

A project for the integrated management of protected coastal areas in Malta

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Abstract. This paper examines a 3-yr EU LIFE-funded project for the management of two especially protected areas on the Maltese coast. Project partners are the Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD), the Gaia Foundation and the Ministry for the Environment of Malta.

Project sites are the Ghajn Tuffieha area on the northwest coast of Malta, and the Ramla Bay area on the island of Gozo. While both sites are in a relatively pristine state and comprise a number of features of ecological and scientific importance, they are also prime recreational areas, hosting thousands of visitors especially during the summer months. The challenge is to manage these sites in a sustainable manner in order to protect their unique ecology while simultaneously controlling and managing the human activities taking place there.

The following sequence of activities is being implemented at both sites: surveys of the resources present (biodiversity, habitats, geological and hydrological features, and archaeological heritage), implementation of first intervention measures, and the drawing up and implementation of site-specific management plans, including rehabilitation and protection of biodiversity and habitats, regulations for site use, and awareness raising and educational measures.

The management structure of this project supports the concept of decentralization of management of protected areas, through the granting of responsibility for the direct management of these sites to a non-governmental organization, under joint government/EU funding. This paper thus presents the project as a model for similar initiatives for the management of protected sites in the Mediterranean.

Keywords: Non-governmental organization; Pilot project; Specially protected areas; Sustainable coastal management.

Abbreviations: DPA = Development Protection Act, 1992; EPA = Environment Protection Act, 1991; EU = European Union; ICoD = Euro-Mediterranean Centre on Insular Coastal Dynamics.

Introduction

The coastal zone is an area of intense activity, based on interchanges within and between the physical, biological, socio-cultural and economic processes operating concurrently. The complexity of the coastal system is further increased by the dynamic interactions of the marine, terrestrial and littoral subsystems present, and by the impacts of human activities on the coast's renewable and non-renewable resources.

Socio-economic development in coastal areas is in many respects more rapid than elsewhere. This accelerated development results from the recognition of coastal regions as providing ideal conditions for a number of economic and social objectives. Coastal uses include transport, production of food, exploitation of mineral resources, petroleum, natural gas, agricultural and industrial development, urbanization and housing, and tourism and recreation. Rapid exploitation and development of these uses creates conflicts between the dynamics of the natural system and the human activities concentrated in these coastal regions.

This interdependence of resources and activities means that satisfactory results cannot be achieved by following a sectoral approach to coastal area management (Anon. 1995). Effective management of these areas needs to consider not only individual activities and their impacts, but also the combined effects of sectoral activities on coastal resources. Malta is no exception to the stresses and pressures experienced by the coastal areas of other countries, and is particularly affected by the phenomena of spreading urbanization and concentration of human activities at the coast. Malta's coastal area has played a very important role in the social and economic development of the islands, and is probably the country's most important natural resource. With a total coastal length of just under 200 km, the Maltese coastline is subject to severe pressures of development. Development pressure is intensified by the fact that 50% of the coast of mainland Malta is classified as 'inaccessible' due a combination of physical features such as

cliffs, and coastal development. For the island of Gozo, 74% of the coastline is considered to be inaccessible (Anon. 1990). The concentration of development within the limited coastal area available is leading to serious problems for the Maltese Islands, as conflicting uses compete fiercely for valuable space along the short coastline.

Tourism is a major industry in the Maltese Islands, with over 1.2 million tourists visiting the islands in the year 2000 (Anon. 2001). The tourism sector currently accounts for more than 25% of total exports of goods and services at the national level, with the main tourist product being related to the recreational value of the coast. The potential for irreversible damage that tourism pressures may cause to the natural environment on which the industry itself depends has been recognized by the local authorities (Anon. 2000a). The protection and sustainable development of Malta's coastal areas are thus essential goals in economic terms as well as for ethical and social reasons. Attaining sustainability is particularly challenging in the case of coastal areas having conservation value, since protection of sensitive or threatened features must be achieved without excluding recreational use and public enjoyment of the sites. Hence the need for an integrated approach, such as that adopted by the current project, in order to achieve a commonly acceptable framework for management of protected coastal areas.

