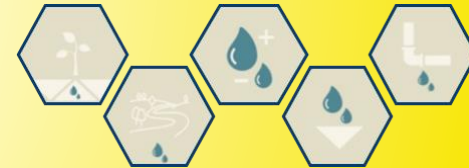


2nd International LIFE REWAT Summer School

*Digital water management and water-related
agroecosystem services: geostatistics, hydroinformatics and
groundwater flow numerical modelling*

September 9th—20th, 2019
Scuola Superiore Sant'Anna
Pisa, Italy



2nd FREEWAT International Workshop

WELCOME!

Rudy Rossetto

Institute of Life Sciences – Scuola Superiore Sant'Anna – Pisa

rudy.rossetto@santannapisa.it

ACRONYM

RE



RECHARGE

RESTORE

REUSE/REDUCE

WAT



WATER

*To develop a participated strategy for integrated water resource management,
as a model of governance for sustainable socio-economic development
based on innovative demonstrators along with multistakes participatory
approaches*

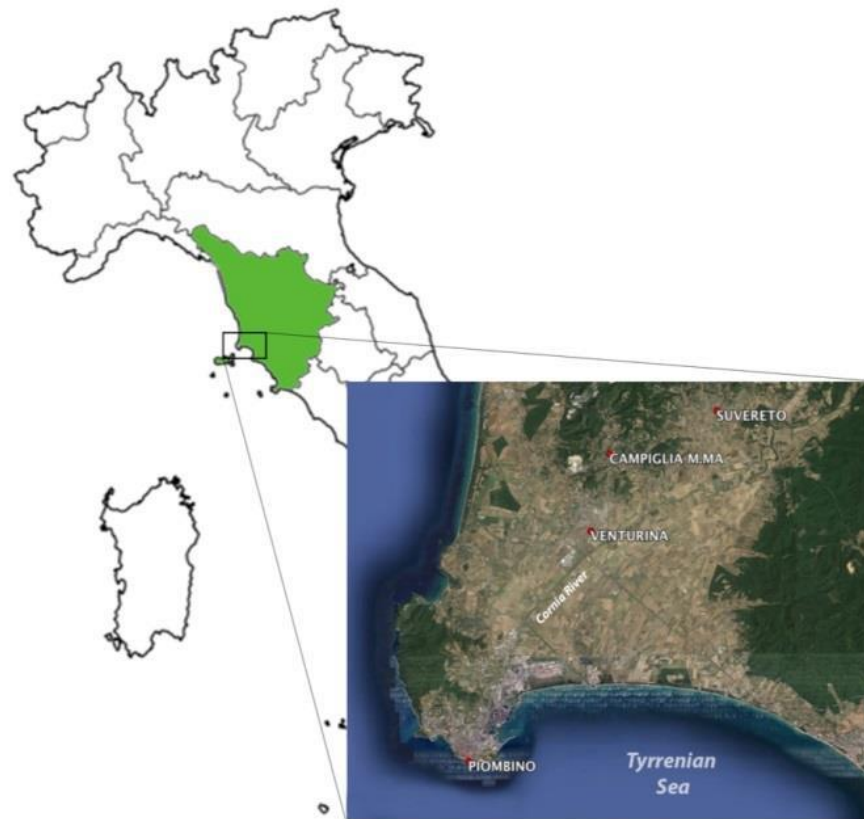
VAL DI CORNIA (Tuscany – Italy)

