EU funds for Malta 2014-2020

THE ENERGY & WATER AGENCY

AQUA RES PROJECT

Region: Malta (MT)
Partner: Energy and Water Agency

Action Plan
Energy and Water Agency

AQUARES
Interreg Europe

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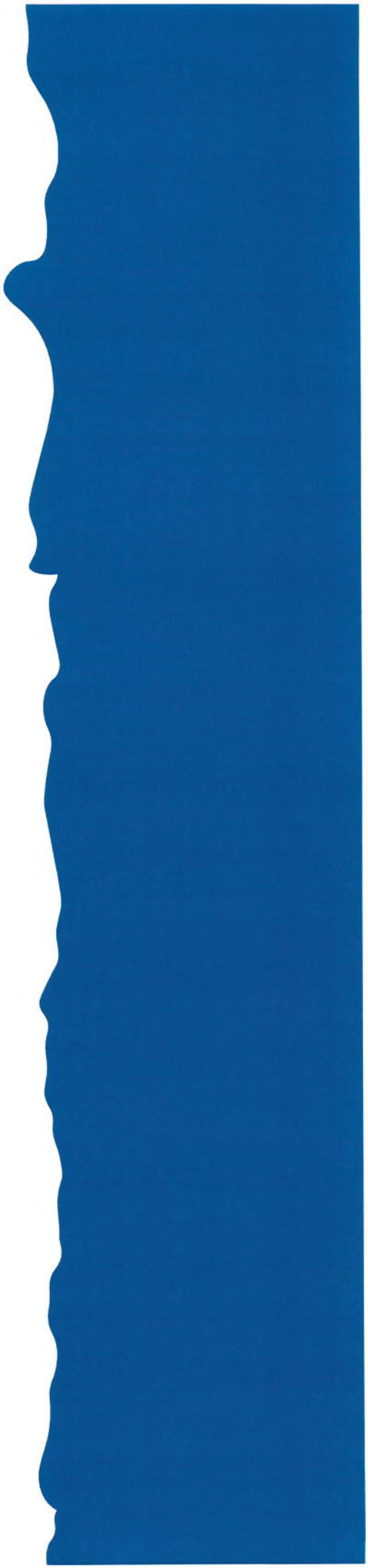

Part 1
General Information

Project	Water Reuse Policies Advancement for Resource Efficient European Regions
Partner Organisation	Project Partner 5 – The Energy and Water Agency
Country	Malta
NUTS2 Region	Malta
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Part 2
Policy Context

The Action Plan aims to impact	☐ Investment for Growth and Jobs Programme. ☐ European Territorial Cooperation Programme. ☒ Other Regional Development Policy Instrument.
Policy instrument addresses:	Malta's 2nd River Basin Management Plan 2015 - 2021
Shortages of the policy:	Malta's 2nd River Basin Management Plan (2nd RBMP) presented a "programme of measures" intended to enable the achievement of good qualitative and quantitative status for Malta's water resources, as required by the EU's Water Framework Directive. The programme of measures addresses, amongst other water management issues, the provision of water services with a view of reducing the resource and environmental impact associated with their provision whilst ensuring long-term security of supply. To this extent, the 2nd RBMP focuses on the immediate challenges that Malta's water sector is facing for ensuring security of supply and the provision of good quality water services. This approach whilst necessary to address immediate challenges can however be considered as a linear approach focusing on water supply and sewerage services provision. Although the 2nd RBMP includes a significant emphasis in relation to investment in energy efficient technologies (particularly for water production through desalinisation), it provides limited focus on the adoption of resource recovery applications and hence the adoption of a more circular approach in the provision of water services, in alignment to the EU's Circular Economy strategy. Hence the development of a robust wastewater treatment and reuse framework based on the progressive adoption of technologies which enable the recovery of resources as part of the treatment process can be considered as one of the main shortages of this policy framework.

Aim of the policy measures included:	The policy measures included under the AQUARES Action Plan aim to enable the collation of the information necessary to ensure a better understanding of the challenges which need to be addressed to move the sector towards an increasingly circular strategy. In so doing, the AQUARES Action Plan will be addressing the above identified policy shortages, and thereby enabling the development of a more comprehensive framework for water reuse in the Maltese islands. In alignment with the Circular Economy framework and the Green Deal, Malta is seeking to progressively develop wastewater treatment and reuse into an increasingly circular sector which considers wastewater as a resource and not a waste. Within this context, wastewater treatment plants will be increasingly considered as resource recovery plants, enabling the recycling and reuse of water, energy and nutrients within the wastewater treatment cycle. The Action Plan therefore aims to facilitate the achievement of the following national objectives: · Enable the alignment of the water and wastewater sector to a more circular framework, which considers the recovery and reuse of water, energy and nutrients; · In alignment with the Water-Energy-Food-Ecosystems nexus seek to optimise the operational efficiency of wastewater treatment plants, enabling the provision of reclaimed water for non-potable purposes whilst reducing energy needs and enabling the recycling of nutrients; · Enable the distribution of reclaimed water for irrigation in the most effective way possible to ensure that water reuse makes a key contribution in ensuring water supply security for the agricultural sector, whilst also ensuring that it is used in the most efficient way possible; and · Support the adoption of the risk-management requirements outlined under the EU Regulation on Water Reuse for agricultural irrigation so as to ensure that reclaimed water is safe for use for humans and the environment.

The 2nd River Basin Management Plan for the Maltese Islands

The EU's Water Framework Directive establishes key environmental objectives for the water environment which need to be achieved in all Member States.

