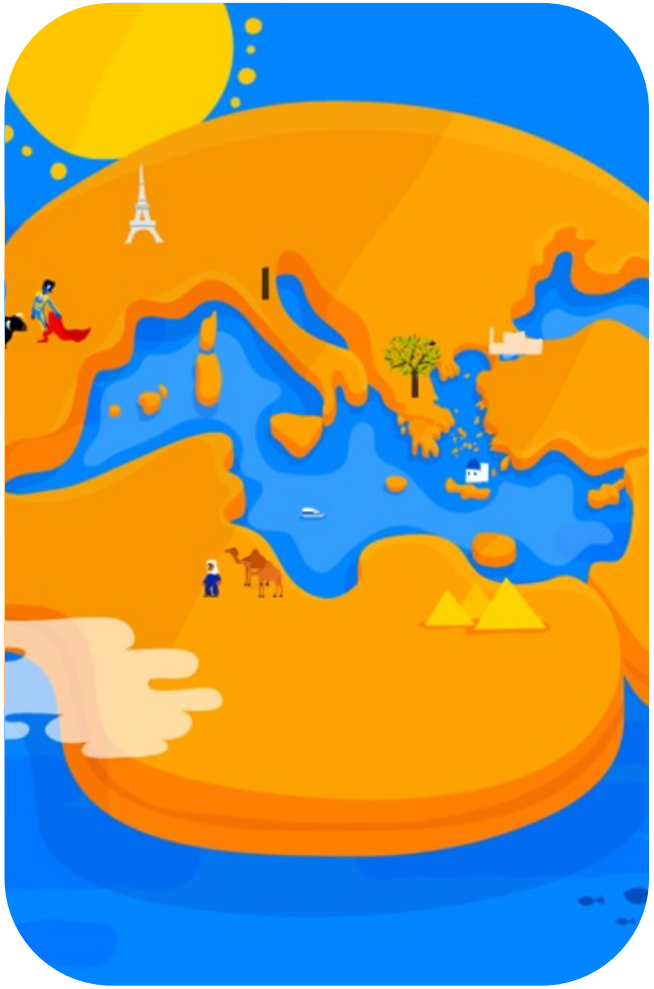
Global Water Partnership Mediterranean



Climate Change Adapation through Non Convetional Water Resources Management in the Mediterranean

