



Global Science Conference

March 16-18, 2015

Le Corum, Montpellier France

Public Private Partnership: Climate Smart Irrigation

[L. Kenny¹, B. Hafidi², M. Faskaoui², A. Rami¹, L. Akhmissé⁴ and H. Chemaou⁴]

[1. Association Agrotechnologies – SMD

2. Conseil Régional du SMD

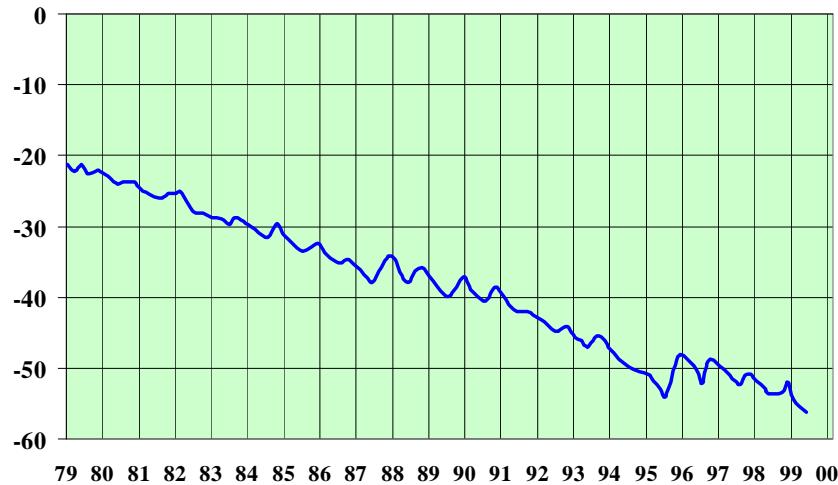
3. Agence du Bassin Hydraulique du SMD

4. Fondation Crédit Agricole du Maroc pour le Développement Durable]

Montpellier

March 16-18, 2015

Context: water stress in Souss Massa region



- Successive draughts since the 80's => lowering of the groundwater level of 2 meters per year
- Sebt El Guerdane disaster : hundred hectares of cultivated lands totally dried



A whole series of measures to save water like the groundwater contract...

Project of regional network of climate-plant-soil stations

General objective :

- WATER SAVING AND WATER VALORISATION

Specific objectives :

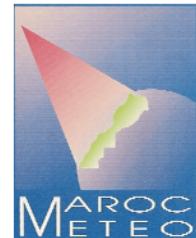
- Crop irrigation management based on the continuum climate - plant - soil:
 - Citrus (ETO open field)
 - Vegetables crops (ETO under green house)

Methodology

- First step : Regional network of meteorological stations
- Second step: Regional network of Climate-Plant-Soil stations

