

# *Climate changes challenges in the Mediterranean Region: what about local awareness?*

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## Climate induces changes on water security



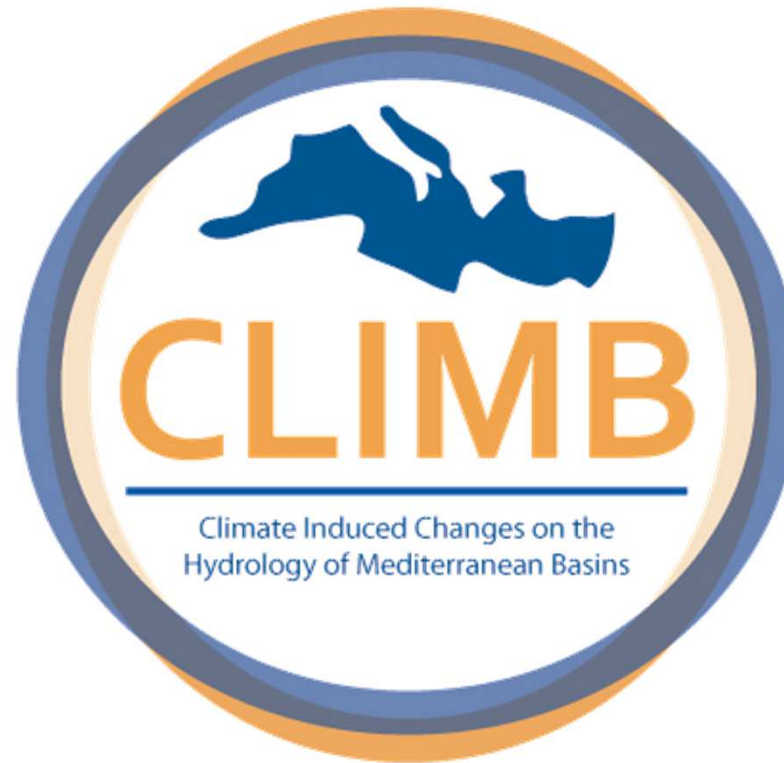
Climate Change Hydro-Conflicts  
and Human Security