The Directive, sets the river basin as its "unit of management" and guides Member States in developing "programmes of measures" adapted to the local conditions, and aimed at enabling the achievement of the Directive's objectives. These "programmes of measures" are the key element of the Directive's River Basin Management framework, an iterative 7-year management cycle which progressively seeks the improvement of the status of the water environment. requires each Member State to regularly update its River Basin Management Plan for each River Basin District within its territory. A river basin district, or water catchment district, means the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters.

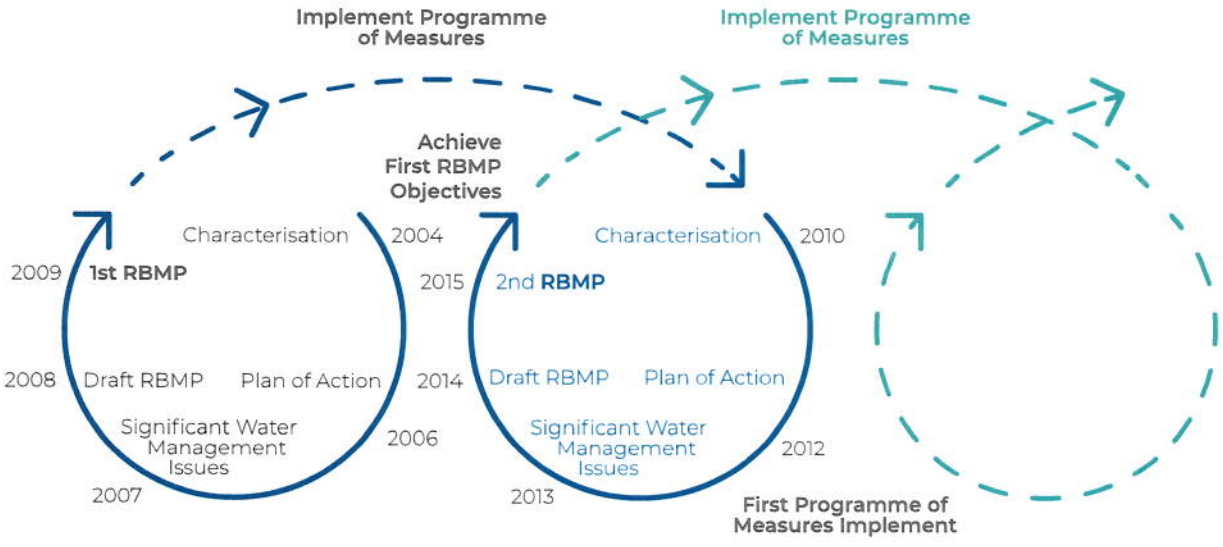

Figure 1 - River Basin Management Cycle

As part of the implementation process of the Water Framework Directive, Malta has published its 2nd River Basin Management Plan (RBMP) in 2015. The 2nd RBMP defines the implementation of Malta's water management policy for the period between 2015 and 2021. As part of the river basin management cycle, Malta is currently finalising the preparation of the 3rd RBMP, which will continue to build on the achievements of the current plan, thereby supporting the progressive achievement of the WFD's objectives. In as much the AQUARES action plan comes at the right time to support the development of a more comprehensive water reuse vision during the transition period between Malta's 2nd and 3rd RBMPs.

Malta's 2nd RBMP outlines Malta's water policy framework as being that of ensuring long-term security of supply through the conjunctive use of water supply augmentation and water demand management measures, progressively ensuring that this is achieved in an increasingly environmentally sustainable manner. In as much, water reuse is an important element of this strategy, as reuse ensures both an increased availability of water supplies (broadens the water supply resource base) and an improved efficiency in water use (enabling water demands to be addressed with lower freshwater inputs to the distribution system).

The measures included under Malta's 2nd RBMP are far-reaching, aimed at addressing the protection of natural freshwater resources throughout the whole water continuum – surface waters, groundwater, transitional waters and coastal waters. From an inland water management perspective, given the lack of economically exploitable surface water resources, Malta's 2nd RBMP focuses on the development of a water management framework which ensures the sustainability of natural groundwater resources. This within a context of a country which faces severe water stress conditions arising due to its semi-arid Mediterranean climatic conditions which limit water availability.

The 2nd RBMP's water management framework therefore provides increased emphasis on the key elements of Malta's water management policy, namely water demand management and water supply augmentation; coupled with a strong stakeholder engagement framework aimed at supporting the implementation process of these measures.

From a water demand management perspective, the 2nd RBMP foresees a preliminary assessment of current water usage between different sectors, as well as efficiency levels registered. Special focus is given to the management of the infrastructural network (to reduce leakages) and to the setting of

use-efficiency standards to be achieved by all water users. The RBMP also requires the continuous identification and promotion of innovative solutions to improve the performance of the municipal water distribution network and the adoption of water saving devices by the domestic and industrial sectors. Water demand management measures are further supported by a public engagement campaign, aimed at ensuring that water users are fully aware of the practices and technologies which can be adopted to enable an efficient use of water resources.

In conjunction with water demand management, the 2nd RBMP recognizes the importance of water supply augmentation in order to progressively reduce the dependency on natural fresh-water resources, and thus contribute to the achievement of the Directive's environmental objectives. Therefore, an emphasis for an increase in investment in non-conventional water resources such as rainwater harvesting, sea-water desalination plants and water reclamation have been set out within the RBMP's programme of measures.

