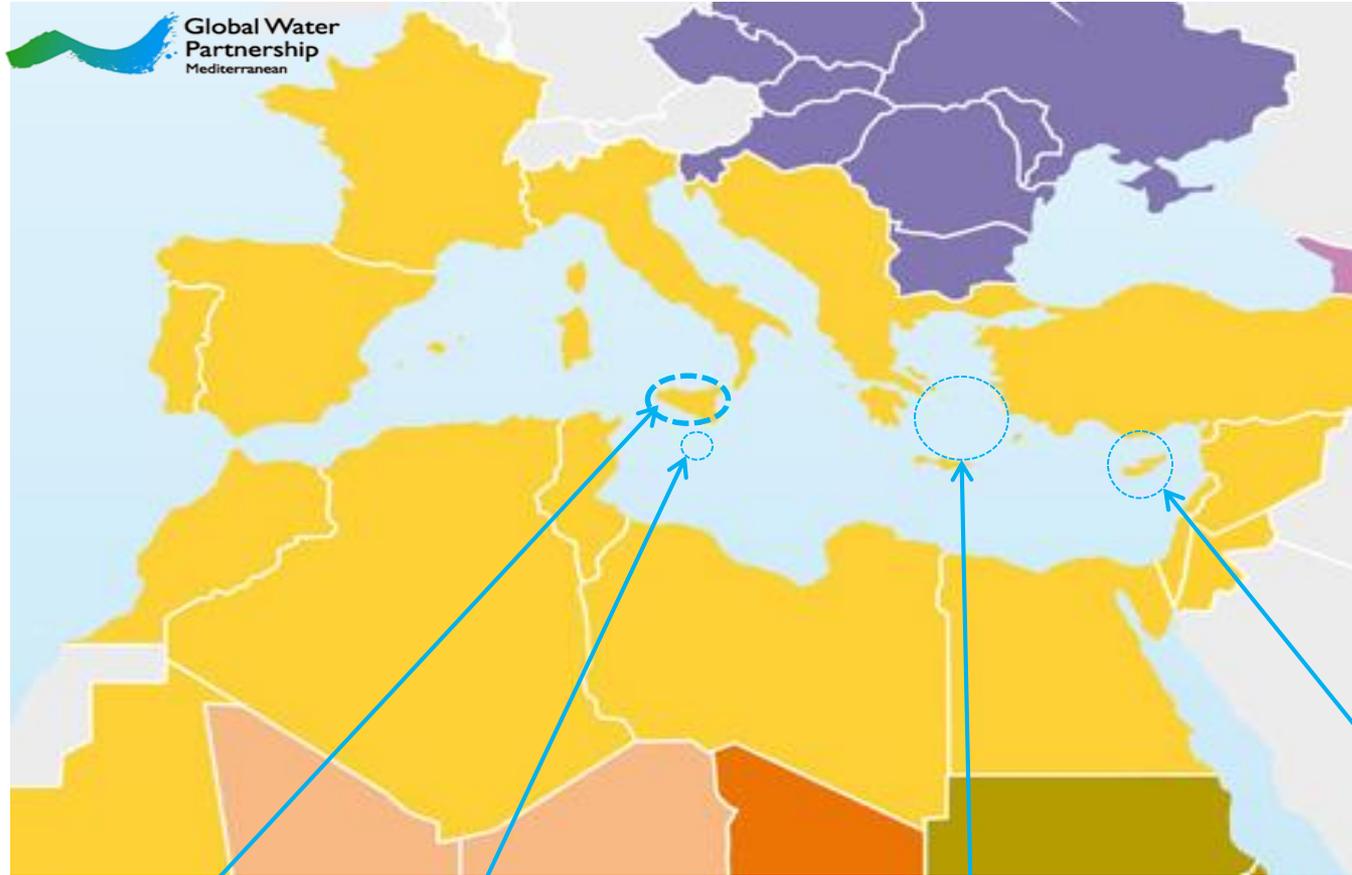


# Rainwater Harvesting in the Mediterranean Islands: cases and lessons learned

**KONSTANTINA TOLI**  
Global Water Partnership - Mediterranean  
Programme Officer - Head of European Union

# GWP-Med Geographical Scope & current NCWR programmes



## Key features

- Insular communities
- Severely water stressed
- Main economic activities: tourism and agriculture

