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**DevelopMent AnD application of integrated technological and management solutions FOR
wasteWATER treatment and efficient reuse in agriculture tailored to the needs of
Mediterranean African Countries**

Research and Innovation Action: Grant Agreement n° 688320

Introduction to the project



Madforwater at a glance

- **Societal Challenge:** Climate Action, Environment, Resource Efficiency and Raw Materials (SC5)
- **Topic:** WATER-5c-2014/2015 - Strengthening international R&I cooperation in the field of water. Development of water supply and sanitation technology, systems and tools, and/or methodologies
- **Starting date:** 1 June 2016.
- **Duration:** 4 years
- **Total cost:** 4.039.419 €
- **EU funding:** 2.914.419 €
- **Coordinator:** Dr. Dario Frascari, University of Bologna
- **Co-coordinator:** Dr. Giulio Zanaroli, University of Bologna



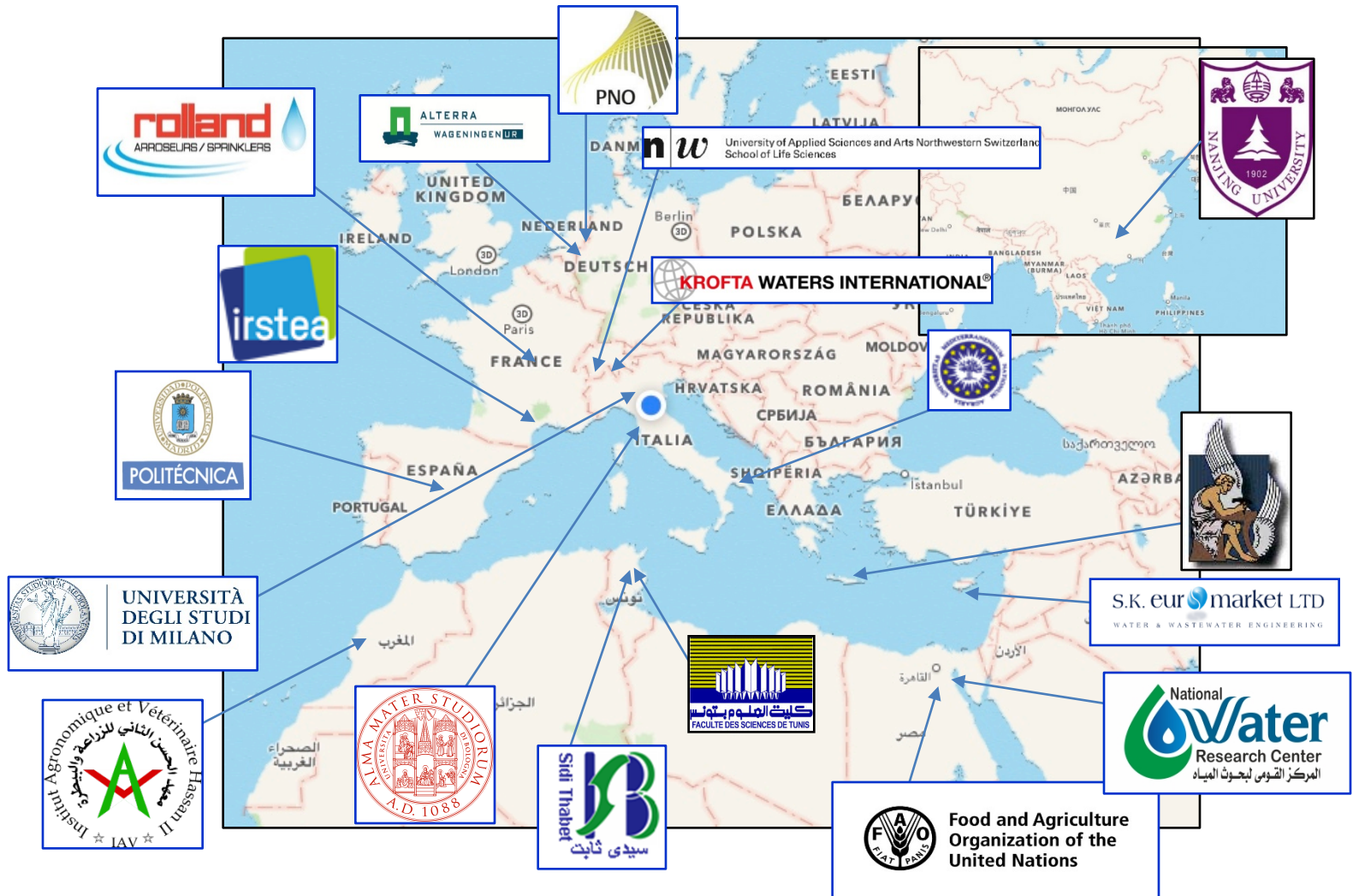
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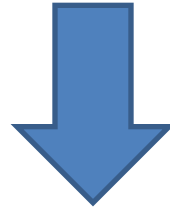
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The Madforwater consortium