The RBMP therefore acknowledges the important role which highly polished treated urban wastewater can play, in substitution of natural water resources that currently are being abstracted for agricultural irrigation and other secondary uses. Therefore, the RBMP includes specific measures targeting the promotion of water reuse through the New Water Programme, thereby ensuring the application of safe water reuse in the Maltese islands. These measures include the development of three polishing plants within Malta's Urban Wastewater Treatment Plants and the development of a dedicated distribution network to enable the availability of reclaimed water at the point of use. The RBMP also recognizes the need for promoting New Water as a safe water resources with consumers, and hence includes an educational and promotional programme presenting the facts behind the New Water programme, to ensure that an informed public can appreciate the safety of this new water resource.

1.Country Context and Overview

The Maltese islands are by far the smallest EU Member State, with a total land surface area of just 316Km².

Located in the centre of the Mediterranean Sea, 93Km South of Sicily and 290Km from the north of Africa, Malta is at crossroads between southern Europe, northern Africa and the Middle East. Bearing a typical semi-arid Mediterranean climate with characteristic mild-wet winters and hot, dry summers, Malta has a limited annual precipitation that averages just around 500mm/year, and occurs with high inter- and intra-seasonal variability.

Although the Maltese population is by far the smallest when compared with other European countries, due to the small land area, it is by far the densest. In 2020, the Maltese population was registered at 514,564 inhabitants (*National Statistics Office – Malta, 2020*), and exhibiting a mildly increasing positive trend. Due to the small size of the islands, this results into a population density of 1,628 inhabitants/km².The high population density also entails a high rate of urbanisation and in fact around 33% of the islands are built up, with urban density being highest on the eastern region of the main island of Malta.

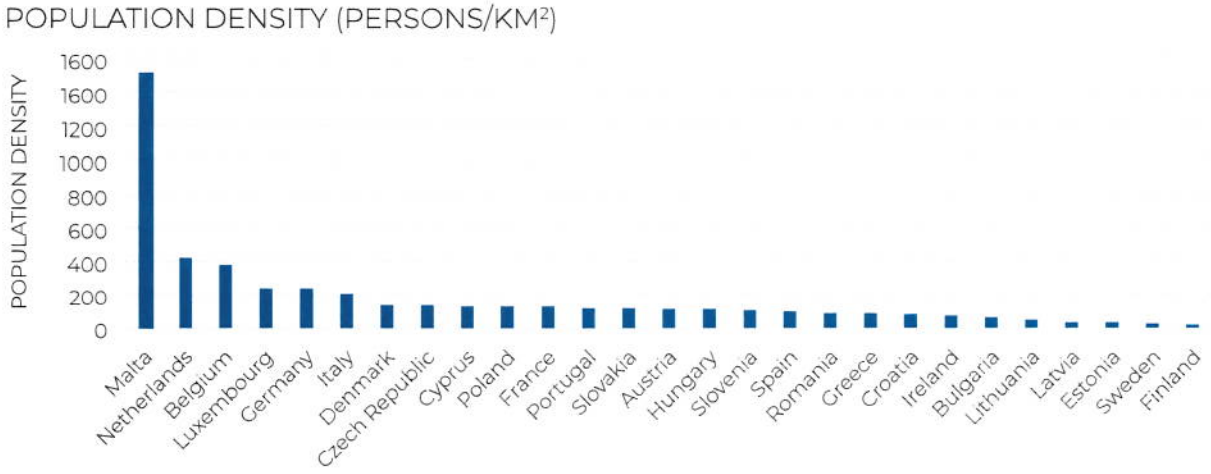

Figure 2 - Comparison of population densities between European Countries

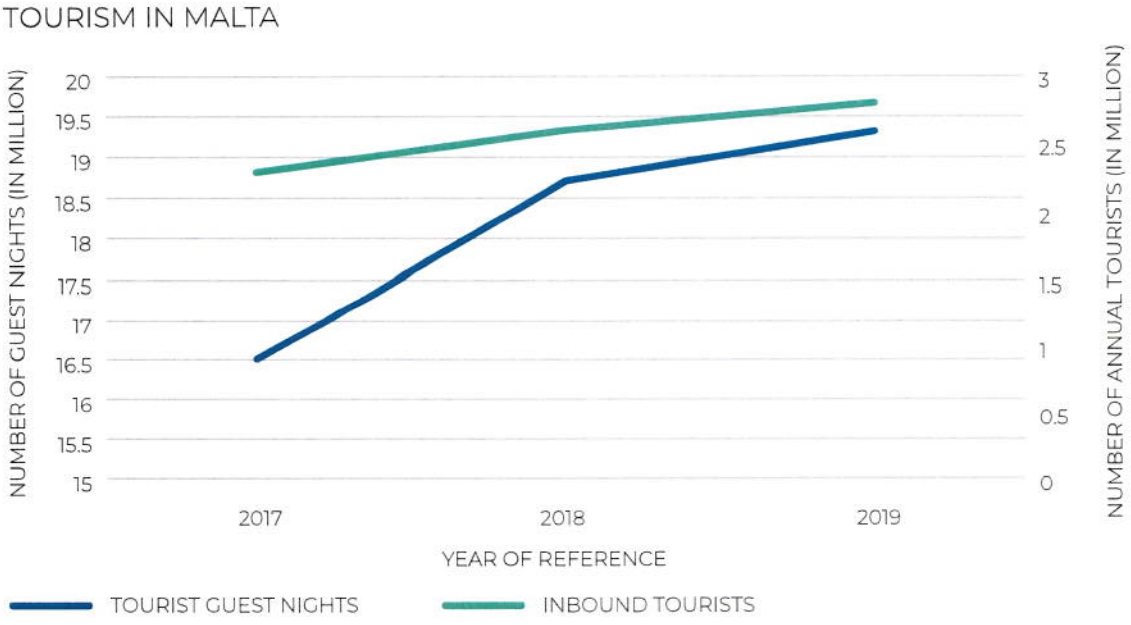

Figure 3 - Number of annual incoming tourists compared with the number of nights stayed

