



LIFE 16 IPE MT 008

**Optimising the implementation
of the 2nd RBMP in the Malta
River Basin District**

Project Overview

The LIFE 16 IPE MT 008 is an eight-year project (2018-2025) led by the Energy and Water Agency and co-financed under the EU LIFE Programme which aims to support and optimise the implementation of the Water Framework Directive in Malta. This project will help towards the better management of all water resources in the Maltese Islands.

Rationale

The LIFE Integrated Project (LIFE IP) will help the implementation of Malta's 2nd River Basin Management Plan (RBMP), and the achievement of the environmental objectives of the Water Framework Directive.

Furthermore, the proposed actions under the LIFE IP will also contribute to the achievement of the objectives of other EU Directives such as the Drinking Water Directive, the Groundwater Directive, the Floods Directive, the Marine Strategy Framework Directive, the Habitats Directive and the Bathing Water Directive. The LIFE IP will also support the process leading to the formulation of Malta's 3rd River Basin Management Plan.

The LIFE IP has been developed to ensure that the project eventually provides coordinated support towards the comprehensive achievement of the objectives of these Directives with actions focusing on the optimization of water demand (increasing awareness and efficiency in use), supporting the development of sustainable use conditions for a diverse range of water resources (rainwater and groundwater), supporting increased efficiency in the national water cycle through supporting wastewater re-use, and optimizing the management and protection of surface and coastal water bodies.



Significant Challenges

The development process of the 2nd RBMP has confirmed the significant challenges which Malta faces in achieving the good status objectives of the Water Framework Directive. These challenges arise due to a number of specific social, environmental and economic issues associated with a highly populated Mediterranean small island state, and include:

- A. Water Scarcity and Drought Conditions**, with a low availability of naturally renewable water resources for sustaining the production of drinking water and meeting the water demand of the population.
- B. High Population Density**, that with a high concentration of agriculture, industry, tourism, commercial and leisure activities results in significant pressures on water resources and associated ecosystems.

- C. Saline Intrusion**, due to groundwater abstraction and high-water demand of the islands.
- D. Contamination**, with high level of nutrients and nitrates pollution in both groundwater and inland surface waters.
- E. Vulnerability of the coastal waters**, mainly due to relevant marine based economic sectors and also land-based activities affecting marine waters through discharges of contaminants and nutrient runoff into coastal waters.

Objectives

The LIFE IP project will support the implementation of the 2nd RBMP through the establishment of an integrated framework for the optimised management of all water resources in the Maltese islands. Complementary actions of the 2nd RBMP will focus on the development of vertical measures targeting specific issues such as water supply augmentation, water demand management, water distribution capacity, environmental



valley management/restoration and the implementation processes of environmental and nature Directives. The LIFE IP Project seeks to address the key horizontal challenges which were identified during a gap analysis undertaken as part of the development process of the 2nd RBMP.

These key horizontal challenges are:

- i. Increased awareness of the need to conserve and protect water resources and dependent terrestrial, aquatic and marine ecosystems;
- ii. The need to incentivise/facilitate the initial uptake of measures, through demonstration actions and cases of best practice in addition to fiscal incentives, to effectively build up the confidence of stakeholders and water users in the solutions being proposed;
- iii. Improved institutional approach to measure implementation to achieve a higher level of collaboration with

institutions and stakeholders leading to the development of measures which are more readily implementable by the respective water using sectors; and

- iv. Reducing uncertainty in water body status assessments through improved knowledge on water-related processes, ecosystems and ecosystem services, as well as on interactions with anthropogenic activity, with a view to inform appropriate ecosystem-based management regimes and increase the consistency and trust of stakeholders in the status assessments.

Overall, addressing the above identified implementation gaps through the LIFE IP Project will ensure that the 2nd RBMP will not just be focused on the physical implementation of measures, but be also focused on ensuring the establishment of the necessary administrative (governance) framework to ensure that different measures under the 2nd RBMP are complementary and reinforce each other.

Project Specific Objectives

The project specific objectives are of a volumetric nature and arise mainly due to the cluster of water demand management measures aimed at addressing domestic water demand such as the provision of water audits, the introduction of a water eco-label and a number of awareness raising measures such as the use of a water app and game.



