



Combining modelling and participation to build transformational water management & agricultural adaptation scenarios in water stressed areas

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► To cite this version:

Nina Graveline, Marta Debolini, David Dorchie, Filippo Imbesi, Juliette Le Gallo, et al.. Combining modelling and participation to build transformational water management & agricultural adaptation scenarios in water stressed areas. Séminaire 2024 du métaprogramme “ Agriculture et Forêt face au changement climatique: adaptation et atténuation ” (CLIMAE), Mar 2024, Lyon, France. hal-04529186

HAL Id: hal-04529186

<https://hal.inrae.fr/hal-04529186>

Submitted on 2 Apr 2024

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Combining modelling and participation to build transformational water management & agricultural adaptation scenarios in water stressed areas



TALANOA
- water -

Ambition: put stakeholders at the core to imagine and foster transformation

Stakeholder engagement : A multi-actor group : water users, state, water managers & NGOs

> 40 stakeholders/workshop ; > 200 stakeholders in contact

Problem statement

- climate change increases significantly **the water needs by crops**
- & induces **developments of irrigation areas**
- while **water resources are getting scarce** because of reduced and distributional shifts of rain patterns, particularly in the Mediterranean region

Aim

This approach & project aims at **producing knowledge on alternative strategies** but also **ambitions to take part, and foster adaptation while participating to the ecosystem of adaptation.**

