



FREEWAT
Free and Open Source Software Tools for Water Resource Management
EU HORIZON 2020 Project



Horizon 2020
European Union funding
for Research & Innovation

 **ict4water.eu**

The Horizon 2020 FREEWAT project: FREE and open source software tools for WATER resource management

The 13th IWA Leading Edge Conference
on Water and Wastewater Technologies

Evaluating Impacts of Innovation

13 - 16 june 2016 | Jerez de la Frontera, Spain

***The ict4water drives circular economy.
The impacts of innovation in FP7/H2020 Projects***



FREEWAT is an ICT project for improving Water Resource Management (WRM)

MAIN EXPECTED RESULT

Open source and public domain GIS integrated modelling platform for promoting WRM by simplifying and strengthening the application of WFD, GWD and other water related Directives.

FREEWAT expected main impact →

*help producing scientifically and technically
sounding decision and policy making based on*

data and innovative data analysis tools and

FREEWAT Consortium



Partners



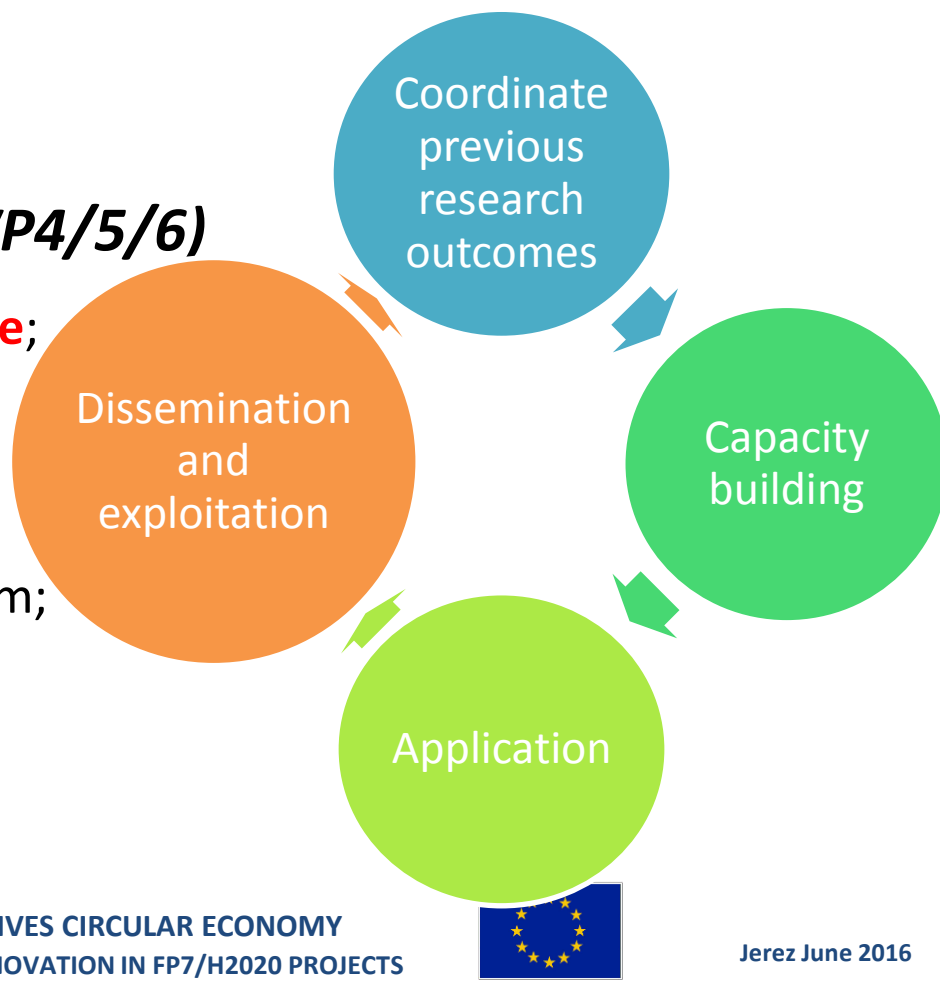
FREEWAT circular economy

SOFTWARE DEVELOPMENT AND CAPACITY BUILDING

- Building the software platform (WP2)
- Intensive training (WP3)