The project is expected to have the following impacts:

- Decrease the domestic water demand by around 5%
- Annual savings of around 850,000m³ in the municipal water supply
- Recharge to groundwater (Managed Aquifer Recharge and Sustainable Urban Drainage Systems) which together are expected to generate a net increase in the mean annual recharge of around 1.2 million m³
- Additional volumetric impacts are expected from measures protecting the resource value of sewage (leading to an increased production capacity of highly polished water with the same treatment plant capacity), valley management measures (increased rainwater runoff storage and recharge) and increased use of highly polished treated wastewater (instead of groundwater). The direct impact of these measures is however difficult to quantify at this stage.

The LIFE IP actions are also expected to generate several indirect impacts, with typical examples being:



Reduction in flood risk

through measures addressing sustainable urban drainage systems and valley management;



Increased protection to biodiversity and valuable cultural assets

through the development of valley management plans;



Increased protection to coastal and marine water bodies

through monitoring of industrial discharges and studies on RO discharges and studies on the hydrographic conditions and the impact of anchoring on the sea bottom;



Increased awareness on the challenges facing the water sector

through education measures and the provision of water audits;



Improved groundwater status

through managed aquifer recharge and the implementation of sustainable urban drainage systems;



Optimised management of coastal ecosystems

through wetland restoration; and



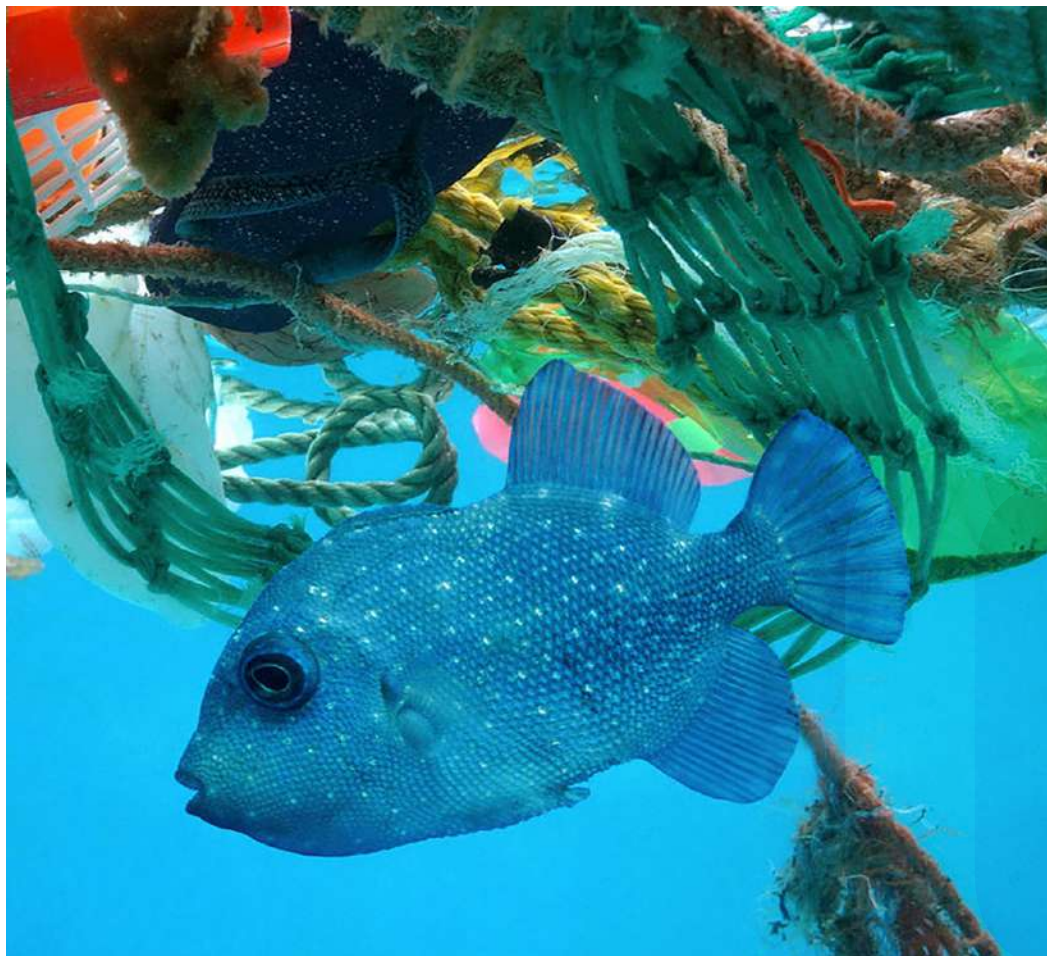
Enhanced Marine Monitoring and Forecasting systems

