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AGADAPT : Adapting water use by the agriculture sector

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AGADAPT

Adapting water use by the agriculture sector



9 European partners from RIC, private & public institutes

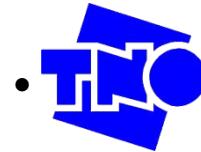
FRANCE



SPAIN



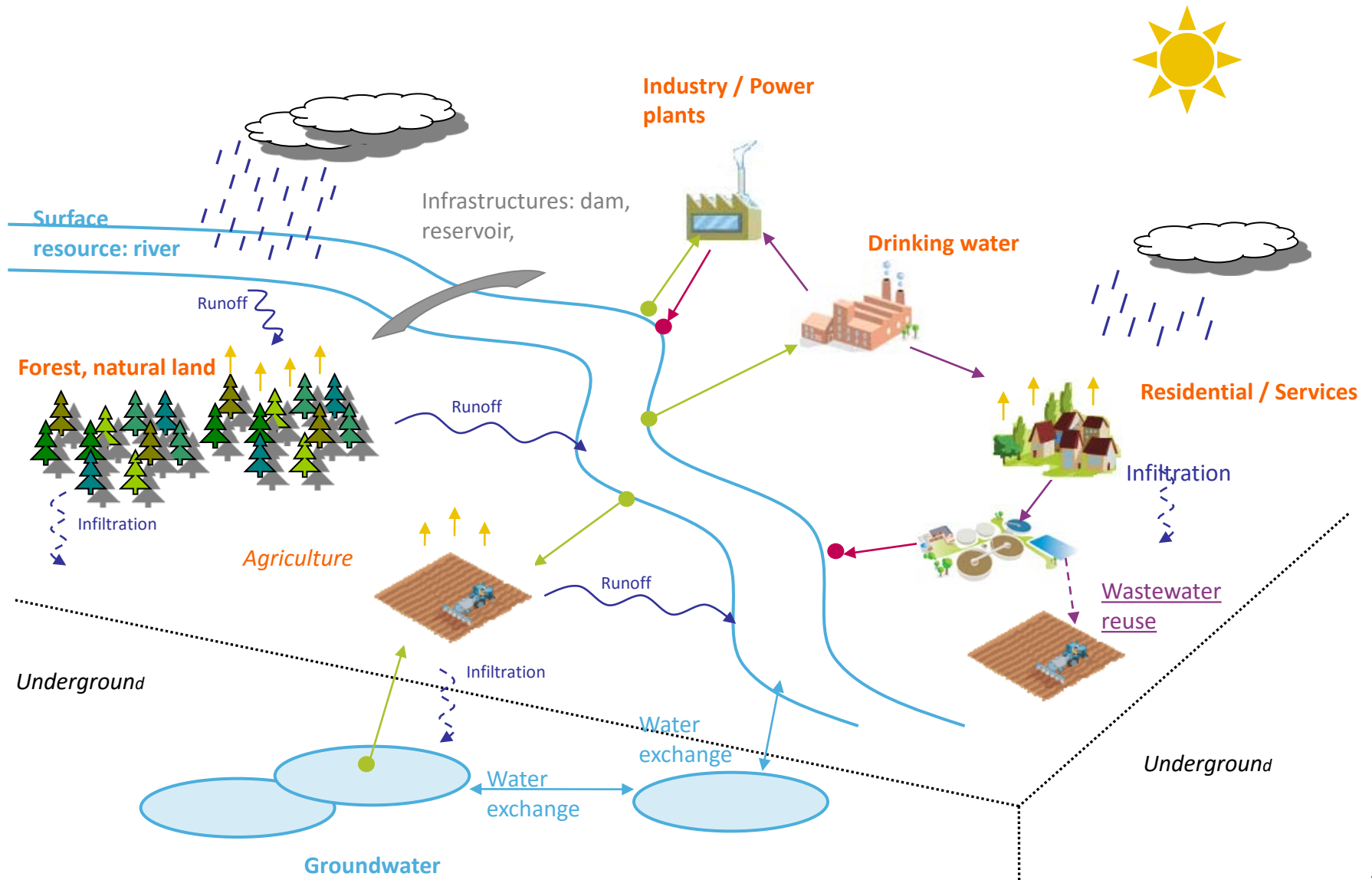
THE NETHERLANDS



GERMANY



WATER AVAILABILITY FOR THE AGRICULTURE SECTOR?