Konstantina Toli
Senior Programme Officer,
Head of European Union, GWP-Med

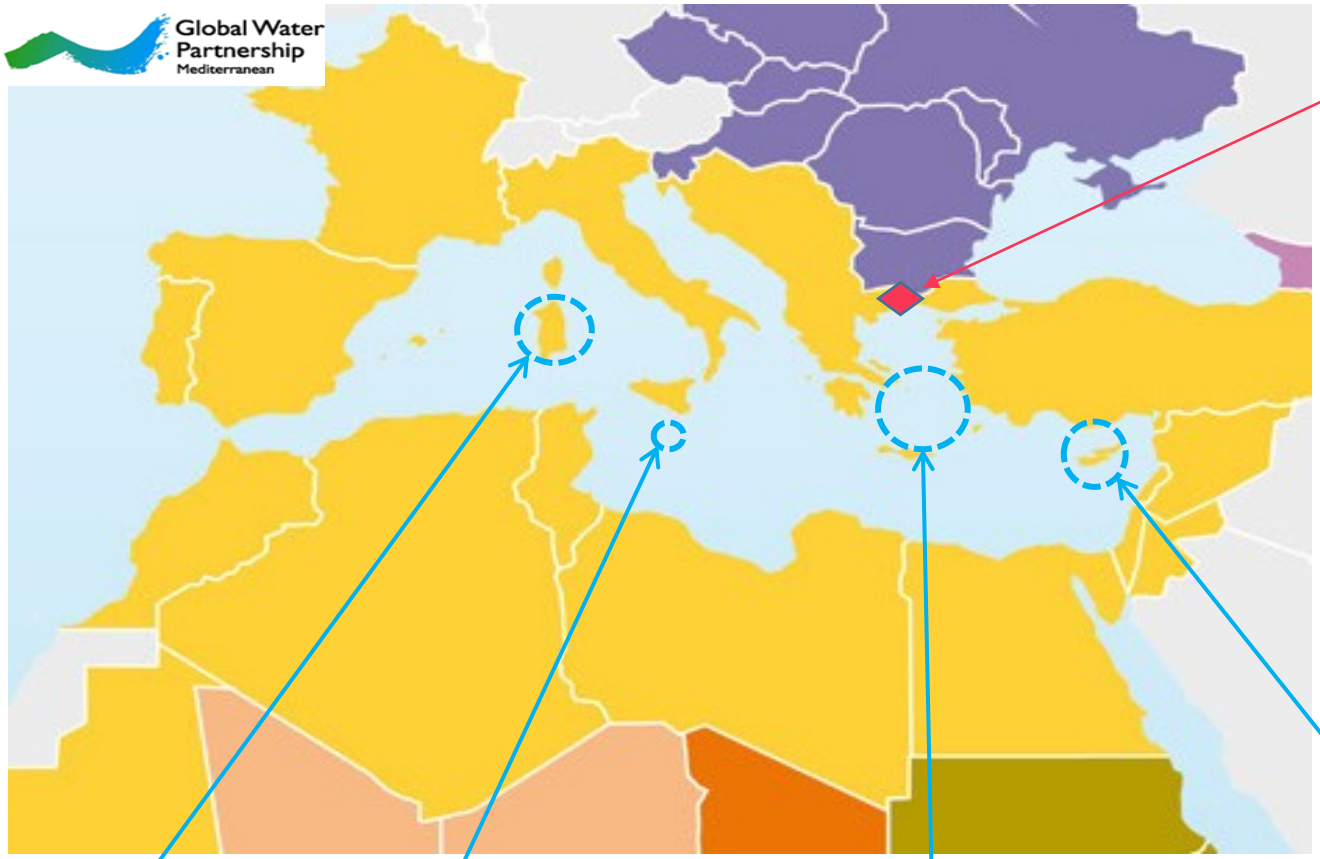
Workshop on Climate Change Adaptation in Human Settlements using Integrated Water Resources Management (IWRM) Tools, Amman, 22-24 May 2016

Water in the Mediterranean: some key facts

Water resources are unequally distributed in space and time

aggravated by climate variability & change, pollution, misuse, increasing population, changing lifestyle.

NCWR & Integrated Urban Water Management in the Mediterranean



Water for the City, Alexandroupolis, GR

Key features

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

Italy, Sardinia (2016-2018)

Malta (2011-2016)

Greece, Cyclades & Dodecanese Islands (2008-2018)

Cyprus (2013-2017)

Non Conventional Water Resources Programme in the Mediterranean

Global Water Partnership Mediterranean

- Aims at promoting Non-Conventional Water Resources (NCWRs) Management and especially rain and stormwater harvesting and grey water reuse, mainly in urban and peri-urban areas, as cost effective practices for water availability and climate change adaptation at local level.

- The Programme's objectives are:
  - To demonstrate smart, innovative & cost effective NCWR solutions, through demo micro-projects
  - To train teachers to educate students on NCWR, and increase awareness on sustainable water use
  - To enhance the capacity of the local authorities in 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 advance the use of NCWRM & IUWM.

