

Aquimed

Co-construction of adaptive strategies
with local stakeholders
of coastal Mediterranean aquifers
as a response to climate change

Circle-Med, March 23rd, 2011

Participatory reflections for local adaptation to CC?

- Growing call to define adaptation measures to CC at local level

=> interest to undertake foresight analyses with local stakeholders

- Possible stumbling-blocks:
 - Gap between expert and local actors stakes, time frame and perceptions
 - Type of natural resources and institutional set up that may not be favourable (planning and management capacities, complex or currently sufficient resource, etc.)
 - Possible lack of local stakeholders' interest in/capacity to participate.

Aquimed Projet



Taking into account the diversity of local situations:
which methods to enable and organize foresight analyses
- with local stakeholders
- to improve adaptive capacities to climate change?

- **Objectives:** To develop and test methods to:
 - Discuss CC impacts and adaptive strategies at different levels with local stakeholders
 - Improve stakeholders' capacity to collectively anticipate future changes
- **Study cases:** coastal aquifers in risk/current situation of overexploitation, as areas especially vulnerable to CC impacts

Case studies and partners



Aquimed activities

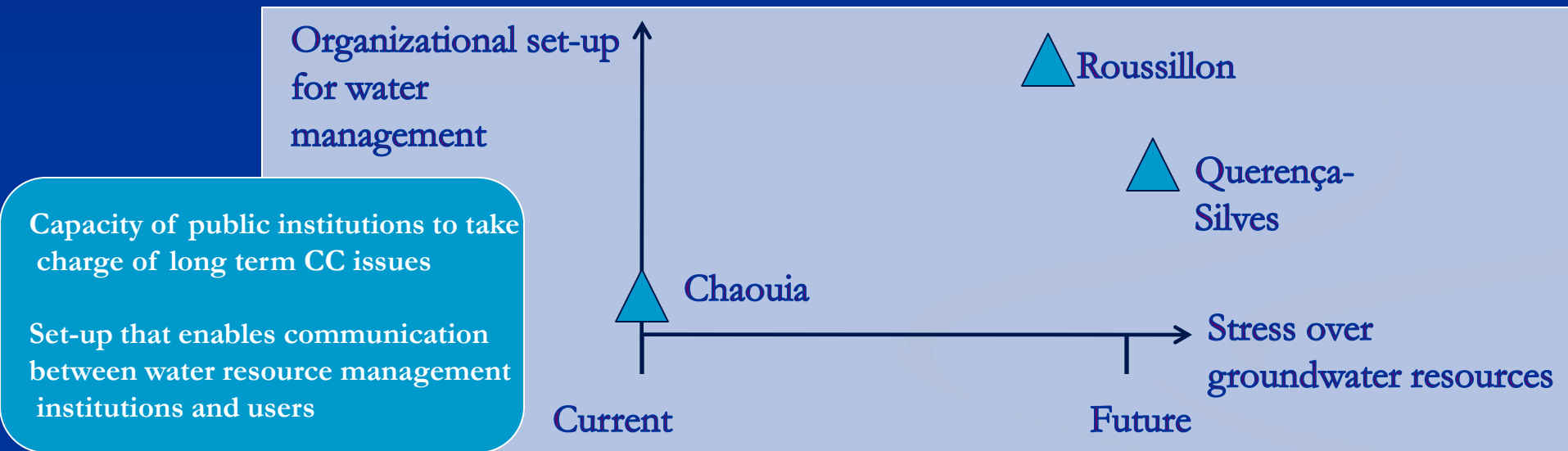
- an initial assessment – connecting with actors,
- participatory foresight analyses
- the set-up of an exchange network between actors and researchers in France, Morocco and Portugal.

