

REPORT 3: ENVIRONMENTAL REPORT

NON-TECHNICAL SUMMARY

STRATEGIC ENVIRONMENTAL ASSESSMENT ON MALTA'S OPERATIONAL PROGRAMMES 2007-2013

Strategic Environmental Assessment (SEA) of Malta's Operational Programmes 2007-2013

Report 3: Environmental Report Non-Technical Summary

**Prepared for the Planning and Priorities
Coordination Division within the Office of the
Prime Minister
by**

**Adi Associates
Environmental Consultants Ltd**

August 2006

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QUALITY ASSURANCE

SEA of Malta's Operational Programmes Report 3: Environmental Report Non-Technical Summary

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CONTENTS

GLOSSARY	i
EXECUTIVE SUMMARY	iii
NON-TECHNICAL SUMMARY	I
INTRODUCTION.....	I
Purpose of the SEA.....	I
MALTA'S OPERATIONAL PROGRAMMES.....	I
Relation of OP I to other National Documents & Legislation.....	3
SEA METHODOLOGY	3
Assessment Process	3
ENVIRONMENTAL BASELINE	4
Air Quality	4
Climatic Factors.....	5
Energy-efficiency and Renewable Energy Resources.....	5
Biodiversity	6
Freshwater	7
Waste.....	7
Marine and Coastal Environment	7
Land Use	8
Transport	9
Oil Spills.....	10
Floods	10
Landscape.....	10
Cultural Heritage.....	10
Noise, Dust and Light Pollution.....	10
EVALUATION OF THE CURRENT STATE OF THE ENVIRONMENT IN THE ABSENCE OF THE OP	II
IMPACT ASSESSMENT	II
Summary of the Assessment	16
Cumulative & Synergistic Impacts.....	17
MITIGATION MEASURES	18
Provision of Advice to Applicants	19
Provision of Checklists for Funding Application Assessors.....	19
Biodiversity Issues.....	19
Waste Management.....	19
Noise, Dust, and Light Pollution.....	20
Climate Change	20
Cultural Heritage.....	20
Land	20
MONITORING	20

FIGURES

Figure 1: Designated and managed areas6

Figure 2: Corinne Land Cover 20008

TABLES

Table 1: SEA Environmental Objectives & Criteria for Assessing Impacts 13

Table 2: Summary of potential impacts of the OP..... 16

Table 3: Summary of cumulative environmental effects of the OP..... 17

GLOSSARY

ADT	Awtorita dwar it-Trassport (Malta Transport Authority)
BIC	Business Incubation Centre
CF	Cohesion Fund
CH ₄	Methane
Cl	Chlorine
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CSF	Community Support Framework
CSG	Community Strategic Guidelines
EAFRD	European Agricultural Fund for European Development
EAGGF	European Agricultural Guidance and Guarantee Fund
EC	European Commission
EFF	European Fisheries Fund
EIA	Environmental Impact Assessment
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
FIFG	Financial Instrument for Fisheries Guidance
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GMO	Genetically Modified Organisms
GRDP	Greening Regional Development Programme
ICT	Information and Communications Technologies
ISPA Programme	Instrument for Structural Policies for Pre-Accession Programme
LN	Legal Notice
LPG	Liquefied Petroleum Gas
LRP	Lead-Replacement Petrol
MDGs	Millennium Development Goals
MEPA	Malta Environment and Planning Authority
MIA	Malta International Airport
MICE	Meetings, Incentives, Conferences and Exhibitions
N ₂ O	Dinitrogen oxide
NAP	National Allocation Plan
NGOs	Non-Governmental Organisations
NMVOC	Non-Methane Volatile Organic Compound
NO ₂	Nitrogen Dioxide
NO ₃	Nitrate
NO _x	Nitrogen Oxides
NRP	National Reform Programme
NSO	National Statistics Office

NSRF	National Strategic Reference Framework
O ₃	Ozone
ODZ	Outside Development Zone
OP	Operational Programme
OPM	Office of the Prime Minister
PDS	Plan/Programme Description Statement
PEPFAA	Prevention of Environmental Pollution from Agricultural Activities
PM ₁₀	Particulate Matter
PPCD	Planning & Priorities Coordination Division
R & D	Research and Development
RDP	Rural Development Plan
RPAC	Regional Project Assessment Committee
RTDi	Research and Technological Development and Innovation
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environmental Protection Agency
SME	Small and Medium-Sized Enterprises
SO ₂	Sulphur Dioxide
SPA	Specially Protected Areas
SPD	Single Programming Document
SWOT	Strength, Weaknesses, Opportunities and Threats
TEN-T Network	Trans-European Network for Transport
TINA	Transport Infrastructure Needs Assessment
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organisation

EXECUTIVE SUMMARY

The Environmental Report describes the Strategic Environmental Assessment (SEA) in relation to Malta's Operational Programme I 2007-2013 for the Maltese Islands.

The SEA Regulations 2005 require that a SEA is carried out prior to the implementation of the plans or programmes such as Malta's Operational Programme I.

Operational Programmes establish the framework within which funds made available through the Cohesion Policy are spent over the next seven years (2007-2013). In Malta, there are two Operational Programmes that have been guided by the priorities contained in the National Strategic Reference Framework: Operational Programme I and Operational Programme II.

Operational Programme I will be co-financed by the European Regional Development Fund and the Cohesion Fund. It aims to address the infrastructural needs of the country through 8 Priority Axes that focus on: a) investment in enterprise-support infrastructure, b) supporting enterprises, c) sustainable tourism, d) upgrading the transport network, e) improving accessibility, f) improving the environment infrastructure, g) urban regeneration and improving quality of life, and h) technical assistance to administer the funds. Operational Programme II will be co-funded by the European Social Fund (ESF) and focuses on the development of human resources and employment. An SEA on Operational Programme II is not required by legislation.

The Environmental Report highlights Malta's environmental issues including air pollution, energy efficiency and renewable energy, biodiversity, fresh water quality, waste management, marine quality and the coastal environment, land use, transport, flooding and oil spills, landscape, noise, dust, and light pollution, and cultural heritage.

SEA objectives relating to the above issues were formulated and used to assess the impacts of the first seven of the Priority Axes.