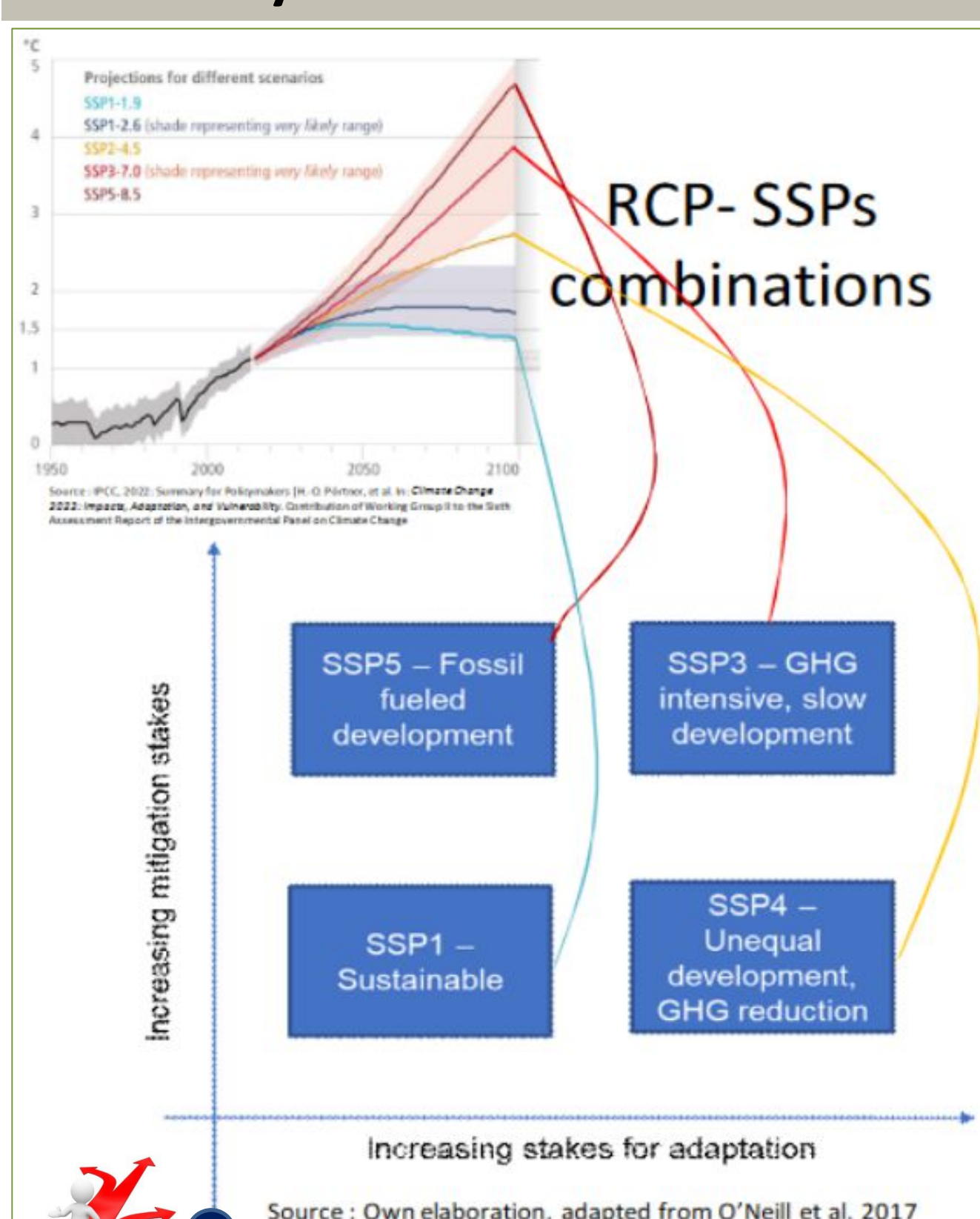
Research questions

- What are the robust and efficient strategies that would satisfy both the challenges of climate change adaptation by the farming sector and sustainable water management ?
- How to build and assess future scenarios and pathways of agricultural development and water demands and robust adaptation strategies ?

Aude aval & médiane : 3288 km²

- 130 Mm³ water withdrawals / ~ 30% deficit
- 70% uptakes from agriculture (90% wine)

Downscaling shared-Socio-economic Pathways SSPs to the Aude basin



Stakeholders participation workshops : scenarios and adaptation strategies

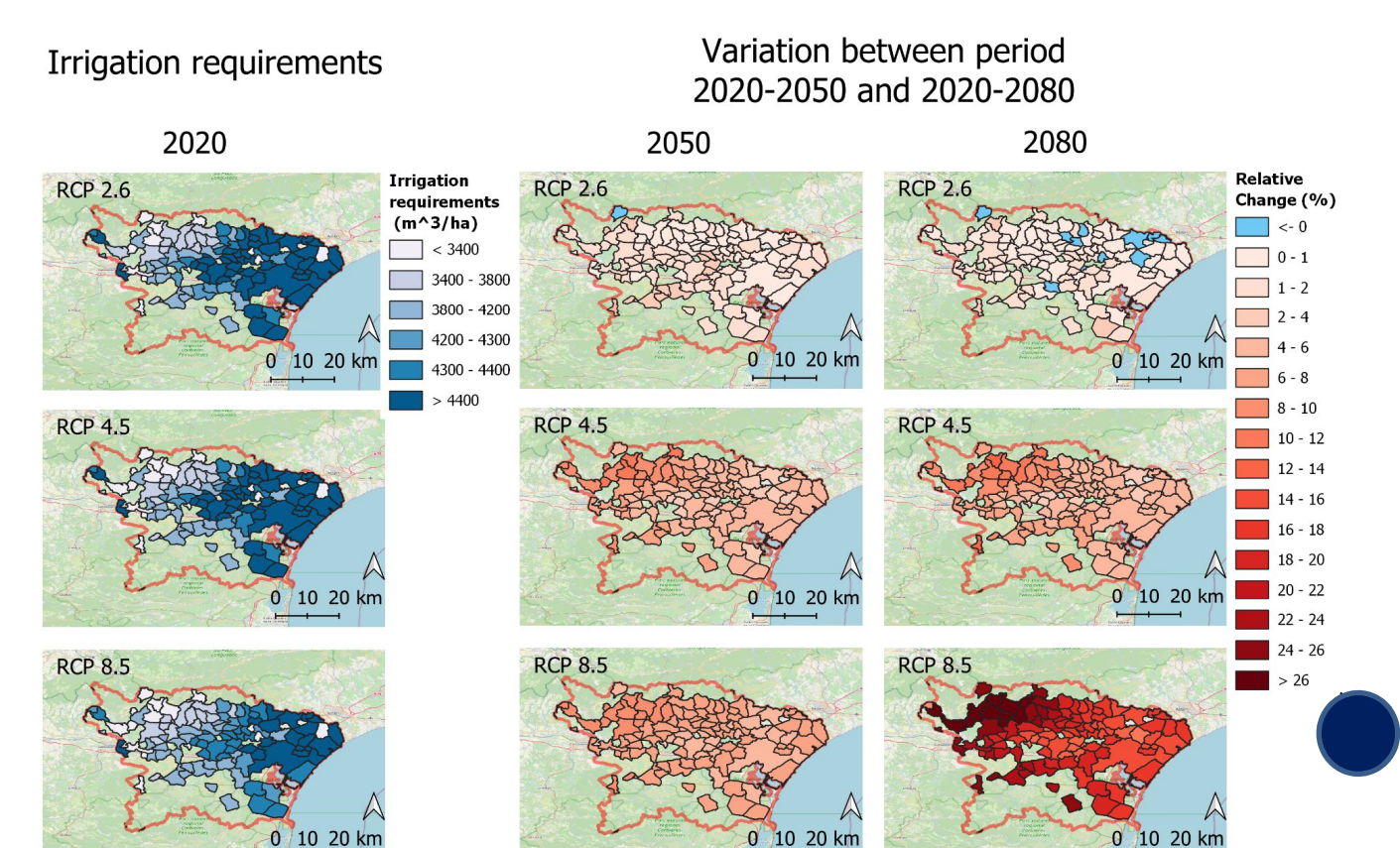
Serious games: Stakeholders imagine & assess adaptation strategies