Common initial assessment: Analysis of farmers' representations of aquifers and climate

- Results regarding climate
 - Common in the 3 cases: general lack of perception in the change of climate
 - Roussillon/QS: a concept used by the media rather than a local reality, which is based rather on cycles
 - Chaouia: weak exposition to the media coverage of CC

A diversity of contexts

■ Agriculture in crisis in the three cases



Whether adaptation to climate change/variability is seen as current/remote issue

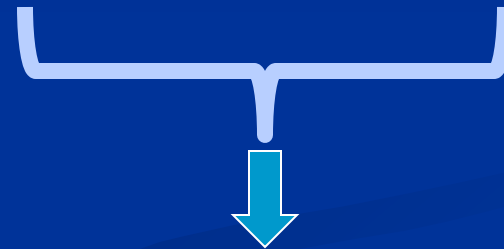
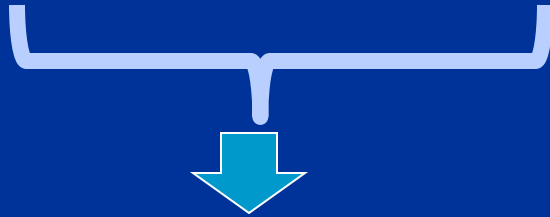
➡ Need to adapt participatory processes of foresight analyses to local contexts

