



MALTA NATIONAL REPORT

Submitted by the
Government of Malta
to the World Summit
on Sustainable
Development

Published in August 2002
Designed and produced by Formatek Ltd - Malta
Cover design based on a painting by Marie Lucia

Printed in Malta on Chlorine-Free Paper

© Government of Malta, 2002

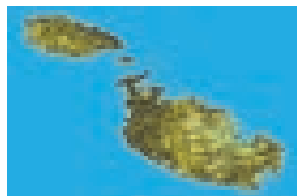
Photographs included in this publication cannot be reproduced in any form without prior permission of their proprietors (see page 100)

ISBN 99909-47-17-4

The lead and chapter authors of this Report would like to express their gratitude to the many individuals and organisations that participated in the consultative process – the list is too long to mention each one individually. The final Report benefited greatly from their suggestions and the information they supplied. Any opinions, findings, conclusions and recommendations contained in this Report are those of the authors, and do not necessarily reflect the views of the persons and organisations consulted.

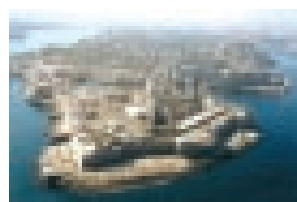
TABLE OF CONTENTS

PREFACE	5
----------------	----------



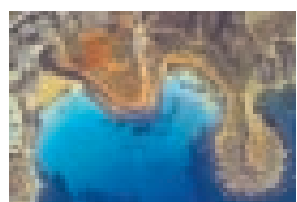
CHAPTER 1 - INTRODUCTION	7
---------------------------------	----------

1.1	PURPOSE OF THE REPORT	8
1.2	THE AUTHORS	8
1.3	THE PUBLIC CONSULTATION PROCESS	8
1.4	LAYOUT OF THE REPORT	9



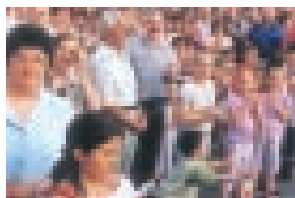
CHAPTER 2 - THE MALTESE ISLANDS	11
--	-----------

2.1	HISTORY AND GOVERNMENT	12
2.2	GEOGRAPHY AND CLIMATE	12
2.3	DEMOGRAPHY	13
2.4	THE ECONOMY	14
2.5	SOCIAL ASPECTS	18
2.6	EDUCATION	19
2.7	HUMAN HEALTH	21
2.8	THE ENVIRONMENT	22
2.9	MECHANISMS FOR SUSTAINABLE DEVELOPMENT	24
2.10	CONCLUSION	27

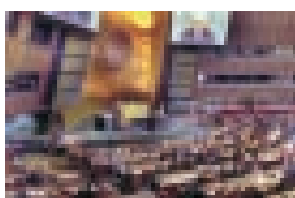


CHAPTER 3 - MAJOR ENVIRONMENTAL ISSUES, REMEDIAL ACTION TAKEN, AND THE WAY FORWARD	29
---	-----------

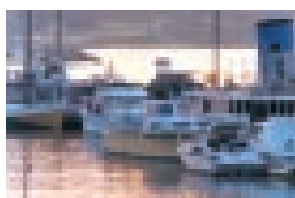
3.1	INTRODUCTION	30
3.2	ENERGY AND TRANSPORT	30
3.3	FRESHWATER	33
3.4	MARINE AND COASTAL ENVIRONMENT	36
3.5	SOLID AND LIQUID WASTE MANAGEMENT	40
3.6	CONSERVATION OF BIOLOGICAL DIVERSITY	44
3.7	LAND USE	48
3.8	CONCLUSION	52



CHAPTER 4 - PROMOTING PUBLIC AWARENESS AND STRENGTHENING THE ROLES OF MAJOR GROUPS	55
4.1 INTRODUCTION	56
4.2 ENVIRONMENTAL EDUCATION AND TRAINING	56
4.3 INFORMATION FOR DECISION-MAKING	58
4.4 INFORMATION TECHNOLOGY	60
4.5 THE ROLE OF NGOs	61
4.6 LOCAL AUTHORITIES INITIATIVES IN SUPPORT OF AGENDA 21	62
4.7 STRENGTHENING THE ROLE OF WORKERS AND THEIR UNIONS	66
4.8 STRENGTHENING THE ROLE OF BUSINESS AND INDUSTRY	68
4.9 STRENGTHENING THE ROLE OF FARMERS	70
4.10 THE SCIENTIFIC AND TECHNOLOGICAL COMMUNITY	71
4.11 WOMEN AND EQUITABLE DEVELOPMENT	73
4.12 CHILDREN AND YOUTH IN SUSTAINABLE DEVELOPMENT	76
4.13 CONCLUSION	77



CHAPTER 5 - MALTA'S CONTRIBUTION TO THE INTERNATIONAL COMMUNITY	79
5.1 INITIATIVES WITHIN THE UNITED NATIONS	80
5.2 MALTA'S MULTILATERAL LEGAL OBLIGATIONS	83
5.3 MALTA AND THE EU POSITION ON SUSTAINABLE DEVELOPMENT	88
5.4 ISSUES TO BE ADDRESSED AND MEASURES TO BE TAKEN	89



CHAPTER 6 - CONCLUSION	91
6.1 OVERVIEW	92
6.2 THE COMMITMENTS	92
6.3 THE MAIN ACHIEVEMENTS	92
6.4 FUTURE DIRECTIONS	92
6.5 THE WAY FORWARD	93
REFERENCES	94
INDEX	97



PREFACE

by Edward Fenech-Adami, Prime Minister of Malta

This Report, which has been drawn up for the 2002 World Summit on Sustainable Development, gives an overview of the actions taken by Malta in implementing the provisions of Agenda 21. It was drawn up by a team of consultants, engaged for this purpose by the Government of Malta, with Professor Lino Briguglio as lead author. I take the opportunity to thank the team of authors for their endeavour.

Agenda 21 has had a positive effect on Malta, and has stimulated the Government to update and introduce legislation, to adopt policies and to take action conducive to sustainable development, seeking public participation towards this end.

As is well known, sustainable development stresses the need for a holistic approach for a better quality of life with a long-term time frame, rather than one aimed at short-term gains. Sustainable development strategies are multifaceted, taking into consideration economic, social, cultural, environmental and other factors that affect human welfare, and require participation by persons and groups involved in or affected by decision-making processes (the stake-holders).

The publication goes into some detail as to what Malta has done to promote sustainable development. Although the achievements have been significant, much remains to be done in this regard, as shall be shown in this Report.





INTRODUCTION

The purpose of this Report, prepared for the 2002 World Summit on Sustainable Development, is to review Malta's progress in implementing sustainable development since the 1992 United Nations Conference on Environment and Development.



LANDSAT-5 image of the Maltese Islands, produced by the Remote Sensing Programme of the Euro-Med Centre for Insular Coastal Dynamics (ICoD), Malta.

1.1 PURPOSE OF THE REPORT

The purpose of this Report, prepared for the 2002 World Summit on Sustainable Development, is to review Malta's progress in implementing sustainable development since the 1992 United Nations Conference on Environment and Development.

The Report does not attempt to present detailed analytical assessments on the environmental issues related to sustainability. For a more detailed review of the various environmental themes discussed in this report, the reader is referred to the *State of the Environment Report* (Axiak et al., 2002).

1.2 THE AUTHORS

This Report was drawn up by a team of consultants, engaged, in November 2001, by the then Ministry for the Environment, with the remit to produce an account of the action taken by the Government to promote and implement sustainable development in line with Agenda 21, to identify shortcomings in this regard, and to propose a way forward, taking these shortcomings into account.

The first draft of this Report was completed in March 2002, with Lino Briguglio as lead author, drawing on inputs from the following chapter authors: Gordon Cordina with regard to Chapter 2, Marie Briguglio and Rachel Portelli with regard to Chapter 3, Paul Pace with regard to Chapter 4 and Simone Borg with regard to Chapter 5.

The authors, in turn, based their text on information provided by the following contributors: Anthony M. Abela, Godfrey Baldacchino, Michelle Borg, George Carbone, Maurice Caruana, Vince Caruana, Jennifer Casingena-Harper, Godwin Cassar, Alexandra Cremona, Louise Farrugia, Saviour Formosa, Vince Gauci, Renée Laiviera, Lucianne Licari, John Mangion, Kevin Mercieca, Stephanie Mizzi, Anton Pizzuto, George Said, Patrick Schembri and Alfred Vella. The selection of these persons as contributing authors was based on the basis of their expertise on the various issues covered by Agenda 21.

The initial process of information compilation for this Report was coordinated by a committee chaired by Paul Mifsud, then Permanent Secretary at the Ministry for the Environment, with the lead and chapter authors as members.

1.3 THE PUBLIC CONSULTATION PROCESS

A public consultation process on the draft Report was initiated in April 2002. The process was organised by a core group appointed by the National Commission for Sustainable Development, in liaison with the lead and chapter authors.

The draft Report was submitted for public comments and feedback on the website of the Ministry for Home Affairs and the Environment (www.mha.gov.mt). In addition a public consultation meeting was held on 20 May 2002, during which the Report was further discussed and scrutinised. The general public, civil society groups, government departments and parastatal organisations were invited to submit comments on the Report between 10 May and 10 June 2002. The final Report benefited greatly from the feedback generated during this consultative process.

The Report also profited from the reviews by Victor Axiak, Marguerite Camilleri and Catherine Vella, who were asked to advise on various aspects of the Report, including its coverage, style, and balance of opinion.

The final draft of the Report was approved by the Maltese Cabinet of Ministers on 8 July, 2002, and this printed version was delivered to the United Nations in August 2002, for presentation at the World Summit on Sustainable Development.

George Pullicino, Parliamentary Secretary responsible for Planning and the Environment, (third from right) addressing the Public Consultation Conference held on 20 May 2002 to discuss an earlier draft of this Report.



1.4 LAYOUT OF THE REPORT

The Report is organised in six chapters. Chapter 2, which follows this introduction, gives background information on the Maltese Islands, referring to their geography and climate, demography, economy, health and social aspects, environment, and the institutional framework, together with a brief review of the mechanisms conducive to sustainable development. Chapter 3 deals with major environmental issues, remedial action taken, and the way forward, as well as what remains to be done. The Chapter covers a number of major concerns relating to energy and transport, freshwater; the marine environment, solid and liquid waste management, conservation of biological diversity and land use. Chapter 4 reviews progress related to public awareness through education and training, and information for decision-making. The Chapter also discusses the roles of major social groups in sustainable development, including NGOs, local authorities, trade unions, business and industry, the scientific community, women, children and youth. Chapter 5 discusses Malta's contribution to the international community, including initiatives within the United Nations and Malta's legal obligations under multilateral arrangements. The Chapter



also refers to Malta's attempt to harmonise its environmental legislation and sustainable development practice with that of the European Union. Chapter 6 concludes the Report, highlighting major challenges in Malta's path as it strives to move in sustainable directions.

A section of the audience attending the Public Consultation Conference held on 20 May 2002 to discuss an earlier draft of this Report.



2

THE MALTESE ISLANDS

The Maltese Islands have a total area of 316 square kilometres and are located in the centre of the Mediterranean Sea, approximately 100 km south of Sicily. The archipelago consists of three main islands, namely, mainland Malta, the largest, with an area of about 245 square kilometres and a population of about 350,000, Gozo, the second largest, with an area of 67 square kilometres and a population of about 30,000, and Comino, which is inhabited by a very small farming community.

Valletta, the
Capital City
of Malta

2.1 HISTORY AND GOVERNMENT

Malta is a liberal parliamentary democracy, with regular elections based on universal suffrage. Its constitution safeguards the fundamental human rights of citizens, and guarantees a separation between the executive, judicial and legislative powers.

The Maltese Islands have a rich and varied history, and traces of civilisation on the Islands date back to about 5200 BC. Archaeological remains indicate that there was a Phoenician/Carthaginian presence during the 6th century BC. In 218 BC Malta fell under Roman rule. The Islands were subsequently ruled by Arabs, Normans, and a number of feudal lords. The Order of St. John of Jerusalem (the Knights Hospitallers) took over the Islands between 1530 and 1798. The Knights of Malta, as they came to be known, left a rich cultural heritage on the Islands. Following a two-year rule by the French (1798-1800), under Napoleon Bonaparte, the Islands passed under British rule. Malta gained independence from Britain in 1964. The Malta Independence Constitution of 1964 established Malta as a Constitutional Monarchy, but in 1974 the Constitution was modified to the effect that Malta became a Republic with the President of Malta as Head of State. Executive power lies with the Prime Minister and the Cabinet of Ministers. Malta forms part of the Commonwealth of Nations.

Malta is currently undergoing a process of negotiations with the European Union in preparation for accession to the EU. Malta has had a long-standing relation with the EU since signing an Association Agreement with the European Economic Community on 5 December 1970. Progressively, Malta sought closer relations with the Union culminating in the application for accession in July 1990. This led to the screening of Maltese legislation and policies against all EU rules (the *acquis communautaire*) and to the commencement of negotiations for accession. Like most Candidate Countries, Malta adopted the date of January 1, 2003 as the target date by which it would have put in place all the necessary preparations for membership.

2.2 GEOGRAPHY AND CLIMATE

Location and Area

The Maltese Islands have a total area of 316 square kilometres and are located in the centre of the Mediterranean Sea, approximately 100 km south of Sicily. The archipelago consists of three main islands, namely, mainland Malta, the largest, with an area of about 245 square kilometres and a population of about 350,000, Gozo, the second largest, with an area of 67 square kilometres and a population of about 30,000, and Comino, which is inhabited by a very small farming community.

Climate

The climate of the Maltese archipelago is typically Mediterranean, with dry, hot summers and mild rainy winters. During the summer season, the Islands are dominated by high-pressure conditions.

Temperature and Precipitation

For the past century, the mean monthly temperature registered for the summer season was 35°C while the lowest recorded was 11°C in the winter months of January and February. The hottest month in the Maltese Islands is July, with the average highest temperature of 36°C. Temperatures during the past century never reached freezing point, and snow is practically unknown in the Maltese Islands. The average temperature for the past century has tended to increase.

The highest precipitation rates occur in November, December, January and February. However, rainfall in



the Maltese Islands is unpredictable. Some winter months may produce abundant rain in one year and little or no rain in another.

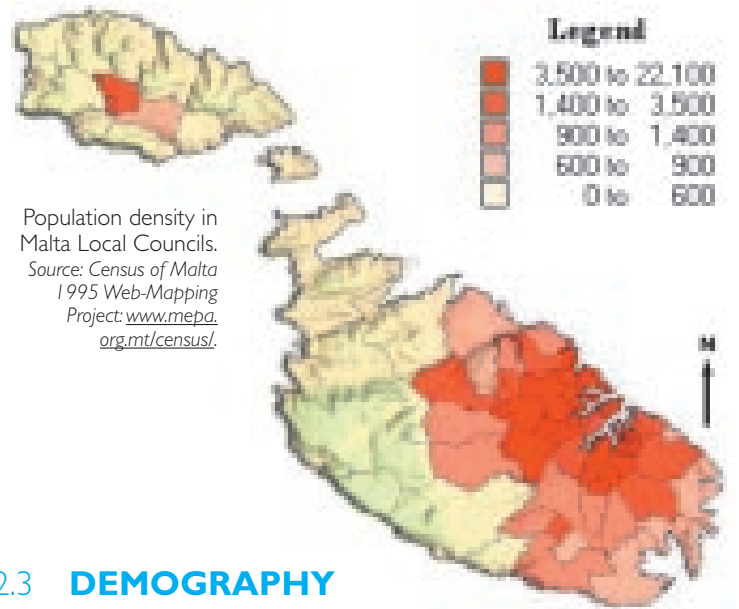
During the past century, the wettest month was December, with an average rainfall of 93.7mm and the driest was July with only 0.27mm of rainfall. The average annual rainfall was 507mm. The rainfall pattern in the Maltese Islands fluctuates considerably, but the trend indicates that precipitation over the past century has tended to decrease. Malta is currently experiencing the third successive year of below-average precipitation.

Winds, Sunshine and Humidity

The Maltese Islands are heavily influenced by the strength and frequency of winds. The most common of these are the north-westerly and north-easterly winds. Other winds are not so powerful, and exhibit seasonal variations. The north-easterly wind has a major impact on the Islands as it blows straight into the mouth of the Grand Harbour and Marsamxett, where it can restrict shipping operations. The south-westerly wind, on the other hand, blows from the Sahara Desert, bringing with it hot air currents and sometimes 'red rain'.

During the past century, the mean sunshine hours averaged eight per day. The month of July has the highest number of sunshine hours, with an average of about 11.5 hours per day. The month with the least sunshine hours is December, with about 5.1 hours per day, partly due to a high rate of cloud cover at this time of the year.

Humidity tends to be high in Malta, averaging between 65 per cent and 80 per cent, accentuating the effects of temperature variations.



2.3 DEMOGRAPHY

Malta ranks as one of the most densely populated countries in the world, with over 1,200 persons per km². The main concentration is found in the Harbour area.

Birth and Mortality Rates

During the second half of the 20th century, the Maltese Islands experienced decreasing birth and mortality rates. In 1950, the birth rate was 29 per thousand which declined to about 13 per thousand in 2000. During the same period, the mortality rate decreased from 10 per thousand to about 8 per thousand. Assuming zero net emigration, the Maltese population is expected to increase to about 400 thousand by the year 2020, but will decrease to 378 thousand by the year 2040.

Table 2.1 shows the main demographic changes that have occurred between 1992 and 2000.

Table 2.1 - Changes in the Maltese population during the period 1992 and 2000

Population increase at about 0.65 per cent per annum, from 362,977 in 1992 to 382,525 in 2000

A higher proportion of persons aged over 60 years, from 15 per cent in 1992 to 17 per cent in 2000

A decrease in the birth rates, from 15.2 per 1,000 in 1992 to 11.2 per 1,000 in 2000

A slight decrease in death rates, from 8.0 per 1,000 in 1992 to 7.8 per 1,000 in 2000

A decline in fertility rates, from 2.11 in 1992 to 1.92 in 2000, below replacement levels

Higher life expectancy at birth, for males from 73 to 75 years, and for females from 78 to 80 years

Tendency for increasing net inward migration of persons, averaging about 500 annually

Source: National Statistics Office and Planning Authority (2001b)

Ageing Population

An important change that is occurring in the Maltese population relates to the increase in the proportion of persons aged 60 and over. While 15 per cent of Malta's population was aged over 60 years in 1992, this proportion increased to 17 per cent in 2000 and is expected to rise to 25 per cent in 2020.

