

Short presentation of Cemagref and UMR GEAU

Institut Public de Recherche dans l'Environnement

Gestion Eau Acteurs Usages

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Mediwat Kickoff meeting Palermo



▶ Cemagref

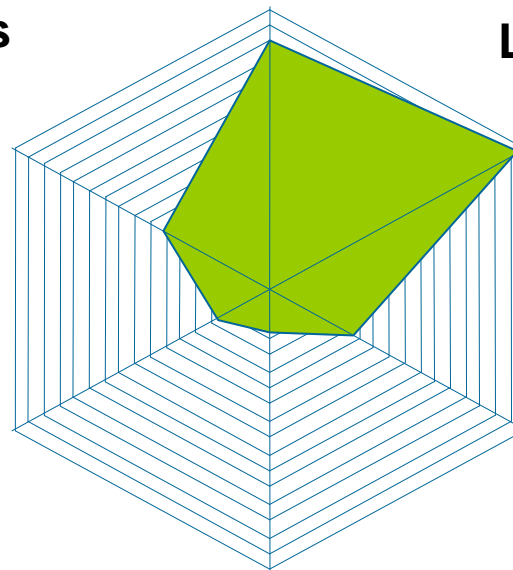
- **Établissement à caractère scientifique et technologique (EPST),**
 - **Under the umbrella of Ministry of Research, Agriculture and more and more and more Environment**
- **Objective of applied research in partnership with private companies and other research institutes**
- **Main focus : Sustainable management of waters and territories**
- **1350 employees (950 permanents and 240 phd students)**

Distribution of skills and activities

Sciences and technologies
Of information and
communication
14 %

Climate change
7 %

Engineering
30 %

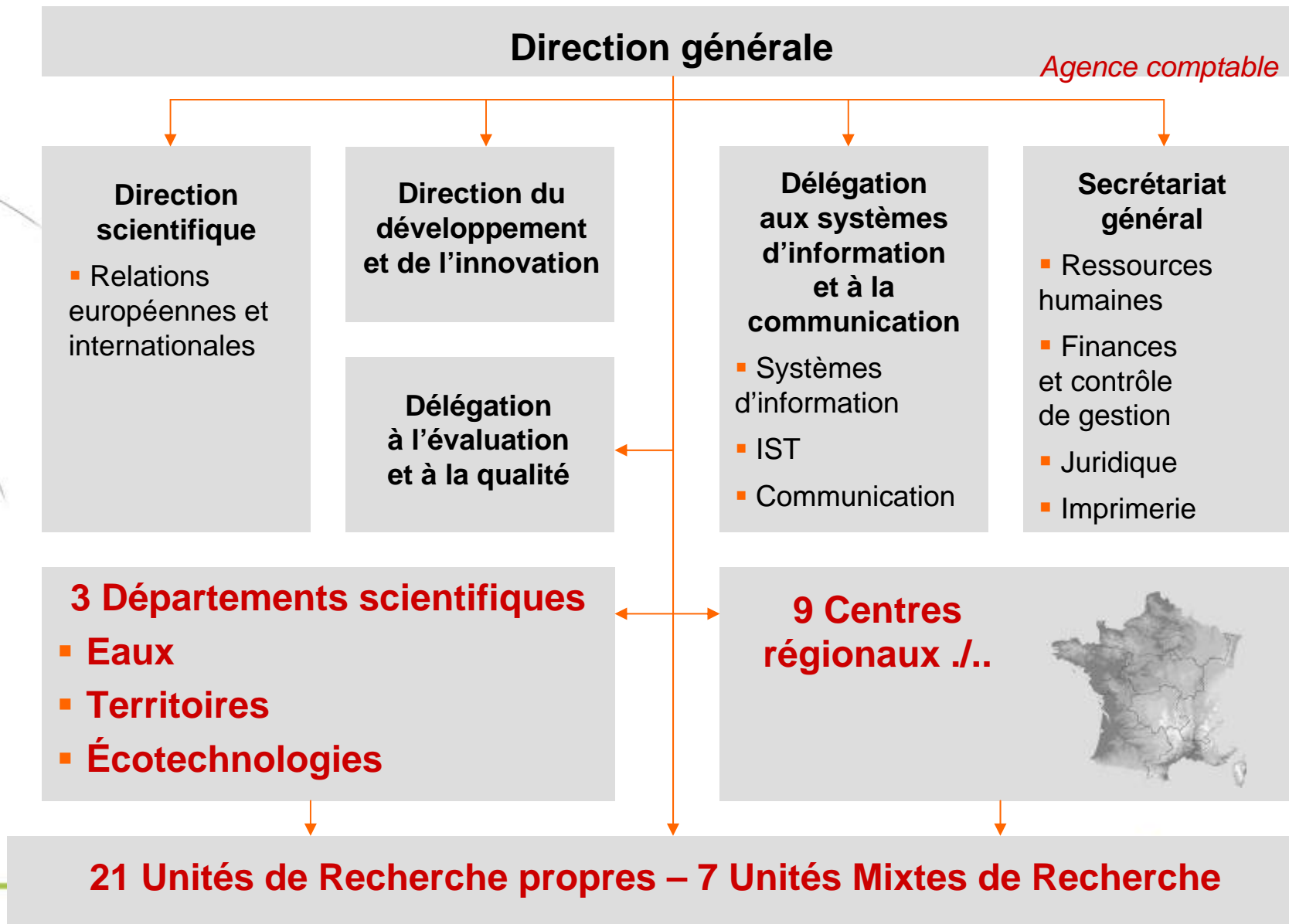
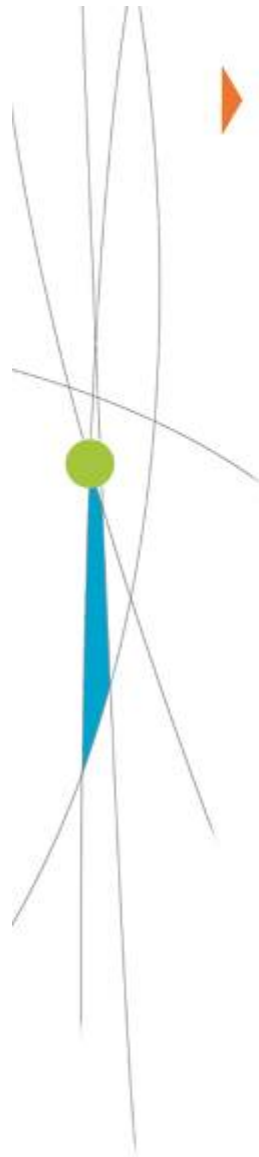