Variation in methodological choices

Roussillon

QS

Chaouia

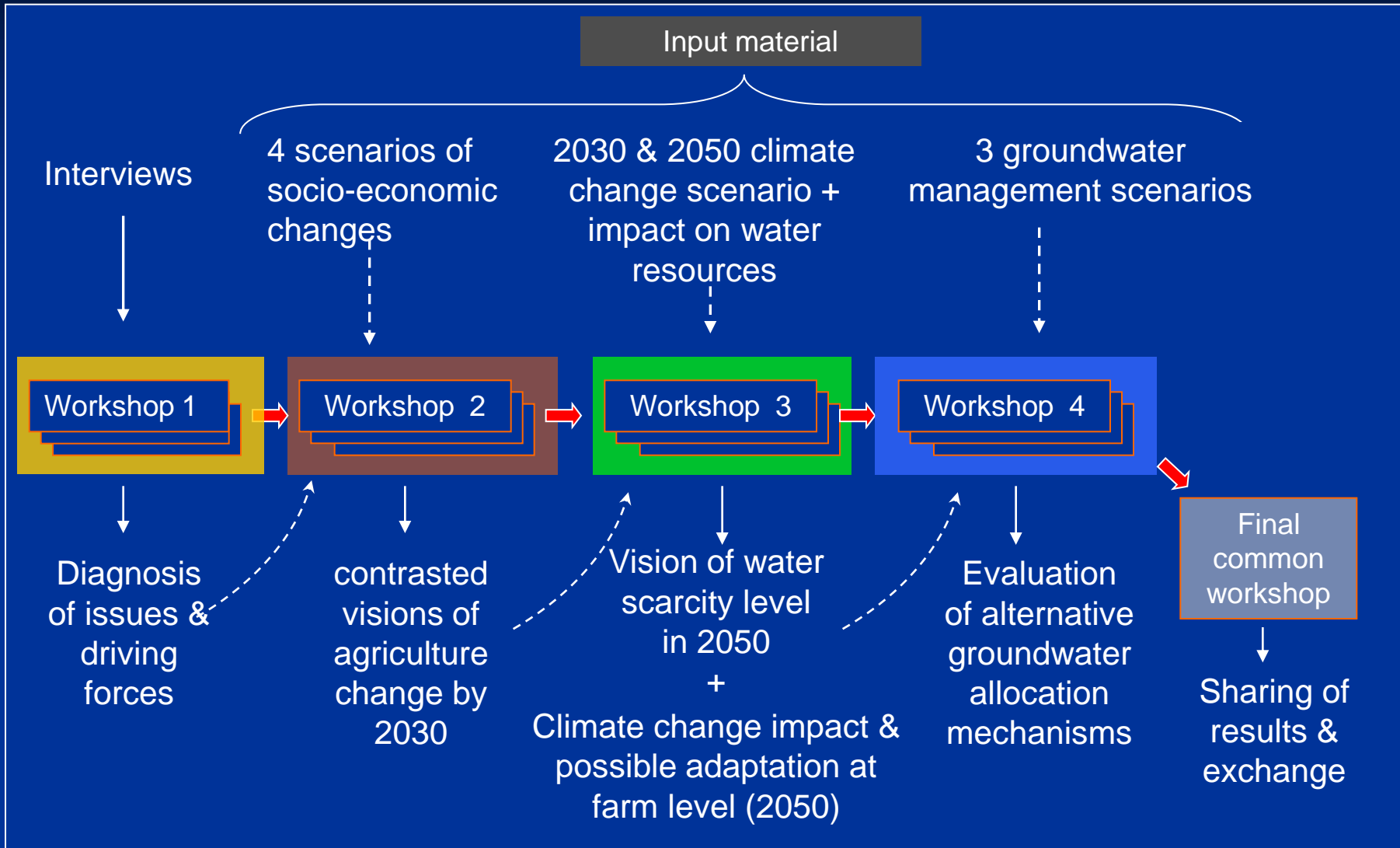


Projection in 2030/ 2050, discussion of scenarios and analyses prepared in advance; based on statistical data and interviews with actors

- *agricultural scenarios*
- *impacts of CC*
- *water management scenarios*

- *Joint construction with stakeholders of scenarios for a better adaptation to current climate variability*
- *CC mentioned only with public institutions*

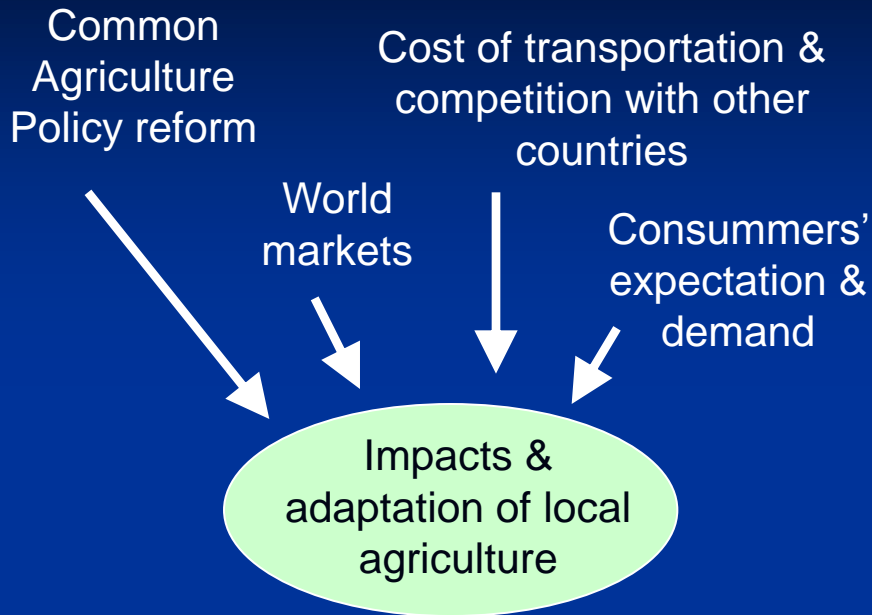
Methodology: main steps



2-3 farmers groups + 1 group of institutional representatives

Main results in Roussillon & Querença-Silves

(1/4)



4 scenarios

- Linking external evolution with adaptation of local agriculture
- Constructed by the research team

Use of scenarios

- Support to explore possible futures
- Critical analysis by the group & reconstruction