Migration

During the 1945-1965 period, there was heavy emigration from Malta due mostly to the unsatisfactory economic conditions on the Islands. Migration has decreased drastically in recent decades, and in most years, inward migration has exceeded outward migration. Migration patterns may change noticeably in the future, particularly as a result of EU membership.

Household Size

The average size of households in Malta has tended to decrease, particularly during recent years, as a result of changes in lifestyle, an increase in the number of young persons living on their own, and a greater number of marriage separations. In 1992, the average household size was 3.2 persons. This decreased to approximately 3.0 in 2000 (Planning Authority, 2001b).

Population and Carrying Capacity

The carrying capacity of a country or a region depends, amongst other things, on the size of the territory, its resources and the manner in which these resources are used. There is therefore a limit as to how many people can sustainably reside on a small

The Malta Freeport – symbol of Malta's drive to step up international competitiveness.



island like Malta, and this consideration has a wide range of economic, social, cultural and environmental implications. This concept was the subject of an in-depth study undertaken by the Ministry of Tourism. The findings of the study were published in a report (Ministry of Tourism, 2001) which forms the basis of Government policy for the tourism sector. The strategy for tourism is now based on the concept of sustainability and controlled development. This policy is being pursued especially because tourism may lead to overcrowding of beaches, traffic congestion and noise pollution, increased demand for land on which to build hotels and tourist facilities, as well as increased production of solid and liquid waste.

In the case of Malta the number of incoming tourists per year is about 2.5 times the population. If converted to annual resident equivalent, tourists residing in Malta in recent years amounted to about 7 per cent of the Maltese population in any one year.

2.4 THE ECONOMY

The Maltese economy is one of the smallest in the world. In 2001, the Maltese GDP at factor cost amounted to approximately Lm1.4 billion (approximately US\$3.1 billion). In terms of income per capita, however, Malta is not on the low side by international comparisons. Although usually classified as a developing country, Malta's average GNP per capita in 2000 amounted to approximately US\$ 9000, which is one of the highest among developing countries. In terms of purchasing power standard, the Maltese GNP per capita is about 55 per cent of the average for the European Union.

The Maltese economy is undergoing a rapid transformation in the regulatory and operational structures, in line with the EU *acquis communautaire*. This should lead to the enhancement of competition and the harmonisation of Malta's laws with those of the EU. This issue is discussed further below.

The Maltese currency is the Maltese lira, which is valued on the basis of a "multiple peg" based on a trade-weighted basket of currencies, with the Euro being assigned a weight of 56 per cent. The pound sterling and the US dollar account for equal portions of the remaining 44 per cent weight. In 2000, the exchange rate of the Maltese Lira averaged approximately US\$2.3.

Major Characteristics of the Economy

Openness

An important characteristic of the Maltese economy is its degree of openness, since, like many other small economies, it depends heavily on foreign trade. The economy relies substantially on imports for its energy, industrial supplies and consumer goods, and the import content of total final sales was about 50 per cent between 1992 and 2001. At the same time, since the domestic market is extremely small, the economy relies to a very large extent on exports of goods and services, which amounted to about 45 per cent of final sales during the same period. Exports of merchandise are dominated by electronic and electrical equipment, with wearing apparel, chemicals, printing and medical equipment being other important categories. Exports of services relate mainly to tourism, transportation and financial services. Exports of goods and services are mostly directed towards the European Union. Maltese imports also originate largely from the European Union. Trade with non-EU Mediterranean states is relatively small. Imports and exports of electronic equipment to Asia and the US are gaining in importance.

Poor natural resources endowment

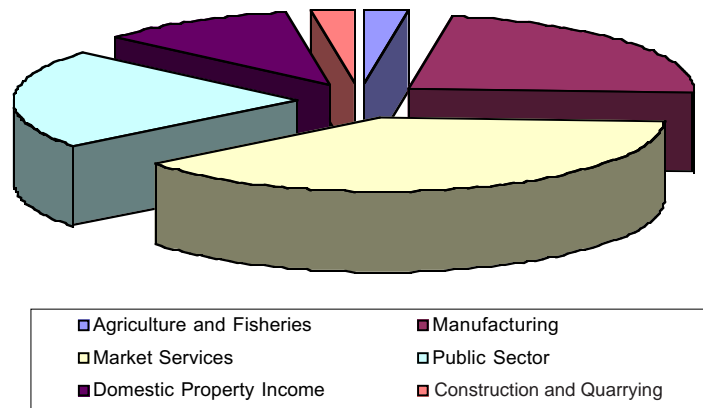
The Maltese Islands are poorly endowed with physical resources, and most raw materials and industrial supplies have to be imported, with the exception of limestone, which is quarried and used extensively in the building industry. Oil exploration has been undertaken on several occasions, but so far, it has not been found in large enough quantities to make its extraction commercially viable. Malta's climate and its cultural and historical heritage are important resources which serve as tourist attractions.

Sectoral Distribution of GDP

In 2000, about 23 per cent of the Maltese GDP at factor cost was contributed by the manufacturing sector; about 39 per cent by the market services sector; about 11 per cent by domestic property income and about 22 per cent by the public sector. The remaining 5 per cent was contributed by construction, agriculture and fisheries.

Agriculture and fisheries

The agricultural sector in Malta consists mostly of small holdings on terraced strips of land, and the soils tend to be shallow. In addition, there are constraints associated with lack of adequate water supply. The



sector has tended to decline over the years as a proportion of GDP and also in terms of employment and cultivated area. Furthermore, the labour force in this sector is ageing. The method of production is based on small-scale machinery or manual tools, since the small holdings do not permit the use of large machines. The most important vegetables sold in organised markets in recent years were potatoes, tomatoes, onions, melons, marrows, cauliflowers and cabbages, while the most important fruits were strawberries, peaches and grapes. The most important agricultural export is potatoes. Malta is self-sufficient in fresh vegetables, eggs, processed tomatoes, poultry, rabbit meat, pork and fresh milk, while a relatively large proportion of beef and fruit is imported. In recent years, horticultural production has tended to increase.

Fishing in Malta is seasonal, as the main commercial species are migratory. Although Malta is surrounded by sea, fishing does not generate much income and employment, a situation exacerbated by the dwindling catches in the central Mediterranean and by fishing quotas. As a result, the share of GDP contributed by this sector has remained small. The fishing vessels tend to be small and multipurpose. In recent years there was a rapid development in aquaculture fish production, most of which is exported.

The industrial sector

The manufacturing sector in Malta is relatively large, contributing about 23 per cent to GDP in recent years. In terms of manufacturing value added, the most important industries are electronics, followed by food and beverages and wearing apparel. Other important industries are chemicals, paper and printing. At present, certain industries, particularly wearing apparel and furniture, are finding it difficult to maintain their share due to international competition, following the policy of the present government to dismantle all import protection. The Business Promotion Act,

Sectoral distribution of Malta's GDP
Source: Government of Malta, 2001b.

which is implemented by the Malta Development Corporation, is intended to promote export activity and to attract foreign direct investment in manufacturing.

The shipbuilding and ship-repairing industries in Malta provide employment for approximately 3,000 persons. However, they have been consistently running at a loss in recent years, continuing with a trend of negative performance over the past decades, thus requiring heavy subsidies from the Government. Attempts are being made to upgrade these enterprises in order to improve their international competitiveness.

Construction and quarrying are relatively small sectors of the economy, but they have considerable inter-industry linkages and therefore generate income and employment in other sectors of the economy. These activities have major environmental impacts, as explained in Chapter 4.

The services sector

The market services sector, composed of four sub-sectors, namely distributive trades, transport and communications, banking and finance and private services, contributed about 39 per cent to GDP in recent years. As stated above, Malta is currently undergoing a modernisation and liberalisation process in most services. As a result, the sector is becoming increasingly efficient and export-oriented.

Tourism is an important contributor to the growth of the market services sector in Malta. The average number of tourists visiting Malta exceeded 1 million

persons per year during the 1990s and stood at just under 1.2 million in 2001, with an average length of stay of about 9.5 days per tourist.

Inward tourism follows a seasonal pattern, with June to October being the peak season. Most tourists are European. Tourist expenditures in 2000 amounted to around US\$550 million, which is about 25 per cent of proceeds from exports of goods and services. Direct employment in accommodation and catering sectors alone, in 2000, was about 9,600 persons, or 8 per cent of total employment, but many more workers are engaged in occupations associated indirectly with tourism. The industry is estimated to have contributed directly about 20 per cent to GDP in recent years. In addition, it has a relatively high multiplier effect. However, tourism-related activities may also have undesirable environmental impacts.

The public sector

The Maltese economy is characterised by a relatively large public sector. As stated previously, its GDP share is about 22 per cent. This excludes government shareholding in limited liability companies. Were these to be included, the share of the government would rise to about 35 per cent of GDP. In recent years, Government involvement in directly productive activities and market services has however been progressively reduced through a process of privatisation.

Total government expenditure is relatively high in Malta, amounting to about 42 per cent of GDP in 2000. A large proportion of government expenditure goes to social security and welfare schemes. There are also high capital outlays for the development of the infrastructure.

Government revenue consists mainly of personal and corporate income tax and VAT receipts. Government also derives revenues from profits of public enterprises such as the Central Bank. During the past decade, however, Government revenue was not sufficient to meet expenditure, and relatively large budget deficits were recorded during the second half of the 1990s. Recently, government has implemented a plan to reduce the fiscal deficit to 3 per cent of GDP by 2004.

The labour market

The Maltese labour market during the 1990s was characterised by low unemployment rates, averaging just under 5 per cent of the labour force. At the end of 2001, the unemployment rate stood at 5.1 per cent. The labour market is also characterised by low

Tourism is an important contributor to the growth of the market services sector in Malta.



female participation rates, standing at 32 per cent of females aged 15-64. The male participation rate is much higher, and stands at around 80 per cent of the same age bracket.

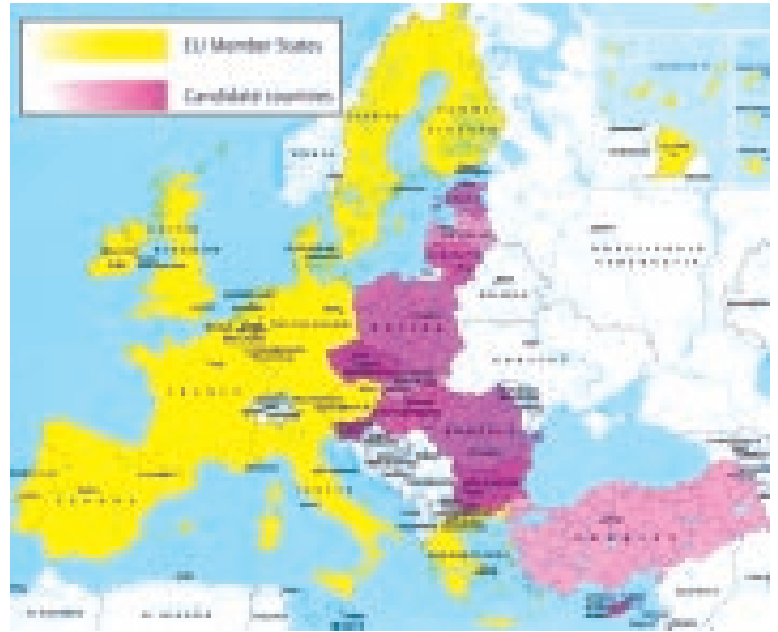
Another characteristic of the Maltese labour market relates to the large proportion of gainfully-occupied persons in the public sector. At the end of 2000, this stood at 38 per cent (including employment in limited liability companies with government majority shareholding). This situation is giving rise to artificial labour shortage in some areas of the private sector. However, there are indications that public sector employment may decrease as a result of the privatisation process referred to above.

Malta's Accession to the EU

There is an ongoing debate in Malta as to whether or not it is in the country's interest to become a member of the European Union (EU). The economic advantages associated with EU membership include better access for Malta's exports into the European market and the adoption of an economic strategy which promotes competition and, therefore, more efficient allocation of resources, benefiting consumers and producers alike. In addition, by becoming an EU member, Malta would upgrade its laws in line with legislation prevailing in the Union. On becoming a member of the EU, Malta would also access regional funds in terms of the so-called Objective 1 Programmes available to countries with a per capita GDP (in terms of PPS) lower than 75 per cent of the EU average. A major advantage associated with accession, is that Malta will be able to participate actively in the decisions of the Union.

Malta is already benefiting from pre-accession EU funds associated with the implementation of the necessary changes required for accession. As a Candidate Country, Malta is also benefiting from EU Programmes relating to science, research and education.

Arguments against Malta's accession relate to the dismantling of import controls, especially in agriculture, that would be required with membership, since this development could give rise to a loss of output and employment in firms enjoying protection. It is also argued that Malta would stand to lose by joining the EU because it will have to adopt a body of legislation at a very heavy cost. Another argument against accession to the EU relates to possible loss of sovereignty.



A referendum on the issue of EU membership is scheduled to be held before the ratification of the treaty of accession, and, no doubt, these arguments will feature prominently in the discussion on the pros and cons of membership.

Economic Constraints arising from Small Size and Insularity

Malta is one of the Small Island Developing States (SIDS). The constraints and vulnerabilities faced by SIDS are well documented and stem from several inherent characteristics of such States.

In the case of Malta, the main economic constraints arise from:

- Small territory size, which limits its ability to reap the benefits of economies of scale and restricts its production possibilities.
- High degree of its economic openness, rendering it very susceptible to economic conditions in the rest of the world.
- Dependence on a very narrow range of exports, leading to risks associated with insufficient diversification.
- Dependence on imports, in particular energy and industrial supplies, exacerbated by limited imports substitution possibilities.
- Insularity, leading to high transport costs in its transactions with the rest of the world.

In spite of its economic vulnerabilities, Malta registers a relatively high GNP per capita when compared to other developing countries. This fact prompted the development of the so-called "Vulnerability Index",

European Union Member States and the Candidate Countries, including Malta. Information about Malta and the EU is featured in the Malta-EU Information Centre website www.mic.org.mt.

which attempts to highlight the reality that the economic success of many Small Island States often hides their underlying economic and environmental fragility. The studies carried out so far on the economic vulnerability of different countries all conclude with the result that as a group, SIDS are more vulnerable than other groups of developing countries (see Briguglio, 1995; United Nations, 1997). Malta is usually assigned a high vulnerability score, due mainly to the fact that its economy is highly exposed to factors outside its control.

Consumption Patterns

The composition of household consumption is an important indicator of the state of development of an economy. Since households tend to satisfy first and foremost their basic needs, a lower share of expenditure dedicated to necessities could indicate higher living standards. Over the 1990-2000 period, the proportion of consumption dedicated to necessities fell significantly. Expenditure on food and beverages, for instance, declined from over one third of total consumption in the early 1990s to just one fourth by 2000. On the other hand, a significant increase took place in the proportion of expenditure on recreation, entertainment, education, and other services. These trends are typical of an economy experiencing growth in income over time.

Is Malta over-consuming?

For a number of years, consumption expansion was one of the factors contributing to economic growth in Malta, especially when the economy was characterised by significant amounts of idle resources. As the economy approached full employment, however, high rates of consumption resulted in a rapid increase in imports with consequent problems on the external

balance of payments. Moreover, excessive consumption may have crowded out savings and resources devoted to investment, thereby possibly curtailing the economy's prospects for long run growth. In recent years there have been calls for restraint in consumption, but this may be politically difficult to implement, due to the habit-forming nature of consumption.

Specific policies being implemented that may curtail the growth of consumption include a more restrictive fiscal policy. There are, however, indications that these policies are not having any significant effect on consumption and its growth, as households are becoming increasingly consumer-oriented.

2.5 SOCIAL ASPECTS

Maltese society is changing at a rapid rate in terms of structure, attitudes and values. Land development, mass tourism, overseas travel, information technology, new work and leisure patterns and a rapid expansion of higher education are permeating the closely-knit traditional Catholic society. In many respects, the Maltese Islands have become one modern European city. In comparison with other neighbouring European countries, however, Malta remains a relatively homogenous society with no marked racial, ethnic or religious divisions.

Table 2.2 presents some indicators relating to the material welfare of the Maltese people pointing to an advancement in this regard. In terms of the Human Development Index, which takes into account income, education and health, Malta was ranked 30th in the world and included with the 48 countries classified as high human development countries (UNDP, 2001).

Table 2.2 - Material Welfare Indicators

	1990	1995	2000	Change 1990-2000 (Nominal)	(Real)
GDP at factor cost (Lm million)	649.6	988.9	1339.6	106%	57%
GNP per capita (Lm)	2,200	3,110	4,000	82%	38%
Expenditure on overseas travel (Lm million)	43.5	75.4	88.0	102%	47%
Private consumption expenditure (Lm million)	531.4	700.4	999.0	88%	36%
Social security payments (Lm million)	117.7	175.9	251.9	114%	55%
Social security contributions (Lm million)	72.0	115.5	162.0	125%	63%
Telephones/1000 persons	360.4	459.9	540.7	-	50%
Motor vehicle licences/1000 persons	391.4	507.0	645.3	-	65%
University students (full time only)	2,158	5,166	5,554	-	157%

Main Source: Government of Malta (2001b)

Poverty and Social Exclusion

Relative to other neighbouring countries, poverty in Malta is not widespread, even if there are a few disadvantaged groups (Abela, 1998a). State social policy fights poverty and social exclusion through a contributory and non-contributory social security system. It aims to develop an inclusive society by taking a subsidiary responsibility alongside families and non-governmental organisations, thereby providing equal opportunities for all with specific emphasis on the most vulnerable.

The Welfare System in Malta

In Malta, the welfare system is founded on the principles of solidarity and subsidiarity. Health care and education at all levels are universally provided free of charge by the State. Pensions and social benefits are fully operated by Government, and are granted through a contributory social security system and a non-contributory social assistance. Social housing, children's allowances and other social benefits are means-tested. A mix of governmental and non-governmental organisations addresses other material and non-material needs. In accordance with shifting social values, the welfare state is giving way to a welfare society with a focus on the family.

There appear to be conflicting pressures on the social protection system in Malta. On the one hand, macroeconomic considerations call for economies in social expenditure, aimed at curbing the fiscal deficit and removing disincentives for economic growth. From a social perspective, however, the rise in the proportion of older persons is likely to step up the demands for social expenditure. Other social developments are likely to require re-orientation of the Maltese social protection system.

A long run reform of the social security system is being contemplated by a National Commission, set up for the purposes of studying the current situation and proposing reforms, in which the various social partners are represented. The system of social protection in Malta is considered to be well-developed and offers a wide range of services. Its cost, estimated at around one eighth of GDP and one third of Government recurrent expenditure, is thus being questioned in relation to the genuine needs of the population and the effectiveness with which these are being met. The extent to which the pervasiveness of social protection, including unemployment benefits, may be acting as a disincentive



tive to economic effort, is another important issue in this respect.

