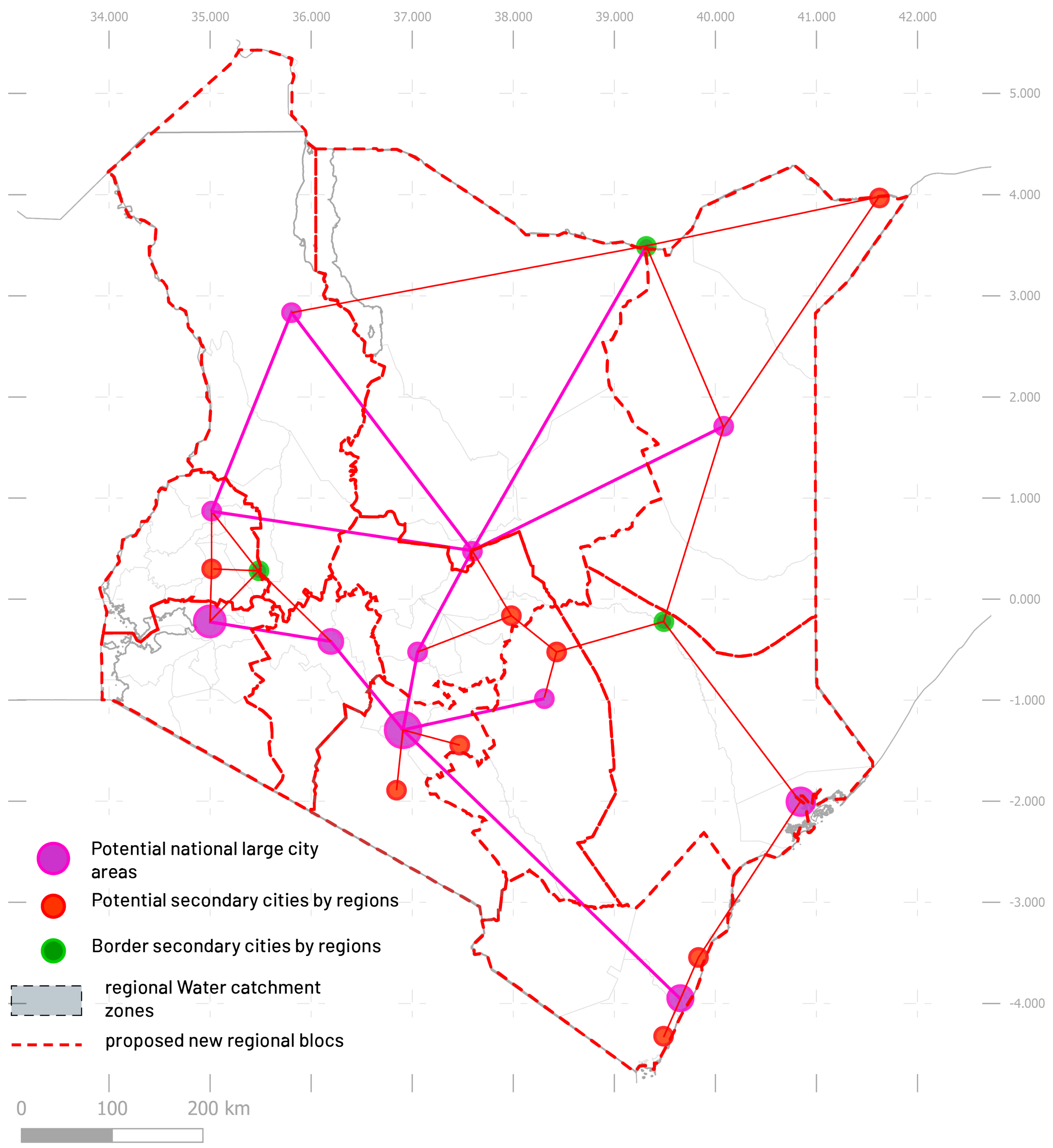
Potential urban growth centres, agroecological zones and water catchment zone distribution in Kenya



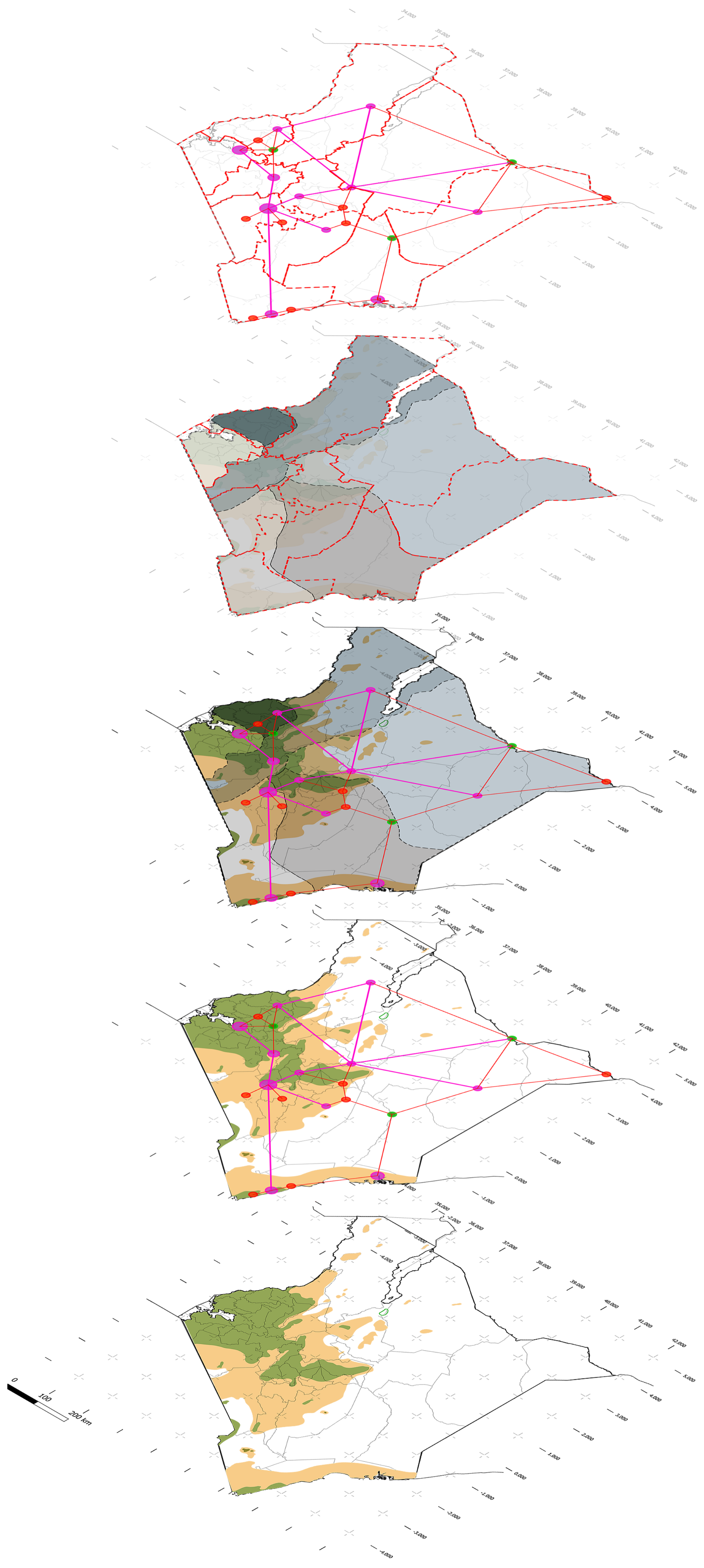
Reconfiguring new city-regions based on water resource catchment zones and agroecological zones.