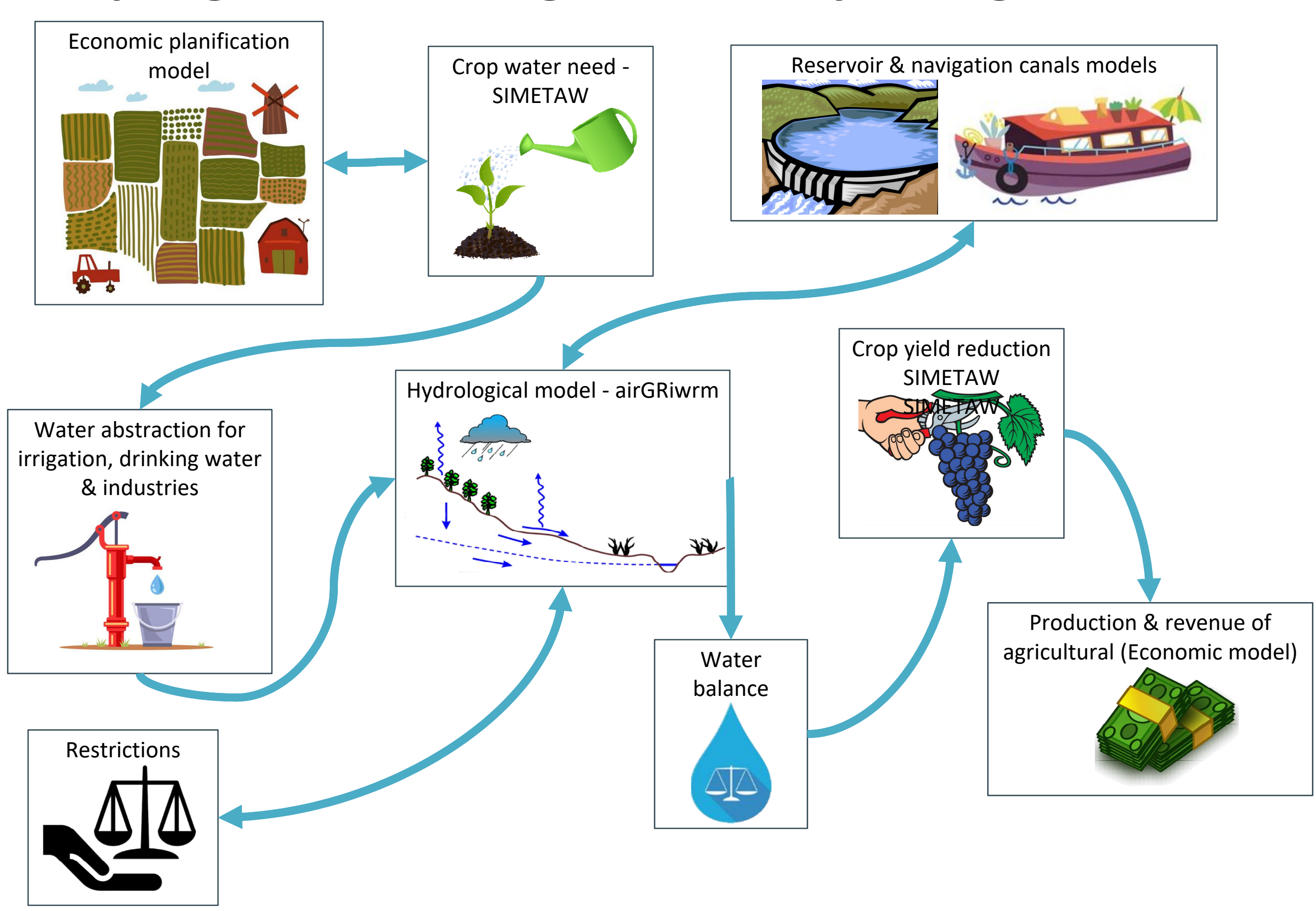
Exchanging on modeling with stakeholders

