

A CORRIDOR TOWARDS SUSTAINABLE URBAN DEVELOPMENT.

Maputo Metropolitan Area, Mozambique.

Concepción del Rocío Aranda Iglesias

4624122

05. July . 2018

P5 presentation

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Complex cities research group

Inclusive cities program

Master Architecture, Urbanism and Building Sciences

- Urbanism track-

Delft University of Technology





MOZAMBIQUE
MAPUTO METROPOLITAN AREA

a corridor
TOWARDS SUSTAINABLE
urban development"

- ABSTRACT -

- *Aim of this thesis* -

PLANNING APPROACH IN MAPUTO METROPOLITAN AREA FOR 2040

To explore a shift in the metropolitan planning approaches in developing countries via a contextualized vision and strategy for Maputo Metropolitan Area 2040 that translates the expected growth of the area into a sustainable urban development introducing principles of adaptive governance and ‘non conventional’ housing policies.

- ABSTRACT -



- ABSTRACT -



- ABSTRACT -

ERRADICATE

TOLERATE

ENCOURAGE



**Current perception of
informal cities**



**Fast urbanization trend
Informal city**



**New alternatives for
urban development.
Non conventional -
contextualized planning**

- STRATEGY. MAPUTO METROPOLITAN AREA 2040 -



- STRATEGY. MAPUTO METROPOLITAN AREA 2040 -

ABSORB THE GROWTH

**Regularization of
existent**
+
**New urban
developments**

Adaptive governance

Policy recommendations



- STRATEGY. MAPUTO METROPOLITAN AREA 2040 -

ABSORB THE GROWTH

**Regularization of
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Adaptive governance

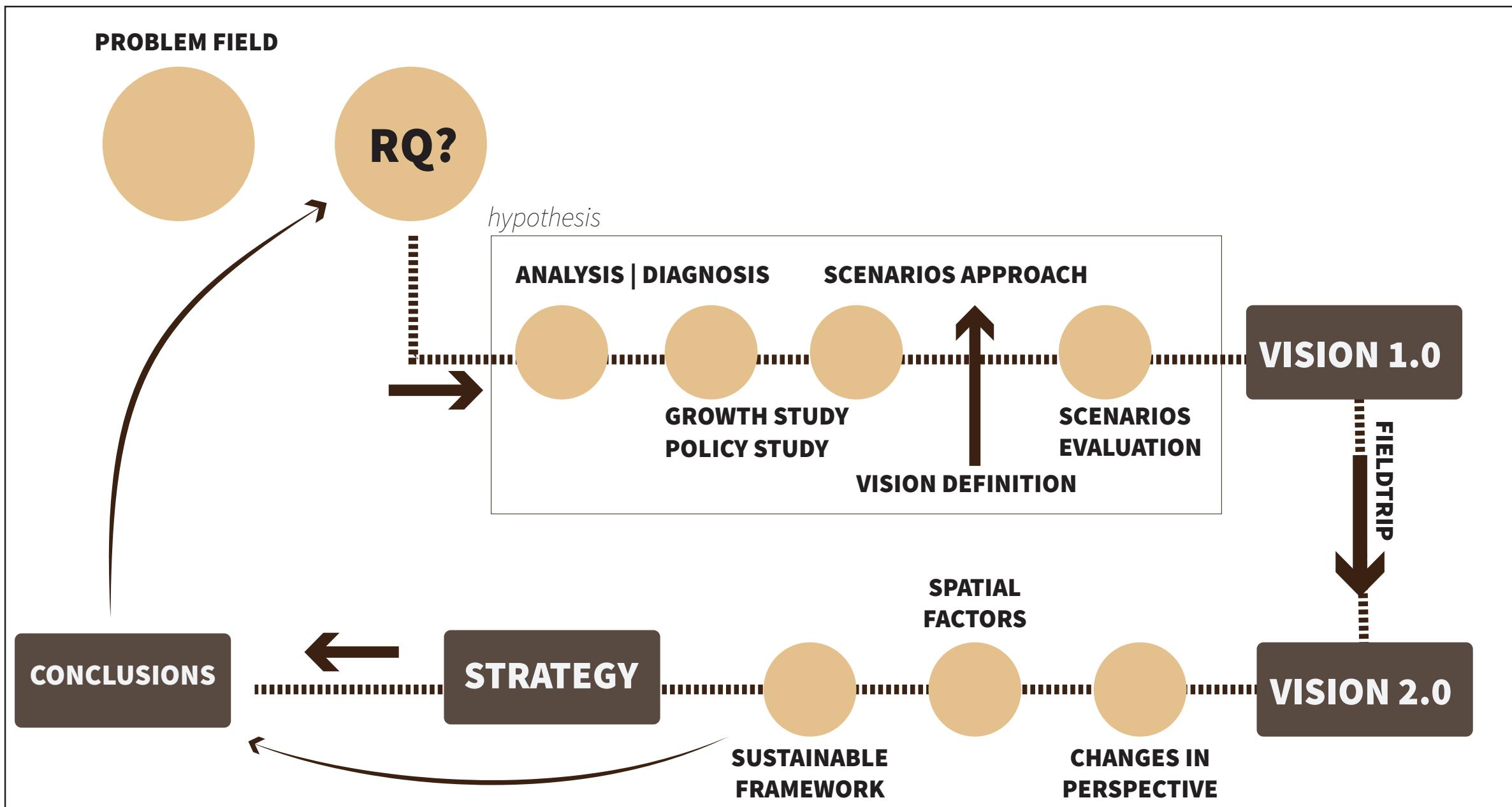
Policy recommendations



3 Trigger Projects

Multi-scale

**Sustainable urban
development**



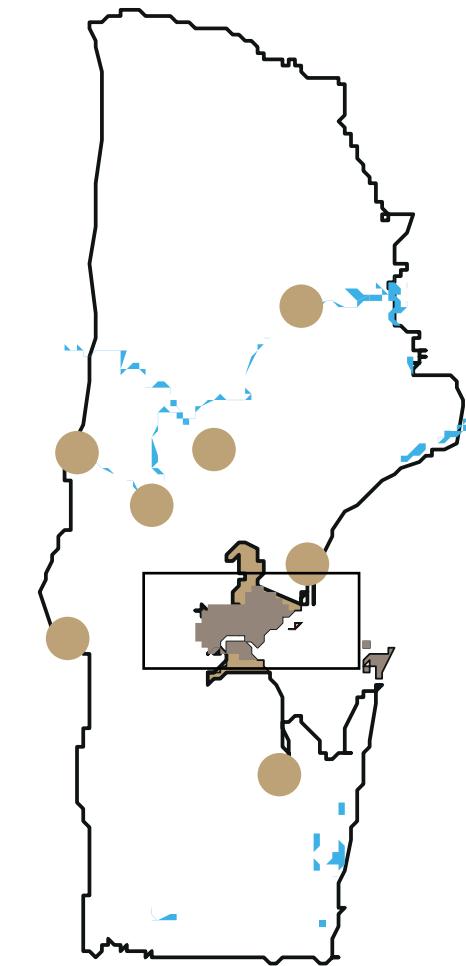
- LOCATION. MAPUTO METROPOLITAN AREA -



AFRICA



MOZAMBIQUE



MAPUTO PROVINCE



- PROBLEM FIELD -

MAPUTO. METROPOLITAN. AREA

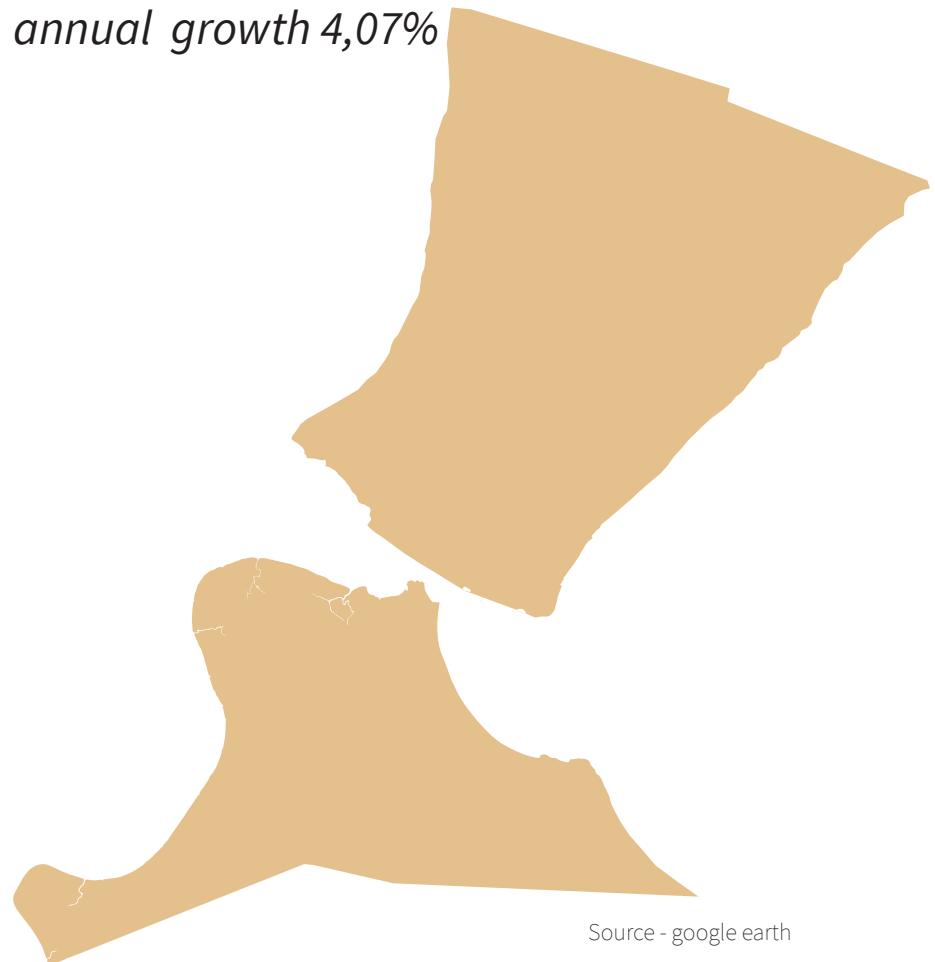
MAPUTO (*censo 2017*)

1.101.170 people

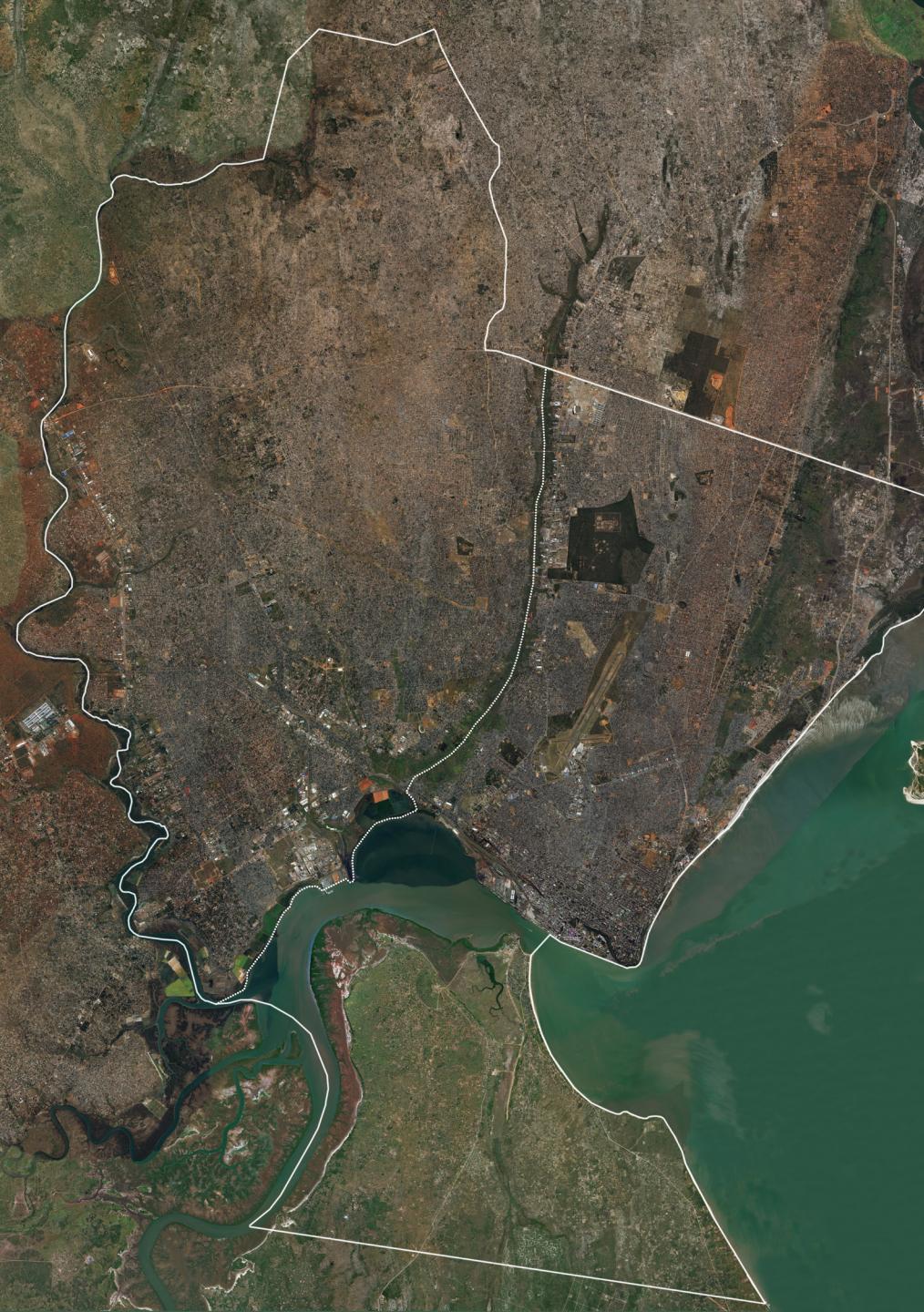
3,47 ha

31,73 hab/ha

annual growth 4,07%



Source - google earth



MAPUTO. METROPOLITAN. AREA

- PROBLEM FIELD -

- 13 -

MAPUTO (censo 2017)

1.101.170 people

3,47 ha

31,73 hab/ha

annual growth 4,07%



Source - <http://www.africaprogresspanel.org/oxfam-inequality-report-adds-to-groundswell-of-public-opinion/>



- PROBLEM FIELD -

M A P U T O . M E T R O P O L I T A N . A R E A

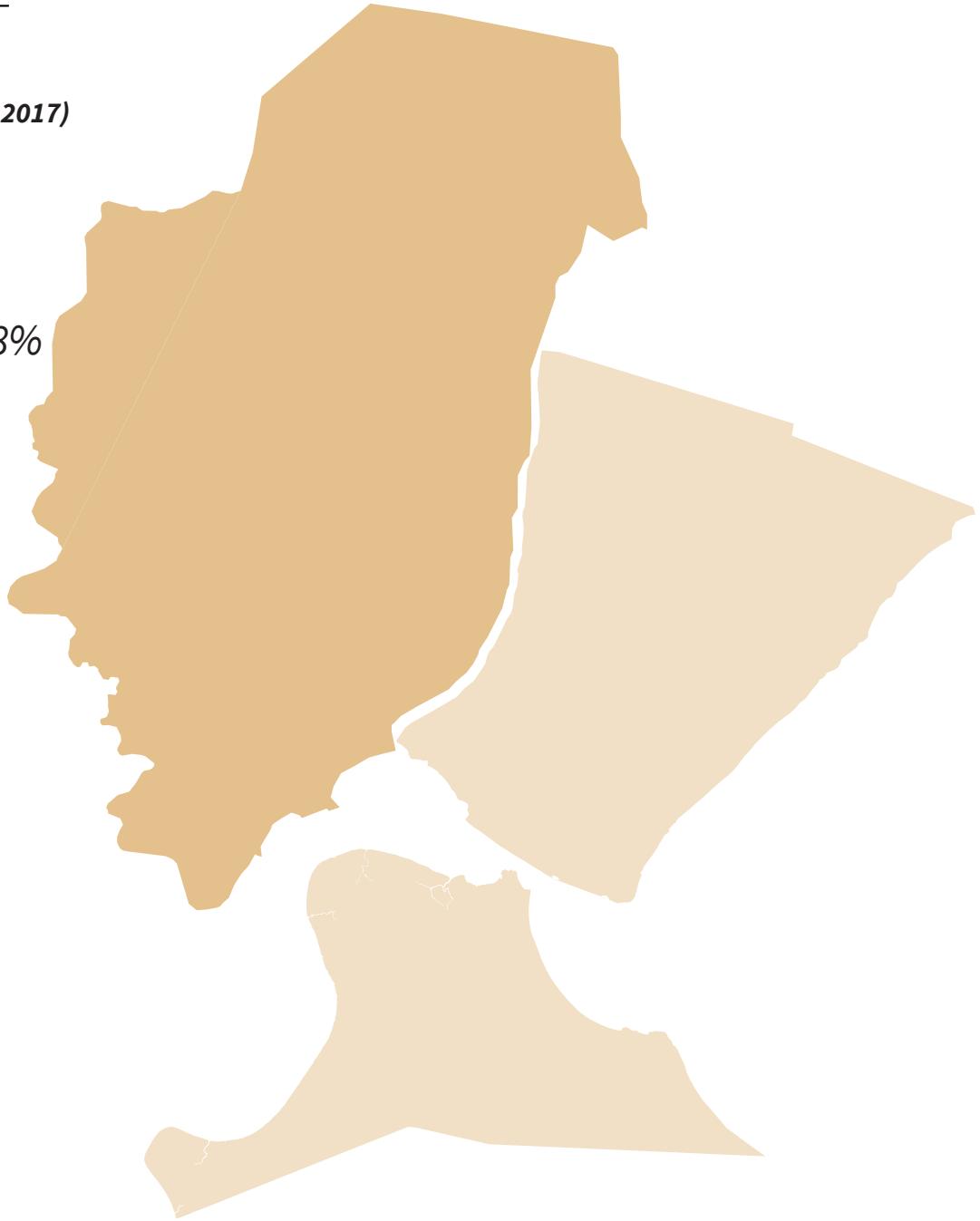
MATOLA (*censo 2017*)

1.616.267 people

8,275 ha

19,53 hab/ha

annual growth 5,28%





MAPUTO. METROPOLITAN. AREA

- PROBLEM FIELD -

MATOLA (*censo 2017*)

1.616.267 people

8,275 ha

19,53 hab/ha

annual growth 5,28%

*Industrial extension of
Maputo city*



Source - <http://casamozambique.co.mz/en/neighborhoods/matola/843898392>



MAPUTO. METROPOLITAN. AREA

- PROBLEM FIELD -

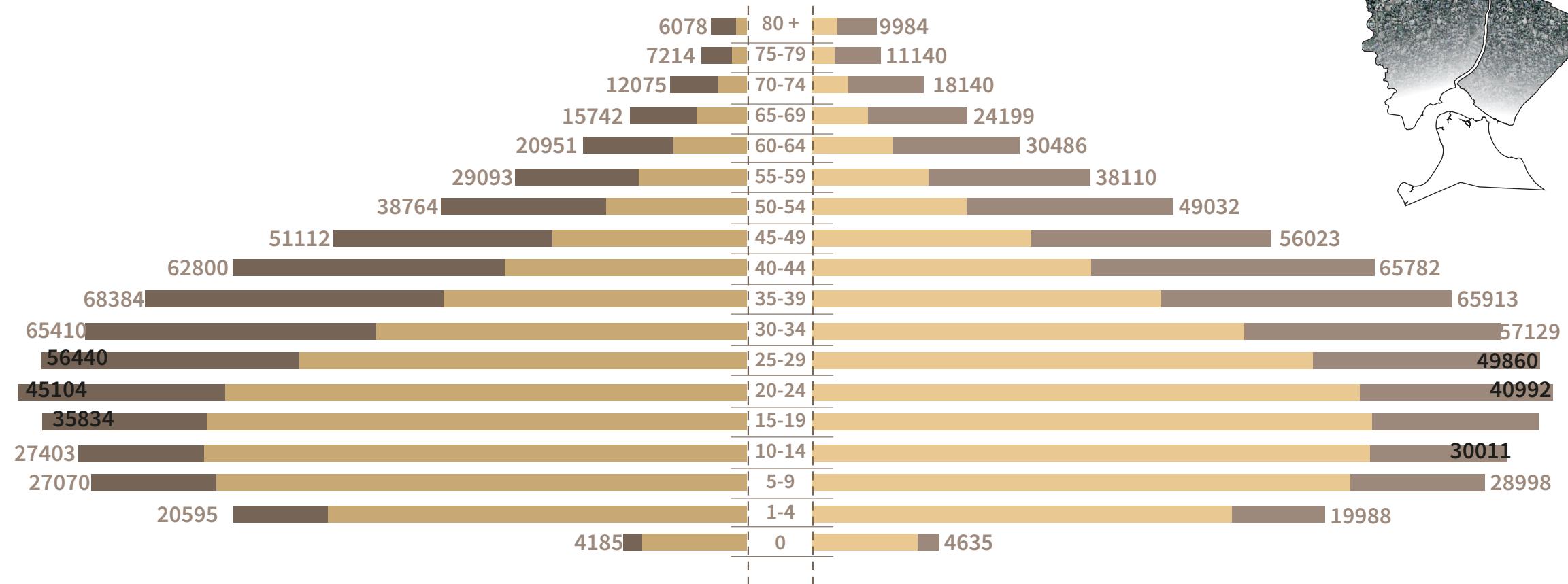
**70 % OF
POPULATION
LIVING IN
SLUMS**

- 16 -



Source - <https://esfmozambique.files.wordpress.com/2015/04/2015-04-23alvaro.jpg>

GROWTH MAPUTO METROPOLITAN AREA 2017-2040



**54 % POPULATION GROWTH FOR 2040.
2.270.778px (2017) - 3.501.661 (2040)**



- PROBLEM FIELD -

UNCONTEXTUALIZED URBAN PLANNING APPROACHES

Development corridors



Source - "Regional Infrastructure Development Masterplan. Transport Sector Plan" (2012) SADC report.

Urban developments



Source - Maputo Municipality, T., Betar, G., & Maputo Sul, E. (2017). A nova Katembe - Uma cidade para o futuro. Retrieved from Eduardo Mondlane University repository

- PROBLEM FIELD -

THE CURRENT REALITY OF THE METROPOLITAN AREA

Big roads without related urban extension



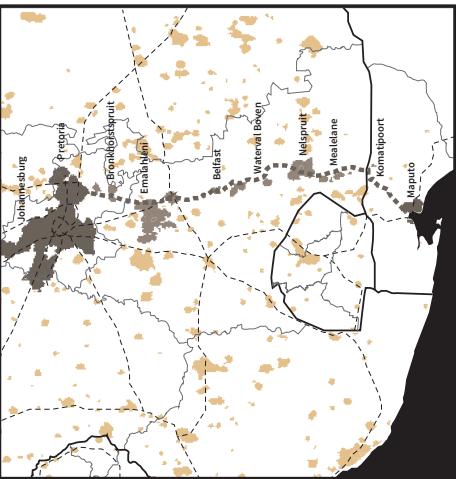
Informal settlements with precarious conditions



- RESEARCH QUESTION -

*How can **contextualized planning strategies** structure **metropolitan growth** in a fast urbanization context as the back bone of **mobility** based **sustainable spatial urbanization**? How can **adaptive governance** support the decision making in this strategy?*

- PROPOSAL OVERVIEW-



Source - Author from Google Maps information and NASA Data collection.