Social Values

The Maltese retain a strong attachment first and foremost to the family. Divorce is not allowed in Malta. The norm of the two-parent family, however, co-exists with a diversity of family situations and lifestyles. Over the period 1995 to 2000, publicly-registered marital separations have almost doubled, from 245 in 1995 to 425 in year 2000. (Source: Government of Malta, 2001c).

Although traditional gender attitudes are in decline, the move towards gender equality is still accompanied by an asymmetry between women and men in society. Women are still under-represented in the labour force and in leadership positions.

The rise in the proportion of older persons in Malta is likely to step up demand for social expenditure.

2.6 EDUCATION

In Malta, education is compulsory for those aged between 5 and 16. It is provided free of charge at primary and secondary level and there is a system of maintenance grants paid to students at the post-secondary and tertiary levels.

The majority of schools are state-owned and cater for about 70 per cent of the student population, while the rest are run by private organisations. Over the

past decade, there was a tendency for non-state schools to increase their share of the student population, at the expense of state schools (27 per cent of primary and secondary students in 1992, against 30 per cent in 2000).

Adult literacy in Malta is estimated to be approximately 86 per cent.

Primary, Secondary and Post-Secondary Education

In 2000, there were about 10,000 children in kindergarten classes, and about 34,000 children attending primary schools. During the 1990s, the student population at these levels tended to decline. About 27,000 children attended secondary schools in 2000, while about 5,100 attended post-secondary schools. During the 1990s, secondary school enrolment was stable, whereas that at post-secondary level tended to increase.

Vocational education establishments catered for about 4,300 students at secondary and post-secondary levels in 2000. Students following vocational education courses tended to decrease

during the past decade. However, with the reorganisation of vocational education within the Malta College of Arts, Science and Technology, a turnaround in the number of students opting for vocational education is expected.

Pre-University education is provided in a number of sixth-form institutions, including the Junior College, which was established in 1995 under the umbrella of the University of Malta. These institutions offer two-year courses specifically designed to prepare students to qualify themselves for entry into the University of Malta.

Post-compulsory non-university education has recently been reformed with the setting-up of the Malta College of Arts, Science and Technology, which contains a number of institutes, dealing with Art and Design, Engineering, Information Technology, Business Studies and Maritime Studies.

The Institute of Tourism Studies is a separate entity under the auspices of the Malta Tourism Authority.

The University

The University of Malta was founded as a Jesuit college in 1592, and was established as a State institution in 1769. Courses in most disciplines are offered on its modern campus at Tal-Qroqq. Originally, the University was housed in a historic building in Valletta. The University is the highest teaching institution in Malta, and is open to all those who have the requisite qualifications. There are some 8,000 students following full or part-time degree and diploma courses. Most courses are run on the modular or credit system. In 2000, some two thousand students graduated in various disciplines.

The University has 10 faculties, namely the Faculty of Architecture and Civil Engineering, the Faculty of Arts, the Faculty of Dental Surgery, the Faculty of Economics, Management and Accountancy, the Faculty of Education, the Faculty of Engineering, the Faculty of Laws, the Faculty of Medicine and Surgery, the Faculty of Science, and the Faculty of Theology. The University also has a number of inter-disciplinary Institutes and Centres. Associated with the University is the Mediterranean Academy of Diplomatic Studies and the Foundation for International Studies, while the campus is also home to the International Maritime Law Institute of the International Maritime Organisation, and the International Ocean Institute (Malta Operational Centre).

In Malta, education is compulsory between the ages of 5 and 16, and is provided free of charge by the State.



The University of the Third Age, catering for those aged 60 years and over, was inaugurated in 1993 and currently has a membership of around 1,000.

2.7 HUMAN HEALTH

Meeting Primary Health Care Needs

The health of the Maltese population compares favourably with that of other European states, Malta placing fifth in W.H.O.'s Overall Health System Performance (*World Health Report, 2000*).

In Malta the Government provides a comprehensive free health service to all Maltese residents, funded from general taxation. Like other Health Care Systems the long-term sustainability of such a comprehensive service is being evaluated. It may be possible that the system for financing the Health Service will need to be reviewed. Since 1996, the private sector has provided some 15 per cent of acute hospital beds. All residents have access to preventive, investigative, curative and rehabilitative services in Government Health Centres and Hospitals. Persons with a low income are means-tested by the Department of Social Security, and if they qualify for assistance they become entitled to all formulary pharmaceuticals necessary for the treatment of their medical ailments. Moreover, persons who suffer from a list of chronic diseases, as specified in the Social Security Act, are also entitled to receive free treatment for the particular condition irrespective of their financial means.

The main hospital, St. Luke's, offers all the main tertiary care specialities including cardiology, neurosurgery, and some transplant services. Government is currently constructing a new hospital with 850 beds that will cater for all acute health care needs.

Health legislation in Malta dates back many decades and the need for its updating has been felt for many years. Malta's application for accession into the European Union has served as a catalyst for the redrafting of all health-related legislation. It is anticipated that all such legislation will be amended and new legislation will come into force by the fourth quarter of 2002.

Control of Communicable Diseases

The Department of Public Health set up in 1993 is responsible for maintaining strict surveillance on



priority communicable diseases, food safety, non-communicable disease risk factors and environmental hazards, and for removing or reducing these threats. The Disease Surveillance Branch within this department measures infectious diseases, priority non-communicable diseases and their risk factors, and also undertakes outbreak control. It conducts epidemiological research, gives advice on travel health and is also responsible for medical screening. Malta has been free from controllable infectious diseases, such as polio, for a number of decades.

Trends for most infectious diseases, including AIDS, are relatively stable. There has been a slow and minimal increase in the amount of HIV cases. Fortunately, unlike other European Countries, the intravenous drug users group has not yet been infiltrated with the infection.

Over the past ten years, there has been heavy investment in human resources, with an emphasis on training, to ensure capacity-building.

Protecting Vulnerable Groups

The Health Promotion Department was set up in 1993 with the aim to educate the public on how to meet basic health needs. Over the years, this Department, and that of Primary Health Care, have increased their services, with particular emphasis on vulnerable groups, notably infants and children, youth, women, the elderly as well as persons with disabilities.

Smoking-cessation and weight reduction clinics are available to all age groups. A detoxification centre has continued to upgrade its facilities and the services

The new hospital with 850 beds, currently being constructed by the Government of Malta.

it offers to drug addicts, including the distribution of free treatment and syringes. There is ready dissemination of informative and educational material on a wide range of health issues to the public, directly from the premises of the Department, as well as from other health offices, or by mail.

The financial commitment of the Maltese Government to the health of vulnerable groups has markedly increased over the past years. This commitment has been directed towards the building-up of human resources to ensure the efficient provision of new services. Moreover, active NGOs and Self-help Groups are becoming important stakeholders in the Health Care Scheme. Community nursing services and palliative care are provided by NGOs which have been contracted by Government to provide such a service. Gender issues are increasingly being considered by the Health Division. In 2002, a *National Action Plan on Gender Mainstreaming* within the health sector was formulated in line with national government policy. The Plan aims to ensure accessible quality health care and related services that meet the needs of both women and men, allowing for equal opportunities and for full participation of women as decision-makers.

Control of Non-Communicable Disease

As in most industrialised countries, vascular diseases are the commonest cause of death in Malta, accounting for about 50 per cent of all deaths.

Cancers account for 23 per cent of all deaths and are the second most common cause of death. The overall incidence for men is somewhat lower than that of other European States, though the incidence for women is similar. Survival rates compare well with those prevailing in Europe. While lung cancer is the commonest cancer in men, breast cancer is the most prevailing cancer type in women. A National Health Interview Survey currently underway will provide the data on the health behaviour of the Maltese population and will provide the necessary basis on which to formulate future preventive and interventive strategies.

Reducing Health Risks from Environmental Pollution and Hazards

In 1997, the *National Environmental Health Action Plan (NEHAP)* for Malta was drafted and endorsed by Cabinet. This is a multi-sectoral document outlining practical actions for sustainable development. It formed the first assessment of environmental health issues in Malta, including drinking and bathing water, air quality, food safety, waste and soil pollution, radiation, noise, natural disasters and accidents. It also set out objectives and targets to be reached by all economic sectors by the year 2000. The document will be updated in 2002.

The NEHAP highlighted the need for a number of policies and programmes that were markedly lacking in Malta. These included a national air-monitoring programme, a national recreational water programme, a national drinking water monitoring programme, a major study on the health impacts of tourists on the environment, and the development of a national clinical waste management plan.

2.8 THE ENVIRONMENT

Environmental Vulnerability

Malta is very environmentally vulnerable mainly due to:

- High population density and limited assimilative and carrying capacity, leading to problems connected with waste management, water storage, and other factors associated with small territorial size.
- Relatively large coastal zone in relation to the land mass, giving rise to, amongst other things, a relatively high susceptibility to erosion processes.

The private sector in Malta provides about 15 per cent of acute hospital beds.



- Innate fragile ecosystem, arising from a low level of resistance to outside influences, such as alien species, endangering endemic species of flora and fauna.
- Relatively high impact of economic development on the environment, due mostly to the small size of the Islands.

Major Environmental Concerns

The major environmental concerns in Malta relate to air quality, freshwater, marine environment, solid and liquid waste, biological diversity and land use. This section gives a brief overview of these issues – a more detailed treatment will be given in Chapter 3.

Air quality

The main contributors to air pollution in Malta are energy generation and transport. In recent years, quantities of greenhouse gas emissions have increased due to increased demand for electrical energy and growth of private car ownership. This has resulted in risks of atmospheric pollution by lead, particulates, sulphur and nitrogen oxides and volatile organic compounds including benzene.

A shift to better quality and lower sulphur fuels was made in 2001. Early results from the national air-monitoring programme indicate that particulate air pollution is a widespread problem with quarrying and building activities being the main contributors. Malta also contributes to dispersion in the environment of ozone-depleting substances (ODS's), as a user of these materials.

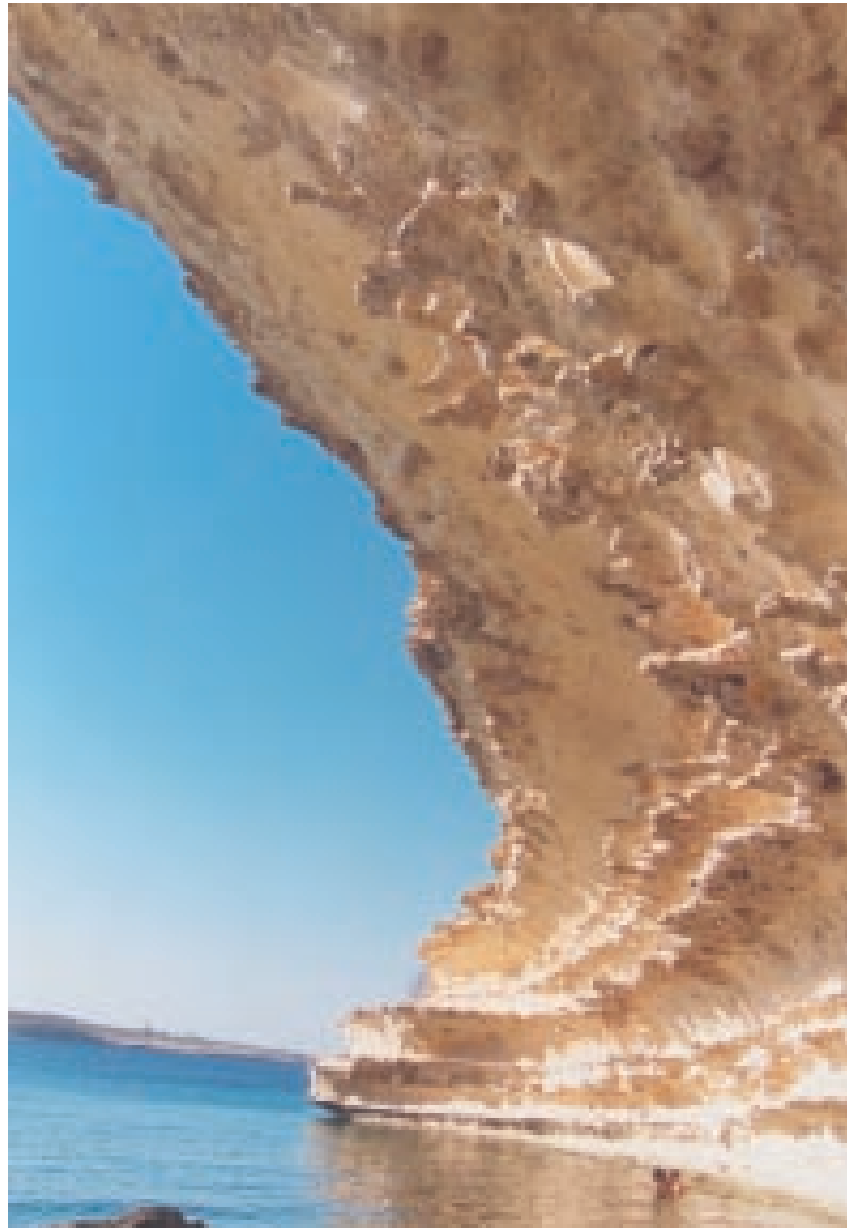
Freshwater

Natural water resources in Malta are very limited and considered to be strategically important. The two major sources of freshwater are aquifers and desalinated water:

Water quality in the various aquifers is at risk mainly from intense agricultural practices and over-extraction. Four reverse osmosis plants account for some 50 per cent of the drinking water supply. Desalination is an expensive process that consumes high amounts of electricity.

Marine and coastal environment

The marine and coastal environments are of crucial importance in Malta, and are associated with the provision of potable water, recreation, aquaculture, bunkering and tourism, amongst others.



Malta's inshore waters are at risk from a range of marine contamination hazards, including sewage, oil spills, and land-based discharges from point and diffuse sources of a range of pollutants.

One of the problems associated with the coastal environment is erosion, and the phenomenon is associated with beach loss and cliff failure. Institutionally, an important weakness relates to limited monitoring of coastal water quality.

On the positive side, an extensive set of legislation was enacted over the past decade to facilitate protection of the marine and coastal environment.

Solid and liquid waste

Malta's small territory, high population density, significant increase in the standard of living and the

One of the problems associated with the coastal environment is erosion.

general lack of awareness on waste management options contribute towards rendering waste management one of the most problematic environmental issues. Almost all waste generated in Malta is disposed of in open dumps with minimal operational controls and limited facilities for mitigating environmental impacts. In 2001, the Government finalised a *Solid Waste Management Strategy for the Maltese Islands* (Government of Malta, 2001 d), which provides a strategic framework for waste management.

There are currently concrete plans to establish a new controlled landfill, to set up a waste transfer station in Gozo, to upgrade the incineration plant for abattoir waste, and to replace incineration plants in hospitals by a central microwaving plant.

With regard to liquid waste, the sewerage system currently directs most of the effluents untreated into the marine environment, resulting in microbial and chemical pollution, degradation of marine flora and fauna and eutrophication, as well as in health threats to bathers and divers. Over the past ten years there have been major upgrades to the sewerage network and outfalls. Government is committed to treat all sewage produced in the Maltese Islands by 2007.

Sustainable use of land has been formally declared as the principal goal of the planning process through legislative reform.

Biological diversity

There is a variety of habitat types, fauna and flora in the Maltese Islands. Some elements have a wider regional importance or are of evolutionary and biogeographical interest. A number of the Islands' habitats, such as woodlands, saline marshlands, coastal wetlands, sand dunes, permanent springs and caves,

are rare and threatened. Similarly, a number of species are threatened with extinction: indeed some have already become extinct. Human activities are the single most important factor affecting habitats and wildlife in Malta. The main impacts are associated with destruction of habitats and uncontrolled exploitation. A number of actions, including the enactment of laws, the assignment of conservation status to particular areas, and awareness-raising initiatives have contributed to slowing down the negative trend, but monitoring and enforcement of legislation remain issues that need to be addressed.

Land use

The Maltese Islands are witnessing unrelenting pressures relating to land use, associated mostly with construction and quarrying, transport, industrial development, tourism and recreation.

The setting-up of the Planning Authority in 1990 has assisted in generating dialogue among land use players, while the establishment of local government in 1994 has enabled participation at grass roots level. Sustainable use of land has been formally declared the principal goal of the planning process through legislative reform.

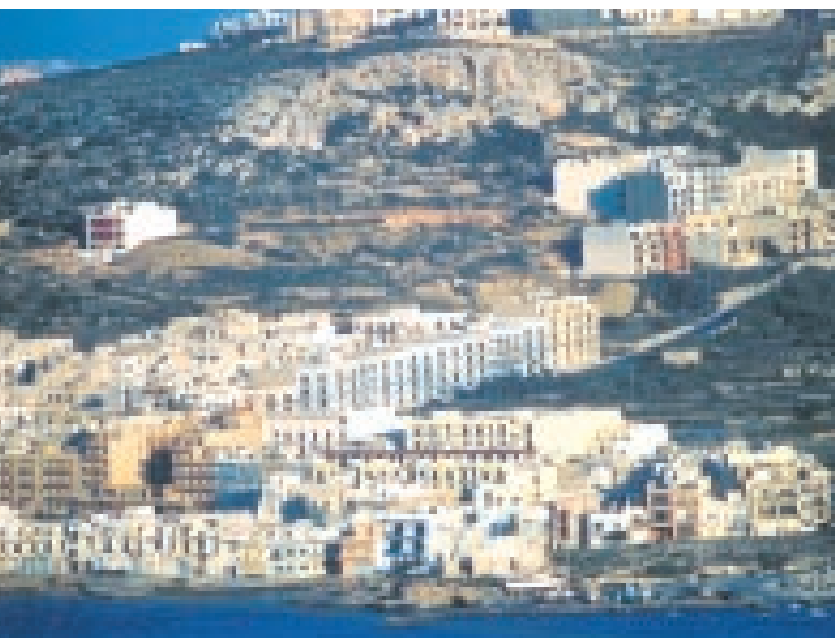
2.9 MECHANISMS FOR SUSTAINABLE DEVELOPMENT

This section gives a brief overview of the legislative and institutional mechanisms which have a bearing on sustainable development and which have been put in place in Malta since 1992.

Legislative Framework

The Environment Protection Act of 1991 was the first attempt to consolidate the piecemeal and fragmented approach which characterised Maltese environmental law at the time. It was meant to be an enabling law and laid down the general legal principles relating to environmental protection.

Ten years later, however, a new law was enacted to replace the Act of 1991, as the latter did not take into account certain emerging aspects of environmental protection which required regulation. Above all, the new law sought to have as its major objective sustainable development, rather than simply environmental protection.