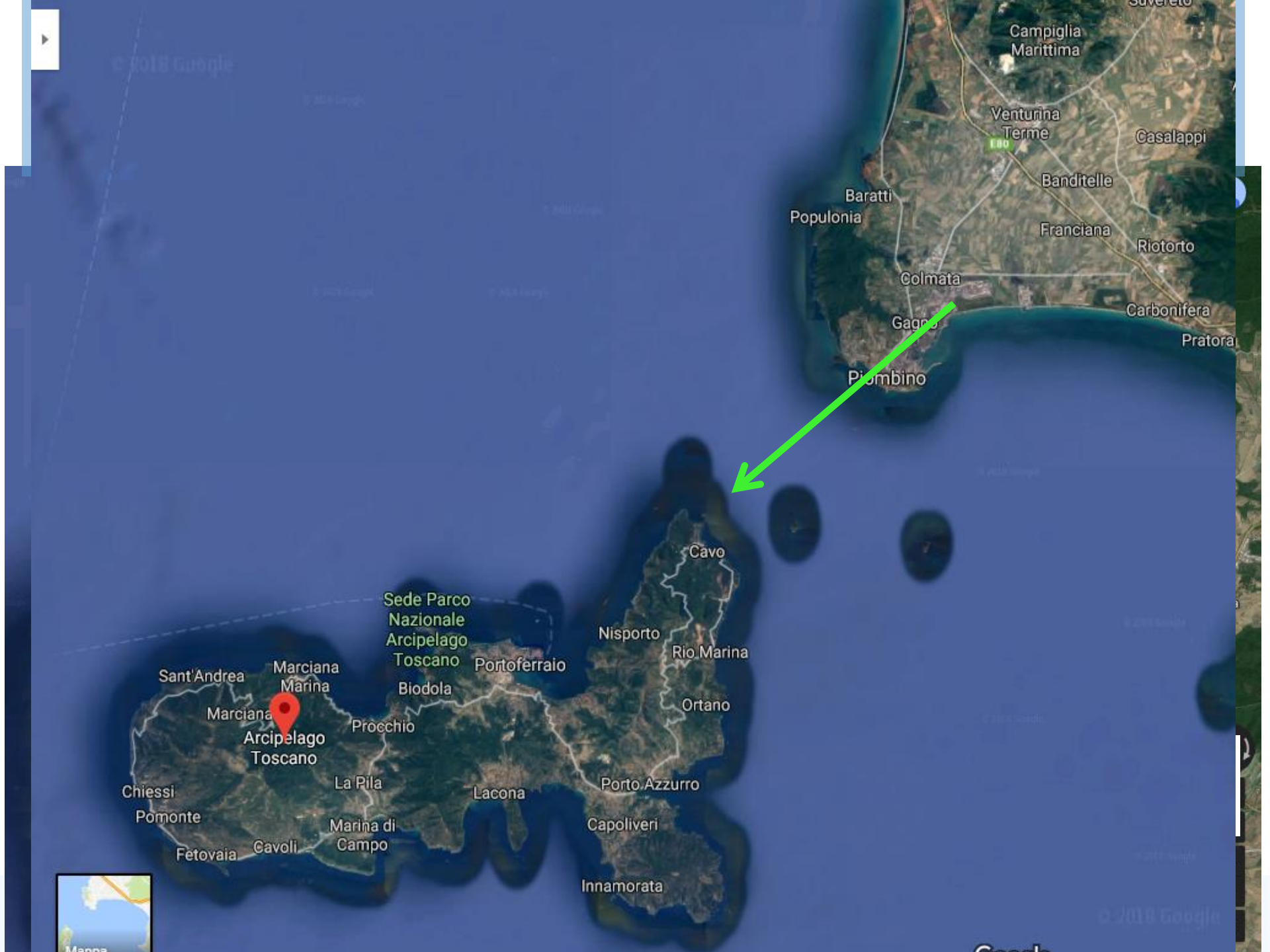
*sustainable WATER management in the
lower Cornia valley through demand
REduction, aquifer REcharge and river
REstoration*

BUDGET

Total amount: 2,278,609 Euro

Start date: 01/10/2015





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Mappa

WHY REWAT?

WATER DEFICIT

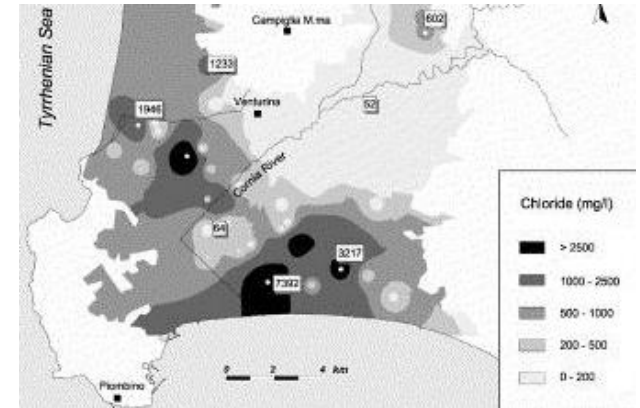
(1970-2000)

8.000.000 m³

GROUND WATER LEVEL DECREASE



SUBSIDENCE



SALTWATER INTRUSION

Highly inefficient
agricultural
water use





Reclamation Authority,
project coordinator.