Non Conventional Water Resources Programme in the Mediterranean

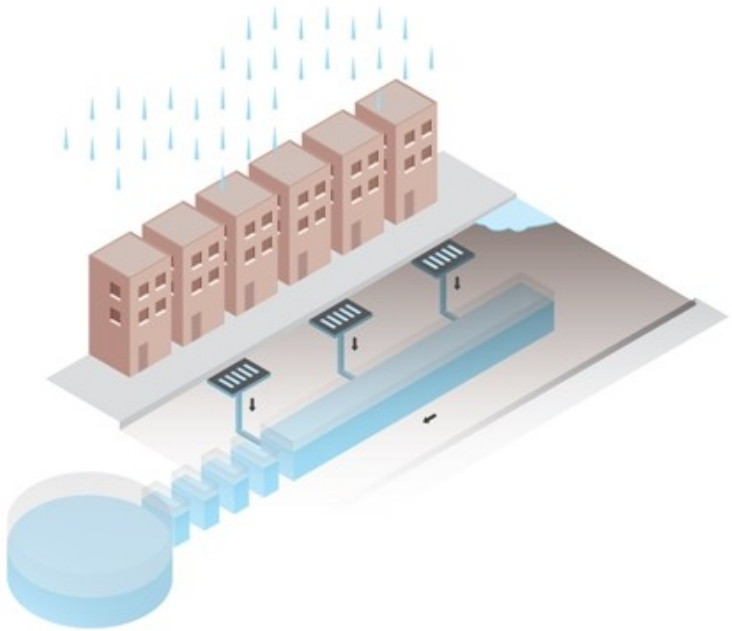
Global Water Partnership Mediterranean

Duration: 2008-2018
Budget: > 5.25 million USD, primary by the Coca-Cola Foundation, co-funded by national and local authorities

NCWR Programme: Demo projects (I)

I. Rainwater Harvesting & Stromwater Management:

a. Installation or reinstatement of innovative or traditional rainwater and stormwater harvesting systems in public buildings in urban and peri-urban areas, site specific solutions, adapted to local needs. Key elements: **reuse** of water for secondary uses, **innovative, cost-effective, replicable** solutions



NCWR Program: Demo Projects (I)