- 18 partners: 13 research institutions, 4 SMEs, 1 international organization (FAO)
- 11 countries
- 5 partners from MACs



General goal



To develop an **integrated set of technological and management instruments** for the enhancement of wastewater treatment, treated wastewater reuse for irrigation and water efficiency in agriculture, with the final aim **to reduce water vulnerability in selected basins in Egypt, Morocco and Tunisia.**



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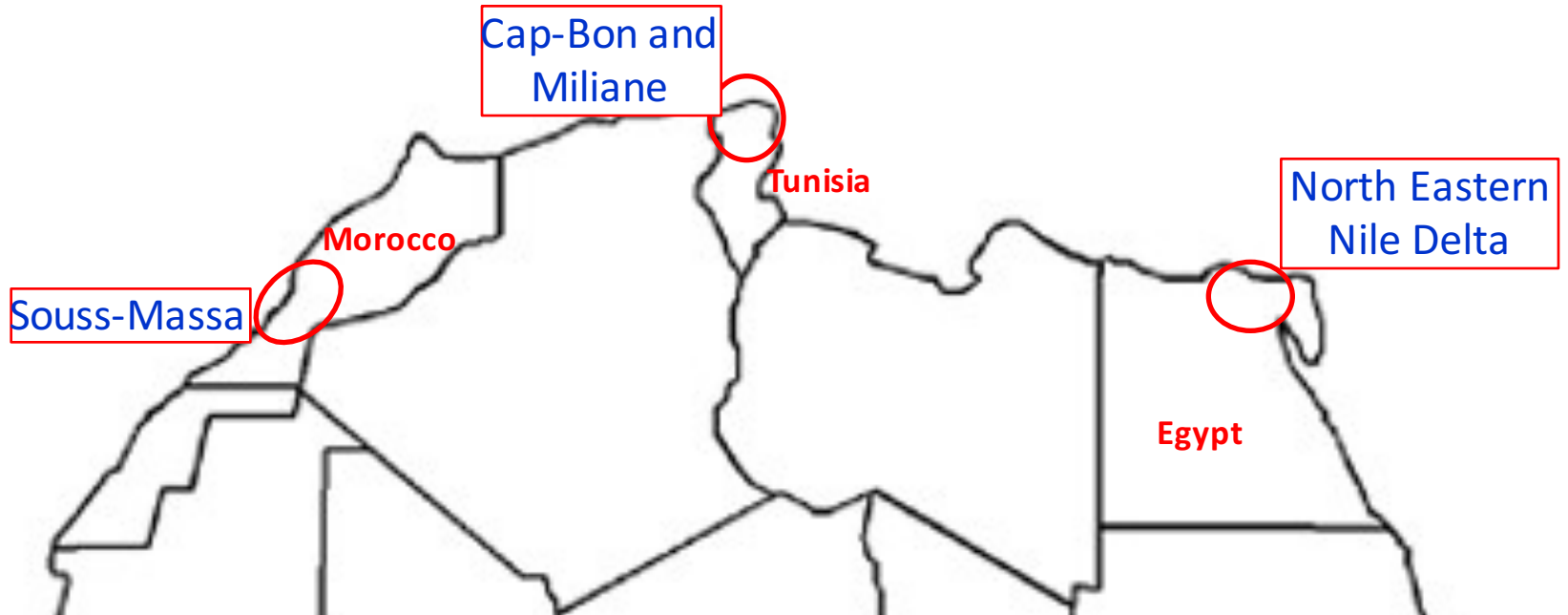
The selected basins