The assessment identified that none of the Priority Axes has potentially significant negative impacts, and no negative impacts were identified for Axes 2 and 3. The main impacts on land use criteria arose from those actions that could result from the implantation in sensitive areas of hard infrastructure such as roads, factories, and waste management facilities.

The uncertainties in the assessment of impacts are related mainly to the lack of information on the location of projects to be funded by Operational Programme I. Overall, the impact of the Programme on the environment was judged to be positive.

Notwithstanding the overall positive assessment, the SEA identified mitigation measures to minimise or negate the negative impacts and enhance the positive benefits.

When considering each application or each block of applications for funding, it is recommended that an assessment be undertaken to ensure that no imbalance is introduced between the measures to be funded within a particular area so that environmental impacts become cumulative.

NON-TECHNICAL SUMMARY

INTRODUCTION

1. This Environmental Report describes the Strategic Environmental Assessment (SEA) in relation to Malta's Operational Programme I (OP I) 2007-2013 covering the entire territory of the Maltese Islands. The Operational Programme is coordinated by the Planning Priorities & Coordination Division (PPCD) within the Office of the Prime Minister.
2. The Strategic Environmental Assessment, Regulations 2005¹, which implement European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, require that a SEA is carried out prior to the implementation of the plans or programmes such as Malta's Operational Programme I
3. The SEA is based on OP I dated 2nd June 2006. PPCD carried out a public consultation exercise on the OP; this commenced on 22nd June and will close on 14th August 2006. The SEA had not been completed at the time of the launch of the public consultation exercise.

Purpose of the SEA

4. The objective of the SEA Regulations is to provide a high level of protection of the environment, and to contribute to the integration of environmental considerations into the preparation and adoption of plans with a view to promoting sustainable development.

MALTA'S OPERATIONAL PROGRAMMES

5. Operational Programmes set out the framework within which funds under the Cohesion Policy are spent over the next seven years (2007-2013). In Malta, there are two Operational Programmes that have been guided by the priorities contained in the National Strategic Reference Framework (NSRF), which was published for public consultation on 27th March 2006². Operational Programme I, published for public consultation on 27th June 2006, will be co-financed by the European Regional Development Fund (ERDF) and the Cohesion Fund (CF)³. It aims to address the infrastructural needs of the country. This Operational Programme is complemented by Operational Programme II, published for public consultation on 13th July 2006. It will be co-funded by the European Social Fund (ESF) and focuses on the development of human resources and employment. Both Operational Programmes foresee direct support to the private sector in the form of aid schemes.

¹ Legal Notice 418 of 2005

² Ministry of Finance website: <http://www.mfin.gov.mt/page.aspx?site=MFIN&page=NSRF>

³ PPCD website: www.ppcd.gov.mt

6. The Environmental Report focuses on the issues that are relevant to OP I only. An SEA for OP II will not be prepared as the Programme does not fall within the remit of the SEA Directive and the local regulations⁴.
7. Malta's Operational Programme I includes:
 - A situation analysis of the main focus areas of OP I;
 - An analysis of the country's strengths, weaknesses, opportunities and threats (SWOT);
 - A description of Malta's strategic direction;
 - An identification of the eight priority axes of OP I;
 - An indicative financial plan that specifies for each priority and for each year, the planned financial contribution from each Fund;
 - Complimentarity with measures under other funds: the European Agricultural Fund for European Development (EAFRD) and the European Fisheries Fund (EFF); and
 - Provisions for the implementation of OP I.
8. The eight priorities of OP I are:
 - Priority Axis 1 - Investing in an enterprise-support infrastructure;
 - Priority Axis 2 - Supporting a competitive enterprise;
 - Priority Axis 3 - Promoting sustainable tourism;
 - Priority Axis 4 - Developing the TEN-T infrastructure;
 - Priority Axis 5 - Improving accessibility and services of general economic interest;
 - Priority Axis 6 - Upgrading environment infrastructures;
 - Priority Axis 7 - Urban regeneration and improving the quality of life; and
 - Priority Axis 8 - Technical assistance.
9. Although project details are not available in OP I, the axes do give an indication of the types of initiatives that would be considered.

⁴ Letter from Chairman of the SEA Audit Team (Dr Chris Ciantar) to PPCD (Ms Marlene Bonnici) dated 20th July 2007 containing screening result.

Relation of OP I to other National Documents & Legislation

10. The assessment of the links of OP I to other plans and programmes and legislation shows that the OP is both affected by and in turn affects other plans. At an international level, the OP must reflect Malta's commitments to implement sustainable development objectives including issues related to climate change and biodiversity. Other plans and programmes are directly linked to OP I because they set the framework for the implementation of projects to be funded under it.
11. OP I must be cognisant of national legislation and any projects to be funded must be compliant with local legislation. Of particular relevance is legislation related to development of land such as the Environmental Impact Assessment Regulations, 2001, and the safeguarding of protected areas through nature protection regulations. Other relevant legislation includes that related to cultural heritage and its conservation and the safeguarding of designated landscapes.

SEA METHODOLOGY

12. The SEA began in mid-May 2006, following the award of tender by the Planning & Priorities Coordination Division to Adi Associates Environmental Consultants Ltd and Professor Brian Clark, an independent EIA and SEA Consultant. The SEA was carried out with the support of and guidance from PPCD, MEPA, and the SEA Audit Team.
13. The scope of the SEA was identified in the SEA Scoping Report that was prepared by the Consultants in May 2006. The SEA Scoping Report identified a range of relevant policies and plans that could be influenced by, or which could influence OP I. It also comprised an initial assessment of the key environmental issues and reasons for their inclusion in the Scoping Report. SEA objectives were identified and indicators against which the effectiveness of OP I in achieving the SEA objectives were described.

Assessment Process

14. The SEA does not assess the exact environmental impacts of the programme because the nature of OP I is such that it is not possible to predict the exact location, nature and impact of the actions; it provides an indication of potential impacts and suggests ways that negative impacts may be mitigated. Economic and social issues are not considered in the SEA because they were assessed in a separate assessment – the ex-ante Evaluation.
15. The SEA Regulations also require that the assessment must identify the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme. The SEA does not contain any alternatives to OP I other than the do nothing option. This is because the formulation of OP I was well advanced by the time the SEA process commenced and extensive consultation with stakeholders had already taken place. Some potentially alternative initiatives were not taken forward because there was a consensus amongst the stakeholders that they would be better funded by private-public partnerships, and some of those

initiatives that would be eligible for ERDF / CF funding were not included in the OP because they were either too uncertain, or would be likely to require so much research and development / negotiations with the Commission, that they would not be likely to be completed within the funding period; the funds secured for the Initiative would, therefore, not be used in time. Moreover, since OP I covers all sectors and is so strategic in nature, it implies that any project that is eligible for funding under Cohesion Policy could be considered. As a result, PPCD and the stakeholders have confirmed that there are no realistic alternatives to the objectives presented in OP I.