In fact the Environment Protection Act (2001) gives the legislator wider enabling powers to issue regulations relating to sustainable development and to transpose international obligations arising from multilateral environmental agreements to which Malta is a State Party. It enables the issuing of integrated permits, and the monitoring of the state of the environment. It also provides for the setting-up of the National Commission for Sustainable Development.

Other national legislative instruments relating to environmental issues include the Development Planning Act (Cap.356), the Marine Pollution (Prevention and Control) Act (Cap. 271), the Occupational Health and Safety Authority Act (Cap. 424) and the Malta Resources Authority Act (Cap. 423). These are supplemented by a vast number of laws, regulations and government notices, which regulate specific aspects of environmental management. Currently, new legislation is being drafted in order to satisfy local exigencies and to bring Malta in line with European Union Directives on the environment.

Institutional Framework

During the 1990s, the most important institutions concerned with matters related to sustainable development were the Environment Protection Department and the Planning Authority.

In 1992, the Ministry for the Environment was set up, with a portfolio that covered environmental protection as well as public works. The Environment Protection Department acted as the executive arm of the Ministry, supporting it by issuing policies and regulations, and seeing to the enforcement of same.

The Planning Authority was originally established under the Development Planning Act of 1992, as a body corporate with a distinct legal personality, entrusted with the promotion of proper land development and the control of such development in accordance with policies, plans and conditions approved by Government.

The Authority was responsible for the preparation of the Structure Plan and supplementary documents (Planning Authority, 1990; 1997; 1999), the conduct of consultations with the public and private sectors, as well as the publication of an official manual containing a list of the approved policies, plans, conditions and procedural laws of Malta.



The Malta Environment and Planning Authority

As from March 2002, the Environment Protection Department merged with the Planning Authority, forming the Malta Environment and Planning Authority (MEPA) within the Ministry for Home Affairs and the Environment. One reason for the merger was to further clarify the delineation between operational and regulatory roles in the implementation of environmental legislation. The MEPA consists of two separate directorates, namely, the Environment Protection Directorate and the Planning Directorate.

Environment Protection Directorate. The Environment Protection Directorate is a regulatory entity primarily concerned with the protection of biological diversity, pollution prevention and control, and waste management. The Directorate is responsible for the implementation of the Environment Protection Act and for the formulation of environmental policies and regulations.

Enforcement of environmental legislation is in the hands of the executive police, although the Directorate has its own inspectorate. It is the Directorate's duty, however, to act as guardian and to ensure that the executive police enforce the law and seek judicial redress in case of infringement.

The Planning Directorate. Through the Planning Directorate, the Malta Environment and Planning Authority is entrusted with the task of revising the

The Malta Environment and Planning Authority is responsible for regulating environmental protection and land use.

Structure Plan. This is a written statement, illustrated by diagrams and accompanied by an explanatory memorandum, to justify the policies and proposals contained therein. To fulfil its mandate, the Directorate carries out surveys of those matters affecting the character and quality of the environment. Adequate opportunities are guaranteed by law for individuals and organisations to make representations to the Planning Directorate when the latter is reviewing the Structure Plan.

Furthermore, the Planning Directorate may consider it necessary to prepare more detailed proposals than those embodied in the Structure Plan, so as to ensure the proper and effective management of development. These plans, called subsidiary plans, can be subject plans, local plans and action plans, as the case may be.

A subject plan deals with a policy or a matter which is found in the Structure Plan, but which requires more detailed specification for its implementation than that which is provided in the Structure Plan. A local plan is a plan which the Directorate makes for any particular area where the rate of development or redevelopment cannot be satisfactorily managed, or special factors taken into account, solely on the basis of a structure plan. An action plan is made by the Directorate for an area where a department or an agency of the Government intends to carry out, or cause to be carried out, any works on land owned by the private sector:

The National Commission for Sustainable Development

The Environment Protection Act (2001) established the National Commission for Sustainable Development (NCSD) under the Chairmanship of

the Prime Minister. According to Section 8(7) of the Environment Protection Act, the functions of the NCSD are to advocate sustainable development across all sectors of Malta, to review progress in the achievement of such sustainable development and to build consensus on action needed to achieve further progress. The NCSD is to identify any relevant processes or policies which may be undermining sustainable development, and to propose alternative processes or policies to the Government for adoption.

The NCSD is also to identify trends which may significantly give rise to unsustainable development and which will not be reversed on the basis of current or planned action, and to recommend action to reverse such trends.

The setting-up of the NCSD is expected to encourage and stimulate good practice in the use and management of natural resources, in particular their minimal use and maximal reuse by recycling in an environmentally sustainable manner. In carrying out the above-mentioned functions, the Commission may appoint advisory committees to make recommendations on specific subjects or actions. The recommendations and decisions of the Commission do not have executive force, but are to be considered as authoritative recommendations of best practice in achieving sustainable development.

Other Institutions

Malta Resources Authority. The Authority is a public institution with regulatory responsibilities and monitoring and reviewing functions over water, energy and mineral resources in the Maltese Islands.

Malta Maritime Authority. This Authority is responsible for maritime affairs which include certain environmental aspects such as pollution control in internal waters and shipping standards. The maritime squadron of the Armed Forces of Malta is responsible for the maintenance of law and order in the territorial sea and the contiguous zone.

Malta Standards Authority. This Authority is responsible for setting standards including environmental ones. The Malta Standards Authority also runs regular courses on International Standards on Environmental Management (ISO 14000). All European and international standards on sustainable development have been transposed as national standards by the Authority.

The National Council for Sustainable Development in session.



Public Health Department. The Department, which falls under the auspices of the Ministry of Health, is responsible for air and water quality from a public health perspective, as well as for the reporting and monitoring of air and bathing water quality.

Occupational Health and Safety Authority. This Authority is responsible for occupational health and safety issues and falls under the auspices of the Ministry for Social Policy.

Ministry of Agriculture and Fisheries. The Ministry is responsible for many factors impinging on the environment, including afforestation, the importation and use of pesticides and the management of certain natural resources such as soil and sand. It is also responsible for marine life for harvesting purposes, for fishing methods and for aquaculture.

The Drainage Department. This Department is responsible for the environmental standards relating to the public sewerage system.

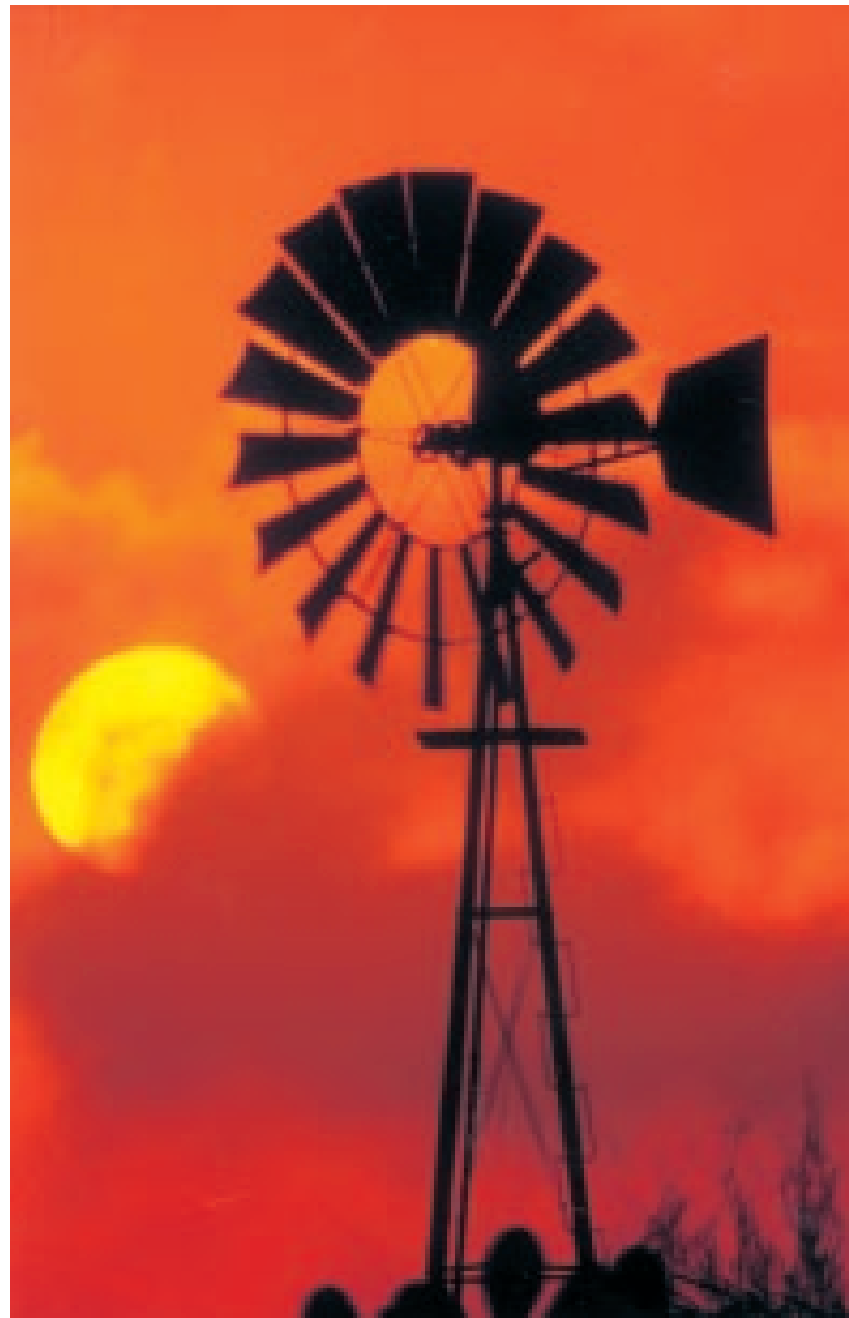
Department for Civil Protection. This Department is responsible for co-ordinating matters during national emergencies, including environmental ones, such as major oil spills.

Malta Tourism Authority. The Authority was set up with the specific mission of advancing the economic and social activity of tourism in the national interest. The strategy adopted by the Authority (Malta Tourism Authority, 2002) is to direct tourism development towards a controlled growth scenario. This approach is based on the concept of sustainable development, giving due weight to Malta's small territory size and socio-economic realities.

Local Councils. These Councils have functions which directly impact on the environment, in particular, the provision for the collection and removal of refuse from public or private places, and the maintenance of receptacles for the temporary deposit and collection of waste. Also, these Councils may make recommendations to any competent authority for, or in relation to, any planning or building scheme.

2.10 CONCLUSION

This Chapter has presented a brief review of the Maltese Islands, with a focus on economic, social and environmental aspects. It has been shown that the standard of living of the Maltese people is not on the



low side by international standards, with a relatively high income per capita and good standards of education and health.

The Chapter has also identified the main areas of concern with regard to environmental quality and sustainable use of resources. These issues will be treated in more detail in the next Chapter.

Finally, the Chapter has shown that in Malta, mechanisms for the promotion of sustainable development are institutionally and legally entrenched. There is the need, however, for further capacity-building to render these legal and institutional set-ups more effective, as will be explained in Chapters 3 and 4.



Aerial satellite image of a coastal area, likely in Malta, showing a river flowing into a bay. The land is a mix of dark brown and green, indicating vegetation and urban areas. The water is a deep blue, and the bay is a lighter blue. The image is oriented vertically on the page.

3

MAJOR ENVIRONMENTAL ISSUES, REMEDIAL ACTION TAKEN, AND THE WAY FORWARD

Malta is a densely populated small island state, with limited carrying capacity and relentless pressures on the physical environment, mostly arising from economic and social development.

Environmental concerns therefore pose a formidable challenge for sustainable development.

LANDSAT-5 image of Golden Bay and Ghajn Tuffieha Bay, produced by the Remote Sensing Programme of the Euro-Med Centre for Insular Coastal Dynamics (ICoD), Malta.

3.1 INTRODUCTION

Malta is a densely populated small island state, with limited carrying capacity and relentless pressures on the physical environment, mostly arising from economic and social development. Environmental concerns therefore pose a formidable challenge for sustainable development in Malta. This Chapter deals with the most important environmental issues in the Maltese Islands, namely those relating to energy and transport, freshwater, the marine environment, wastes, biological diversity and land use. The Chapter also describes the remedial action that has been taken, and that which still remains to be taken, with regard to these issues.

3.2 ENERGY AND TRANSPORT

Electricity generation and transport are both almost completely reliant on the combustion of imported fossil fuels. Over 60 per cent of these fuels is transformed into electricity and 30 per cent is used in transport (Fsadni *et al.*, 2000). The burning of fossil fuels, in whatever application, results in air and other pollution. It constitutes one of the major environmental problems and is in conflict with the necessity of ensuring access to uncontaminated air.

The challenge is to ensure efficient production and use of energy as well as a cost-effective transport system, without jeopardising atmospheric quality.

Current Status

Energy

Electricity is generated from the combustion of fuel oil at two power stations, one situated at Marsa within the densely populated conurbation known as the 'inner harbour area' and the other at Delimara, in Marsaxlokk Harbour. Before 1995, electricity was coal-generated. This practice was stopped due mostly to the negative impact on the environment.

Demand for energy stems from the industrial, domestic and commercial sectors. The latter two sectors have contributed significantly to the increase in demand, with the greater use of air-conditioning being an important factor. The generation of electricity is characterised by low efficiency due to the age of the plants, notably at the Marsa Power Station, and the widely varying demand levels during the day and between day and night.

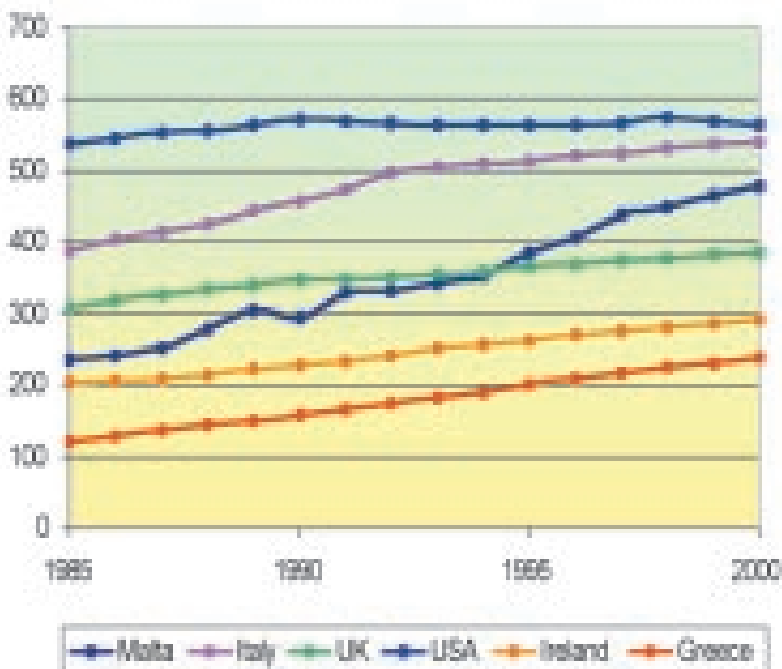
Despite abundant potential for solar energy generation and strong and frequent winds, there is no significant infrastructure in place that is capable of exploiting, to an appreciative degree, these alternative energy sources.

Average daily insolation values range between 2.7 and 7.8 kWh/m² (winter and summer respectively), but only a negligible fraction of this energy is utilised through solar water heaters or photovoltaic (PV) panels. One estimate of solar water heating potential concluded that annual savings of around 12 per cent in heavy fuel oil consumption could be made (Mallia and Fsadni, 1999). The potential for wind energy is for about 10 to 15 MW, which could rise to two or three times that value (i.e., about 4 per cent of national need) if offshore generators were to be considered (Darmanin and Mallia 1996; Farrugia and Scerri, 1998). The use of conventional means of energy generation to compensate for wind variations is currently being studied at the University of Malta (Cilia *et al.*, 2002).

Transport

Since 1990, there has been a net average increase of approximately 7,000 new private cars per annum, resulting in 1.5 cars per household in 2001 – one of the highest rates in the world. Increased use of private vehicles is contributing to air pollution, congestion of the road network and traffic accidents. Public transport patronage has fallen by 21 per cent over the period 1989-98.

Cars per 1,000 people – international comparisons.
Source: Planning Authority Transport Topic Paper 2001.



Environmental impacts

Increased demand for electrical energy and the dramatic increase in vehicle use have negatively impacted on air quality.

A Greenhouse Gas Inventory has been compiled by the Environment Protection Directorate, in accordance with the requirements of the Intergovernmental Panel on Climate Change. Contributions to greenhouse gases from waste, agriculture, energy and industrial processes were included. The inventory shows that although Malta's share of global atmospheric pollution is relatively small due to the country's modest rate of fuel use, the quantities of greenhouse gas emissions have increased between 1990 and 2000.

Road traffic also leads to atmospheric pollution by lead, particulates, and volatile organic compounds such as benzene. Currently, atmospheric benzene is routinely measured by the Environment Protection Directorate and levels in street air are several times the European ambient guideline value (Vella and Gaerty, 1998; Vella *et al.*, 2002).

Since 1997 the University of Malta has been operating a background atmospheric research station accredited to the World Meteorological Global Atmosphere Watch programme. Background ozone and carbon monoxide, together with a comprehensive set of meteorological parameters are being measured.

Analysis has revealed the serious extent of the pollution problem in the Mediterranean basin and has also helped quantify the amount of anthropogenic pollutants emitted both locally and regionally (Nolle *et al.*, 2002).

In 2000, a National Air Monitoring Programme was launched by the Environment Protection Department for the 'priority pollutants', i.e., sulphur dioxide, nitrogen oxides, carbon monoxide, ozone and fine particles (PM_{10}) involving both a mobile station and passive samplers.

Since 1997, background ozone has also been measured by the University of Malta. Early results indicate that particulate air pollution (PM_{10}) is a problem affecting both urban and rural areas.

Malta also contributes to dispersion in the tropospheric environment of ozone, albeit as a user, not as a manufacturer of these materials.



Pollutants generated are considered to have exerted deleterious effects on health, caused damage to the rich architectural heritage, as well as affected the quality of tourist amenities offered by the country.

Transport is a major contributor to air pollution in Malta.

Besides the impact on air quality, the high dependence on private transport also generates significant impacts on land use. This is discussed further in Section 3.7.

Another environmental impact relating to energy stems from the existence of excessive, poorly designed or badly-installed lighting in public places. This is generating a negative effect on environments vulnerable to light intrusion, as well as negatively affecting the visual character of the landscapes and built environment.