At present, no specific legislation exists in Malta to regulate the use of the coastal area, and this has led to widespread illegal developments and uses occurring along the coast. The current national legal mechanisms for the protection of areas of natural coastal environment are provided by the Environment Protection Act 1991 (EPA), and the Development Protection Act 1992 (DPA). The EPA enables the designation of nature reserves and the protection of particular species, while the DPA affords protection of designated sites of natural beauty, ecological or scientific value through the issue of site-specific conservation orders. While both coastal sites considered by the current project incorporate scheduled sites of scientific and ecological importance, no conservation orders have been issued to date for these sites or for any other natural environments in the Maltese Islands. This has been attributed to the lack of financial and human resources required to implement the conservation orders (Anon. 2000a). The lack of a comprehensive approach to coastal management to date is expected to be addressed by the formulation of a national coastal strategy for the Maltese Islands – this is currently the focus of a topic study being carried out by the Planning Authority. In the meantime, initiatives such as the current project, involving collaboration between governmental and non-governmental bodies and

having the support of the European Community, are paving the way for the implementation of innovative practices in the management of protected coastal sites. This project is thus an attempt to solve, at least for the pilot project sites identified, the problem of human and financial resources identified above, and to promote co-ordination among the responsible organizations in order to achieve a more effective approach to coastal management at protected sites.

Collaborating institutions and project framework

The project is a collaborative action between the Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD; a University-based research centre), the Gaia Foundation (an environmental NGO) and the Ministry for the Environment of the Maltese government, under the LIFE Programme of the European Commission. It is the first project locally to bring together such diverse institutions under EU funding for the purpose of managing areas of public land scheduled for protection under the Development Planning Act. The project also incorporates two of the first management contracts of this type to be issued by the Ministry for the Environment – the other two contracts concern the management of designated nature reserves under the EPA, which are managed by Birdlife (Malta), an ornithological NGO.

ICoD is a specialized centre working in training and research within the fields of coastal management, remote sensing, and ocean and atmospheric modelling. ICoD was responsible for the initial identification of the LIFE Programme as a suitable funding mechanism and for the preparation and submission of the project proposal. Following the selection of the project for funding, ICoD's role is currently the overall co-ordination of project activities, including a liaison with the LIFE office in Brussels.

The Gaia Foundation was founded in 1987, with 'the protection and understanding of the environment' as its primary objective. The Foundation has been entrusted with the management of the first project site at Ghajn Tuffieha since 1996 through signature of a contract with the Environment Protection Department of the Ministry for the Environment. Within the current project, the role of the Gaia Foundation is to develop and implement management policy and practices at the project sites.

The Ministry for the Environment is a signatory to the contracts for the transfer of responsibility for management of the project sites to the Gaia Foundation, and is co-funding the project. The Ministry provides 50% of the total project costs, in the form of annual grants to the project, while the remaining 50% is provided by the LIFE Programme.

The LIFE Programme is the financial instrument supporting Community environmental policy. The general objective of LIFE is to contribute to the development and implementation of Community environmental policy and legislation, both in nature conservation and other fields of the environment. LIFE is the only EU financial instrument to provide aid for the environment throughout the Union and in bordering regions.

As a candidate country for EU membership, Malta is eligible to submit project proposals under LIFE-Third Countries, a sub-programme of LIFE aimed at funding activities to be implemented in third countries bordering on the Mediterranean and the Baltic Sea; 5% of the total LIFE budget is reserved for Life-Third Countries activities, and the programme is primarily directed at national administrations. However, it is also open to persons or companies of whatever legal status, residing in eligible countries, who wish to propose and implement projects at a local, national or regional level, conditional to the provision of a signed affirmation of support by the relevant national environmental authority.

The LIFE-Third Countries programme supports specific environmental actions in three sectors: (1) technical assistance actions, (2) demonstration actions to promote sustainable development and (3) actions for the conservation and restoration of significant habitats of threatened species of flora and fauna.

The current project was submitted and approved under the latter category as a nature protection action, and was thus eligible for funding by LIFE of a maximum of 50% of the total project costs. The total budget of the project is LMT 158300 (ca. 412000 EUR), spread over the project duration of 36 months. The full support of the Maltese government and the availability of a reliable source of funding from the Maltese government were therefore crucial enabling factors in the selection of the LIFE Programme as a suitable potential funding source. The application for LIFE funding can be regarded as having successfully doubled the funds originally available for the management of the protected sites selected for management within the project.

Other important criteria for LIFE project funding which are taken into account by the present project are the provision of solutions which can be reproduced in other countries and/or areas of the region, and the long-term sustainability of project activities. The environmental relevance of the project on a national level is also an essential factor, as it ensures that actions for the re-utilization and dissemination of results within the region are taken into account.