**Italy, Sicily  
(2014-2018)**

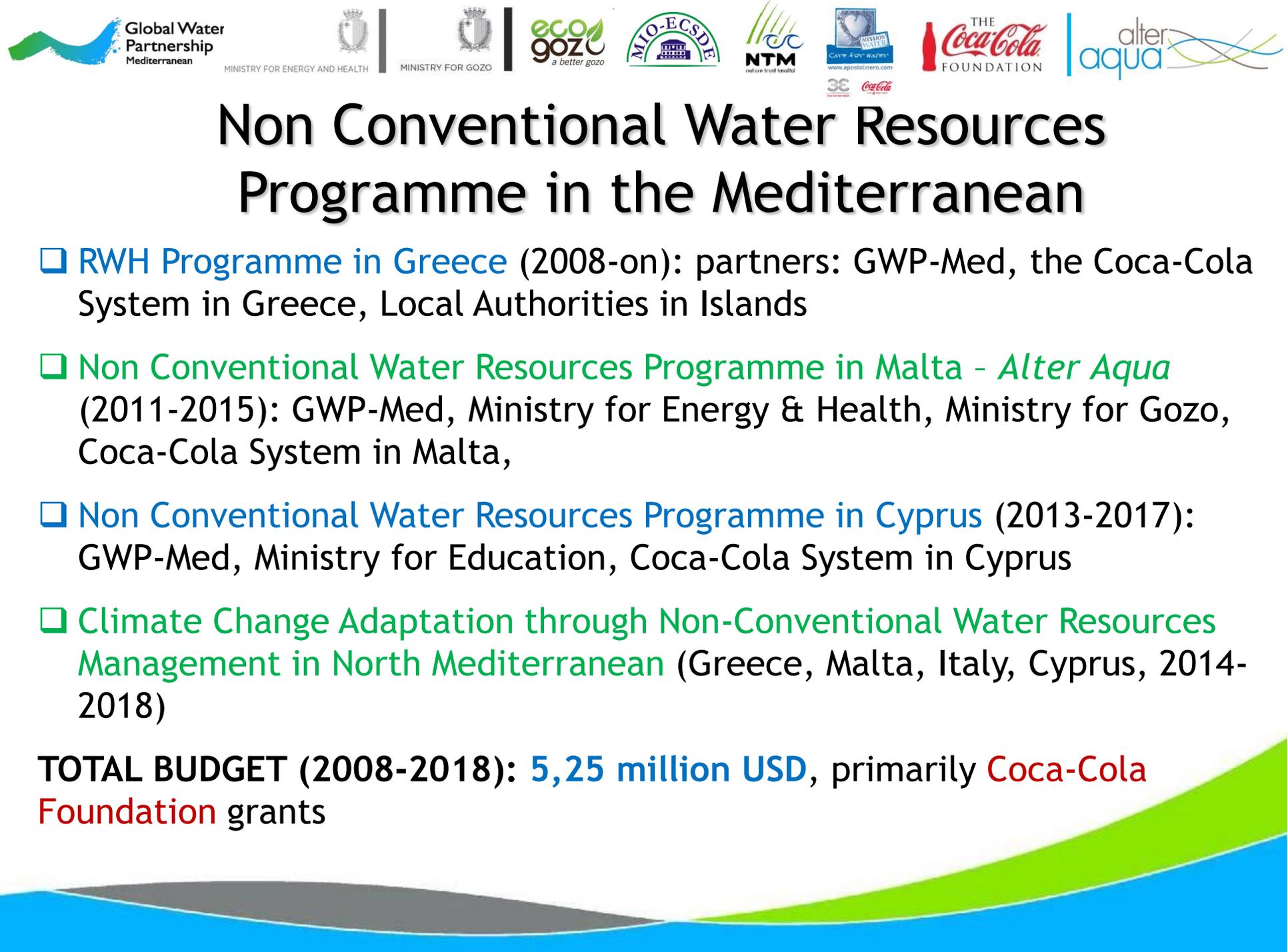
**Malta  
(2011-2015)**

**Greece, Cyclades &  
Dodecanese Islands (2008-on)**

**Cyprus  
(2013-2017)**

# Rainwater Harvesting & Non Conventional Water Resources Programmes in the Mediterranean

- A **multistakeholder programme** bringing together the Global Water Partnership-Mediterranean (GWP-Med), institutional stakeholders in the countries and the Coca-Cola Company/Coca Cola Foundation.
- **Holistic approach** resulting both to tangible outcomes towards joint local and regional sustainable development objectives and a new water culture.



# Non Conventional Water Resources Programme in the Mediterranean

- ❑ **RWH Programme in Greece** (2008-on): partners: GWP-Med, the Coca-Cola System in Greece, Local Authorities in Islands
- ❑ **Non Conventional Water Resources Programme in Malta - Alter Aqua** (2011-2015): GWP-Med, Ministry for Energy & Health, Ministry for Gozo, Coca-Cola System in Malta,
- ❑ **Non Conventional Water Resources Programme in Cyprus** (2013-2017): GWP-Med, Ministry for Education, Coca-Cola System in Cyprus
- ❑ **Climate Change Adaptation through Non-Conventional Water Resources Management in North Mediterranean** (Greece, Malta, Italy, Cyprus, 2014-2018)