through the implementation of detailed monitoring and forecasting systems to protect and safeguard the status of our coastal waters.

Complementary Actions

The Complementary Measures form the core vertical measures in the Programme of Measures developed as part of Malta's 2nd RBMP and therefore focus on the following specific key objectives which have been identified as priority areas under the same RBMP:

- i. Establishing good governance to optimise the management of the water sector and the water environment,
- ii. Optimising the management of water demand to ensure that water use achieves high levels of efficiency,
- iii. Sustainable and conjunctive use of the nation's water resources to meet the nation's (efficient) water demand,
- iv. Sustainable use of Malta's water resources with a view to work towards conservation of water-dependent ecosystems and their services;
- v. Protection of the water environment from anthropogenic pressures,
- vi. Enhancing knowledge on water-related processes and sources of pressures to enable an ecosystems-based approach to management of anthropogenic activity;
- vii. Implementation of regulatory and monitoring processes to manage sources of pressures on inland and coastal waters;
- viii. Optimised management of hazards and risk associated with flooding,
- ix. Increasing the resilience of the water sector to the impacts of climate change,
- x. Development of the necessary administrative and technical structures to ensure an effective implementation of the RBMP, and
- xi. Attaining a high level of stakeholder appreciation of the challenges faced by the national water sector.



The complementary projects to the LIFE IP which are being undertaken to support the achievement of the key objectives of the 2nd RBMP include:

- The formulation of a National Water Conservation Campaign;
- The optimisation of the monitoring infrastructure for surface, ground and coastal waters;
- The development of distribution facilities for recycled water;
- The rehabilitation of water production and distribution infrastructure;
- The protection of sewers from sea-water infiltration;
- The optimisation of the energy efficiency of desalination plants;
- The implementation of the Nitrates Action Plan; and
- The implementation of the Agriculture Farm Waste Management Plan.



Activities

The main measures included under the LIFE IP Project

i. Increased Awareness

A. Household Water Consumption Audits

- This measure will develop a water audit framework, through which households can be advised on actions which need to be undertaken to optimise their water consumption to reduce the water demand of the domestic sector.

B. Water Educational Campaign - A specific campaign addressing education on water management and protection issues in schools will be developed in parallel with the National Water Conservation Campaign. The campaign will also seek to fund water management initiatives in schools and by schools in the community to enable the direct and practical involvement of students in the development of water management and protection projects.

C. Water App/Water Game - Through this measure web-based app will be developed to enable consumers to remotely monitor their water consumption. Furthermore, the measure will also seek the development of a high-level water consumption pc and mobile game based on the utilisation of water demand measures to manage municipal water demand, thereby providing an indirect stakeholder engagement tool. These tools will also aim to link water efficiency with environmental benefits to the water environment achieved by the user.

D. Eco-Label Scheme - This measure will seek to establish a voluntary national water eco-labelling scheme for water efficient devices and appliances, to ensure that consumers can have access to verified information when buying such devices and thus empower them to make the correct choice of appliance/device.

E. Demo new water resources - This measure will support the development of

demonstration sites where the application of new water resources (highly polished effluent) will be undertaken, to effectively demonstrate the safe application of these new water resources for irrigation to potential users.

ii. Facilitate the Uptake of Measures

A. Sustainable Urban Drainage Systems -

This measure will seek the implementation of three projects on the application of SUDS in three different localities. The implementation of this measure will be coordinated with Local Councils (local authorities) and other relevant public agencies, such as Transport Malta, to increase the appreciation of these sustainable water management systems in the local context.

