



HAL
open science

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

Nina Graveline, Marta Debolini, David Dorchie, Filippo Imbesi, Juliette Le Gallo, Sébastien Loubier, Kevin Bosirany Orlando, Jean-Marc Touzard, Katrin Erdlenbruch

► 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

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Open licence - etalab

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



Aude aval & médiane : 3288 km²
 - 130 Mm³ water withdrawals / ~ 30% deficit
 - 70% uptakes from agriculture (90% wine)

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

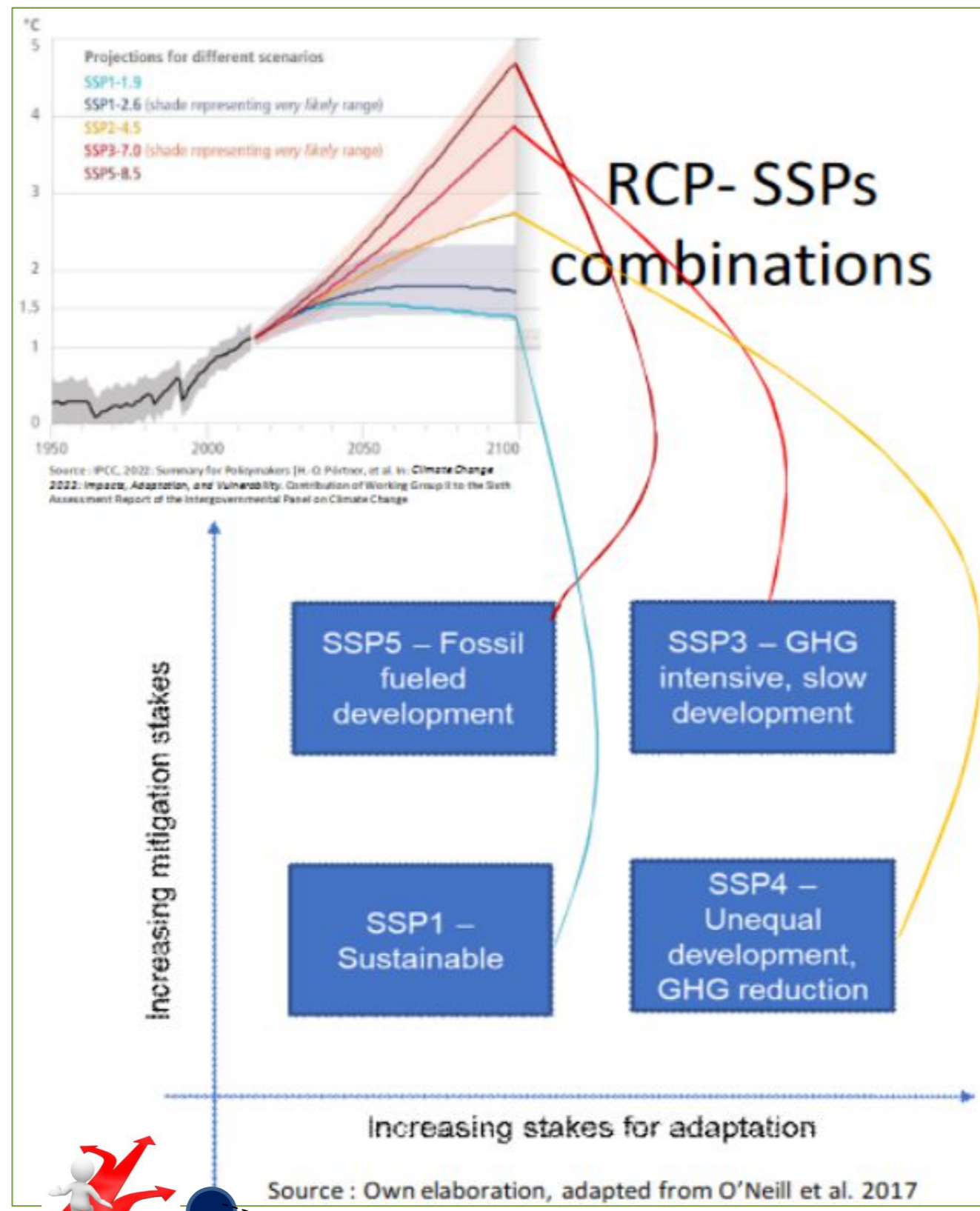
Aim

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.