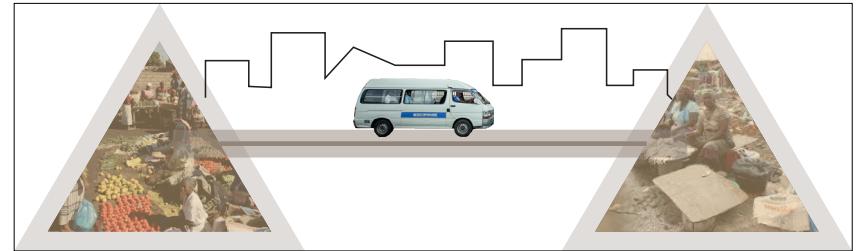
Development corridors



Source - Maputo Municipality, T., Betar, G., & Maputo Sul, E. (2017). A nova Katembe - Uma cidade para o futuro. Retrieved from Eduardo Mondlane University repository

Urban developments

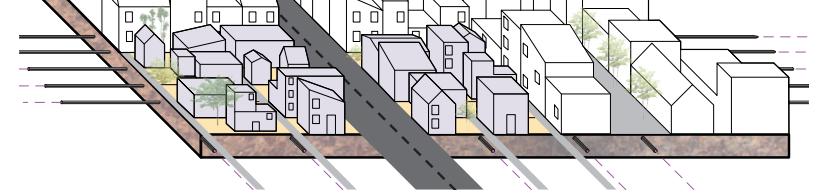
Changes in perspective



Redefinition of corridor

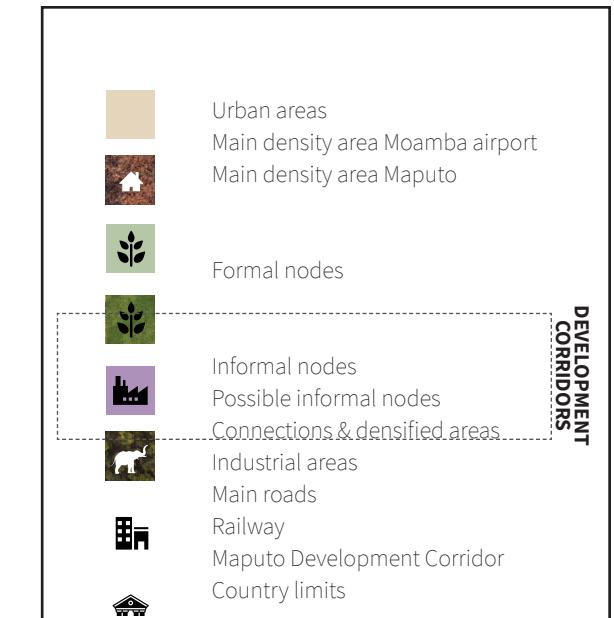
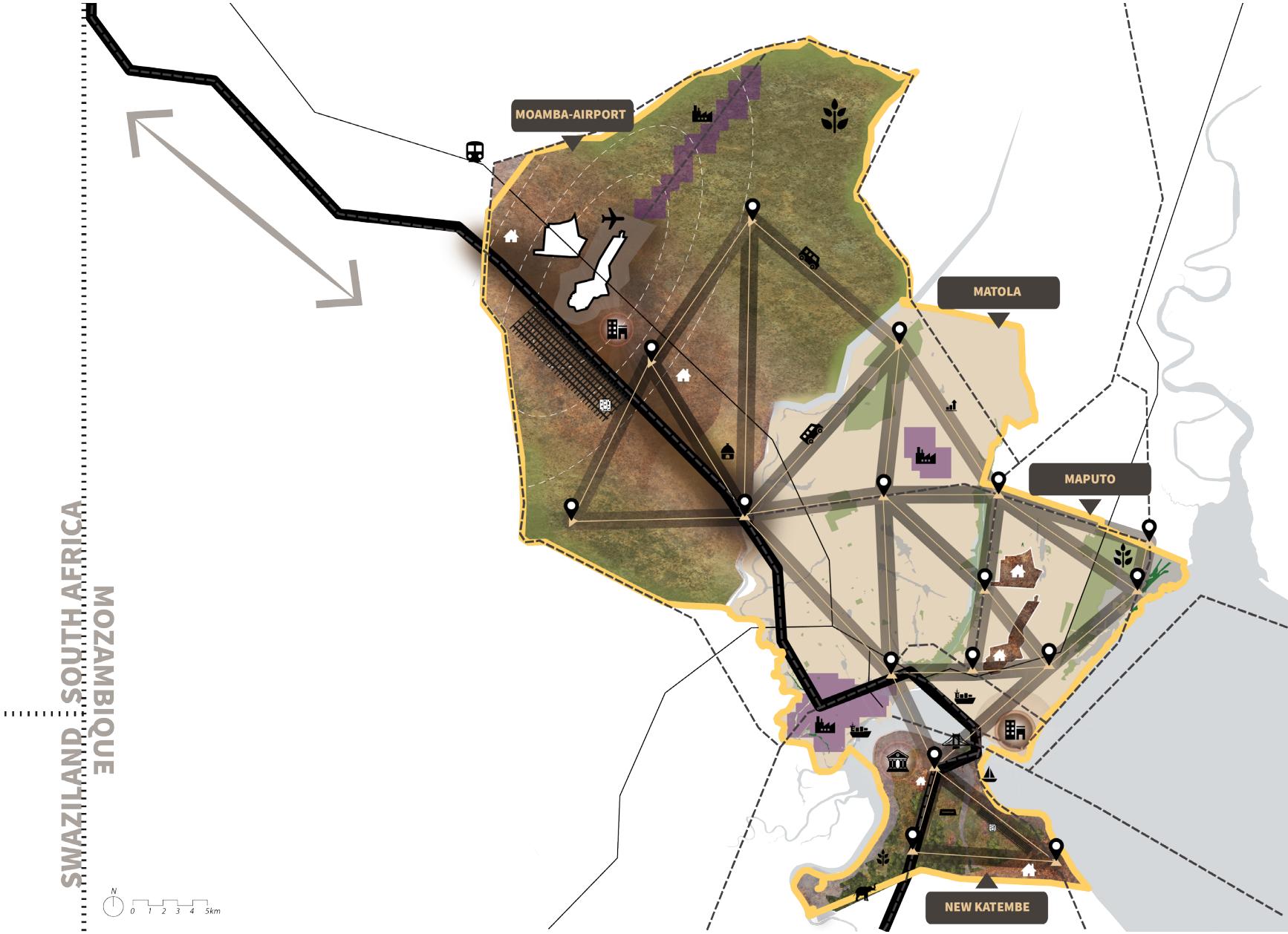


Policy recommendations



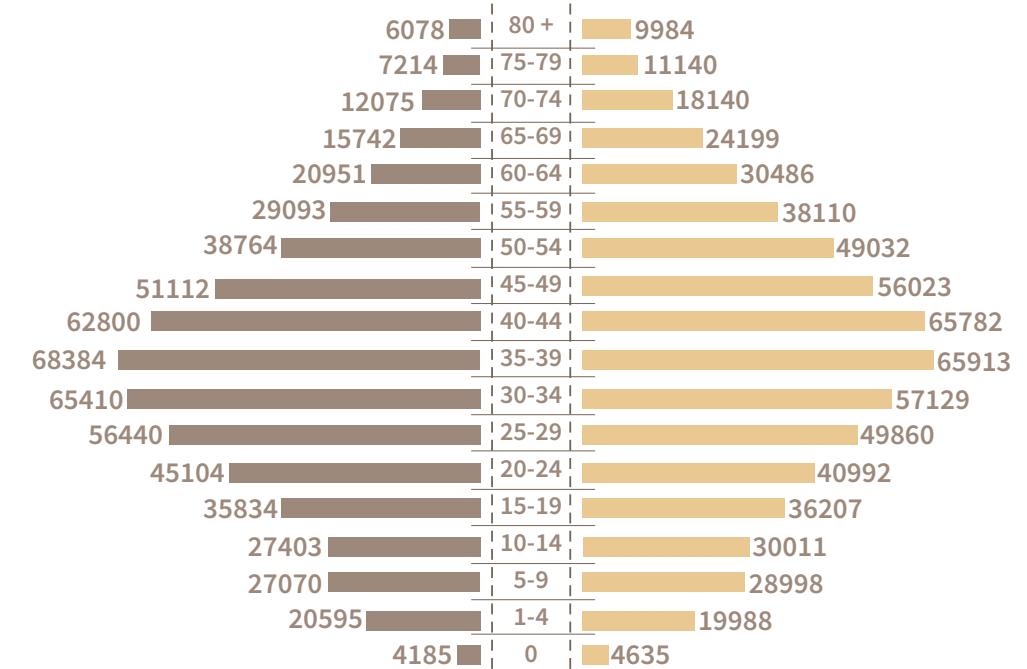
'Non conventional' housing policies

- PROPOSAL OVERVIEW. VISION MMA 2040 -



- hypothesis - GROWTH STUDY -

GROWTH PYRAMID MAPUTO M. AREA 2017-2040



GROWTH PROFILE



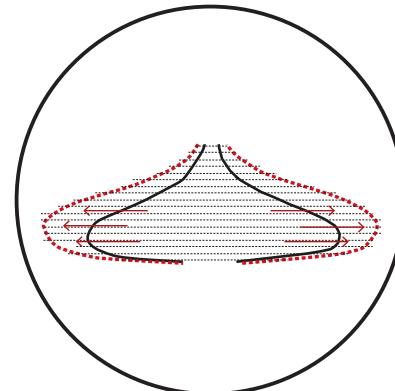
People in working age



Women profile

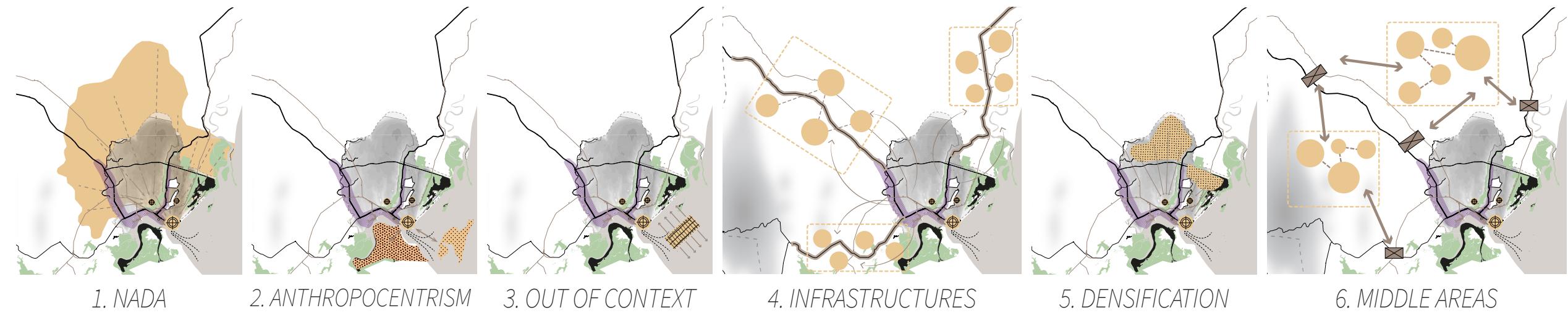


Mainly from Matola



Change in the pyramid

- hypothesis - SCENARIOS APPROACH -



“Merging formal and informal MMA 2040. An inclusive and sustainable urban development”

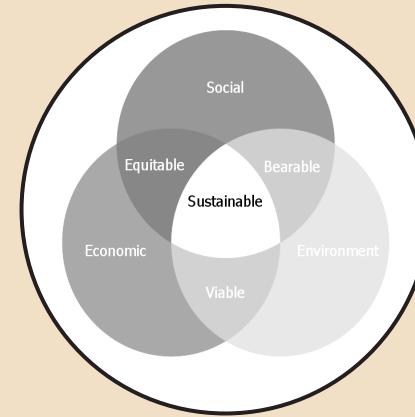
Inclusive growth | Human rights | Sustainable development | African identity



1. THE NOT SLUM



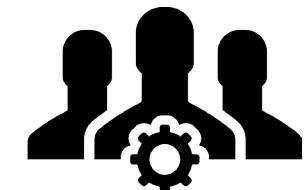
2. FOSTERING THE OPPORTUNITIES OF MMA



3. SUSTAINABLE URBAN DEVELOPMENT



4. ADAPTIVE PLANNING



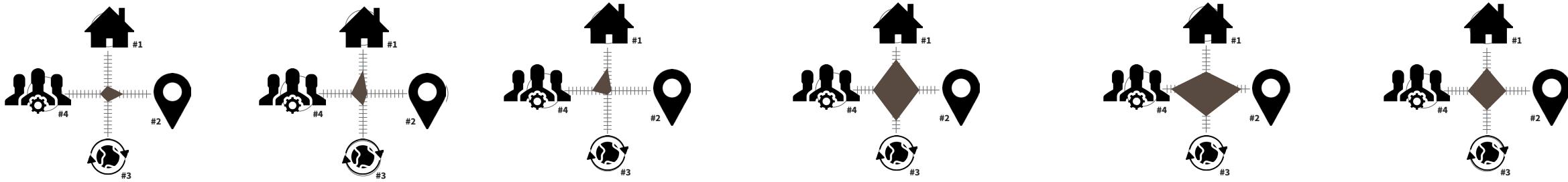
Source :-<https://robertcowley.files.wordpress.com/2014/08/african-slum.jpg>

https://upload.wikimedia.org/wikipedia/commons/thumb/d/d8/2010-10-18_10-55-00_Mozambique_Maputo_Macamo.jpg/12000x12000px-2010-10-18_10-55-00_Mozambique_Maputo_Macamo.jpg

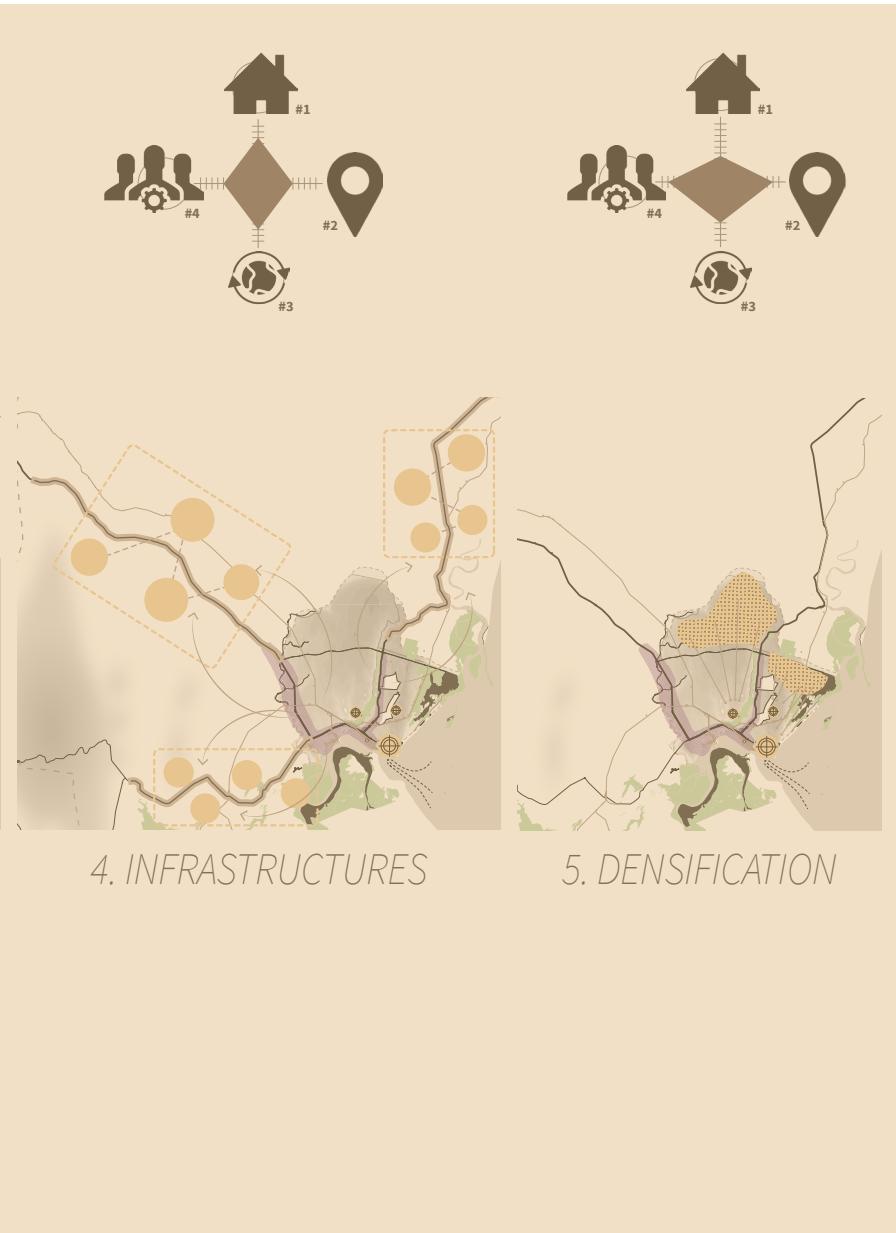
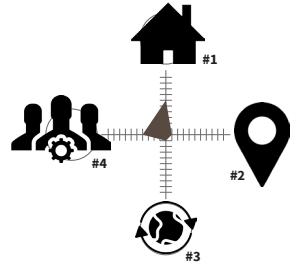
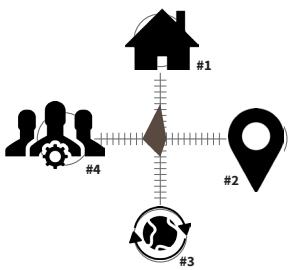
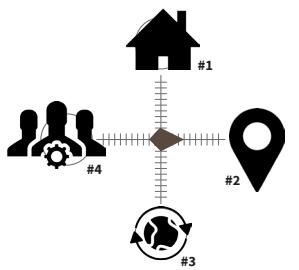
Source :-<https://conceptdraw.com/a2058c3/p1/preview/640/pict-venn-diagram-sustainable-development.png--diagram-flowchart-example.png>

<https://www.ucl.ac.uk/bartlett/architecture/programmes/postgraduate/march-urban-design>

- hypothesis - SCENARIOS EVALUATION-



- hypothesis - SCENARIOS EVALUATION-



1. NADA

2. ANTHROPOCENTRISM

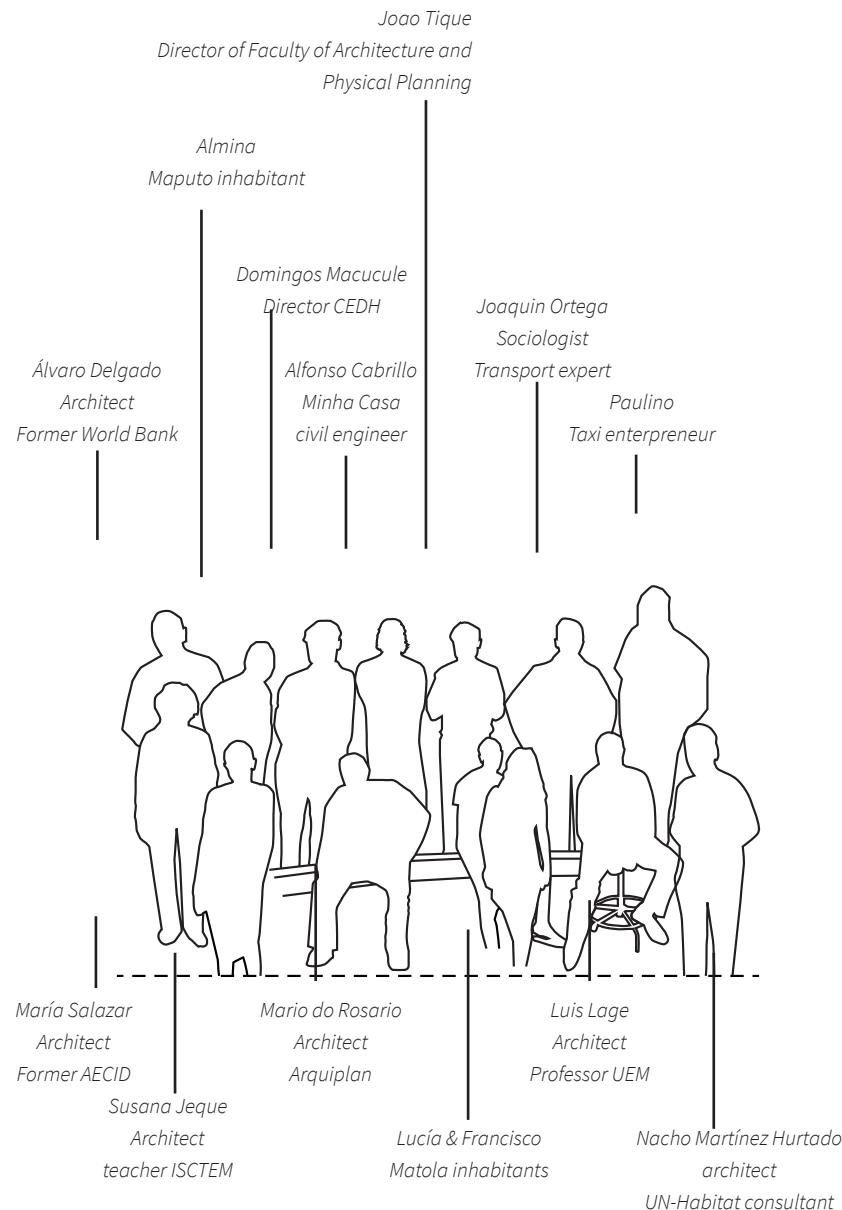
3. OUT OF CONTEXT

4. INFRASTRUCTURES

5. DENSIFICATION

6. MIDDLE AREAS

- FIELDTRIP | CONFRONTATION VISION 1.0-

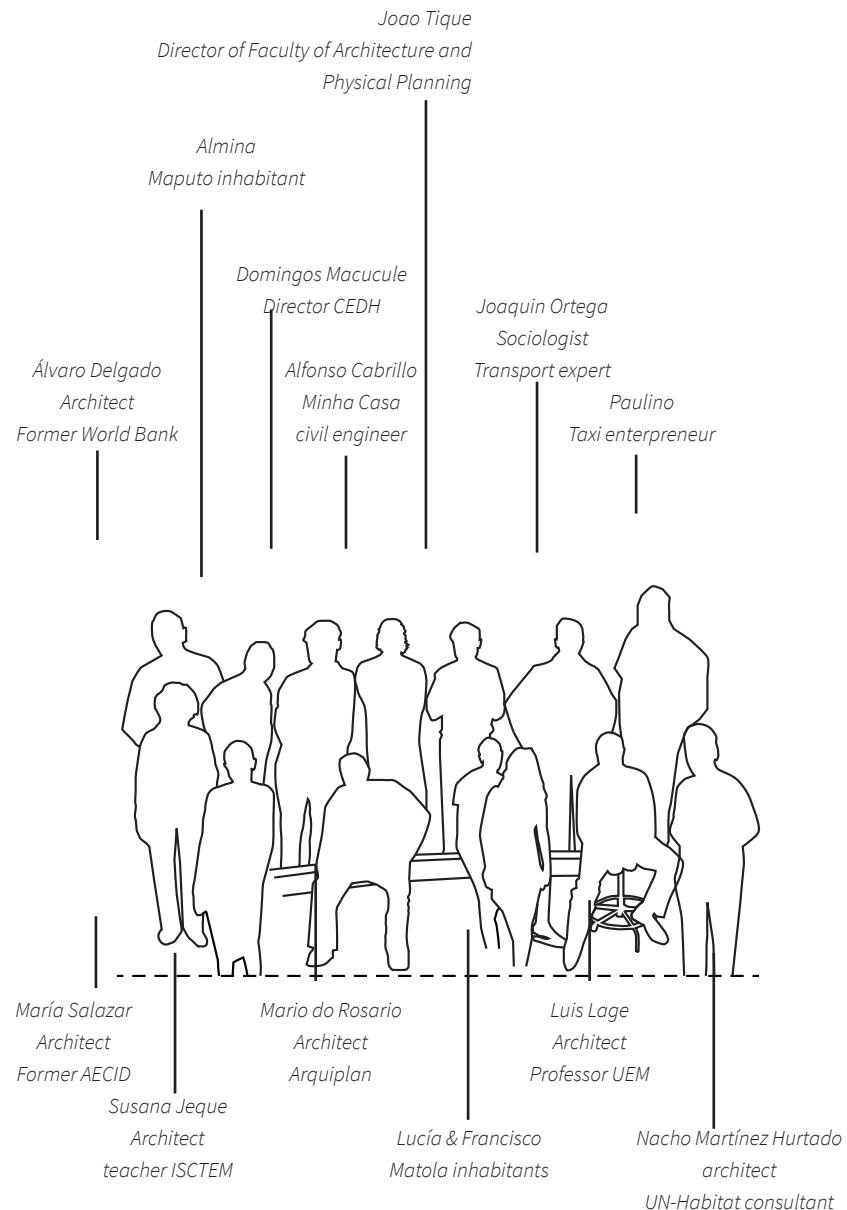


1. SOCIAL NETWORK INVOLVED IN THE URBAN DEVELOPMENT.

2. URBAN CHARACTERISTICS OF THE CITY

3. THE FUTURE OF THE CITY

- FIELDTRIP | CONFRONTATION VISION 1.0-



THE VISION 1.0 WAS TOO COMPLEX

KATEMBE AS NEW DEVELOPMENT

FIND THE FORMALITY WITHIN THE INFORMAL

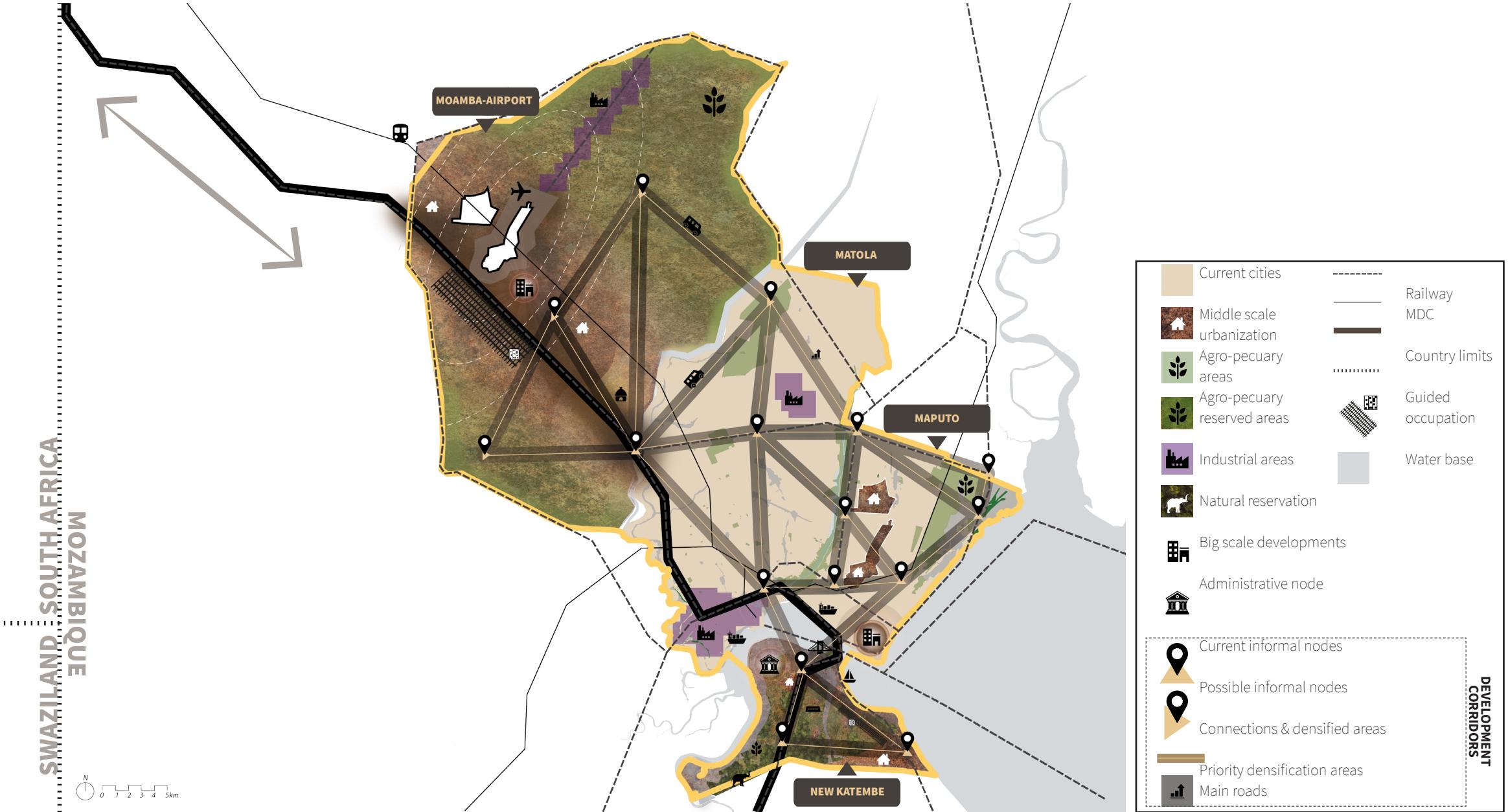
DENSIFYING IS A SOLUTION...HAPENNING!