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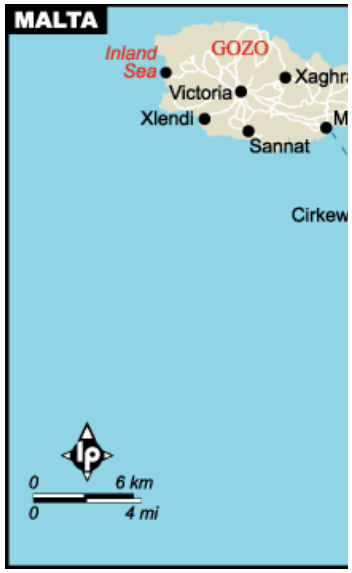
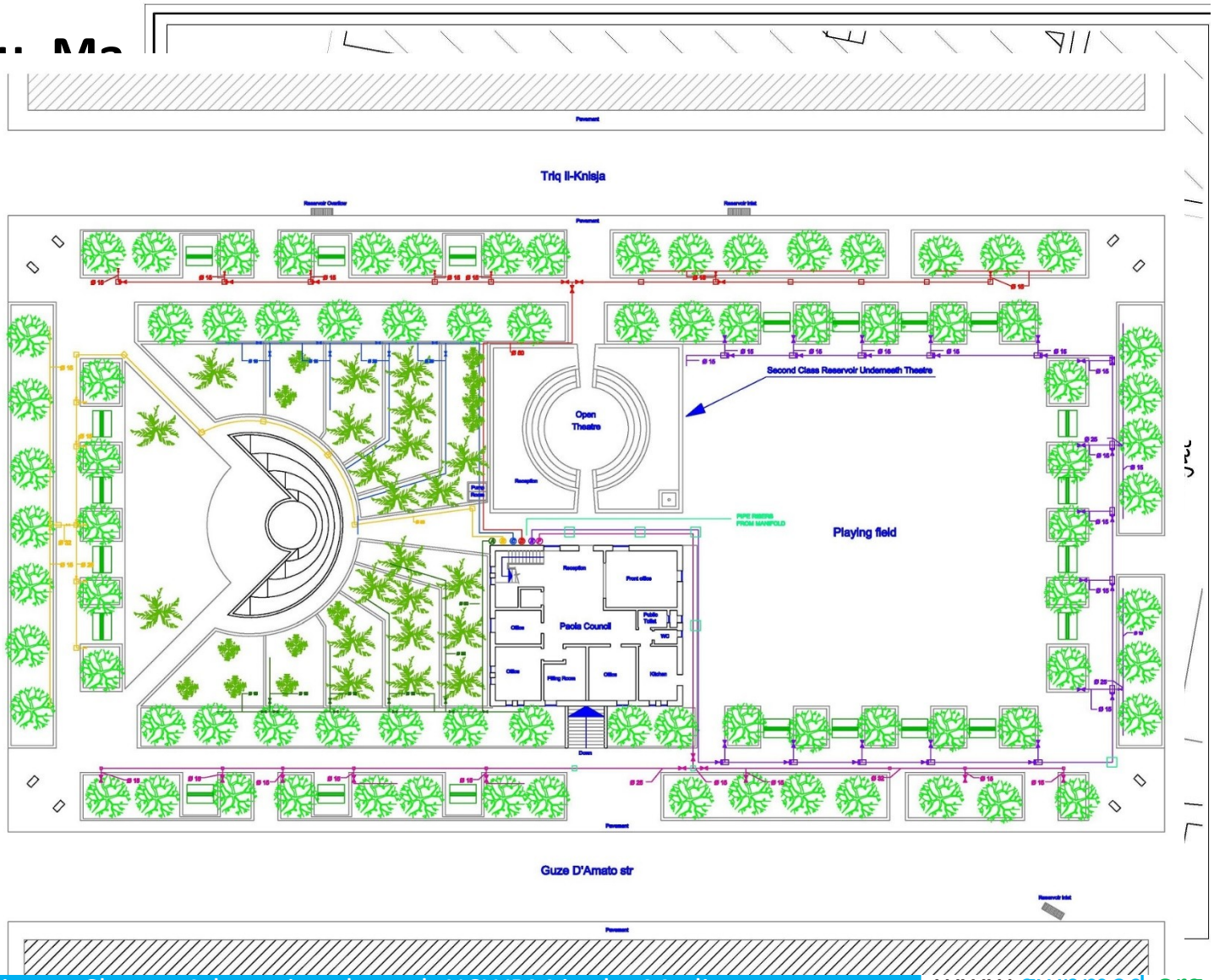
Gozo, MT

NCWR Program: Demo projects (I)

Stormwater management in urban environment

Case: Paola G[illegible] Ma[illegible]