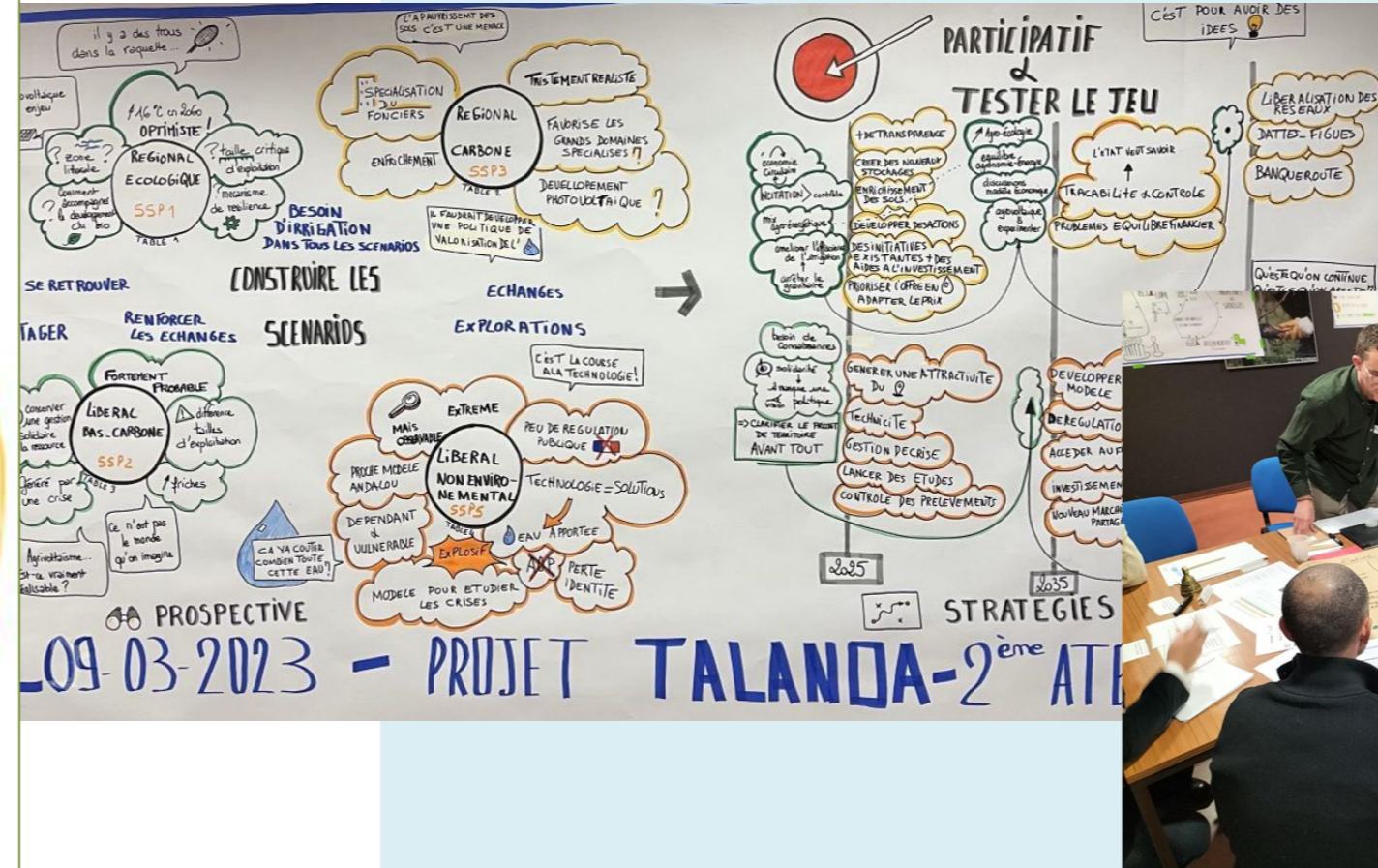
Research questions

- 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 ?