- **Stronger water need for vegetation**
- **Increase in drought occurrence and severity**
- **Increasing need in the other sectors (domestic, industrial, environment preservation)**

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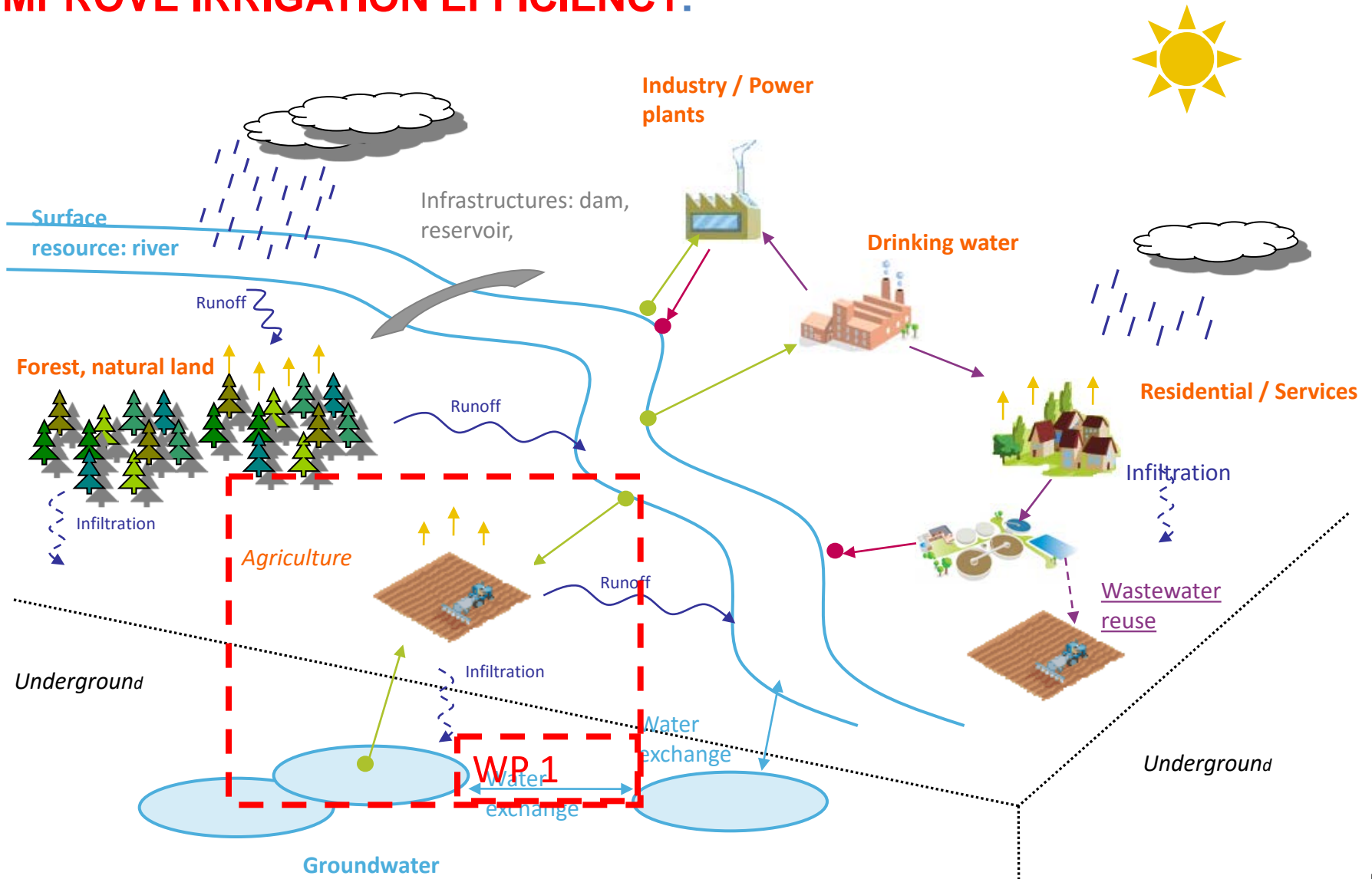