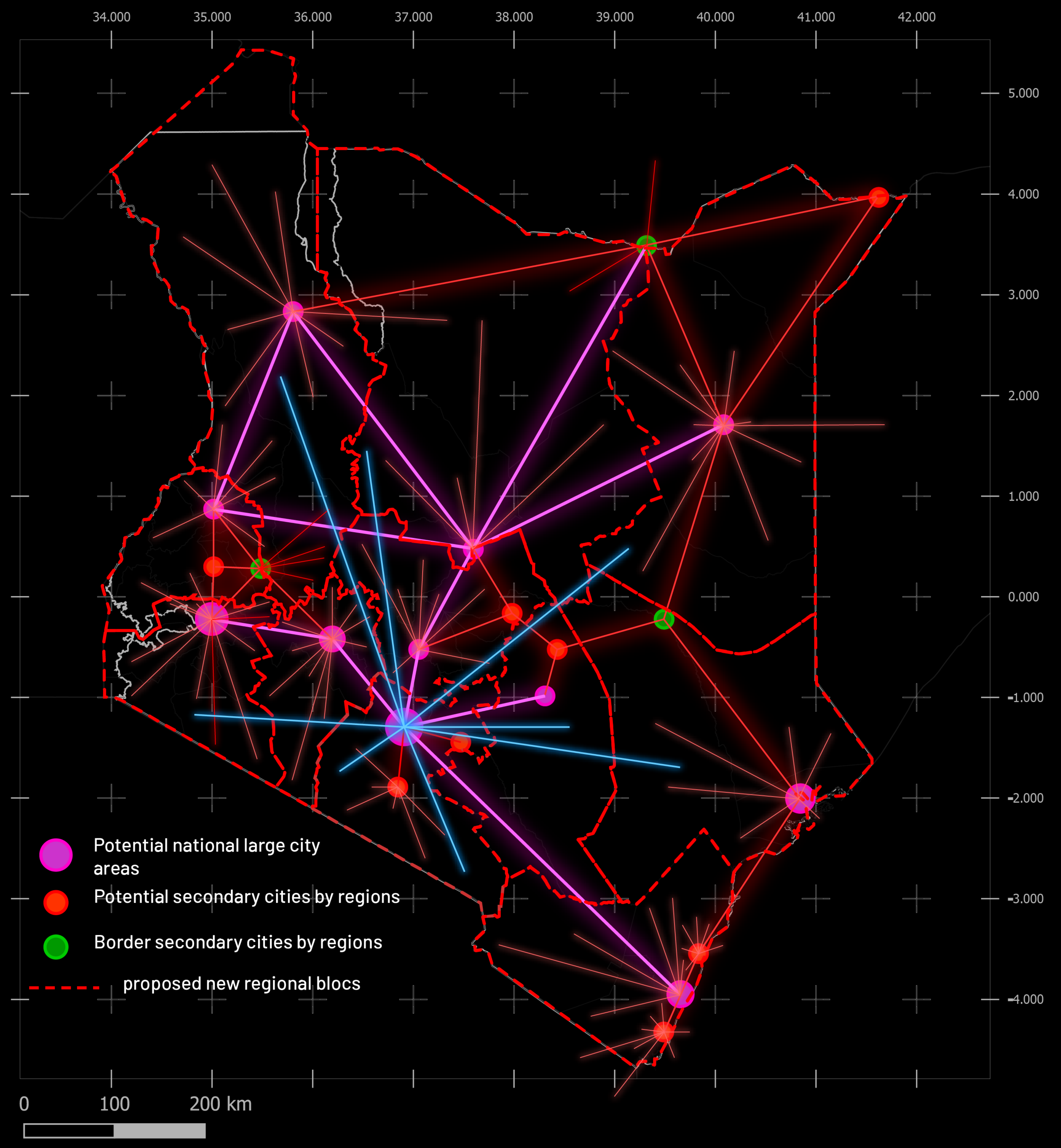


Proposal for new city-region boundaries

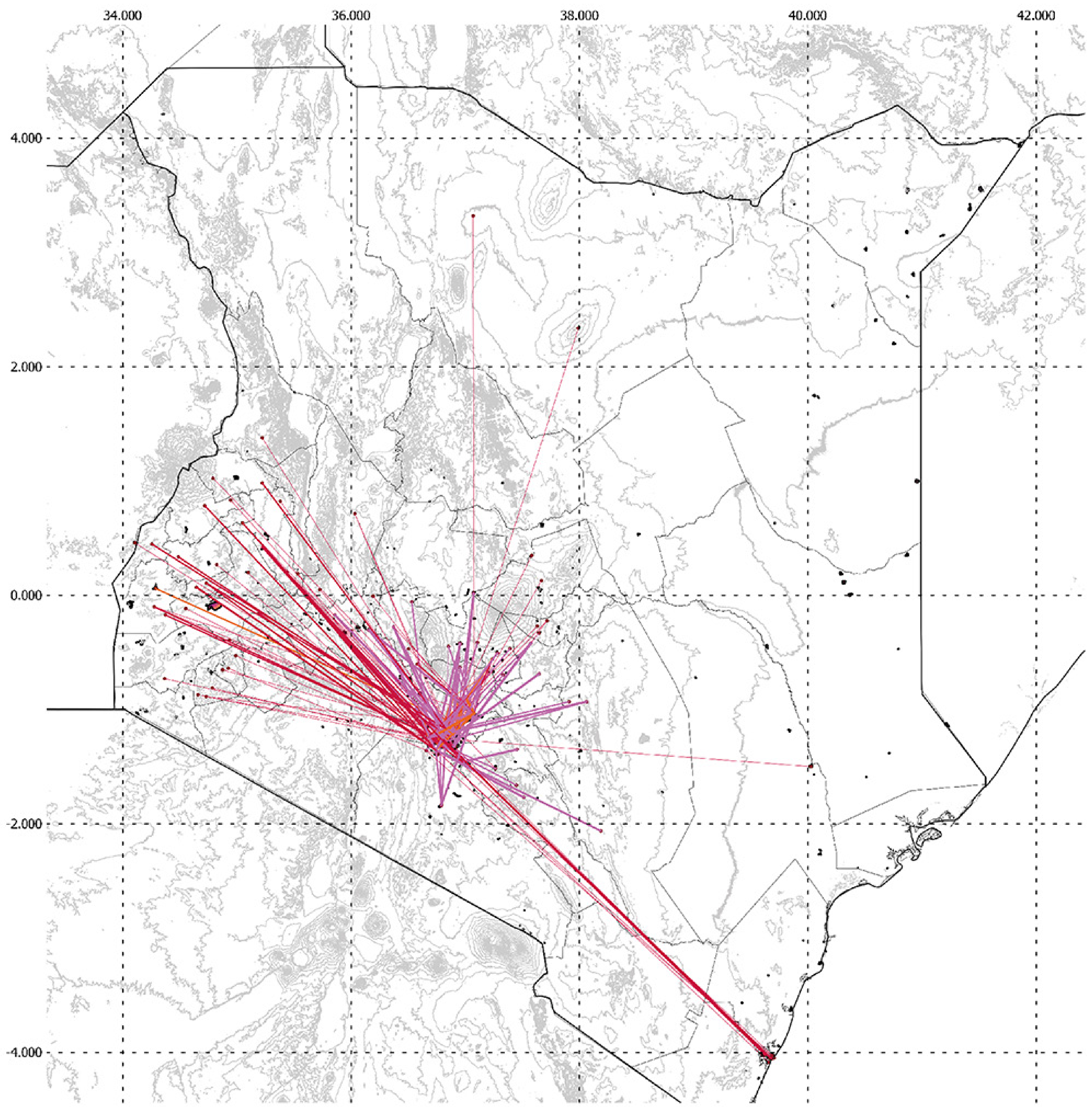


Proposal for new city-region connectivity between proposed urban centres of the new city-regions.