Remedial Action regarding Energy and Transport

Malta acceded to the "Vienna Convention on the Protection of the Ozone Layer" (1982) and the Montreal Protocol on Substances that Deplete the Ozone Layer" as amended in 1990. Through import controls, the consumption of the most harmful ODS's has recently levelled out at 1995 values, as these compounds have been replaced by less-damaging substances. Moreover, Malta now conforms to the 1997 'Developing Countries ODS phase-out schedule'.

The phase-out, in 1995, of coal combustion for electricity generation decreased emissions of nitrogen oxides and removed environmental impacts from fly and bottom ash. It also removed the limited (in extent) but very severe impact of coal dust from the open pound at Il-Menqa. Moreover, in 1998, the adoption of combined-cycle gas turbine technology at the Delimara power station was an important step towards increased energy efficiency. For the six years from 1995 to 2001, there has been an increase in sulphur dioxide emissions (Buttigieg, 2002). A shift to lower sulphur fuels was made in 2001, which together with the use of fuel additives, and the installation of electrostatic precipitators, has improved the situation with regards to particulate emissions from the power stations.

Mobile station to monitor air quality. The air monitoring programme is run by the Environment Protection Directorate.



In 1997, the Malta Council for Science and Technology was entrusted with preparing a National Energy Policy for Malta.

Recently, the Malta Resources Authority took over the regulatory powers held earlier by Enemalta Corporation and the responsibility for Malta's energy policy, which is to be finalised in 2002.

With regard to alternative sources of energy, the Malta Resources Authority issued a consultation document in 2002, with the aim of developing a "Strategy for the Exploitation of Renewable Energy Sources for Electricity Generation". Work is currently underway to improve the distribution network. There have also been a few private sector initiatives in the field of alternative energy sources, including the installation of solar water heaters. Grid Connected Solar Systems, solar powered vehicles, and the potential for wind energy have been the subject of research at the University of Malta (see for example Cilia, 1995; Cilia *et al.*, 2002; Spiteri Staines and Cilia, 2000).

The fraction of unleaded petrol sold has increased steadily throughout the last decade (Mallia and Fsadni, 2002) and in November 2001, a price differential of Lm0.03 (Euro 0.07) was introduced in favour of unleaded petrol which already meets European standards. In June 2002, sulphur content in diesel for automotive use was further reduced and now meets European standard EN590. Moreover, government has recently reduced registration tax on electric cars from 50.5 per cent to 16 per cent.

Measures are currently being introduced to phase out leaded petrol by 31 December 2002. Enemalta Corporation, the national utility provider, is carrying out a study to determine the best lead substitute for petrol. Educational campaigns are currently being prepared with regard to transport and fuel use. Government is also adopting regular review of fuel tariffs in order to ensure that they are cost reflective.

National emission ceilings for certain atmospheric pollutants are to be adopted by 2002 and will enter into force on accession to the EU.

The feasibility of importing natural gas by pipeline for use in power generation is being considered by Enemalta Corporation. Such a development would represent an important step in the diversification of primary energy supply to the Islands and bring about significant improvements in efficiency at the power station and in air quality.

Issues to be Addressed and Measures to be Taken

The following issues and measures need to be addressed with regard to energy and transport in the context of sustainable development:

- In order to fulfil its commitments under the “UN Framework Convention on Climate Change”, Malta must strive to reduce greenhouse gas emissions. Increasing efficiency in production, transmission and distribution of energy, reduction of its consumption and cut-backs in vehicle emissions, would be conducive towards this end.
- There is the need for a focused strategy to raise awareness in favour of consumption control and to usher in fiscal measures to promote and encourage investment in energy-efficient modifications, equipment and processes.
- The construction industry should be directed to improve design for thermal efficiency and to adopt energy saving measures prior to being granted development permission. In this regard, there is the need to step up funding for research to improve knowledge on local materials and conditions.
- The development of renewable energy sources is still in its infancy and remains a challenge for the future, although important improvements in this regard are expected in the medium term.
- The upgrading of the condition of roads and road design, coordination of land use with transport, and effective traffic management measures are called for. A transport strategy proposed by the Malta Environment and Planning Authority deals with these issues.
- Storage and distribution of petrol needs to be improved, in line with EU regulations.
- State agencies should consider providing technical consultancy and financial assistance to small and medium sized enterprises to promote investment in new “environmentally friendly” equipment.
- Other measures which should be considered in this connection include mandating the use of catalytic converters on newly imported vehicles, designing fiscal policies to encourage use of more efficient vehicles, and directing investment in the public transport system.

3.3 FRESHWATER

Due to the geographic characteristics of the Maltese Islands and the semi-arid Mediterranean climate, the Maltese people have been historically constrained



by the availability of freshwater resources and have striven to overcome water scarcity in several ways – ranging from the traditional harvesting of rain water to the high-tech treatment of sea and brackish water by desalination systems. Rainfall is limited to an annual average of around 500 mm that falls in about 90 days a year, mostly from September to April, with spring and summer remaining almost completely dry. There are no rivers, but perennial springs are normally present throughout most of the year. These function ecologically as small rivers, housing a variety of freshwater flora and fauna. Rock pools and brackish water are also important ecologically. Natural water resources are nonetheless restricted and considered to be strategically important in a national perspective. A detailed assessment of such freshwater resources as well as freshwater habitats is available in Axiak, *et al.*, (2002).

Desalination is an expensive process that consumes high amounts of electricity.

Current Status

Production

The Water Services Corporation (WSC) is the water utility responsible for water production and distribution in the Maltese Islands. Malta has two major sources of freshwater; namely groundwater, which is the only naturally occurring source of freshwater, and desalinated water as a source of potable water. The overall drinking-water production in Malta has been steadily decreasing since 1995 as a result of various conservation measures that the Water Services Corporation has implemented over the past decade.

Groundwater is mainly abstracted from the sea-level aquifers that lie beneath most of the territory in Malta and Gozo. These aquifers occur in fractured limestone and are highly sensitive to sea-water intrusion. About 93 per cent of all groundwater abstracted for drinking purposes is pumped from the sea-level aquifers. There are also several small aquifers elevated above sea level and perched over impermeable clays. These are not affected by saline intrusion but are used sparingly as they are heavily contaminated by nitrates derived from agricultural fertilisers. Springs discharging from these aquifers are today used only for irrigation. Groundwater is abstracted from wells, springs and galleries – an underground network of more than 40 kilometres. A total abstraction of 17 million m³ for municipal purposes was registered in Malta and Gozo during 2000-2001. There are no official records for groundwater abstraction by the private sector; however, illegal abstraction is known to exist.

For the past ten years reverse osmosis has accounted for some 50 per cent of the drinking water supply and there are currently four such desalination facilities. A breakdown of water production by source in 2001 is shown hereunder:

Some households also utilise rainwater which is collected in wells, although laws specifying the catchment of rain water through the provision of cisterns are not always observed.

Table 3.1 - Water Consumption by Sector

Water Consumption	%
Domestic	64
Industrial	7
Farms	6
Tourist	8
Government	8
Commercial	6
Other	1

Source: Water Services Corporation, 2001

Consumption

With regard to consumption, households place the highest demand by sector (Table 3.1). The figures shown in the Table exclude unregistered abstraction and desalinated water produced by private operators.

Environmental issues

The main threats relating to the integrity of groundwater are:

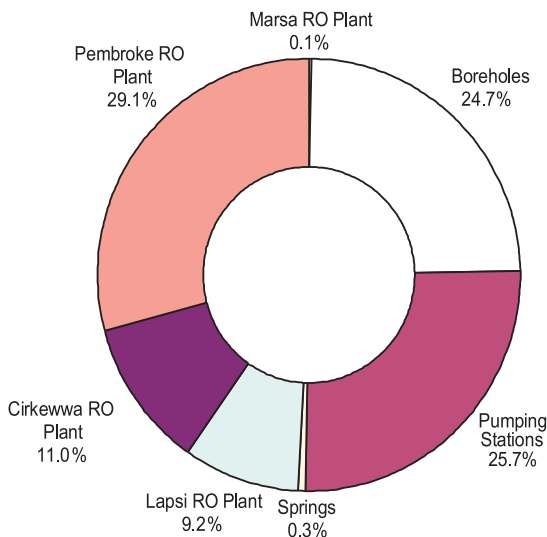
- over-pumping of the mean sea-level aquifers and a consequent rise in salinity levels. There is still substantial uncontrolled abstraction by private parties, exacerbating the depletion of groundwater in quantity and quality;
- point and diffuse pollution from anthropogenic activities namely agriculture (fertilisers and pesticides), industry and waste disposal;
- the effects of land development, including road development on natural aquifer recharge.

It should also be noted that freshwater resources support particular habitats and that their contamination poses an ecological threat. Furthermore, freshwater habitats have been steadily decreasing due to competition with other land uses.

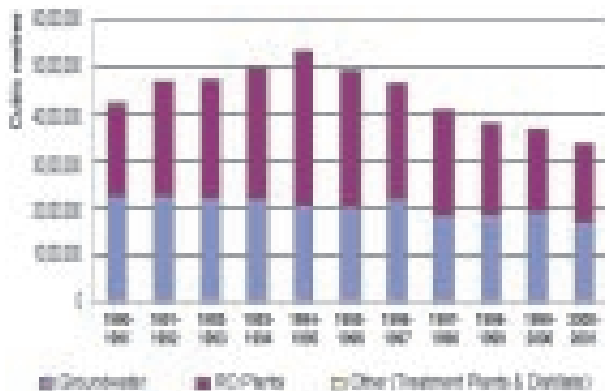
Desalination on the other hand is an expensive process, as it requires high amounts of electricity. Reverse osmosis plants also have some effect on the sea-water ecology due to the brine discharged.

The land use implications also need to be considered in view of the fact that reverse osmosis plants are typically located on the coast.

Breakdown of potable water production by source in 2000-2001. Source: Water Services Corporation, 2001.



Freshwater production 1990-2001. Source: Water Services Corporation, 2001.



Remedial Action regarding Freshwater

Considerable progress has been achieved during the last five years bringing down water losses to an all time low. Substantial capital investment has been undertaken to reduce losses by way of leakage detection and repair, meter replacement, and "intelligent" pressure management systems. The International Leakage Index (ILI) is being applied as a performance indicator to gauge success in controlling leakages.

The leakage level of 2800m³/hr recorded in 1995 has now dropped to 1210m³/hr, and is targeted to reach 830m³/hr in 2003 and 398m³/hr in 2006. The Faculty of Engineering at the University of Malta is also assessing the possibility of locating leaks through spectral analysis (Cilia, *et. al.*, 2001).

Team-working structures adopted within the Water Services Corporation, research and development, information technology, and innovative work practices have also contributed towards the achievement of targets set out in the Corporation's strategic plan (Rizzo, 2001). Tariff revisions in recent years have also helped in reducing wastage although consumption has continued to increase. The tariff structure allows the consumer to benefit financially by saving water. Subsidies are limited to a block of basic water requirements while any excess over that is charged at full price.

Consumer education on water conservation may also have limited the increase in consumption. To reduce salinity at source, abstraction for municipal purposes from the mean sea-level aquifer has been reduced and in certain areas wells have been shut down.

With regard to energy consumption by reverse osmosis plants, special attention is being given to plant efficiency to produce best quality drinking water at the lowest price. Energy consumption of reverse osmosis plants has already been reduced considerably and the commissioning of special energy saving devices will reduce energy consumption ranging between 12 and 20 per cent in those modules where the devices are installed.

As from February 2001, the responsibility for regulating the water sector has been handed over to the Malta Resources Authority (MRA), a public institution with regulatory responsibilities over water, energy and mineral resources in the Maltese Islands.



Issues to be Addressed and Measures to be Taken

In order to ensure sustainability in the use of freshwater resources, further measures in water management need to be taken, including the following:

- Water quality needs to be improved to internationally acceptable standards. The distribution network is now being modernised and rehabilitated to cater for increased blending of groundwater with nitrate-free desalinated water in storage reservoirs before reaching the consumer. In Gozo, all groundwater sources will be collected in one reservoir and treated for the removal of chloride, iron, sodium, sulphate, fluoride and nitrate.
- There is the need to identify, monitor and protect high status sites and to introduce catchment management, in line with the EU Water Framework Directive, which covers all surface waters.
- The entire Maltese Islands need to be designated as a nitrate vulnerable zone in order to protect the quality of groundwater. Plans are already in hand in this regard.
- Water conservation measures (including the use of cisterns) need to be encouraged further.
- Integrated water resources management coupled with further enforcement of regulatory measures (in particular illegal abstraction) remains an overarching objective.
- There is also the need to optimise the use of second class water (discussed further in Section 3.5 below).

Freshwater is a very scarce resource in the Maltese Islands.

3.4 MARINE AND COASTAL ENVIRONMENT

Marine and coastal environments play a crucial role in Malta. Maritime transport provides a life link with the outside world while the sea itself is a source of potable water, as described above. Recreation for Maltese people as well as tourists is highly dependent on the marine and coastal environment, while the introduction of aquaculture in the early 1990s and the liberalisation of bunkering operations opened the marine environment for more investment. Other activities that utilise the coast include shipbuilding, ship-repair and fishing. Yet, as competition for all types of uses increases, so does conflict amongst them.

Malta's gently sloping coastal areas and sandy beaches are under pressure from tourism and recreational developments and infrastructural needs, and this is often to the detriment of biodiversity, aesthetic value and open space. A detailed assessment of trends in marine environmental quality and threats may be found in Axiak *et al.*, (2002).

The fishing industry in Malta is largely artisanal.



Current Status

Development on the coast is regulated by the Malta Environment and Planning Authority. Pollution prevention from marine vessels is regulated by the Malta Maritime Authority, which has to comply with international regulations. Both the Environment Protection Act (1991), and its new version, (2001) and the Development Planning Act (1992) allow and enable the setting-up of marine protected areas.

Although at present there are no formal marine protected areas, the area of 1 nautical mile around the islet of Filfla has served as a strict marine reserve and no activities other than fishing are allowed there. (Mifsud, 2002). Fourteen sites were proposed as candidate marine conservation areas in the *Structure Plan for the Maltese Islands* elaborated in 1990.

In 1994, a report commissioned by the Regional Activity Centre on Specially Protected Areas identified 27 marine and 17 coastal sites that were recommended as deserving protection by virtue of the Environment Protection Act, without specifying the type and extent of protection (Schembri, 1994). There is public pressure for such designations, particularly from NGOs and the diving community.

Marine living resources

The fishing industry in Malta is largely artisanal, and only a small number of fishing vessels operate on the high seas. An assessment of the fishing fleet, fishermen and fish catches is available in Schembri *et al.*, 2002. As on 18 September 2001, there were a total 1,736 licensed fishing vessels (1,411 in Malta and 325 in Gozo). Of these, only 45 were considered industrial vessels (over 15 m in length). The rest were considered to be multipurpose since they undertake all types of fishing on a small scale and in territorial waters only. The total number of registered fishermen in 1999 was 1,707.

The most widely used gear is long-lines, set adrift for pelagic species and close to the bottom for demersal species. Modified seines are used for dorado and *lampara* species (*lampara* is a form of night fishing utilising powerful light) whilst bottom trawling takes place during two seasons. Deep bottom trawling takes place offshore for crustaceans in spring and summer. Fishing in shallow coastal waters for demersal species takes place in autumn and winter. Harmful and illegal fishing practices also exist. The main fishing seasons are given in Table 3.2.

Table 3.2 - Fishing Season

Species	Season
Bluefin tuna	May and July
Dorado	September to December
Stone bass, groupers and snappers	January to April
Fish caught by Lampara Technique	March to July
Swordfish	September to November

Source: Schembri et al., 2002

The total fish landings in 2001 amounted to approximately 850 tons with a value of about Lm 1.6 million in 2001 (source: NSO). The most important fish caught are dorado (lampuka) (about 36 per cent), bluefin tuna (about 22 per cent of catch), and swordfish (about 9 per cent), although there is considerable variation in these percentages from one year to another. Not all fish is landed at the local fish market – some is sold directly to restaurants or to small fish markets.

Aquaculture

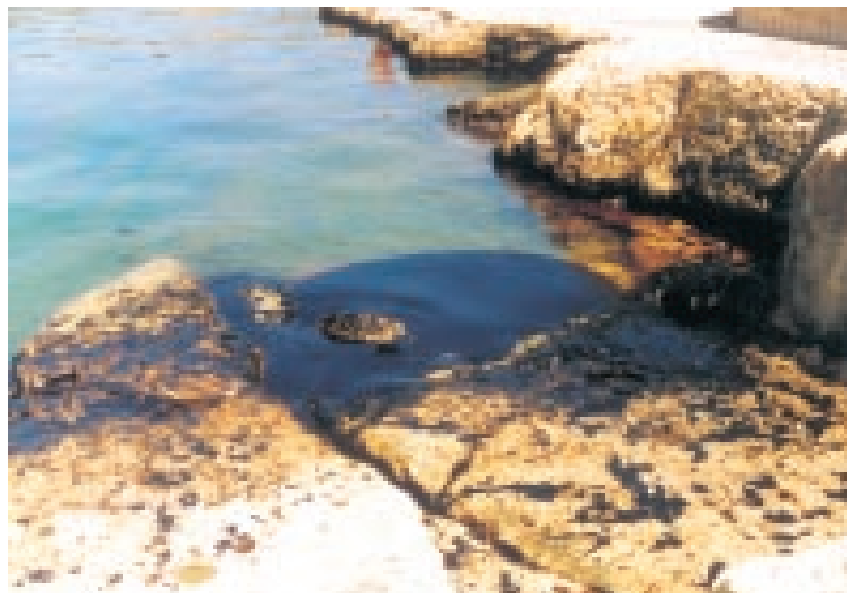
The aquaculture industry was introduced in Malta in 1989 and it proliferated rapidly from a production of 300 tonnes in 1992 to a total licensed production potential estimated at 3,000 tonnes per year in 2001. The main species produced on both commercial sea-based and land-based operations were sea bass (*Dicentrarchus labrax*) and sea bream (*Sparus aurata*). Interest has now shifted towards tuna penning with sea bream operators seeking to convert and extend their farms for such purposes. Bluefin tuna is caught from the wild stock in the Central Mediterranean.

Potential pollutants include nutrient inputs from cage sites, slick of fish oil on the surface of the water and decomposition from overfeeding. In some cases, there is evidence of impact on water quality and on the *Posidonia oceanica* meadows for inshore fish farms, and on sediment quality, in offshore tuna penning. A more detailed review is included in Schembri et al., (2002).

Environmental Issues

Marine spills

Although no major oil spill has ever reached our coastline, the Central Mediterranean is an area with relatively high maritime traffic and the associated risks of incidents are evidently high. The area around Malta



and in the Sicilian Straits is one of the most oil-polluted regions in the Mediterranean. The Maltese coastline and coastal waters are continuously exposed to threats of spills originating from maritime activities, as well as from land-based operations. A more detailed review is available in Axiak et al., (2002).