Results

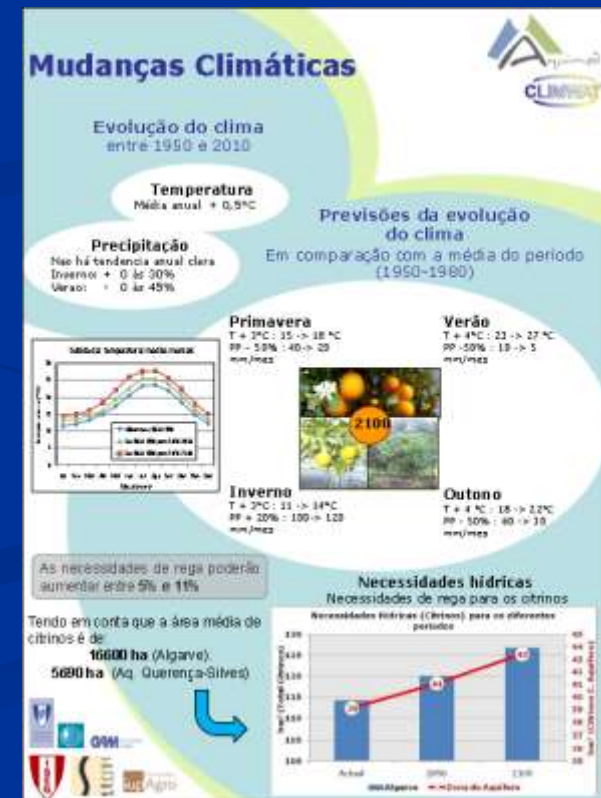
- No consensus
- Expression of desired & feared evolution
- Facilitate projection in the future & prepares discussion on climate change



Main results in Roussillon and Querença-Silves (2/4)

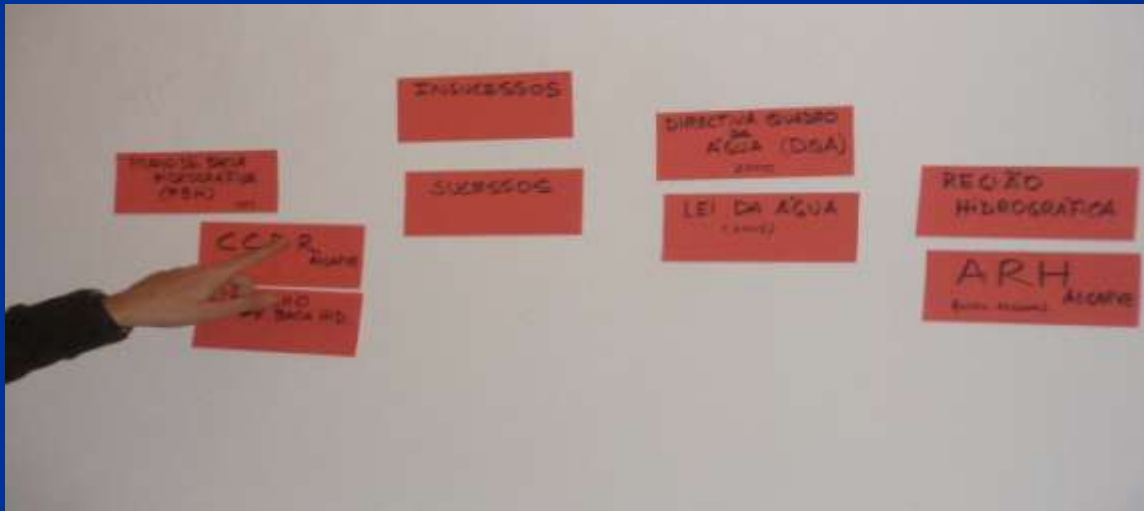
■ Adaptation to CC

- Possible adaptive management
- Farmers already well accustomed to adapt to climate variability



Main results in Roussillon and Querença-Silves (3/4)

- Groundwater management scenarios
 - State/farmer based/market
 - Links with scenarios of regional agriculture
 - Roussillon and Querença: farmers create a hybrid scenario farmer management/state police



O diário de **Algoz**
10 Novembro de 2020

Gestão colectiva da água – Expectativas e recales

A escassez de água originada pelas alterações climáticas levou a que o próprio Estado reconhecesse nos últimos anos as suas limitações em conter a sobreexploração do aquífero. Foi então estabelecida por lei uma Associação de regantes, a que os agricultores têm obrigatoriamente que aderir.

A Associação assume a gestão do aquífero sendo responsável pela emissão e pela distribuição de quotas pelos seus utilizadores (respeitando os limites das disponibilidades hídricas estabelecidas pelo Estado a nível regional).