Strategies

- Measures** (more than 100 identified) combined in **strategies**
 - Over the 7 identified > 4 selected by the group :
- Governance / agroecology / diversification / water resources development**



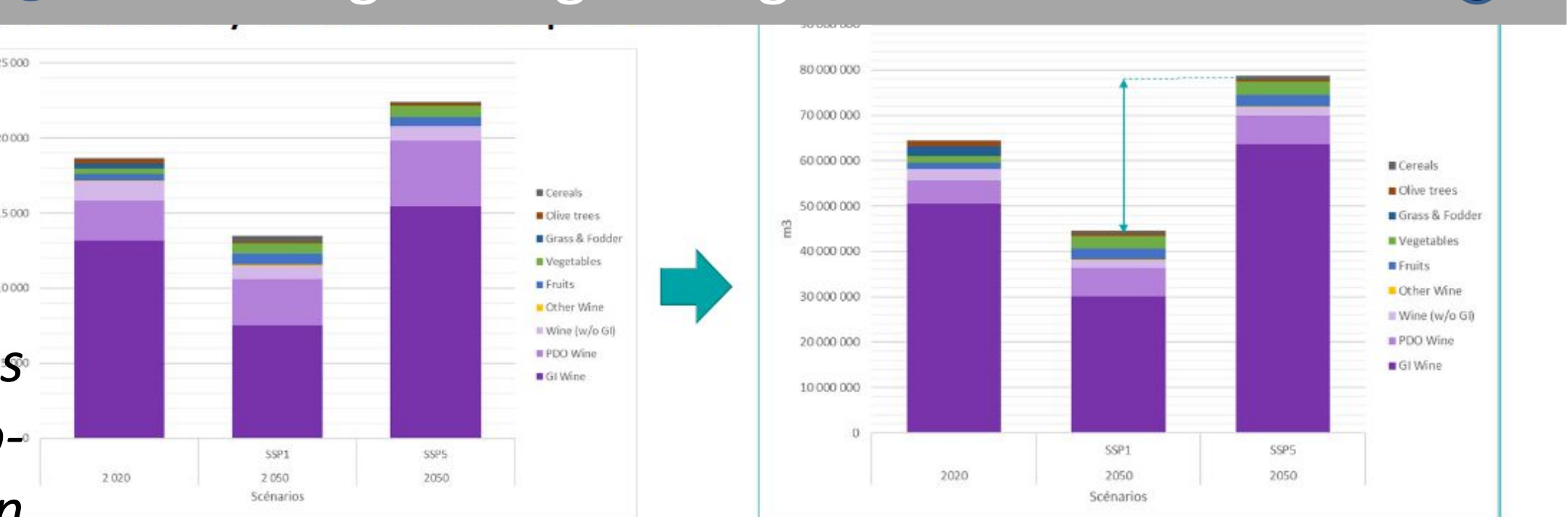
Coupling economic, agronomic, hydrological models