Sant'Anna
Scuola Universitaria Superiore Pisa

University, scientific and
technical coordination.
Dissemination and
awareness raising



Water utility

Design of demonstrators.
Dissemination



Regione Toscana

Regional Authority,
Bringing decision
making

**CO-
FINANCERS**



Comune di Piombino



Comune di
Suvereto



COMUNE DI
CAMPIGLIA MARITTIMA



1st pillar: PILOT ACTIONS



Precision irrigation



River Restoration



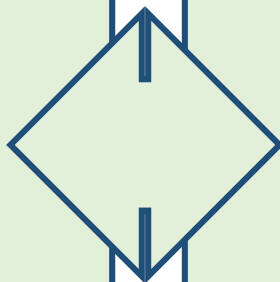
Treated Wastewater Reuse



Managed Aquifer Recharge



Leakage Reduction in Water Distribution systems



2nd pillar: GOVERNANCE



Capacity
building



Participation



Policy





MANAGED AQUIFER RECHARGE

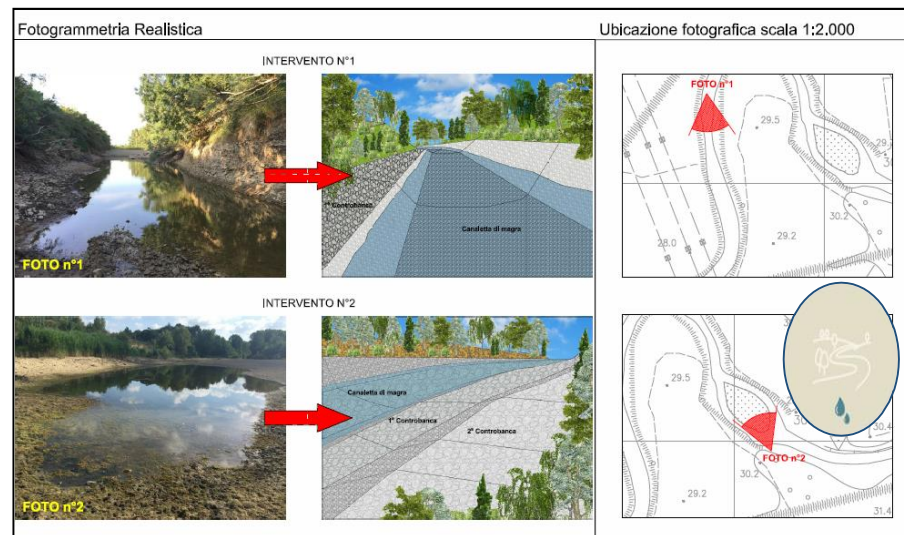


RENDERING VASCA DI SEDIMENTAZIONE E INFILTRAZIONE

Expected results

- Increase storage of max 2 Mm³/y
- Combat saline intrusion
- Testing new Italian regulation on MAR