ENVIRONMENTAL BASELINE

16. The Environmental Report includes a description of "*the relevant aspects of the current state of the environment*". It provides summary information on the current state of Malta's environment, environmental trends (where available), and indicates those issues that are considered to be of particular relevance to the development of OP I. This information informs the environmental baseline against which the impacts of the objectives within OP I were assessed during the SEA.
17. The draft Sustainable Development Strategy 2006 to 2016, identifies Malta's environmental challenges as:
 - Air quality and climate change;
 - Energy-efficiency and renewable energy resources;
 - Biodiversity;
 - Freshwater;
 - Waste;
 - Marine and Coastal Environment;
 - Land Use;
 - Transport;
 - Natural and Technological Risks; and
 - Leisure and the environment.

Air Quality

18. In Malta, major pollutants are mainly created by traffic and electricity generation. Sulphur dioxide levels decreased significantly between 2003 and 2004, probably because of the change to low-sulphur fuel in early 2004. Nonetheless, SO₂ concentrations in particular localities remained above EU thresholds. The high level

of SO₂, especially during the summer months, is thought to be the result of increased electricity generation combined with pollution from transboundary sources⁵.

19. Concentrations of benzene in the air have been on the decrease since 2000. Such improvements are attributed to the introduction of lead-replacement petrol (LRP), which substituted leaded petrol in January 2003⁶.
20. Particulate matter (PM₁₀) is currently only be measured in Floriana. The EU threshold was exceeded in 2004. Due to its geographic location, the Maltese islands are affected by transboundary aerosols such as Sahara dust, PM₁₀ of marine origin and the non-sea salt fraction of soluble inorganic elements.

Climatic Factors

21. Greenhouse gases are the major contributors to climate change⁷. Between 1990 and 2003, greenhouse gas (GHG) emissions in Malta increased by more than 44 per cent; due to increased carbon dioxide (CO₂) emissions. Compared to EU member states, Malta has a low rate of GHG emissions per capita but a high rate of emissions per GDP unit. The greatest contributors of carbon dioxide are the energy and transport sectors.
22. Records indicate that the effect of climate change is evident on the Maltese Islands. For the periods 1950-1975 and 1975-2000, average annual rainfall decreased by 17 per cent. Over the past 77 years, the local mean annual air temperature has risen by 0.5°C. The major impacts of climate change on the Maltese Islands are predicted to be related to a deterioration of water supply and quality, and more extreme weather events accompanied by increased soil erosion and desertification⁸.

Energy-efficiency and Renewable Energy Resources

23. Energy in Malta is generated from the combustion of imported fossil fuels. Domestic transport, industry, and power stations are the three main energy consumers. From 1990 to 2004, Malta's gross energy consumption increased by 73 per cent with the commercial sector growing by 128 per cent and the domestic sector by 94 per cent.
24. This trend in consumption can be attributed to a number of factors, including:
 - Growth in the islands' economic activity;
 - A higher standard of living, which has contributed to the increase in electrical loads; and
 - Improved distribution network and use of electrical energy.

⁵ MEPA, State of the Environment Report 2005, Sub-report 2: Air, 2005

⁶ MEPA, State of the Environment Report 2005, Sub-report 2: Air, 2005

⁷ MEPA, State of the Environment Report 2005, Sub-report 10: Cross cutting concerns, 2005

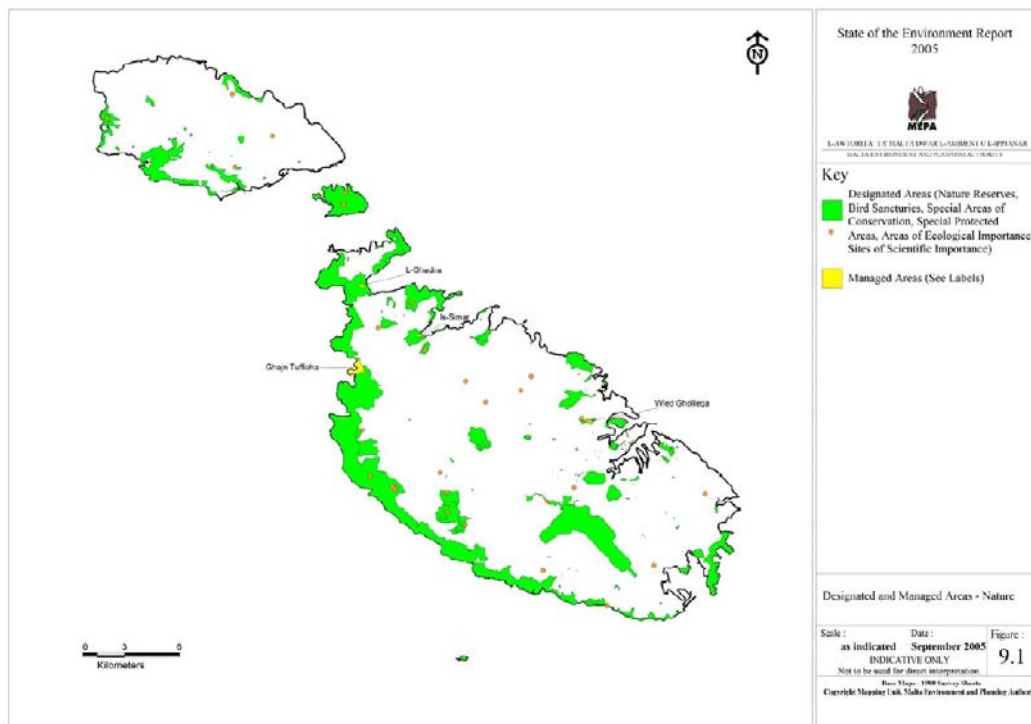
⁸ MEPA, State of the Environment Report 2005, Sub-report 3: Climate Change, 2005

25. In spite of the abundant prospects for renewable sources because of the Islands' climatic conditions (wind and sun), Malta has made little use of them.