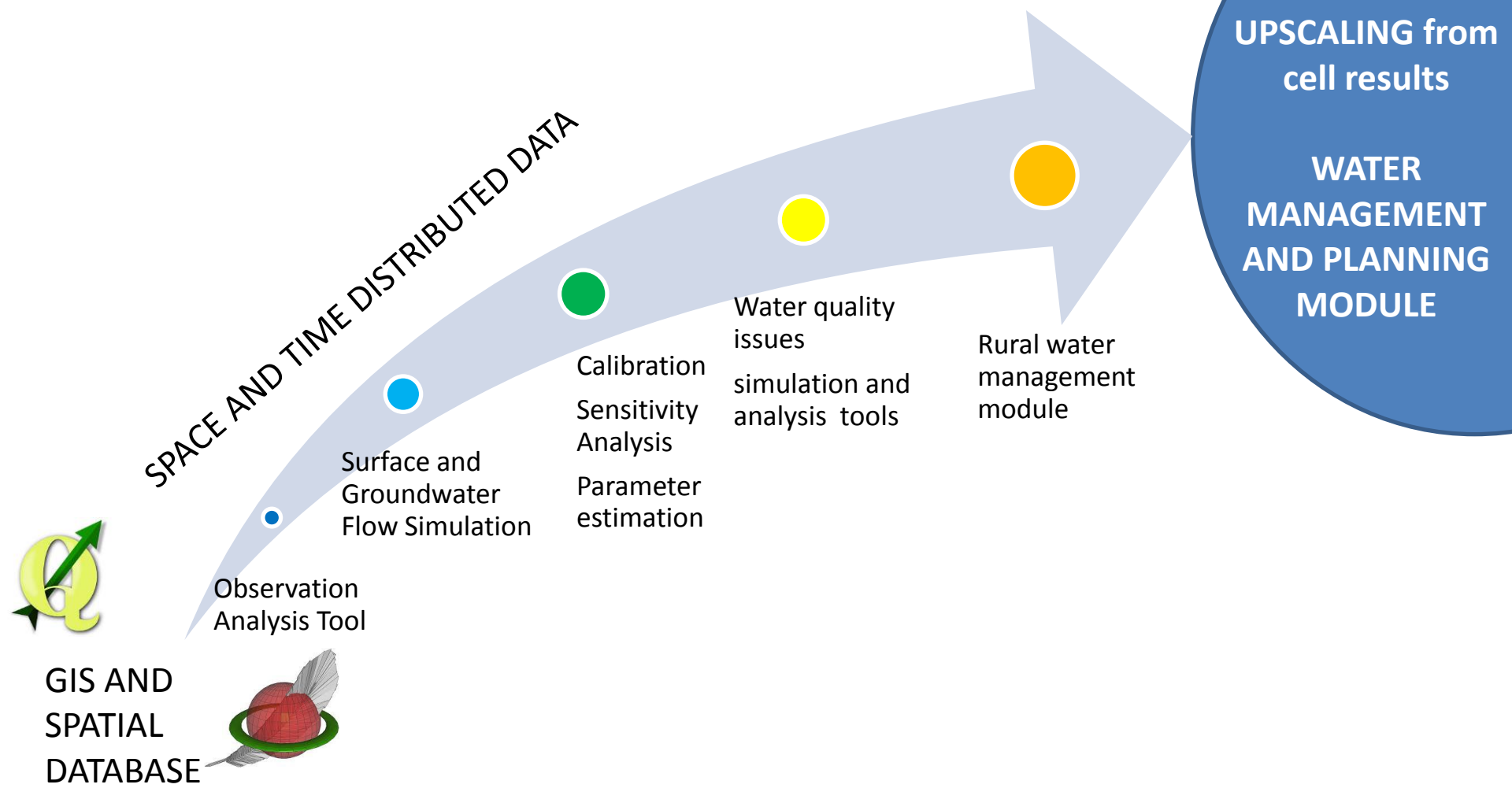
APPLY THE FREEWAT PLATFORM (WP4/5/6)

- **Postulate the problem you have to solve;**
- Involve the stakeholders during FREEWAT application;
- Apply the model for solving your problem;
- Produce tailored policies!