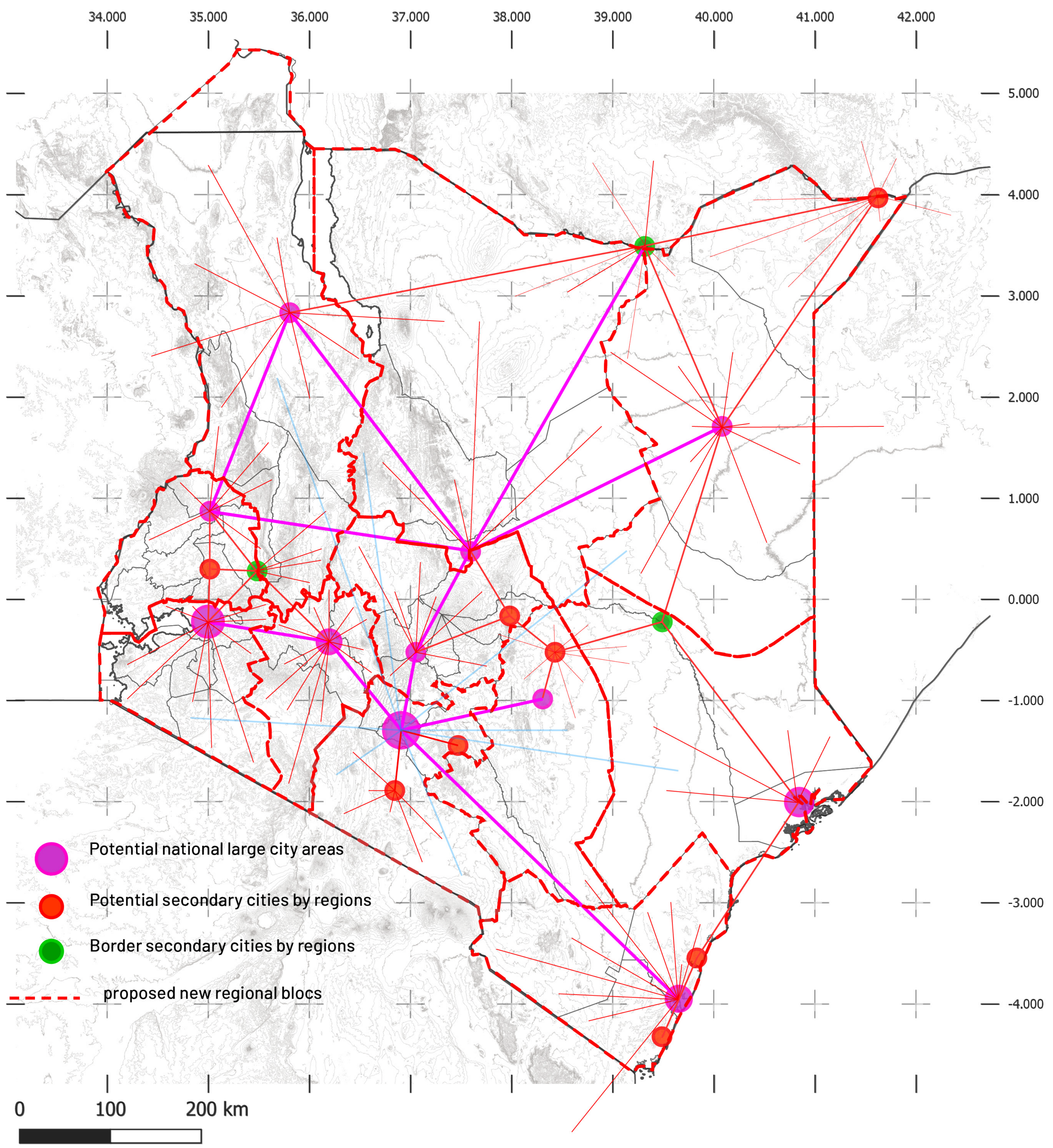




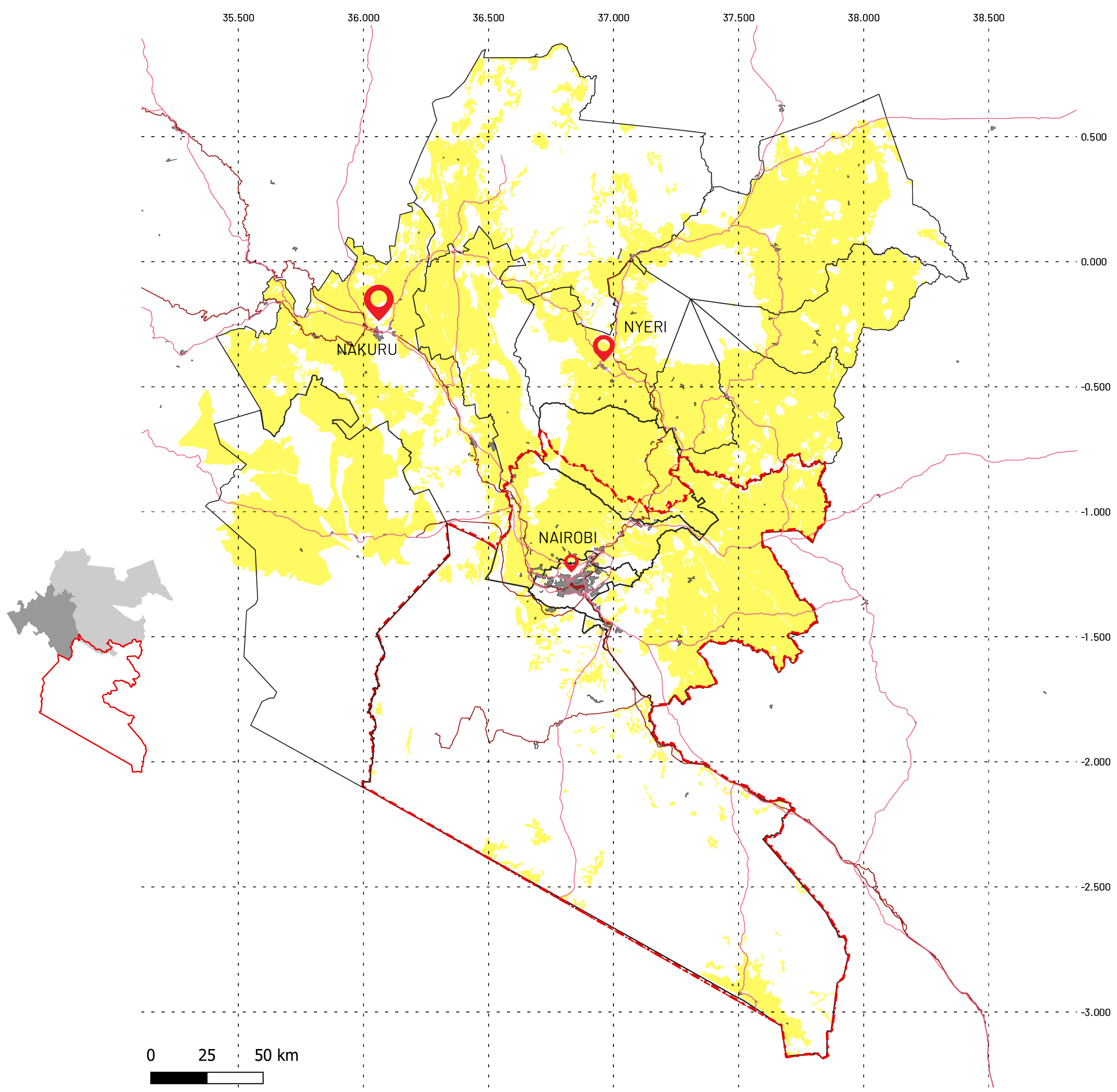
34.000
35.000
36.000
37.000
38.000
39.000
40.000
41.000
42.000
5.000
4.000
3.000
2.000
1.000
0.000
-1.000
-2.000
-3.000
-4.000
Potential national large city areas
Potential secondary cities by regions
Border secondary cities by regions
proposed new regional blocs
0
100
200 km