MOVING THE AIRPORT IS A DISCUSSION

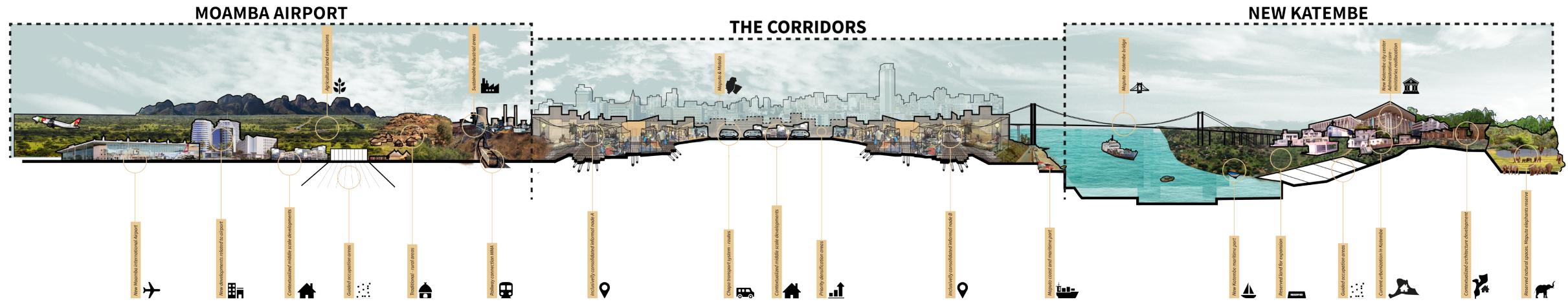
THE FUTURE GROWTH WILL HAVE AN IMPACT IN THE RESOURCES

NECESSITY OF POLICY RETHINKING

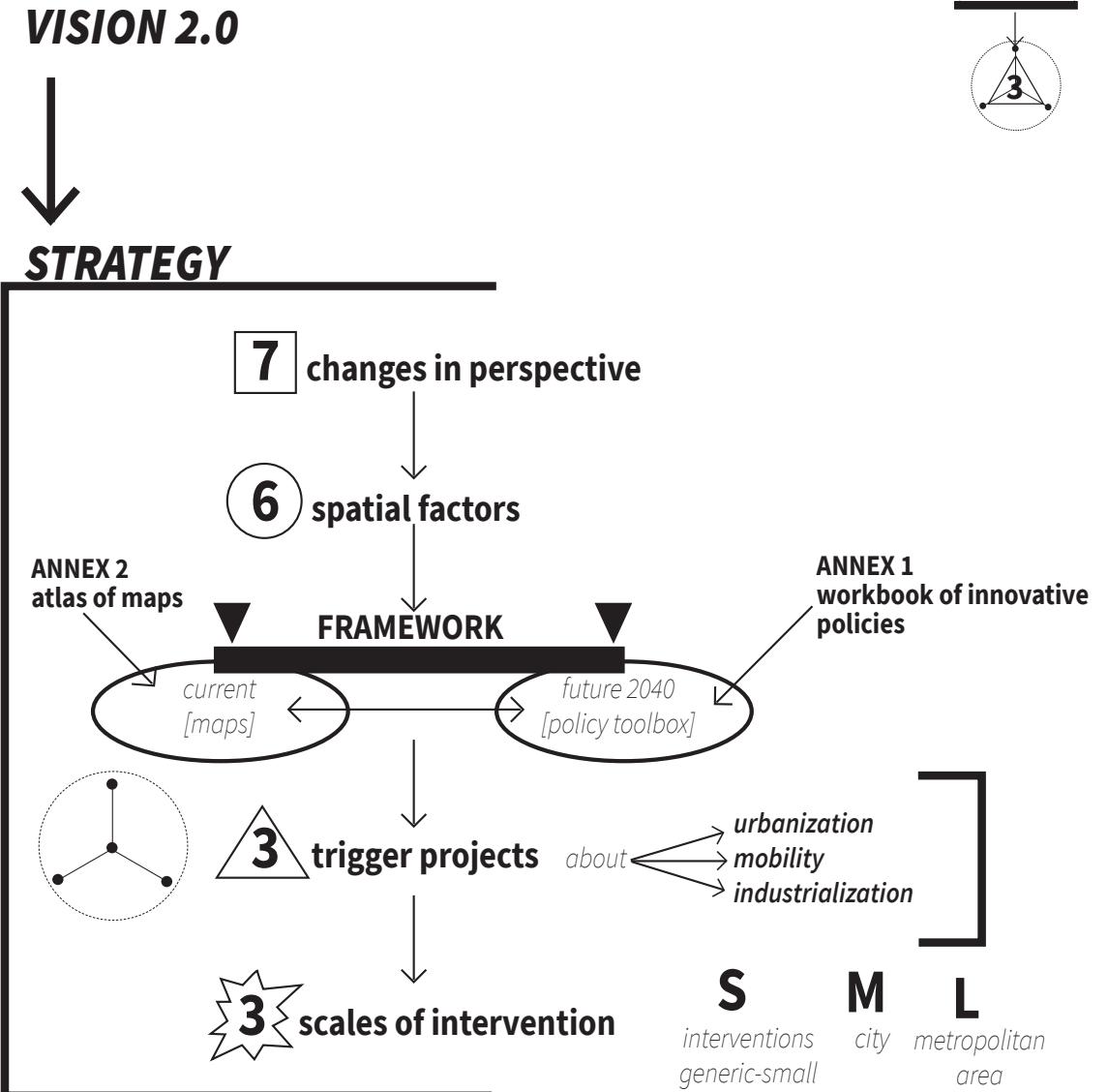
- VISION 2.0 -



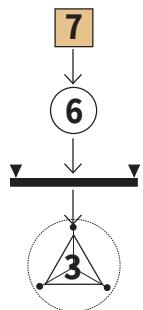
- VISION 2.0 -



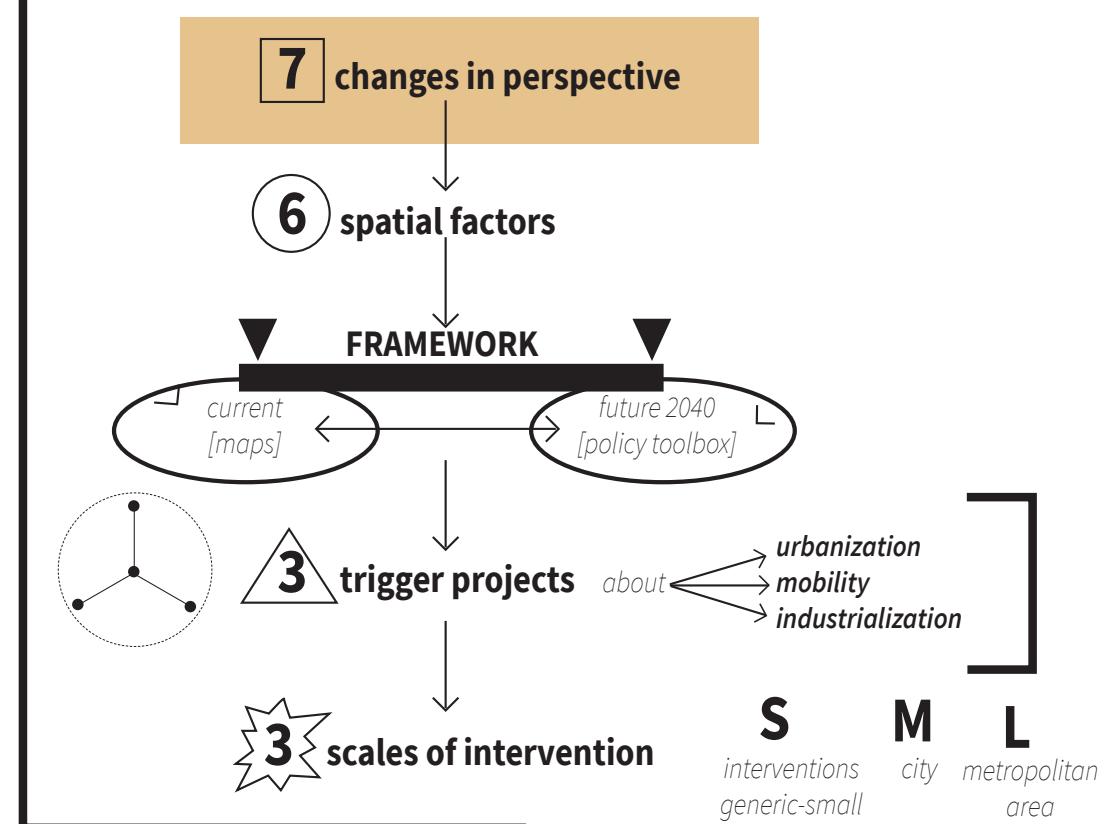
- STRATEGY STRUCTURE -



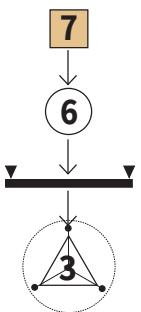
- 7 CHANGES IN PERSPECTIVE -



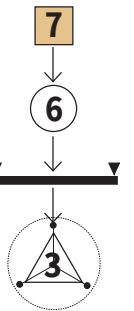
STRATEGY



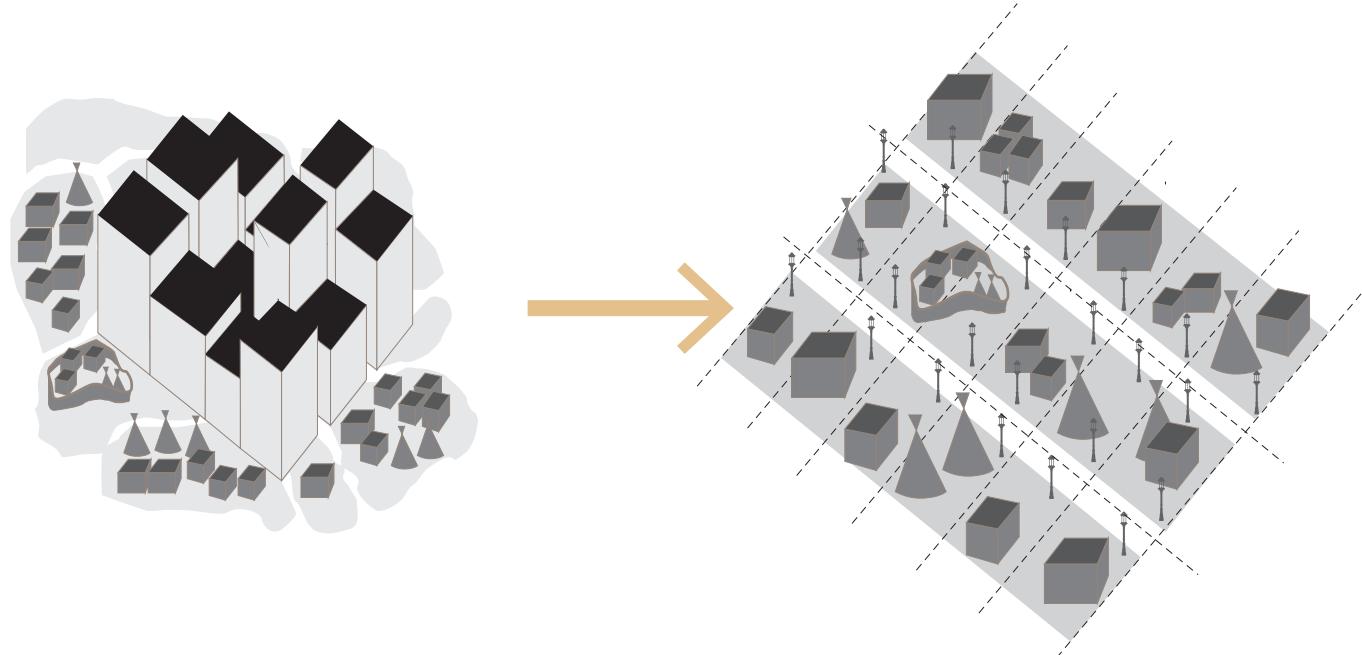
- 7 CHANGES IN PERSPECTIVE -



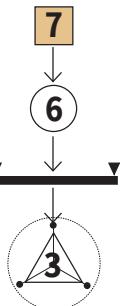
#1. FROM TRADITIONAL CENTERS TO INFORMAL NODES



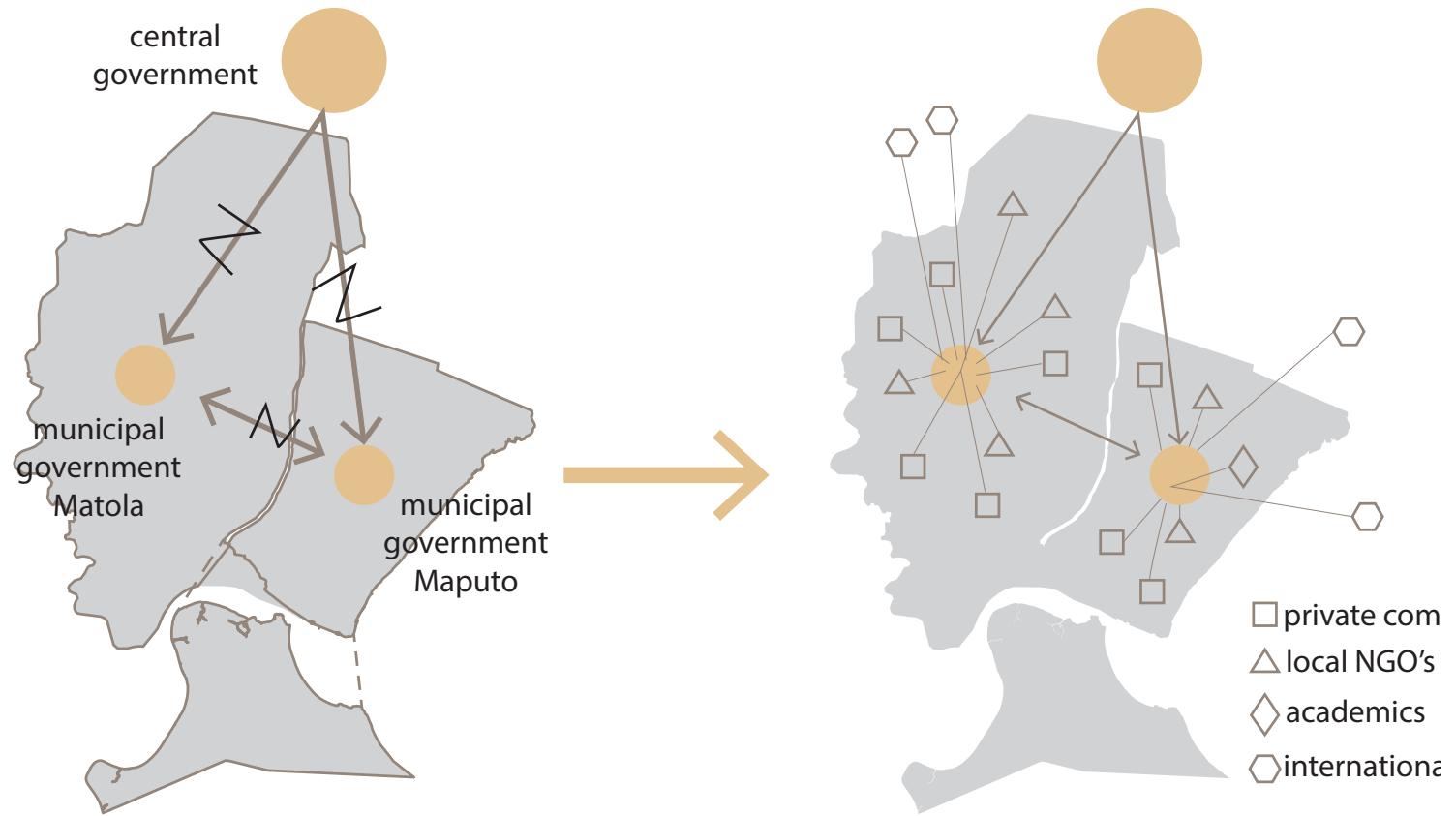
- 7 CHANGES IN PERSPECTIVE -



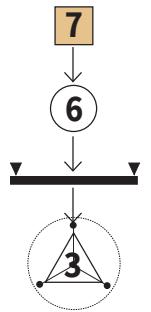
#2. FROM FIXED URBAN DEVELOPMENT TO FLEXIBLE GUIDES FOR DEVELOPMENT



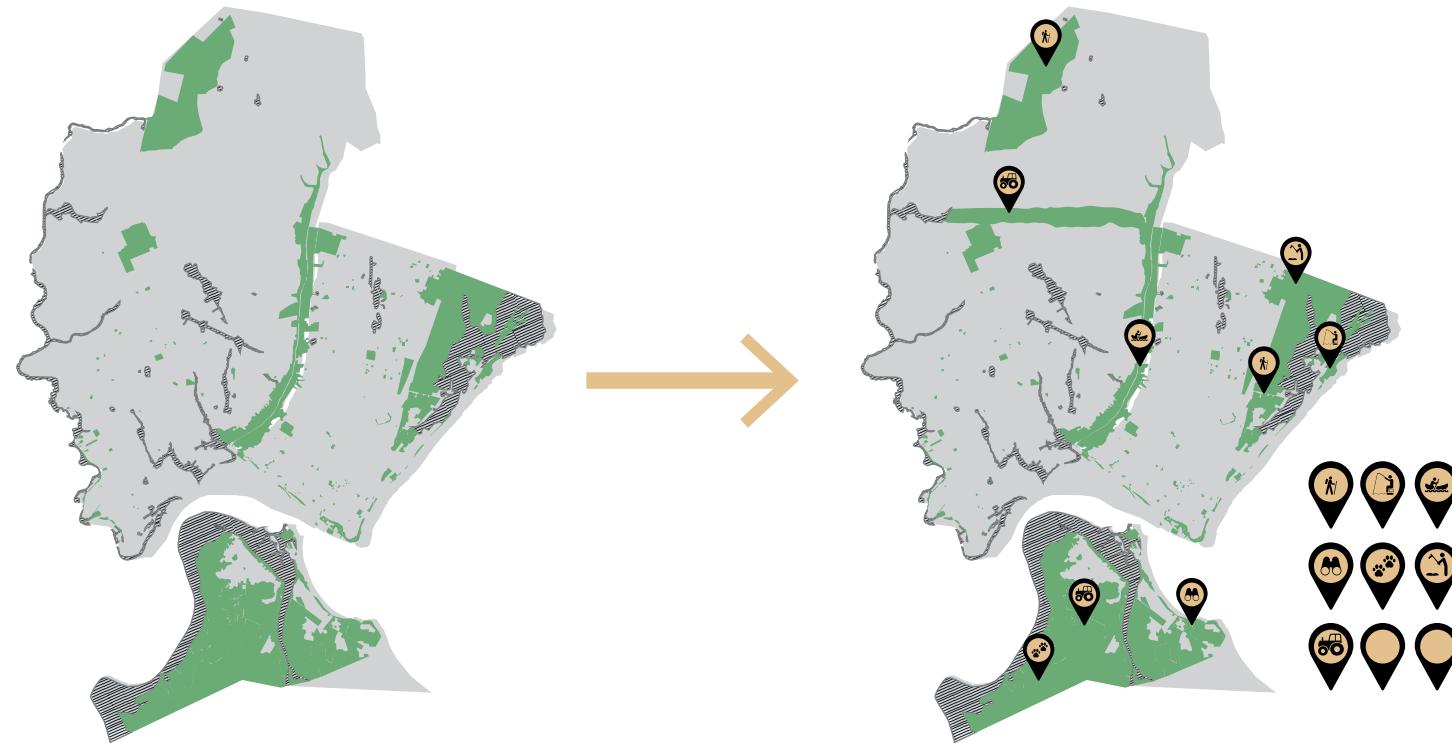
- 7 CHANGES IN PERSPECTIVE -



#3. FROM A CENTRALIZED GOVERNMENT TO A COLLABORATIVE ADAPTIVE GOVERNANCE

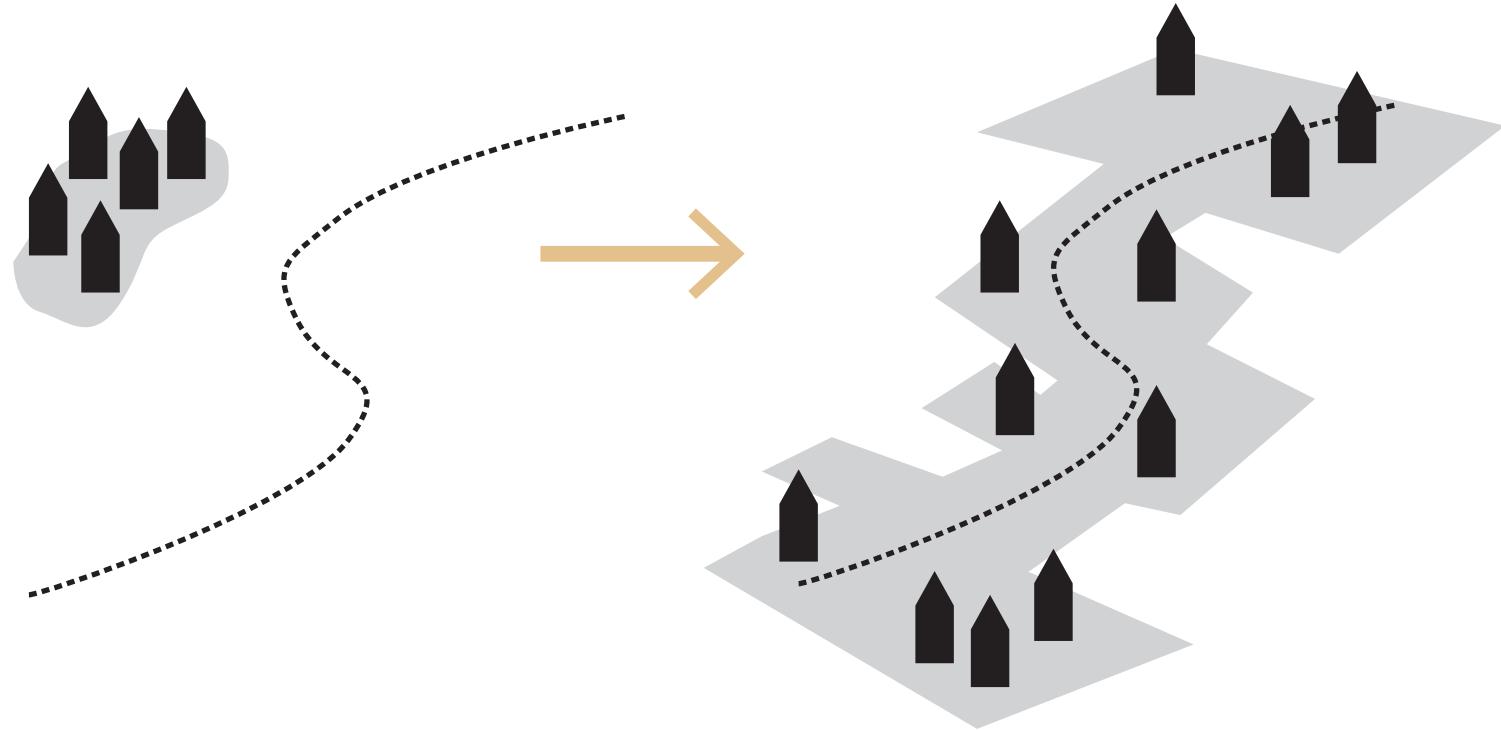
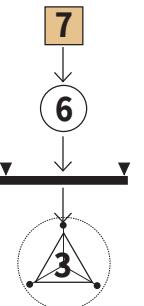


- 7 CHANGES IN PERSPECTIVE -

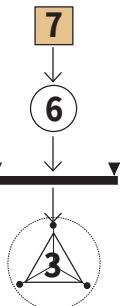


#4. FROM NOT PRESERVED NATURAL LANDSCAPE TO PRESERVATION THROUGH PROGRAM

- 7 CHANGES IN PERSPECTIVE -



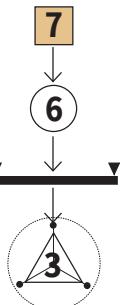
#5. FROM INFRASTRUCTURES DISCONNECTED FROM URBAN DEVELOPMENT TO ALIGNMENT OF POLICIES