From an economic perspective, Malta has also been experiencing a sustained increasing growth, attracting an influx of foreign investing companies setting base in the country. This expanding economic model has also resulted in an increasing foreign workforce, which has also contributed to the positive demographic trends. This economic activity has also brought an increase in infrastructural development, in particular increasing the density of urban environments through the construction of high-rise buildings necessary for the additional requirements in office space and accommodation. These factors result in significant spatial variations in population density, where population density increases in specific areas, posing additional challenges for water supply and sewerage networks.

As is the case in similar Mediterranean coastal cities and islands, the tourism sector features as a strong component in Malta's economy by contributing to a 11% share to Malta's annual gross-value added (GVA). The number of tourists visiting the country, together with the number of nights spent, has also been increasing at a steady rate. In fact, in 2019, 2.7 million tourists visited the country, for a total number of 19.3 million bed-nights. On average, the number of tourists that come to Malta therefore equate to an equivalent daily population of around 28,000 during the shoulder months rising to 93,000 during the peak season. This corresponds to an average population increase of between 6% and 19%, depending on seasonal variation.

The increased level of tourists which are residing in private accommodation instead of conventional hotels is also having a significant impact on the countries' water and sewerage service networks. This is because unlike the high-rating hotels on the islands that have a level of water supply self-sufficiency due to their investment in RO technologies, tourists lodging in private accommodations depend entirely on the public supply network. This poses a significant pressure especially during the summer months due to the increased water demand which has to be managed by the existing water supply and wastewater collection network installed in local villages.

1.1 – Management of Water Resources

Malta's climatic and geomorphological characteristics preclude the development of economically exploitable surface water resources.

In fact, groundwater aquifer systems are Malta's only naturally renewable resource of freshwater. Groundwater supplies roughly 40% of the total potable water needed to supplement the islands. This is abstracted and managed by the nation's public water utility – the Water Services Corporation (WSC). However, these groundwater bodies are also essential for the provision of irrigation water for the agricultural sector, which is highly dependent on groundwater abstraction. In fact, around 18 million m3 is abstracted annually from Malta's aquifer systems for irrigation.

There are several groundwater bodies present in the Maltese archipelago, however the two major aquifers are by far the Malta and Gozo mean sea level aquifers (MSLA). In fact these two groundwater bodies are present beneath almost all of the two islands, as Figure 3 below shows. The only source of recharge to these groundwater bodies comes from the annual rainfall and additional artificial recharge, and hence limiting their sustainable yield. Therefore, due to the limited recharge that sustains these aquifers, coupled with the water abstraction activities, these two groundwater bodies are impacted by saline intrusion, which is facilitated due to their vertical and horizontal contact with seawater. Due to this limiting factor, abstraction from these groundwater bodies needs to be sustainably managed in order to conserve their quantitative and qualitative status. Therefore, alternative resources are needed to sustain potable water required to meet the country's water demand and to reduce the agricultural sector's dependence on groundwater abstraction.

Water scarcity is not a recent challenge for the Maltese islands. In fact, water availability has historically been a constraint which has limited the islands' social and economic development. The application of water demand management measures can be traced back to pre-historical times. The need to harvest rainwater during the winter season for use during the dry summer months was an important factor underlying water management during Malta's history.

Along the years, as the country continued to develop, the requirements for larger volumes of water was increasing to the extent that rainwater catchment infrastructure was no longer sufficient to supply the ever-increasing population. Therefore, the exploitation of groundwater resources started