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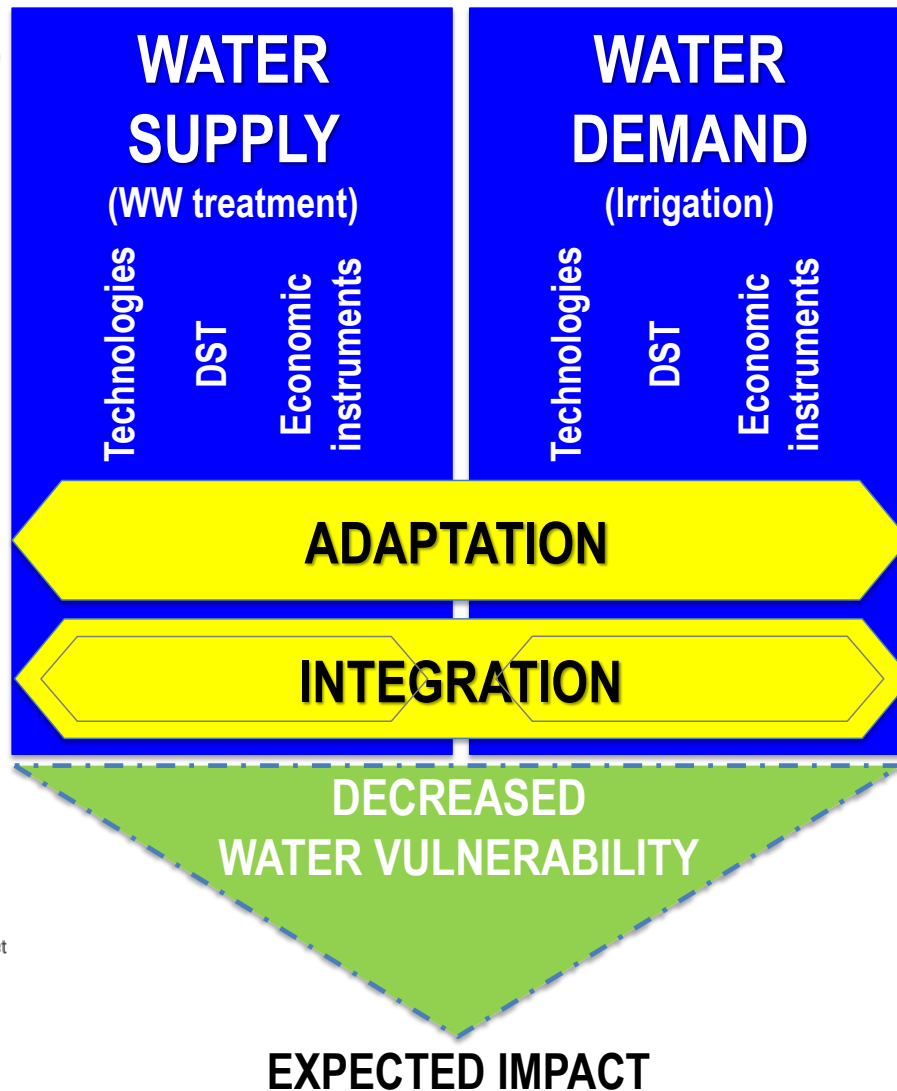
The Madforwater concept



