



**SUWANU**  
**EUROPE**

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**Network for effective knowledge transfer  
on safe and economic water reuse in agriculture in Europe (818088)**



## Part A

# S.W.O.T. analysis: The case of Thessaloniki, Greece

# Lecturer

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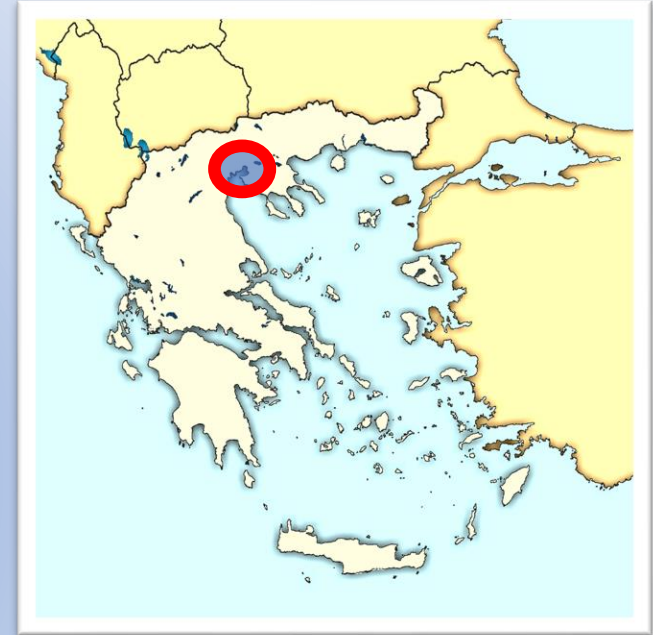


## *Description of the area of Thessaloniki, Greece*

Thessaloniki is the second largest city of Greece.

It is situated at the North of Greece, on the Thermaic Gulf at the northwest part of the Aegean Sea

Thessaloniki Urban Area has a population of 824,676 inhabitants while the Metropolitan Area has 1,030,338 inhabitants



**The province displays the second largest agricultural plain of the country, has abundant surface water bodies (3 rivers, 2 major lakes + the sea) and a considerable number of areas under protection status (Natura2000, National Parks)**

## *SWOT analysis for Thessaloniki, Greece*

*SWOT analysis is a prior step for the development of action plans  
The **opportunities** and **threats** were ranked based on probability and impact.*

*The task team aligned **strengths** and **weaknesses** with opportunities and threats  
to develop the regional strategies.*

### *PEST analysis*

*Complementarily to the SWOT analysis, the opportunities and threats of the  
SWOT were in more detail in a PEST analysis.*

*Thus,*

***Political, Economic, Social, and Technological** aspects were assessed in order to  
understand how they impact on implementation and business opportunities of  
water reuse in agriculture*

### STEPS

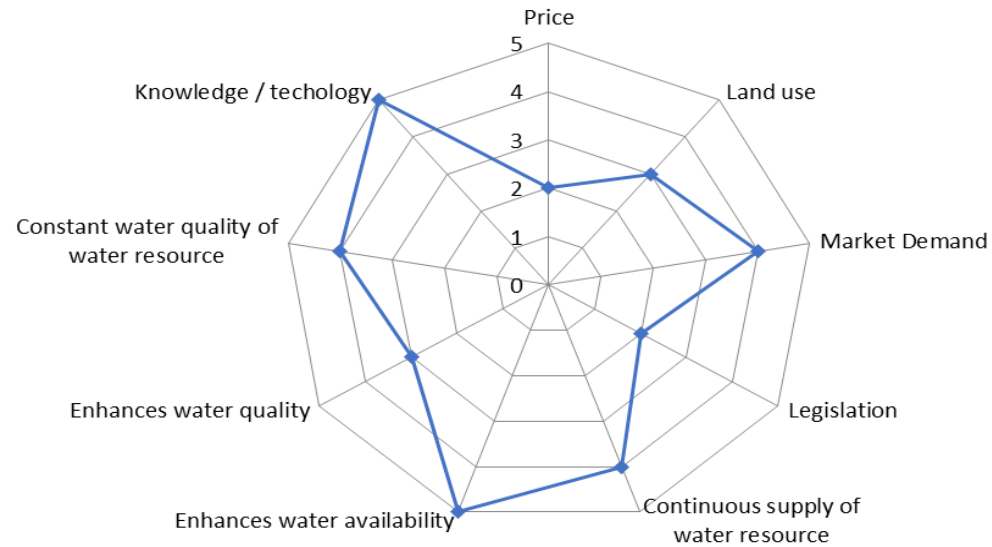
- 1) Questionnaire formation (included grouped SWOT categories)
- 2) Sent to 30 experts in reclaimed water sector (June 2019)
- 3) Experts were asked to evaluate the relevance of the different aspects, classifying them from **1 (not relevant) to 10 (very relevant)**