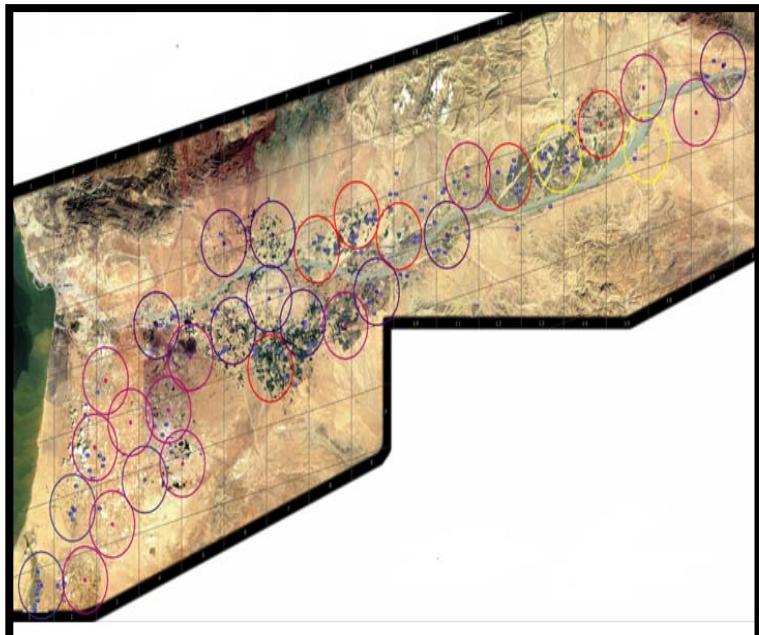


Partners



First step : Regional network of meteorological stations

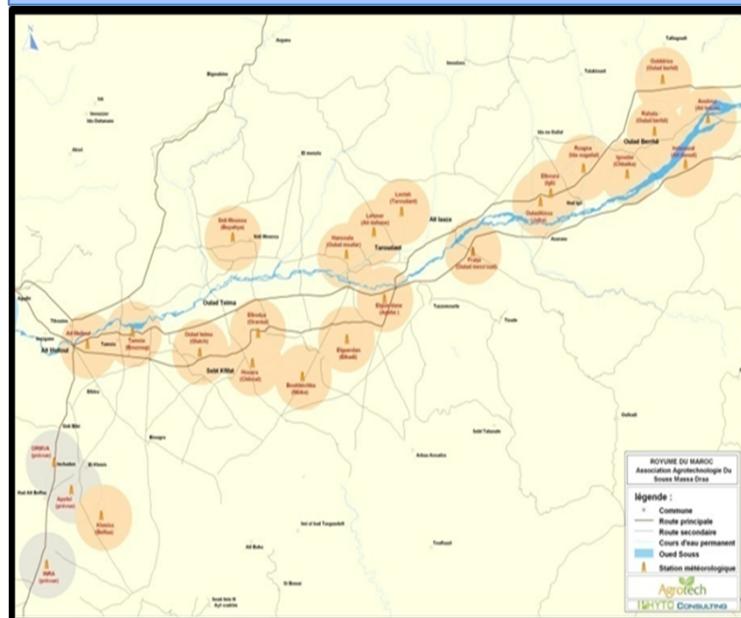
2008-2011:
16 stations



32.000 Ha



2012-2014:
30 stations

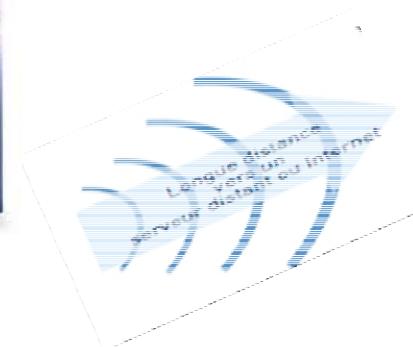


60.000 Ha



Operating mode of the project

500 SMS per day

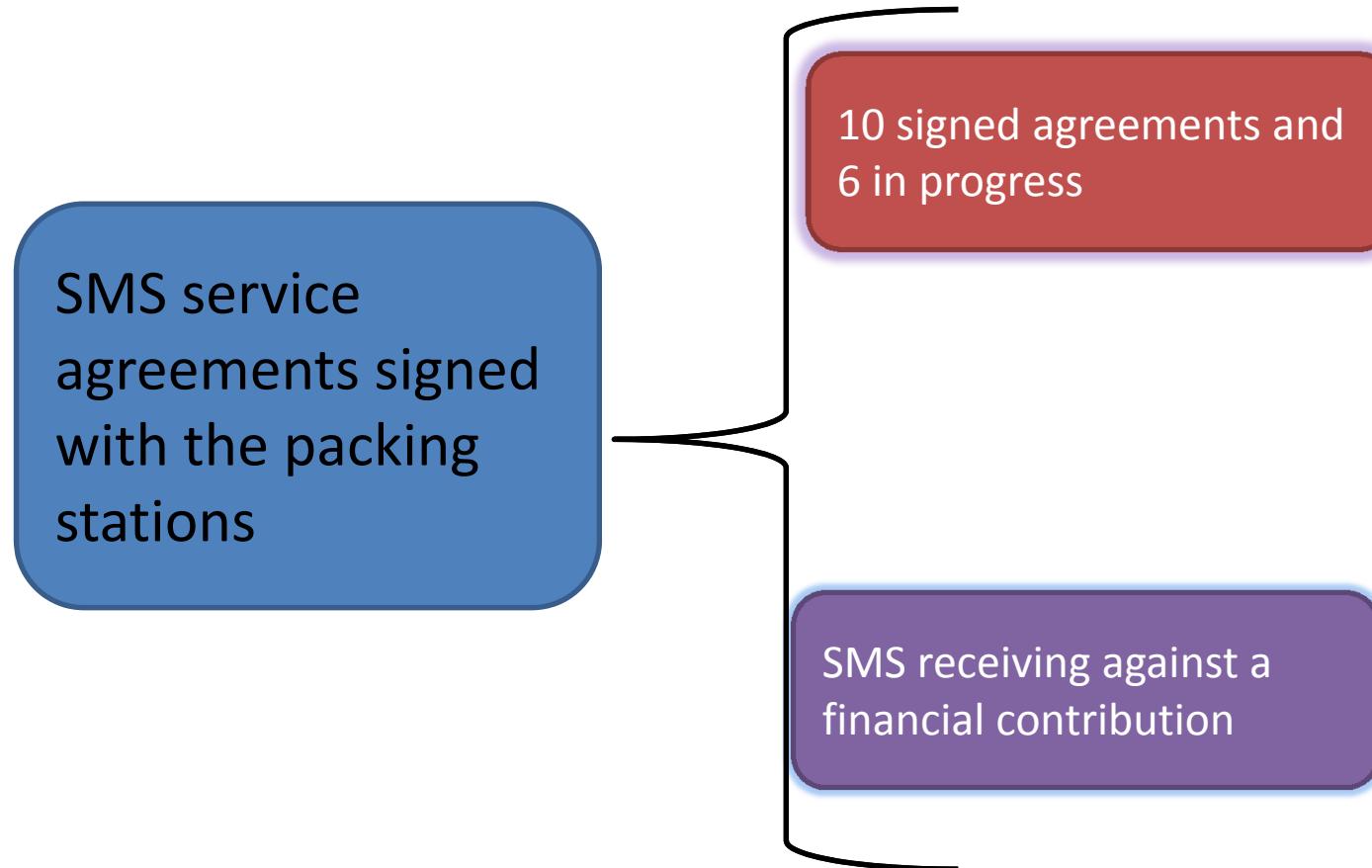


Date	ET _{ref}	T _b (h)	R _g (mm)	Temp (°C)	Vent (km/h)	Dewpt
25/02/2015	3.37	50.1	89.38	100	0	19873.91
26/02/2015	3.51	51.51	85.00	0	50000.00	5.16
27/02/2015	2.86	59.25	89.75	100	0	17887.94