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- Madforwater is based on 2 main pillars: **water supply (wastewater treatment)** and **water demand (irrigation)**
- The actions related to these 2 pillars will be transversally characterized by the concepts of
 - ✓ **adaptation** to the local conditions of the 3 target MACs
 - ✓ **integration** (i) within each pillar, between technologies, water management strategies and economic instruments; and (ii) transversally, between WW treatment and WW reuse for irrigation

Specific objectives and expected results



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IMPROVED IDENTIFICATION OF WATER
VULNERABILITIES SO1

EXPECTED RESULTS:

- Report on the **international cooperation agreements related to water management in the target MACs**
- Country-wide **GIS maps describing water stress, water vulnerability and water reuse potential** in the target countries
- Technical description of the **effects of water vulnerabilities on food security and socio-economic development** in the target MACs
- Basin-scale **water vulnerability assessment framework** for the evaluation of the effectiveness of integrated water management strategies

Specific objectives and expected results



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IMPROVED IDENTIFICATION OF WATER
VULNERABILITIES S01

DEVELOPMENT, ADAPTATION AND
INTEGRATION OF TECHNOLOGIES
FOR WW TREATMENT AND WATER
EFFICIENT USE IN AGRICULTURE

S02

EXPECTED RESULTS:

- **11 wastewater treatment technologies**, tailored to the 3 selected basins and validated at laboratory scale
- **6 technologies for increasing water efficiency and reuse in agriculture**, tailored to 3 selected basins and validated at laboratory scale
- **4 field pilot plants of integrated wastewater treatment and water reuse in agriculture**, operated in the 3 selected basins

Specific objectives and expected results



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IMPROVED IDENTIFICATION OF WATER
VULNERABILITIES S01

DEVELOPMENT, ADAPTATION AND
INTEGRATION OF TECHNOLOGIES
FOR WW TREATMENT AND WATER
EFFICIENT USE IN AGRICULTURE

S02

DEVELOPMENT OF
INTEGRATED
WATER AND LAND
MANAGEMENT
STRATEGIES

S03

EXPECTED RESULTS:

- **2 Decision Support Tools (DSTs)** for the integration of the project technologies for WW treatment and agricultural water & land management
- A set of **integrated strategies for WW treatment and agricultural water management**, with the associated economic instruments, targeted to the 3 selected basins
- **Policy recommendations** for the effective implementation of the proposed water management solutions in the 3 target MACs

Specific objectives and expected results



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IMPROVED IDENTIFICATION OF WATER
VULNERABILITIES SO1

DEVELOPMENT, ADAPTATION AND
INTEGRATION OF TECHNOLOGIES
FOR WW TREATMENT AND WATER
EFFICIENT USE IN AGRICULTURE

SO2

DEVELOPMENT OF
INTEGRATED
WATER AND LAND
MANAGEMENT
STRATEGIES

SO3

INCREASED
CAPACITY
BUILDING IN
MACS

SO4

EXPECTED RESULTS:

- A technical booklet and a set of technical videos on the MADFORWATER WW treatment, efficient irrigation and water reuse technologies
- 3 Stakeholder Consultation Workshops, 2 Capacity Building Workshops, 1 train-the-trainer course, 4 on-field trainings at the project pilots, exchange of scientists, field visits, technical and dissemination videos, 1 final project conference.