Academics or researchers, farmers ,  
representatives of local authorities  
and representatives of the private sector

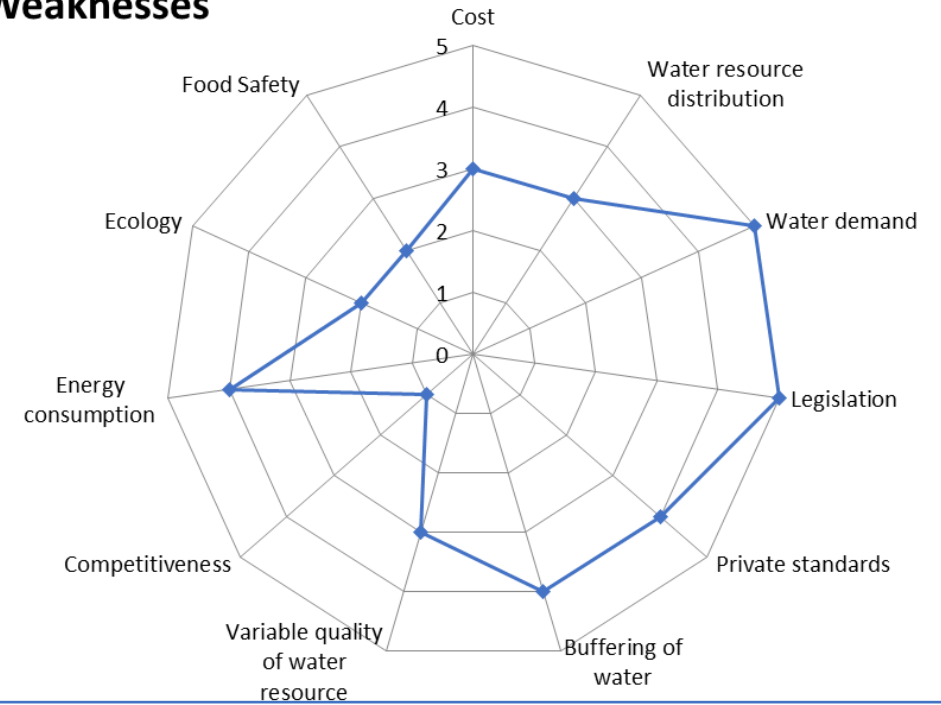
## Opportunities

| General aspects  | Specific aspects                              | GREECE: Thessaloniki Region                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Relevance<br>(1-10) |
|------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Regulations      | European                                      | O. 1.1 European subsidies under Common Agriculture Policy that form a guaranteed economic base for farmers and is strongly influenced by agro-environmental actions.                                                                                                                                                                                                                                                                                                        | 10                  |
|                  | National                                      | O. 1.2 Non-severe restrictions for specific crops cultivated in Thessaloniki such as cotton or crops that normally undergo thermal treatment before human consumption (rice, sugar beet)                                                                                                                                                                                                                                                                                    | 8                   |
|                  |                                               | O.1.3 The National Strategy Frame, as it has been announced by the National Waters Committee, for confronting water resources limitations (scarcity, drought, etc.) foresees policies for developing alternative water resources such as re-use of treated waters                                                                                                                                                                                                           | 9                   |
|                  | Regional / Local                              | O. 1.5 The in force revised Management Plan for Water District 10 predicts measures that refer to extensive water re-use to confront the challenges of water resources deficit                                                                                                                                                                                                                                                                                              | 9                   |
|                  |                                               | O. 1.6 The major water resources manager of the area which is Thessaloniki Water Supply and Sewerage Company SA (EYATH S.A.) is already heavily involved in actions to further exploit the resources that it manages                                                                                                                                                                                                                                                        | 10                  |
|                  |                                               | O. 1.7. The procedures for defining a specific Mussel Growth Area at the estuaries of the three rivers at west of Thessaloniki and the regulations at regional level for controlling the waters quality can lead to measures for enhancing the use or reclaimed water to relieve the pressures from using river flow quantities for irrigation                                                                                                                              | 9                   |
| Economic aspects | Reclaimed water cost compared with freshwater | O. .1.8. A future review of the action plan to restore Lake "Koronia" could predict measures for increasing the use of alternative water resources such as reclaimed water to relieve the pressures for surface and ground water abstractions in the area for irrigation use.                                                                                                                                                                                               | 9                   |
|                  |                                               | O. 2.1 The reclaimed water cost is mainly depended by the quality limits set by legislation and the installed technologies at the WWTPs. It is paid by the wastewater producers (urban population) and thus the merging costs for its re-use in irrigation is that of infrastructure and energy for transfer. In certain areas (east of Thessaloniki) where the irrigation water is pumped from significant depths the reclaimed water is more attractive due to lower cost | 8                   |
|                  | Energy cost                                   | O. 2.2 Significant increase in energy costs generating serious limitations in the use of groundwater in some areas                                                                                                                                                                                                                                                                                                                                                          | 9                   |
| Social aspects   | Public awareness                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8                   |
|                  |                                               | O. 3.1 Implementation of Information & training programmes for farmers on new methods and technologies that lead to better exploitation of the resources used in agriculture                                                                                                                                                                                                                                                                                                | 4                   |