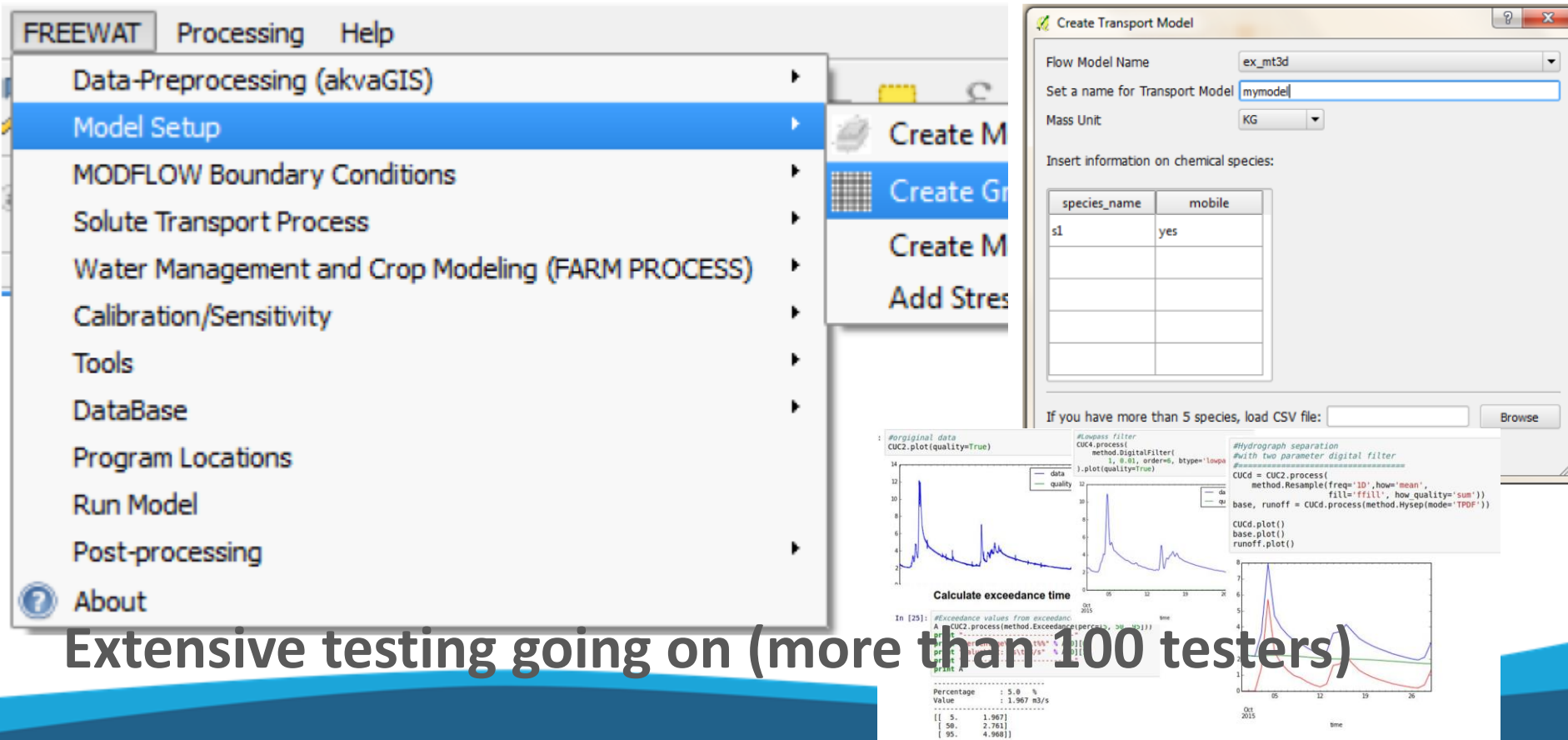


FREEWAT architecture



WHAT IS FREEWAT TODAY?

A QGIS integrated modelling environment in its beta age!!!



The screenshot displays the FREEWAT QGIS interface. The Processing menu is open, showing options: Data-Preprocessing (akvaGIS), Model Setup, MODFLOW Boundary Conditions, Solute Transport Process, Water Management and Crop Modeling (FARM PROCESS), Calibration/Sensitivity, Tools, DataBase, Program Locations, Run Model, Post-processing, and About. The 'Create Transport Model' dialog is also visible, showing fields for Flow Model Name (ex_mt3d), Set a name for Transport Model (mymodel), Mass Unit (KG), and a table for chemical species. The table has two columns: species_name and mobile. The first row shows 's1' and 'yes'. Below the table, there is a field for 'If you have more than 5 species, load CSV file:' and a 'Browse' button. The bottom part of the screenshot shows a Jupyter Notebook interface with code for data processing and plotting, including a plot of 'Calculate exceedance time'.

Extensive testing going on (more than 100 testers)

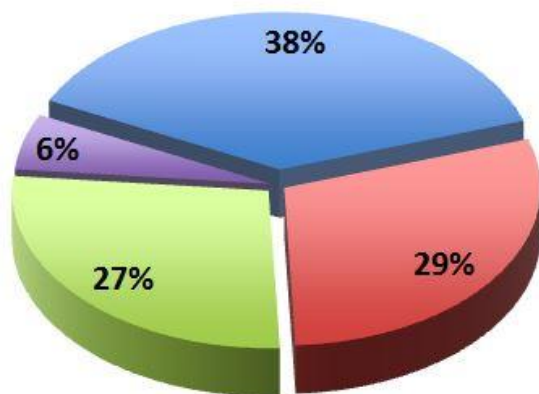


FREEWAT CAPACITY BUILDING

- Large stakeholders involvement (more than 200 stakes involved – community growing daily)
 - Web social and professional networks
- (linkedin group yet 390 followers – twitter: 290)