- **Improve Irrigation efficiency (The exact amount at the right time)**
- **Consider reuse water as an additional resource**
- **Better land planning (infrastructure, sharing water rules, reduction of costs, sustainable use of water, land use)**

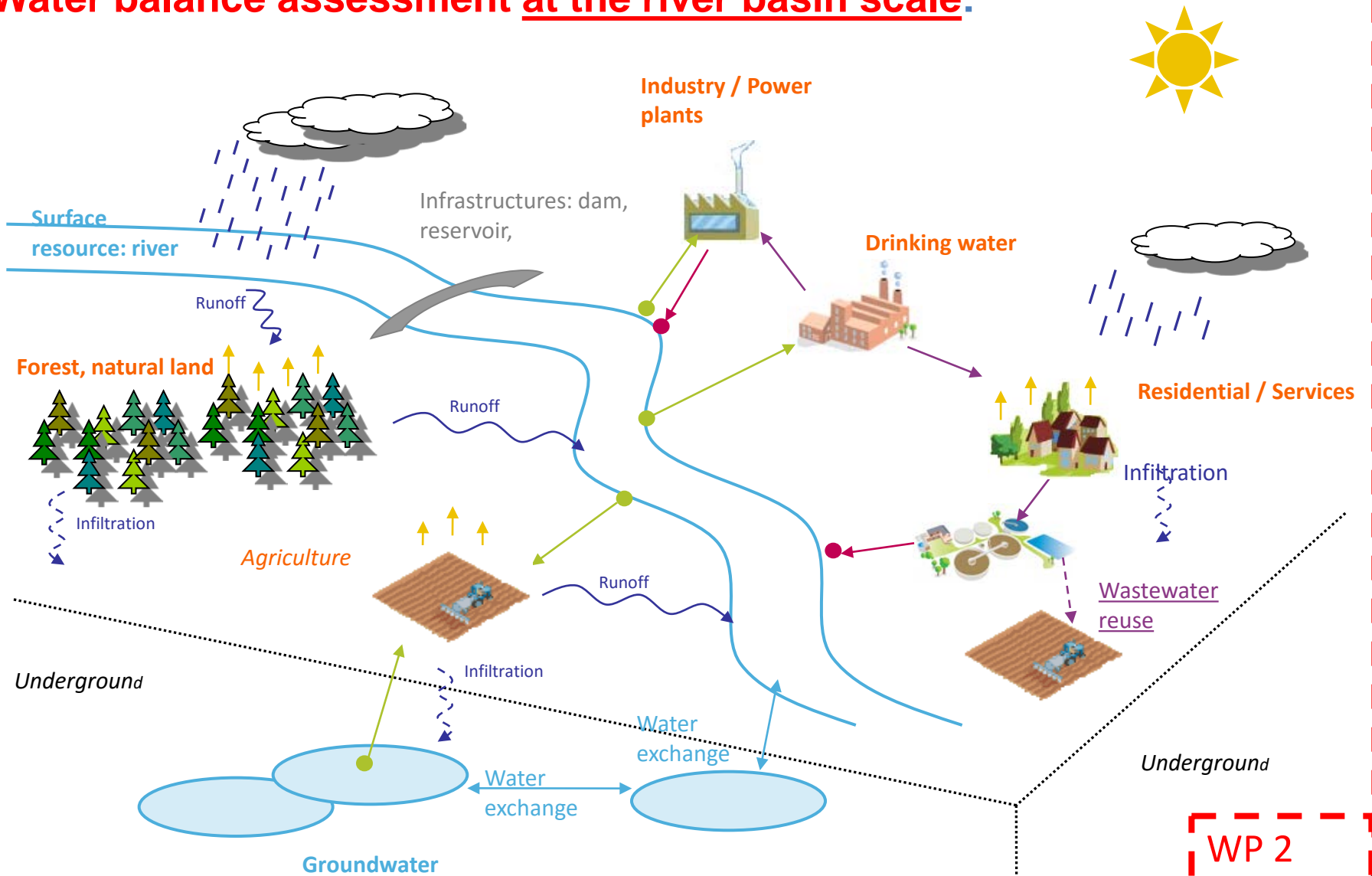


**Global change
impact on