**TOTAL BUDGET (2008-2018): 5,25 million USD**, primarily **Coca-Cola Foundation** grants

# Non Conventional Water Resources Programme in the Mediterranean

- ❑ Aims at **promoting Non-Conventional Water Resources Management (NCWRs)** and especially rain and stormwater harvesting and grey water reuse as cost effective practices for water availability and climate change adaptation at local level.
  
- ❑ The Programme's **objectives** are:
  - To demonstrate different **RWH/NCWR techniques** through pilot applications
  - To **train teachers** to educate students on NCWR, and increase awareness on sustainable water use
  - To enhance the **capacity of the local authorities** on NCWRM & IUWM
  - To **train local technicians** on the application of modern NCWR systems and materials, and build their capacity to install and/repair such systems and share their expertise at local level.
  - To promote **multi-stakeholder partnerships** for local NCWR initiatives.
  - To promote **knowledge and sharing of experiences** on aspects of integrated approached to urban water management.
  - To advance **regional dialogue** among Mediterranean countries on how to mobilise NCWR.

# Non Conventional Water Resources Programme in the Mediterranean

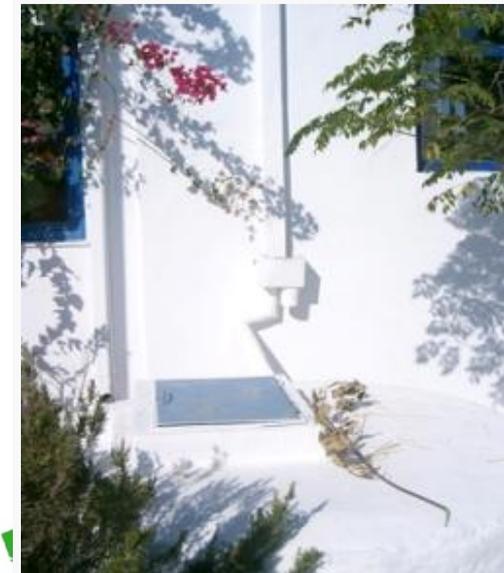


# RWH in the Mediterranean

Rainwater harvesting in the Mediterranean islands is an **ancient practice** for water availability.