Specific objectives and expected results

PROMOTION OF BUSINESS OPPORTUNITIES FOR EU AND MAC COMPANIES



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IMPROVED IDENTIFICATION OF WATER
VULNERABILITIES **SO1**

DEVELOPMENT, ADAPTATION AND
INTEGRATION OF TECHNOLOGIES
FOR WW TREATMENT AND WATER
EFFICIENT USE IN AGRICULTURE **SO2**

DEVELOPMENT OF
INTEGRATED
WATER AND LAND
MANAGEMENT
STRATEGIES

INCREASED
CAPACITY
BUILDING IN
MACS **SO4**

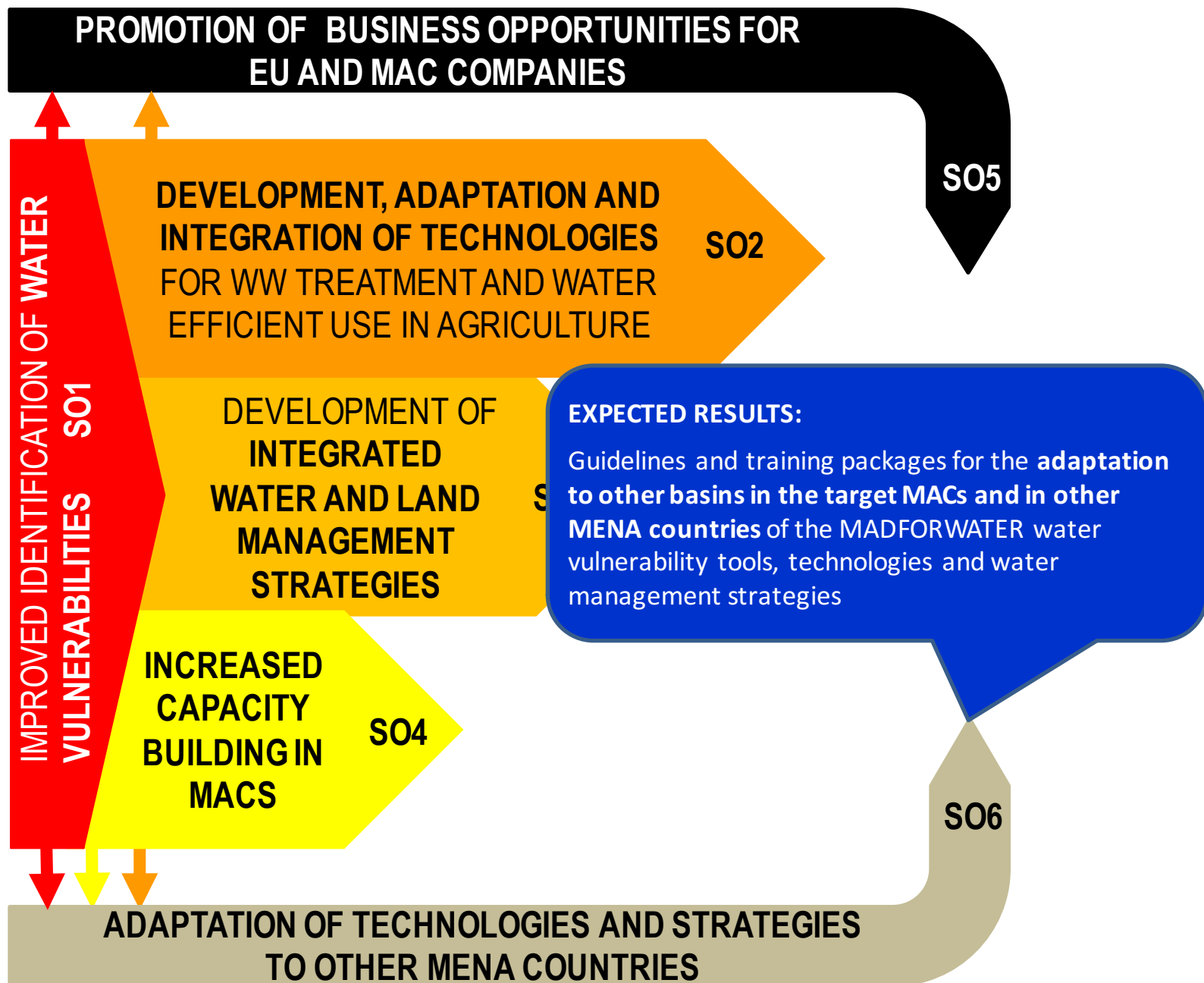
SO5

EXPECTED RESULTS:

An exploitation plan, including

- (i) business plans to foster the market penetration in the target MACs of the MADFORWATER SMEs thanks to the developed technologies
- (ii) strategies for the market expansion in the target countries of EU and MAC water and irrigation enterprises beyond the consortium