Living and environmental
Sciences
33 %

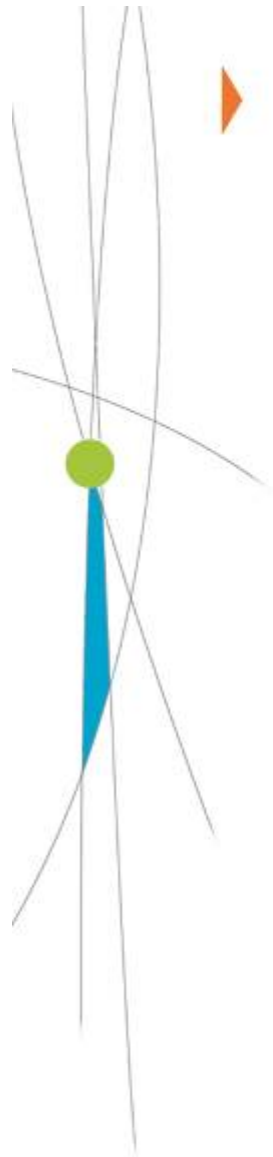
Human and
social Sciences
11 %

Mathematics Sciences
5 %

L'organisation scientifique et territoriale



▶ Le Cemagref en région : les Centres



Ile-de-France, Haute et
Basse-Normandie, Picardie,
Champagne-Ardenne,
Lorraine, Nord-Pas-de-Calais