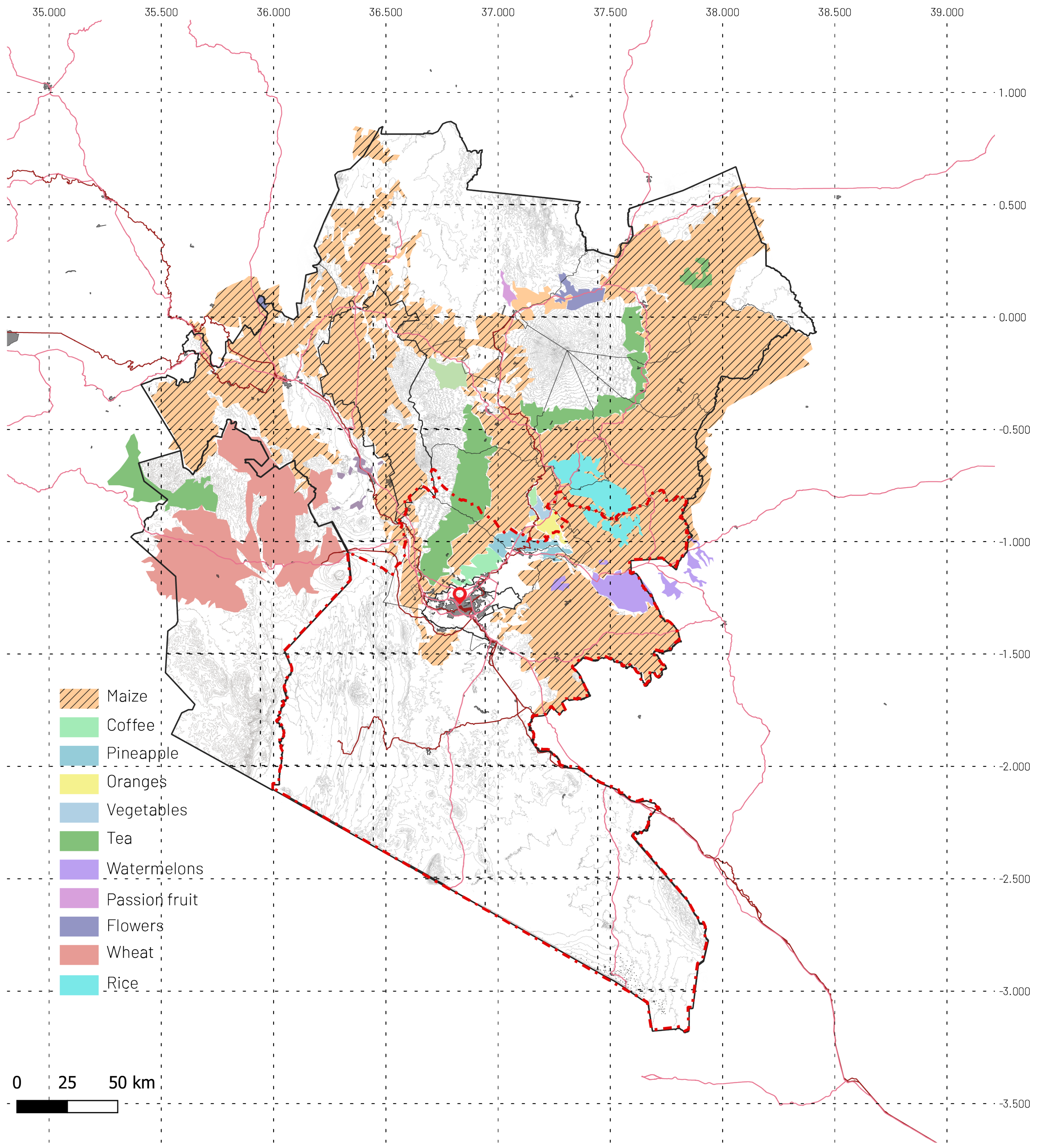


current dominant movement patterns to and from the main urban centres



potential regional movement patterns within decentralized urban centres


35.500
36.000
36.500
37.000
37.500
38.000
38.500
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
NAKURU
NYERI
NAIROBI
0
25