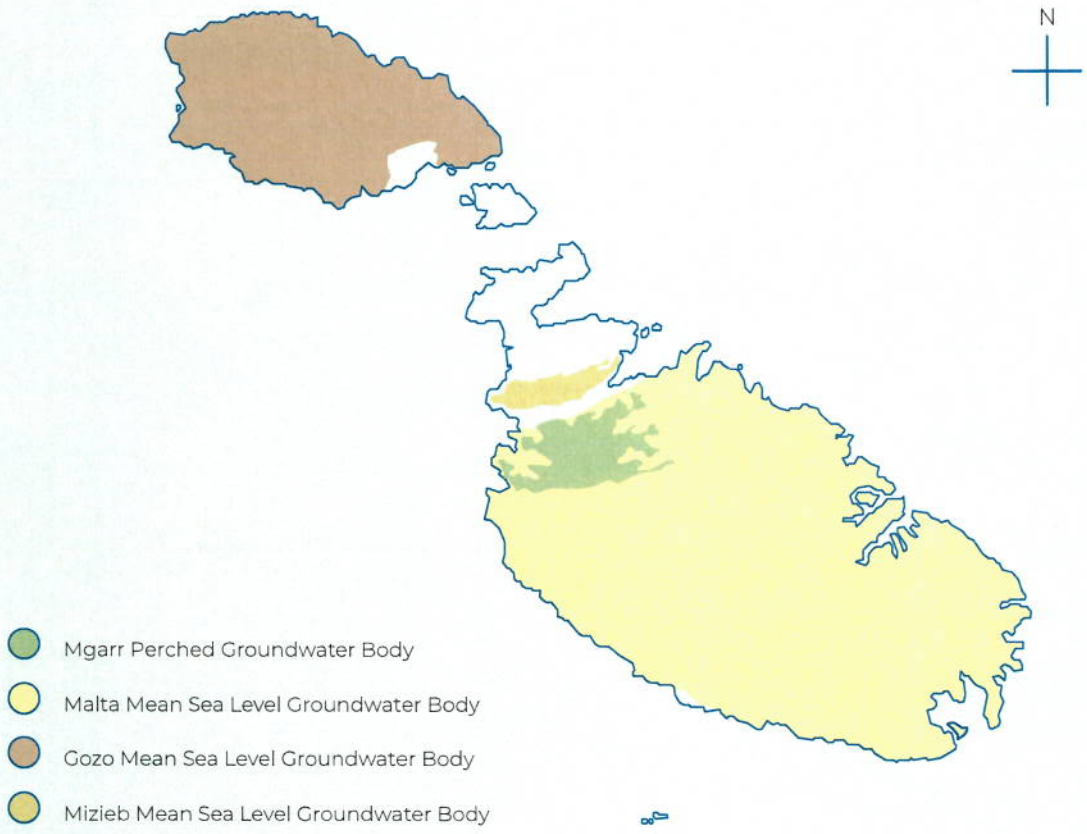

Figure 4 - Malta Mean Sea Level / Coastal Aquifer Systems

to become increasingly important. Groundwater abstraction from Malta's perched aquifer systems in fact date back to the Roman period. Groundwater abstraction was further developed during the Arab rule, and more notably during the era of the Knights of St John. During this period, the construction of an aqueduct system that collected water from the Rabat perched aquifer system and transported it to the eastern regions of the island was commissioned. The use of this infrastructure was further enhanced during the British rule, who optimized the water supply network to also provide water to surrounding villages located in the southern region of the islands.

However, as the population continued to steadily increase, water supply from the perched aquifers was insufficient, and therefore progressively use was made of the mean sea level aquifer systems in order to meet the ever-increasing demand. A notable infrastructure that was developed during this period is the network of underground galleries situated within the centre of Malta and Gozo that improved the efficiency of groundwater abstraction.

During the second part of the 1900s however, natural resources were no longer capable of meeting the national water demands. Therefore, the adoption in the 1960's of water desalination technologies such as Multi-Stage Flash Distillation. However, this technology would soon become financially unfeasible due to the increasing price of oil during the late 1970s and beginning 1980s.

A more energy efficient technology was therefore needed and by 1982, Malta commissioned its first Membrane Seawater Desalination (RO) plant that was capable of producing 20,000m3 of potable water. At the time, this RO plant, locally known as the Ghar Lapsi RO plant, was the largest desalination plant in the Mediterranean.

The 1980s saw water demands increase significantly, to the extent that groundwater bodies were seriously threatened. Therefore, additional RO plants were commissioned, along the Maltese coast. In all, five RO plants, with a production capacity of almost 100,000m3/day were required to run at full capacity to provide water potable water for a population which at the time stood at just around 350,000 persons.

Realizing that water leakages along the supply network were causing this unsustainable water demand, led to a policy shift that focused on both water supply augmentation and water demand management. Therefore, a leakage management programme was initiated during the mid-1990s which saw a significant reduction in the system demand, even though the national water demand was still being met.

By the early 2000s, water demand stood at around 60% of what it had been during the 1990s, allowing the decommissioning of two reverse osmosis plants. Today, there are three plants that are still operational in the country and a fourth one expected to be operational within the coming future to supply the water needs of Gozo.

This shows that water supply augmentation measures alone cannot act alone to meet the demands of a country. but need to be coupled with water demand management to ensure the sustainable water management frameworks. To this day, this approach forms the backbone of Malta's water policy.