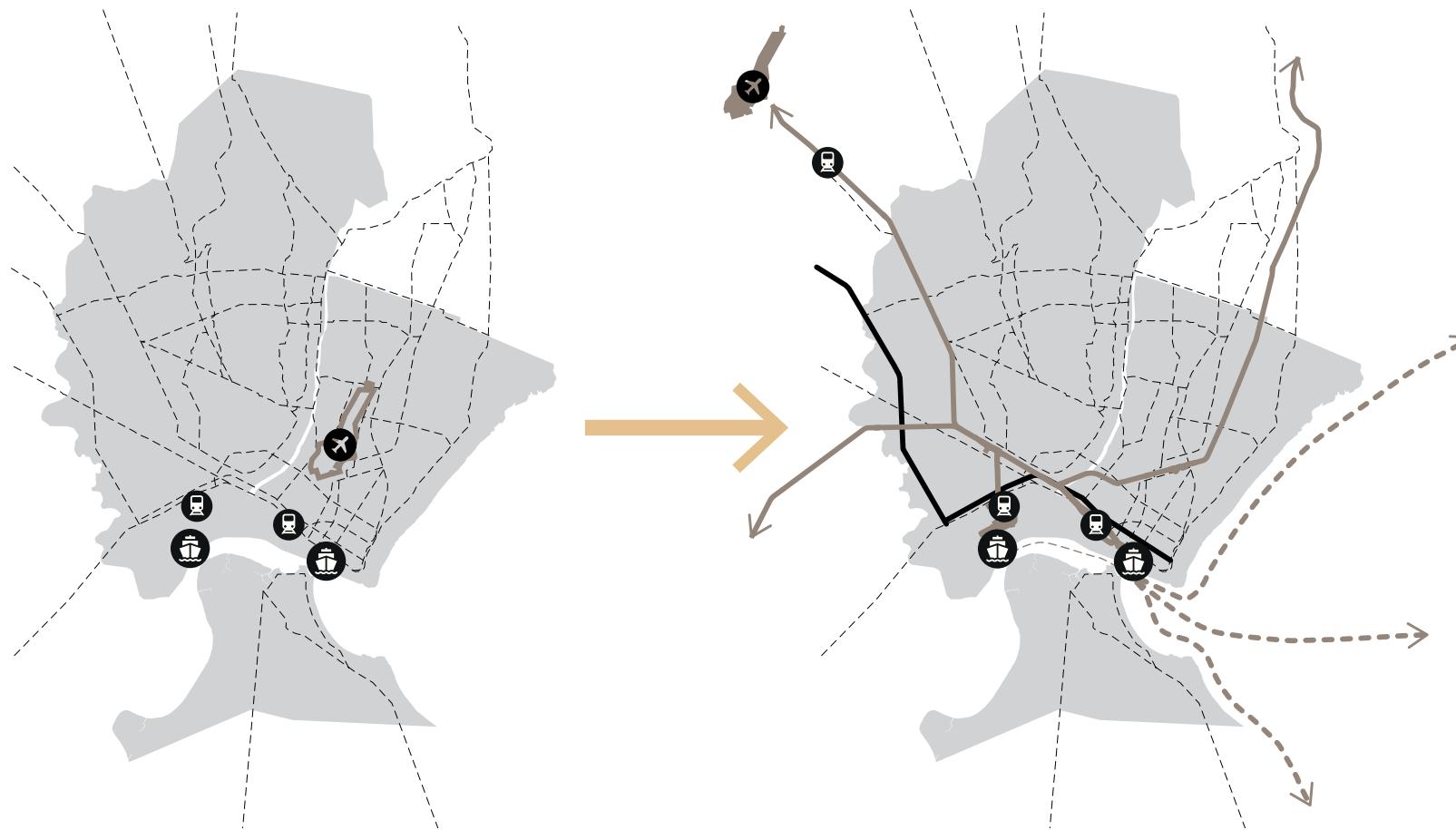
- 7 CHANGES IN PERSPECTIVE -



#6. FROM CAR ORIENTED TO TRANSIT ORIENTED DEVELOPMENT

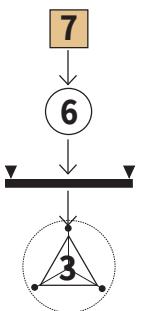


- 7 CHANGES IN PERSPECTIVE -

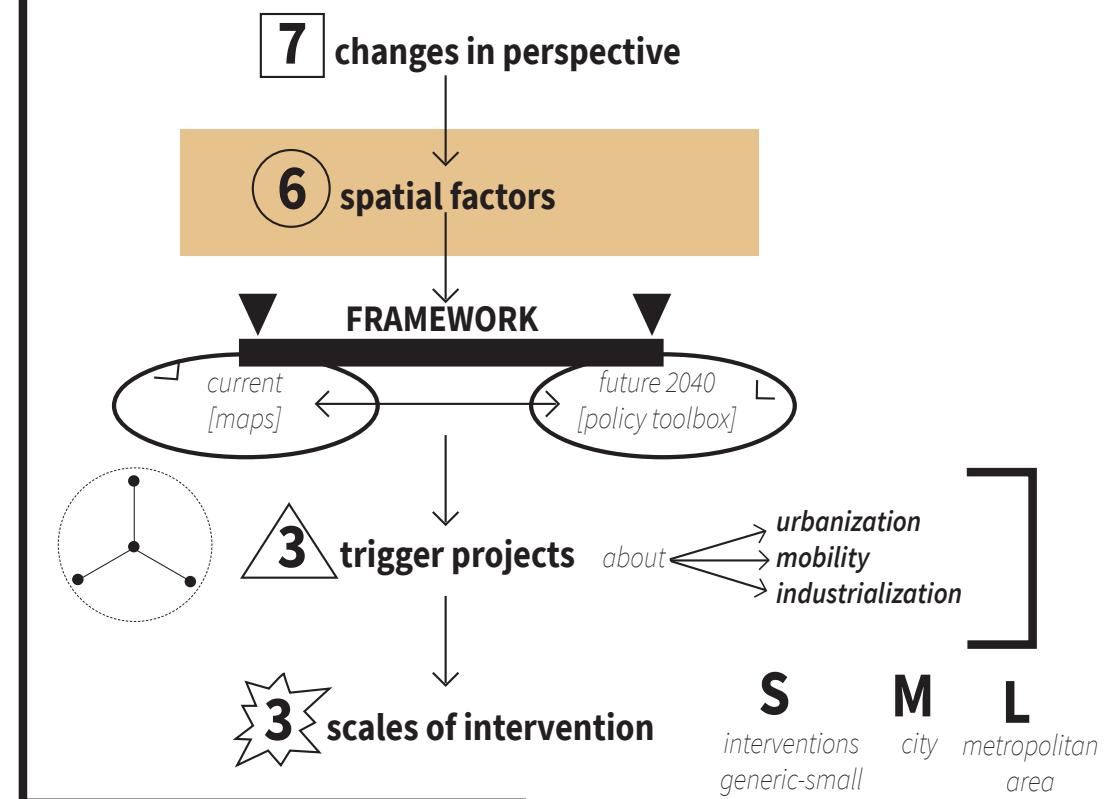


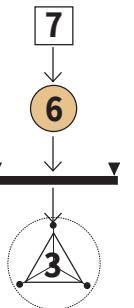
#7. FROM MOBILITY CAR FOCUSED TO MULTI-MODALITY ORIENTED

- 6 SPATIAL FACTORS-



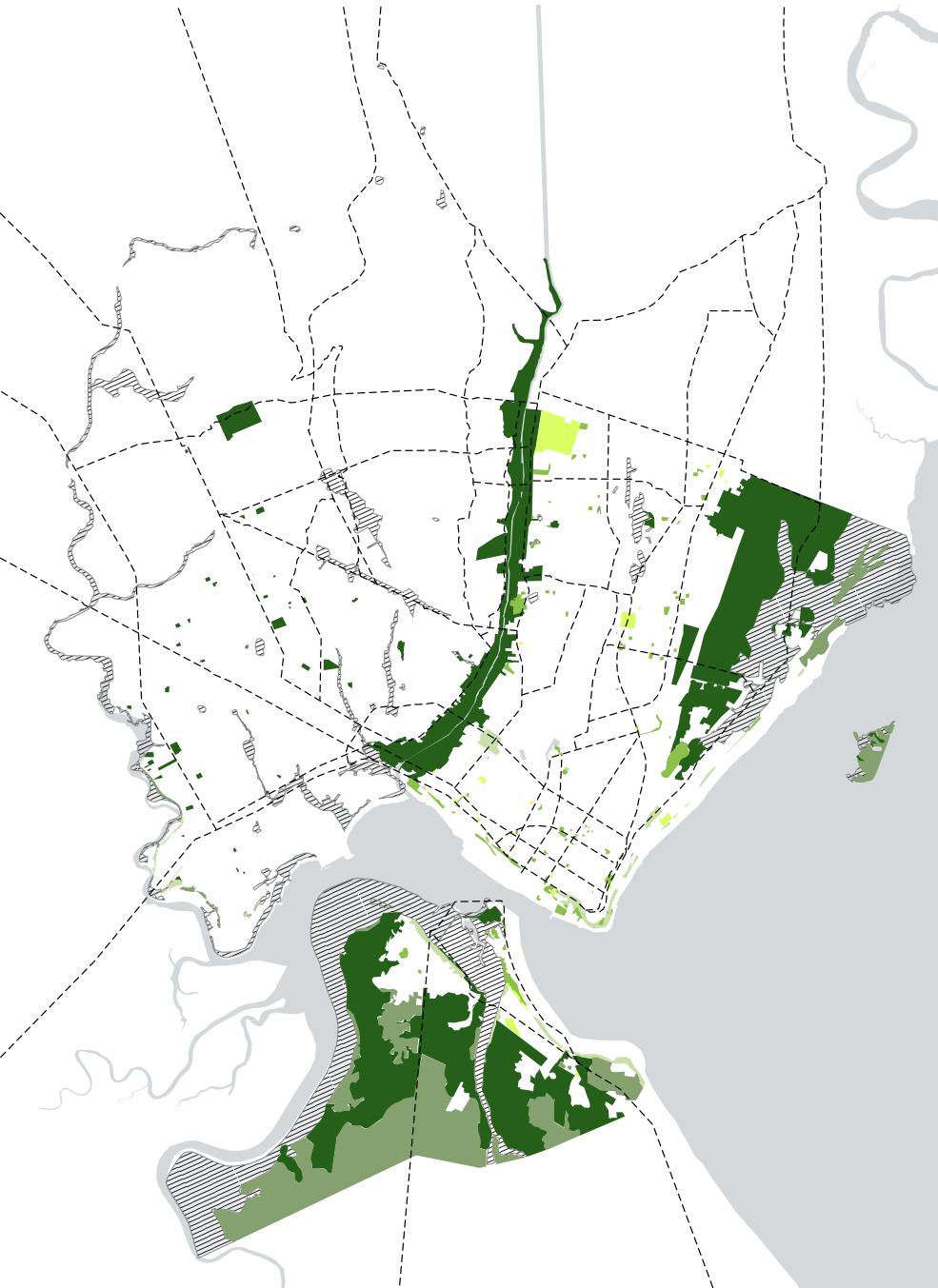
STRATEGY





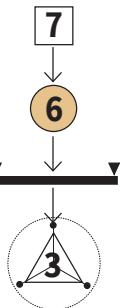
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



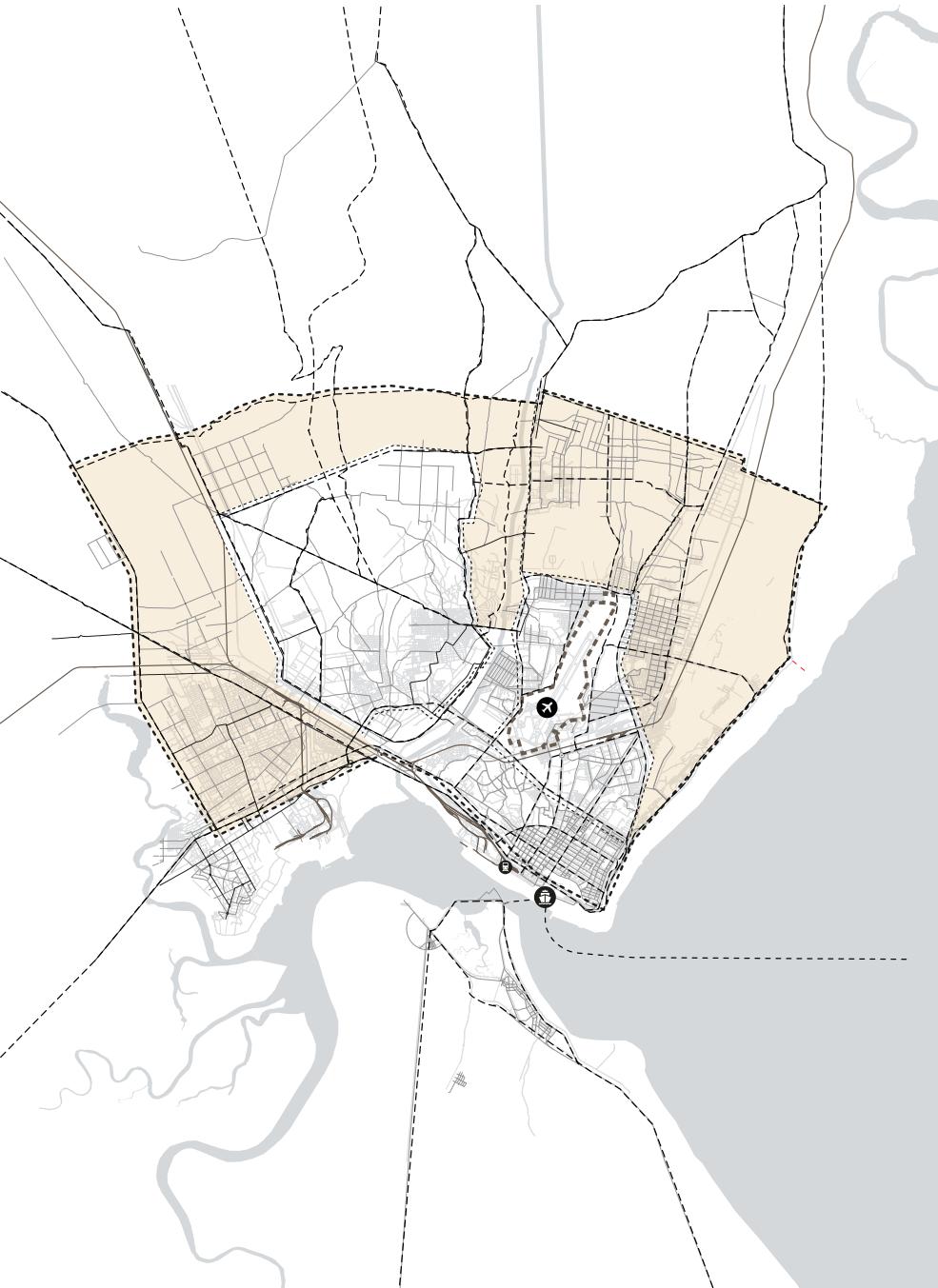
1. NATURAL CONDITIONS





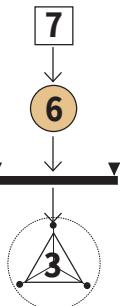
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



2. MOBILITY





- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



3. DENSITY



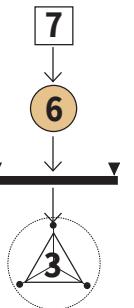
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



4. INFORMAL ECONOMIES





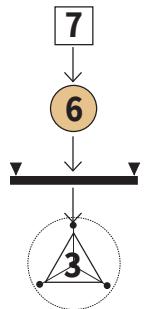
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



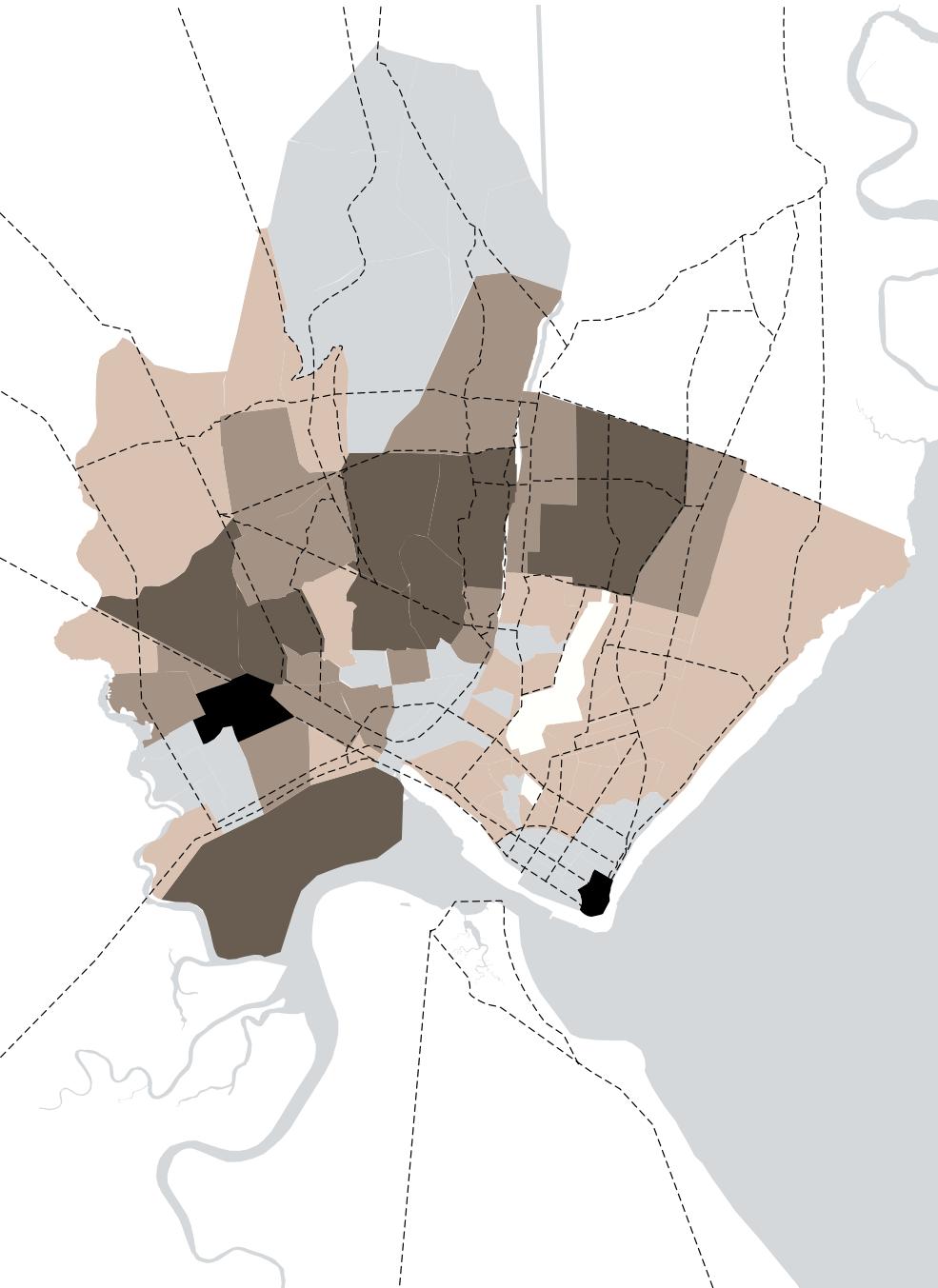
5. INDUSTRIES





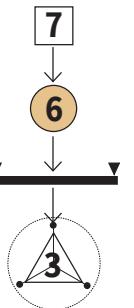
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



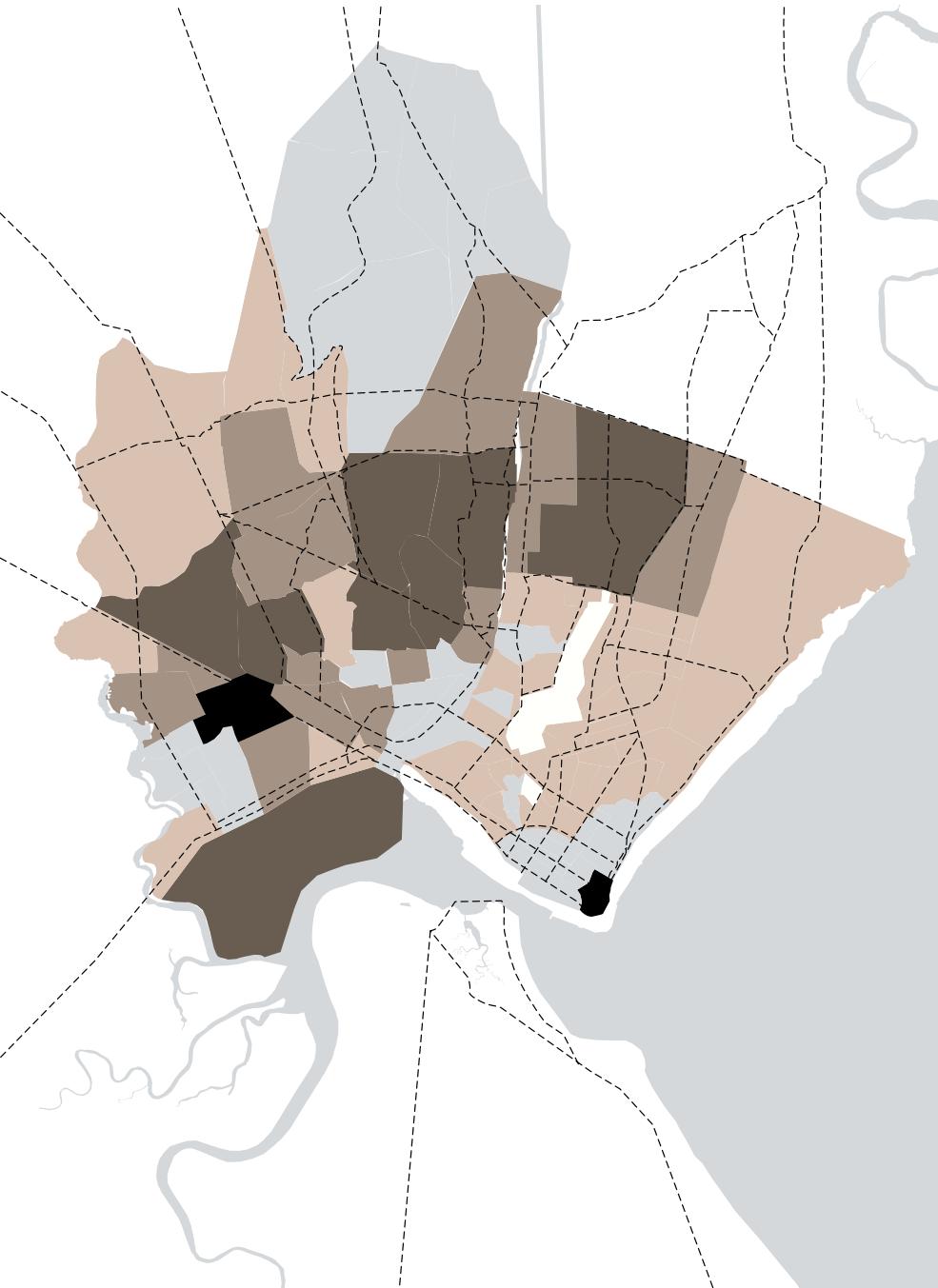
6. GROWTH





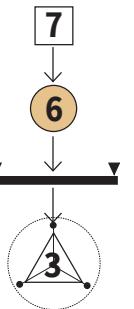
- 6 SPATIAL FACTORS OF THE STRATEGY-

Current situation according to the PEUMM 2008



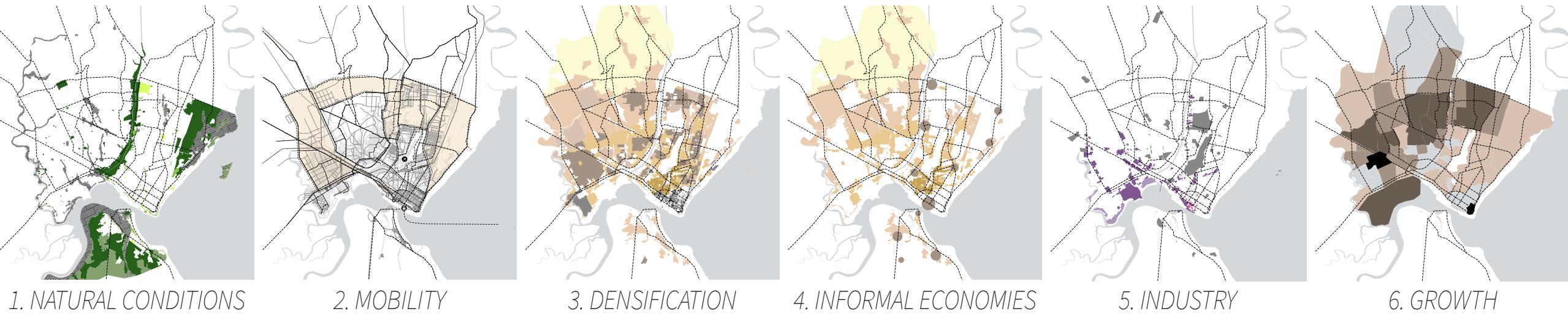
6. GROWTH

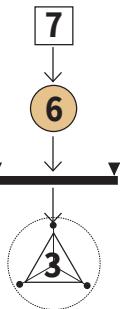




- 6 SPATIAL FACTORS OF THE STRATEGY-

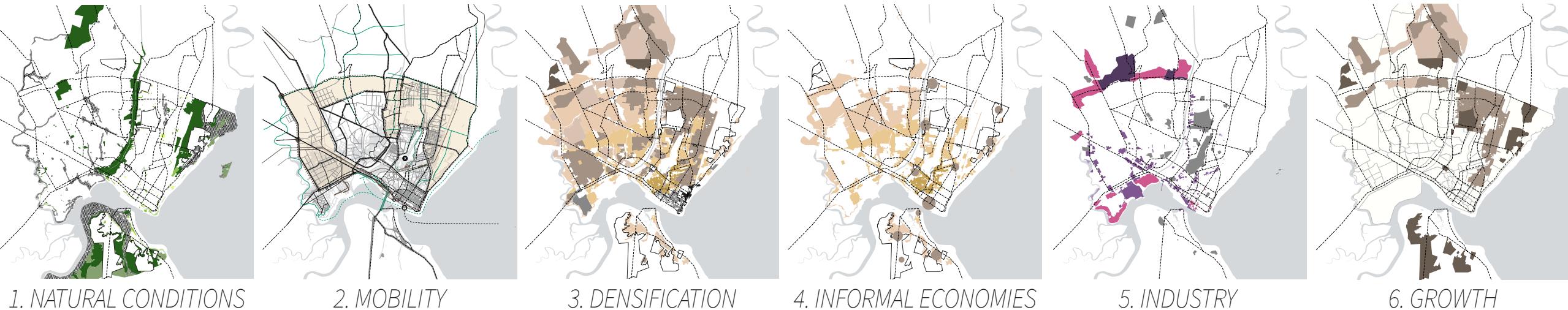
Current situation according to the PEUMM 2008