The Maltese coastline and coastal waters are continuously exposed to threats of spills originating from maritime activities, as well as from land-based operations.

Integrated management and sustainable development

The main threats to the coastal and marine environment stem from lack of integrated planning and management. The exploitation of the marine and coastal environment has historically been addressed in a sectoral manner, without adequate strategic long-term direction. The majority of coastal uses have been developed without considering the implications on the natural processes, cultural resources and other uses. This pattern has been mostly felt in areas where new forms of development have been introduced in coastal waters. Dumping at sea is regulated by the Malta Maritime Authority and the Environment Protection Directorate, although illegal dumping of waste at sea does exist.

Information and monitoring

The largest collection of information on marine habitats around the Maltese Islands was carried out over the last decade, mainly as part of environmental impact assessments of existing and proposed projects, or to produce inventories of coastal resources. These baseline studies on the submarine littoral and macrobenthic assemblages cover approximately 4.7 square kilometres of sea-bed area and a coastal length of 20 kilometres. A study has recently been commissioned by MEPA to investigate the *Posidonia oceanica* meadows around the Maltese Islands. The Pollution

Control Co-ordinating Unit within the Environment Protection Directorate (MEPA) has also revived the MEDPOL monitoring program for basic parameters such as nutrients, chlorophyll and water transparency, all considered as indicators of environmental quality.

Monitoring of bacteriological standards is also carried out by the Health Department through their bathing waters monitoring program. Furthermore, the University of Malta conducts *ad hoc* research in localities such as harbours and sewage outfalls. There is also research work on coastal resources and on baseline studies of macrobenthic communities and assemblages. Biodiversity data has also been generated by other organisations namely, the Malta Council for Science and Technology (MCST) and the International Environment Institute (IEI), the National Aquaculture Centre (NAC), the Ministry of Agriculture and Fisheries and the former Environment Protection Department within the Ministry for the Environment.

Malta hosts the Euro-Mediterranean Centre for Insular Coastal Dynamics (ICoD), which has

developed the capability for aerial surveillance and monitoring of the coast and territorial waters. This can be used for shoreline management and for detecting illegal activities, such as discharges from ships. The Centre has undertaken preliminary short-term studies on beach and shore-line erosion trends.

The main problem, in this regard, is that marine data has been collected through project-based assessment and baseline information is still lacking. Information with respect to impact from industrial discharge and the location of landfills along the coast is also sparse.

Malta hosts the Mediterranean Global Ocean Observing System (MedGOOS) which networks the main marine research centres in the region, however, there is no marine research centre *per se* in the Maltese Islands.

Coastal erosion and climate change

Coastal erosion locally can be associated with beach loss and cliff failure. To date no published studies exist that indicate the current rates and potential risks of coastal erosion around the Maltese Islands. Consequently, the main factors that accelerate erosion are

Table 3.3 - Main Legislation Adopted Between 1991-2001

Legislation	Organisation	Main Function
Development Planning Act 1992; Amendments in 1997	Planning Authority	Plan and control development on land and at sea
Malta Maritime Authority Act, 1991; Yachting Centres regulation, 1992.	Malta Maritime Authority	To provide and maintain ports; prevent and control pollution of any port; exercise control for the preservation of good order in territorial and internal waters
Civil Protection Act, 1999	Civil Protection Department	Preparation of contingency plans to respond to national disasters/emergencies
Malta Resources Authority Act, 2000	Malta Resources Authority	Regulation, monitoring and review of all practices, operations and activities relating to energy, water and mineral resources
Fish Conservation and Management Act, 2001	Department of Fisheries/Malta Centre for Fisheries Science	Conservation of natural fish stocks, development and management of fish stocks, monitoring and regulating of fishing and aquaculture operations
Environment Protection Act, 1991, superseded by the Environment Protection Act, 2000 and its subsidiary regulations	Environment Protection Department	Implementation of the Environment Protection Act, 2001 enables, amongst other things, the setting-up of the National Commission for Sustainable Development and the Environment Fund, issuing of regulations in relation to biodiversity, pollution prevention and control and waste management, licensing of establishments, environment impact assessments and access of information on the environment by the public

associated with development carried out, without adequate understanding of coastal processes.

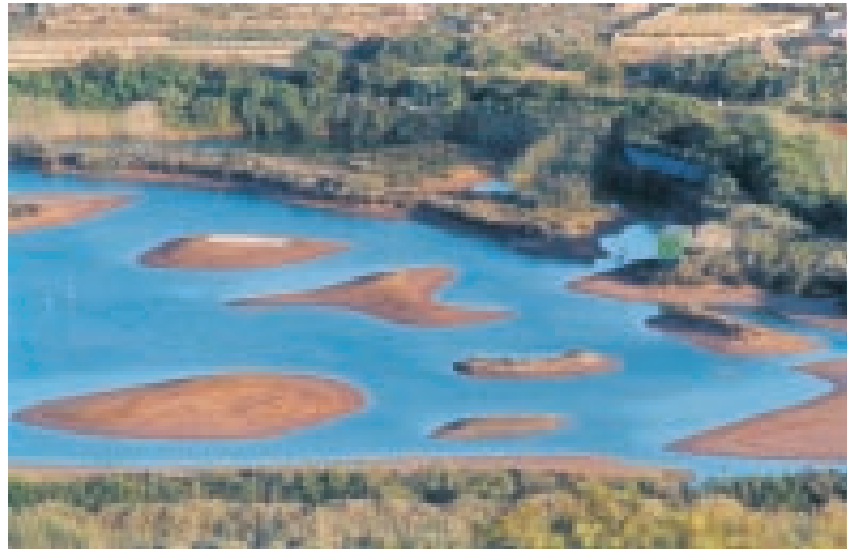
With respect to climate change, the United Nations Environment Programme commissioned a study (Attard, 1993) to investigate the implications of climate change, including sea level rise, on the Maltese Islands. The study suggests that the impacts are expected to be relatively low. Nonetheless, it is imperative that this issue be given due attention since considerable commercial and industrial activity is located along the low-lying coastal areas.

Remedial Action with regard to the Marine and Coastal Environment

An extensive set of legislation was enacted over the last decade to create new agencies or empower existing ones with administrative functions that facilitate protection of the marine and coastal environment.

These laws have made it possible for the responsible agencies to undertake several actions, including the following:

- The development of a National Oil Pollution Contingency Plan (which however is yet to come in full operation).
- The adoption of a Program for a Marine Environment Risk Management System to monitor and audit operations within the Grand Harbour.
- The adoption of Regulations on Environment Impact Assessments.
- The adoption of Planning Policy guidelines on fish farming (1994). Measures for a National Policy on Aquaculture are currently underway.
- The preparation of a Coastal Strategy to be adopted in the revised Structure Plan. The report includes a profile of natural and cultural resources, a revision of current practice and evaluates development trends.
- The undertaking of a Coastal Area Management Program under the Mediterranean Action Plan, (2000 – 2002).
- Assistance to local NGOs to manage protected coastal areas.
- Research by the University of Malta and various institutions on the marine environment to investigate habitats and impact of anthropogenic origin and to collect baseline data, and investigate levels and sources of pollution.
- The issue of a number of regulations protecting marine biota via the Environment Protection Act



since 1992, including those protecting Reptiles, Marine Mammals and Flora and Fauna.

- Four coastal areas, namely the island of Filfla, St. Paul's Islands, Fungus Rock and the saline marshlands of Ghadira were declared as international 'Specially Protected Areas' through the "Protocol concerning Specially Protected Areas in the Mediterranean".
- The development of a code of practice with guidelines to be followed by governmental and non-governmental organisations in connection with cetacean strandings and beaching in the Maltese Islands and their territorial waters.
- The compilation of a *Strategic Action Plan for the Conservation of Marine and Coastal Biodiversity for the Maltese Islands (SAP-BIO)* being carried out by the Environment Protection Directorate with the assistance of the Regional Activity Centre for Specially Protected Areas (Tunisia) of the Mediterranean Action Plan, which aims to analyse issues and identify actions required at national and regional (Mediterranean) level to conserve marine and coastal biological diversity.
- The development of action plans for marine invasive species, accompanied by measures to protect the Maltese Islands.
- The setting-up of a national team to determine which marine areas could qualify for inclusion in the *Emerald Network* of the Council of Europe.

The Ghadira Nature Reserve – one of the specially protected areas in Malta.

Since 1992, Malta has also become Party to a number of treaties dealing with the marine environment, including the "Convention on Biological Diversity", the "Convention on Migratory Species of Wild Animals" (or Bonn Convention), the "Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area" (or ACCOBAMS) and the "Protocol concerning

Specially Protected Areas and Biological Diversity in the Mediterranean” of the “Barcelona Convention”. A number of coastal species were proposed for inclusion into the Appendices of the “Bern Convention” (Stevens, 1999a; Schembri *et al.*, 2002).

A more holistic approach essential for integrated marine and coastal management started to evolve in the 1990s. The introduction of the Planning Authority in 1992 led to a more systematic planning and control of development on both land and sea. The Authority is legally bound to consult different agencies and the general public on both development plans and projects. In addition, the increased interest for development at sea brought to light issues concerning administrative overlaps and gaps, which indirectly led to more policy co-ordination between certain agencies, albeit on an *ad hoc* basis.

Issues to be Addressed and Measures to be Taken

A holistic approach is essential for integrated marine and coastal management.

While the legal package with regard to the marine and coastal environment is comprehensive, its successful implementation requires that the following gaps be addressed:

- There is still very limited information regarding

the state of the marine environment. More resources need to be made available to allow for more extensive monitoring programmes.

- There is a need for capacity-building within government agencies, including management and enforcement personnel.
- There is also a need to develop and implement integrated management plans. The current Structure Plan (Planning Authority 1990), calls for the need of a comprehensive plan addressing coastal zone management.
- The establishment of a system of Marine Conservation Areas is a pressing need.
- There are data gaps with regard to fish stocks, aquaculture and other industrial impacts on the marine environment.

3.5 SOLID AND LIQUID WASTE MANAGEMENT

Waste management is one of the most problematic environmental issues in the Maltese Islands. Malta's small territory, high population density, the significant increase in the standard of living and general lack of awareness on waste management options, all exacerbate the problem in Malta (Axiak, *et al.*, 1999; Briguglio and Mercieca, 1998). Increased media pressure, as well as requirements stemming from international commitments have placed waste management issues high on Government's agenda.

Current Status

Solid waste

Although there are no official estimates of the rate of growth of waste, the *Waste Management Subject Plan for the Maltese Islands* (Planning Authority, 2001d) assumes that waste will increase in proportion with economic growth. The *State of the Environment Report* (Axiak *et al.*, 2002) gives an updated account of statistics of solid wastes and assesses the various implications of such wastes on the sustainable use of our environmental resources.

Solid waste accepted at public disposal sites, namely landfills and the composting plant, averaged about 1.4 million tonnes in recent years, of which about 11 per cent was municipal waste, 7 per cent, industrial waste and 82 per cent, construction and demolition waste (Axiak *et al.*, 1999; 2002; Planning Authority, 2001d; Environmental Planning Directorate, 2002).



Municipal waste. According to a recent (April 2002) survey carried out by the National Statistics Office, about 2.2 kilograms per household of domestic waste was collected daily. Approximately about 60 per cent of this waste was made up of food remains (organic waste). Paper, cardboard and cartons accounted for about 14 per cent, whereas plastic containers and film accounted for about 10 per cent. The remaining fractions included textile material, (5 per cent), glass bottles (4 per cent) and ferrous cans (4 per cent). Hazardous waste contributed less than 0.5 per cent (source: NSO).

Industrial waste. According to a survey, undertaken in 1996, reported in Axiak *et al.*, (1999), the highest industrial waste fractions related to inert residues (about 42 per cent) food residues (13 per cent), paper (12 per cent), hydrocarbons (7 per cent), metals (5 per cent) and slaughterhouse residues (5 per cent). Other industrial waste fractions included plastics, textiles, glass, wood, sludges, salt and ash.

Incinerated waste. Incinerated waste originates from St. Luke's Hospital, Boffa Hospital and Gozo General Hospital (healthcare waste), the civil abattoirs (animal carcasses) from the Malta Drydocks (waste from ships) and the Malta International Airport (open burning of airline catering waste). Generally speaking, old incinerating technology is utilised and no gas cleaning occurs.

Liquid waste. Data regarding the actual amounts of sewage discharged into the marine environment are not available. However, it can be assumed that the production of urban wastewater is directly linked to freshwater consumption. It is estimated that 80 per cent of water consumed reaches the sewerage network. This sewage effluent is predominantly a mixture of domestic, industrial and commercial wastewater. Using water consumption figures for 2000, it is estimated that the annual volume of liquid wastes generated was approximately 18.7 million m³.

Current waste management practice

With the exception of waste composting, solid waste (as well as some types of sludges and liquid waste) generated in Malta is disposed in landfills, which are owned and operated by the State. Maghtab Landfill on mainland Malta and Il-Qortin Landfill in Gozo have minimal operational controls and limited facilities for mitigating environmental impacts.

Private contractors provide collection services, while Local Councils are responsible for collection of



The Maghtab landfill – its closure is a major challenge in waste management.

municipal solid waste on a daily basis at no cost to households. Industrial waste is collected at the expense of the producer, and the same applies for construction and demolition waste. Since 1997 there has been a nominal fee of Euro 0.9 per tonne of waste deposited at public waste deposit sites.

With regard to recycling, in 2001, approximately 30,000 tonnes of solid waste was delivered for composting at the Sant' Antnin Solid Waste Treatment Plant, of which 57 per cent was actually composted (Axiak, *et al.*, 2002). The plant has a design capacity of 85,000 tpa.

Separation and recycling initiatives are carried out by some entities, including collection and export for recycling of paper and cardboard, batteries, scrap metals and plastics, but there has been no sustained effort at separation at source as yet. An exception to this is the beverage manufacturing industry which operates an efficient deposit-refund scheme for glass bottles. Recovery (reuse) rates of over 90 per cent are recorded on this sort of packaging. Unmeasured quantities of excavation, construction and demolition wastes are recycled and/or deposited in disused quarries. Approximately 177,000 tonnes of excavation wastes was disposed offshore in 2001 (Axiak *et al.*, 2002).

With regard to liquid waste, almost all areas in the Maltese Islands are connected to the sewerage system which collects domestic and industrial waste as well as some storm water runoff. Animal breeding establishments are not allowed to connect to the public sewerage system and their waste is disposed of in cesspits, which have to conform to strict design standards. The sewerage system directs most of the effluents into the marine environment, with an average of less than 15 per cent of the total sewage generation being treated prior to discharge. There are currently three main sewage outfalls in mainland Malta, another three in Gozo, and a minor outfall in Comino. The only outfalls equipped with proper diffusers are those at Wied Ghammieg and Ras il-Hobz, with the former being particularly prone to breakage.

The Sant' Antnin Waste Treatment Plant (constructed in 1982 and upgraded in 1998) is connected to the main sewage collection infrastructure. This plant produces second-class water that is used for irrigation and some industrial processes. The by-product of sewage treatment (i.e., sludge) is discharged, untreated, into the sea. There are also a number of small-scale treatment plants that have been installed in major hotels.

The Sant' Antnin Waste Treatment Plant



Threats

The current waste management scenario poses several threats to the environment due mainly to the heavy dependency on landfills. Landfill is a very land-intensive option, a consideration that is especially problematic in Malta given the small land area. The fact that landfills in Malta are not properly managed results in significant environmental problems including negative visual impact, emissions of toxic gases from spontaneous combustion of waste, leachate generation, vermin, odours, and groundwater and marine contamination (Axiak, *et al.*, 2002).

Incineration practices in Malta are also leading to significant environmental risks, given that none of the existing incinerators are equipped with flue gas clean-up equipment, and that most of the incinerators do not produce complete combustion of the waste incinerated.

With the possible exception of the abattoir incinerator in Gozo, all the waste combustion facilities will need to be closed down in order to meet EU standards.

The composting plant at Sant' Antnin currently receives mixed municipal waste (in the absence of source separation) which results in the production of compost of an inferior quality. Some concern has been expressed about the possibility of soil contamination by heavy metals and other contaminants where the compost is applied for agricultural purposes.

Other environmental threats associated with the current waste management situation include unofficial dumping in various areas around the countryside and the illegal dumping of waste at sea.

With regard to liquid waste, the direct discharge of raw sewage into the sea leads to microbial pollution, degradation of marine flora and fauna and eutrophication. In addition, there are health threats to bathers and divers. Problems with the discharge of raw sewage into the sea are further exacerbated by the high rates of malfunctioning of Malta's main sewage outfall at Wied Ghammieg, as well as of some coastal pumping stations.

Remedial Action regarding Waste

In 2001, Government published the *Solid Waste Management Strategy for the Maltese Islands* which provides a strategic framework for waste manage-

ment. An inter-ministerial group, acting as a national steering committee, has been set up to oversee the implementation of the strategy and to ensure that deadlines are respected. The Malta Environment and Planning Authority has finalised its *Waste Management Subject Plan*, following public consultation. The Plan covers waste management issues from a land use point of view and builds upon the direction provided in the *National Solid Waste Management Strategy*. The policies in the *Waste Management Subject Plan* are based on modern waste management principles and take full consideration of the principles of sustainability and standards adopted by the European Union. Subsidiary legislation has also been drafted or enacted to regulate various aspects of waste management in the process of accession to the EU.

Malta has also become a Contracting Party to the "Basel Convention on the Transboundary Movement of Hazardous and other Wastes". This Convention is considered to be a crucial tool for the environmentally sound management of certain fractions of hazardous waste generated in Malta. Axiak *et al.*, (2002) have recently identified a number of encouraging signs of improvements in solid waste management. Private scrap dealers and industrial establishments recovered considerable quantities of scrap metal. These materials were stored on site; some fractions were treated and subsequently exported to several European and other states for recycling. There is also an increasing tendency for reuse of inert wastes (both excavation and C&D wastes) in various projects. The amounts of compost produced and distributed has been steadily increasing since 1997, and furthermore, there are indications that the quality of compost produced in 2001 is better than that produced over the period 1992-1997.

Regarding liquid waste, the most significant pieces of legislation in force in Malta on this subject are the Environment Protection Act 2001 and Legal Notice 8 of 1993. The former prohibits any discharge into the sea, disposal and dumping of certain substances on land without a written permit while the latter regulates discharges into the sewerage system, obliging industry to apply for a Public Sewer Discharge Permit prior to connecting the public sewerage system. The level of enforcement for such sewer discharge control, however needs to be greatly improved.