É também responsabilidade da Associação monitorizar e fazer cumprir as quotas atribuídas. Para isso, toma a introdução de contadores nos furos dos seus associados, uma medida que não é do agrado dos agricultores mas que acaba por ser vista como mal necessário por a alternativa – a regulamentação pelo Estado – é completamente indesejada por todos depois das más experiências anteriores.

Ficou definido que, no caso das quotas serem ultrapassadas, a Associação é responsabilizada pela sobreexploração do aquífero e o Estado volta a assegurar a gestão do aquífero. Mas pelo contrário, se o sector agrícola da região cumprir a sua quota global, o Estado adota os programas de incentivos à modernização dos seus sistemas de produção.

No caso de múltiplas infrações ou no caso de as decisões do Tribunal não serem respeitadas, o Tribunal da Água pode excluir o agricultor da Associação.

Os lites deste Tribunal são os próprios agricultores; estes são eleitos pelos seus pares, gozando de grande prestígio em função da posição que ocupam no Tribunal. As decisões tomadas pelo Tribunal são normalmente cumpridas dado que os agricultores cultam ter uma imagem negativa e serem apontados pelos seus pares.

Como tanto a Associação como o Tribunal da Água são compostos por agricultores, a gestão da água torna-se assim mais flexível e mais próxima das necessidades dos seus utilizadores. Atualmente, quando da Assembleia Geral da Associação, é possível fazer reações temporárias das quotas de água. Por exemplo, aqueles agricultores com menores necessidades de água podem emprestar água a outros agricultores. Estes últimos comprometem-se a fazer a manutenção do equipamento de captação de quem lhes cede água.

A Associação incentiva os agricultores que não utilizam as suas quotas a revender a esta temporariamente de forma a beneficiar outros que necessitem de ultrapassar a quota, em prol do desenvolvimento agrícola da região. A Associação apoia a formação de um contrato entre o agricultor que cede e o agricultor que recebe água, e qualquer litígio é tratado no Tribunal da Água.

Todavia, a existência de certas experiências de associativismo rurais poderão levar a que surtam situações de desconfinamento relativamente à integridade e à honestidade por parte da Direcção da Associação e dos Juizes do Tribunal da Água. Alguns agricultores temem, mesmo atitudes de poder por parte destes diligentes.

O melhor das notícias do Algarve e arredores...

Main results in Roussillon and Querença-Silves (4/4)