Combining foresight & agronomic model results

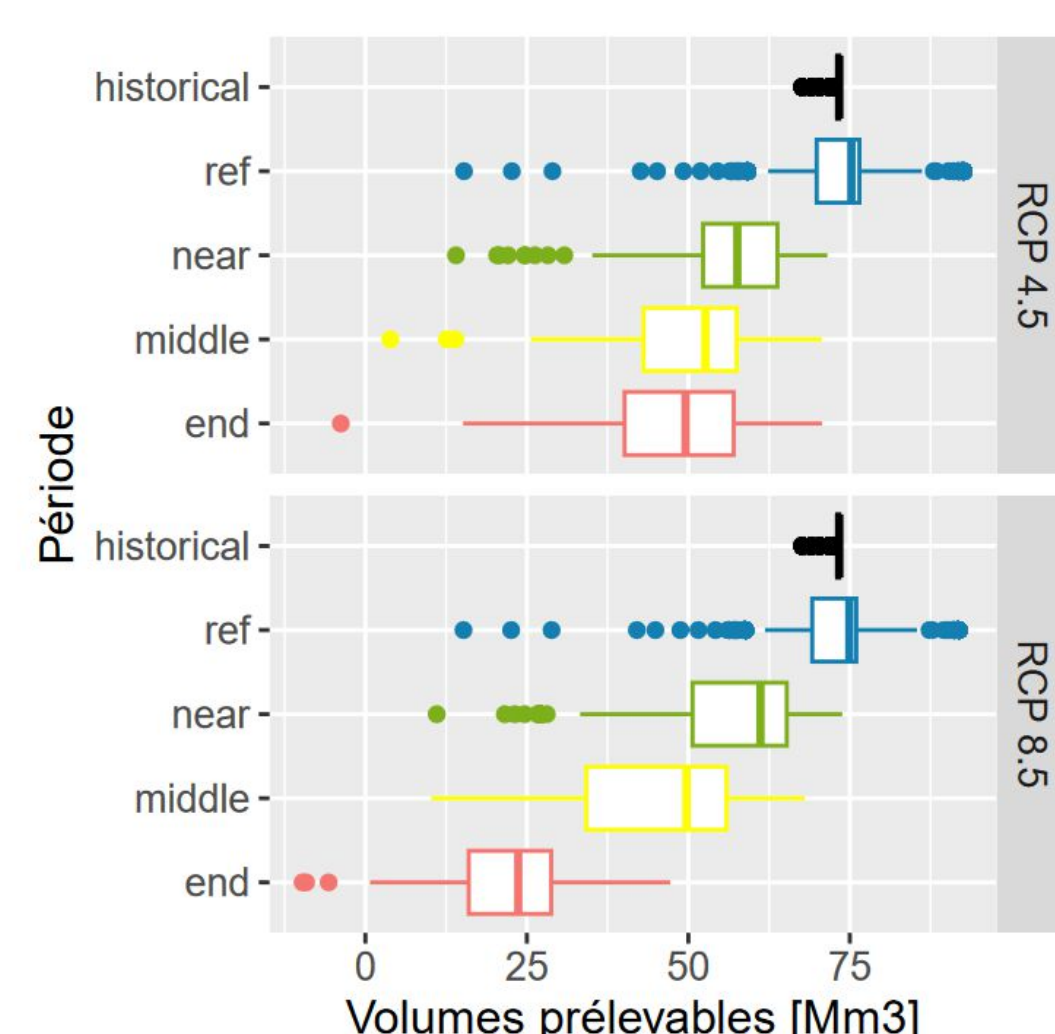
Foresight scenarios quantification

Climate change induces smaller changes than socio-economic development on water demand



Hydrological model results (preliminary)

Different water availabilities are projected depending on SSPs/RCPs



Périodes
Historiques : 1976 - 2005
Projections : 1976 - 2005
Projections : 2021 - 2050
Projections : 2041 - 2070
Projections : 2071 - 2100

Perspectives

- * Finalisation of the **integrated model**
 - * Co-design the follow-up of the **interactions between researchers & stakeholders to boost engagement & assess robustness of alternative strategies & ensure impact**
- => Connection to policy :** Discussions with the public basin authority and the State to explore the role of TALANOA in the future Water Basin Management Plan (PTGE) study