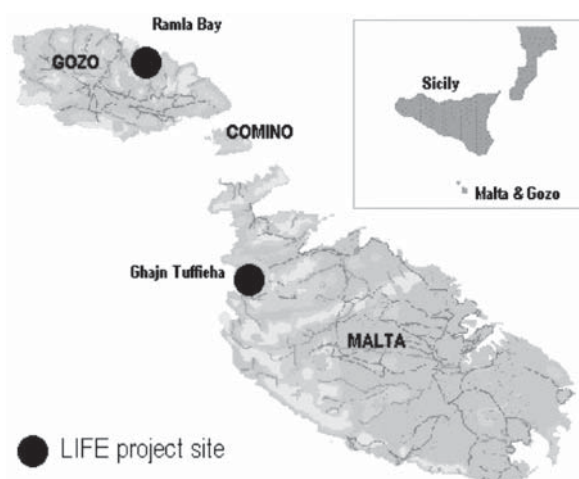


Fig. 1. Location of the project sites in the Maltese Islands.

Project sites and objectives

Fig. 1 shows the location of the project sites. The first project site at Ghajn Tuffieha is located on the Northwest coast of Malta, and encompasses a total area of 0.8 km². The site (Fig. 2) is characterized by highly variable relief, with surface gradients ranging between the gently inclined tops of the step and headland, to the moderately undulating weathered top of the ridge, to steep clay slopes and near-vertical cliff-walls. It is this characteristic, together with the pristine state of the site, which give the area its great aesthetic value. The popularity of the site as a recreational area is also complemented by the excellent bathing facilities offered by its sandy beach. Sandy beaches make up only 2% of the Maltese coastline, and several beaches around the coast have been degraded over the past years through the construction of roads and concrete platforms.



Fig. 2. The Ghajn Tuffieha project site.

The value of the few remaining pristine sites such as the Ghajn Tuffieha and Ramla Bay beaches is therefore at a premium, rendering their protection essential at the national level.

The aesthetic and ecological value of Ghajn Tuffieha is reflected in the official protection status recently granted to this site. The whole of the Ghajn Tuffieha site considered by this project was officially scheduled as an Area of Ecological Importance (AEI) and as an Area of High Landscape Value (AHLV) by virtue of Government Notices appearing in the Government Gazette in 1995 and 1996 respectively (Government Notices 117 of 24.02.1995 and 400 of 16.02.1996). Included within the project area are considerable tracts of land having Level 1 protection status, the highest level of protection, listed as featuring 'important habitat types present only in small areas and/or sites with unique species or features' (Anon. 1990).

The second project site, Ramla Bay, is situated on the northern coast of the island of Gozo (Fig. 1) and forms the mouth of a wide, water-eroded valley known as Wied ir-Ramla. The most important features of the Ramla Bay area are the sandy beach (Fig. 3) and the sand dune system backing it. The beach is Gozo's largest sandy beach, and as at Ghajn Tuffieha, it is intensively used for recreation during the summer months. The site supports a number of important biotic communities, including the largest sand dune remnant of the Maltese Islands, and a freshwater wetland community. Sand dunes are among the rarest and most endangered habitats in the Maltese Islands. Due to this site's extent, species richness and ecosystem stability, the Ramla Bay dunes are the most important ecosystem of this type present today in these islands. The freshwater wetland community is present on the beach in the area where run-off from the valley watercourse flows across the



Fig. 3. The beach backed by sand dunes at the Ramla Bay project site.

beach during the rainy season. This area of wetland also represents a rare habitat, and contains species having a very restricted distribution in the Maltese Islands.

In July 1994, in response to the immediate threats facing Ramla Bay's natural environment, the Planning Authority issued an Emergency Conservation Order, extending to 100 m offshore. An ecological survey was commissioned, and the entire site was finally scheduled under the DPA as an Area of Ecological Importance by Government Notice 6 (Government Notice 6, 06.01.1995).

The following main objectives have therefore been identified for implementation within this project at the two protected areas:

- Rehabilitation of unique biodiversity and habitats, ensuring their preservation for future generations;
- Protection of features of ecological and scientific importance, such as clay slopes, sand dunes, freshwater wetlands, etc.;
- Control of erosion of blue clay slopes, thus protecting the landscape value of the entire project sites;
- Regulation of recreational uses, and promotion of the public's enjoyment of a pristine landscape via environmentally-friendly activities;
- Education of the general public and raising of awareness regarding the importance of coastal conservation;
- Promotion of the innovative concept of decentralization of SPA management, both at a national and regional level.