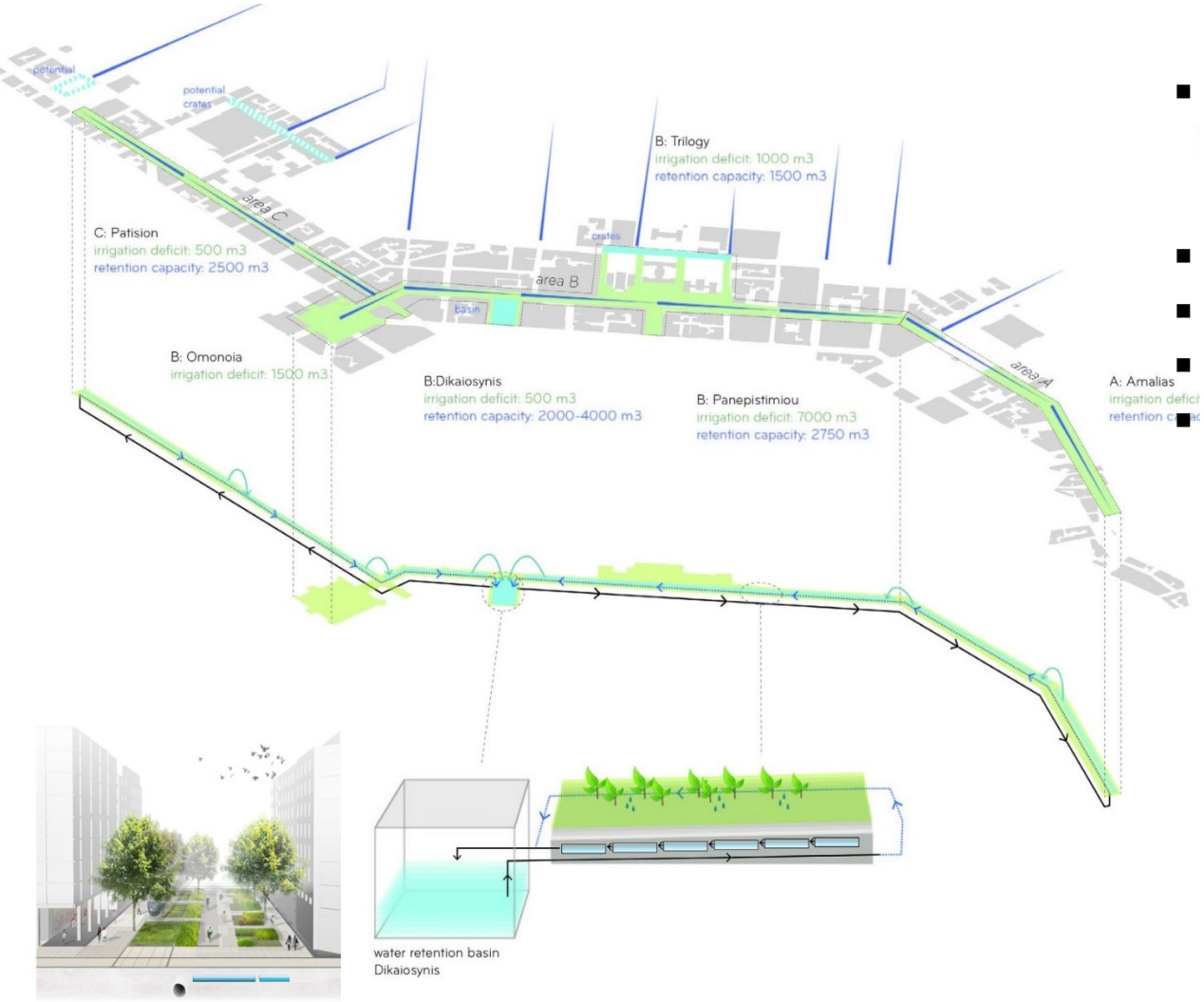
re think athens

Upscaling RWH in the MED: The *Rethink Athens* Project

Global Water Partnership Mediterranean

- ✓ Transformation of the Athens city center for climate resilience
- ✓ Green/blue infrastructure, pedestrian zone
- ✓ Planned for 2017-19
- ✓ Budget: ~92mi Euros