RIVER RESTORATION



Expected results

- Increase 20% active riverbed
- Longitudinal continuity
- Flood risk reduction

Modeling in REWAT

Expected head increase

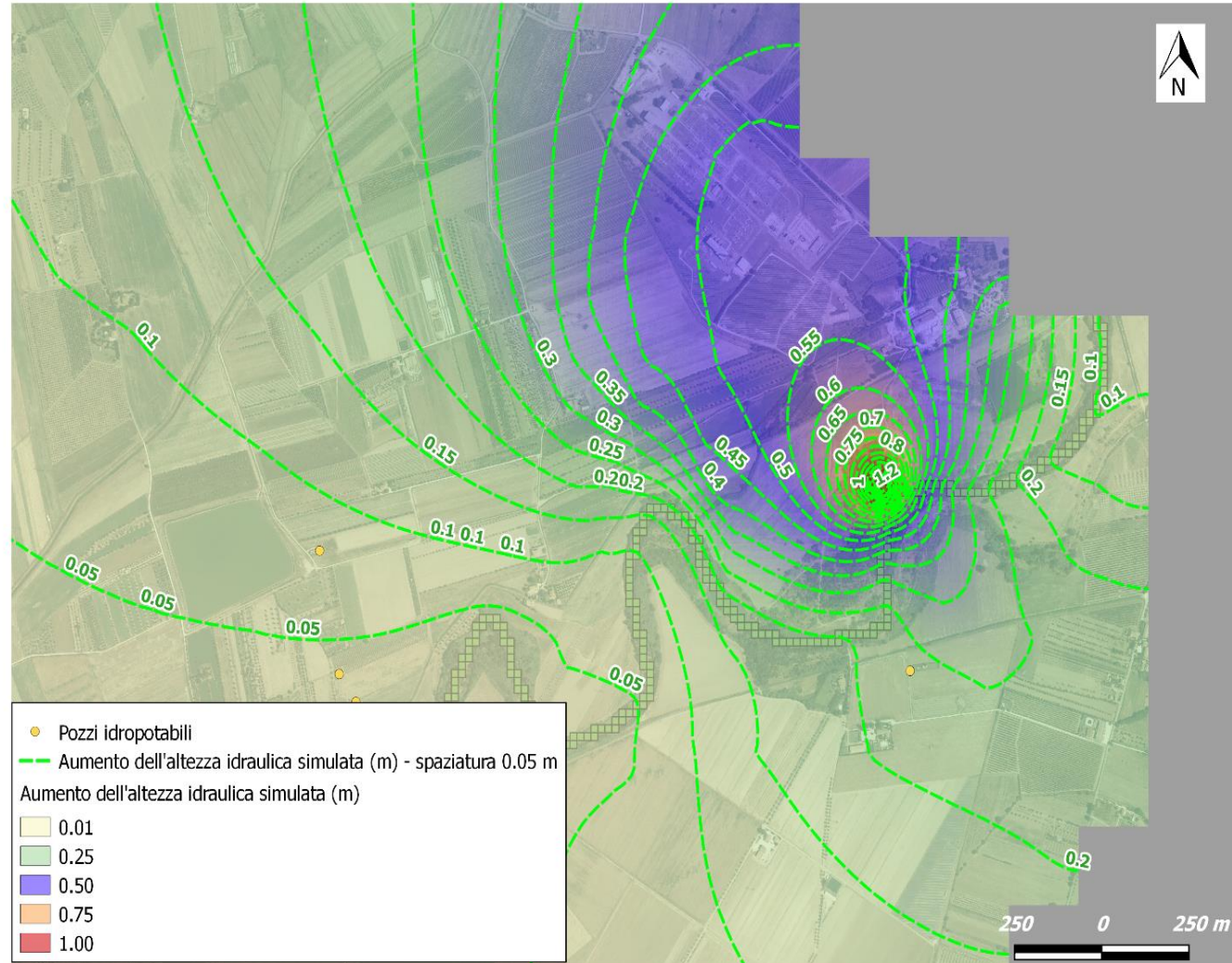


FREEWAT
Free and Open Source Software Tools for Water Resource Management
EU HORIZON 2020 Project

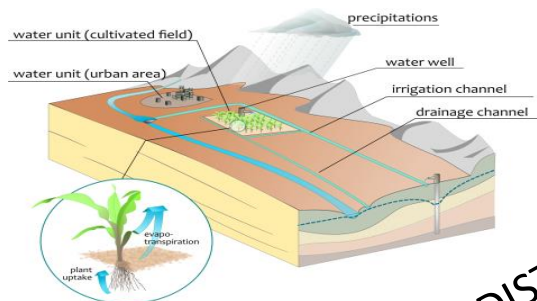
www.freewat.eu

*After 200 days
simulation*

*0.05 m³/s
recharge
($\approx 900k \text{ m}^3$)*



FREEWAT architecture



MODFLOW and Related
Programs (MT3DMS,
SEWAT, UCODE, etc.)