Detailed surveys have been carried out at each site in order to assess the important characteristic features of the sites in terms of their ecology, geology, geomorphology and hydrology (Fava et al. 1997; Micallef et al. 1994; Anon. 1997a). The recommendations contained within these surveys, together with the objectives listed above, form the basis of the specific management plans developed for the project sites.

Project activities

While the LIFE project is currently halfway through its second year of implementation, it should be noted that the Gaia Foundation has been implementing management activities at the Ghajn Tuffieha site since the signature of the first management contract in 1995, in line with the Ghajn Tuffieha Management Plan formulated in 1997 (Anon. 1997b). At the Ramla Bay site, management intervention is still in its initial phase, following the signature of the management contract for this site in December 2000, and the approval in April

2001 of the Management Plan by the Environment Ministry (Anon. 2000b).

Project activities carried out so far may be summarized as follows:

1. Rehabilitation of unique biodiversity and habitats

Ecological surveys have been carried out for the project sites and associated adjacent areas which are being considered as potential extensions of the current sites. Habitat maps and species lists were drawn up, allowing recommendations to be made regarding proposed amendments to the levels of protection currently active. Both sites contain a number of vulnerable and restricted species as listed in the Red Data Book for the Maltese Islands. Following an aerial survey of the Ghajn Tuffieha and Ramla Bay areas, a better assessment of the extent and location of areas of degraded habitat is now available for use in connection with their rehabilitation through reafforestation with native species.

Under the project, Malta's first nursery for indigenous trees and shrubs has been set up in a disused water treatment plant at the Ghajn Tuffieha site. The nursery successfully propagated 3440 new trees and herbaceous plants for planting in the 2001/2002 season, and has collected a seed bank of rare indigenous species never previously propagated.

A total of more than 4000 native trees and shrubs were planted during the spring 2000 and 2001 planting seasons, and the existing drip irrigation was extended to cover all new plants.

2. Protection of features of ecological, scientific and landscape value

The management plan for Ghajn Tuffieha has been in operation since the first interventions by the Gaia Foundation at this site in 1997. The management plan for the Ramla Bay site was submitted in December 2000 to the Environment Protection Department of the Ministry for the Environment for their consideration, and immediate approval was obtained for implementation of urgent conservation measures to prevent further damage to the site's sensitive features, especially the sand dunes. The Ramla Bay management plan was approved in April 2001, allowing work to start on implementation of the full programme of management measures outlined within it. Rationalization of the existing footpath network at Ghajn Tuffieha is being brought about by signposting of the main accepted footpaths through the site, while unauthorized access points from the clay slopes to the beach have been planted and fenced. Fencing off of the particularly sensitive dune area at the Ramla site will shortly be implemented in order to prevent trampling of these

areas. Vehicle access to the sites from the road has been restricted to authorized vehicles by installing padlocked gates at the entry points. This has effectively put a stop to the previously prevalent illegal practice of parking of visitors' cars on the clay slopes at Ghajn Tuffieha. This measure, together with the extensive planting carried out in these areas, has already reduced the erosion problems experienced during the rainy season, and is expected to result in the long-term stabilization of the threatened clay slopes.

At Ghajn Tuffieha, daily beach cleaning is being carried out during the summer months, and bins placed in remote swimming areas inaccessible to vehicles are serviced by boat. Similar measures are planned for the beach at Ramla Bay.

The promotion of sustainable agricultural practices at the Ghajn Tuffieha site is being achieved through the education of local farmers regarding organic practices to reduce the use of pesticides and fertilizers, and through implementation of the first permaculture pilot project in the Maltese islands being carried out on-site in an area of previously abandoned fields. Similar initiatives are planned for the Ramla Bay site.

3. Regulation of recreational uses

Full-time site wardens have been employed at the Ghajn Tuffieha site to enforce the regulations prohibiting camping, offroading, open fires and littering. Support to wardens was provided by the presence of a plain-clothes policeman during summer weekends, particularly during sea patrols for the enforcement of Malta Maritime Authority regulations prohibiting boat access to the demarcated Swimming Zone within the bay.