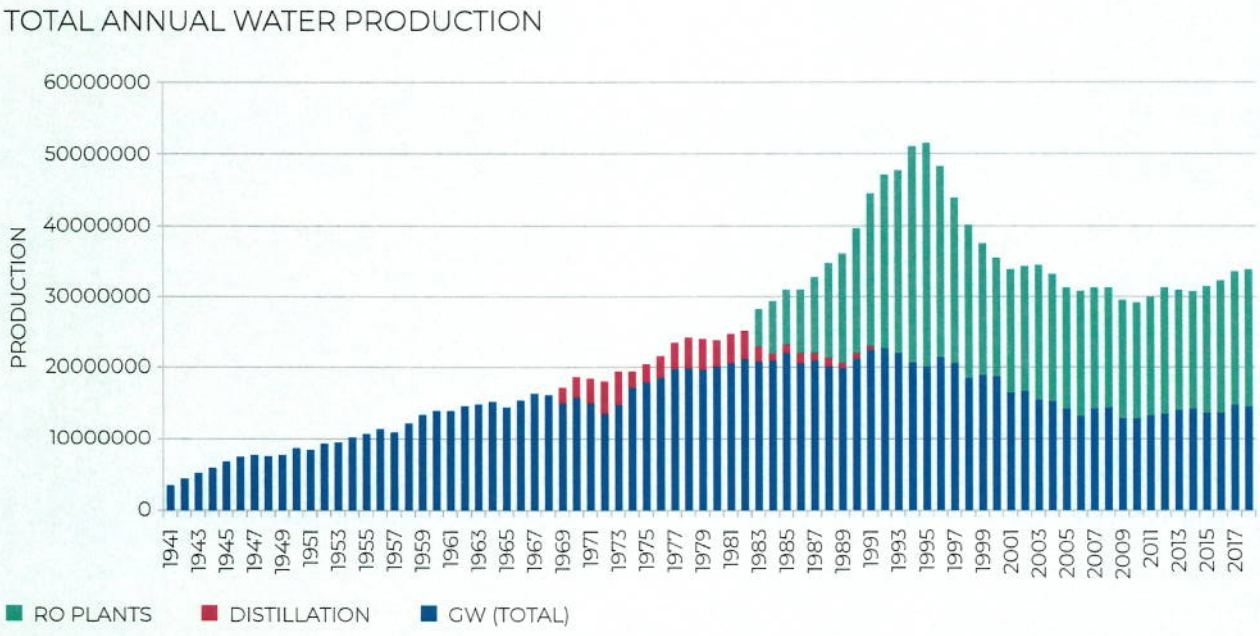

Figure 5 - Total annual water production throughout the years

1.2 – Wastewater Reuse

The introduction of wastewater reuse as an alternative to water resources for secondary uses dates back to the British colonial rule in Malta.

In fact, the first wastewater treatment plant commissioned in the country was during the late 1800s, and was located within the British military barracks located at Pembroke. Several other small, decentralized wastewater treatment plants dating back to the same period can also be found in other locations. The actual use of this water is not entirely clear, however it is assumed that it was used for the irrigation of parade grounds and the surrounding agricultural fields.

Fast forward several decades and by 1982, the first large-scale domestic wastewater treatment plant was inaugurated within the southern region of Malta. San Antnin (as it is locally referred to) Plant had a treatment capacity of 12,000m3 of secondary class water suitable for irrigation of the surrounding areas which are located in a region which historically has groundwater of relatively high salinity. The plant operated from inflows of wastewater coming from Malta's central sewerage network only, since sewerage from the coastal regions was also known to contain high saline levels due to intrusions where the network was located beneath sea-level.

As part of Malta's process for accession to the European Union, emphasis was made on the protection of coastal water resources, including from the discharges of wastewaters. This led to the commissioning of three Urban Wastewater Treatment plants (one in Malta North, Malta South and Gozo), with the capacity of treating the complete sewerage load of the Maltese islands before being discharged into coastal waters.

The utilisation of treated water to augment Malta's water supply resources was identified as in important next step in the development of the local water sector. Therefore, studies to convert wastewater into a valuable water resource were carried out and plans were designed to polish further the treated wastewater to very high standards, capable of being used for agricultural activities and specific industrial applications.

From these studies, a further three-step treatment process was identified as the best solution in order to ensure a safe and reliable end product suitable for application for irrigation (and which is safe for human consumption and the environment). The first step for this process uses ultra-filtration for the removal of bacteria present, secondly, a low-pressure reverse osmosis is used for the removal of any inorganic and organic contaminants, and thirdly, an

advanced oxidation process to remove any remaining pollutants that might be present in the polished water stream.

By 2017, under the New Water initiative Malta's three wastewater treatment plants were installed with this three-stage treatment process within the existing plants' existing footprint, capable of producing around 7 million cubic meters of tertiary treated wastewater annually (which equates to around 35% of the annual water demand of the agricultural sector). These projects were co-financed by the EU's Cohesion Fund and the European Agricultural Fund for Rural Development (EAFRD). As of 2018, the Water Services Corporation, under the same initiative, embarked on the laying out of three purpose-built New Water Distribution networks.

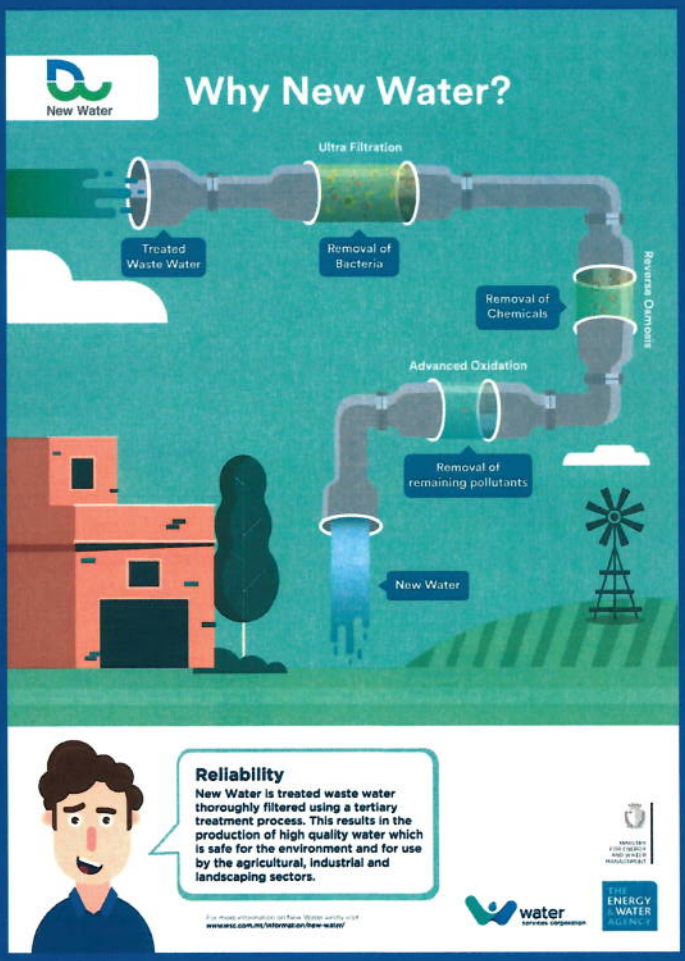

Figure 6 – Three barrier advanced polishing system as part of the Water Services Corporation's New Water Project

1.3 – RBMP LIFE MALTA PROJECT

The LIFE-IP RBMP-Malta project proposes a number of best practices, demonstrations, pilot studies and capacity building actions with the aim of developing the implementation framework necessary to ensure the effective achievement of the water management objectives identified under the 2nd RBMP.