B. Managed Aquifer Recharge - This measure will seek the development of a MAR scheme in the Malta north region to increase the flow (recharge) to the aquifer systems using highly polished effluent in periods of low demand from the agricultural sector for



this water. This MAR scheme will also serve the purpose of restoring the good qualitative status of a small aquifer system through the infiltration of water with a significantly higher quality than that currently found in the aquifer system itself.

C. Valley Management Plan - This measure will seek the development of a valley management master-plan which will regulate the long-term rehabilitation of rainwater runoff storage areas behind valley dam structures whilst ensuring the necessary level of protection to the overall values and

functions of valley systems including their ecosystems and cultural assets.

iii. Governance

A. Multi-stakeholder platform - This measure will seek the establishment of a multi-stakeholder water table involving both stakeholders from the public and private (including water-user associations and e-NGOs) sectors who would meet to assess the progress achieved in the implementation of the 2nd RBMP and discuss potential ways in which this implementation process can be optimised.



B. Industrial Discharges - This measure will seek to support the development of the necessary administrative and technical capacity to better monitor and control discharges to the public sewerage system, to better protect the resource value of wastewater and reduce the need for downstream treatment prior to reuse and increase the level of protection to coastal water bodies.

C. Remote sensing for Agriculture Water Demand - This measure will seek to establish a monitoring framework for the effective water use of the agricultural sector using satellite imagery, acquired from the EU Copernicus programme. This monitoring framework will enable the assessment of agricultural water demand and the identification of excessive (and illegal) water uses by the sector.

iv. Reducing Uncertainty

A. Groundwater Modelling - This measure will seek the development of numerical models of the main groundwater bodies in the Maltese islands to better determine the sustainable yield of these aquifer systems and their contribution for sustaining inland water-dependent terrestrial ecosystems. Furthermore, the models will also permit the assessment of the response of the aquifer systems under future scenarios including those potentially arising due to climate change.

B. Assessment of the Sectoral Water Demand in Malta and Gozo - Through this measure, water demand assessment models will be developed to enable the better assessment of the water demand of the economic and agricultural sectors, and thereby permit a reliable indirect assessment of their reliance on self-production of water resources. The results of these models will permit more reliable water balance models and thereby status assessments.

C. Monitoring Emerging Contaminants of Concern - This measure proposes the development of a monitoring framework to identify the presence of contaminants of emerging concern in surface (including coastal) and groundwaters, treated wastewater and surface runoff. Contaminants of emerging concern can be defined as pollutants that are currently not included in routine monitoring programmes at European level and which may be candidates for future regulation if they pose risks to the environment. This measure will also be contributing to similar initiatives in other Member States aimed towards the establishment of 'watch lists' for these contaminants under the Common Implementation Strategy of the Water Framework Directive.

D. Restoration of coastal wetlands - This measure will address the assessment and restoration of biodiversity and hydro morphological elements pertaining to

coastal wetlands, with specific reference to the Ballut ta' Marsaxlokk wetland through water quality analysis, the study of current hydrological regimes and associated coastal erosion processes for this water body typology, thereby enabling the identification of the possible interventions and alternative solutions targeting the restoration of coastal wetlands.

E. Hydrographical Model - This measure proposes the development of a baseline hydrographical model for the Maltese coastal and offshore waters, through the collection, interpretation and modelling of hydrographic data.

F. Anchoring and Mooring Surveys - This measure will seek to identify and address the specific pressures arising from boat moorings and anchoring through onsite surveys.

Project Beneficiaries

- The Energy and Water Agency of Malta
- The Environment and Resources Authority
- The Water Services Corporation
- The Ministry for Transport, Infrastructure and Capital Projects
- The Information Management Unit within the Ministry for Energy and Water Management
- The Ministry for Gozo
- Ambjent Malta within the Ministry for the Environment Climate Change and Planning
- University of Malta



MINISTRY FOR ENERGY
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MINISTRY FOR GOZO