Authorized access points and footpaths have been indicated by regulatory signs, and their use by visitors has been enforced through the presence of wardens at Ghajn Tuffieha. Fencing of the sensitive dune area at Ramla Bay has been carried out to prevent trampling, together with placement of regulatory and explanatory signs.

A waste management system, involving separation at source and recycling, has been implemented at Ghajn Tuffieha; some of the organic waste collected is being composted at the nursery.

Beach management at the Ghajn Tuffieha site has been improved by the setting up of a first aid post, the enforcement of safety and environmental regulations, and the installation of three buoyed lifelines to aid swimmers in rough sea conditions. Similar measures are planned for the Ramla Bay site.

4. Education and public awareness raising

Visitor information boards have been placed at vantage points around the Ghajn Tuffieha site, concerning

fire hazard zones, beach safety, site regulations and waste separation guidelines. Similar measures are planned for the Ramla Bay area.

Wardens are available on-site to provide clarifications of the regulations and to explain the objectives and rationale of the project. A website has been established at www.projectgaia.org, giving rapid access to updated information about the project, as well as making available on-line the text of all surveys and reports commissioned by the project.

In collaboration with the Gaia Foundation, a German cultural tourism organization has been conducting guided walking tours of the Ghajn Tuffieha site on a regular basis.

5. Promotion of decentralization of management of specially protected areas

The signature of the original Management Agreement for Ghajn Tuffieha in 1995, and the recent signature of the contract for Ramla Bay, followed by the acceptance of the associated Management Plan by the authorities in April 2001, have applied this concept to two protected sites in the Maltese islands.

Discussions are currently underway with the responsible authorities for the transfer to the Gaia Foundation of the responsibility for management of a further site, adjacent to the Ghajn Tuffieha area. This site consists of ca. 2.5 km² of coastal cliff, already scheduled as a level 2 Area of Ecological Importance under the DPA (1992).

Information on the innovative management aspects of the project has been disseminated locally through a launch seminar, and through the E-mail newsletter of the Environment Protection Department, as well as to the thousands of visitors to the project sites.

Identification of problems and constraints

The following constraints have been identified and are being addressed within the project:

1. Land ownership

The management contracts only apply to areas at the project sites which are government-owned land. At Ghajn Tuffieha, part of this land is agricultural in nature, while other parts are currently the subject of leases. A sizeable parcel of private land, including the site of a derelict hotel and the slope below it, lies in the northern part of the area. There is also a significant area of public land occupied on sufferance and without legal title by farmers. At the Ramla Bay site, the delineation of public versus private land is still in question, since the government has no accurate records of land ownership in the area. While there is considerable agricultural use of the fields bordering the sand dunes at this site, it is not known which

areas are privately owned and which are the subject of leases.

By the terms of the management agreements for the project sites, management interventions can only be undertaken on governmental land. But, within the integrated approach of this project, project managers are committed to seeking the co-operation of tenants and private landowners in order to protect all land which falls within the scheduled area. In particular, farmers will be encouraged to employ sustainable agricultural methods for the cultivation of both leased and privately owned land.

2. Enforcement of regulations

While considerable progress has been achieved in this regard, the project's continuing success in regulating visitor activities is dependent on the ability of the site wardens to enforce regulations at law. The ideal situation would be for the wardens to have direct authority to caution and book offenders; until such time, law enforcement at the project sites depends on the committed backup by the relevant personnel of the Environment Protection Department, the Planning Authority's Enforcement Unit, and the Police Force.

Additional government action required in support of this project includes:

- The issue by the Planning Authority of permanent Conservation Orders under the DPA, giving site-specific regulations for the management and protection of the two project sites;
- Designation under the DPA of the amended boundaries and increased protection levels, as recommended by the detailed surveys carried out as part of this project.

3. Support of stakeholders

Management of the coast on the Maltese Islands is subject to an extremely fragmented approach, since a number of ministries, departments and authorities are separately concerned with the different aspects of any proposed management actions. In line with the public participation principle enunciated in the Aarhus Convention of June 1998, the project management therefore maintains continuous contact with organizations and persons considered to be the main stakeholders in this project. These include:

- the Malta Tourism Authority regarding the setting up of a visitor information centre;
- the Ministry for Tourism regarding the beach cleaning work at the two sites;
- the Ministry for Gozo, for matters concerning the Ramla Bay site;
- Golden Sands Co. Ltd. regarding the demolition of a derelict hotel building and beach bar at the Ghajn Tuffieha

site;

- the Planning Authority regarding all intervention measures, regulations and enforcement orders for removal of illegal structures;
- the Department of Agriculture regarding the provision of plant material for the afforestation programme and the setting up of a tree nursery.