RWH is acknowledged as a **non-regret measure for climate change adaptation** at local level

- **RWH Applications:** Installation or reinstatement of innovative or traditional **rainwater and stormwater harvesting systems** in public buildings in urban and peri-urban areas, as well as in rural areas;
- **Key elements:** site specific, innovative, replicable solutions, adapted to local needs



# RWH in the Mediterranean

Gozo, MT

Kastellorizo, GR

Ramla Valley, Gozo, MT



# RWH in the Mediterranean

**Monitoring:** quantity control (analogue meters); quality control: not applied

**Water reuse:** secondary uses, including toilet flushing, landscaping, irrigation, farming



# RWH in the Mediterranean

## Policy framework:

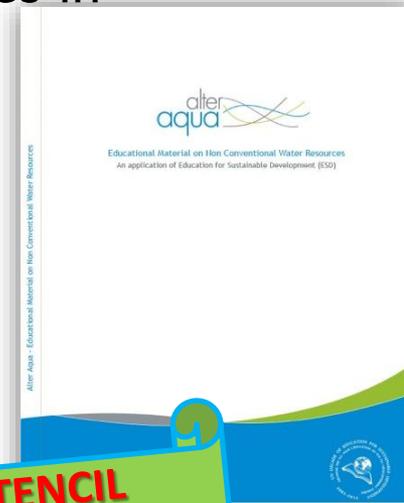
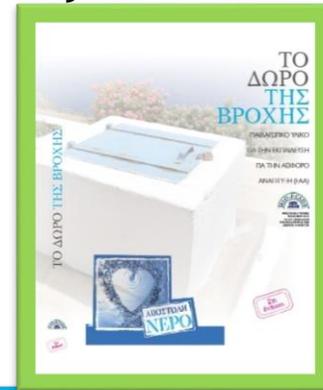
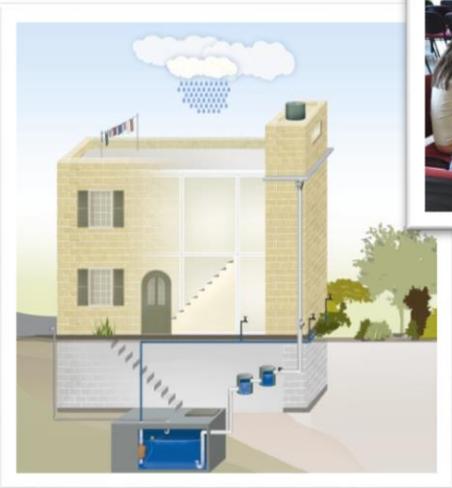
**Greece:** RWH is mandatory for water scarce islands (dependent on water transfers). Old houses used to have cisterns. All new buildings need to have a RWH reservoir; size relates to the surface area of the house - unfortunately not applied in many cases. Subsidies are not in place.

**Malta:** Revision of current water policy includes evaluation of RWH potential at domestic level. Based on current results, subsidies and other incentives will be considered through the *New Water Management Plan for the Maltese Islands*, coupled with demand management measures and utilization of other non conventional water resources (e.g greywater reuse)

# RWH/NCWR Med: Educational Activities

## II. Educational and Training Programme:

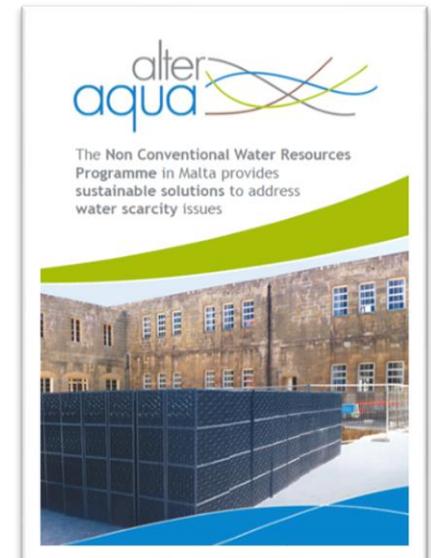
- **Educational material:** country specific (Greece, Malta, Cyprus, Italy) developed by MIO-ECSDE/MEdIES and partners in the countries: Nature Trust Malta & Cyprus Pedagogic Institute; Educational Water Videogame
- **Educational Programme for Students:** Hands-on activities in kindergartens, primary schools and secondary schools
- **Teacher training workshops**
- **Training for Technicians**