Biodiversity

26. Malta's natural environment includes habitats such as cliffs, valleys, garrigue and sand dunes. Although this natural environment covers 22 per cent of the Malta's surface area,, the Islands have a rich biodiversity, including a large number of native plants and animals⁹.
27. The main threats to local biodiversity are land development in rural and coastal areas, the introduction of alien species (including GMOs), and the exploitation of wildlife including illegal collection, hunting and trapping¹⁰.
28. Biodiversity is mainly safeguarded through the protection and management of sites and areas. Various sites around the Maltese Islands Overall, 18 per cent of the Maltese Islands are afforded protection status under national and international designations (see **Figure 1**).

Figure 1: Designated and managed areas



Source: MEPA, State of the Environment Report 2005, Sub-report 9: Biodiversity, 2005

⁹ MEPA, State of the Environment Report 2005, Sub-report 9: Biodiversity, 2005

¹⁰ MEPA, State of the Environment Report 2005, Sub-report 9: Biodiversity, 2005

29. In 2002, 115 local species of international importance species were protected. Since then, protection has been significantly increased for fish, crustaceans, and higher plants, such that by 2005, 183 out of 189 local species of international importance species were protected by national legislation. .

Freshwater

30. Freshwater is a limited natural resource in the Maltese Islands. Groundwater contributes more than half (57 per cent) of the total local water production. Reverse osmosis plants supply another 32 per cent of freshwater, the rest coming from treated effluent and rainwater harvesting. Reverse osmosis plants consume large amounts of energy and are thus a major indirect source of emissions. In 2005, the three desalination plants consumed approximately 8 per cent of the local electricity consumption.
31. The domestic and agricultural sectors are the largest consumers freshwater production at 39 per cent and 37 per cent respectively. More than half of the ground water extraction is private.
32. The level of chlorides in the mean sea level groundwater body is an indication of the degree of seawater intrusion. Ground water at all boreholes tapping into in the mean sea level aquifer exceeded the WHO threshold for drinking water. The perched groundwater bodies also suffer from a degree of salinity, mainly due to sea spray and the use of saline water for irrigation. However, since 2001, decreases in chloride levels have been recorded in all groundwater bodies.

Waste

33. It is recognised that the current waste management practices pose a threat to the environment because of Malta's heavy dependency on landfilling; this is exacerbated by the fact that waste generation in Malta continues to increase. Between 1996 and 2004, the total waste disposed increased by about 50 per cent; this figure excludes illegally dumped waste, which was estimated at 20,000 tonnes in 2004.
34. The two main waste-generating sectors are the construction and demolition sector, which accounted for 88 per cent of waste generated in 2004, and the municipal waste sector, which accounted for 8 per cent of waste generated in 2004. Municipal solid waste generation is estimated at 625kg/capita (in 2003); it is increasing by about 3 per cent every year.

Marine and Coastal Environment

35. The coastal zone in Malta is described in MEPA's Coastal Strategy Topic Paper; it extends approximately 1 km inland and includes twelve nautical miles of sea¹¹. Most of the land near the coast is intensively developed: the built up area in the coastal zone (1 km inland from the sea) increased from 5 per cent to 26 per cent between 1990 and 2004. Such development was mainly aimed at the tourism and recreation

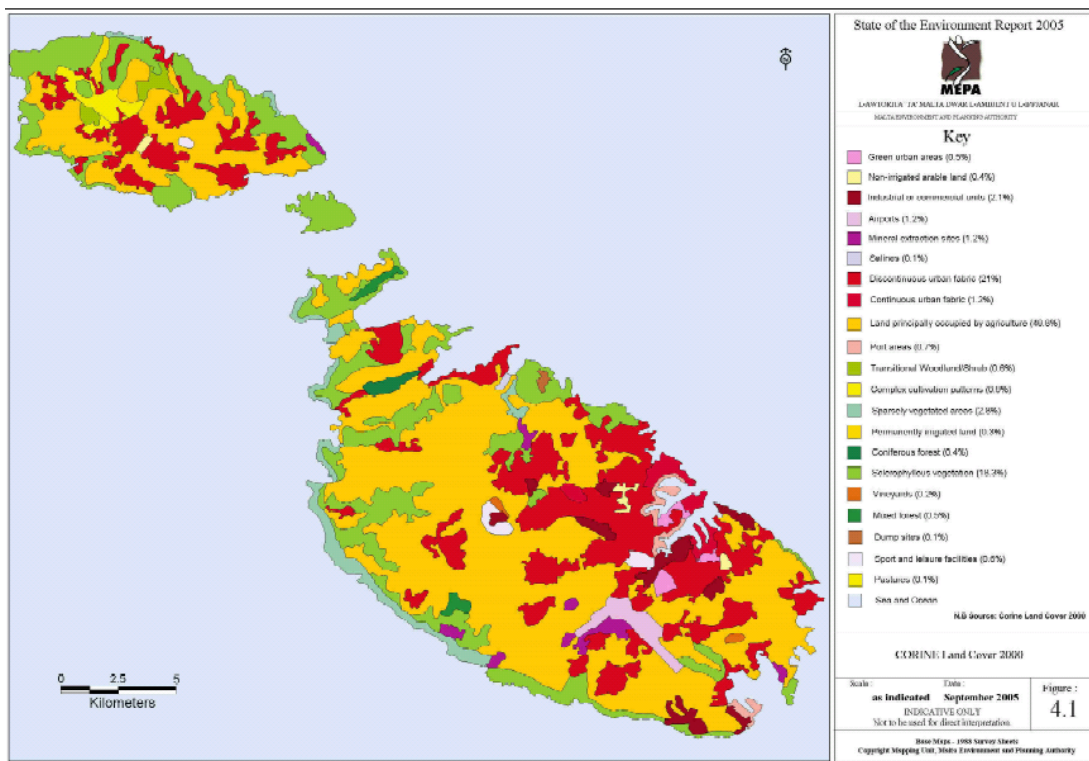
¹¹ MEPA, 2002, Draft Coastal Strategy Topic Paper.

