Which futures can ensure food security in the Niayes, Senegal?

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The Niayes area

3/4of Senegal's vegetable production.
Changes threaten food security :

- urban growth
- expanding extracting activities,
- shrinking groundwater

How to ensure food supply for the growing population of the Niayes?

Our study aims at exploring plausible futures for the Niayes

and assessing indicators of food security for each of them.

METHODOLOGY

Step 1 :

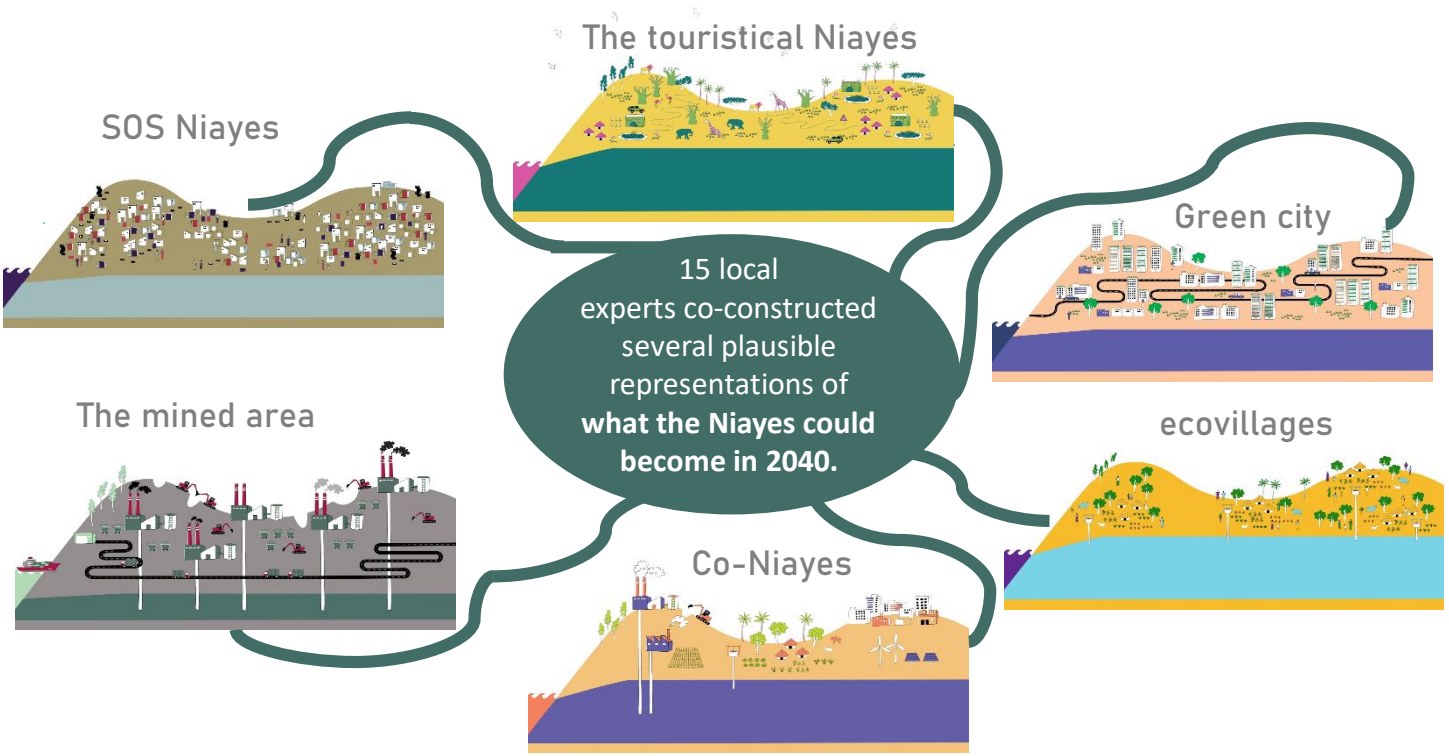
- identification of factors of change
- related driving forces
- exploration of their alternative plausible states in 2040.
- scenarios : coherent combinations of these states

Step 2 :

- Spatial model of Niayes dynamics
- Simulation of indicators linked to food security for each scenarios :

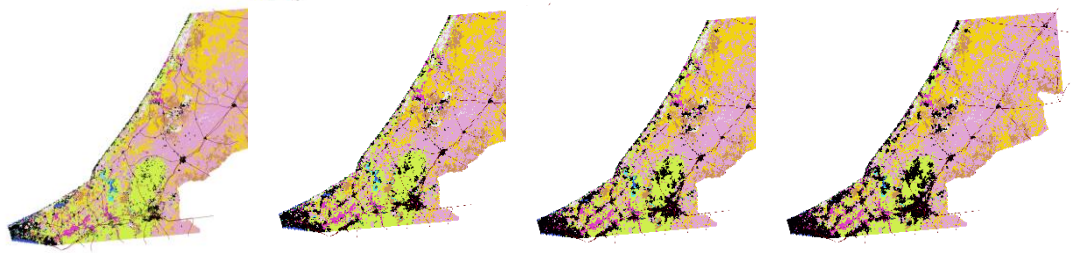
Crop production, groundwater level, Agricultural employment, LULCC, Household income

RESULT 1 : Six plausible and contrasted scenarios of the Niayes in 2040



Graphical figures A. Zavaro

RESULT 2 : simulation of indicators linked to food security



Niayes 2020 | SOS Niayes 2025 | SOS Niayes 2030 | SOS Niayes 2040

CONCLUSION

We can imagine desirable and plausible future for food security
Spatial modeling can be used to provide indicators linked to food security, in order to help choosing one or the other future.
Let's do it !