available water for
the agricultural
sector**

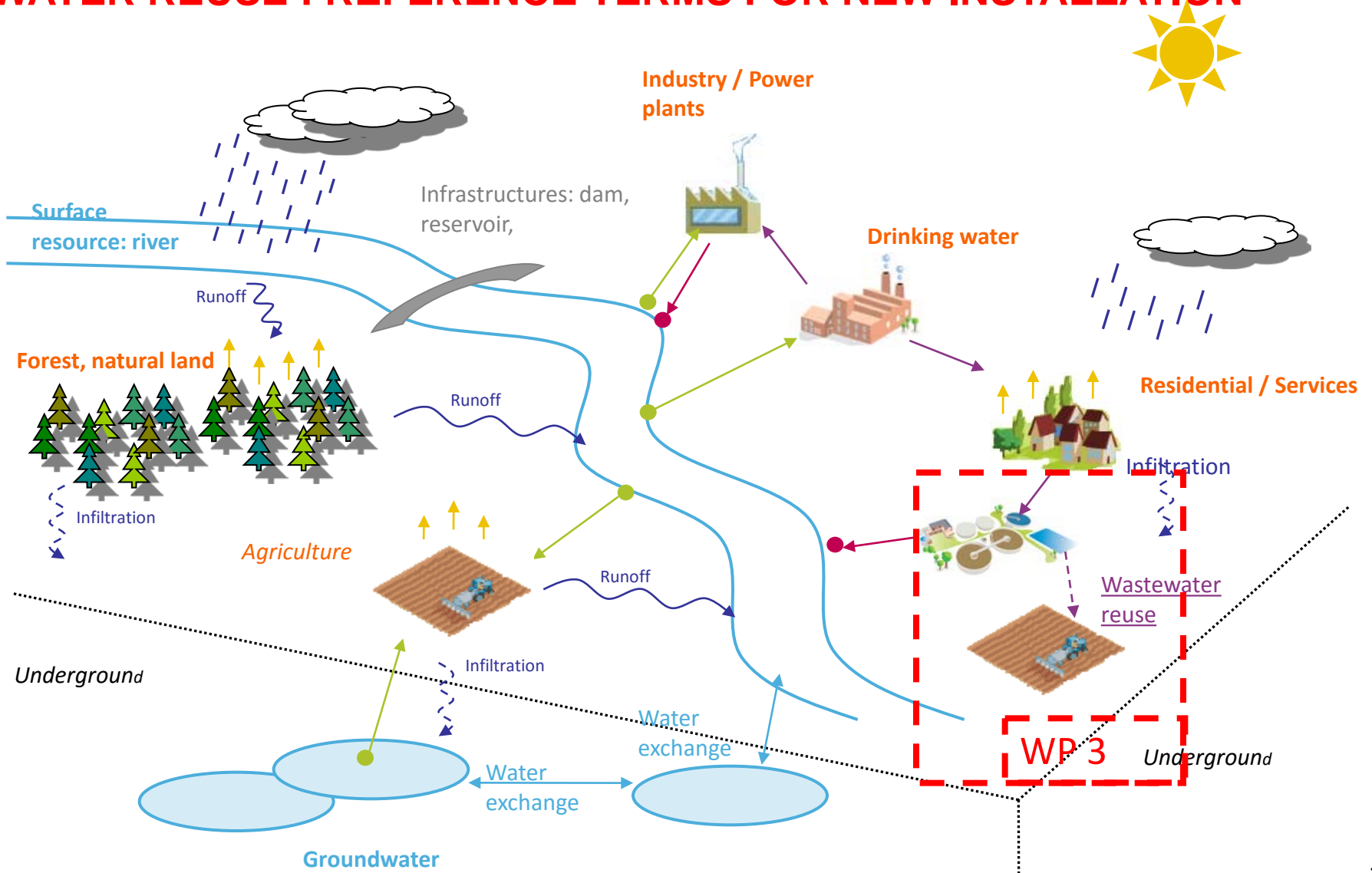
IMPROVE IRRIGATION EFFICIENCY:



Water balance assessment at the river basin scale:



WATER REUSE : REFERENCE TERMS FOR NEW INSTALLATION



INNOVATION CHAIN : WP1/WP2



STEPS

Knew Knowledge

Demonstration
Is it useful?
Is it innovative?
Cost ?