28/02/2015	2.94	61.3	90.48	100	0	17785.32
01/03/2015	2.81	58.28	91.88	100	0	15979.03
02/03/2015	3.74	48.74	87.75	100	0	21525.57

www.agrotech.ma

6.000 visitors par month

The conventional framework



Partnership with 10 packing stations and 6 ongoing agreements



Number of direct and indirect beneficiaries

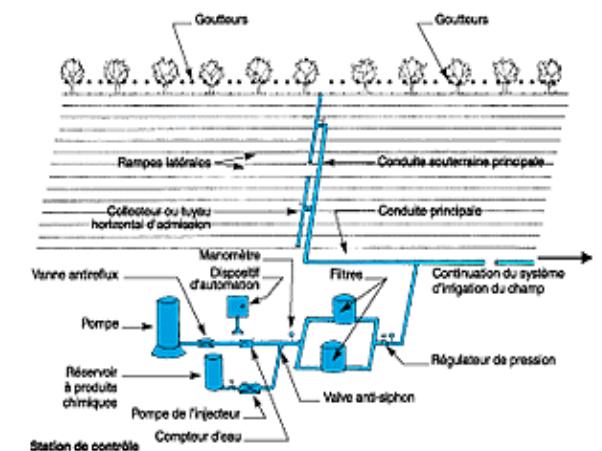
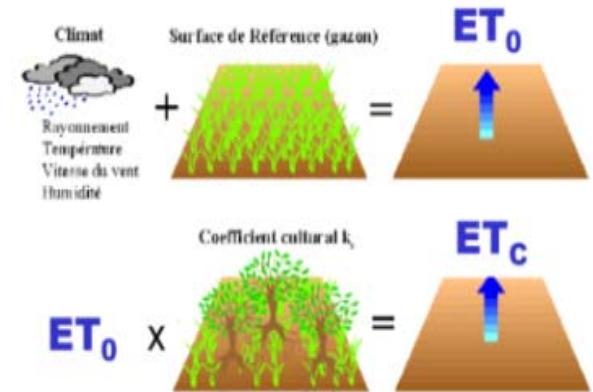
- Numbers of SMS directly sent / day : **500 farmers**
- Number of farmers advised by web interface / month: **6.000 visitors**
- Potential area covered by SMS : **45 000 ha**