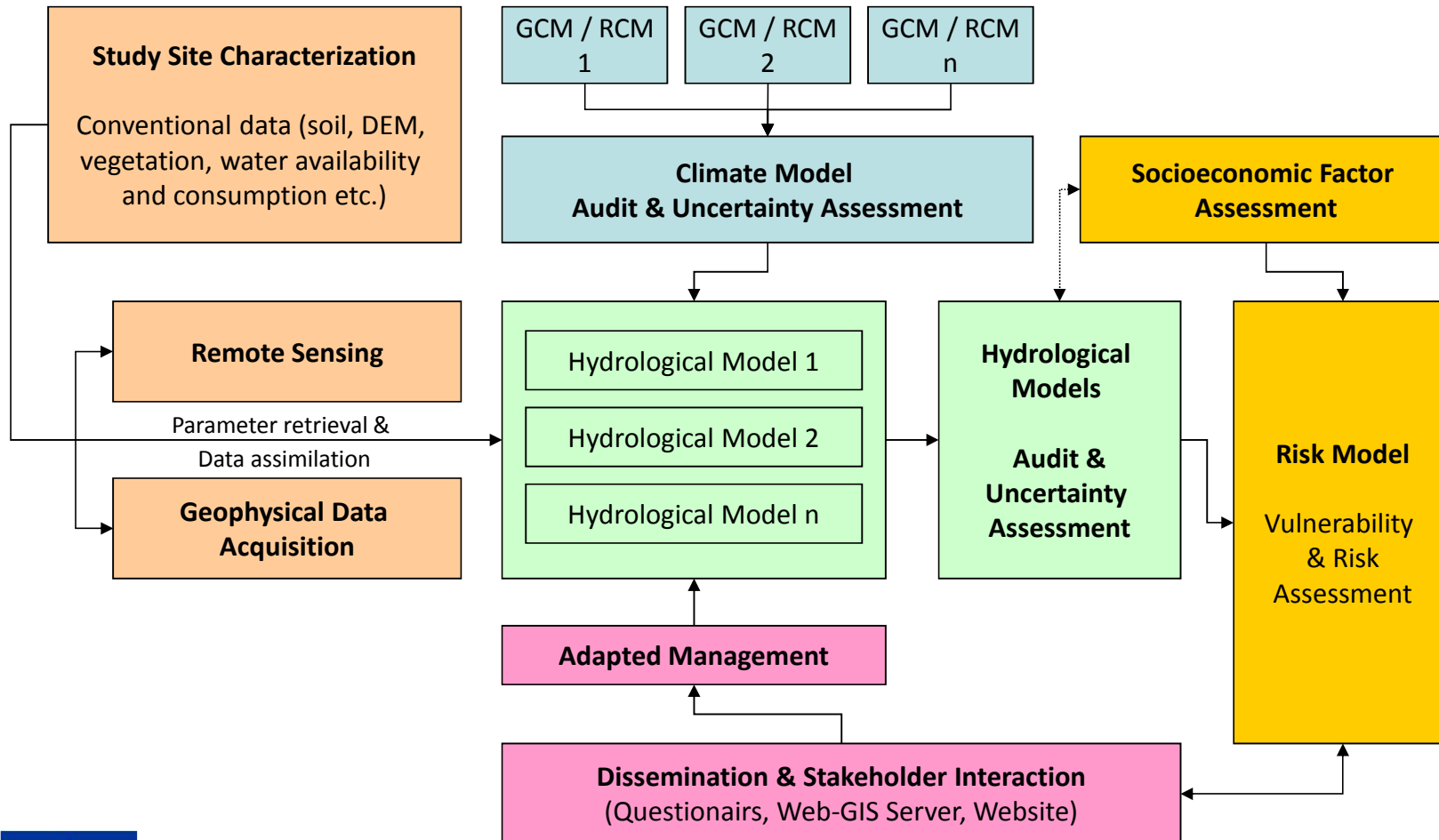
Climate Induced Changes on the  
Hydrology of Mediterranean Basins