MARKET

ACTIVITIES

Model development

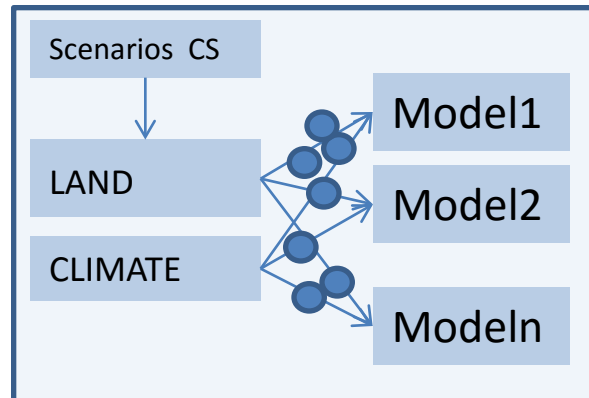
Demonstration on Case study (CS)

Market evaluation , Business model and customisation of the services

PRODUCTS

Integrated Model

Implementation conditions (legal, technical)
Strengths



Evaluation Report : Implementation cost and result relevancy, user feedback

WHO

NEEDS

PRODUCT OPERATIONAL SOFTWARE

INNOVATION CHAIN : WP1/WP2



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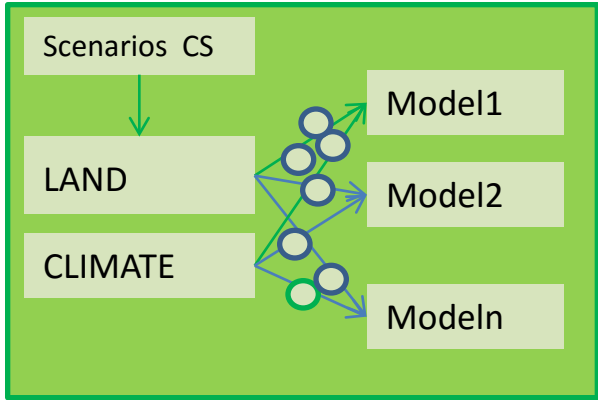
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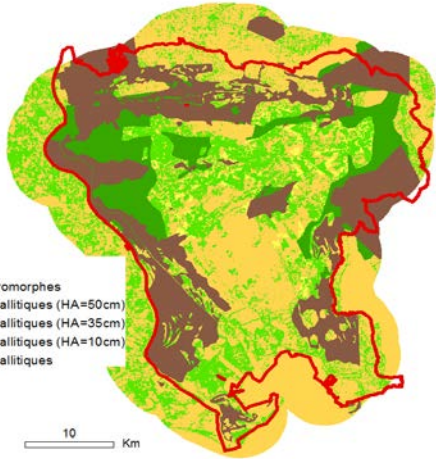
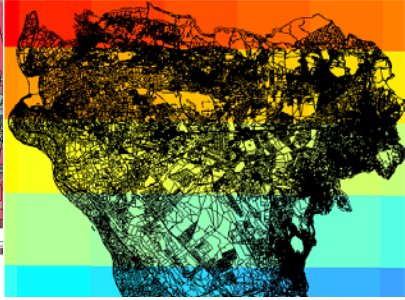
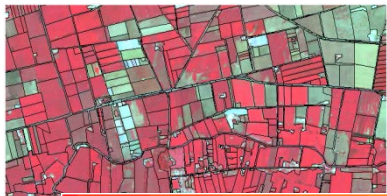
WP2 Approach

CASE STUDY SITES

Global Change
Pressure (human
Activities, climate
Change)

Scientific Community models
Resource Model x Demand model
(LPJ, Orchidée STICS, STRATEAU),
MODFLOW

Scientific Community



Légende

- Sols hydromorphes
- Sols fersiallitiques (HA=50cm)
- Sols fersiallitiques (HA=35cm)
- Sols fersiallitiques (HA=10cm)
- Sols fersiallitiques