Training on irrigation management using climate data (ETo)



Training objectives

1. To demonstrate the importance of climate data in irrigation management
2. To learn how to integrate the climate data in developing irrigation and fertilization programs (especially via practical training)
3. To provide appropriate maintenance of drip irrigation network to ensure a good use of climate data (ET0)



Training tools



3. 000 booklets on drip irrigation management using climate data (ET₀)

3.000 flyers presenting the project



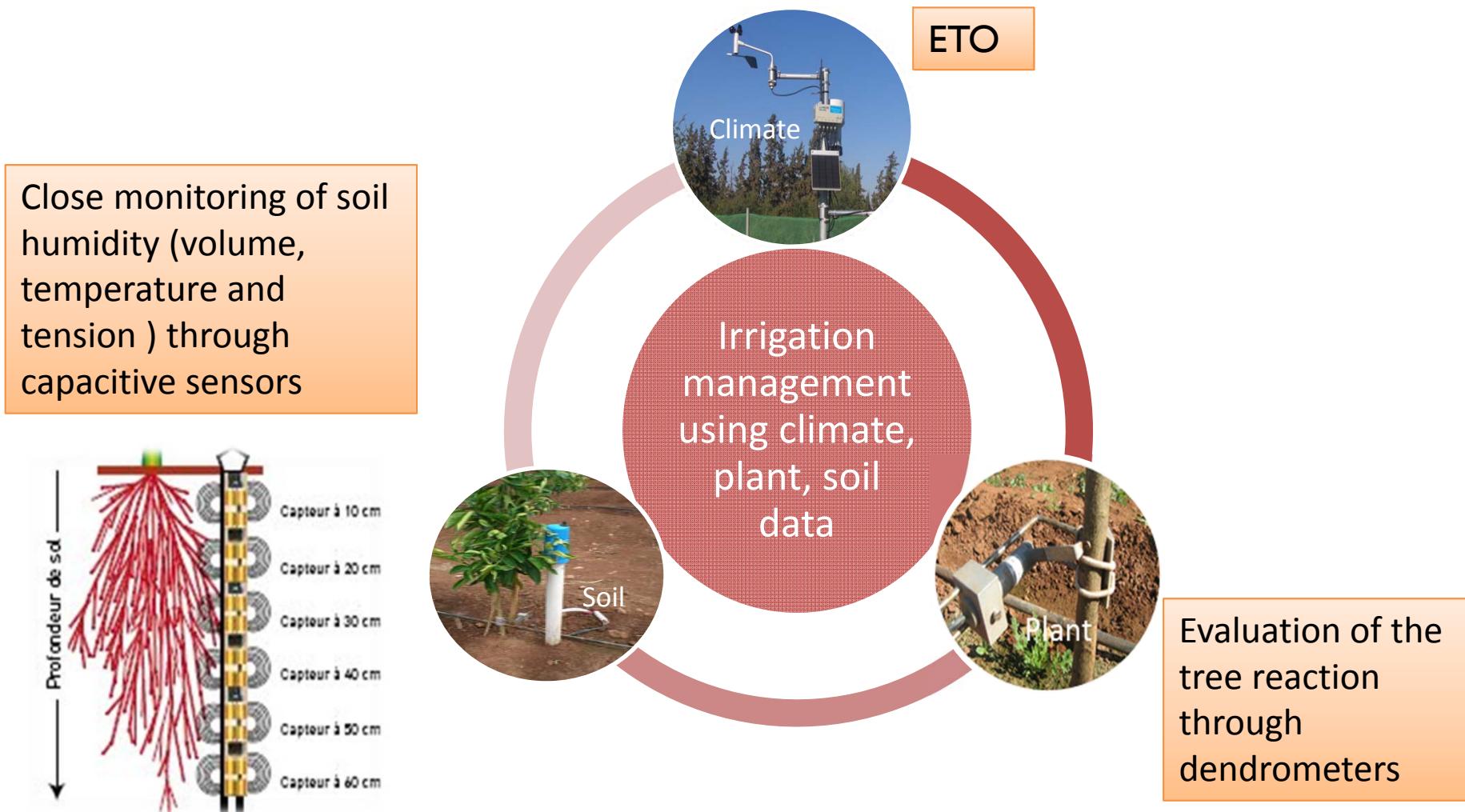
Short movie focusing on the benefits of meteorological stations in irrigation management