The Project also aims to develop the necessary knowledge-base to support the formulation of Malta's 3rd RBMP and therefore ensure continuity in Malta's efforts to affress the achievements of the environmental objectives of the Water Framework Directive in the Maltese islands.

Complimenting the LIFE-IP RBMP Project to reach this objective, the AQUARES project focuses on the identification of the measures required for ensuring the improvement of the national water reuse strategy. The outcomes of the AQUARES project will therefore also contribute to the programme of measures under Malta's 3rd RBMP. The measures under the AQUARES Action Plan are therefore intended to develop the necessary knowledge base required to support the development of water reuse in the Maltese islands. These measures are:

- Improve the efficiency and sustainability of Malta's wastewater treatment plants
- Assess the potential recovery of phosphorus and nitrogen from wastewater
- Determine the feasibility for blending highly polished treated wastewater with secondary-class wastewater.
- Identify solutions and best practices that can be adopted within the New Water distribution network in order to improve the accessibility of New Water for the agricultural sector.

Part III – Details of the Actions Envisaged

The AQUARES project looks into opportunities for the optimization of water reuse and thus ensuring that the water sector ties in with the EU's principle for a circular economy. AQUARES does this through the identification and replication of sustainable and efficient practices that have been shared between the project partner consortia. Therefore, the objectives of the AQUARES project tie in well with Malta's vision for the development of a resource efficient and sustainable water sector. This Action Plan, by identifying key opportunities, will therefore seek to establish links between best practices identified by project partners and the operative framework for wastewater treatment and reuse in Malta.

The Action Plan will also compliment the Net-Zero Impact Utility Initiative which the Water Services Corporation has embarked on. This initiative will see the utility's operative framework become more efficient both from a water supply perspective and also from an energy efficiency perspective and thus reducing the overall impact on the environment through the provision of water services and also improve the water quality being supplied.

The drafting of the Action Plan has also been aligned with Malta's 3rd River Basin Management process and the identified actions will form part of Malta's 3rd RBMP which will guide the development of the local water sector during the period 2022-2027.

In addition, the Action Plan is also intended to complement Malta's EU Operational Programme 2021-2027, which identifies water management as one of its priority areas for Cohesion Funding with specific reference to the optimisation of the water sector's compliance with the requirements of the recast of the Drinking Water Directive and the Urban Wastewater Treatment Directive.

In all, 4 actions have been identified from the best-practices discussed during the first phase of the project and shall be implemented during Phase 2 of the AQUARES project (2022 – 2023) as further described in detail below:

Action 1

Analysis of the Blending Potential Between Highly-Polished Treated Water and Secondary Treated Wastewater for the Supply of a Nutrient Enriched Water Resource, Suitable for Irrigation.

The treatment process installed in the New Water Treatment Plants has the capacity to produce an effluent of very high quality. This process was necessary due to the relatively high saline content of urban wastewaters in Malta, and also to ensure a high level of safety in the final effluent by removing traces of emerging contaminants of concern such as pesticides, personal care products, industrial contaminants and pharmaceuticals. This high level of treatment also comes at a cost, due to the additional treatment capacity and energy requirements of the process.

Furthermore, this treatment process also removes valuable nutrients such as nitrogen and phosphorus that are beneficial for agricultural crops. Farmers therefore need to apply additional fertilizers in order to supplement their fields with the much-needed nutrients required to ensure sustainable crop-growth and eventual yields.

Action 1 therefore proposes the undertaking of a study that shall analyse the possibility of blending the highly polished treated water (New Water) with treated wastewater (that is usually discharged into the sea) before being supplied to the agricultural sector. This study will first assess the quality of the two effluents, and on the basis of this information develop blending scenarios which ensure the achievement of the water quality objectives set under the new EU Regulation on Water Reuse and other quality standards required to ensure the safety of the crops, the soil and the receiving environment. Hence the study will aim to identify optimum blending scenarios which maximise the resource and economic value of treated waters whilst increasing production and hence the possibility of further addressing agricultural water demand.

Action 2

Review of the Current and Emerging Technologies Aimed at Enhancing Energy Recovery From Wastewater Treatment.

Wastewater treatment technologies are increasingly focusing on the recovery of energy in order to enhance the energy efficiency of the treatment process. This can be achieved through different approaches, including the recovery of energy from sludge produced from traditional wastewater treatment plants as well as the adoption of anaerobic wastewater treatment processes which enhance the production of methane within the treatment process itself, thereby enabling the production of energy as part of the treatment process itself.

Action 2 therefore proposes the undertaking of a study to identify key technologies which enable the optimisation of energy management during wastewater treatment. The study will also assess the feasibility of the application of the identified technologies to Malta's urban wastewater treatment plants, taking into consideration various constraints and opportunities associated with these technologies, resulting in the ranking of identified technologies according to their technical and operational characteristics. A preliminary cost-benefit assessment will also be undertaken in order to enable a first assessment of the investment needs required for the adoption of these technologies in Malta.