Specific objectives and expected results

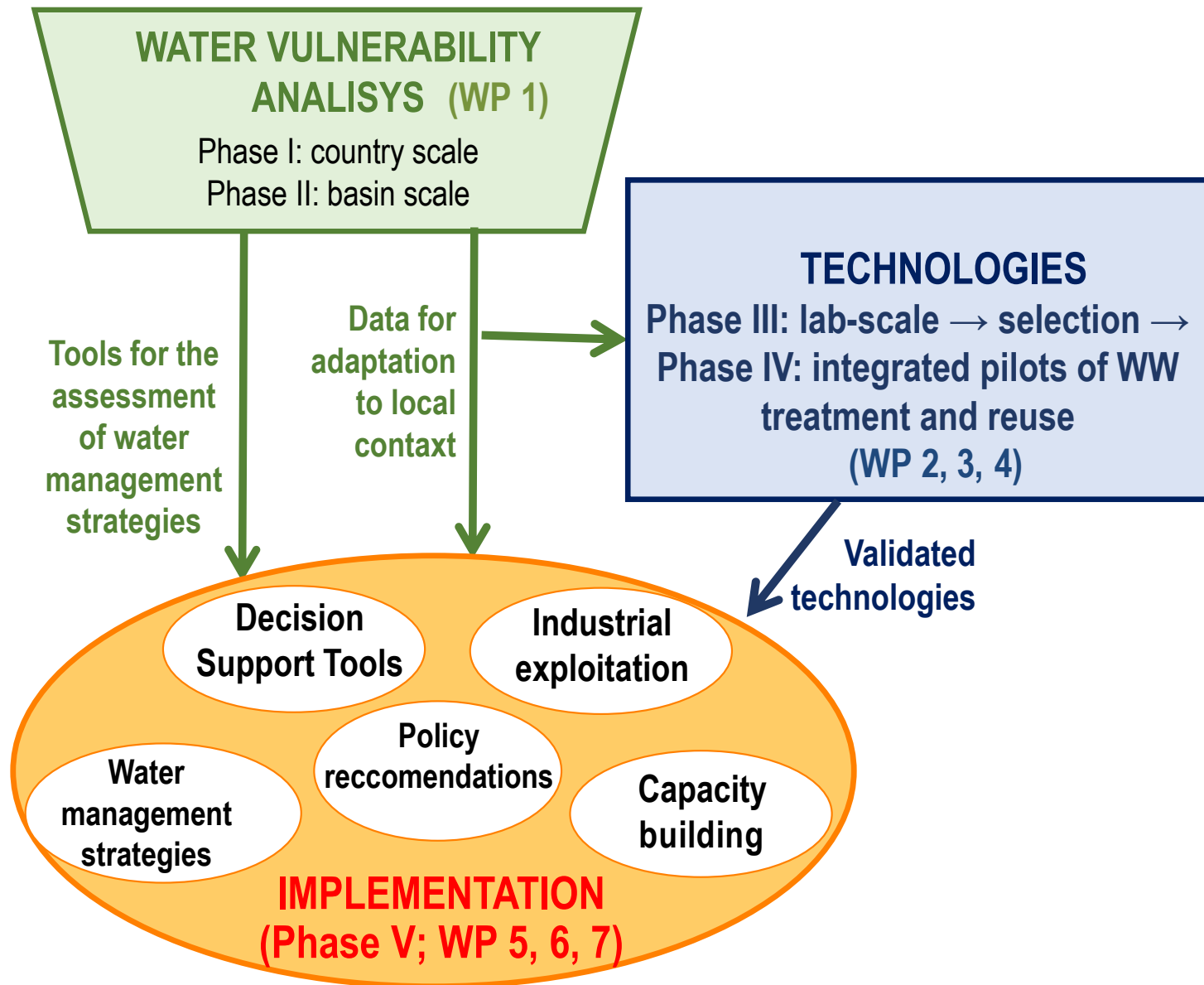


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The Madforwater strategy