Training sessions' impact

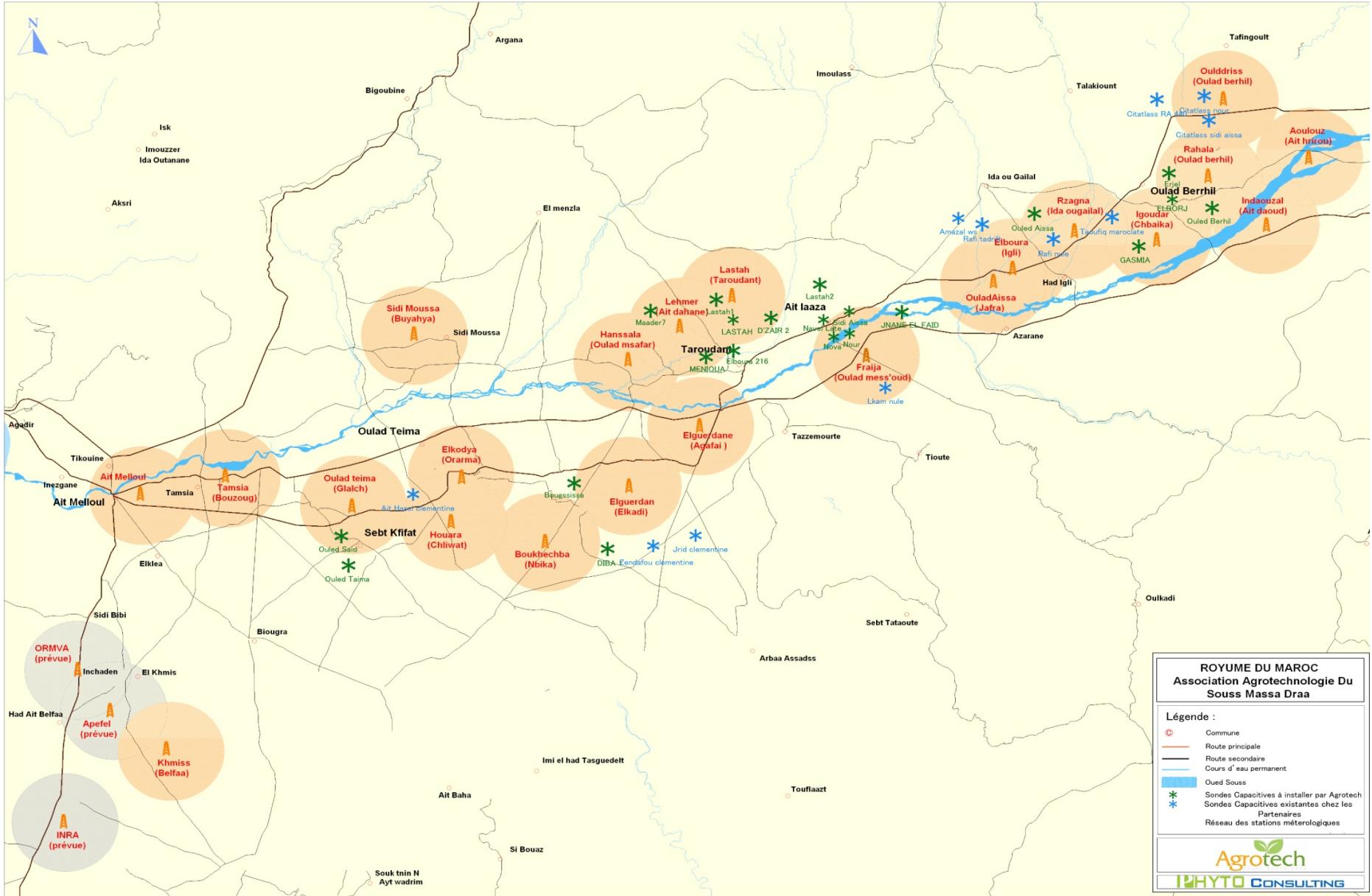
- 1 200 small farmers trained
- 13 training sessions organized
- Irrigation management knowledge using climate data has been improved in farms (40 000 hectares)
- Farmers convinced by the technology used to save water while improving yield