SPACE AND TIME DISTRIBUTED DATA

UPSCALING from
cell results

WATER
MANAGEMENT AND
PLANNING
MODULE

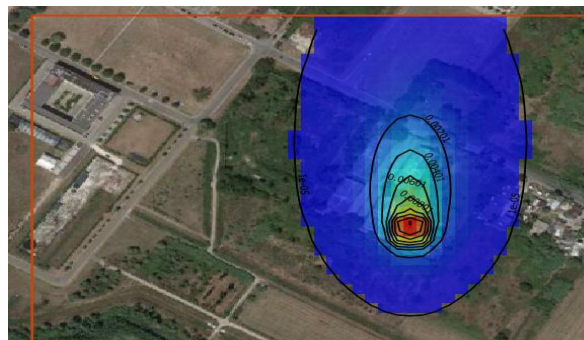
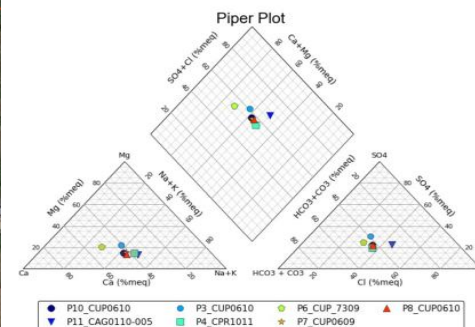
Rural water
management
module

Calibration
Sensitivity
Analysis
Parameter
estimation

Water
quality
simulation
and analysis
tools

Surface and
Groundwater
Flow Simulation

Observation
Analysis Tool



GIS AND SPATIAL
DATABASE

Why this workshop?

Find input for sustainable water resource management of the Val di Cornia

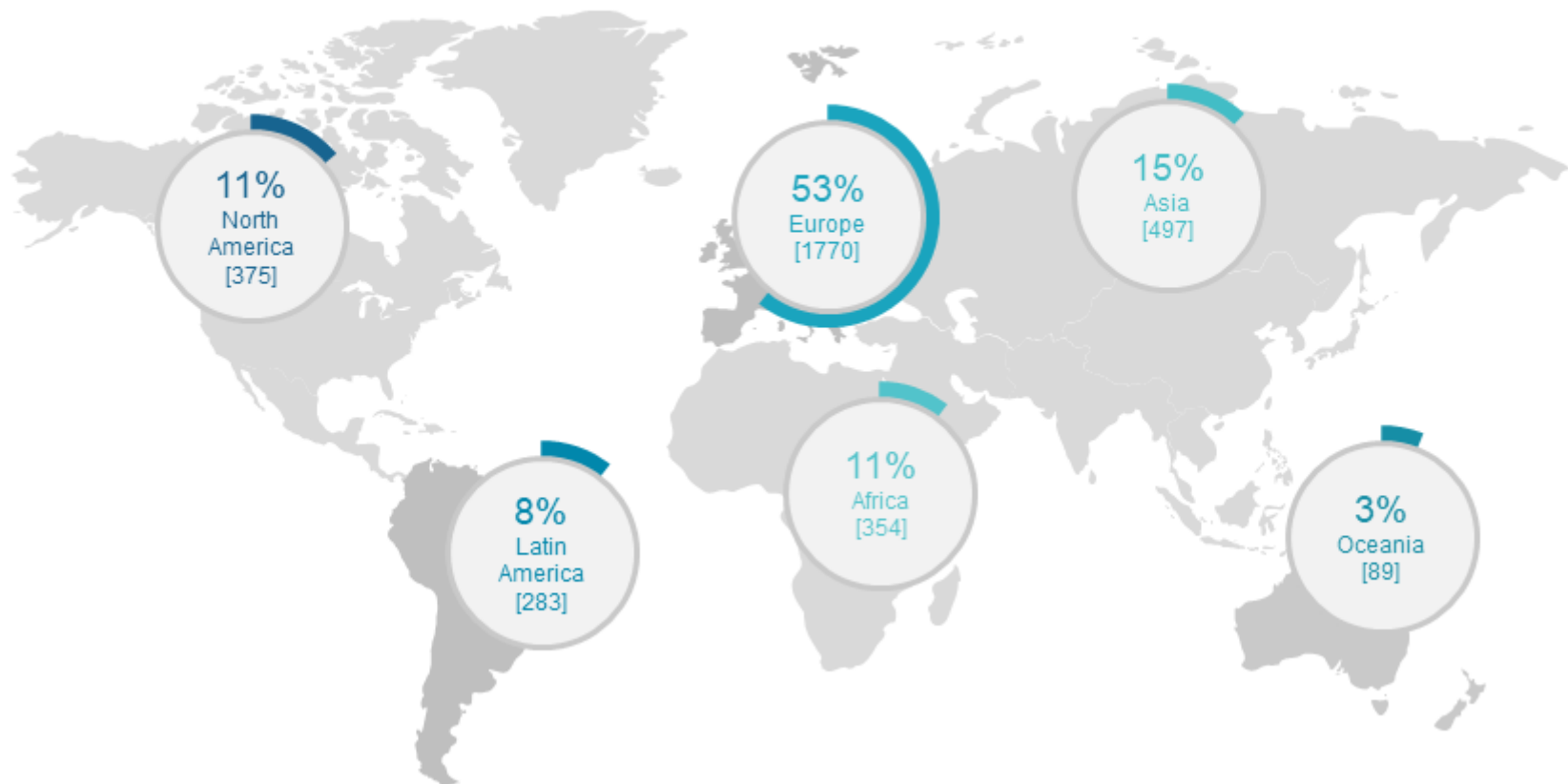
State the importance of ICT tools for water resource management