10 Km

IFSL



Atmosphère

ORCHIDEE

MODFLOW

STRATEAU

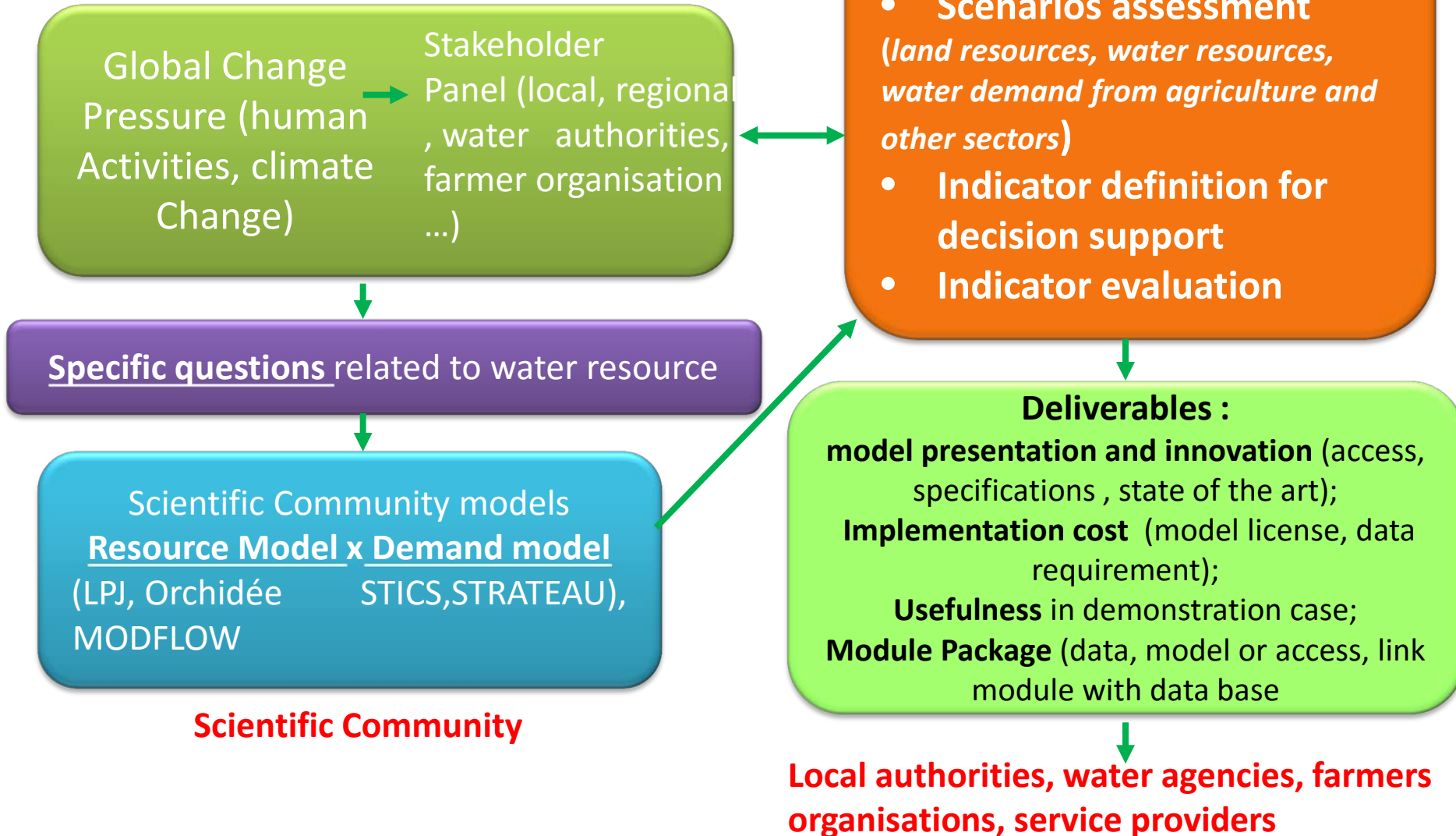
Outil d'aide à la décision



Spatialised water and carbon fluxes
Water resources sustainabilities
Vegetation production
Irrigation needs

WP2 Approach

CASE STUDY SITES



CRAU Case study :

*Piemont area with an expected decreasing downstream flow used as an external water source
An **aquifer sustained by flooded irrigation** (80% of the recharge)*