- sectors. Only one marine site has been designated as a marine protected area (the area between Rdum Majjiesa and Ras ir-Raheb).
36. Bathing water quality is monitored at 87 sites. In 2004, 83 per cent of monitored areas were classified as first class according to the Barcelona Convention standards. This is an improvement over 1996 (where 55 per cent of the areas were classified as first class) but represents a decline compared to 2002 (where 98 per cent of sites classified as first class areas). Only about 13% of raw sewage is treated prior to its discharge into the sea.

Land Use

37. Given the Maltese Islands' small size, land availability is always limited; this is further aggravated by the high population density for the country as a whole (approximately 1,200 persons / km²). Over the last 50 years, there has been a decline in agricultural land; this has been taken up by development.
38. A recent land use survey indicated that 49 per cent of Malta's land area is used for agriculture, and 23 per cent is under urban development, most of which is located in a broad band around the Grand Harbour. Natural vegetation accounts for 22 per cent of the land cover while 2 per cent of land is used for industrial or commercial use (see **Figure 2**).

Figure 2: Corinne Land Cover 2000



Source: MEPA, State of the Environment Report 2005, Sub-report 4: Land, 2005

39. MEPA has implemented planning controls to prevent development from occurring outside stipulated development zones. This has resulted in a decrease of 30 per cent (from 70 per cent to 40 per cent) in the development of greenfield sites¹², with a corresponding increase (30 per cent to 60 per cent) in the development of brownfield sites¹³.
40. Although in 2003, 92 per cent of residential development applications were for apartments and maisonettes, there is still a large number of vacant properties in Malta, accounting for 23 per cent of the total dwelling stock in 1995; only 36 per cent were holiday homes or second homes. This is indicative of a low level of land use efficiency. A high rate of vacant residential properties is mainly found in historic areas. This problem is further increased due to the high investment potential of land and properties, such that between 2001 and 2004, planning applications for residential developments increased by 38 per cent.

Transport

41. Private car ownership in Malta is amongst the highest in Europe. In March 2006 some 207,451 or 76 per cent of all licensed motor vehicles were privately owned. With a resident population of 404,039 (2005 Census), this means that on average every two persons own a car, or there is close to one car for every adult. Commercial and motor vehicles make up 16.3 and 4.4 per cent respectively of the total licensed motor vehicle stock; the rest are
42. The amount of traffic on the road is calculated by estimating the kilometres that a vehicle travels each year. Taking into account the local short travelling distances and the March 2006 statistics on licensed vehicles, it is estimated that motor vehicles on the Maltese Islands will travel almost 2,500 million km in 2006. This represents an increase of 8.5% in vehicle-km since 2000.
43. Between 2000 and 2002, a total of Lm 30.3 million was invested by the Maltese Government on the road infrastructure, amounting on average to 0.62 per cent of the GDP or 1.32 per cent of the total government expenditure. Eighty per cent (or Lm 24 million) of this sum was invested by the Central Government, and the rest by the Local Councils. Between 2004 and 2006, road expenditure increased significantly with the addition of Lm 24 million EU Structural and Cohesion funds together with funds from the Fifth Italo-Maltese Financial Protocol.
44. Total passenger and aircraft movement has been in decline since 2000.

¹² Greenfield sites: land that is in a natural state or used for agriculture, which has not been developed - s

¹³ Brownfield sites: Sites that are built up or are covered by cement or tarmac; they do not include urban parks and gardens

Oil Spills

45. Malta's position in the Central Mediterranean and heavy tanker traffic crossing just 10 miles north of the Islands make the area susceptible to risks from oil spills¹⁴. During 2005, the Oil Pollution Response Module collected approximately 120 tonnes of oil from the sea (from sea-based as well as land-based sources).

Floods

46. Extensive urban development has resulted in an increase in impermeable surfaces. This implies that rain water takes longer to percolate through the surface, which coupled with heavy rainfall, leads to floods in low-lying areas. This often causes disruption to the transport network, damage to properties and overflowing sewers.

Landscape

47. MEPA has recently published a Landscape Assessment Study. This Study shows that between 1990 and 2000 the rate of spread of urban areas has decreased. Although townscapes have shown improvement as landscaping is being given more importance, there has been a decline in the quality of the urban skyline due to the presence of roof top antennae and water tanks. In rural areas, there has been an increase in the number of structures used in modern agricultural practices.
48. The Landscape Study concluded that 51 per cent of the landscape is of high or very high sensitivity. Areas of high landscape value, which cover 12 per cent of the Maltese Islands, were protected between 1996 and 2000. .

Cultural Heritage

49. Buildings, monuments and sites are protected through the Cultural Heritage Act and the Development Planning Act. The latter allows MEPA to schedule culturally important buildings and sites. MEPA's Scheduling List contains 1,720 sites and monuments, of which 1,284 are of architectural importance, 263 are of archaeological importance, and 173 are of ecological importance. The Antiquities List compiled in 1946/47 contains 2,000 sites of historical and antiquarian significance from before the 1900's. In addition, 3 sites, namely the city of Valletta, Hal Saflieni Hypogeum, and the megalithic temples, are UNESCO World Heritage Sites.

Noise, Dust and Light Pollution

50. Noise is regulated on an ad hoc basis through the imposition of planning conditions for new developments. Noise assessments for individual projects are often requested by MEPA.
51. Dust pollution is mostly linked with the construction industry, and in particular with quarrying and mechanically entrained dust. Other dust sources are vehicle exhaust emissions and tyre abrasions. Dust pollution is also linked with the power station.

¹⁴ Alpha Oil Services and Trading Ltd managing director Paul Pisani:
<http://business.timesofmalta.com/article.php?id=4150> last accessed on 28th June 2006

The same applies to noise, where most of the noise pollution arises from the construction industry and quarrying.

52. Urban light pollution threatens street trees, flora in nature reserves, parks and gardens. It has been estimated that 30 per cent of electricity generated for outdoor illumination is wasted.

EVALUATION OF THE CURRENT STATE OF THE ENVIRONMENT IN THE ABSENCE OF THE OP

53. The SEA Regulations require a description of the relevant aspects of the current state of the environment and the likely evolution thereof in the absence of the implementation of the programming document with a particular emphasis on the future developments arising from other relevant plans and programmes. This is a theoretical issue as the development and implementation of the OP 2007 - 2013 is required under the provisions of the EC Regulation.
54. The description of the likely future trends should OP I not be implemented is further constrained by uncertainties, including availability of data on future economic development, and technological progress or advancements in regulatory frameworks that collectively influence future trends.
55. The assessment in the Environmental Report shows that, although there are existing funding streams¹⁵ that support various activities in Malta which offer environmental improvements, the funding of these initiatives is limited. Without the introduction of OP I, it is likely that there would be a slow and steady decline in certain environmental sectors, such as waste management, risk prevention, and freshwater quality.