50 km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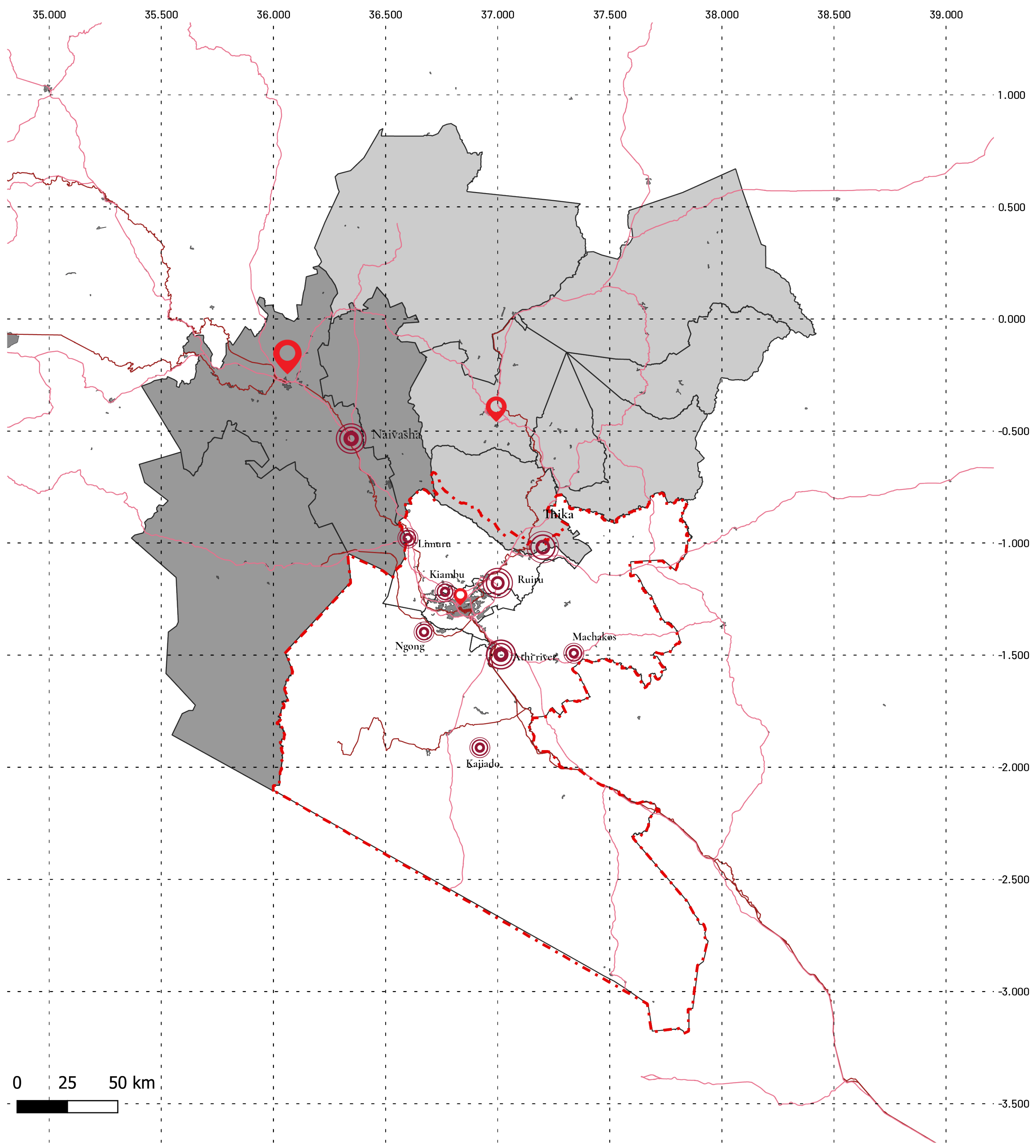
39.000
1.000
0.500
0.000
-0.500
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
Maize
Coffee
Pineapple
Oranges
Vegetables
Tea
Watermelons
Passion fruit
Flowers
Wheat
Rice
0
25
50 km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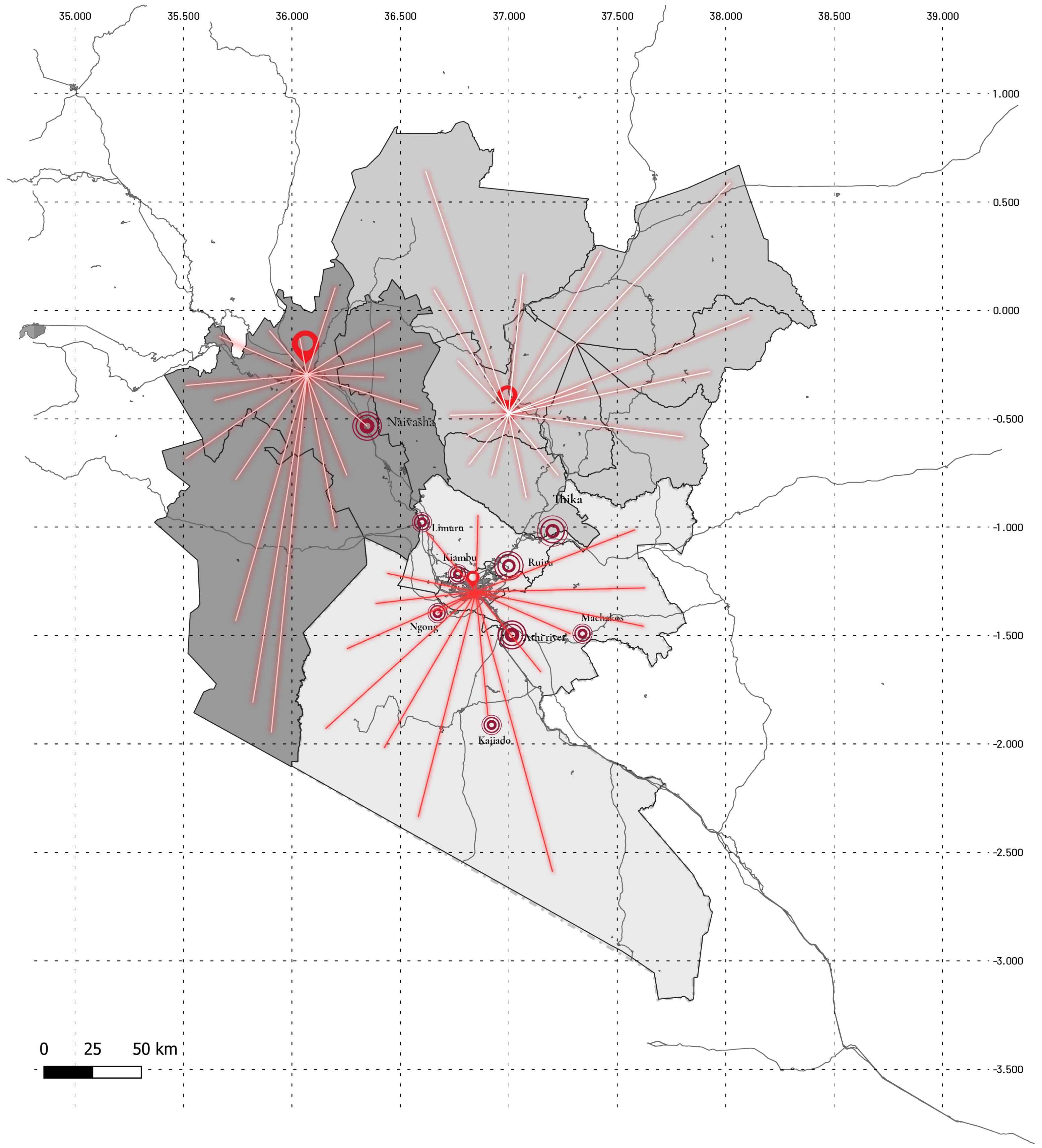