*An **Aquifer exploited** by the domestic, industrial and agricultural sectors*

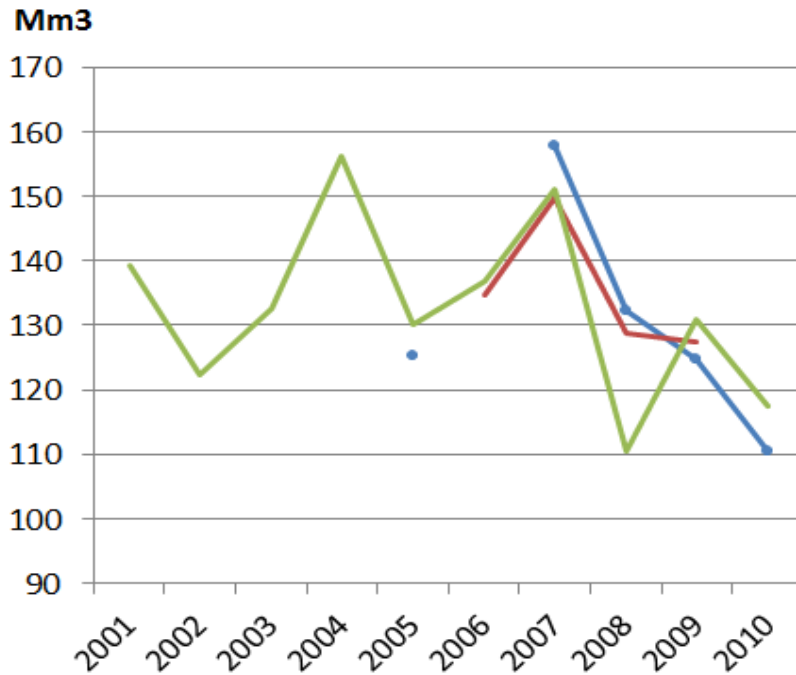
Urban sprawl

***Stakeholders** : Water agency (share of the water between energy and agriculture), farmer organisation (hay production, irrigation channel management), groundwater syndicate, agriculture chamber.*

- ➔ Ground water sustainability,
- ➔ Irrigation strategy : Minimum surface with flooded irrigation to maintain the aquifer
- ➔ Amount of water that can be uptaken in the aquifer
- ➔ Irrigation externalities : objective basis for cost sharing
- ➔ Hay production



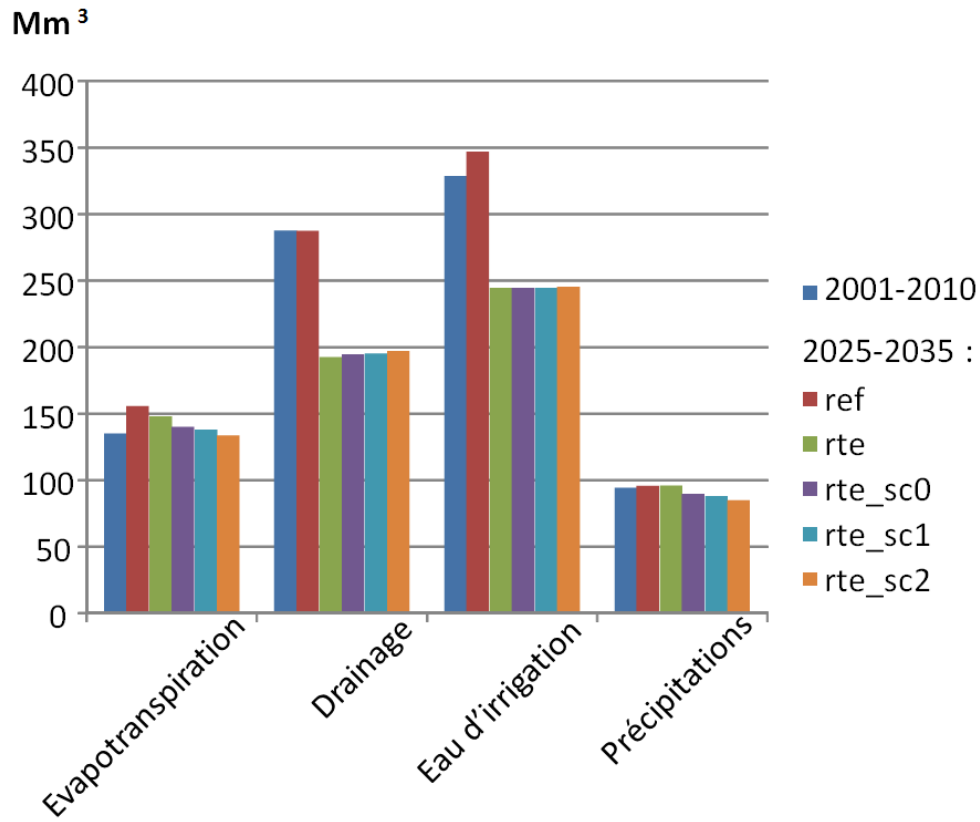
**WP2 : CRAU
Aquifer case study**



- Observed (from irrigation chanel records)
- Simulated using distributed climate
- Simulated using a single meteorological station