IMPACT ASSESSMENT

56. Prior to commencing the assessment, a set of objectives relating to the environmental issues discussed above were formulated. Relevant assessment criteria and possible data sources were also identified and are described in **Table I**.
57. The SEA indicators are measurements of trends over time. Changes in the indicators show whether the implementation of OP I would be or has been successful in improving the environment. It is to be noted, however, that changes in the indicators could be the result of factors outside the influence of the OP. Hence, the SEA process is both uncertain and constrained.
58. Impacts were assessed against the criteria listed in **Table I**.
59. Impact significance depends on the impact magnitude and the sensitivity of receptors. Significance may be determined in a number of ways, including expert judgements, the use of thresholds, reference to legislation, and consultation with stakeholders. The

¹⁵ Funding by the Maltese Government, funding from the Italo-Maltese Protocol, and Funding under other EU initiatives such as the LIFE programme

-
- SEA draws on each of these methods, expert judgement and consultation predominate.
60. The assessment of significance is based on the probability of the impact occurring, on the scale of the impact, its duration, reversibility, whether it has transboundary impacts, and the certainty of the impact.
 61. Assumptions had to be made during the assessment because of the broad nature of the Priority Axes. The worst case scenarios with respect to potential environmental impacts were considered and assessed, and recommendations for potential mitigation measures or alternative actions proposed.
 62. It is noted that OP I does not contain specific actions; it only gives examples of the type of actions that could be funded. Therefore, the assessment necessarily is a broad brush assessment and is based on the objectives of each Priority Axis. The initiatives described in OP I are used as examples to illustrate how significance was derived.
 63. Priority Axis 8: Technical Assistance was not considered in the assessment because it was considered that this Axis did not have a significant effect on the environment.

Table 1: SEA Environmental Objectives & Criteria for Assessing Impacts

Issue	SEA Objective	Criteria Will this priority axis ...	SEA Indicator	Data source
Biodiversity	Maintain or enhance protected areas.	<ul style="list-style-type: none"> Help to maintain or enhance the conservation of designated areas (under both the Development Planning Act and Environment Protection Act)? 	Maintain or increase in percentage of designated areas that are subject to formal management arrangements over time	MEPA, Nature Protection Unit
Fauna & Flora	Maintain / enhance current levels of protected species	<ul style="list-style-type: none"> Negatively affect protected species? 	No increase in threatened/endangered species list over time	MEPA, Nature Protection Unit
Population	Minimize production of waste & increase recycling	<ul style="list-style-type: none"> Help to minimise waste generation? Promote recycling rather than waste disposal of waste to landfill? 	No increase in waste generation by sector over time Increase in % waste recycled over time	MRAE / Wasteserv
Human health	Reduce noise, dust and light pollution.	<ul style="list-style-type: none"> Help to reduce dust generation from construction and waste handling activities? Help to reduce noise from construction and traffic? Help to reduce light pollution from development? 	No national indicators available in Malta. Ad hoc project specific indicators are imposed by MEPA on a case by case basis, depending on the development.	
Soil	Prevent soil erosion	<ul style="list-style-type: none"> Help to maintain soils levels through sound agricultural practices? Help control runoff from rural land? 	Increase in aid given to farmers to protect their fields from erosion over time Increase in numbers of plans / programmes to carry out stormwater management in rural areas?	MRAE MRA
	Improve soil quality	<ul style="list-style-type: none"> Help to improve the quality of soil in agricultural areas? 	Increased crop yields over time	MRAE
Water	Improve drinking water quality and supply	<ul style="list-style-type: none"> Help to maintain the drinking water quality while meeting demand? Promote the maintenance of the existing supply infrastructure 	Improvement in drinking water quality over time Increase in number of plans and	Malta Resources Authority / WSC

Issue	SEA Objective	Criteria Will this priority axis ...	SEA Indicator	Data source
			programmes to maintain the existing supply infrastructure over time	
	Improve coastal water quality	<ul style="list-style-type: none"> Help to improve the quality of the marine environment? 	Improvement in bathing water quality tests over time Improvement in results of discharges to the marine environment over time	Department of Public Health, MEPA & MRA
Air	Improve air quality	<ul style="list-style-type: none"> Help to reduce emissions from non-mobile sources? Help to reduce emissions from mobile sources? 	Reduction in emissions of nitrogen oxides, sulphur dioxide, particulates over time	MEPA air quality monitoring programme
Climate	Increase use of renewable energy sources	<ul style="list-style-type: none"> Reduce Malta's vulnerability to climate change? Help to increase use of renewable energy? 	Increase in % use of renewable resources over time	MRA
	Reduce GHG emissions	<ul style="list-style-type: none"> Contribute towards the reduction of GHGs? 	Reduction in GHG emissions over time	MEPA
Material assets (Infrastructure / built environment)	To manage stormwater away from where it is a hazard to where we are short of it.	<ul style="list-style-type: none"> Help to manage stormwater to the benefit of nation? 	Increase in number of plans / programme of works to carry out stormwater management over time Decrease in number of insurance claims for flood damage over time	MEPA (insurance data being collected as part of the SEA for the new Structure Plan) MRA
	Minimise impacts of environmental disasters	<ul style="list-style-type: none"> Help to mitigate environmental disasters? 	Increase in number of contingency plans over time	Government agencies.
Cultural heritage	Maintain or enhance the conservation status of cultural heritage sites / areas	<ul style="list-style-type: none"> Enhance scheduled / protected areas? Reduce negative impacts on cultural heritage features and sites? 	Increase in number of management plans for protected areas over time	MEPA and Heritage Malta
Landscape	Enhance the landscape value of areas protected	<ul style="list-style-type: none"> Enhance valued landscapes? 	Increase in number of planning permissions for major projects	MEPA