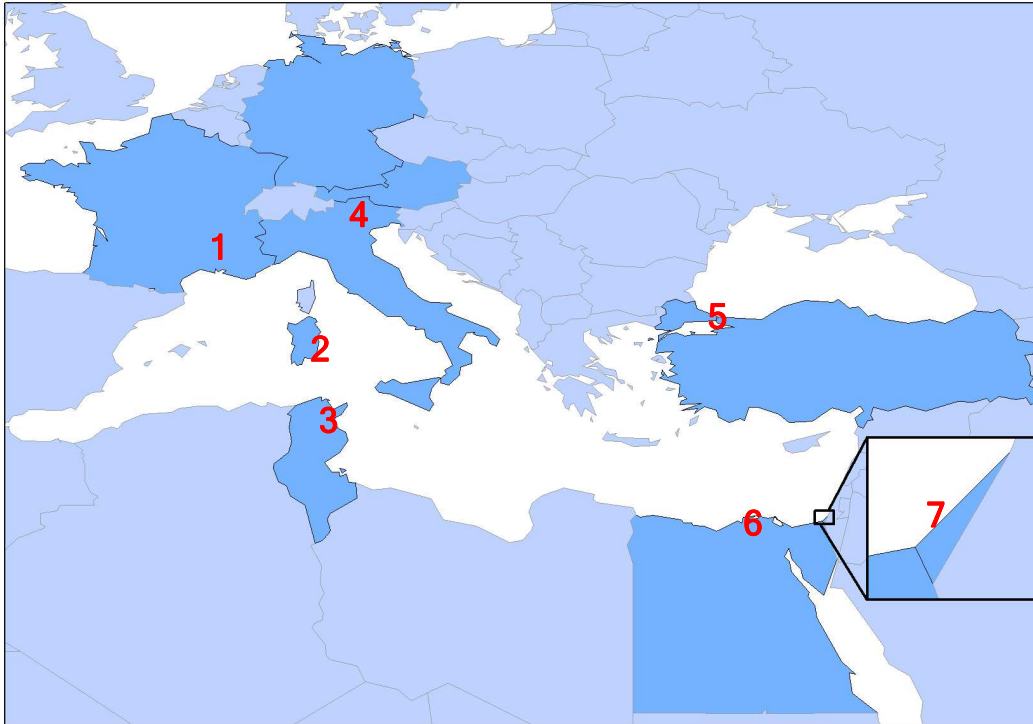


Water Availability and Security  
in Southern Europe and  
the Mediterranean.



<http://www.climb-fp7.eu>





- 1) **Thau** – 280 km<sup>2</sup> - Coastal Lagoon - Southern France
- 2) Rio Mannu di San Sperate –473 km<sup>2</sup> - **Sardinia** – Italy
- 3) Chiba - 286 km<sup>2</sup> - **Cap Bon** –Tunisia
- 4) Noce - 1367 km<sup>2</sup> – **Southern Alps** – Italy
- 5) **Izmit Bay** – 673 km<sup>2</sup> - Kocaeli - Turkey
- 6) **Nile Delta** – 1000 km<sup>2</sup> - Nile - Egypt
- 7) **Gaza Aquifer** – 365 km<sup>2</sup> - Gaza – Palest.-admin. areas

### Climate induced changes in:

- water availability, runoff regimes, groundwater recharge
- high agricultural productivity, irrigation, salt water intrusion

- **A complete dissemination strategy**  
= 2 ways of interactions at multi spatial and time scales
- CLIMB Dissemination management plan including CLIWASEC
- **Case studies investigation: analysis of local water uses**

- **Focus on local dissemination through interactions with stakeholders:**
  - engage them at the beginning of the project
  - inform them of the evolution of the work
  - based on the **pivote role of case study leaders**
    - know case studies (physical knowledge)
    - know stakeholders (some)
    - know CLIMB (partner)
    - they will stay in the case study after the end of the project

- **Interactions with stakeholders:**

- 165 questionnaires filled (managers and users)
- 133 interviews by UTours
- 100 hours of records exploited
- 5 different languages
- 4 local dissemination meetings / **case study**
- + virtual conferences

→ create confidence

→ understand water uses

→ design water governance

→ increase case study leader local network

- **Representation of water uses by stakeholders**

- difficulties to represent all water uses
- difficulties to represent limits of the water system

*Ex.:*

- *water coming from dams*
- *domestic water includes water for tourism industry*



- **Water issues according to local stakeholders (past/future)**
  - “climate change” terms not used (questionnaires, interviews)
    - *Non-local appropriation of local climate change impacts on water*
  - urbanization: main issue for water for past/future
    - *Urban planning: the level to integrate climate change impacts?*
  - increase of the deterioration of water quality is feared
    - *awareness of impact on human activities on water resource*

- **New water resources induced new consumptions**
  - Saving water
    - increase of irrigated areas (Ex. Noce, Thau)
  - Arrival of new water resources to adapt to water scarcity (storage basins, externalisation)
    - arrival of new irrigated crops
    - increase of water consumption! (Ex. Thau, Chiba)

### • Externalisation of water resource

- Water is coming from other catchments
- Desalination is an option for all coastal case studies
  - Ex. Thau (France)
    - Water from the Hérault, and Rhône River since 2012
    - Desalination presented as local solution to escape Rhône water uses

- Security of water uses is achieved (except for Gaza)
- Water uses are not sustainable
- Challenges of climate change are not perceived at local scale
- Water managers have to deal with increasing management complexity

One question: how to deal with desalination option in the WFD?

# Thanks for your attention

**La Jeunesse I.** et al. (2015). Is climate change a threat for water uses in the Mediterranean region? Results from a survey at local scale, *STOTEN*. *In press*.