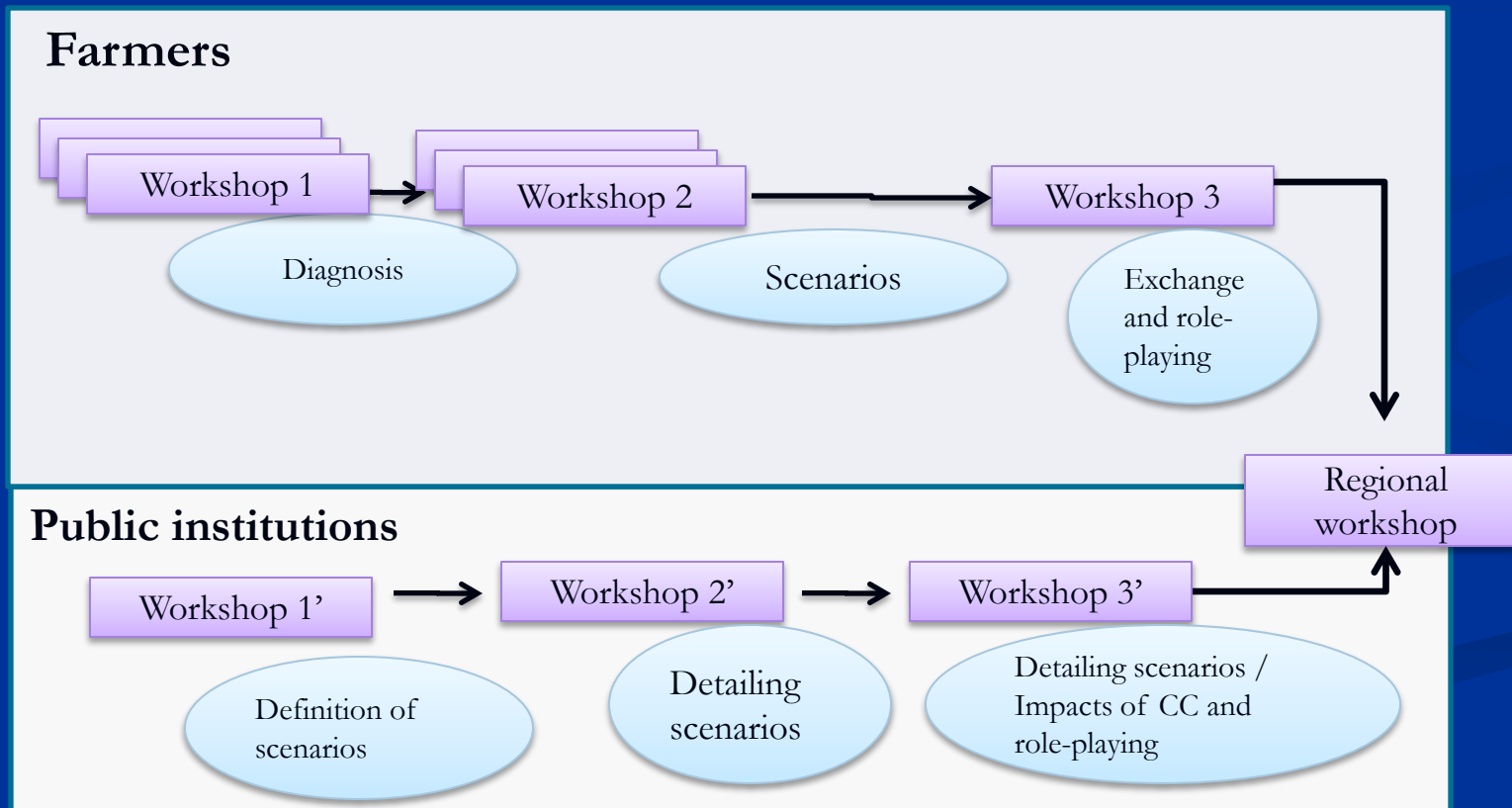
Method	place	announcing
Dispositive of listening	lunch	calls
Dispositive of expressing one ideas	Same people	
Dispositive of transferring diferent kind of knowledge (including knowledge about unknowns)		
Dispositive of imagining possible visions of future through construction and deconstruction of scenarios		



Participatory foresight process in the Coastal Chaouia

Progressive preparation of a joint foresight analysis involving farmers and public Institutions