# RHW/NCWR Med Programme: Activities

## III. Capacity Building, Awareness raising and dissemination of results

- Capacity Building workshops for local authorities
- Awareness raising activities for general public, including development of material: video game, video animations, flyers, facebook pages, school contests
- Experience & Knowledge sharing



# RHW/NCWR Med Programme: Activities

## IV. National and Regional **Policy Dialogue** on NCWRM

- Regional Conference on Advancing Non Conventional Water Resources Management in the Mediterranean (Sept. 2011, Athens)
- Contribution to the development of the National Water Management Plan for the Maltese Islands (under preparation)
- National Consultation on Non Conventional Water Resources Management ( May 2014, Malta)



# NCWR MED Programme: Figures\*

- ✓ **3+1** Mediterranean countries
  - ✓ **28** Greek Islands, **2** Maltese Islands and Cyprus
    - ✓ **70.000** direct beneficiaries
    - ✓ **10.000** students participated
      - ✓ **1.200** teachers trained
      - ✓ **225** technicians trained
    - ✓ Installation of **24** RWH systems
    - ✓ **2** stormwater management applications
    - ✓ Reinstatement of **30** RWH systems
    - ✓ Installation of **2** Grey Water systems
  - ✓ Installation of **2** water kiosks (reverse osmosis systems for potable water)
- \*by June 2014

## Programmes in the Mediterranean

### Added Value & Highlights:

- ✓ Demonstrates innovative technologies in urban environment and advances the use of NCWR in the Mediterranean islands
- ✓ Applies NCWR technologies in public building and areas to demonstrate applicability of small and medium scale, that can be replicated at domestic level
- ✓ Develops educational and information material as water demand management tools to reach out to specific target groups (students, teachers) as well as general public promoting the use of NCWR
- ✓ Achieves international recognition for Water Initiatives (NCWRM in the Mediterranean Conference, Sept. 2011, Athens; 6<sup>th</sup> World Water Forum, March 2012, Marseille)
- ✓ Fosters regional dialogue to advance the use of NCWR and promote IUWM in the Mediterranean
- ✓ Promotes multi-stakeholder partnerships for local national and regional NCWR initiatives
- ✓ Creates a best practice with replication potential in the Mediterranean region as well as in other regions

## Programmes in the Mediterranean

### Lessons Learned:

- **NCWR** and especially **RWH** can be a solution to address critical development challenges due to water scarcity and climate change impacts
- National water policy often overlooks the RWH potential
- Financing is critical to advance RWH applications
- Need for **multi-stakeholder partnerships** and **stakeholder engagement**
- Need for **education** and **awareness raising** for a new water culture

### Opportunities

- Replication potential
  - Knowledge sharing and networking
  - Cross regional and inter-regional programmes-replication in other regions
  - Innovation
- 