In addition to legislation, Government prepared a *Sewage Master Plan* in 1992, covering upgrading of



the sewerage infrastructure in order to bring it in line with internationally acceptable standards. During the past 10 years there have been major improvements in the network and in 1998, major upgrading works were completed on the Ras il-Hobz outfall. The capacity of the existing large-scale sewage treatment plant at Sant'Antnin was expanded in 1998, to be able to treat 17,000m³/day.

Furthermore, the Government is committed to treat all sewage produced in the Maltese Islands by 2007. For this purpose three new treatment plants, and related transmission infrastructure, will be constructed. These plants will cater for Gozo, the North of Malta and another one in the South of mainland Malta. Environmental Impact Assessments are being undertaken for these projects. There are also current plans for the treatment of the limited amount of sewage produced on Comino.

Issues to be Addressed and Measures to be Taken

The necessary waste management plans have now been finalised and the next step is the setting-up of the necessary administrative capacity to oversee their implementation. The adoption and implementation of the stringent EU legislation of waste management is expected to bring about major improvements in the future. The *Solid Waste Management Strategy for the Maltese Islands*, once implemented, will usher in the following changes:

- Enacting subsidiary legislation under the Environment Protection Act (2001) and the establishment of technical standards and codes of practice.

The Government is committed to treat all sewage produced in the Maltese Islands by 2007.

- Closing all non-compliant incinerators by the end of 2003, upgrading incineration plant for abattoir waste and replacing incineration plants in hospitals by non-burn technology.
- Closing all non-controlled landfills by 2004 and establishment of new controlled landfills and treatment plants for hazardous and non-hazardous wastes by 2004.
- Establishing facilities for the interim storage prior to shipment of certain hazardous wastes.
- Introducing deposit refund systems for selected potentially hazardous and/or recyclable fractions.
- Setting and imposing targets for recycling and development of new recycling facilities.
- Reducing particular waste streams and separation at source.
- Upgrading the Sant' Antnin composting plant.
- Introducing economic instruments conducive to improved waste management practices.
- Setting up a waste transfer station in Gozo.
- Development of facilities for the separate collection of wastes by Local Councils.

There is the need for a comprehensive inventory on waste production, composition and disposal practices, since the available data are only indicative. The situation would be improved by legally obliging waste producers to assist in providing the necessary information.

With regard to separate collection of waste fractions, little significant progress has been reported. However, following the results of two pilot projects, a national comprehensive programme of waste separation is planned, and scheduled to be completed by the end of 2004.

With respect to used lubricating oils, half of the estimated volume requiring collection and treatment

is still being illegally used or disposed of in the environment. There is therefore the need for better monitoring and enforcement in this regard.

There is also the need to strengthen deterrence with regard to illegal tipping, which still takes place, mostly in rural areas. The number of court cases in connection with such activities is pitifully small, and the fines and penalties imposed on the polluter were rarely high enough to deter further tipping.

With regard to liquid waste, there is an urgent need to upgrade the present sewerage system to decrease to a minimum the present rates of failure of some coastal pumping stations as well as Malta's major sewage outfall at Wied Ghammieq.

Furthermore, greater efforts must be made to avoid fragmentation of responsibilities within the present administrative structures.

3.6 CONSERVATION OF BIOLOGICAL DIVERSITY

Despite their small size, the Maltese Islands are endowed with a variety of habitat types. Apart from their local importance, some elements of Malta's biodiversity have a wider regional importance within the Mediterranean. Numerous endemic species are of evolutionary and biogeographical interest. Some are relics from the pre-glacial Mediterranean flora and fauna whereas others have no close relatives anywhere else in the world. Numerous species of Maltese flora and fauna have a restricted Mediterranean distribution. Some locally relatively common species are endangered on a European scale (Schembri *et al.*, 1999; Axiak *et al.*, 1999).

Current Status

The present landscape of the Maltese Islands is almost entirely shaped by humans, and very few areas of natural habitat remain. As a result, human activities are the single most important factor affecting habitats and wildlife (Schembri, 1997). Through direct or indirect human intervention, many habitats in the Maltese Islands, including wetlands, sand dunes and woodlands have disappeared or are on the verge of disappearing, and a large number of species, including endemic forms, such as the Freshwater Crab and the Maltese Everlasting, are also threatened with extinction, while some, including the Jackdaw, the Barn Owl and the Yellow Iris, have already become extinct (Schembri *et al.*, 1999).

The rare Sicilian Squill – endemic to the Maltese Islands, Sicily and Calabria.



An assessment of the conservation status of locally occurring terrestrial, freshwater and marine species was made in 1989 when the first *Red Data Book for the Maltese Islands* was prepared (Schembri and Sultana, 1989). Table 3.4 gives a summary of the status of species (see also Axiak *et al.*, 1999).

Over the past decade, the main factors that have threatened biodiversity relate to destruction of habitats, uncontrolled exploitation and, indirectly, lack of awareness.

Habitat destruction

Habitat destruction is an important factor which negatively affects local biodiversity. It is mainly caused by development of land and related activities (such as mineral extraction and construction). Habitats found in a few scattered pockets on the Islands are particularly vulnerable. The most important of these include: woodlands, saline marshlands and other coastal wetlands, sand dunes, permanent springs and caves. Examples of such habitats lost over the past ten years include those associated with

Table 3.4 - Extinct and Threatened Species of the Maltese Islands

Group	X	E	V	R	I	Total
Cyanobacteria (blue-green algae)	0	0	0	0	1	1
Chlorophyta (green algae)	1	0	1	2	0	4
Fucophyta (brown algae)	0	0	3	2	0	5
Rhodophyta (red algae)	1	0	0	3	0	4
Macrofungi ("higher" fungi)	0	1	0	16	1	18
Bryophyta (mosses and relatives)	0	1	0	33	3	37
Lycophyta (club-mosses and rel.)	1	0	0	1	0	2
Filicophyta (ferns and relatives)	3	2	0	0	0	5
Pinophyta (conifers)	1	1	0	0	0	2
Gnetophyta (gnetads)	1	0	0	0	0	1
Magnoliophyta (flowering plants)	109	80	44	136	38	407
Cnidaria (cnidarians)	0	0	0	4	0	4
Hirudinea (leeches)	0	0	1	0	0	1
Chelicerata (spiders and relatives)	0	1	0	4	4	9
Crustacea (crustaceans)	0	2	2	8	2	14
Mollusca (snails and relatives)	5	11	10	19	7	52
Odonata (dragonflies and rel.)	0	0	1	1	0	2
Dictyoptera (mantises and rel.)	0	0	0	2	0	2
Orthoptera (grasshoppers and rel.)	1	0	2	5	0	8
Dermaptera (earwigs)	0	0	1	0	0	1
Hemiptera (bugs)	0	0	0	1	4	5
Homoptera (scale insects and aphids)	0	0	0	0	2	2
Trichoptera (caddisflies)	0	0	0	2	0	2
Hymenoptera (bees, wasps and ants)	0	1	7	4	0	12
Lepidoptera (butterflies and moths)	7	1	11	9	4	32
Coleoptera (beetles)	11	0	38	66	48	163
"Pisces" (fish)	0	0	1	0	0	1
Amphibia (amphibians)	0	0	1	0	0	1
Reptilia (reptiles)	0	1	12	1	1	15
Aves (birds)	4	4	17	0	0	25
Mammalia (mammals)	0	0	13	8	3	24

Adapted from Schembri *et al.* (1999).

Legend: X = Extinct; E = Endangered; V = Vulnerable; R = Rare; and I = Indeterminate

Note: Only those groups included in the *Red Data Book for the Maltese Islands* (Schembri and Sultana, 1989) are shown in the table.

sandy beaches – of some 36 sites with 'dunes' that are known to have existed in the past, only four sites still have extant dunal systems. Since these habitats are rare on the Islands, the organisms they support are also rare.

Uncontrolled exploitation

The decline of some species populations is also affected by the use of indiscriminate methods of collection and commercial exploitation. Some fishing, hunting, and collecting methods in use are non-specific and they indiscriminately capture all species, including rare ones. Although many of these methods are illegal, they are still used. Enforcement capabilities in this regard are, however, being strengthened. Wild populations of some local species (such as a variety of song birds and wild flowers) are exploited for commercial purposes.

Since these populations depend on natural mechanisms for replenishment, they are declining because the numbers removed are too high for these mechanisms to sustain the yield. In this regard, bird hunting is responsible for the extinction of some local species and for preventing other potentially breeding species from nesting on the Islands.

Awareness and alien species

While awareness activities have been organised by the former Environment Protection Department, often in conjunction with the Government's Education Division, it is recognised that more

environmental awareness is necessary, and that a concerted action (aimed at enabling sustainable action) is required in this respect. The introduction of alien plants and animals to 'improve' the local 'impoverished' wildlife and in local afforestation projects (Schembri and Lanfranco, 1996) is a manifestation of lack of awareness about Maltese biodiversity, and poses a threat thereto. The issue of awareness is discussed further in Chapter 4.

Remedial Action regarding Biodiversity

Recent Acts and regulations affording legal protection to Maltese biodiversity and species include the 1991 Environment Protection Act, superseded by the Environment Protection Act 2001, and its subsidiary regulations. The 2001 Act is based on sustainable development principles, and has brought Malta in line with EU legislation. A number of regulations protecting biodiversity have also been issued, since 1992, via the Environment Protection Act.

Different categories of protected areas occur in Malta. To date Malta has three 'strict' nature reserves, where all the flora and fauna are protected, namely the island of Filfla, Selmunett (St. Paul's Islands) and Fungus Rock. Filfla has been declared a Specially Protected Area under the auspices of the "Protocol concerning Specially Protected Areas in the Mediterranean" (1982 version). Various other sites are protected under the name 'Nature Reserves' by virtue of the 1991 Environment Protection Act including the entire island of Comino. These are actually 'bird-sanctuaries', where shooting and trapping of birds is prohibited. Some of these areas are also incorporated in international networks, including those set by the "Ramsar Convention" and the "Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean". There are also a number of tree protection areas.

The Development Planning Act and subsidiary legislation protect habitats (and flora and fauna indirectly) through site scheduling. Some 140 sites have been scheduled over the past ten years as Areas of Ecological Importance and/or Sites of Scientific Interest in terms of the Development Planning Act. Although management of such areas has to date been limited, one area of ecological and scientific importance (at Ghajn Tuffieha) is currently being managed by a local NGO. A habitats map for the Maltese Islands is currently being compiled, which will be inputted into a Geographic Information System by the end of the year 2002.

The islet of Filfla has been declared a Specially Protected Area.



Table 3.5 provides a list of protected areas by habitat type.

In addition, the setting-up of the *Species Action Plan Programme*, initiated in 1998, involves specific management plans for the protection of endangered species and their habitats and similar eradication plans or control mechanisms for invasive alien species. This programme is currently in its initial phases, which involves the identification of endangered species requiring special conservation measures for their long-term survival. The *Important Area Inventory Programme*, started in 1999, involves the identification of national and international sites important for biological diversity. This also includes the *Emerald Network – Natura 2000 Project* being implemented by the MEPA, with the assistance of the Council of Europe.

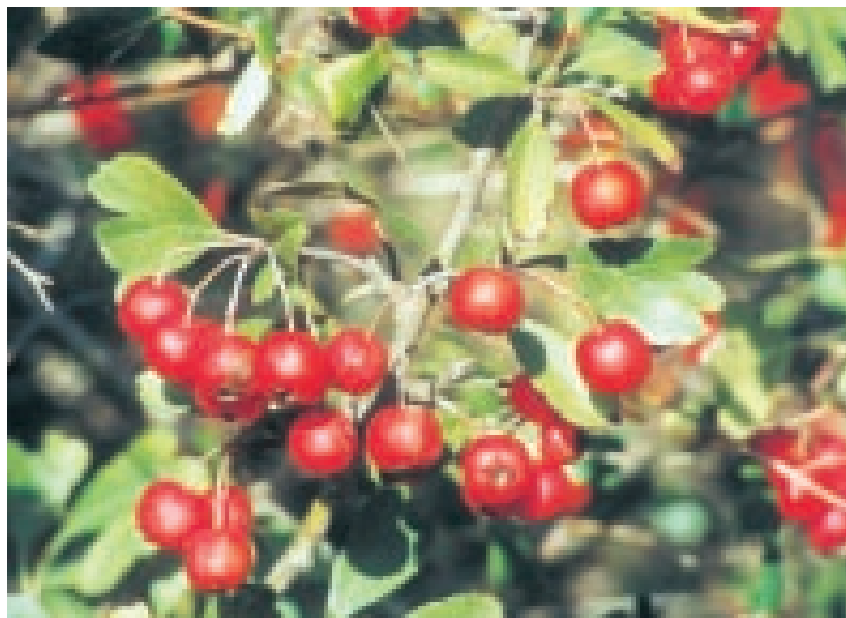
Considerable work has been carried out with respect to tree protection. Regulations for the protection of specific trees and woodland areas were issued in 2001 under the Environment Protection Act and, in the same year, the Planning Authority published a *Policy and Design Guidance on Trees, Shrubs and Plants for planting and landscaping in the Maltese Islands*. These regulations protect a number of tree species on the Islands and the policy guidance relate to the implementation of landscaping schemes. The objective is to preserve local biodiversity, to be achieved through the protection of trees and any uprooting that may be required would have to be compensated for through new plantings. A list of alien flora of the Maltese Islands was commissioned in November 2001, and has been published in 2002.

Table 3.5 - Protected Areas

Habitat Type	No.
Saline marshlands	12
Sand dunes	6
Coastal cliffs	9
Freshwater wetlands	6
Parts of watercourses	1
Afforested sites and forest remnants	29
Caves with subterranean water	1
Widien (valleys)	47
Minor Islets	4
Miscellaneous (complex of habitat types)	8

Sources: Malta Environment and Planning Authority; Ministry of Agriculture and Fisheries

Note: Many protected localities comprise a number of different habitat types and appear under more than one heading.



The Common Hawthorn – an indigenous shrub generally found in *widien* and maquis habitats.

There have also been several awareness-raising initiatives by the public sector and non-governmental organisations. The former Environment Protection Department has published a number of works on native and archaeophytic trees and woodlands, cetaceans, and marine migratory and alien species.

Malta has also become a Party to a number of international treaties concerned with the protection of biodiversity. These include the following:

- “Convention concerning the Protection of the World Cultural and Natural Heritage”.
- “Convention on Wetlands of International Importance especially as Waterfowl Habitats”.
- “Convention on International Trade in Endangered Species of Wild Flora and Fauna”.
- “Convention on the Conservation of European Wildlife and Natural Habitats”.
- “Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean”.
- “Convention on Biological Diversity, the Convention on the Conservation of Migratory Species of Wild Animals”.
- “Agreement on the Conservation of Bats in Europe, the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area”.
- “European Landscape Convention”.
- “Memorandum of Understanding concerning Conservation Measures for the Slender-billed Curlew”.
- “Agreement on the Conservation of African Eurasian Migratory Waterbirds”.
- “Cartagena Protocol on Biosafety” and the “Convention on the Protection of the Environment through Criminal Law”.

Some of these are described in more detail in Chapter 5 of this Report.

Issues to be Addressed and Measures to be Taken

Despite the remedial action taken, a number of issues remain to be addressed. These include:

- The need to monitor and legally protect all rare and/or threatened endemic species, and other locally occurring species of international importance, and to take active measures for their conservation.
- The need to designate conservation areas (in particular marine areas) based on sound scientific information, to protect habitats from development, and to manage them. Where necessary habitats should be re-constructed.
- Obligations under existing international environmental treaties concerning biodiversity are not always fulfilled. There is a need to equip local agencies responsible for implementing these treaties with the necessary resources, personnel and administrative machinery to enforce legislation.
- The need to promote and fund research to gain a better understanding of local biodiversity, including the establishment and funding of a national inventory/database of biodiversity.
- The need to adopt an official policy on the introduction of alien species (including genetically modified organisms).
- The need to improve awareness on local biodiversity.

Between 1956 and 1997, the percentage of built-up area on the Maltese Islands increased from 4% to 22% of the total land area.

3.7 LAND USE

As stated earlier in this Report, Malta's population density exceeds 1,200 persons per square kilometre. This makes Malta one of the most densely populated countries in the world and the sustainable use of land, one of its most pressing priorities.

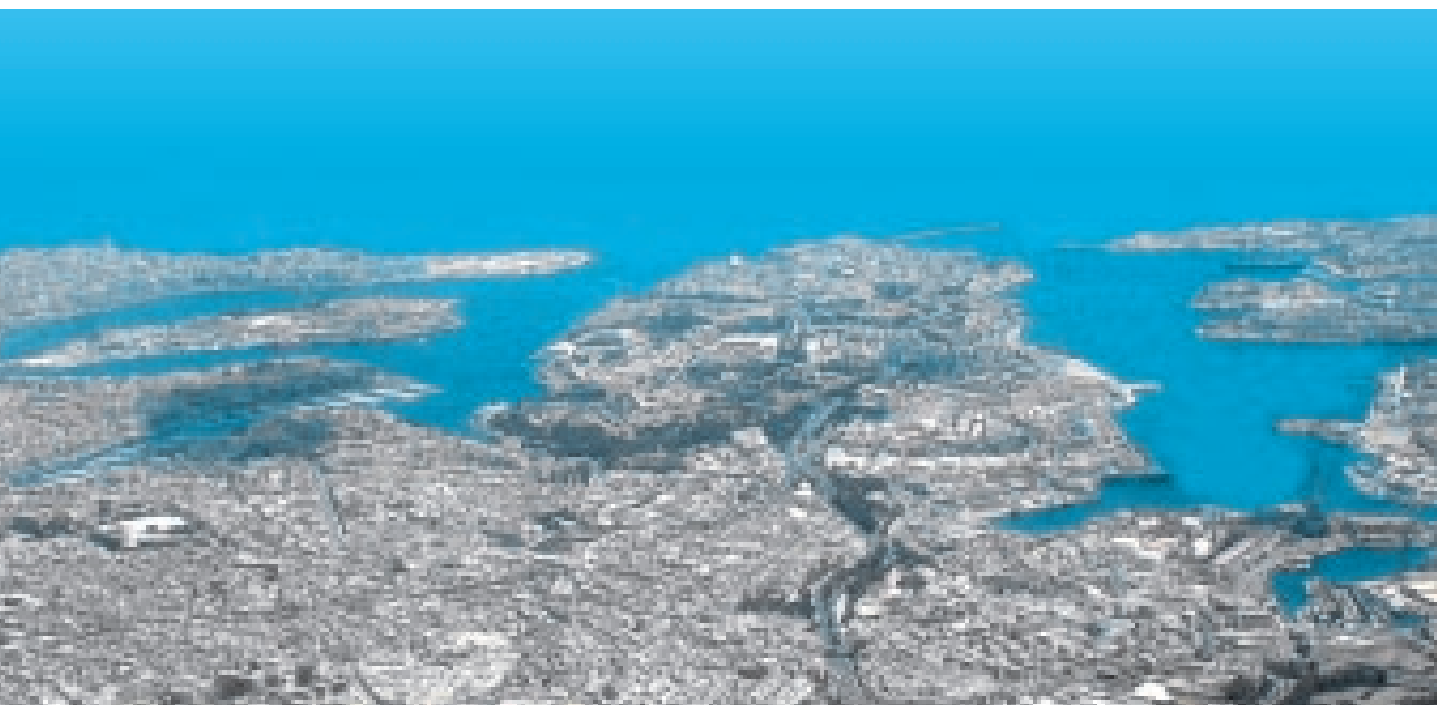
Between 1956 and 1997, the percentage of built-up area on the Maltese Islands increased from 4 per cent to 22 per cent of the total land area. During the ten years from 1990 – 2000, land development continued, although it was mainly contained within urban areas.