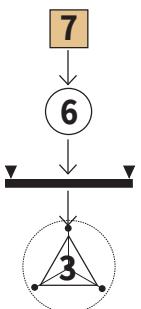


- 6 SPATIAL FACTORS OF THE STRATEGY-

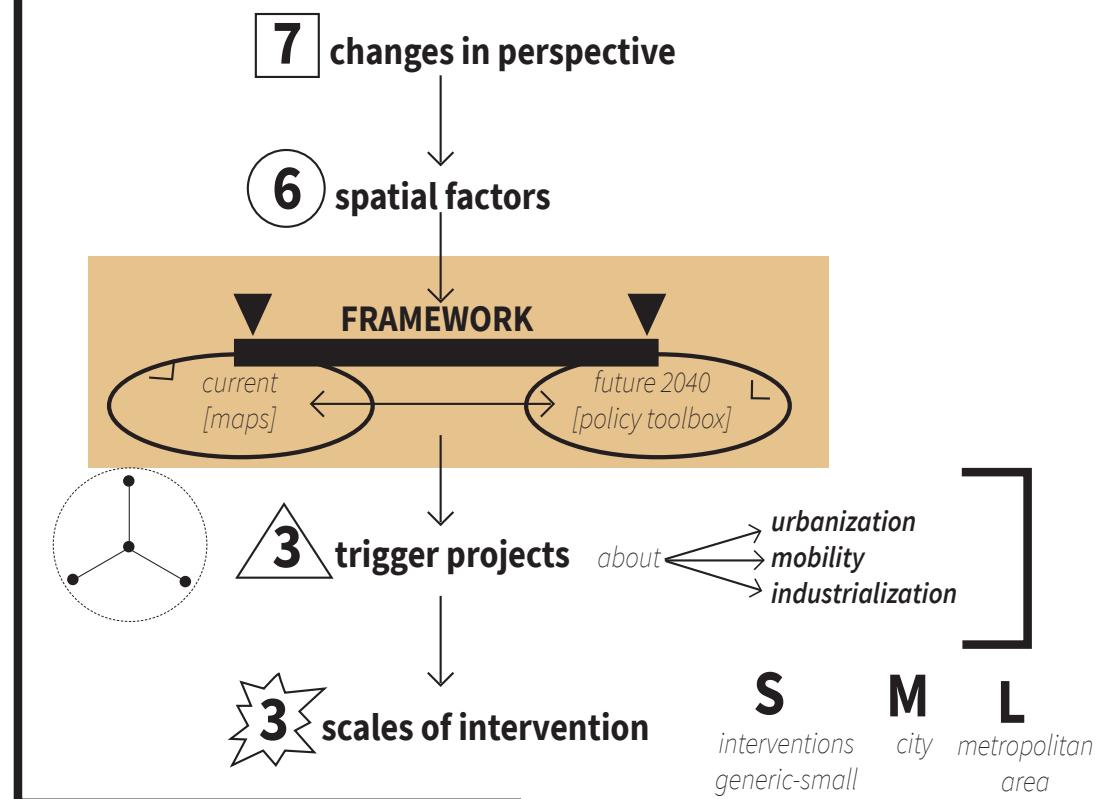
Future situation according to the PEUMM 2008



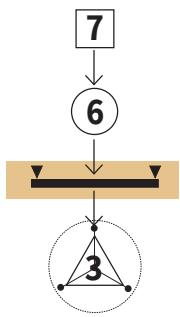
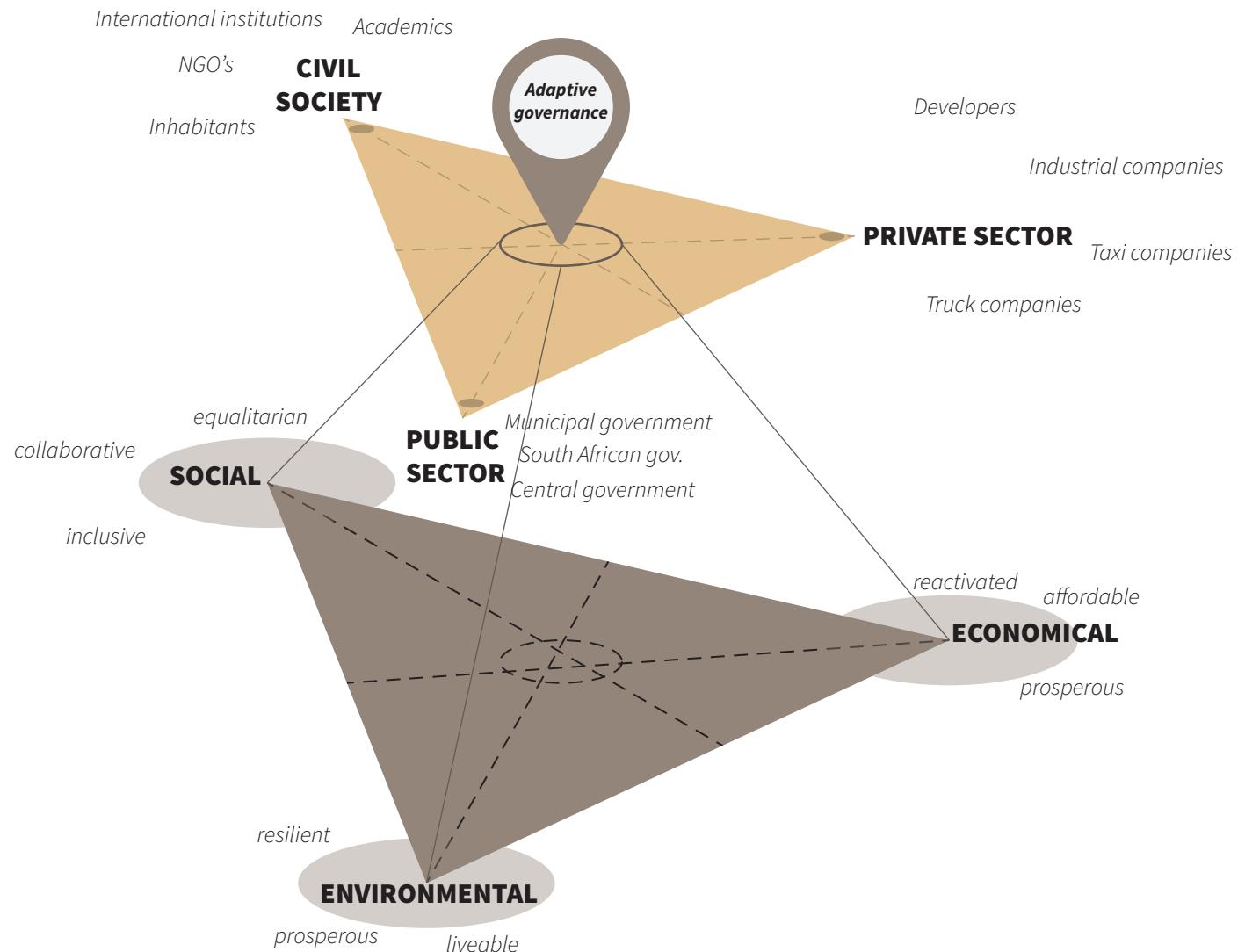
- FRAMEWORK -



STRATEGY

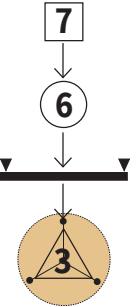
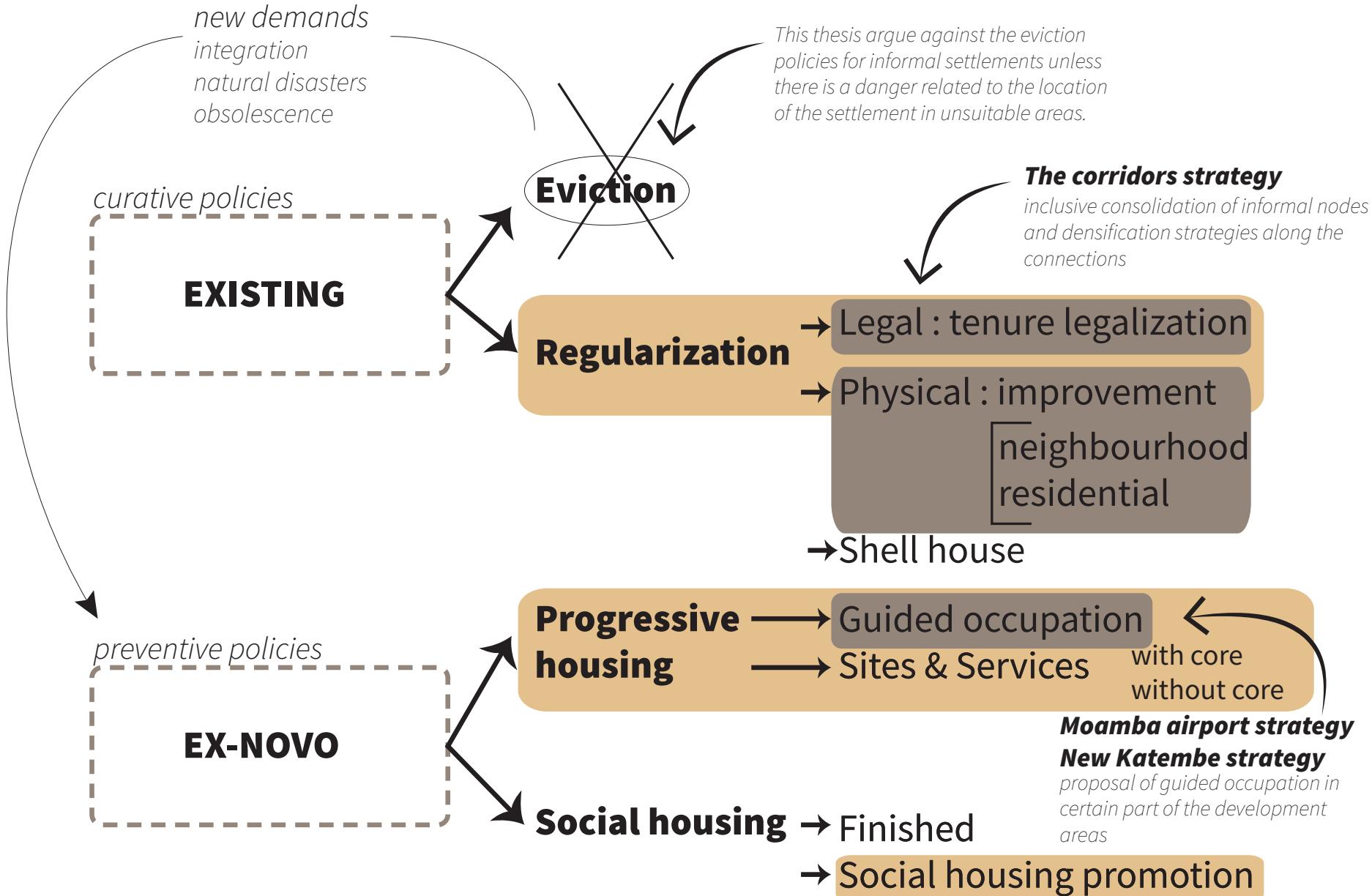


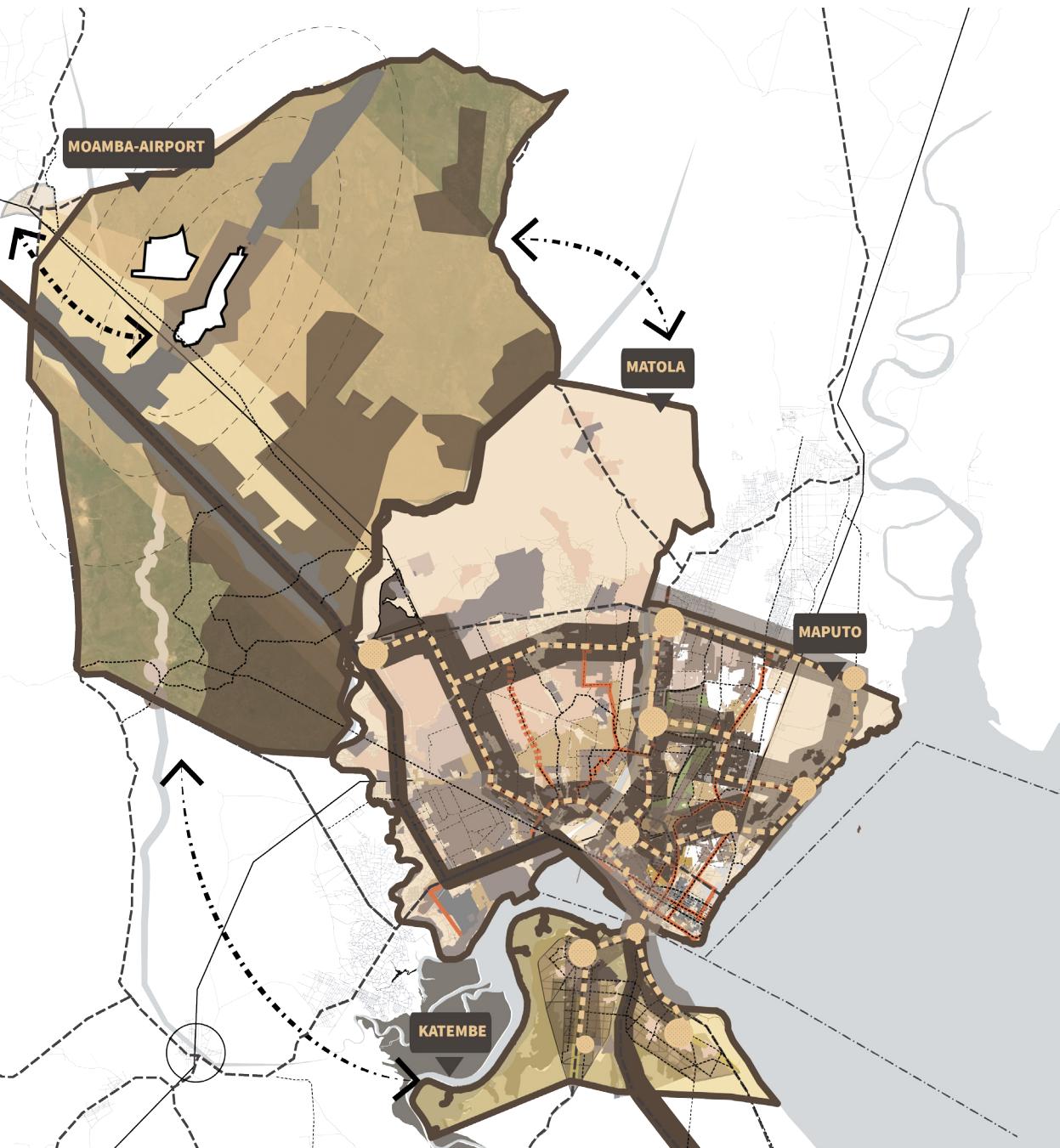
- SUSTAINABLE URBAN DEVELOPMENT FRAMEWORK -



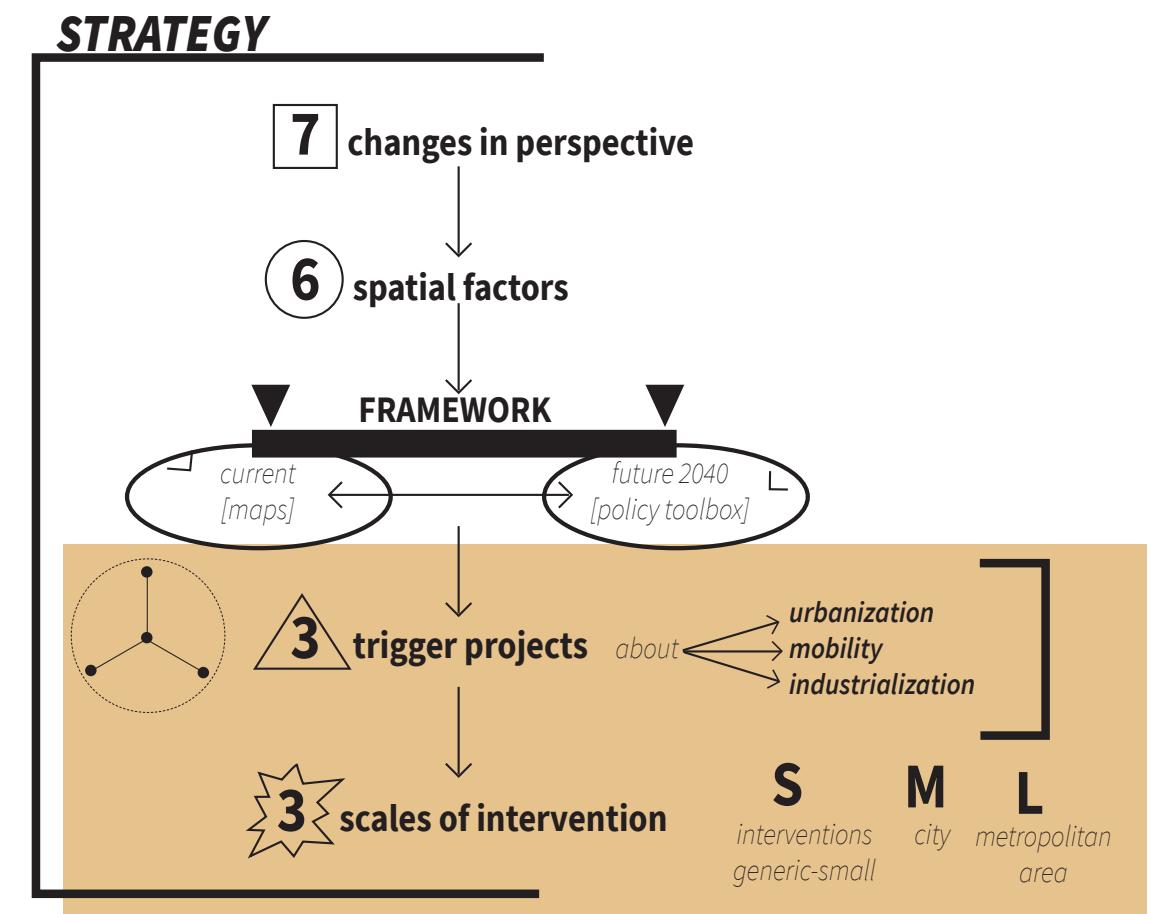
NON CONVENTIONAL HOUSING POLICIES

- THEORETICAL FRAMEWORK -

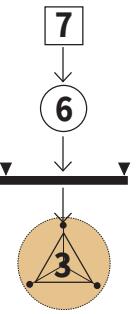




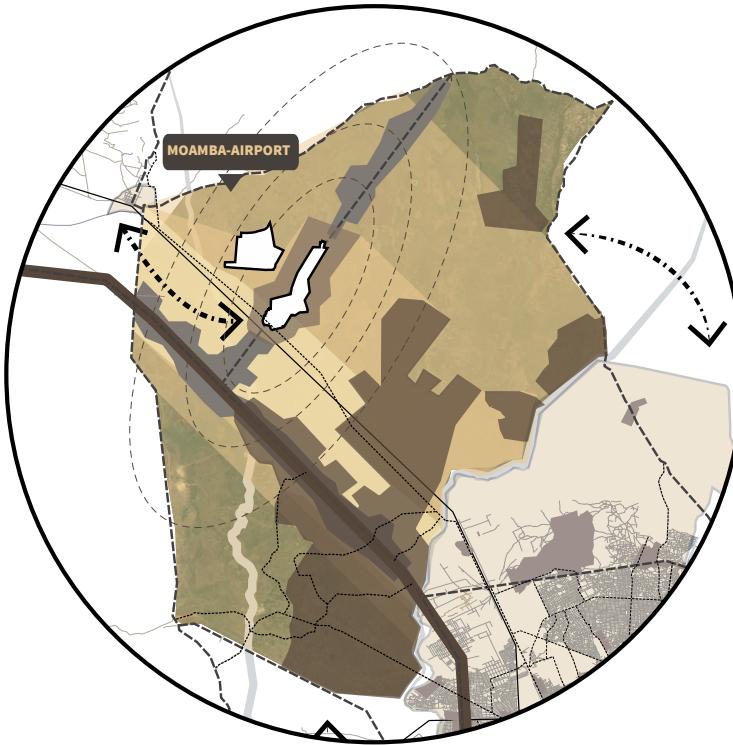
- FRAMEWORK -



CORE INITIATIVES



1| THE CORRIDORS

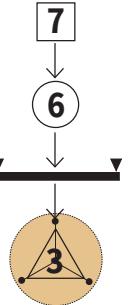
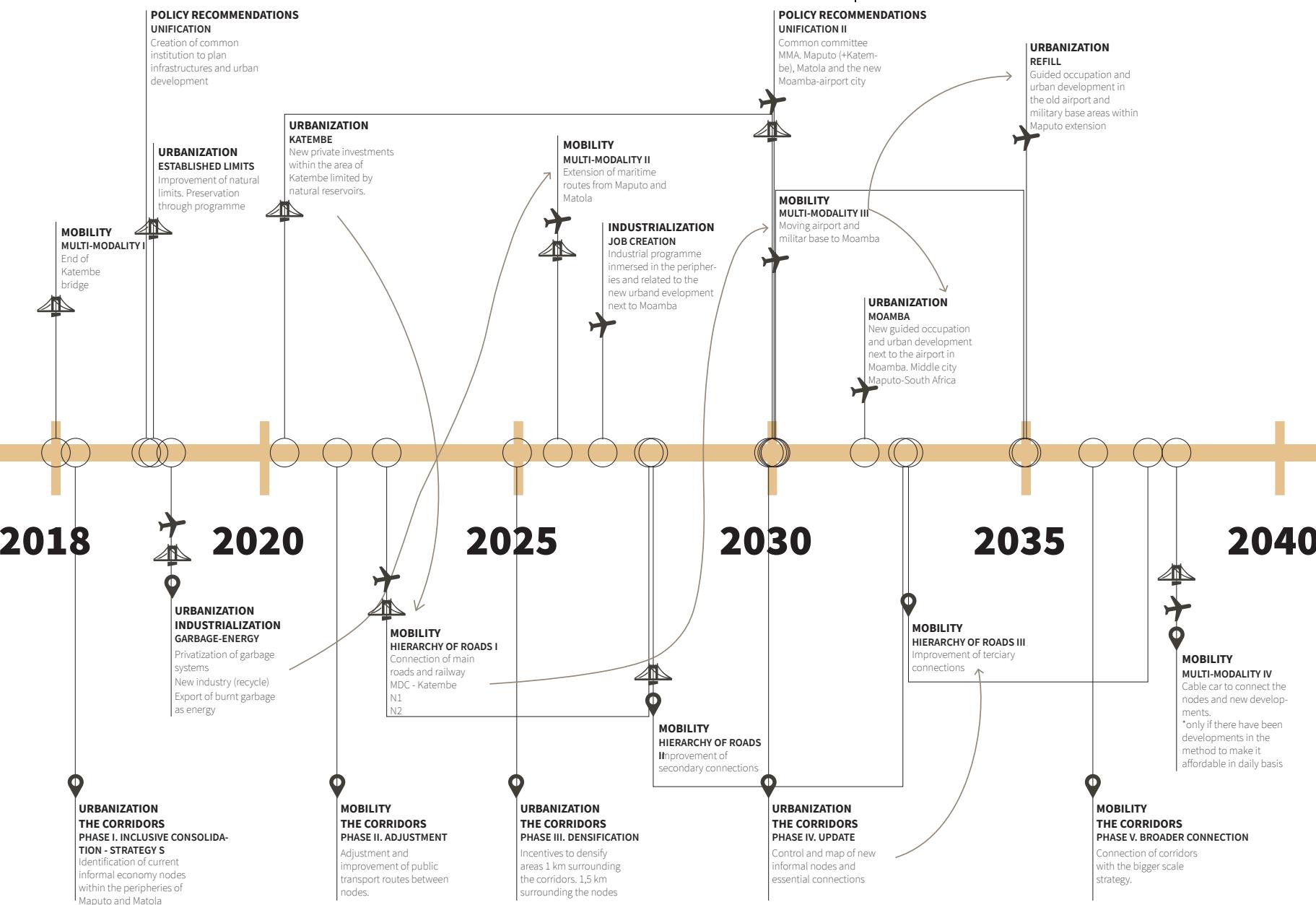


2| MOAMBA AIRPORT

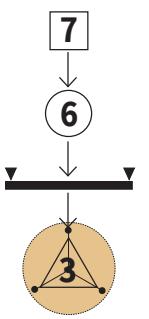


3| NEW KATEMBE

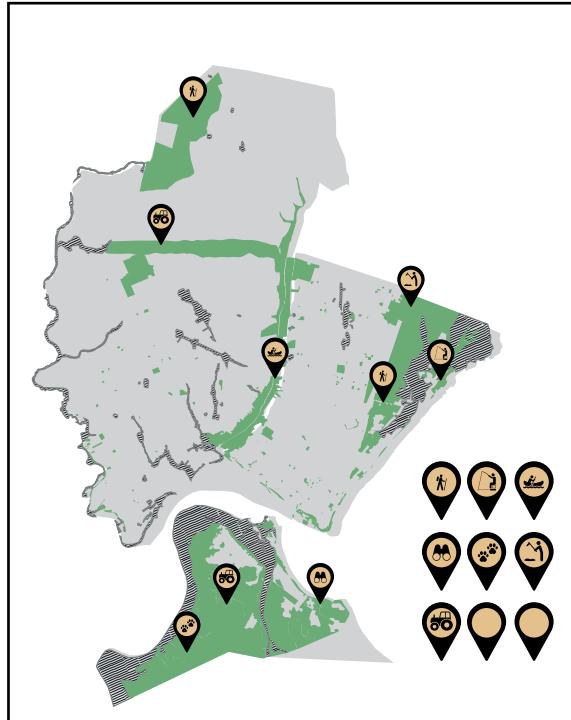
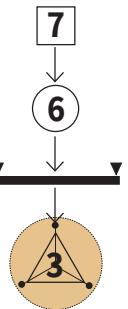
- STRATEGY DEVELOPMENT | PHASING -