Definition of 3 areas => 1 group per area



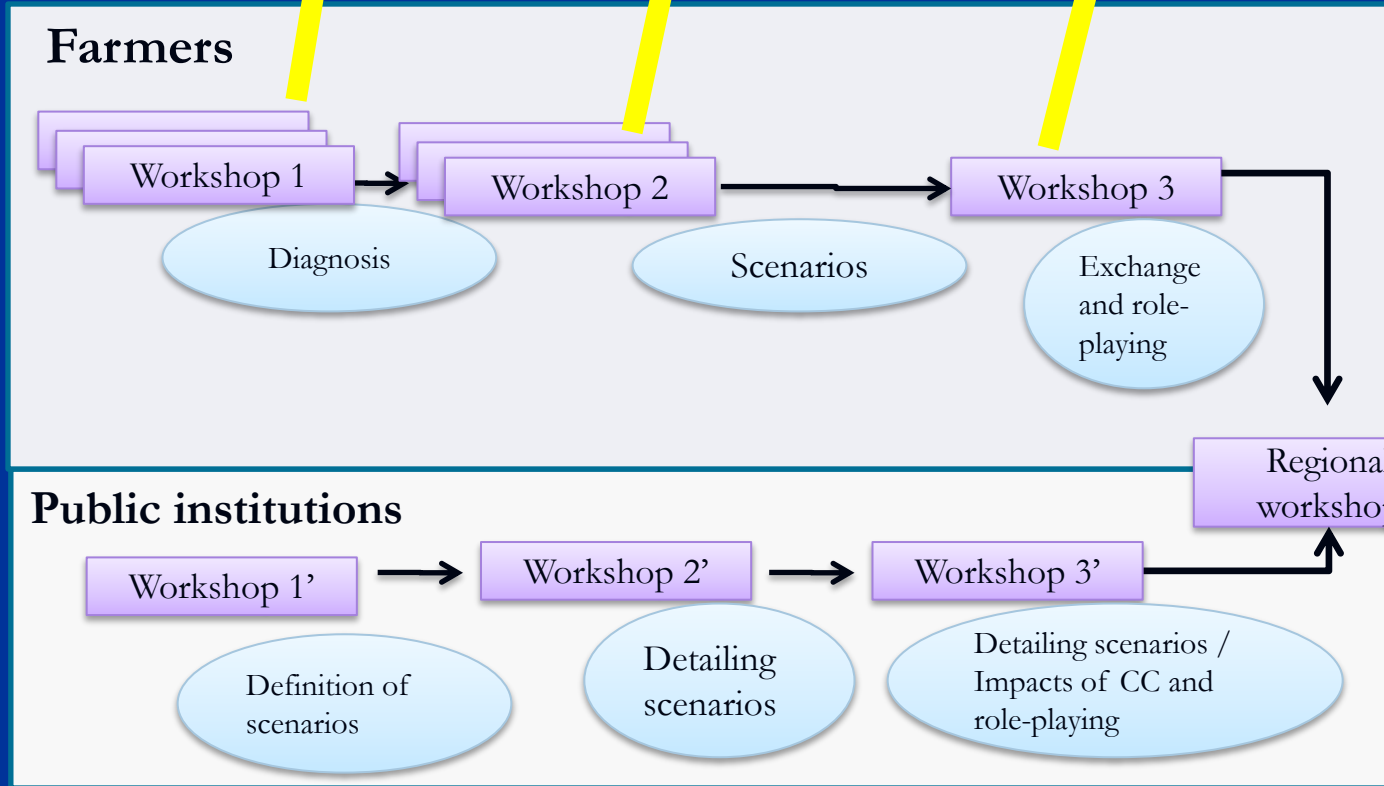
With farmers

With the 3 groups.

- 1) Common diagnosis, scenarios, possible solutions
- 2) Role playing games, with the roles of main development institutions in the region

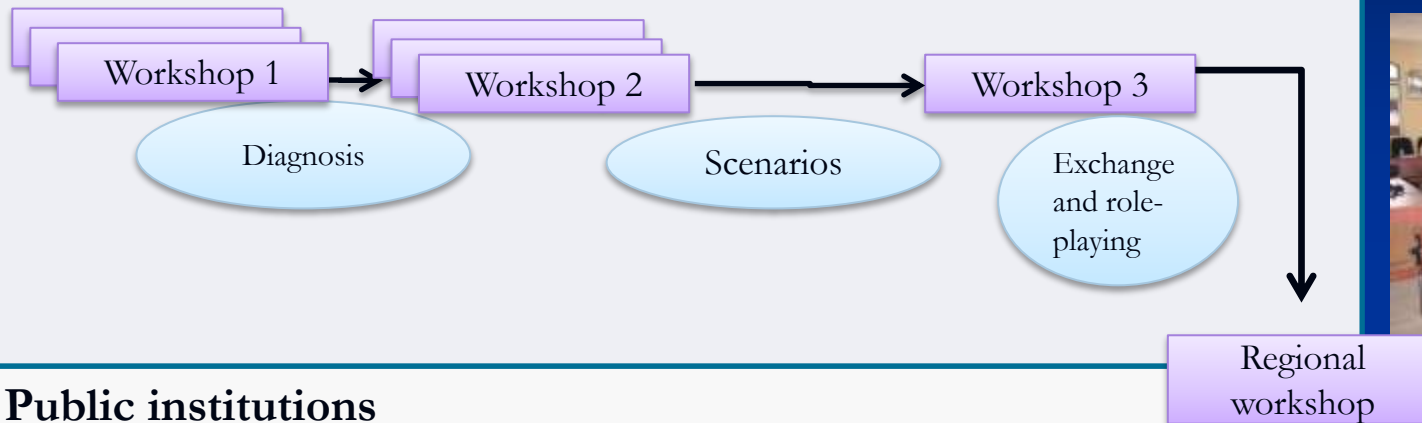
Past evolution of agriculture, evolution factors and current constraints