Check how FREEWAT developed in the last two years

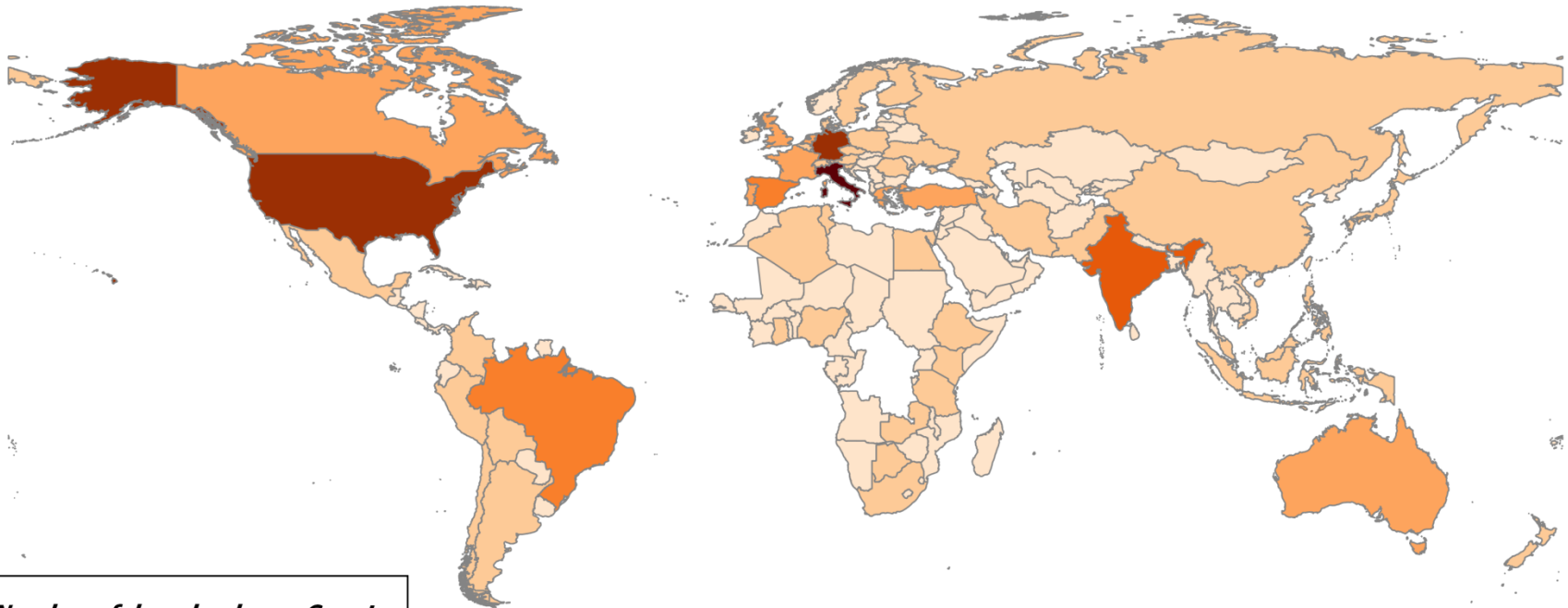
How is it FREEWAT maintenance and development going on