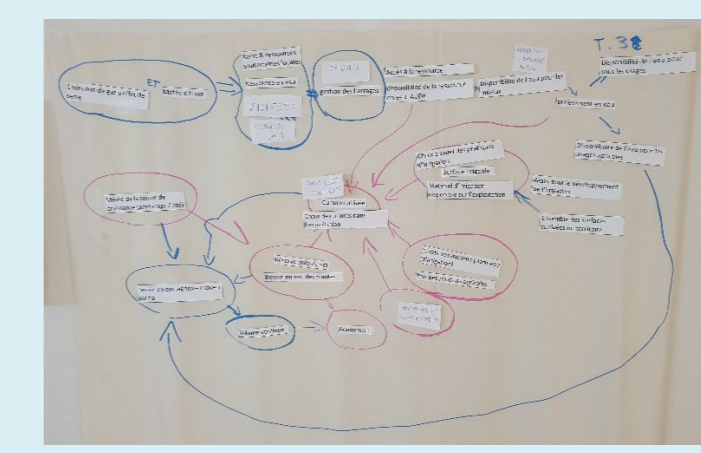
Downscaling shared-Socio-economic Pathways SSPs to the Aude basin



Stakeholders participation workshops : scenarios and adaptation strategies

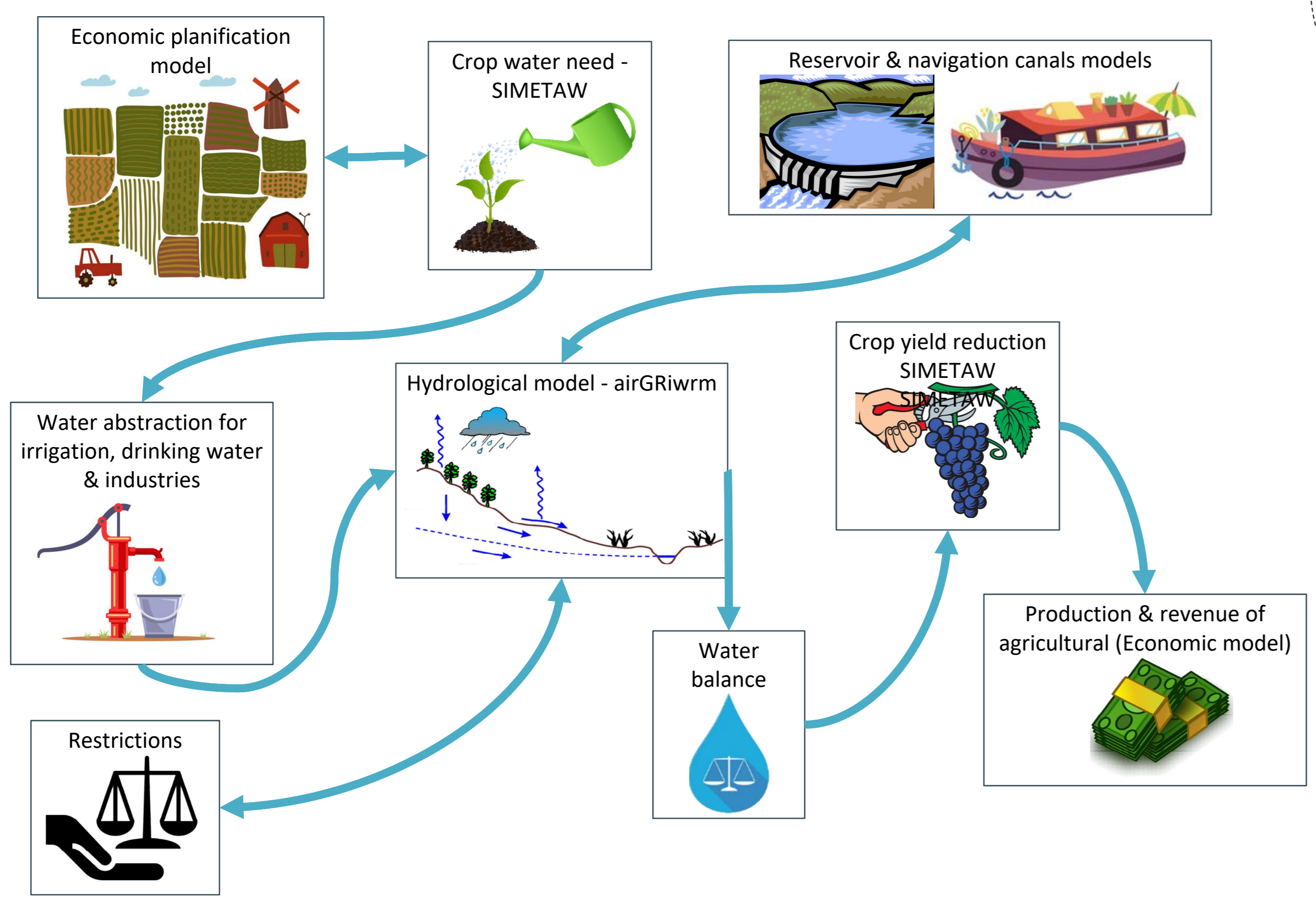


Serious games: Stakeholders imagine & assess adaptation strategies



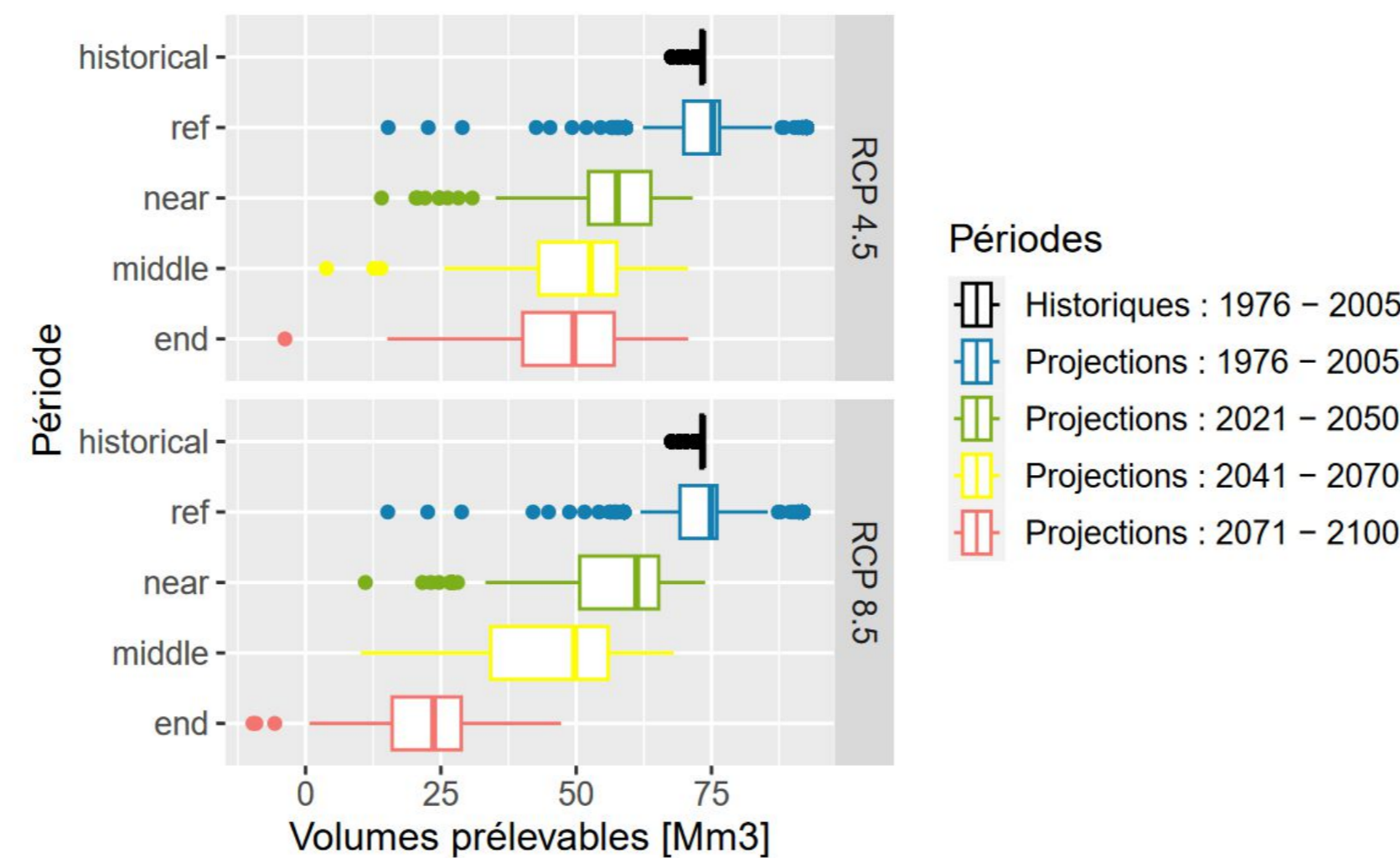
Exchanging on modeling with stakeholders