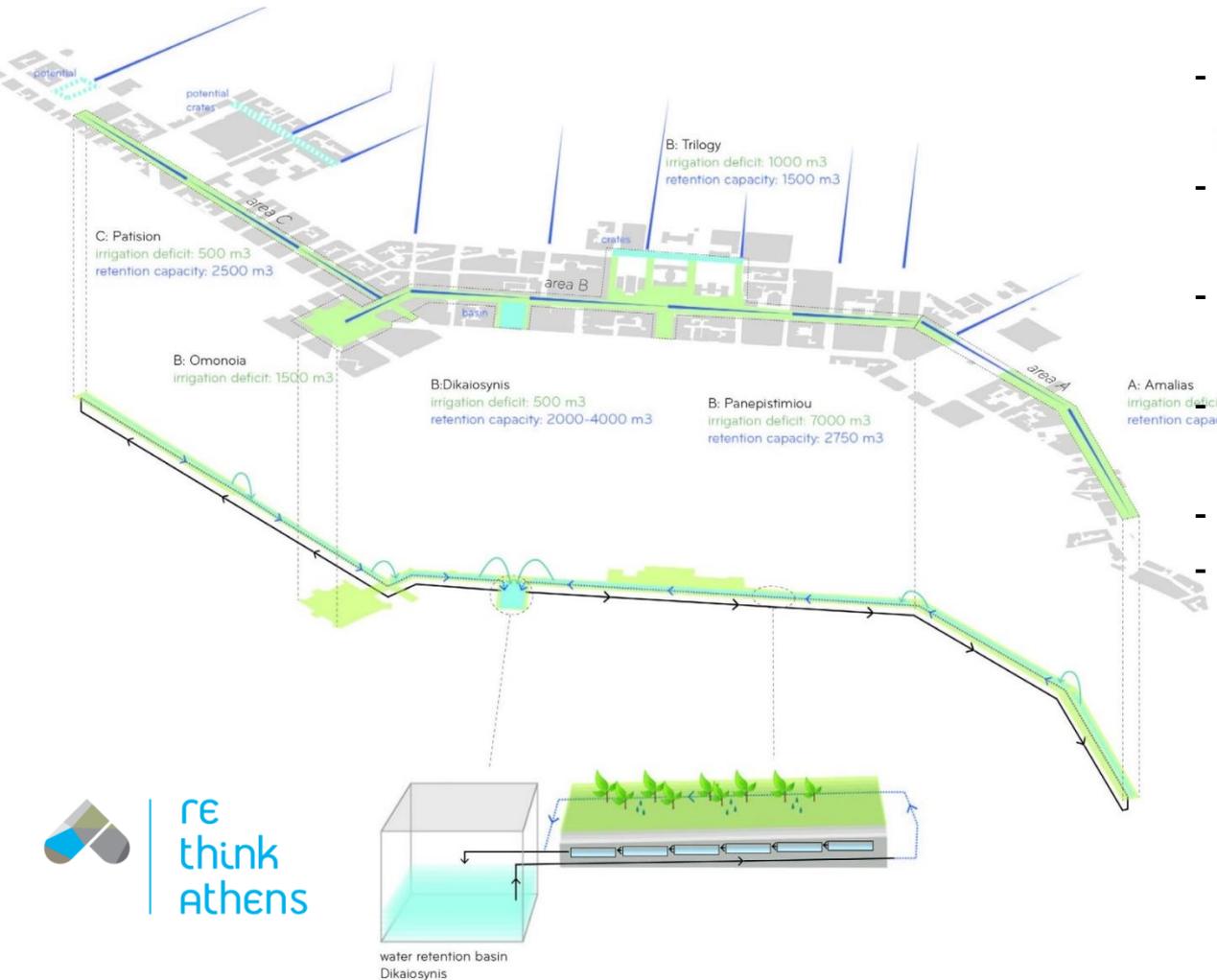
# Upscaling RWH in the Mediterranean: The *Rethink Athens* Project



- Transformation of the Athens city center for climate resilience: green infrastructure, parks, pedestrian zone
- Planned for 2016-17
- Budget: ~92mi Euros



# Upscaling RWH in the Mediterranean: The *Rethink Athens* Project



- Modular tanks and a main reservoir for RWH
- Collects stormwater & rainwater
- Decreases the flush flood risks
- Installed capacity: 14,000m<sup>3</sup>
- RWH yield: ~ 24,000m<sup>3</sup>/yr
- Covers 100% of the watering needs for all new plantation for the whole year, making the project **water neutral**



**Thank you for your attention!**

# For more information:

[www.gwpmed.org](http://www.gwpmed.org)



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