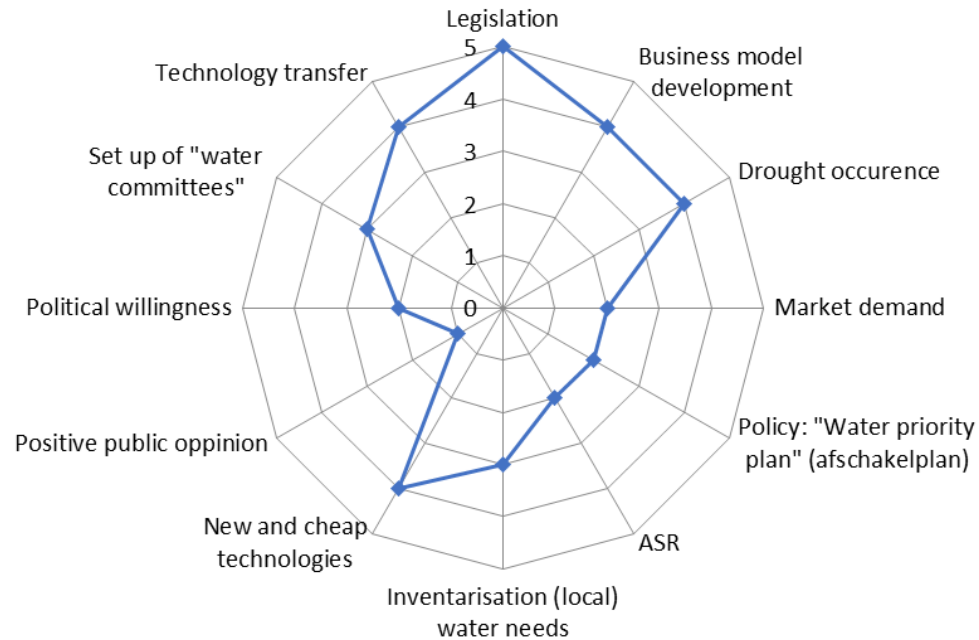
## Strengths



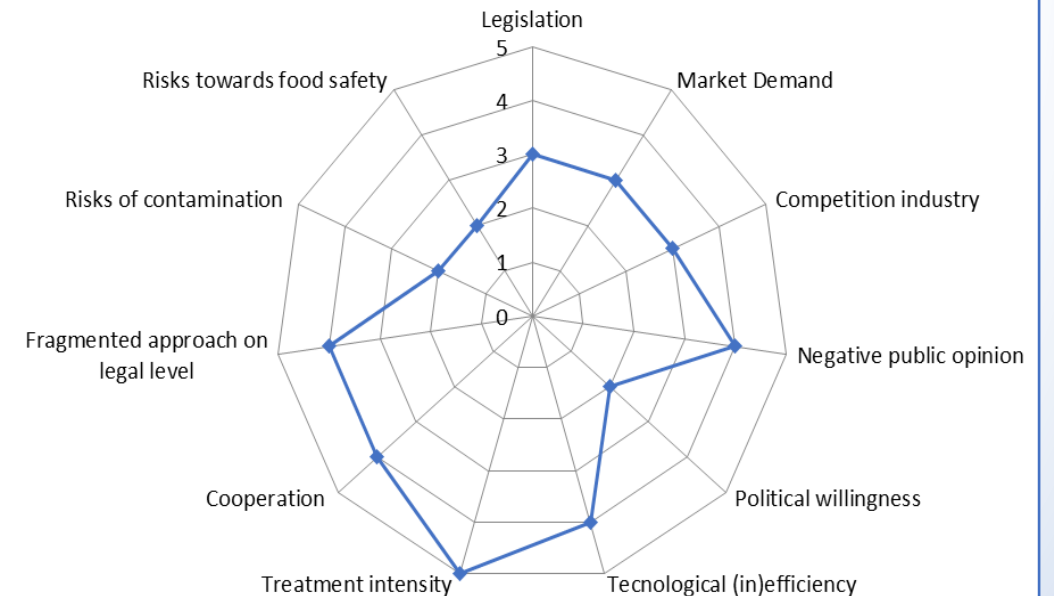
## Weaknesses



## Opportunities



## Threats



## PEST Analysis combined with SWOT.....=> REGIONAL ACTION PLAN !

PEST factors, refer to political (P), economic (E), social (S) and technological (T) determinants

| SWOT<br>PEST                        | Strength<br>(S)                                                                                                                                                                                   | Weaknesses<br>(W)                                                                                            | Opportunities<br>(O)                                                              | Threats<br>(T)                                                                                                        |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Political aspect<br/>(P)</b>     | <ul style="list-style-type: none"> <li>Public policy (e.g. License Scheme)</li> <li>Cooperation between the public and private sectors</li> </ul>                                                 | <ul style="list-style-type: none"> <li>Slow licensing process</li> </ul>                                     | <ul style="list-style-type: none"> <li>Political willingness</li> </ul>           | <ul style="list-style-type: none"> <li>Cyber terrorism</li> <li>Security breach</li> </ul>                            |