- CORE INITIATIVES -



- CORE INITIATIVES -



1. CREATION OF LIMITS BY PROGRAMMATIC NATURAL SPACES.

Mozambique rubbish dump collapse kills at least 17 people

20 February 2018

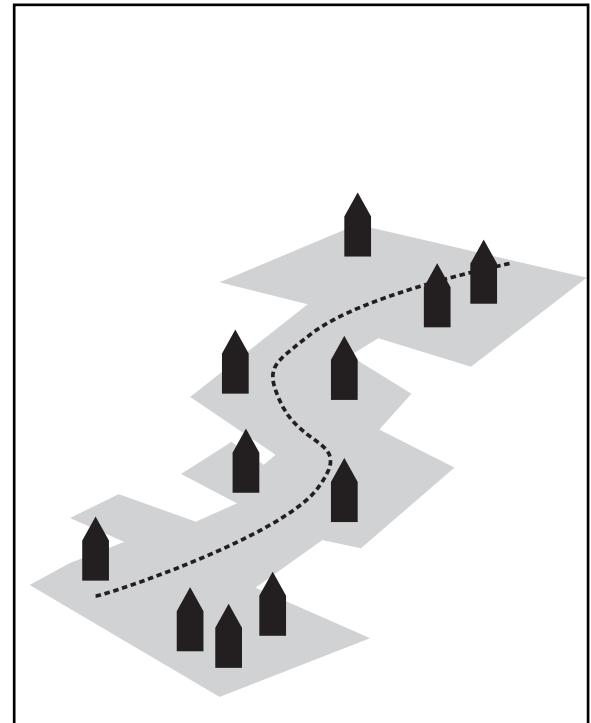
[Home](#) | [Video](#) | [World](#) | [UK](#) | [Business](#) | [Tech](#) | [Science](#) | [Stories](#)

[World](#) | [Africa](#) | [Asia](#) | [Australia](#) | [Europe](#) | [Latin America](#) | [Middle East](#)

Authorities have warned that a number of residents remain unaccounted for

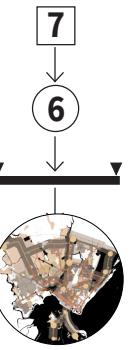
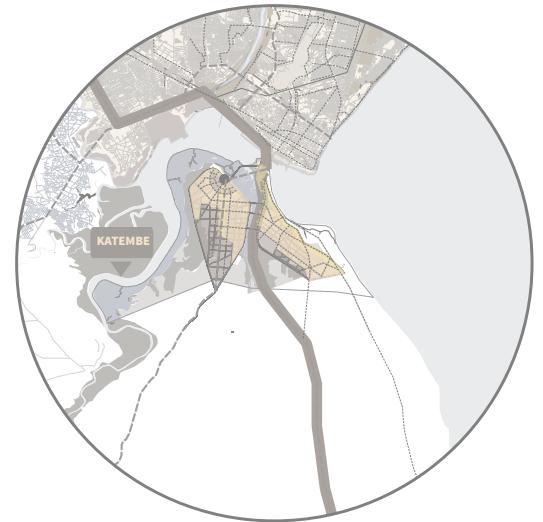
At least 17 people - including children - have been killed in Mozambique's

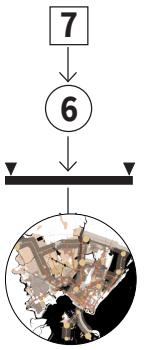
2. EFFICIENCY IN THE MANAGEMENT OF CERTAIN RESOURCES, SUCH AS GARBAGE



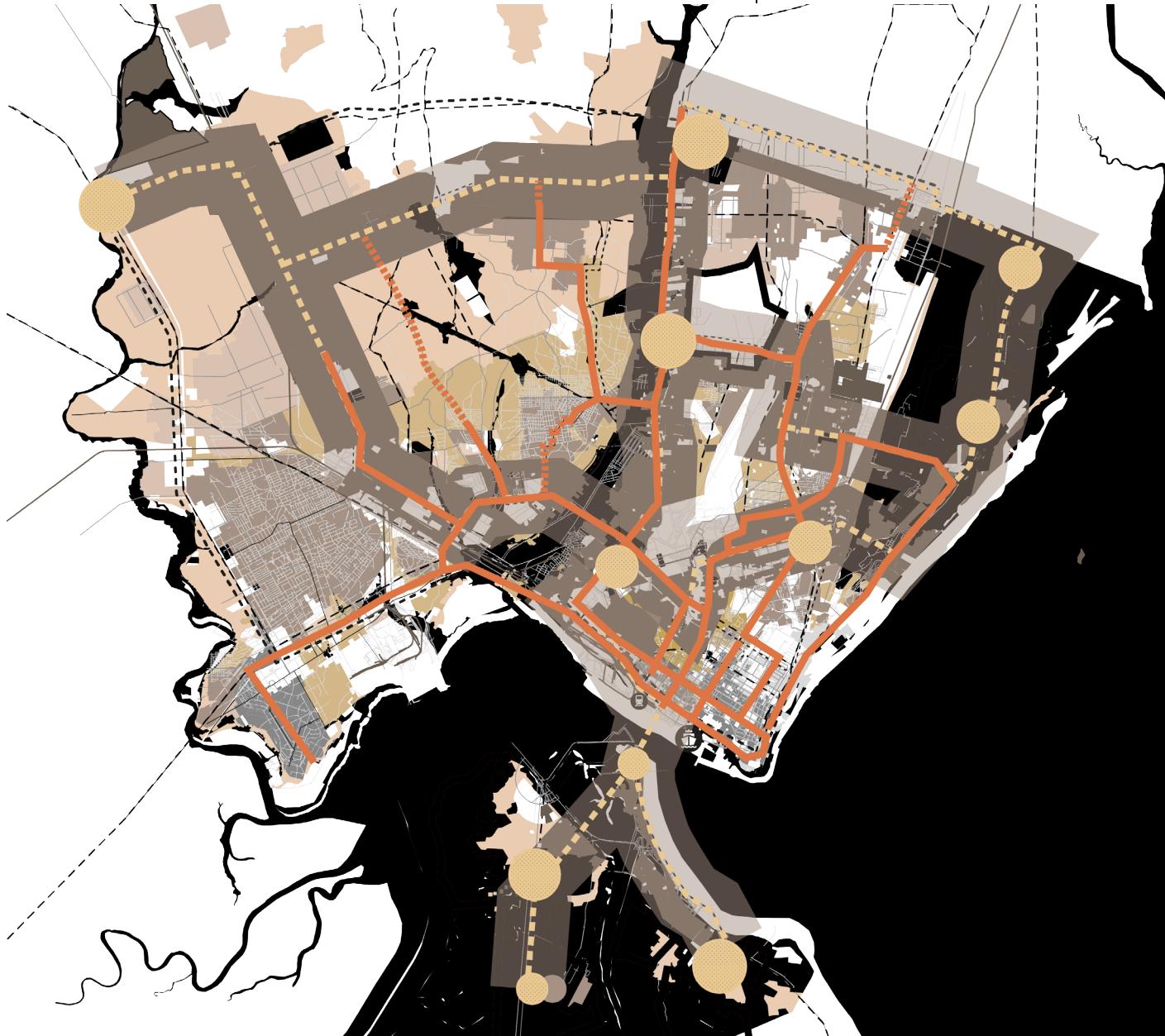
3. ORGANIZATION OF A COMMON INSTITUTION THAT ENTAILS THE MANAGEMENT OF MOBILITY STRUCTURE AND URBAN DEVELOPMENT.

- 1 | STRATEGY M. THE CORRIDORS-





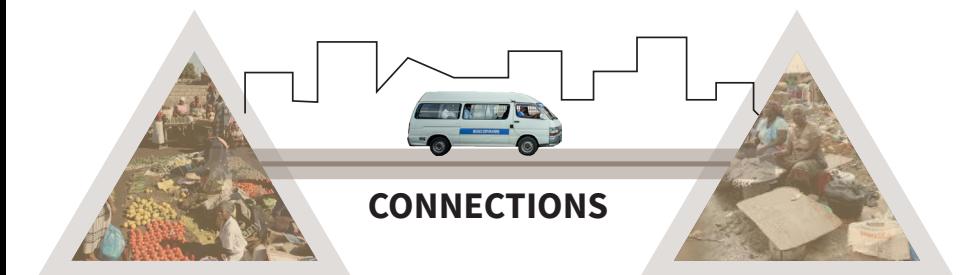
- 1 | STRATEGY M. THE CORRIDORS-



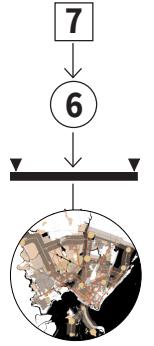
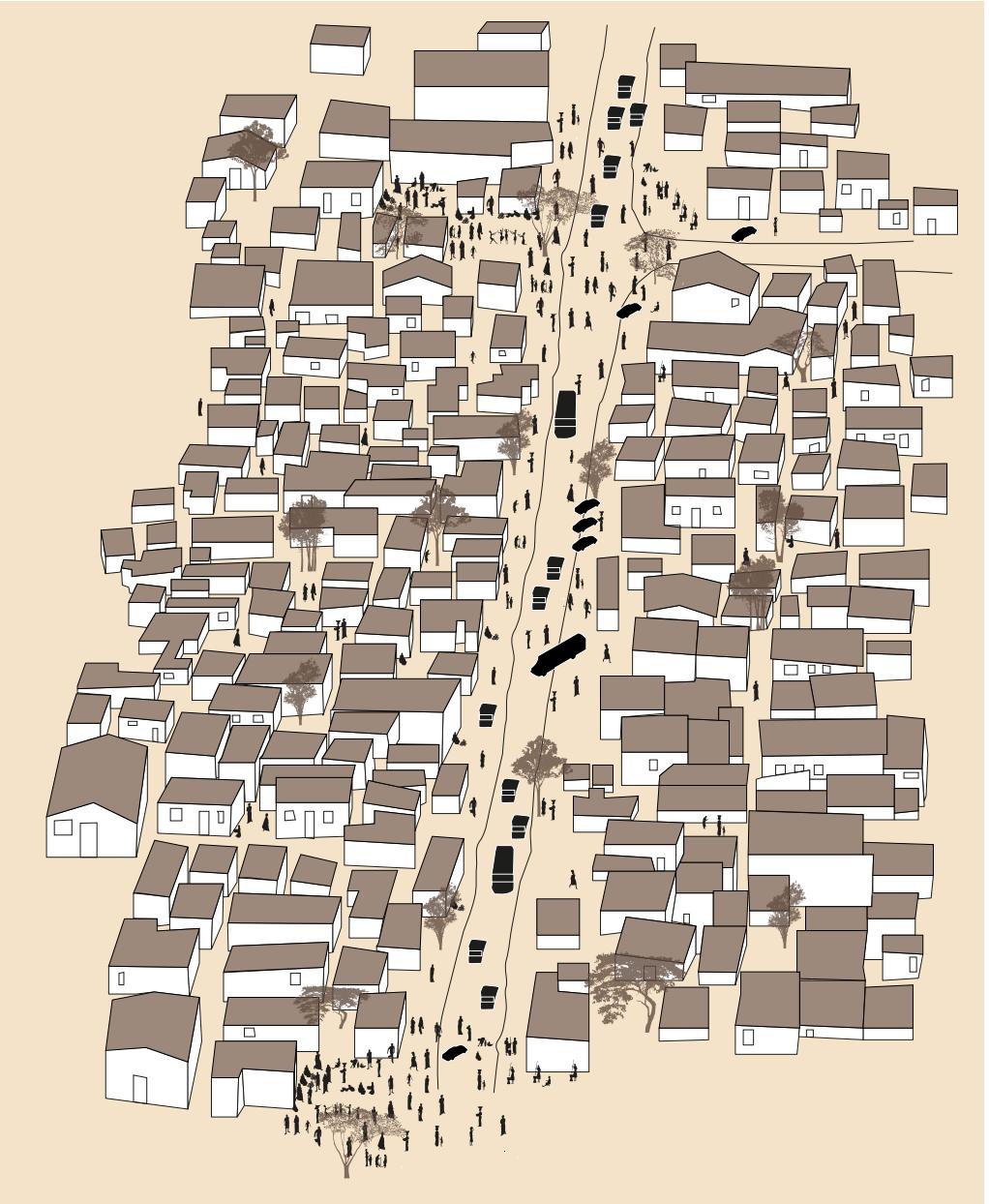
REDEFINITION OF THE CONCEPT OF CORRIDOR INTO CONTEXT REALITY.

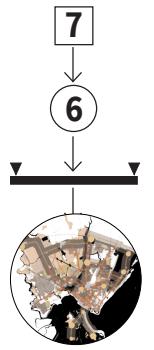
An urban development corridor is redefined in the case of MMA into a connection between two informal nodes by public transportation. The corridor propose the guidelines for a densification strategy in the area of 1 km along the connection and the informal nodes.

INFORMAL NODES



- 1 | STRATEGY M. THE CORRIDORS-





- 1 | STRATEGY M. THE CORRIDORS -

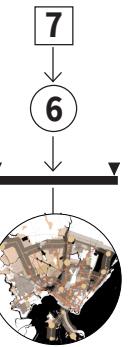


WHAT IS AN INFORMAL NODE?

*"It's a series of **activities** (generally income generators or producers) that do **not** follow the **institutional rules** and are not protected by them, in opposition to the formal activity that operated inside the established procedures" (Gesto, B. 2015)*

SPONTANEOUS | SURVIVAL | ILLEGAL





- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

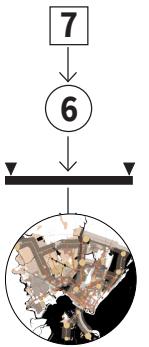
- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-



1. Identification

- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-

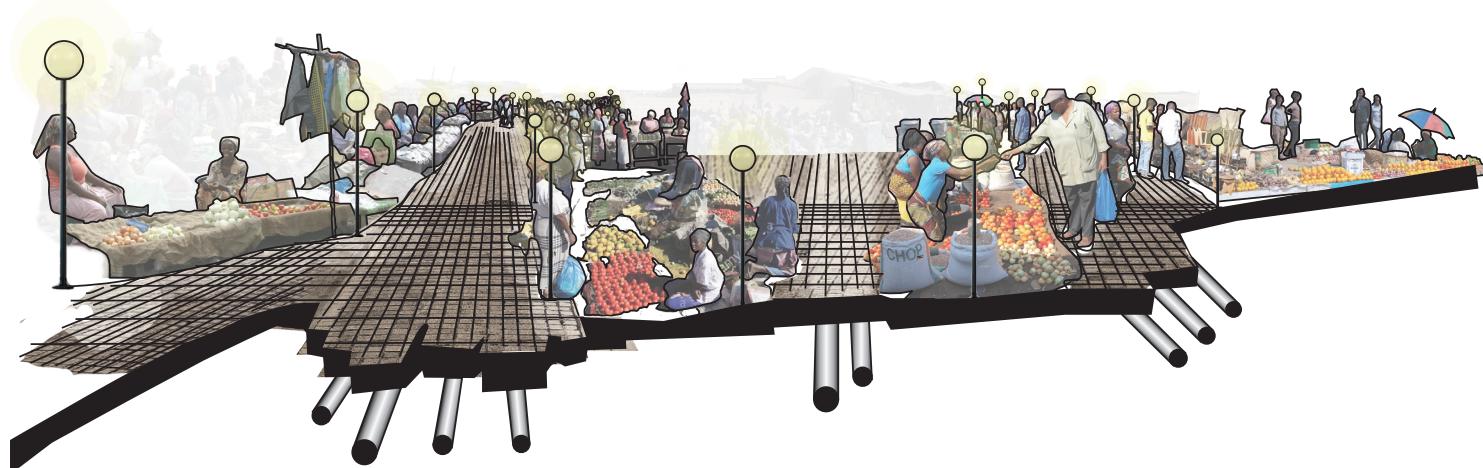
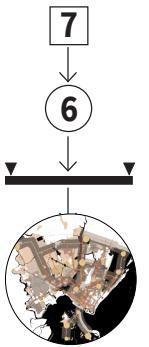


2. Consolidation-appropriation



- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-

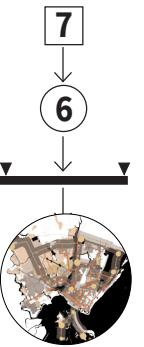


3. Basic infrastructures



- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-

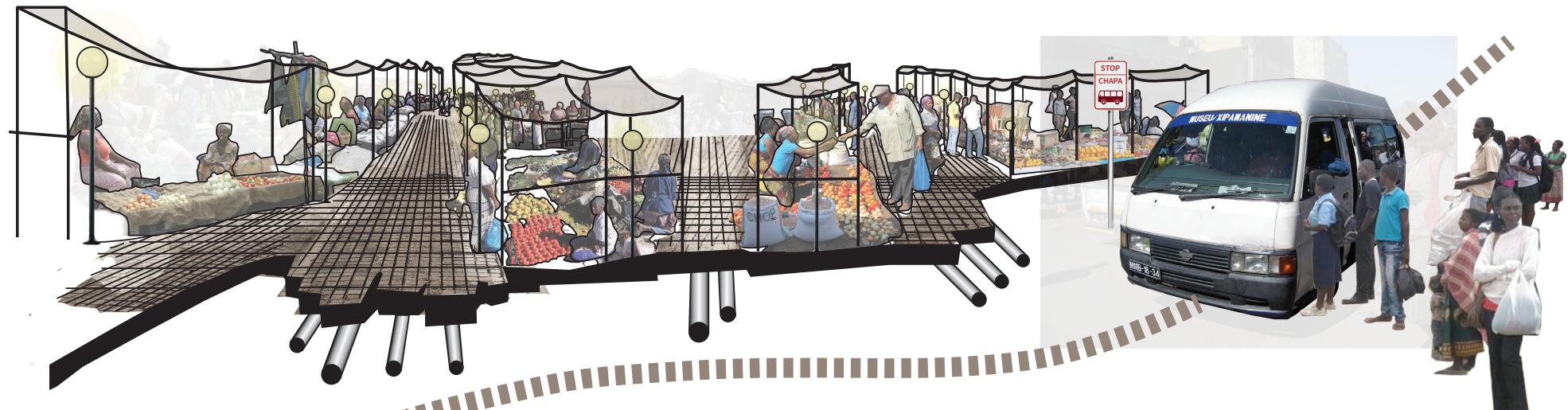
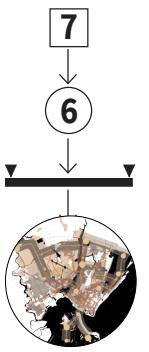


4. Couverture



- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

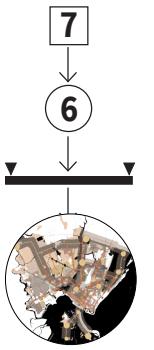
- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-



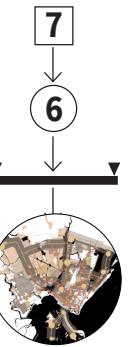
5. Connections through public transport

- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-

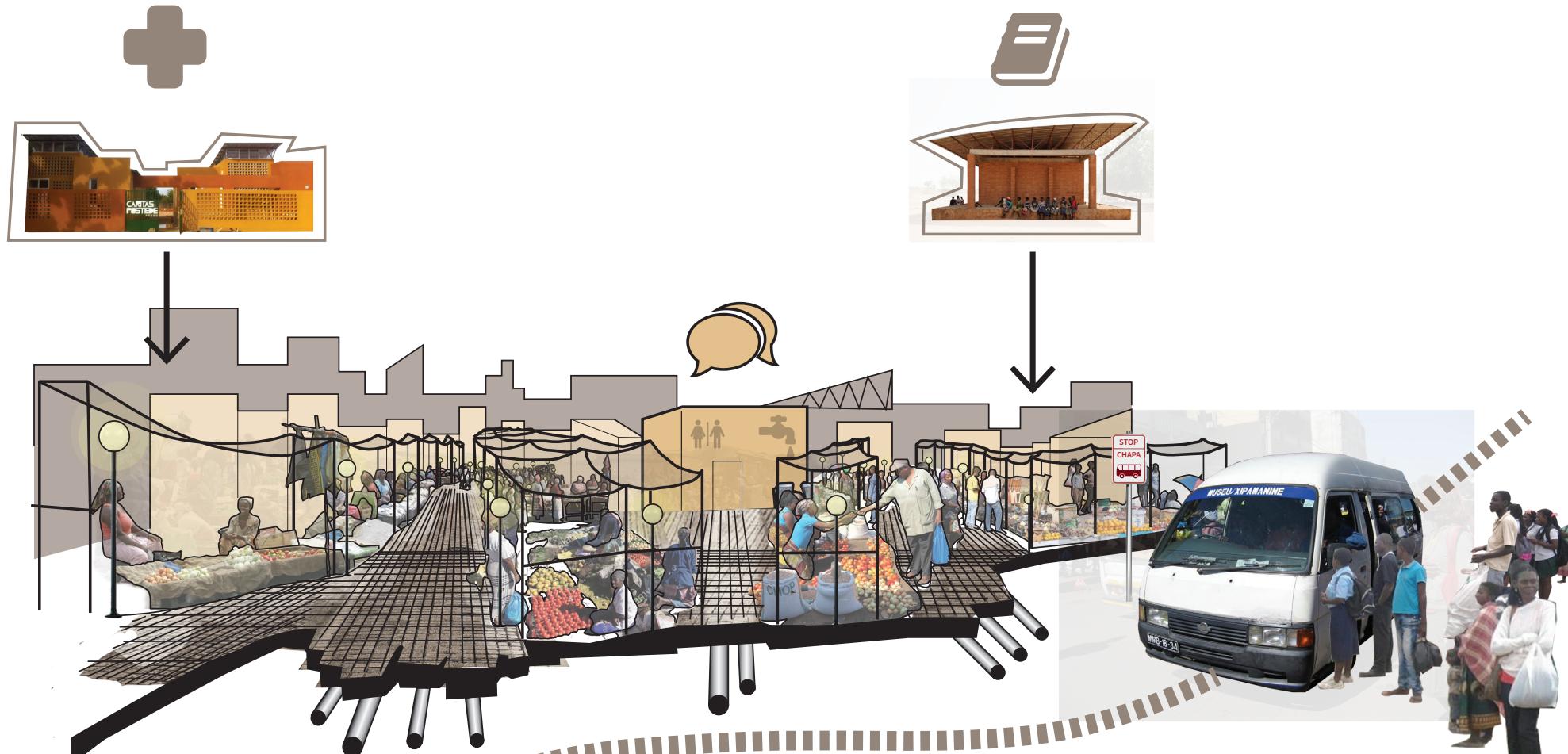


6. Facilities in node scale

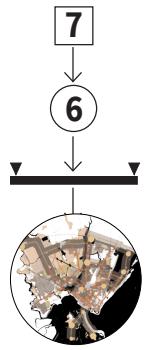


- 1 | STRATEGY M. THE CORRIDORS | INFORMAL NODES-

- STRATEGY S. INCLUSIVE CONSOLIDATION OF INFORMAL NODES-



7. Facilities in neighbourhood-district scale



- 1 | STRATEGY M. THE CORRIDORS -



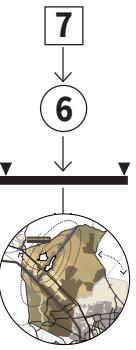
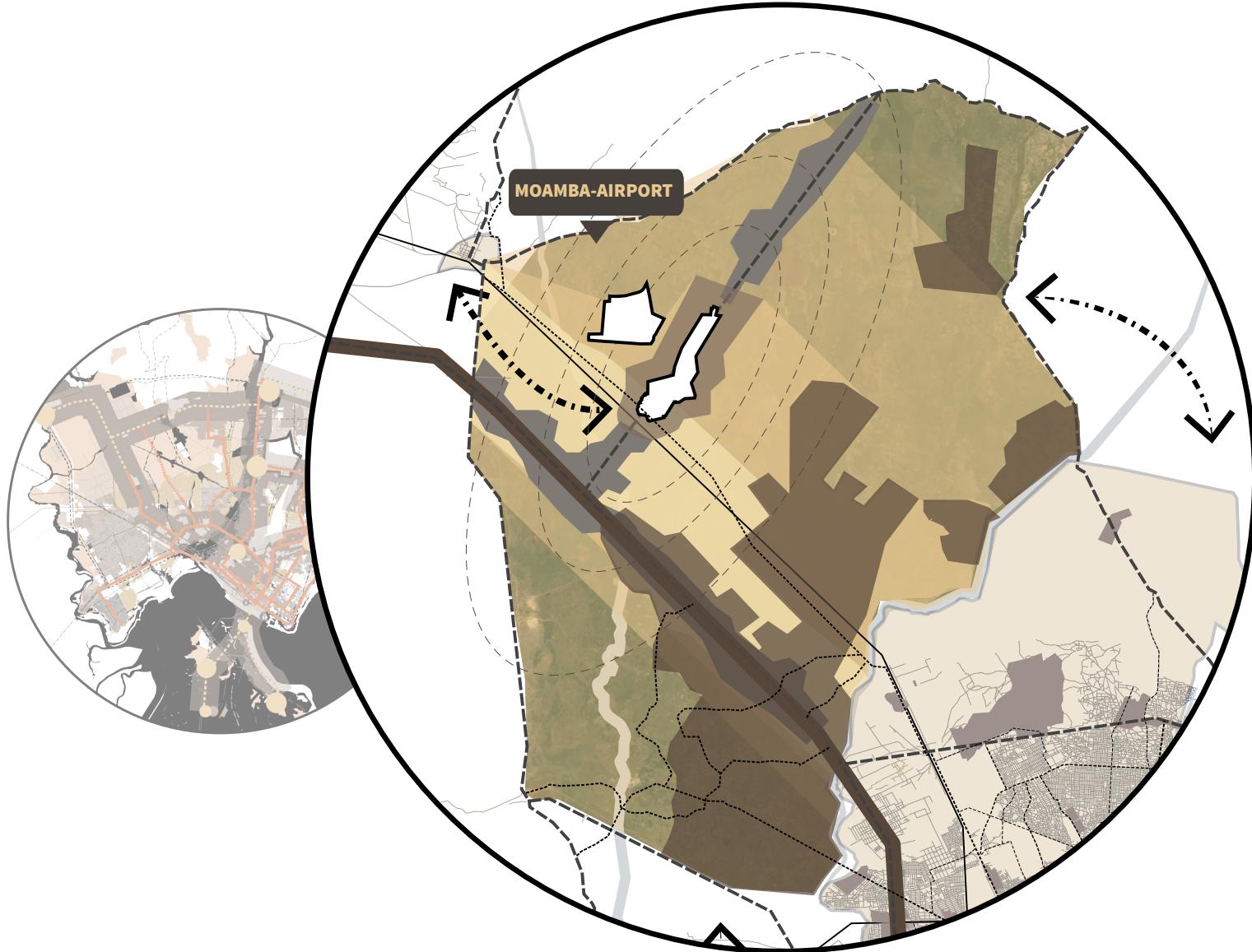
HOW ARE THE CONNECTIONS?