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



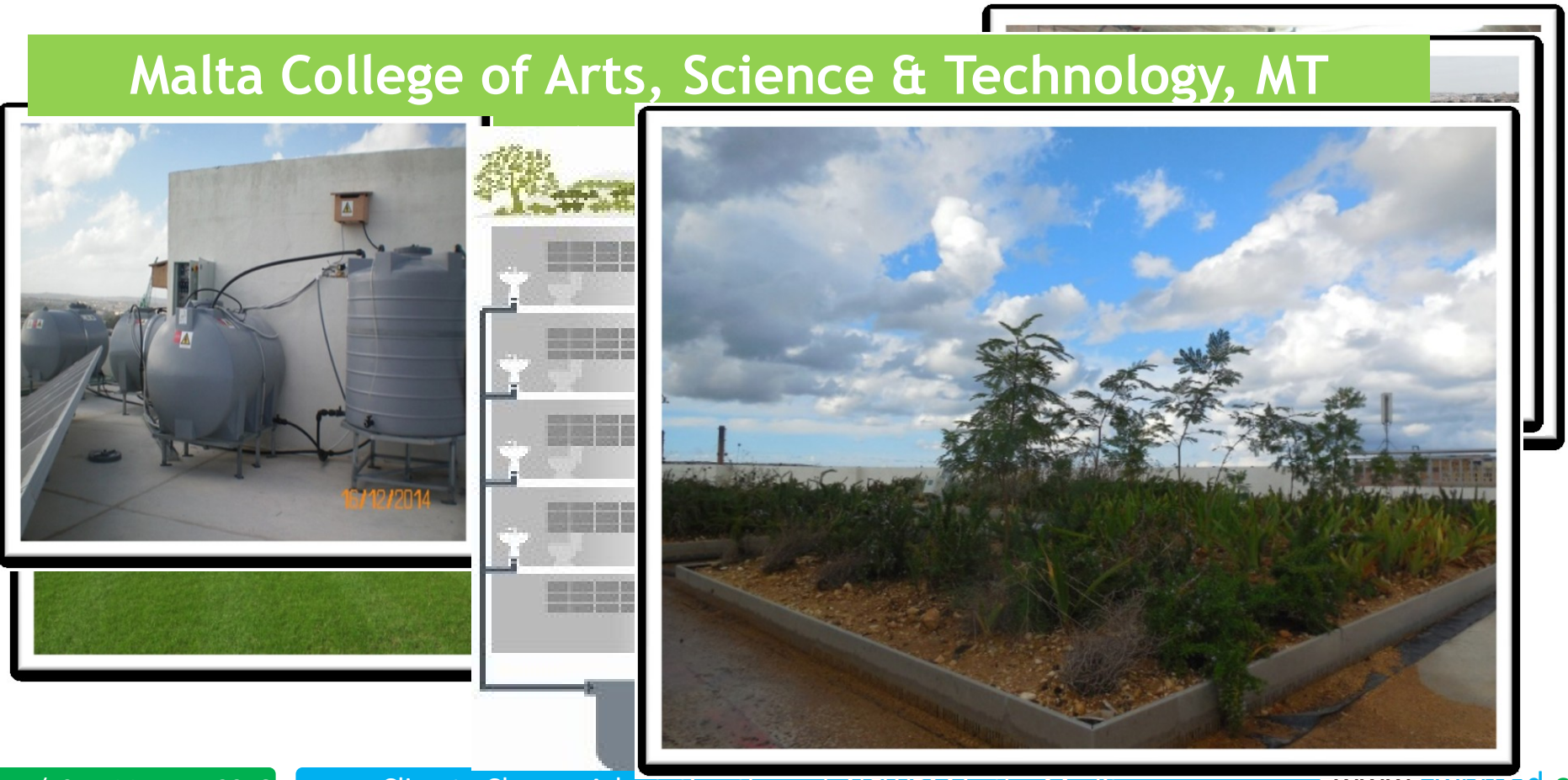
- Stomwater & rainwater harvesting: Modular tanks and a main reservoir for RWH
- Decreases the flash flood risks
- Installed capacity: 14,000m^3
- RWH yield: ~ 24,000m^3/yr
- Covers 100% of the watering needs for all new plantation for the whole year, making the project **water neutral**

NCWR Programme: Demo projects (II)

Greywater Recycling

Installation of **greywater recycling systems**: demo applications in public buildings (stadiums, schools), which have significant water saving benefits, with emphasis on replication potential