**Model suite
evaluation : Amount
of irrigated water
from external source**





Scenario analysis



Scientific community models are potentially able to address a wide range of questions

Model Analysis on well known sites :
model evaluation, indicator definition :
CRAU aquifer, Seine Catchment, Rhine
Catchment

Model Analysis on a new site with
existing data only : Jucar River basin

Communication and dissemination

Licensing and software development

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**Summary of the
approach**

WP 3 Water Reuse

Provide terms of reference to make people more confident with reuse projects:

- provide a tool to analyzing reuse projects locally (aid for decision making).

analysis framework for the impact of reuse project(s) on the global water resource management under climate change scenarios

- provide arguments to water policies to refine/modify/adapt European regulations or guidelines and possibly to tend harmonizing them
- identify innovative business model to secure the financial viability of reuse projects for open system as well as closed systems (i.e. greenhouses).

Technical solutions addressed to greenhouses farmers to support Reuse and recycling



**WP3 Water reuse
(Suez, TNO, INRA)**

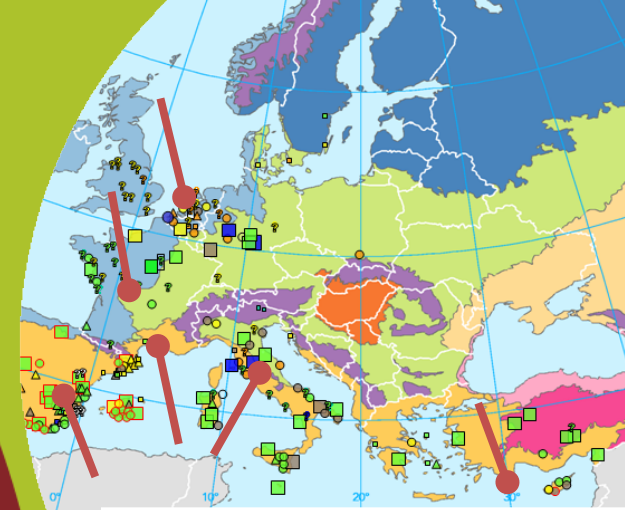
WP 3 Approach : site Audit

To provide term of reference for successful sustainable reuse water resources (i.e. reuse projects), as a mean to adapt water stress and climate change

✓ **by identifying** key success factors of existing European reuse projects: local drivers, regulations, business models, challenges (*ecological, technical, social*) and local innovations

✓ **by sharing** best reuse practices between European areas (north, south and east areas)

- ✓ Open field
- ✓ Greenhouses



Sites Audit

✓ 3 to 4 sites proposed, but **7 sites foreseen:**

- ✓ 1 already done
- ✓ 5 additional to be completed
- ✓ 1 others to be confirmed

✓ **Delay :**
Irrigation to be operated in summer

Task	Porquerolles (F)	Clermont Ferrand (F)	Milan (I)	Valencia (Spain)	Cyprus	Delft Blue Water (NL)	Olij Roses Greenhouses (NL)
Application	Open field	Open field	Open field	Open field	Open field	Greenhouse s Reuse + recycling	Greenhouses Recycling
Contact - Organisation	INRA	INRA	SUEZ	SUEZ	INRA	TNO	TNO
In charge	INRA - SUEZ	INRA - SUEZ	SUEZ	UPV -SUEZ	INRA-SUEZ-TNO	TNO	TNO
Audit	Sept. 2012	Aout 2012	March 2012 (V. Lazorrova)	Sept 2012	??	October 2012	October 2012
Report	INRA 10/2012	SUEZ 10/2012	SUEZ (10/2012)	SUEZ 10/2012	??	TNO 10/2012	TNO 10/2012

Thank you for your attention
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