| <b>Economic aspect (E)</b>          | <ul style="list-style-type: none"> <li>Economic policies (e.g. Circular economy)</li> <li>Funds for to improve social and physical infrastructure</li> <li>High productivity of water.</li> </ul> | <ul style="list-style-type: none"> <li>High cost WW</li> <li>Unemployment</li> </ul>                         | <ul style="list-style-type: none"> <li>EU circular economy</li> </ul>             | <ul style="list-style-type: none"> <li>Contamination event trigger reaction against WW</li> </ul>                     |
| <b>Social aspect<br/>(S)</b>        | <ul style="list-style-type: none"> <li>Educational system (e.g. availability of labor)</li> <li>Good vertebrate in rural areas urban-farmers</li> </ul>                                           | <ul style="list-style-type: none"> <li>farmers are older generation are computer illiterate</li> </ul>       | <ul style="list-style-type: none"> <li>Environmental concerned society</li> </ul> | <ul style="list-style-type: none"> <li>'Urban' society against irrigation (loving more ducks than farmers)</li> </ul> |
| <b>Technological aspect<br/>(T)</b> | <ul style="list-style-type: none"> <li>Tech based farm sector Innovation</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>Some urban government are business unfriendly</li> <li>...</li> </ul> | <ul style="list-style-type: none"> <li>Low cost technologies</li> </ul>           | <ul style="list-style-type: none"> <li>Technical problems will disrupt the entire networks</li> </ul>                 |



**SUWANU EUROPE**  
is a project of the  
**Horizon 2020**  
program focused  
on the use of  
reclaimed water  
for agricultural  
irrigation

**Part B:**

## **Development of a Regional Action Plan for the rapid implementation of the reuse of reclaimed water to irrigate crops at the Region of Thessaloniki, Greece**

## M.Sc.- George Ziankas

Forester – external collaborator of ANETH S.A.