The state of the play/1

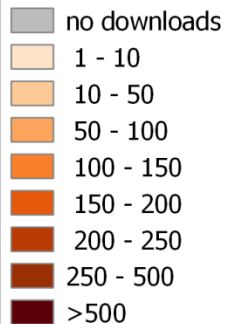
Downloads per continent



The state of the play/2



Number of downloads per Country

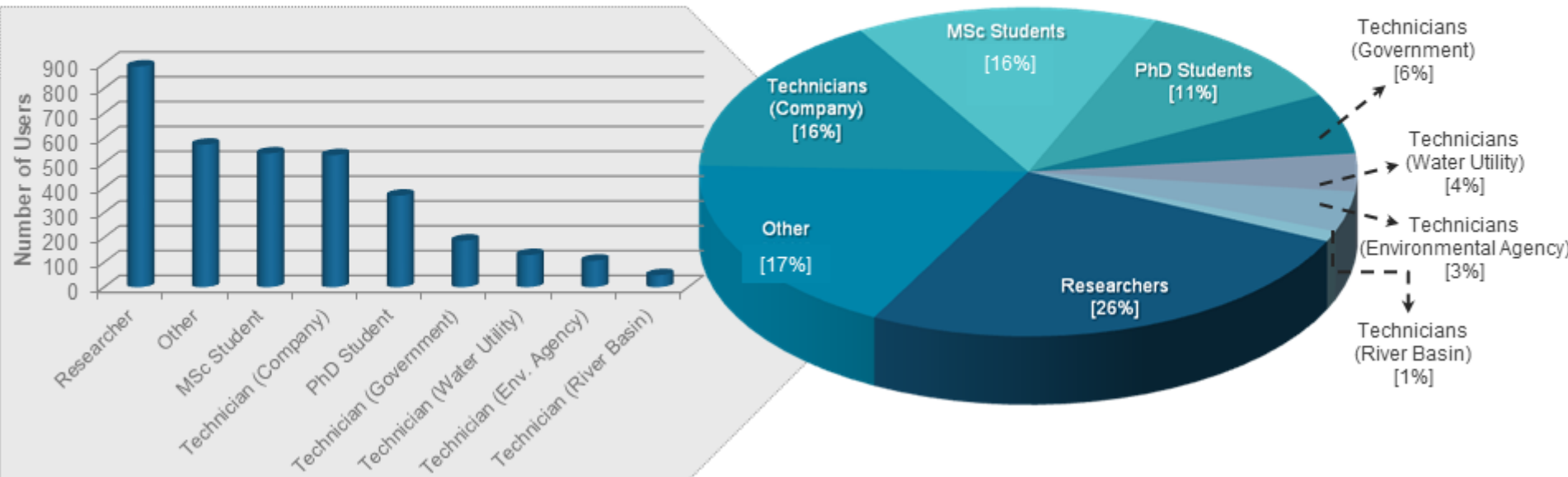


The state of the play/3

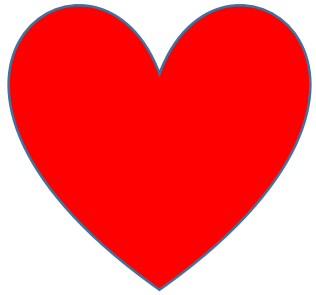
Download purposes



Role of FREEWAT Users



FREEWAT
LOVERS!



WE WANT YOU!

LIFE REWAT project partners



LIFE REWAT project co-financers



Supported by



University of Applied Sciences and Arts of Southern Switzerland

SUPSI



Patronage