Second Step : Regional network of climate-plant-soil stations



Regional network of 20 climate- plant- soil stations



Project impact

Gravity-fed irrigation system

20.000 m³/Ha/Year	571 lit/kg citrus
-------------------------------------	--------------------------

50%

Drip irrigation system

10.000 m³/Ha/Year	314 lit/kg citrus
-------------------------------------	--------------------------

20 %

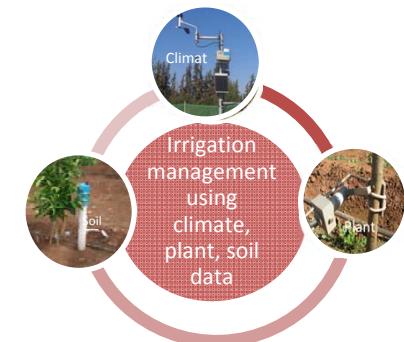
Drip irrigation using climate data

8.000 m³/Ha/Year	185 lit/kg citrus
------------------------------------	--------------------------

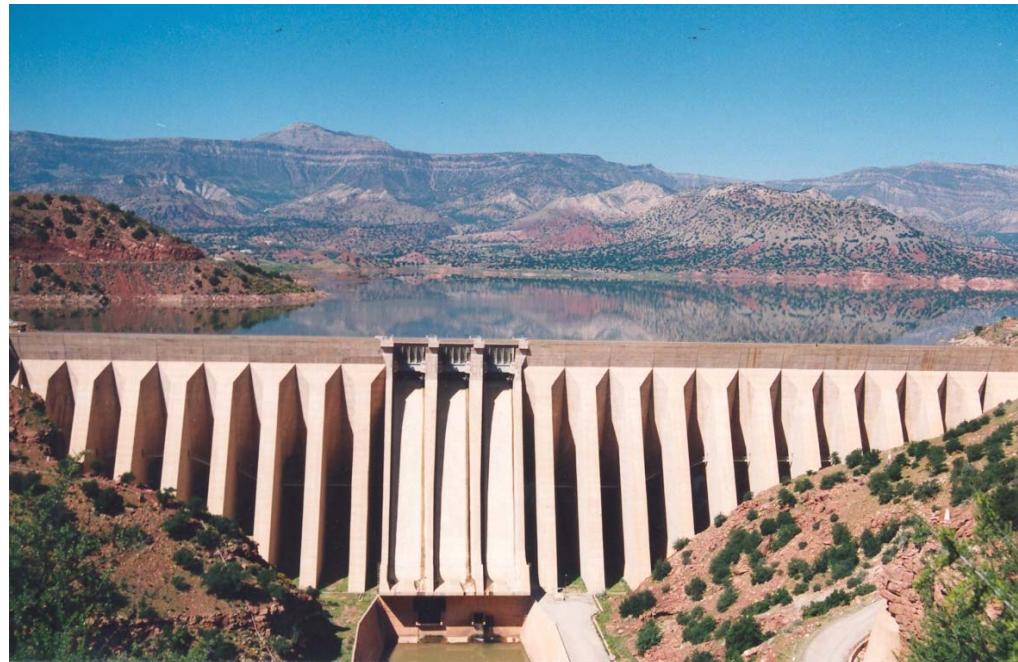
Drip irrigation using
climate, plant and
soil data

12,5 %

7.000 m³/Ha/Year	240 lit/kg citrus
------------------------------------	--------------------------



Project impact at regional scale (2000 m³/ha, 40 000 Ha)



Saving of 80 millions m³ water/year

International recognition

The climate smart irrigation program of Souss Massa Region :

- Has been quoted by FAO as a leading experience on water management in Africa
- Has been chosen among 40 best practices on water management worldwide at the 6th World Water Forum in 2012
- Participated to the Arab Water Summit in 2012 held in Egypt, which considered the program as an exemplary experience in the Arab world.



L'eau et la sécurité alimentaire
face au changement global : quels défis, quelles solutions ?

Contribution au débat international

Préface de la FAO





Thank you for your
attention!