Between two informal nodes there is a direct public transport line (BRT) -CHAPAS- and an improvement of the road quality. At the same time, new policies are proposed to demand a densification of the areas 1 km next to the corridors

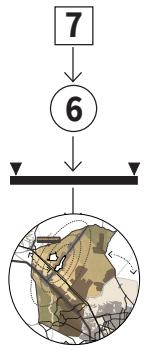
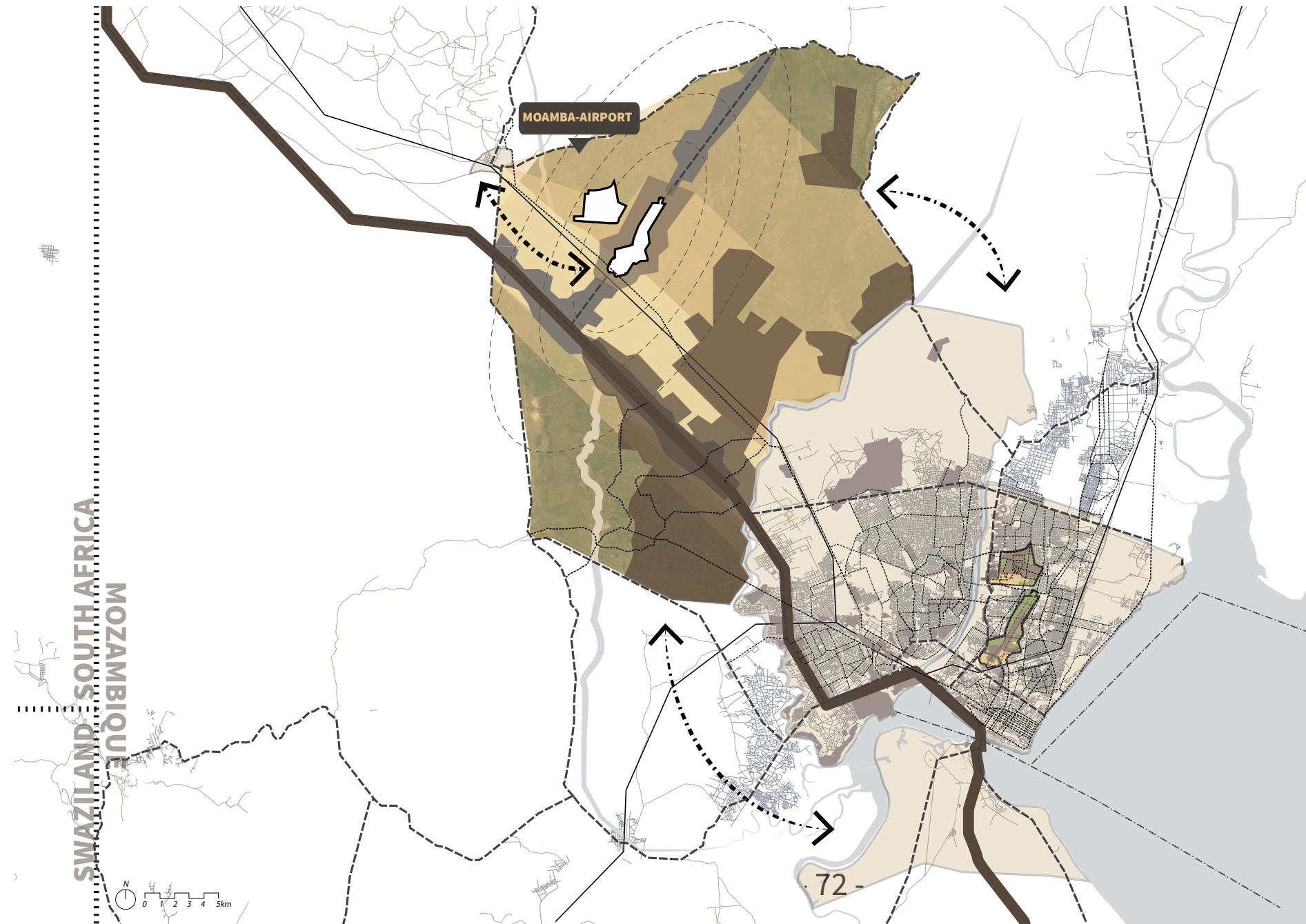
BRT | ROAD QUALITY | DENSIFICATION



- 2 | STRATEGY L. MOAMBA AIRPORT -



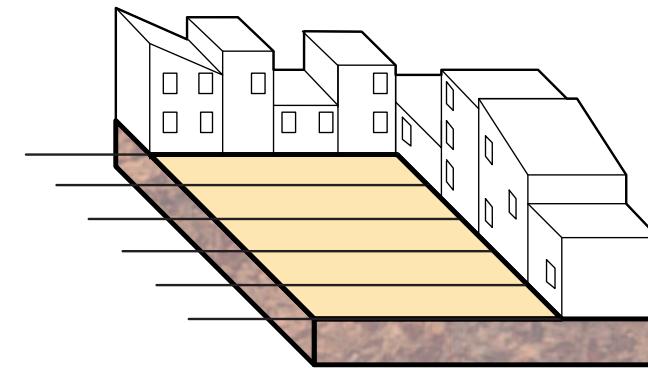
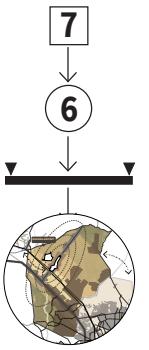
- 2 | STRATEGY L. MOAMBA AIRPORT -



- 2 | STRATEGY L. MOAMBA AIRPORT - NEW DEVELOPMENT -

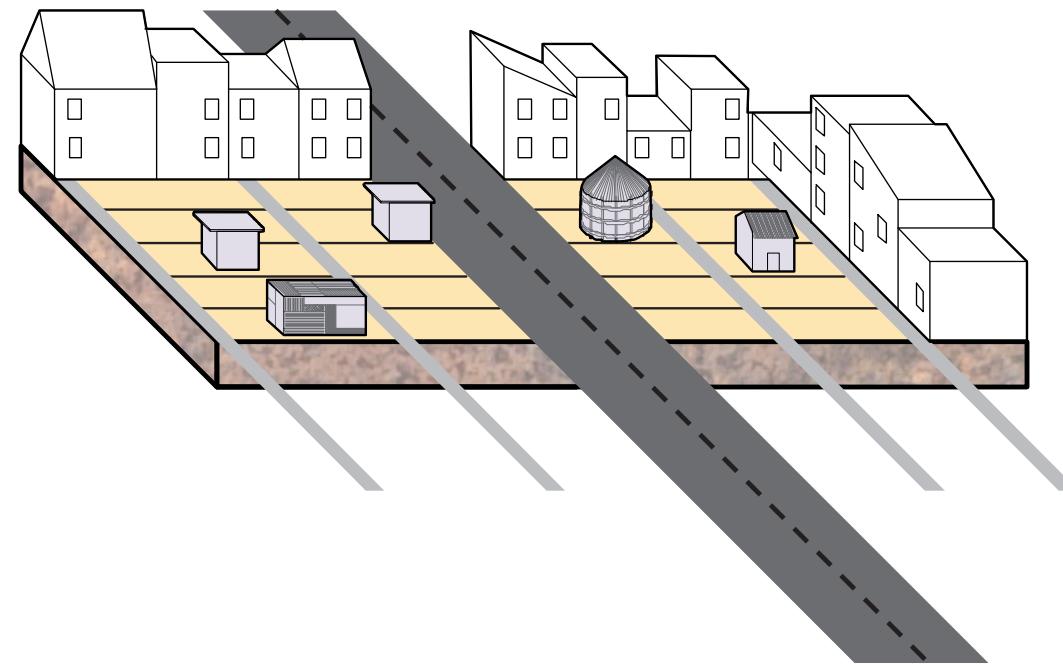
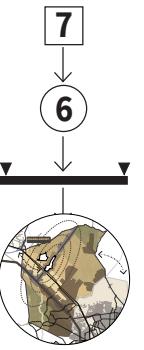


- STRATEGY M. GUIDED OCCUPATION -



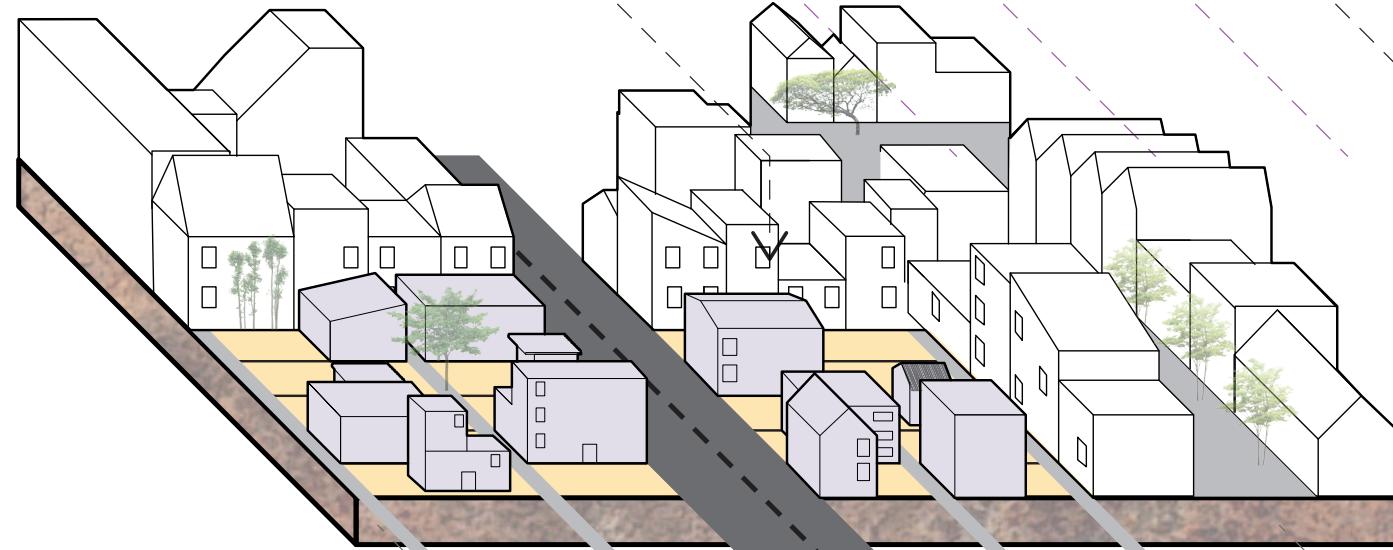
1. Reserved area. PARCELLATION.

- STRATEGY M. GUIDED OCCUPATION -

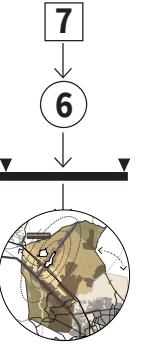


2. The occupation takes place with low costs buildings

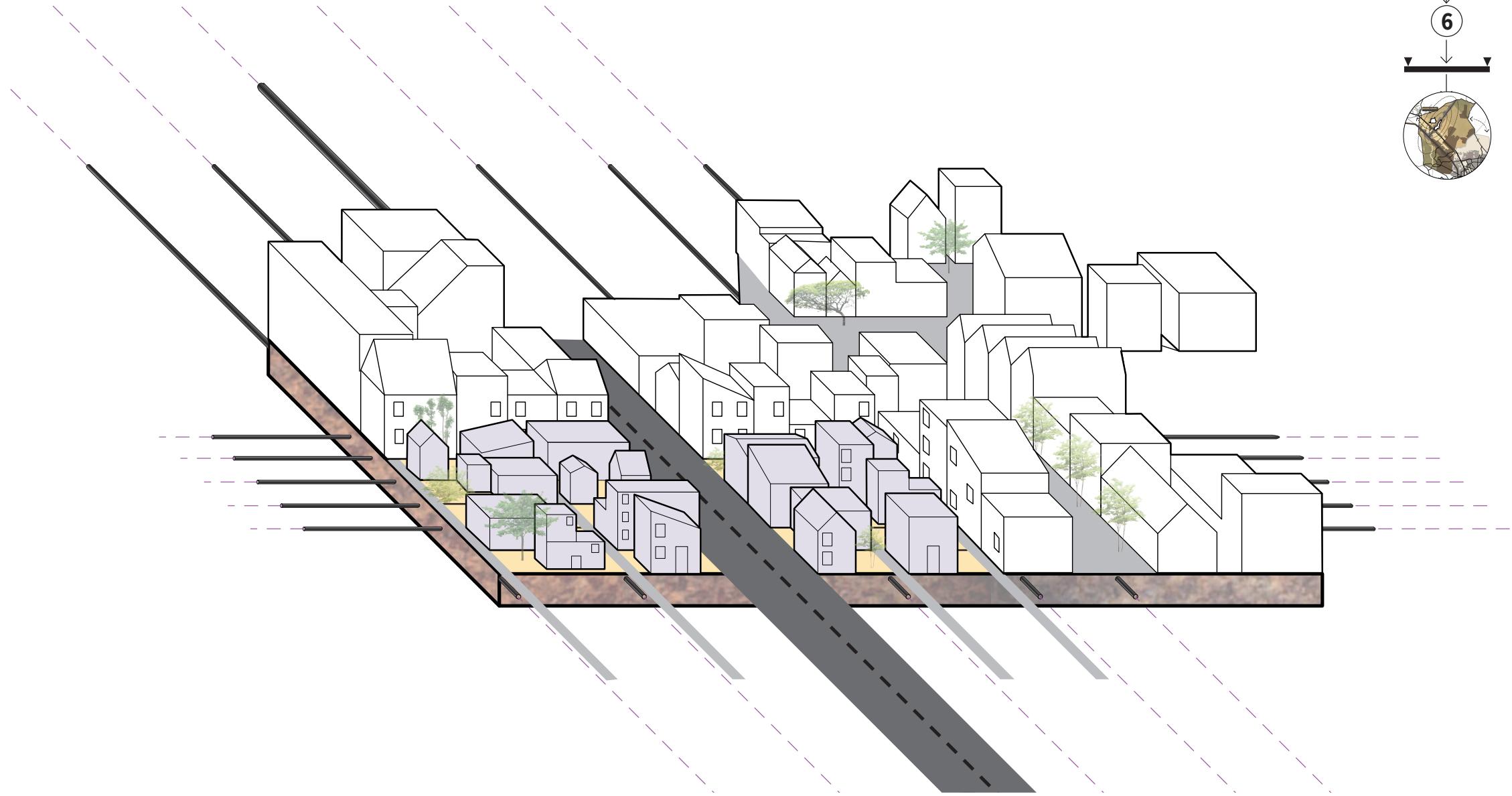
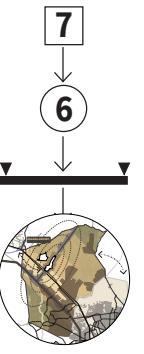
- STRATEGY M. GUIDED OCCUPATION -



3. Basic infrastructures on the guidelines.

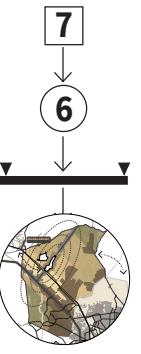


- STRATEGY M. GUIDED OCCUPATION -



4. Parallel development with different conditions

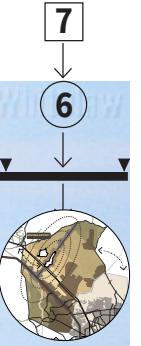
- 2 | STRATEGY L. MOAMBA AIRPORT - CURRENT AIRPORT -

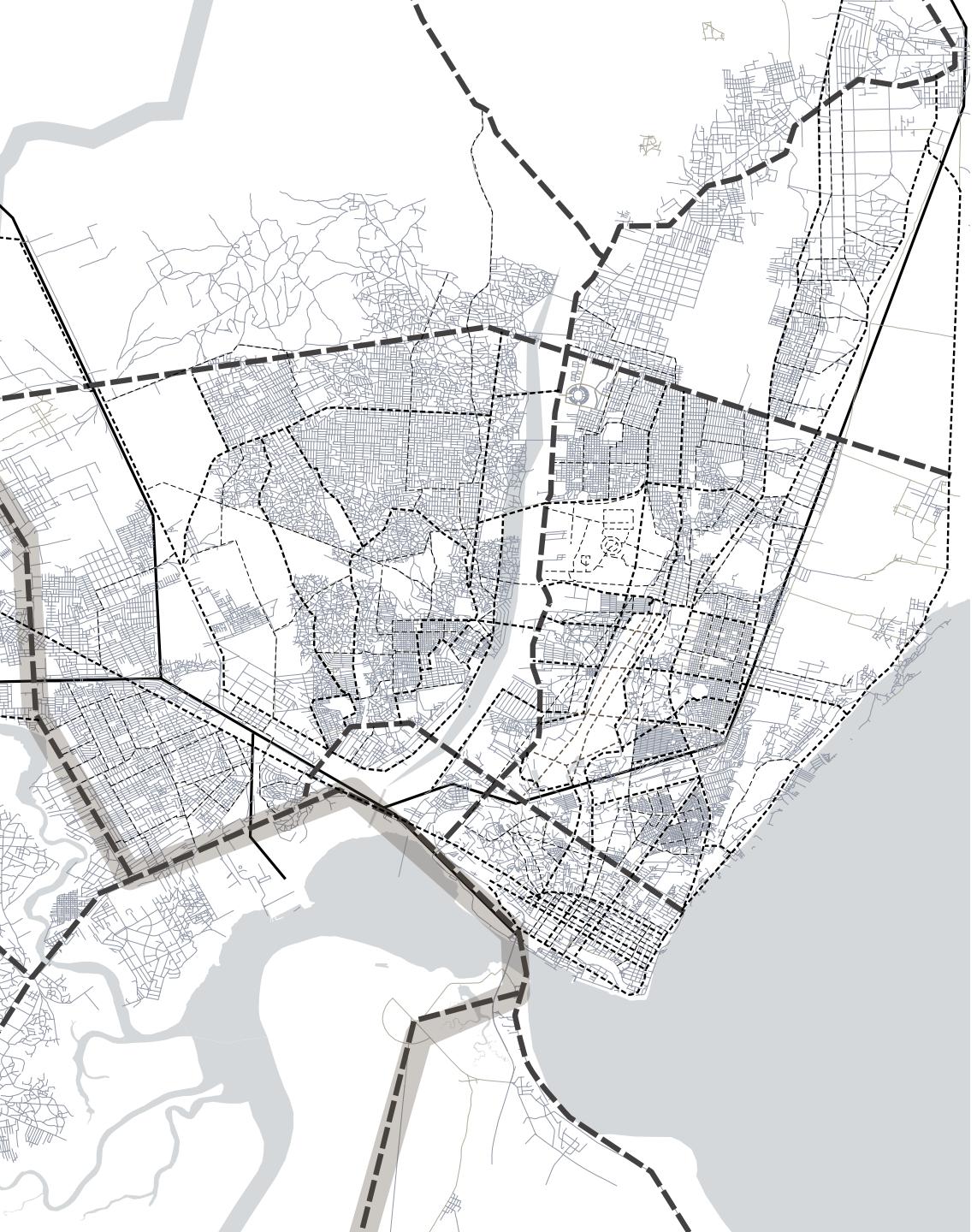


Source - Google earth



- STRATEGY S. MAPUTO INTERNATIONAL AIRPORT -

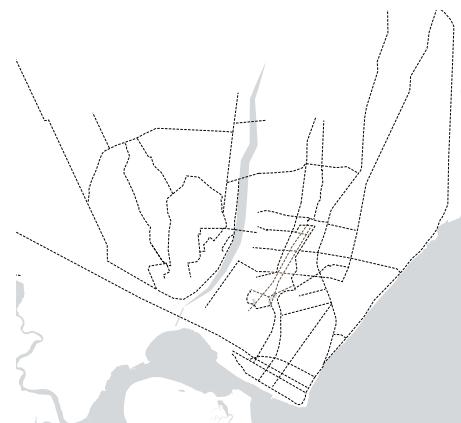




- STRATEGY M. HIERARCHY OF ROADS -



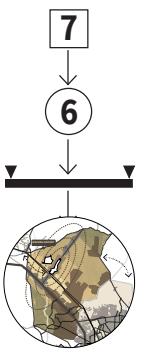
MAIN ROADS



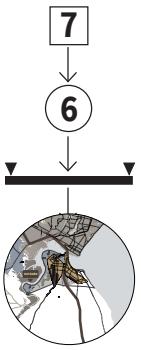
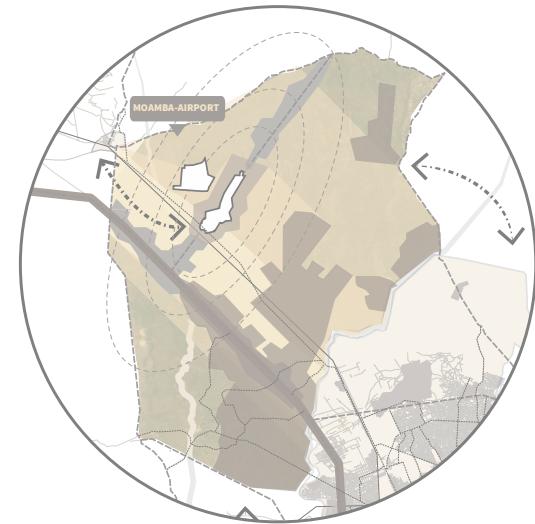
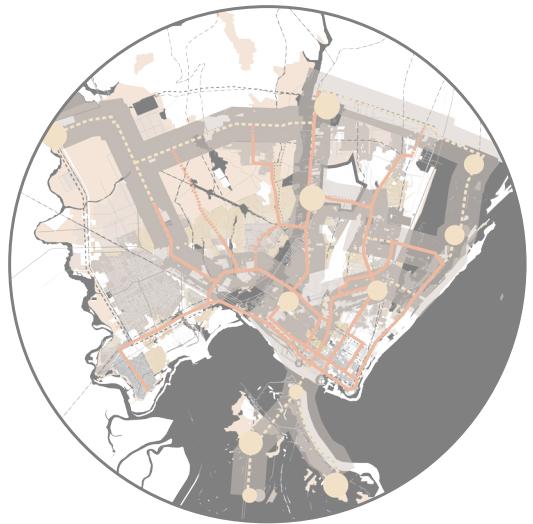
SECONDARY ROADS



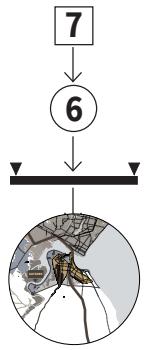
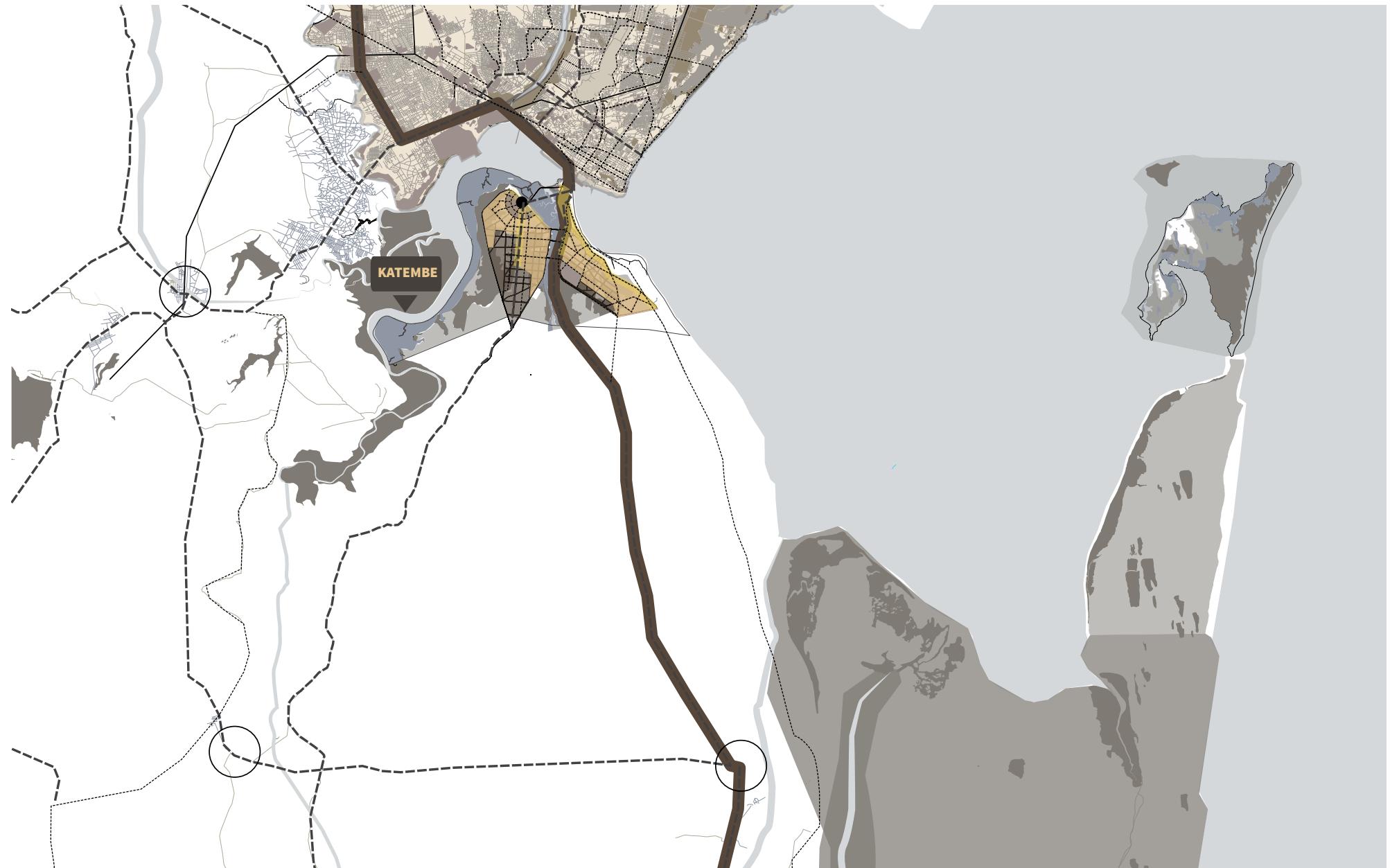
TERTIARY ROADS