A Management Board has been set up to discuss the main issues arising from the implementation of management activities at the project sites. This board has an advisory role, and its regular meetings are attended by representatives of the following government authorities: the Environment Protection Department, the Planning Authority, and the Department of Agriculture. Also on the Management Board are the Mayors of the Local Councils within whose boundaries the project sites are located. The involvement of representatives from the local governmental bodies underlines the project's intention and commitment towards achieving a significant measure of decentralization in the management of protected areas. This inclusive approach is considered to be the best way of achieving consensus and support from all the diverse organizations that are considered to be stakeholders.

Conclusions

An assessment of the results achieved during the first 15 months of the LIFE project shows a considerable amount of progress towards achieving the project objectives at the two sites. Interventions at Ghajn Tuffieha have successfully regulated visitor activities, encouraging those that comply with the site's protected status, and preventing further damage to the site by enforcing regulations prohibiting unsuitable activities. Improved protection is being afforded the site's threatened habitats, and rehabilitation of degraded areas is being carried out by planting of indigenous species of trees and shrubs. The implementation of a similar programme of measures aimed at the protection and rehabilitation of the sand dunes and surrounding area at the Ramla Bay site is now under way, following signature of the management plan for this site. This is a measure of the successful extension of the concept of decentralization of protected area management to the second project site on the island of Gozo. Various activities aimed at education and the raising of public awareness regarding the importance of the project sites, and of coastal conservation issues in general, have been implemented, resulting in a growing interest in the project, both locally and internationally.

The technical sustainability of this project is not considered to be an obstacle, since good working re-

lations have been established with the foremost experts in all relevant fields, who have contributed their expertise within the surveys carried out and the management recommendations put forward. It is also considered that the project management team has been proved to possess the required commitment and capabilities to continue managing the current project sites, and to extend this approach to further sites in the future.

The challenge facing this project is to ensure its long-term financial sustainability. Under the present management agreements for both project sites, the government is committed to providing the sufficiently high level of funding required to support the intensive activities planned for the LIFE project term. The financial contribution from the government is expected to be reduced following 2003. Continuation of project activities after the end of the 3-yr term of LIFE funding will necessitate a much lower level of funding than is currently required, since the bulk of the site rehabilitation and intervention measures will have been carried out during this term. The largest recurring expense at both sites after this period will consist of salaries for wardens, since the continuing presence of on-site wardens for enforcement of regulations and minor maintenance duties is essential to retain the results achieved by the current project. It is therefore planned to continue to supplement the government funding through a number of initiatives, including commercial sponsorships, donations and membership contributions to schemes such as the planned 'adopt a tree' campaign. Other initiatives include the marketing of products such as organically grown agricultural produce from the permaculture pilot project, and the sale to local councils of surplus trees and shrubs from the on-site nursery. Another current initiative involves the application by the project manager to the relevant authorities for a permit to provide beach bar facilities at the Ghajn Tuffieha site – the concession would then be leased to an operator for an annual fee, which would be used to support beach management activities. There are also plans for promoting ecotourism activities within the project, involving a combination of activities with volunteer work at the sites. The development of these initiatives is expected to provide sufficient additional funding to support the long-term enforcement and maintenance activities required to ensure the protection and maintenance of the sites.

This project can be regarded as a good pilot project for the Mediterranean area for management by non-governmental organizations of protected areas on public land. The transfer of full responsibility for management of the project areas from central government to non-governmental organizations is a significant innovation, both locally and at the regional level. The project is therefore considered to have excellent potential for

reproduction, both on Maltese islands and abroad. In Malta, the results achieved by the initial phases already implemented at the Ghajn Tuffieha site have so far led to the extension of the successful management strategy to the second project site in the neighbouring island of Gozo, and a third project site is currently being investigated. It is suggested that a similar approach could profitably be applied to other protected coastal sites in the Mediterranean, which could benefit from the experience gained in the execution of this project. The lack of implementation of existing regulations and the seeming lack of interest or commitment by the central government are problems that are common to several Mediterranean countries. This project thus offers practical and easily implemented solutions towards improving the management of protected coastal areas. The current project's funding structure, organizational structure and system of co-operation with other local organizations, are all aspects that can easily be copied by a similar project elsewhere in the Mediterranean.

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