-1.000
-1.500
-2.000
-2.500
-3.000
-3.500
Naivasha
Limuru
Thika
Kiambu
Ruiru
Ngong
Athi river
Machakos
Kajiado
0 25 50 km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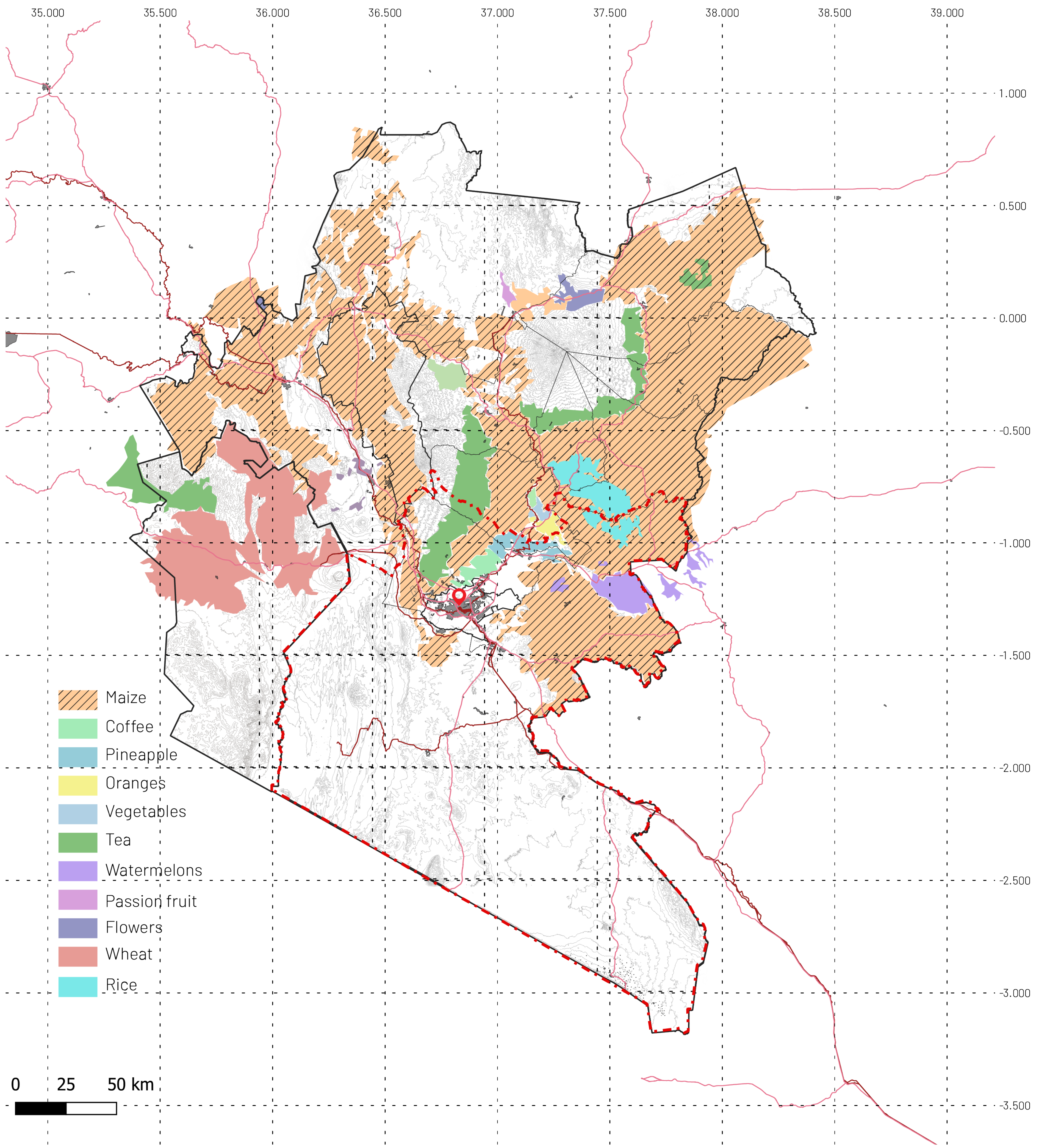
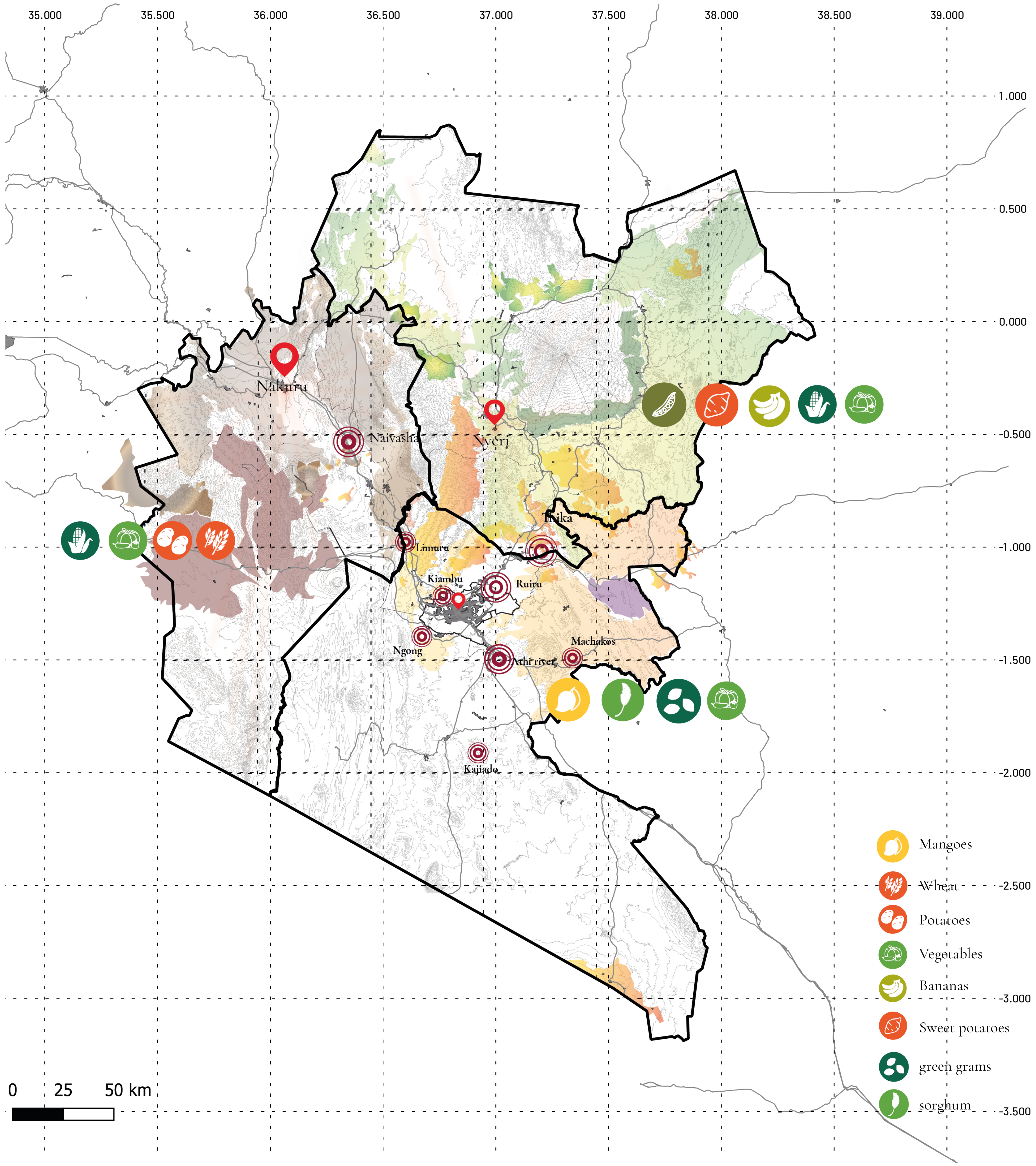
-3.500
Naivasha
Limuru
Thika
Kiambu
Ruiru
Ngong
Athi river
Machakos
Kajiado
0 25 50 km



