

Learning from Experiences: Best Practices and Case Studies

The Malta Experience

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Background

Management in a context of water resources unavailability (80 and 120m³ per capita).

Mean Annual per Capita availability of Naturally Renewable Freshwater Resources	Classification
>1600m ³	Sufficient Availability
1000 - 1600m ³	Water Stress
500 – 1000m ³	Chronic Water Scarcity
<500m ³	Below the manageable capability

UN Falkenmark Water Scarcity Index

Water management has to consider the protection of natural water resources and their dependent environment.

Background

“Allocation determines who is able to use water resources, how, when and where and directly affects the value (ecological, socio-cultural, or economic) that individuals and society obtain (or forego) from water resources.” OECD.

Applying this principle in a context of unavailability will invariably require the prioritisation of activities and that certain activities are not undertaken.

Which activities?

Environmental impact?

Contribution to GDP?

Food Security?

Background

Augmentation of the available resource bases should therefore be considered in parallel with traditional allocation practices.

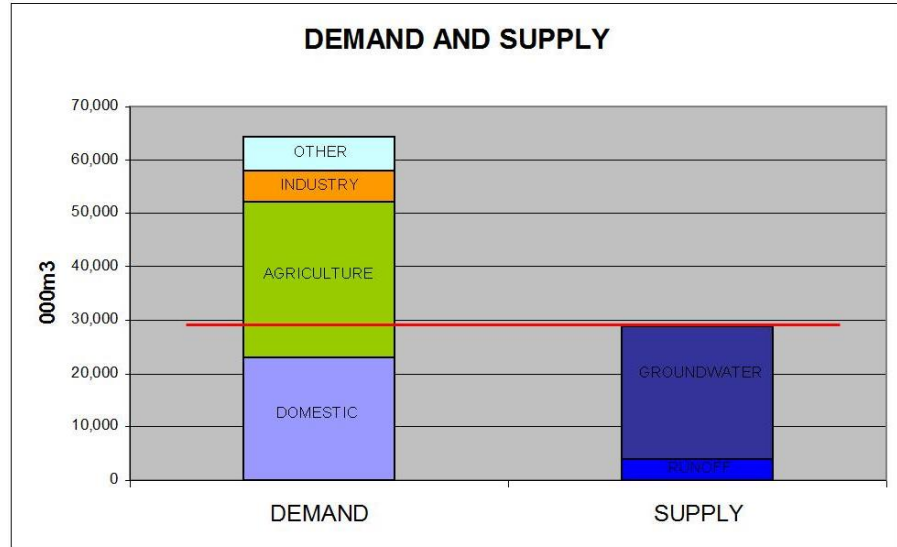
In such a context the utilisation of non-conventional water resources becomes a significant component of water resources management.

Therefore, allocation should adopt a broader perspective – addressing different waters to different users taking in to account issues such as qualitative requirements and ability to pay.

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The available natural water resources are sufficient to meet around 50% of the national water demand.

There is simply no sufficient water resources to allocate to all the water users.

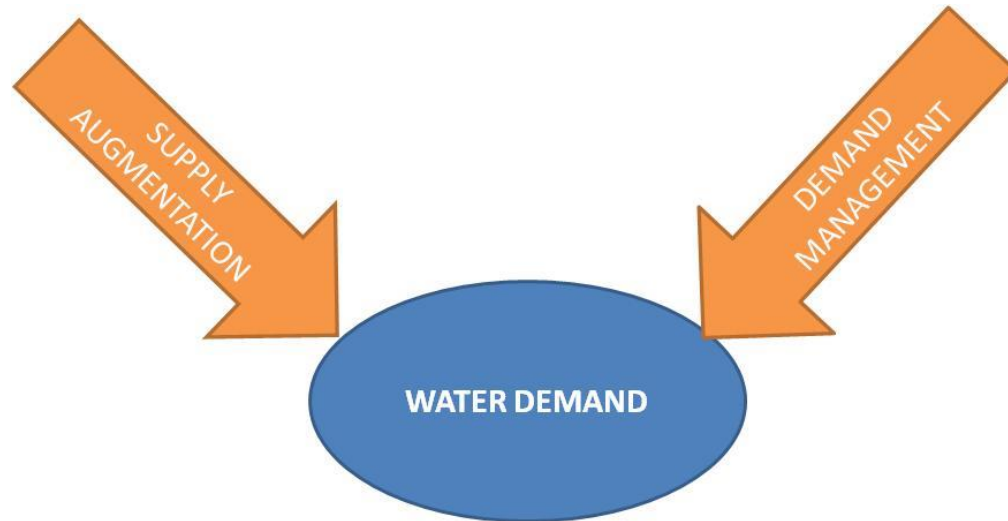


So what to leave out?