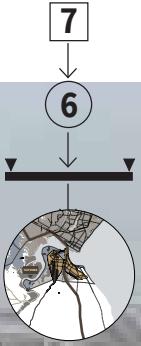
- 3 | STRATEGY L. NEW KATEMBE -



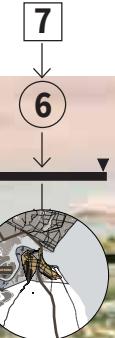
- STRATEGY L. NEW KATEMBE -



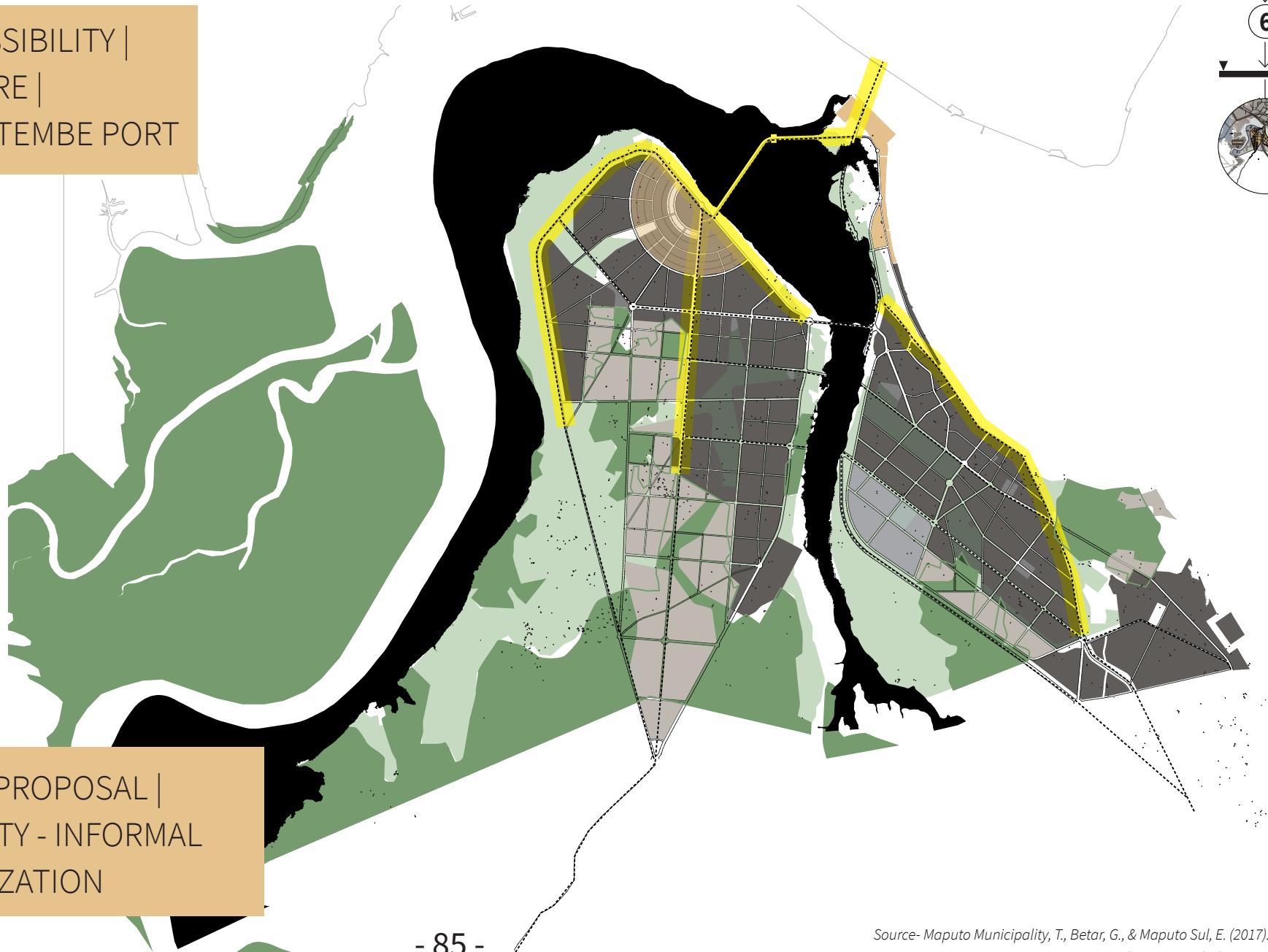
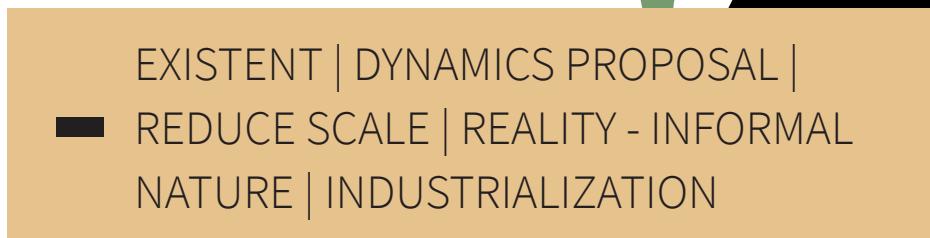
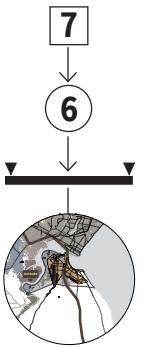
- STRATEGY L. NEW KATEMBE -



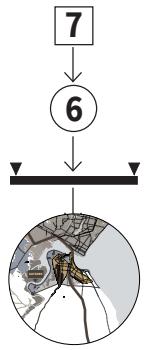
- STRATEGY L. NEW KATEMBE -



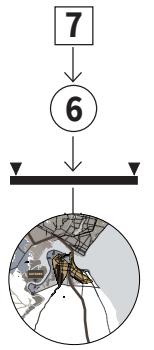
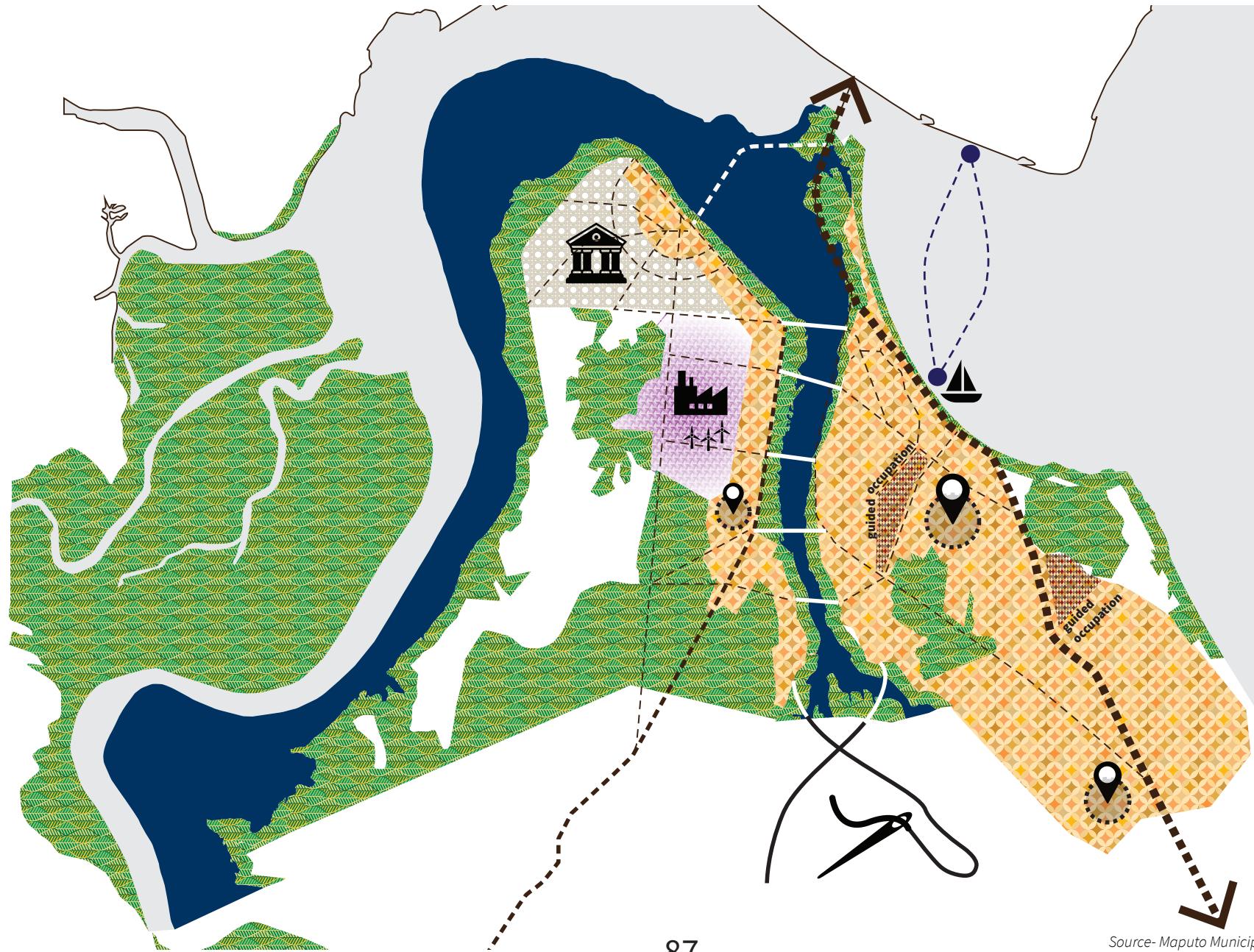
- STRATEGY L. NEW KATEMBE -



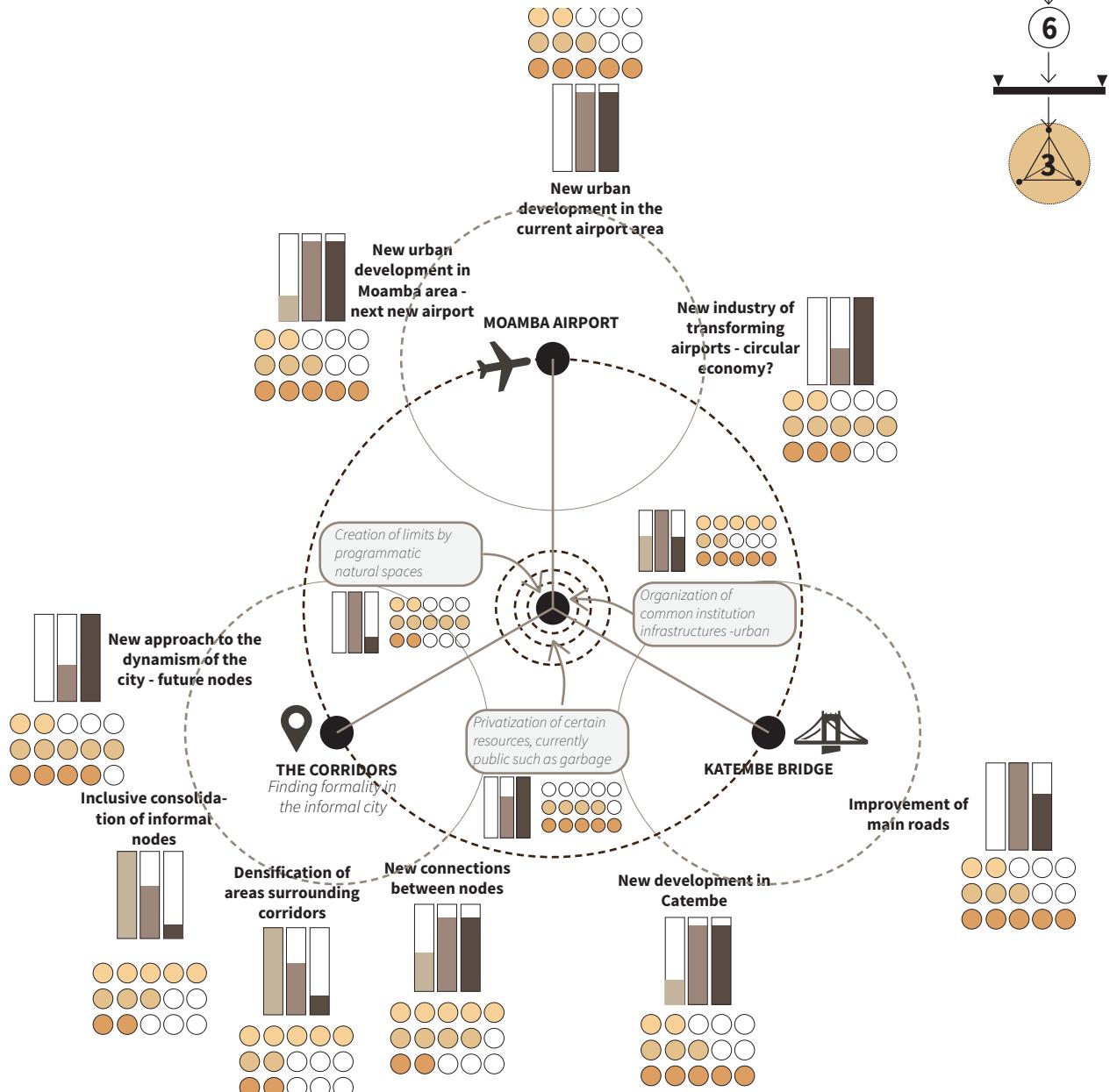
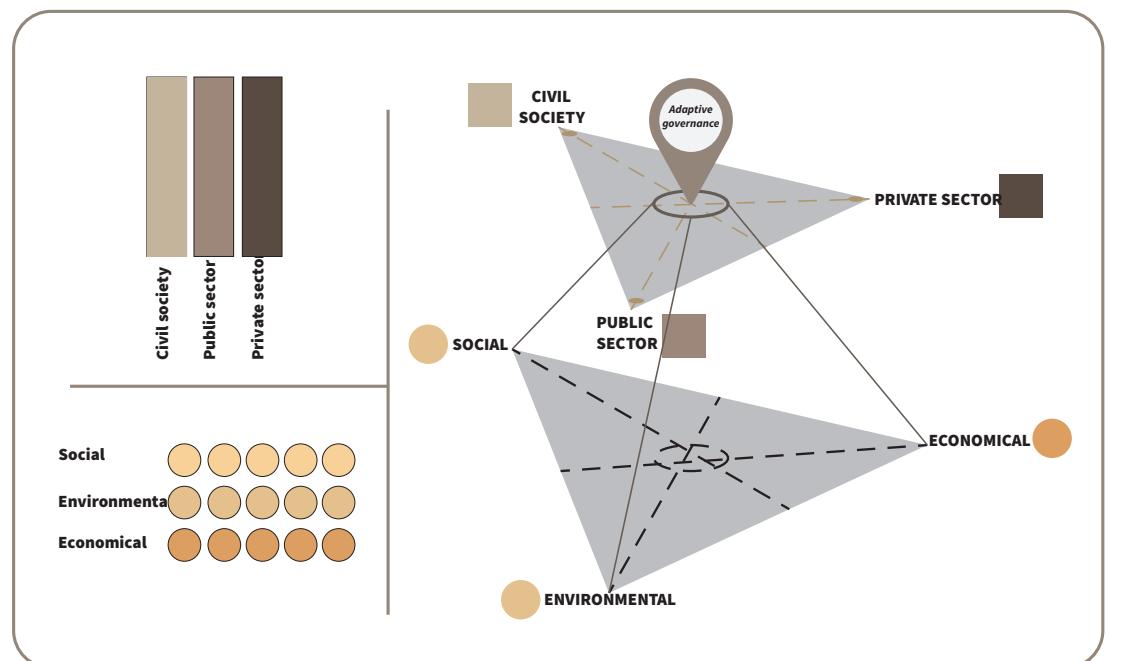
- STRATEGY L. NEW KATEMBE -



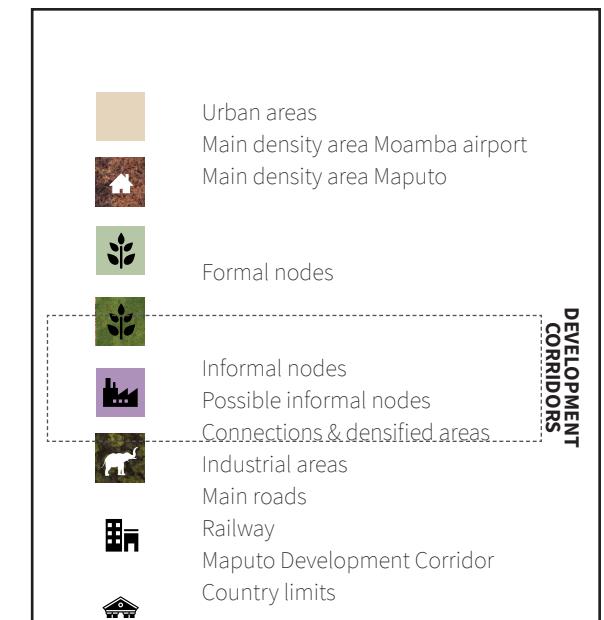
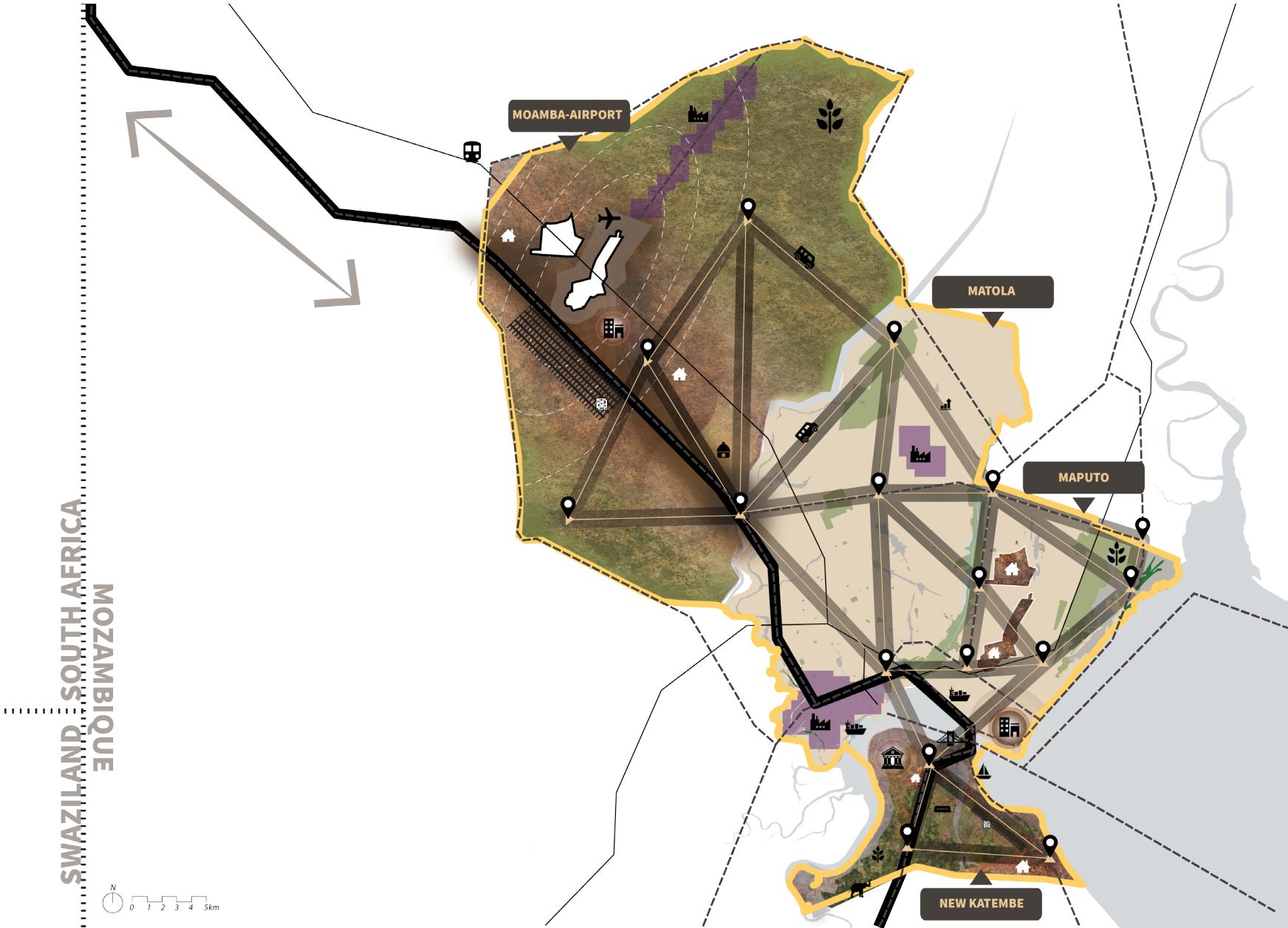
- STRATEGY L. NEW KATEMBE -



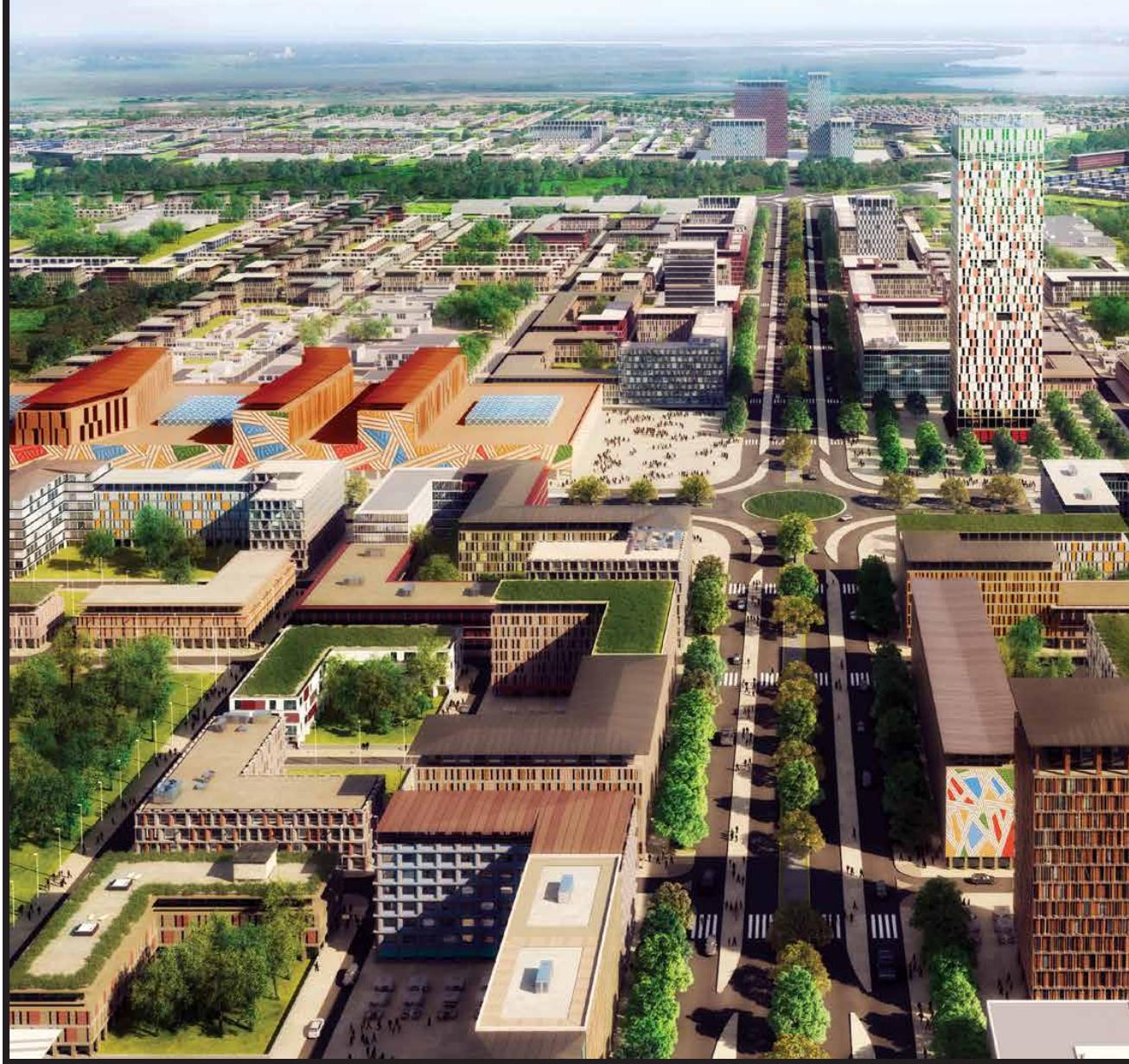
- CONCLUSIONS -



- VISION 2.0 -



IF YOU HAVE TO GUESS...IS THIS EUROPE OR AFRICA?



RELEVANCE OF THIS WORK

- Lack of future metropolitan planning
- Lack of growing provision
- Disconnection between planning trend and reality of the area
- Introduction of non conventional approaches that are being researched right now | redefinition of urban theories.
- Adaptive governance - policy recommendations annex