- ✓ Project management (E.U. and international cooperation)
- ✓ Development of Strategies for sustainable rural development
- ✓ Member of the Local Action Group of the CLLD program
- ✓ Experience in liquid & solid wastes management



# Presentation Outline

1. Basic working hypotheses for the elaboration of all Regional Action Plans
2. Critical Strategy Aspects for all Regional Action Plans
3. Basic framework for the elaboration of all the Regional Action Plans
4. Basic principles taken into consideration for Thessaloniki R.A.P.
5. Basic steps of Thessaloniki Regional Action Plan



# Main Objective : derived from the General Plan

## (Task 2.3: General Action Plan- University of Cyprus)

### PRIME GOAL

*To the increase use of the reclaimed water in agriculture, resulting in a more resilient agricultural sector, in order to cope with water scarcity and climate change effects.*



# Critical Strategy Aspects for all Regional Action Plans

## Social perception

- the weakness / threat is the perception of health and product risk when crops are irrigated with reclaimed water while on the contrary, the support for the use of reclaimed water as an alternative resource of water is an opportunity as a way to fight against the climate change or water scarcity. This antagonism should be managed in the regional strategy.

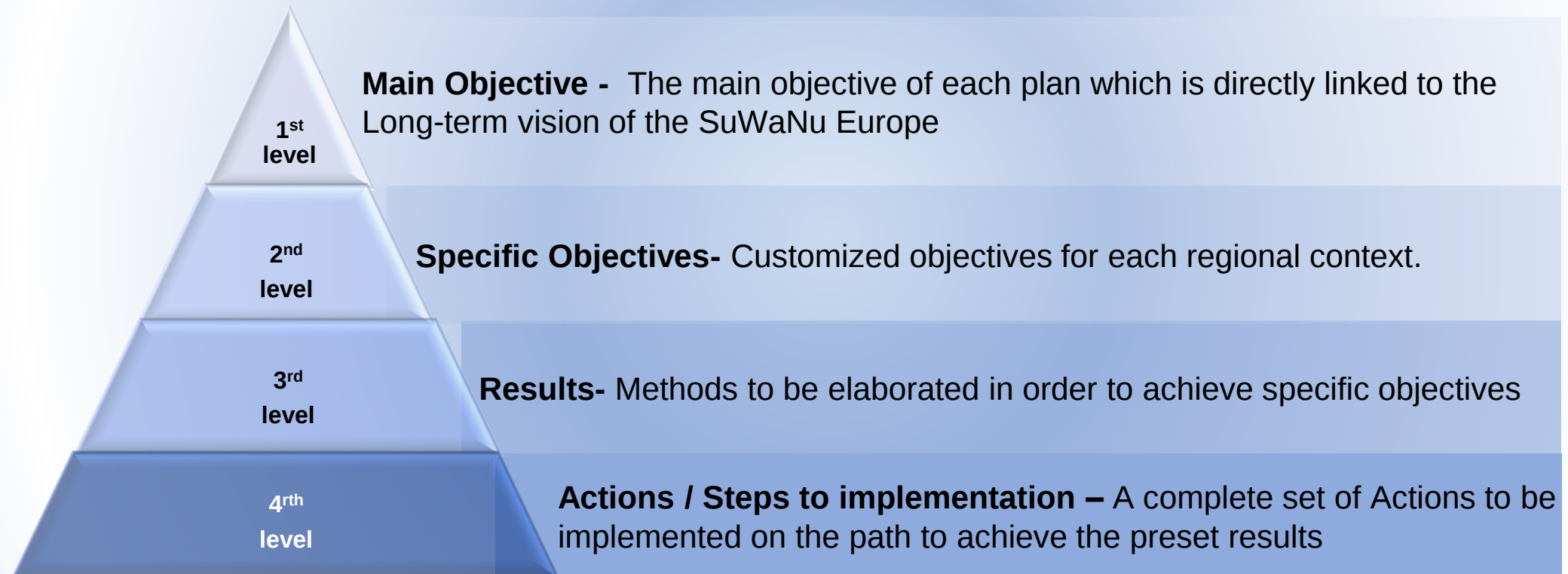
## Reclaimed water costs

- the cost of producing reclaimed water and to transport water from the WWTP to the irrigated crop is seen as a weakness / treat as many crops cannot support this cost when compared to conventional sources (if conventional sources are available).

## Regulation framework

- some countries have already certain regulations for the use of reclaimed water and the proposal of an EU regulation is seen as an opportunity.