And on which basis?

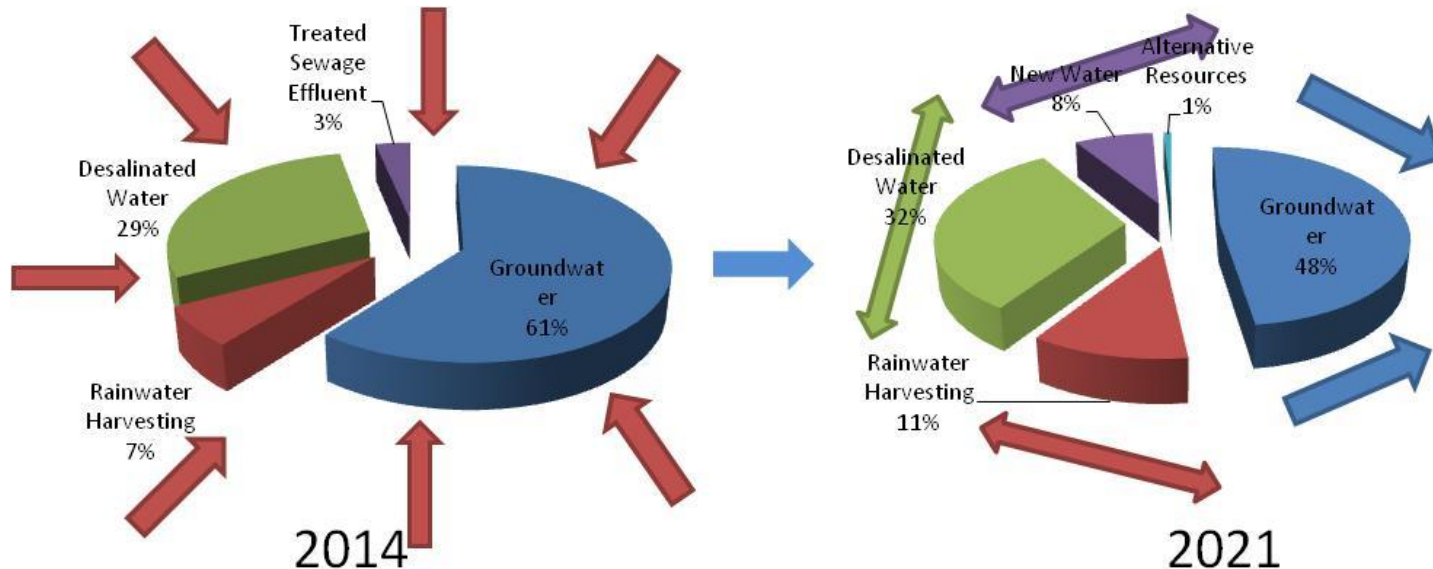
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Malta's 2nd RBMP sets the overall policy context for the management of water resources – demand management in parallel with supply augmentation. Therefore ensuring the development of sufficient capacity to meet an efficient water demand.



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Strategy aims to ensure sustainable groundwater use by 2021, through the continued investment in water demand management measures and the development of alternative water supplies.



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This water management approach depends on the achievement of high levels of efficiency in water use by all water using sectors.

Hence tools to support this model include:

- Volumetric quotas
- Financial instruments
- Stakeholder engagement

Need to avoid the 'rebound effect' – increasing supply leading to an ever increasing demand.

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Ensuring water supply in a context of water scarcity is a concept which is engrained in Malta's water culture.



Rock-cut cisterns in the vicinity of the 'Mnajdra' Megalithic Temples

The Maltese language contains a number of water related terms of Arabic origin, which make reference to water use activities such as **Bir** (well), **Giebja** (Cistern), **Hawt** (small water reservoir) and **Menqa** (water enclosure).