Action 3
New Water Smart Supply Integration

The New Water Project envisages the commissioning of three dedicated distribution networks that will cover the southern (43km), northern (18km) regions of Malta and Gozo (8km). This network, once commissioned in the coming years, will deliver the highly polished effluent closer to the point of use, therefore facilitating access to farmers to this important source of irrigation water.

The distribution of New Water throughout the network is managed through the use of a smart hydrant pillar system, enabling farmers to access New Water using a pre-paid card system. Whilst ensuring access to New Water to registered farmers, and enabling the allocation of water use quotas based on agricultural land tilled by the respective farmers, this distribution system has faced challenges related to access by several users, given the high demand registered for New Water.

Therefore, Action 3 will analyse different management techniques that may be added to the New Water distribution infrastructure so as to optimise the level of control on the distribution points optimising factors such as access time windows and supply pressure in order to better the level of service provided to New Water customers.

Action 4
Further Research on the Recovery of Nitrogen and Phosphorus

The EU's Urban Wastewater Treatment Directive requires Member States to remove at least 80% of total phosphorus and between 70% - 80% of nitrogen from wastewater before it is allowed to be discharged into sensitive areas such as coastal marine waters. These nutrients are removed in the Urban Wastewater Treatment Plants using a combination of biological and chemical processes, which concentrate these nutrients in the sewage sludge.

Action 4 proposes a study to assess the recovery potential of these nutrients from sewage sludge. The study will assess the identified technology and its adaptability to Malta's Urban Wastewater Treatment Plants and determine the economic feasibility of the operation of a nutrient recovery component within these UWWTPs.

Action Plan Management

Action Timeframes

Action No.	Description	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023
A1.a	Quality assessment of wastewater inflow and treated effluent								
A1.b	Identification of optimal blending potential								
A2	Potential Study for energy recovery from wastewater sludge								
A3	Operational study for the introduction of different management techniques within the New Water distribution network								
A4	Study for the potential recovery of nitrogen and phosphorus recovery from wastewater sludge								

Estimated Budget and Funding Sources

In order to ensure the successful undertaking of the proposed actions, different funding sources will be used. These include national funding sources as well as EU funded initiatives.

The national funds that shall support the objectives of this Action Plan are listed below:

- National Funds (allocated annually for policy support measures related to water demand management). These funds are part of the annual national budget allocated under the Capital Expenditure Vote.
- Water Services Corporation Funds
- EU LIFE Programme through the inclusion of actions under the LIFE IP RMBP Malta Project relating to wastewater reuse.

Action	Estimated Budget	Funding Source	Funding Support Details.
A1.a. – Quality assessment of wastewater inflow and treated effluent.	€50,000	60% RBMP-LIFE Malta 40% National Funds	Funding for this action shall be sourced from the RBMP-LIFE Malta project (EU LIFE Funds, National co-financing) through a dedicated action under the LIFE IP Project that will focus on assessing the circularity potential of wastewater treatment and reuse in Malta.
A1.b. – Identification of optimal blending potential.	€50,000	60% RBMP-LIFE Malta 40% National Funds	Funding for this action shall be sourced from the RBMP-LIFE Malta project (EU LIFE Funds, National co-financing) through a dedicated action under the LIFE IP Project that will focus on assessing the circularity potential of wastewater treatment and reuse in Malta.
A2 – Potential study for energy recover from wastewater sludge	€50,000	60% RBMP-LIFE Malta 40% National Funds	Funding for this action shall be sourced from the RBMP-LIFE Malta project (EU LIFE Funds, National co-financing) through a dedicated action under the LIFE IP Project that will focus on assessing the circularity potential of wastewater treatment and reuse in Malta.
A3 – Operational study for the introduction of different management techniques within the New Water distribution network.	€20,000	100% Water Services Corporation – Internal Funds	The action will be completed as part of the Water Services Corporation's Business Plan (2020 – 2023). Specifically, the action shall be fully funded under Action 9 – Balance the transfer of New Water between sources and dispensers to identify leakages in real time.
A4 – Study for the potential recovery of nitrogen and phosphorus recover from wastewater sludge	€50,000	60% RBMP-LIFE Malta 40% National Funds	Funding for this action shall be sourced from the RBMP-LIFE Malta project (EU LIFE Funds, National co-financing) through a dedicated action under the LIFE IP Project that will focus on assessing the circularity potential of wastewater treatment and reuse in Malta
Total budget for Action Plan	**€220,000**		

Linkage of Action Plan with Project Partner Best Practices

The actions identified within this document have taken into consideration several best practices proposed by project partners. The table below refers to these best practices and to which of the four measures under the Action Plan they link with.

Reference Code	Best Practice	Partner	Adoptive Action
GDW10	Compounds control to reduce fertilization.	Murcia GDW	Action 1
GDW4	Dry anaerobic digestion for sewage sludge.	Murcia GDW	Action 2
GDW13	Co-digestion of sludge to produce biogas.	Murcia GDW	Action 2
GDW11	Smart irrigation networks that control the traceability of water quality at each point of the system.	Murcia GDW	Action 3
TR4	Aqualink – Water network efficiency. AquaLink system is an expandable monitoring platform that enables the public utility companies to gain control over their water network in a simple and effective manner.	Trebinje	Action 3
GDW15	Enhanced nitrogen and phosphorus recovery from wastewater	Murcia GDW	Action 4

Official Signature

Date: 2/11/2021

Signature: _____

Mr. Manuel Sapiano
Chief Executive Officer
The Energy & Water Agency

Stamp of the Organization: _____

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