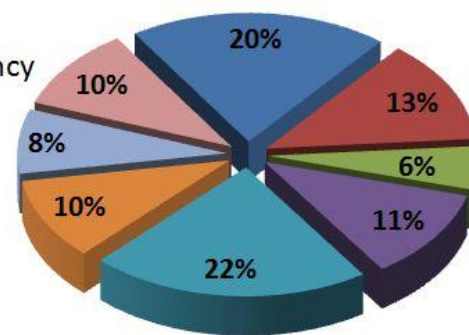
Area of interest

- Water quality
- Water policies
- Contaminated site remediation
- Other



- Research
- River basin authority
- Environmental protection agency
- Water utility
- National authorities
- Local authorities
- Geoenvironmental company
- Other

Type of Institution





FREEWAT PLATFORM ADVANTAGES vs. commercial simulation platform

- Unite the power of GIS geo-processing and post-processing tools in spatial data analysis to that of simulation software
- The chance for public authorities to build a high informative and dynamically growing representation of a hydrologic system (i.e. river basin) where performing data storage and planning analysis
- WRM modules thought for decision-making and policy applications
- No cost for licences (money can be moved to development of client tailored applications)



FREEWAT and Nitrates Directive



The EU Nitrates Directive aims to prevent nitrates from agricultural sources polluting ground and surface waters. The directive forces member states to develop action programs and to declare “Nitrates Vulnerable Zones” (NVZs); where prevention measures are compulsory to farmers, as part of CAP cross-compliance.



Although it is very difficult to estimate the actual nitrate leaching due to a specific fertilizer and irrigation management, FREEWAT brings an opportunity to simulate such leaching from each farm.



Zeta Amaltea has a similar previous experience in a LIFE project

LIFE+10 ENV/ES/478



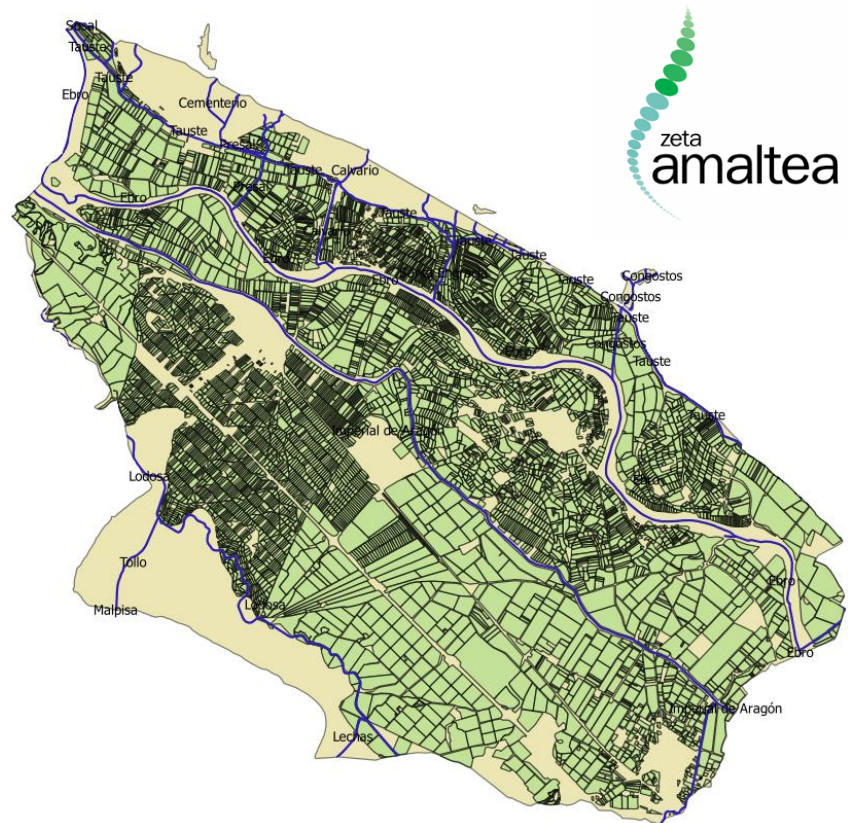
Case study: Nitrates Directive

FREEWAT as a tool to evaluate action programs

Zeta Amaltea will conduct a FREEWAT case study, in a NVZ in Spain. We will use CAP data, soil maps and local irrigation and fertilizer managements to simulate nitrate pollution of groundwater.

The EU member states have to review NVZ designation and the effectiveness of their action programs every 4 years. FREEWAT could be the right tool to conduct such evaluations.

Zeta Amaltea seeks for FREEWAT future developments, as a business opportunity for us!





FREEWAT

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Forthcoming Workshop

ICT tools for ensuring availability and sustainable management of water (SDG6)

Paris, 30th September 2016 @UNESCO



FREEWAT - Free and Open Source Software Tools for Water Resource Management

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