# Basic framework for the elaboration of all the Regional Action Plans



# Basic principles taken into consideration for Thessaloniki R.A.P.

## The reuse of reclaimed water for irrigation is a realistic option

Contributes to mitigation of climates fluctuation

Represents a reliable and constant water resource

Represents an excellent alternative for effluent disposal

Offers better value for money spend on water sanitation

## Current problems regarding water resources in Thessaloniki

Fault or inadequate or outdated design of irrigation networks

Miss- management of the water resources

Extreme climatic conditions - drought

## Reasons that raise unrest for irrigators at Thessaloniki

Climate Fluctuation

Safety requirements in order to continue present / future production

Possible market –driven crops change with increased water needs

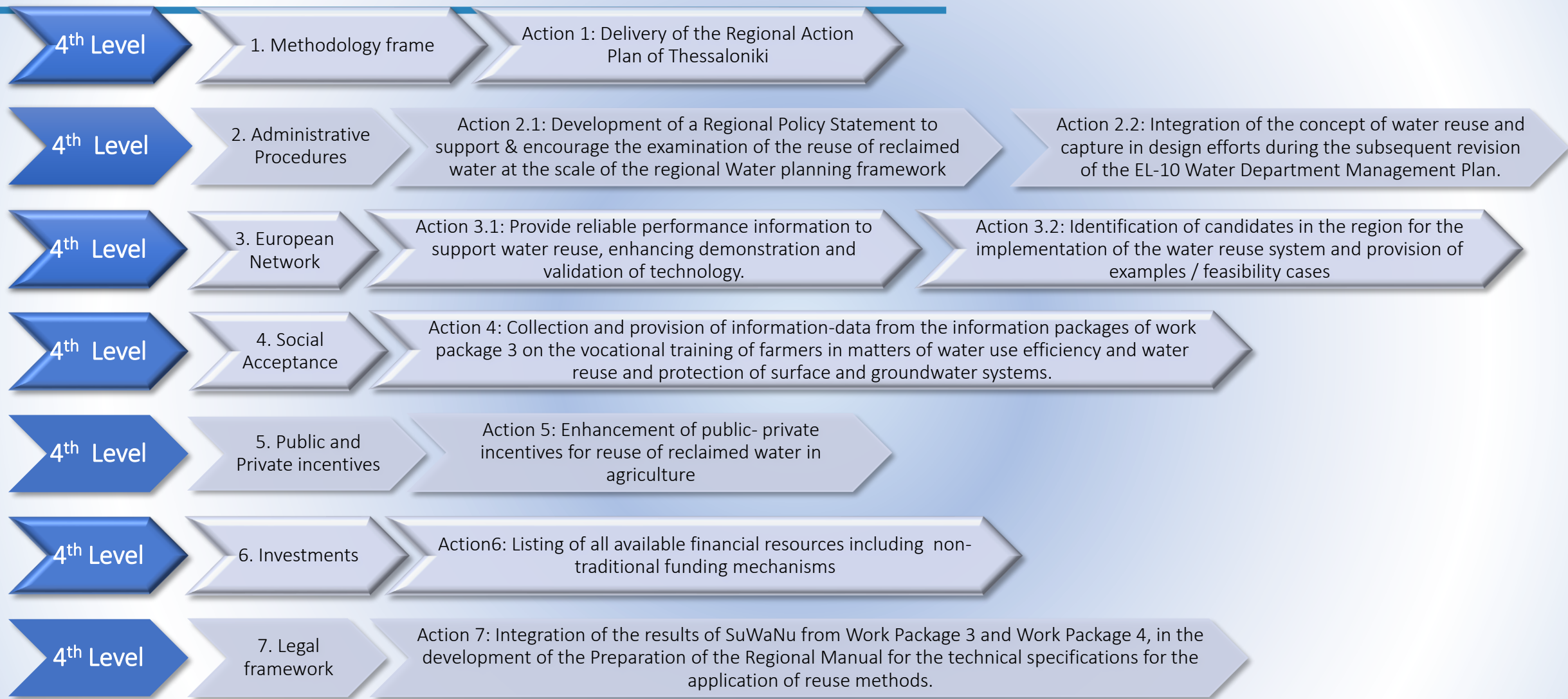
Increased pressure for water from other sectors

## A build up water resources reserves in needed

First water reserve: reduction of excessive use / rational management

Second water reserve: reclamation of wastewater

# Basic steps of Thessaloniki Regional Action Plan



# CONTACTS

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