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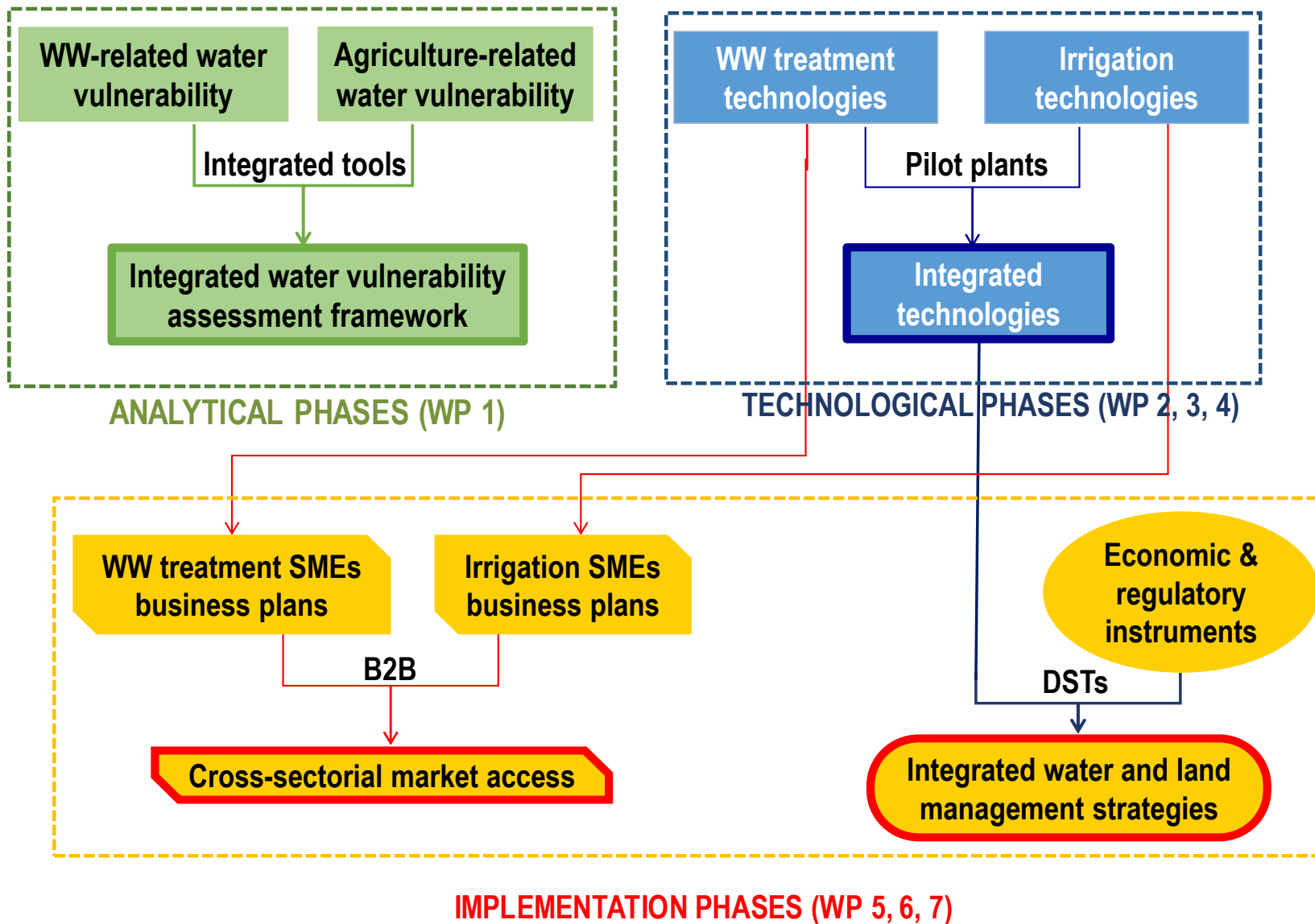
The Madforwater integration strategy