Issue	SEA Objective	Criteria Will this priority axis ...	SEA Indicator	Data source
	for their landscape value		refused in areas scheduled under the Development Planning Act as an Area of High Landscape Value on the basis of the potential impact on the landscape.	
Land	Channel development into existing built up areas	<ul style="list-style-type: none"> Help to channel development into existing built up areas? 	No increase in area of land built by development type located outside development zone over time	MEPA

Summary of the Assessment

64. The SEA identified certain initiatives within some of the Priority Axes that could have potentially negative impacts on the environment, and some that could have positive impacts. Although none of the Axes was considered to have potentially *major* negative impacts, a number of the initiatives thereunder were nonetheless considered to have some negative impacts.
65. It is noted that many of potential impacts are theoretical and arise as a result of considering the potentially worst case scenario for each priority (see section on Assumptions). The actual impacts, to be observed following the implementation of the programme, will depend on site specific issues as well as the proposed design and the approach taken for individual activities and projects implemented under OP I. Although these may be controlled through planning and/or other regimes as part of the permitting process, the identification of potential impacts and associated mitigation through the SEA will help guide the final OP and will enable decisions relating to funding of particular activities at a later date to be determined in light of potential impacts.
66. Few of the Priority Axes have negative impacts; Axes 2 and 3 were assessed to have no negative impact on the environment. This is because the initiatives considered under these Axes are either focused on research, or are aimed at helping industry and tourism establishments comply with environmental regulation. Despite the worse case scenario being assumed during the assessment process, a number of positive environmental impacts were identified for all the Priority Axes.
67. Negative impacts usually resulted from those initiatives that involve development or the construction of new roads (Axis 4), structures (Axes 1) and/or infrastructure (Axes 6). The SEA cannot recommend that certain initiatives should not be permitted and more 'environmentally friendly' actions implemented under the Priority Axes because it is premature to identify specific projects under the initiatives and, therefore, the impacts remain indicative.
68. **Table 2** below shows the number of potentially negative impacts identified under the 7 Priority Axes, and the number of neutral impacts and positive/major positive impacts identified; the number of impacts that could not be determined is also listed. It clearly shows that the number of positive impacts outweighs the number of negative impacts. It is noted that since the impacts are not weighted, it cannot be concluded that the benefits of OP I outweigh the environmental costs. It does, however, show that it has taken into account environmental issues and that the environment stands to benefit from its implementation.

Table 2: Summary of potential impacts of the OP

Sea Objectives	- / --	0	+ / ++	?
Maintain or enhance protected areas	1	2	2	1
Maintain / enhance current levels of protected species	2	1	2	1
Minimize production of waste & increase recycling	2		1	
Reduce noise, dust and light pollution	2		4	2
Prevent soil erosion			1	

Sea Objectives	- / --	0	+ / ++	?
Improve soil quality			1	
Improve drinking water quality and supply			3	
Improve coastal water quality	1	1	4	
Improve air quality	1		4	
Increase use of renewable energy sources	1		2	
Reduce GHG emissions	2		4	
To manage stormwater away from where it is a hazard to areas of deficit.			2	
Minimise impacts of environmental disasters			2	
Maintain or enhance the conservation status of cultural heritage sites / areas	1	2	2	
Enhance the landscape value of areas protected for their landscape value			3	2
Channel development into existing built up areas			2	2
TOTAL	13	6	37	8

Cumulative & Synergistic Impacts

69. Cumulative effects are those effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the proposal. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Synergistic effects interact to produce a total effect that is greater than the sum of the individual effects.
70. Given the strategic level at which the Objectives of OP I are formulated, it is inherently difficult to give explicit details of the cumulative effects of the OP, and accordingly **Table 3** provides a general overview of the key issues identified for each environmental topic considered within the assessment process.

Table 3: Summary of cumulative environmental effects of the OP

Environmental Receptor	Key impacts of the OP
Biodiversity	Biodiversity could be negatively affected if the measures emerging from some of the Priority Axes involve the development of sensitive areas. Since the measures and the projects to be funded by the OP are unknown it is difficult to assess the cumulative impacts. Moreover, as the impact would be largely site specific, more detailed analysis would be required at the project level.
Population	The OP would be beneficial in terms of providing waste management infrastructure and opportunities for reducing and recycling waste. However, the implementation of certain major projects and infrastructure (such as roads) could generate additional waste and, therefore, have a negative impact on waste generation. Individual assessments at the project level would be required to ensure that waste generated is limited and the waste hierarchy implemented.
Human health	The inclusion of objectives to promote modal shift towards sustainable modes of transport could have the potential to pose an overall positive impact on human health through improved air quality and increased road safety. However, those objectives that could fund major development projects could adversely affect human health through dust and noise pollution. These effects are, however, likely to be localised.

Soil	Soil erosion and soil quality are likely to be affected by Priority Axis 6 only; no cumulative effects can be predicted at this stage.
Water	Impacts on both sea water and drinking water quality are expected to be positive because of the initiatives contemplated under a number of Priority Axes, including sewage treatment, and improvements in the production and extraction of drinking water.
Air quality	<p>The inclusion of objectives to effect a reduction in overall traffic volumes could positively assist in reducing air pollution or at the very least not make it any worse. Emphasis on modal shift towards sustainable travel and associated reduction in reliance on private car and levels of congestion could be particularly beneficial. Initiatives to promote renewable energy would also have positive impacts.</p> <p>Activities associated with the construction of new infrastructure, including the extraction of materials and energy use, would need to be fully assessed at the project level.</p>
Climatic factors	The OP could potentially assist in reducing climate change effects through the inclusion of objectives to promote sustainable travel, increase use of renewable energy, and reduce emissions from disused landfills. The SEA recognises that some initiatives could attract more vehicles to specific areas and may, therefore, increase traffic levels in local areas and encourage people to make journeys they may have previously not contemplated.
Material assets	The cumulative impact on material assets is expected to be positive because of the initiatives that focus on stormwater management. Construction of new roads could also alleviate problems of flooding.
Cultural heritage	There is the potential for the OP to negatively impact cultural heritage features or the cultural landscape if major developments were to be located in sensitive areas. In view of the site-specific nature of historic buildings, archaeological sites, and other culturally important sites/features, individual scheme assessment would be required at project level. Positive impacts on the cultural environment would result from the implementation of those measures that are concerned with regeneration and rehabilitation.
Landscape	There is the potential for the OP to negatively impact the landscape if major developments were to be located in sensitive areas. With the impact being largely site specific, further exploration is necessitated at project level where appropriate. However, the OP could also positively impact on the landscape of the urban environment through initiatives to restore fortifications and urban cores.
Land	The cumulative impact of the OP on land is dependent on the number of projects funded under the OP that require land. It is also dependent on where these are located – whether within the development zone or outside it. At this stage, it is premature to identify the specific projects and, therefore, the cumulative impact cannot be assessed.