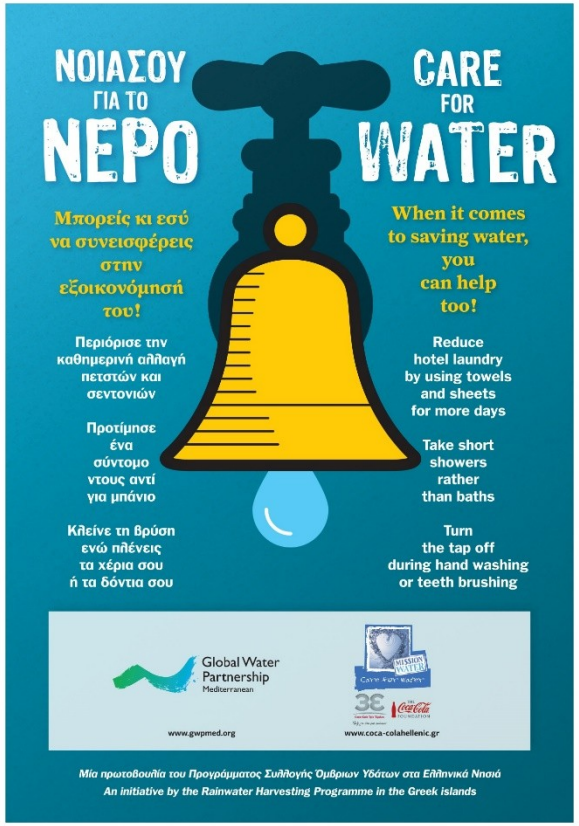
Malta College of Arts, Science & Technology, MT



NCWR Programme: Water Demand Management

Water Saving Device Kits distributed in 2,500 households, reducing their consumption up to 50%

"Care for Water Campaign in Islands during summer season to sensitize tourists



NCWR Programme Activities

Global Water Partnership Mediterranean

II. Education for Sustainable Development & Teacher Training:

- in cooperation with the Ministries of Education
- in-school hands on activities for primary & kindergarten students
- country-specific educational materials
- variety of material used: educational packages, video games, posters, etc.

-**Vocational Training for local technicians** to increase local know-how on NCWR technologies, installation, retrofitting and maintenance leading to **green jobs**

III. **Awareness Raising** at local, national and regional level on NCWR, sustainable water use & efficiency.

- **Capacity building** for local authorities on NCWRmanagement

-**Policy dialogue** at national and regional level

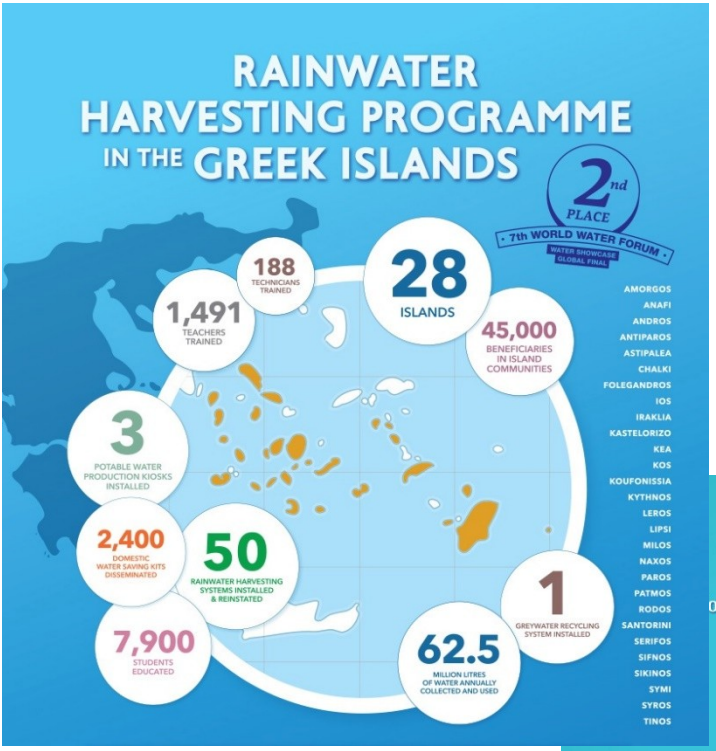
Non Conventional Water Resources Programme in the Mediterranean – Outcomes & Outputs