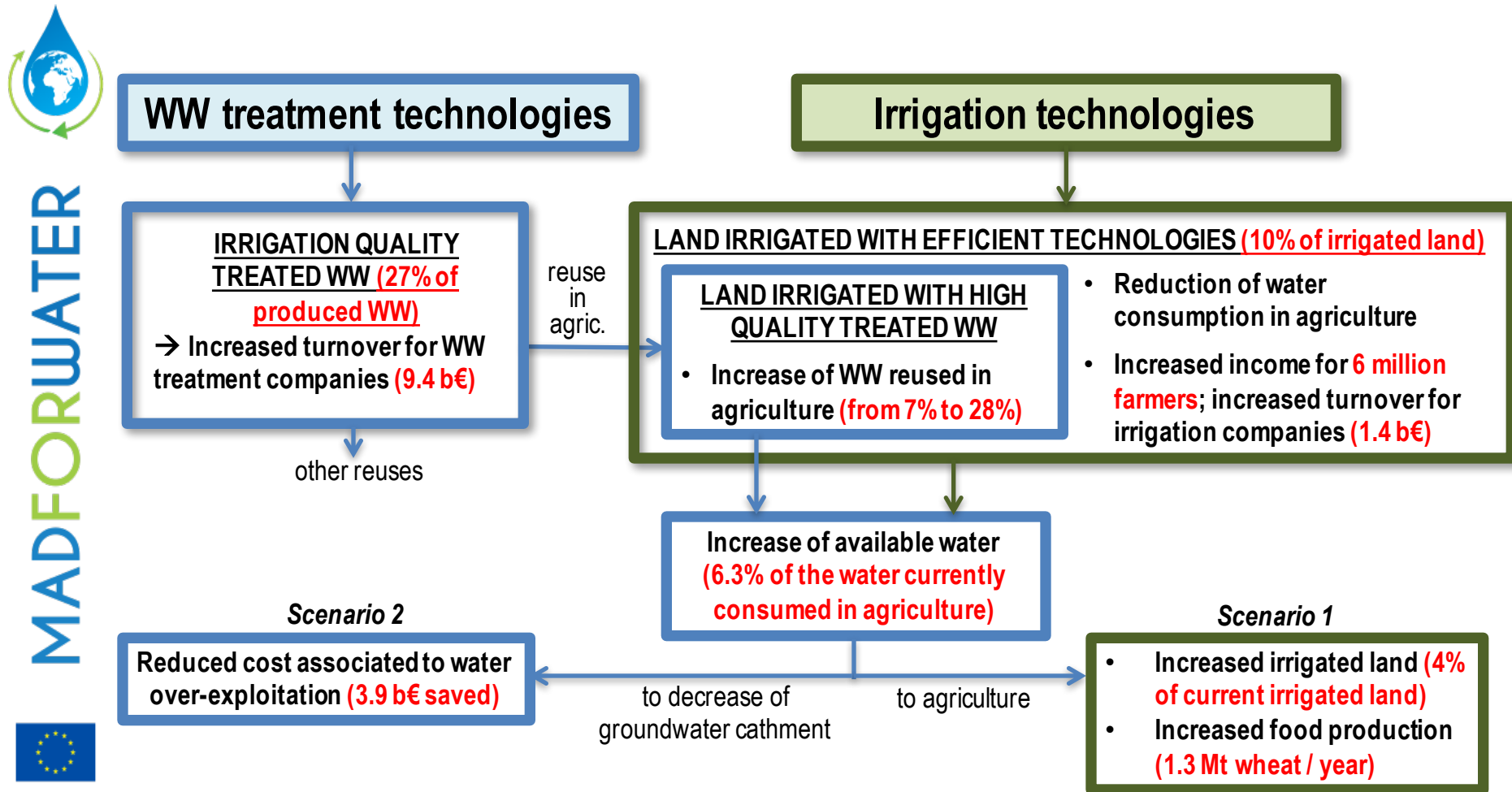
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The expected impact



➤ Estimated impacts referred to 10 years after the end of the project (2030)



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For more information on the project, visit www.madforwater.eu or contact us:

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