conventional regional agricultural landscapes



agroecological city-regional agricultural landscapes


Before
Before
After
After
Rural

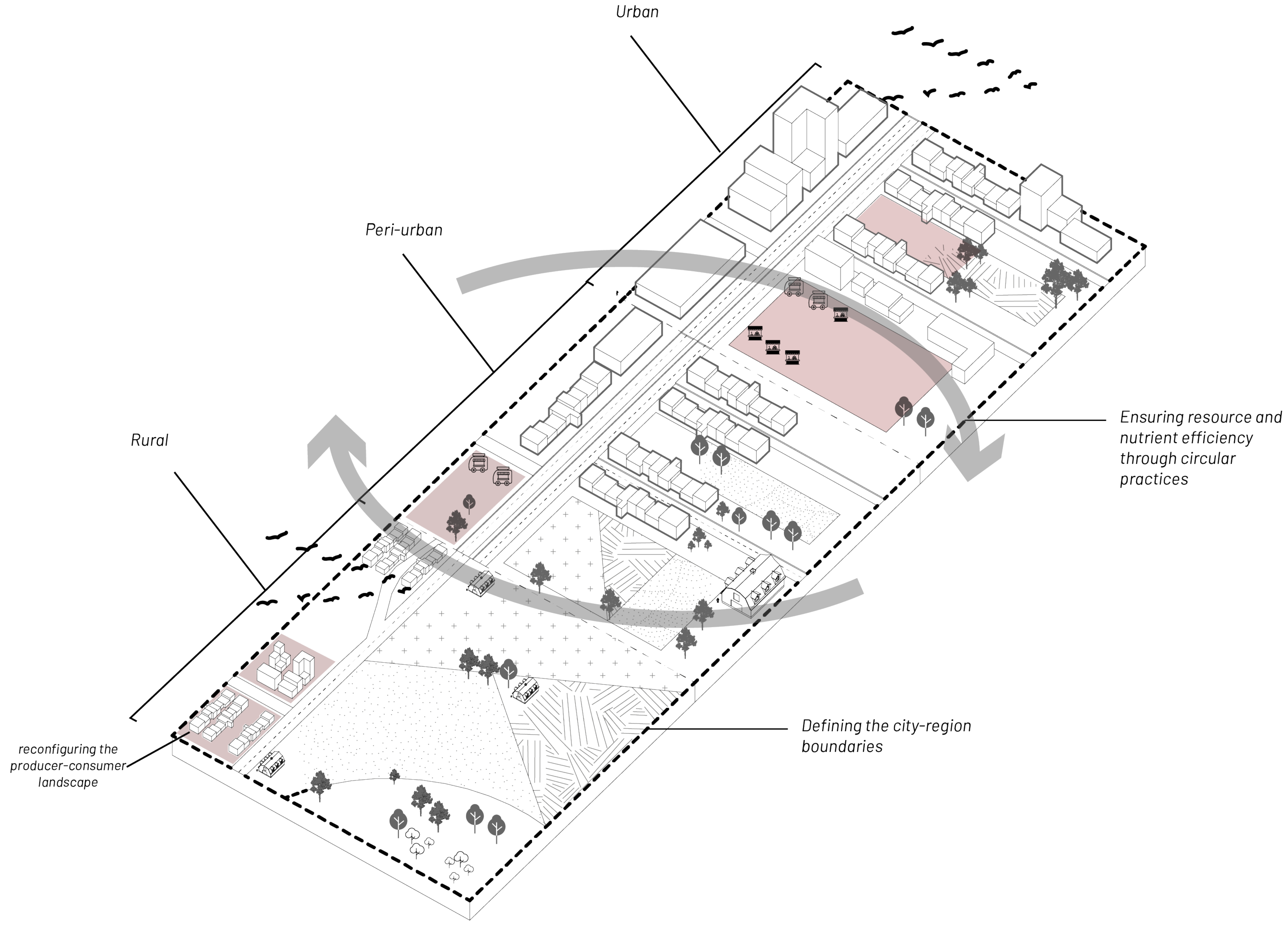
Peri-urban


Mathare Valley
Before
After
Mathare Valley


TUSKYS
Before
After
Urban

Conclusions

Role of productive planning in Urbanism - Agroecological urbanisation



Blurring the rural-urban boundaries in agro-ecological city-regions

City-region systems (water, energy, food); Productive landscapes as a criteria for integrated planning.

Recommendations for further Research

- What are the extents of a sustainable city-region?
- How to define/strengthen governance at the local level of a city-region?
- Mapping resource flows within the city-region- SSA
- Climate change effects in multi-functional landscapes. (integrated city-regions)

Thank You
Q&A