MITIGATION MEASURES

71. When considering the need for mitigation, a hierarchy of mitigation measures was considered:

- Avoiding the implementation (funding) of the Priority Axis / initiative (either completely or in specific areas that are considered to be most sensitive to the action);
- Reducing the funding allocated to the Priority Axis;

- Remedying or compensating for the negative impacts of the Priority Axis by incorporating mitigation measures into the Axes / initiatives (as a condition of the funding being granted) to prevent or minimise the impacts; and
 - Enhancing positive impacts.
72. Since the impact assessment showed that there are no major negative impacts, mitigation measures relating to selectively discriminating against of potentially harmful Priority Axes and reducing funding to such Axes were not considered further.

Provision of Advice to Applicants

73. Information relating to the potential environmental impacts, including statutory obligations, legislation and guidance relating to the various actions for which funding will be granted under the scheme should be provided to applicants to enable them to make informed decisions relating to the types of actions they wish to implement.

Provision of Checklists for Funding Application Assessors

74. In order to ensure that all environmental issues are considered when applications for grant funding are received, the use of a checklist containing a series of questions relating environmental issues should be considered.

Biodiversity Issues

75. The implementation of certain initiatives, such as the take up of land for industrial development (Axis 1), construction of roads (Axis 4), and infrastructure for stormwater management (Axis 6) could result in the loss of biodiversity, priority habitats and species, and the further fragmentation of habitats if insufficient consideration is given to the locations wherein these actions are planned.
76. When considering development applications, MEPA has an obligation to consider the implications of any decisions they make on biodiversity in both its wider context and in relation to specific impacts on priority species and habitats, in order to comply with the Habitats Directive (LN 257 of 2003). A formal Appropriate Assessment will be required in accordance with the obligations arising under the Birds and Habitats Directives. This is normally requested by MEPA during the assessment of planning applications within or adjacent to such sites.

Waste Management

77. Waste arising from the construction of major developments, such as roads, is a potential impact arising from the implementation of OP I. Appropriate conditions in development and environmental permits addressing matters such as the recycling of construction waste and waste separation should be imposed by MEPA where appropriate. Serious consideration must also be given to recycling, including the recycling of materials arising from road works. It is the responsibility of implementing agencies such as ADT (Transport Authority) to ensure that such practices are adopted by their contractors.

Noise, Dust, and Light Pollution

78. Mitigation of the impacts of dust, noise, and light from developments funded by the OP can only be required through project-specific conditions that are imposed by MEPA. Projects that adopt such measures should be given priority for funding.

Climate Change

79. Some of the initiatives under Priority Axis I may result in increased vehicle movements that could lead to negative impacts upon climate change. This could be minimised by improvements to the transport infrastructure and the promotion of sustainable transport modes. During the evaluation of projects for funding, those projects that take into account energy conservation, energy efficiency, reduction of GHG emissions, and use of renewable energy, should be given priority over those that do not promote environmental improvements.
80. Appropriate conditions in development and environmental permits should also address renewable energy and energy efficient buildings / processes. For those funded projects that involve studies, the success of the project should be measured not by the number of studies prepared but by, for example, the number of households / organisations with renewable energy installations.
81. The use of alternative energy sources for desalination plants should also be considered.

Cultural Heritage

82. Some of the potential impacts of OP I on cultural heritage are largely unknown because impacts are usually location specific; the OP gives no indication of the location of projects. Notwithstanding this, it is recommended that appropriate conditions in development and environmental permits include cultural heritage protection measures; compliance with the Cultural Heritage Act is also required.

Land

83. Although OP I does not make specific reference to the construction of major projects, it is likely that some new development would be funded by it. One of the significant impacts on land is the take up of land that is not zoned for the particular use. It is recommended, therefore, that where possible, developments funded by OP I are located within the Development Zone. Those developments that are located outside Development Zone should be vetted more thoroughly to ensure that all impacts have been assessed and appropriate mitigation measures implemented.

MONITORING

84. Monitoring the environmental performance of a plan should make it possible to identify corrective actions and establish how well the plan complies with SEA objectives.

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85. Monitoring for OP I must be seen in light of the very strategic nature of the OP. There are no location specific projects and the initiatives listed in OP I are conceptual: they are only examples of the type of actions that could be funded. This SEA recommends, therefore, that existing environmental indicators are used to monitor the impact of the OP. These data are collected by a number of agencies on a regular basis as part of their statutory obligations. For example, MEPA collects data on air quality, biodiversity, waste, etc. and MRA collects data on drinking water quality. It should be noted that this data are not collected for the purpose of monitoring OP I.
 86. It is acknowledged that the data alone needs to be interpreted and in some way related to the implementation of OP I. This presents a number of challenges, the main one being that environmental data are influenced by factors outside the OP, including other plans and programmes, legislation, and Government and private sector initiatives, and in some cases trans-boundary effects.
 87. In order to establish a link between the environmental indicators and the implementation of OP I, it is recommended that an “Environmental Committee” comprising key stakeholders and technical experts is established. The role of the Committee would be to assess the trends in the indicators and establish whether the projects funded under OP I could have had an impact on the trends. The Committee should meet at least once a year. It would be responsible for: a) collating the data for the SEA indicators; and b) gathering information on the funded projects for that year. The Committee would subsequently take a view as to whether the projects could have affected the indicators. Any remedial action would also be discussed and agreed by the Committee.
 88. It is further recommended that the Committee identifies major projects that could potentially have a negative impact on the environment and request that such projects are monitored for their significant impacts. A monitoring report would be submitted to the Committee by the applicant over a timeframe to be specified. In the case where EIAs are carried out, the monitoring carried out as a requirement of the EIA would be made available to the Committee.
 89. This monitoring scheme should be seen in conjunction with the proposed mitigation measures, especially those related to providing a checklist to applicants to identify the potential impacts of the project/s to be funded.