● **Antony**

Bretagne,
Pays de Loire

● **Rennes**

Aquitaine,
Poitou-Charentes,
Midi-Pyrénées

● **Bordeaux**

Auvergne, Limousin

● **Clermont-Ferrand**

Languedoc-Roussillon

● **Montpellier**

Centre,
Bourgogne

● **Nogent-sur-
Vernisson**

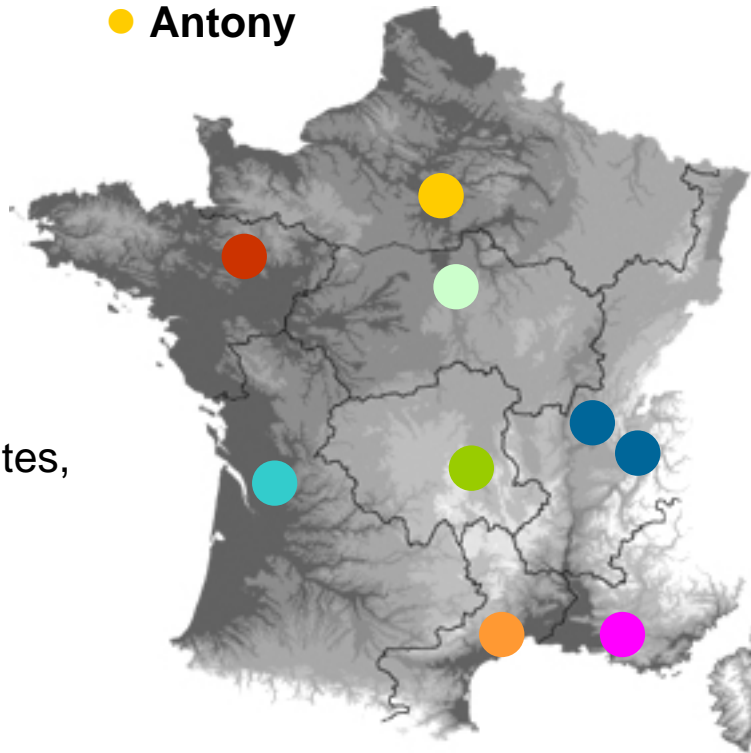
Rhône-Alpes,
Franche-Comté,
Alsace

● **Lyon**

● **Grenoble**

Provence-Alpes-
Côte d'Azur, Corse

● **Aix-en-Provence**





Gestion de l'Eau, Acteurs, Usages

- Water resources management, stakeholders, uses





▶ Origin and areas of investigation

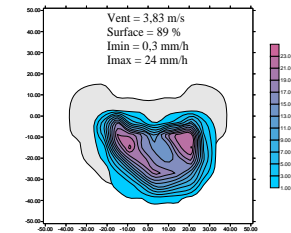
- **Initiative of researchers from various institutions**
 - Main Purpose: investigate the link between social and technical management of irrigation systems
- **Research objects**
 - Water management at different scales :
 - water basin, irrigated systems or plot, domestic water services
 - Focus on interactions between biophysical mechanisms and collective or individual decision-making processes
 - taking into account “external” factors as climate, legislation and economic contexts
- **Knowledge and methods :**
 - For managers (water planning ; operational management ; software)
 - For water authorities (forecasting, negotiation)
 - To improve performances of irrigation systems
 - To evaluate the usefulness of methods / tools
- **Diagnosis of some situations**
 - Simulation of scenarios
- **Training students and professionals (north/south)**

Activities of the *LERMI*

● From research to practical application

■ Analysis of the water distribution of an irrigation gun

- Compact jet dispersion: velocity distribution
- Erosion Progressive and dispersion of the jet
- Modeling wind effects on distribution



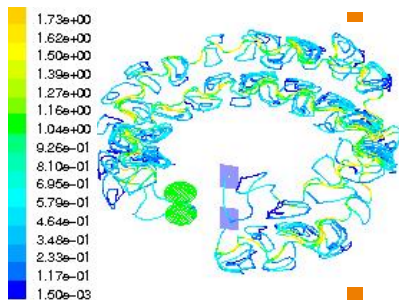
■ Analysis of drift and evaporation losses in sprinkler irrigation

- Field and lab measurement (droplet size, rainfall, EC)
- Calibrating a simple model
- Quantifying risks/volume involved



■ Localised Irrigation : sensitivity to clogging

- Systems ageing (deposits, biofilms développement)
- Distribution of water and solute in the soil
- Measurement and simulation



■ Measurement of water in the soil TDR Tension

- Evaluation, calibration, comparison of sensors
- Work on signal conversion algorithms
- Use for calibrating water balance models



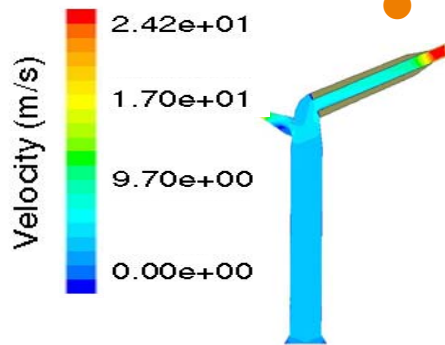
Activities of *LERMI*

● Territoriales approach of water management



- Small region scale
- In situation of conflicts
- From existing situation, design of management scenarios
- Participative approaches

● R&D



■ Sprinkler design

- Droplet size distribution
 - Impact on soil, drift
 - Partnership with industries

■ Specific activities on equipment for reuse

- Rubber type pipe
- Mechanical and hydraulic behavior
- Sensitivity to clogging