Scenarios based on evolution factors (main one: climate variability)

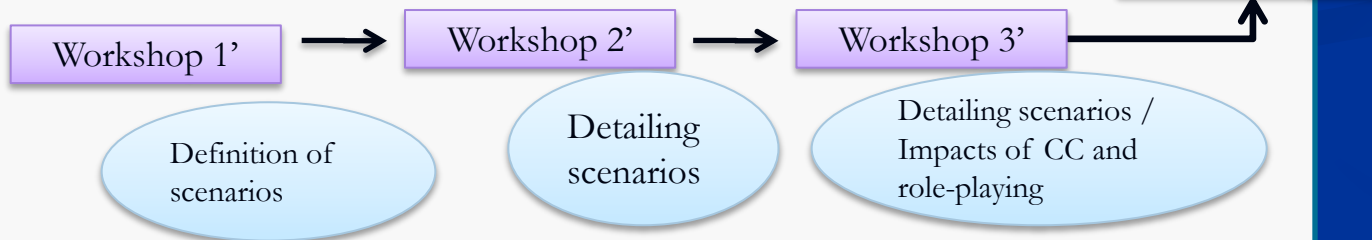


With institutions

Farmers



Public institutions



Green Morocco Plan => 4
development scenarios

Diagnosis of aquifer, types of impact
of CC on aquifer, role playing game

Main results in the Coastal Chaouia

■ Adaptation to CC

- Scenarios: open up the debate, imagine different agricultural productions
- Actions proposed to increase resilience to climate variability...but dilemma of supporting irrigated agriculture

■ Method for participatory foresight

- Progressive support of farmers' groups, from diagnosis of problems at village level to discussion of development options at regional level
- Accompany both farmers and public organizations to produce analyses and ideas so as to prepare a fruitful exchange

Lessons learnt: methods for participatory foresight analysis of CC impacts and adaptation

- Discussion of adaptation to CC is possible, even in contexts where local stakeholder involvement is not initially granted
 - Some possible ways to embed this issue in collective reflection over evolution of agriculture and territories, at different scales
 - For instance: entry by agriculture to later talk about water
- Diversity of possible methodologies
 - Depending on context, local situations of researchers...
 - Diversity in the way of producing knowledge based on scientific models and actor knowledge
 - Added value of having study cases in three countries to making explicit the key “points” where decisions have to be taken regarding
 - Use of scenarios as intermediary object
 - Group formation and invitation
 - Time scale and way to introduce CC

Lessons learnt : CC adaptation

- Chaouia: Zone of current water crisis and lack of capacity to plan
 - => better adaptation to current climate variability appeared as an interesting proxy for adaptation to future climate change
- Roussillon/QS
 - Farm level: Agronomic/irrigation potential actions, but existing capacities at farm level (*we have always adapted*)
 - Opportunities to improve farmer-led collective action
 - When possible, create new resources
 - Opportunities to improve integration of water and agricultural policies at regional level

Communication of results

- Regional meetings with all stakeholders
- Systematic distribution of supports and written reports of workshops to actors
- Involvement of actors in project meetings
- Morocco: Publication in journal for agricultural professionals and public institutions
- Communication seminars in Portugal
- 10 Publications in conferences
- Scientific papers: in process/submitted

Research perspectives

- Test Aquimed methods in a lighter way on a larger set of cases
- Detailed assessment at local level of ways for farmers' adaptations to CC :
 - possible actions
 - ways to support collective adaptive capacities
 - « Live laboratory »: experimental research around new rules for water management
- Deepen cross-cultural comparisons: Networking between stakeholders/farmers of the 3 case studies

Thank you for your attention