Coupling economic, agronomic, hydrological models



Hydrological model results (preliminary)

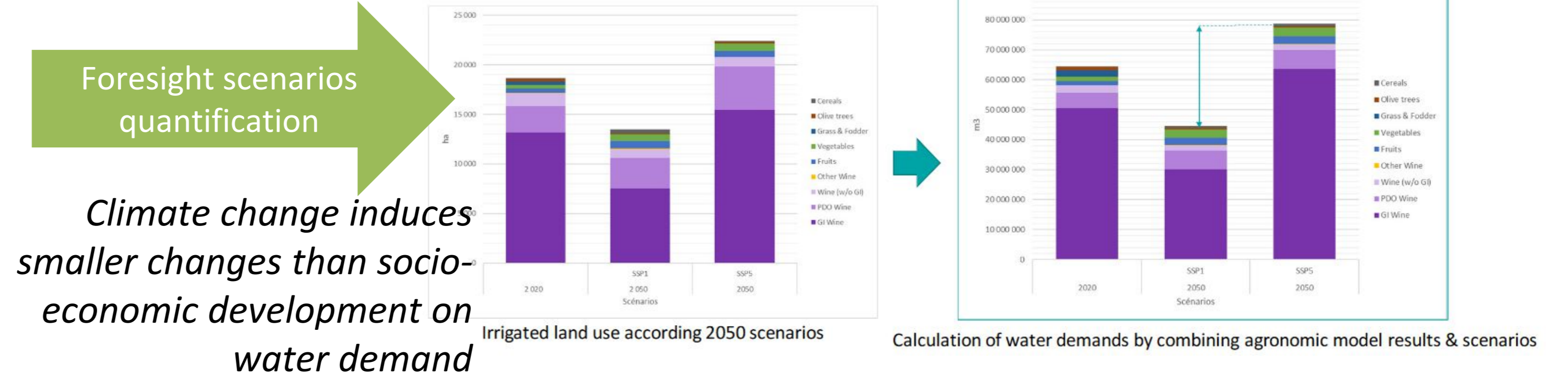
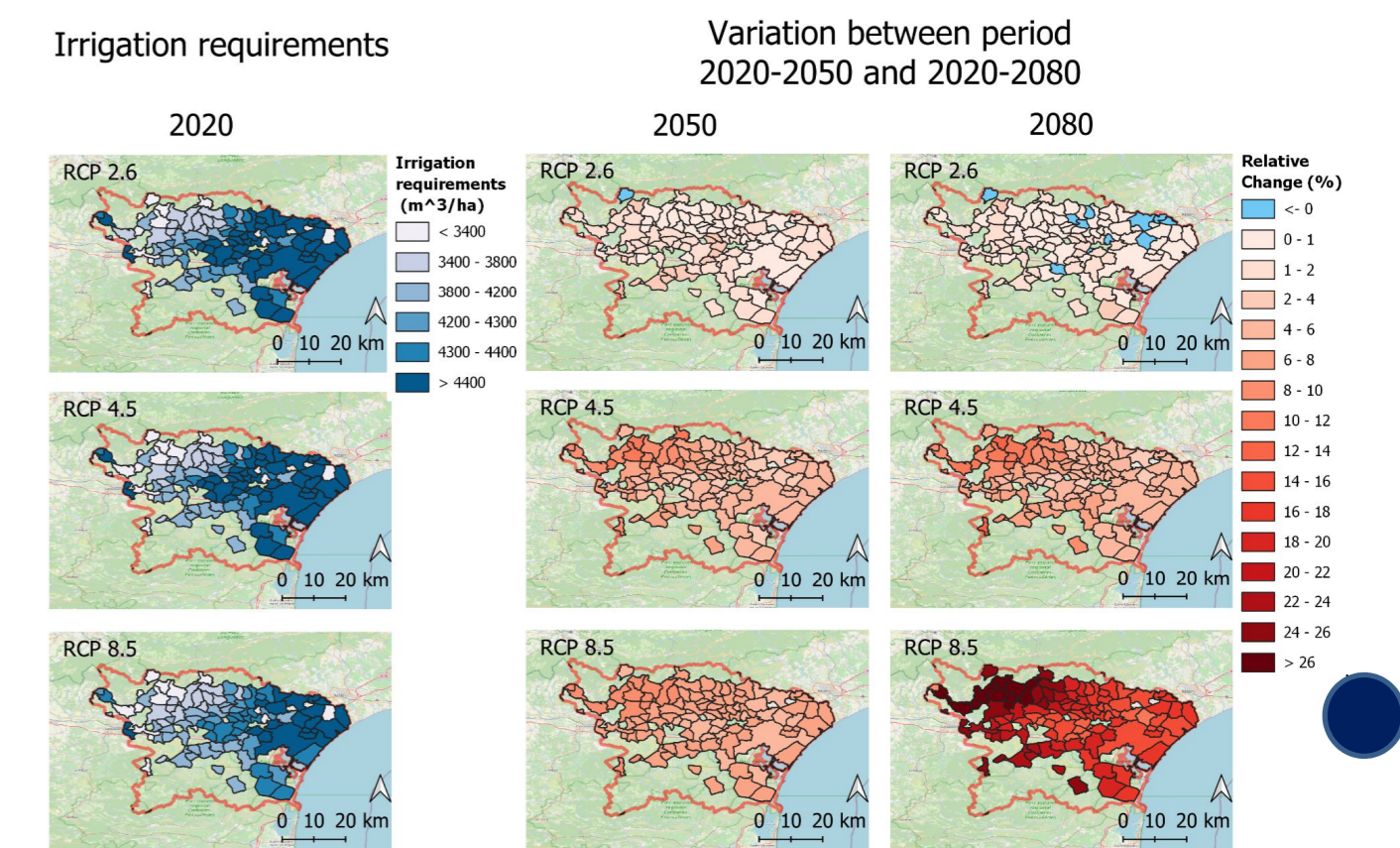
Different water availabilities are projected depending on SSPs/RCPs



Measures (more than 100 identified) combined in **strategies**

Over the 7 identified > 4 selected by the group :

Governance / agroecology / diversification / water resources development



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