Global Water Partnership Mediterranean

Contribute to local water security	•Address water scarcity: More than 250,000 m^3 of water harvested/recycled annually for secondary uses for more than 110,00 beneficiaries •Prevent floods through stormwater applications in urban& peri-urban environment
Showcase smart NCWR solutions in IUWM context	•Urban applications in the context green/blue infrastructure through IUWM approach: innovative RWH & stormwater management applications; green roofs; greywater reuse • RWH & Greywater recycling systems for domestic use
Foster regional & national dialogue on NCWRM & IUWM	• National Water Management Plan for the Maltese Islands (to be launched in 2016) • Regional Dialogue on IUWM in the Mediterranean
Enhance Education, Raise Awareness, Share Knowledge	• A new water culture for more than 20,500 sensitised students, 3,300 trained teachers and general public on critical water challenges and water conservation • Green jobs potential through vocational training of 270 local technicians • Knowledge & Experience sharing within and beyond our region

Tangible Results

Global Water Partnership Mediterranean



Expanding the partnership:

Water for the City Project

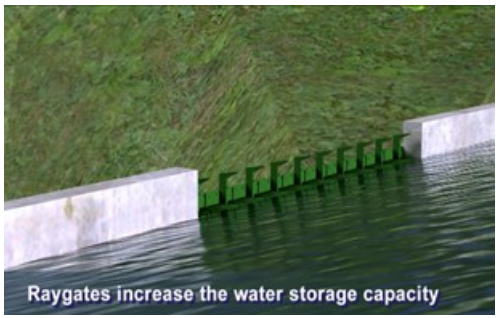
Global Water Partnership Mediterranean

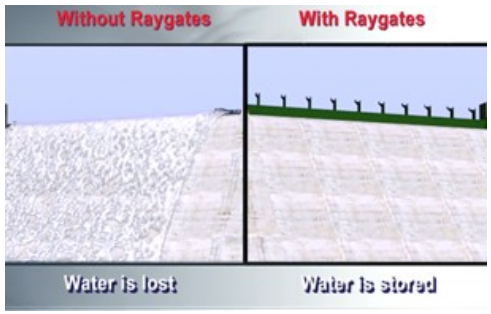
Location: City of Alexandroupolis, Greece
Duration: 2016-2017
Budget: 1.2 million USD, Coca-Cola Foundation grant

Coastal City, ~100,000 inhabitants
Water Supply: dam & groundwater abstraction

Water for the City -
Project Activities

A. **Optimisation of large scale infrastructure: Installation 1.60m of free standing gates** in the Dipotamos Dam to **i**ncrease of reservoir usable storage capacity by 1.7 million cubic meters annually, (14% increase). Water surplus will used to supply 5 neighboring communities.





B. **Education on Sustainable Development on urban water use and efficiency**
C. **Stakeholder Engagement & Capacity building on IUWM &,** including the development of a "serious game" for CB in urban environment
D. **Awareness raising**

Water for the City Project

Global Water Partnership Mediterranean

Multiple benefits:

- Innovative technical solution to increase dam storage capacity to provide more water for irrigation, drinking, industrial use, flood control, and energy production in a sustainable manner.
- Optimization of large scale water infrastructures: non-regret measure for climate change adaptation at local level.
- Prevention of overexploitation and salinization of coastal aquifers
- Reduced energy demands for water supply resulting in reduced costs & CO2 emissions.
- Opportunities to improve existing infrastructure through IUWM approach to be identified to include more green and blue infrastructure, resulting in improved living environment for the citizens.
- Improved water efficiency though water education and increased awareness
- Improved capacity of the authorities to manage urban water more efficiently
- Multistakeholder partnership approach
- 100,000 citizens as direct beneficiaries
- Replication potential

Thank you for your attention!

For more information:

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