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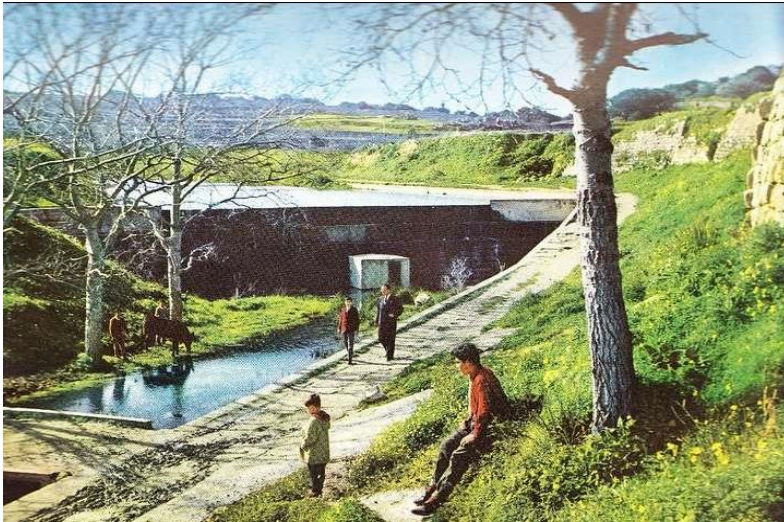
In 1565, during the building of the city of Valletta, the first law requiring the development of rainwater harvesting facilities was enacted: “every house should have an underground tank for the collection of rainwater, under penalty of fifty scudi for failure to comply”.



Detail from a water colour showing the construction of the new city of Valletta

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A complex system of well planned small dams were also built during the centuries in a number of valleys to increase the natural availability of water.

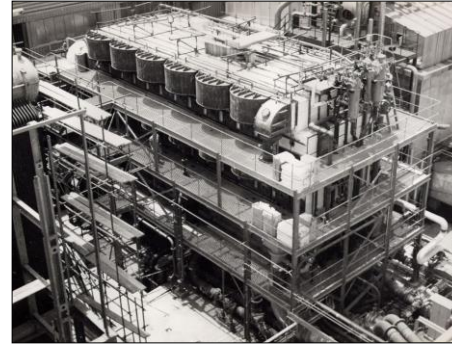


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Desalination of sea-water was first introduced in Malta in the early 1880's, through two distillation plants.

Multi-stage flash distillation of sea-water was introduced in the 1960's.

The 1980's saw the introduction of reverse osmosis technology on a commercial scale – at that time Ghar Lapsi Plant was the largest in the Mediterranean.



Existing Initiatives

Initiatives to increase the capacity of rainwater harvesting infrastructure.

A number of projects are being implemented/planned for the rehabilitation of the storage capacity of valley dams.

The rehabilitation of these rainwater harvesting structures will also provide additional benefits: Ecosystems, Tourism, Recreation, etc



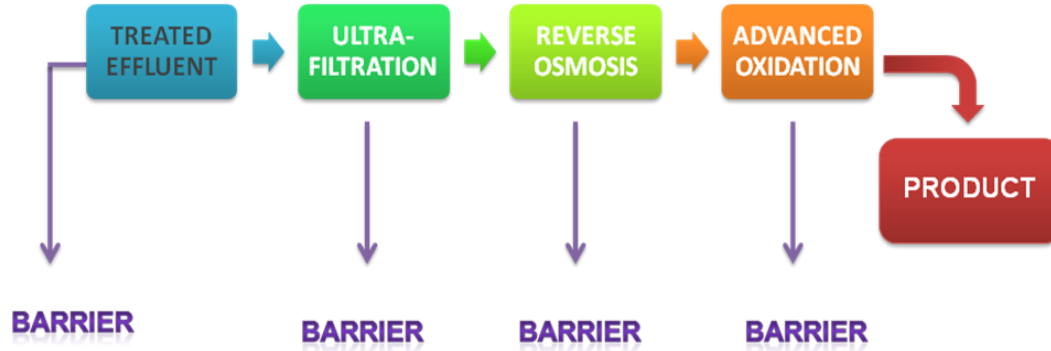
Existing Initiatives

Rehabilitation of rainwater harvesting infrastructures

Rehabilitation of a 1.8 million-litre capacity reservoir within the Presidential Palace and its gardens which will be used to irrigate the orange grove of its gardens (through the Alter Aqua programme).



Existing Initiatives



The production of very high quality water which is reclaimed from treated waste water. This reclaimed water is already being used or will be used for irrigation, landscaping, industry and aquifer recharge.

Contributes achievement of a 'net-zero impact' on the natural water cycle.

Looking Forward

Solutions need to be adapted to the local conditions

Investments alone will not solve the 'water issue' – the context in which investments are made is equally important.

A solution applicable for one country could fail in another country.

Local issues are important:

- *seasonal and spatial variability of demand,*
- *density of supply, and*
- *economic aspects*

Looking Forward

Innovation is key in the adoption of non conventional approaches to water resources management

-Green Roof technology



-Sustainable Urban Drainage Systems

Thank you for your attention