In addition to the rapid development, the use of private transport, the increase in tourism infrastructure, extensive quarrying and land-intensive waste disposal have emerged among the most pressing environmental issues of the decade.

Current Status

Human settlements and adequate shelter

The main objective advocated by Agenda 21 in the field of human settlements is to "improve the social, economic and environmental quality of human settlements". This is reflected in the fundamental goals of the national planning framework for Malta. The Structure Plan adopted by Parliament in 1992 sets the strategic planning framework for a 20-year period with two of its major goals aiming to encourage the further social and economic development of the Mal-



these Islands, to ensure as far as possible that sufficient land and support infrastructure are available to accommodate it, and to radically improve the quality of all aspects of the environment of both urban and rural areas.

Successive administrations have given due attention to the provision of adequate housing provision. Various schemes providing financial incentives for home improvements, as well as incentives to acquire homes at less than market rates or through subsidised bank loans, have been put in place over the past ten years.

Legislative provisions provide adequate protection against eviction from homes. Analysis of viability has been undertaken with a view to promoting public sector/private partnerships for the provision of new housing.

Notwithstanding the reduction of the development zones in 1989, through the formulation of the Temporary Provisions Schemes, the Planning Authority granted permission for an average of about 3,000 dwellings annually between 1994 and 2000. The increase in the number of households was about 2,000 annually between 1995 and 2000.

The current trend for residential development to take place in the Temporary Provisions Schemes has resulted in a sub-urbanisation tendency that has depopulated Malta's older urban areas.

Twenty three per cent of Malta's housing stock is now vacant, of which 75 per cent are new or in a good state. Only 36 per cent of this stock is used as second homes. Many house owners prefer to keep their property vacant rather than rent it due to restrictive rent laws for properties built before 1995. In June 1995, rent was liberalised for new rental contracts. However this has had a minimal effect on the housing rental market, possibly due to the fact that there was no consensus on this matter between the two main political parties, and this could have influenced the decisions of property owners. House prices in Malta are high in comparison with average wages, and this remains a pressing concern for Government, particularly in view of the limited rental market for Maltese properties.

Social facilities

The provision of schools, hospitals, and other social facilities, discussed in Chapter 2, has land use implications, associated, in particular, with the



geographical distribution of these facilities. This, in turn, is connected with the need to ensure that all communities are catered for in terms of, for example, education, health and facilities for the elderly.

Improvements in both the internal and external quality of buildings for social facilities, and efficiency in land use for new developments and for existing buildings, are not always given due attention.

Transport

The rapid increase in car ownership (described in Section 3.1) is generating problems of congestion and parking. The main transport issues currently affecting Malta and Gozo are the impacts of cars on society, health and the environment. Congestion, noise pollution, air pollution, road accidents as well as economic costs point to a need to reduce the dependency on private cars. Land use, transport planning and location of industry are generally not properly integrated towards this end. Investment in public transport has been recognised as a priority area in this regard.

Quarrying

Use of locally available naturally occurring building stone is still widely promoted. There are some 90 licensed and active hardstone and softstone quarries, producing some 5.2 million tonnes of stone.

A stone quarry. Use of locally available naturally occurring stone is still widely promoted.

Quarrying activity in Malta is often associated with environmental damage and unsustainable practices. In addition, some quarries operate illegally. The construction industry, which utilizes quarried stone, produces a large amount of inert waste, which also creates environmental problems.

Tourism and recreation

The rapid increase in tourist inflows during the 1990s has led to an increase in the provision of accommodation facilities for tourists, giving rise to excess supply of tourist beds and a significant impact on the social and physical fabric of certain localities – particularly of coastal areas. This is taking its toll on scarce land resources. A carrying capacity study has been carried out by the Ministry of Tourism but translation of the results of the study into policy actions remains a challenge. Ministry policy encourages further product development as opposed to accommodation and of management and proper planning of tourism activity and development in the traditional resorts to improve the image of these areas.

Demand for recreation provision has also increased over the past decade and according to MEPA findings, standards of formal recreational provision need to be improved in urban areas. In coastal areas, the demand for the provision of facilities is sometimes not channelled towards already committed and developed coastal areas.

Employment areas

According to MEPA findings, the overall rate of approvals for offices has averaged 22,600m² per year (1993-2000), but modernisation of office accommodation remains a challenge. The rate of planning approvals in warehousing has averaged 31,400m² per year (1993-2000) yet the provision of modern,

centralised facilities is necessary to facilitate the relocation of inappropriate large-scale storage uses from residential areas. In addition, there is about 3,780,000m² of zoned industrial land in the Maltese Islands, however the use of such land is not always efficient. Over the past 10 years, there has also been rapid modernisation of the retail sector; although the traditional pattern of small-scale retail provision, spread across many towns and villages, has remained largely in place. However, there is a slow but rising trend towards out-of-town shopping and a parallel decline in the fabric and prosperity of traditional centres.

Agriculture

In a thirty-year span between 1971 to 2001 agricultural land has decreased from 15,200 to 10,700 hectares, although the rate of decrease has slowed down considerably during the last 15 years. The vast majority of farmers are in part-time employment. Between 1991 and 2001 it is estimated that there have been decreases of 51 per cent in part-time farmers and 35.5 per cent in full-time farmers. Notwithstanding the limited contribution of Agriculture to GDP, it is still important to sustain this sector for food security, and for the rural character of the countryside. An aging farming labour force, land fragmentation, and lack of data on resource capacity are among the problems facing planners. Improper agricultural practices, including lack of integrated pest management, disposal of waste and uncontrolled use of fertilisers, need to be addressed.

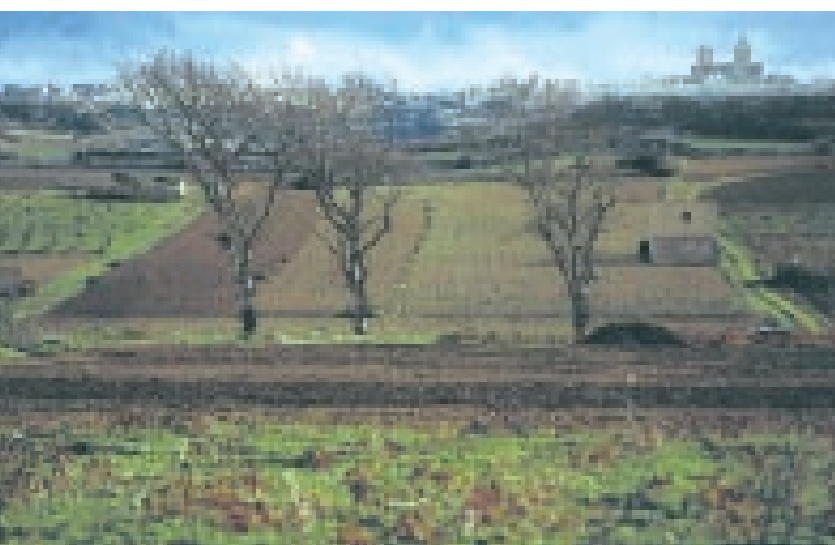
Cultural heritage

The Maltese Islands have a rich urban fabric which is of universal value because of the cross-cultural and historical spectrum (going back 5,000 years to Neolithic settlements) that it covers. The key issues for cultural heritage are the inappropriate conservation standards, methodologies or techniques that have sometimes been used, the absence of proactive management, inadequate buffer zones and setting/context, natural deterioration, visitor pressure and deliberate damage and vandalism. In essence, preservation and proactive conservation of the sites have not been accorded sufficient priority. The recently enacted Cultural Heritage Act (2002) seeks to redress several of these issues.

Remedial Action: Integrated Planning and Management

The Development Planning Act is the primary legislation that regulates land use and development

In a thirty-year span between 1971 to 2001 agricultural land has decreased from 15,200 to 10,700 hectares.



in Malta. The planning system has been instrumental in instilling an interdisciplinary approach to dealing with land and natural resource issues. A national strategic framework (the *Structure Plan for the Maltese Islands*) is translated into more detailed site-specific policies through Local Plans, which deal with specific geographic areas, and Subject Plans which deal with specific sectors. Legislative measures have also been put in place to protect environmentally sensitive areas. Environmental assessment regulations have also been adopted, which examine the impacts of proposed developments and recommend mitigation measures. Policy measures taken since 1992 have somewhat controlled the urban sprawl of previous years by defining development boundaries around the urban areas and directing investment to established areas. Numerous sites of scientific, ecological, archaeological, or cultural interest have been protected by virtue of the Development Planning Act (1992).

Sustainable use of land has now been formally declared as the principal goal of the planning system following the revision of the Development Planning Act in 2001. The new planning system has provided opportunities for dialogue between the various actors in the development process. It has also enhanced possibilities for public participation in the decision-making process and allows access to planning and environmental information.

Since 1992, the Planning Authority (now MEPA) has also set up systems to collate data on urban development and environmental factors linked into a Geographic Information System. A land registry system has been adopted which facilitates recognition of land ownership titles and land transactions, although the system is not yet adopted over the full extent of land territory.

Concurrently, the newly enacted Environment Protection Act has provided for the setting-up of a National Commission for Sustainable Development chaired by the Prime Minister. Integrated planning and management has been further strengthened through the planned amalgamation of responsibilities for physical planning and environmental protection under one Authority – the Malta Environment and Planning Authority.

Through the recently enacted Cultural Heritage Act, the protection and conservation of cultural property, as well as improved co-ordination to safeguard the cultural heritage, are envisaged. The primary responsibility for archaeology rests with the Museums



Department, which has implemented a programme of preservation and presentation including the upgrading of the Hypogeum, the upgrading of the Museum of Archaeology, the Hagar Qim/Mnajdra Heritage Park and Ggantija Temples visitor centres. Malta has also become a signatory to a number of conventions and charters including the "World Heritage Convention", 1972, the "Valletta Charter for the Protection and Management of the Archaeological Heritage", 1992, the "Athens Charter for the Restoration of Historic Monuments", 1931, and the "Venice Charter for the Conservation and Restoration of Historic Monuments", 1964.

A number of prehistoric architectural structures in Malta are on the UNESCO World Heritage Site List.

In addition, the setting-up of Local Councils in 1994, with direct responsibilities for the upkeep of the various urban localities, has greatly assisted in the management of localities.

Issues to be Addressed and Measures to be Taken

The Malta Environment and Planning Authority is currently undertaking a review of the Structure Plan, which guides land use in the Maltese Islands. The following issues have been identified for the review:

- Encouraging integration of transport and land use, improving transport infrastructure and promoting better use of public transport.
- Addressing the land use issues related to waste management.
- Reducing the outflow of people from historic cores.
- Protecting and rehabilitating historic buildings.
- Addressing the impacts of tourism in view of Malta's carrying capacity.
- Reversing the negative impacts on the rural

environment, resulting from the decline of agriculture.

- Managing conflicting activities in coastal areas.
- Rendering the quarrying sector more sustainable and reducing its negative environmental impacts.
- Encouraging the use of vacant property.
- Revitalising existing town centres, making them more viable, improving efficiency of use of industrial areas, and upgrading the quality of other employment areas.
- Developing a spatial policy which seeks to integrate all members of society.

These needs will be addressed through a new Structure Plan which is being drafted with the aims to:

- Encourage further social and economic development by ensuring that sufficient land is available to accommodate it and by encouraging the upgrading of land, buildings and infrastructure.
- Promote stewardship of the rural, urban, coastal and marine environment, and channel urban

development into existing development areas.

- Facilitate an integrated and efficient approach to the development and use of land, buildings and infrastructure.
- Facilitate accessibility, participation and inclusion in the planning process.

3.8 CONCLUSION

This Chapter has described the most important environmental issues in the Maltese Islands. It has been shown that there are many areas of concern, mostly arising from the small size of the Islands, the high population density and the impact of economic and social development on the Islands. The Chapter has also shown that Government has upgraded legislation and has taken remedial action to counteract or mitigate negative environmental impacts on air, freshwater, the marine environment and biological diversity, to step up waste management and improve land use.

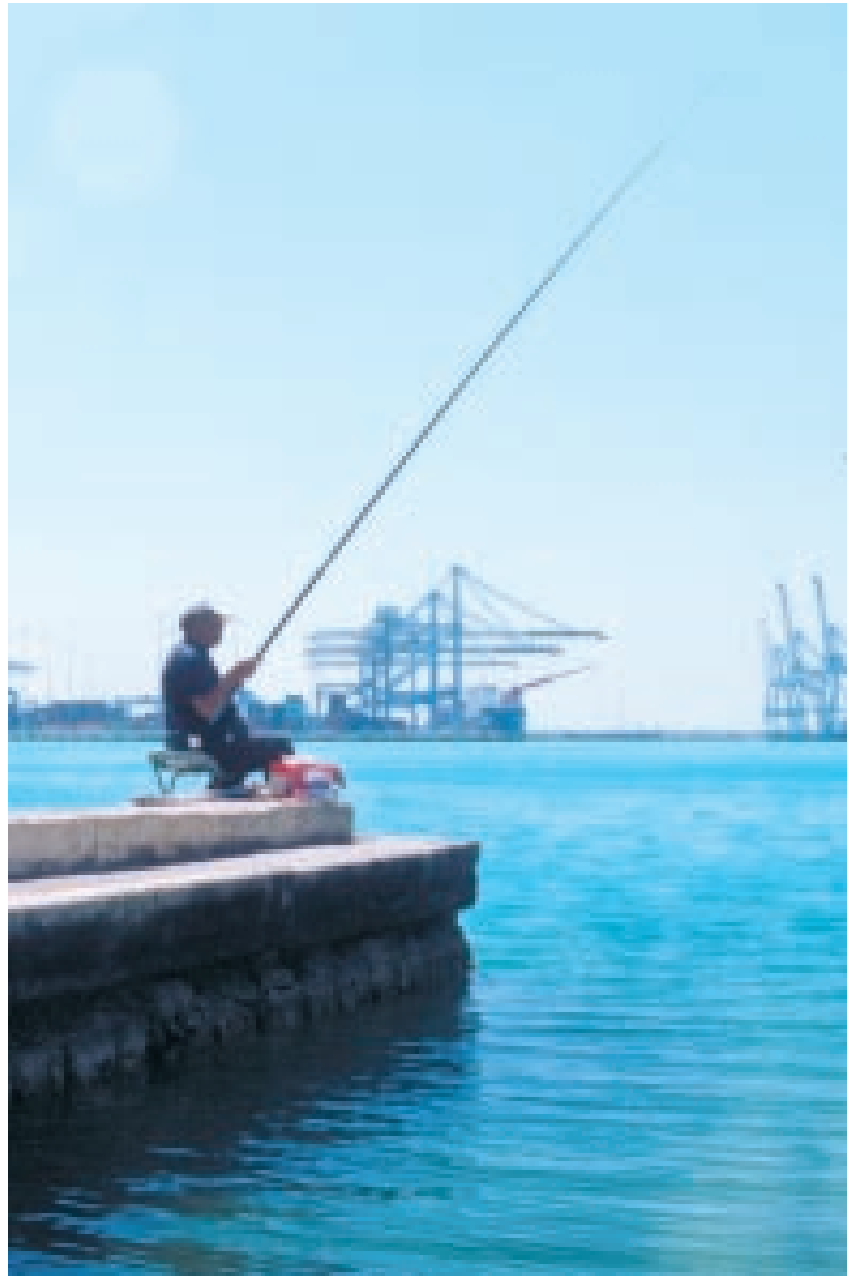
Salt harvesting: traditional knowledge put to good use in the coastal area.



However, much remains to be done for these concerns to be effectively and efficiently addressed. The most pressing needs in this regard are the following:

- Draw up strategies for integrated development and management. This calls for increased cooperation among government bodies with an environmental remit and between the public and private sectors.
- Encourage more efficient use of resources, promoting sustainable alternatives to current production methods and consumption patterns.
- Put into place economic instruments which reward sound environmental actions and penalise harmful ones, and see to it that environmental actors are more responsive to penalties and incentives associated with these instruments.
- Improve enforcement of legislation and monitoring of activities which affect the environment.
- Further promote awareness, accessibility, participation and inclusion, properly planned to address priority issues.
- Set up standards and targets for environmental quality and sustainability, and establish further zones and sites for protection and codes of practice.
- Direct substantial investment in new infrastructure and its upgrading to render current practices more sustainable.

The Government of Malta is aware of these shortcomings and plans are in hand to undertake action to address them. In this regard, the National Commission for Sustainable Development is in the process of preparing a National Strategy for Sustainable Development.



Contrasting activities – a mix of business and leisure in the coastal area.





4

PROMOTING PUBLIC AWARENESS AND STRENGTHEN- ING THE ROLES OF MAJOR GROUPS

Chapters 36 and 40 of Agenda 21 deal with education, public awareness, training, and information for decision-making, which are cross-cutting issues considered to be prerequisites for the promotion of sustainable development, while Chapter 23 calls for the strengthening of the roles of major groups towards this end.

4.1 INTRODUCTION

Chapters 36 and 40 of Agenda 21 deal with education, public awareness, training, and information for decision-making, which are cross-cutting issues considered to be prerequisites for the promotion of sustainable development. These issues call for, amongst other things, appropriate data, including indicators of sustainable development and institutional set-ups through which education, information and training can be imparted. A related issue is public participation in decision-making, drawing on the involvement of groups and organisations. Chapter 23 of Agenda 21 calls for the strengthening of the roles of major groups towards this end. (Quarrie, 1992; United Nations, 1992).

National Environmental Education Strategy (NEES) Target Groups

NEES TARGET GROUPS

- Government / Policy making organisations:
 - government departments and agencies especially those directly related to educational and environmental issues
 - local councils
 - political parties
- Environmental / Development organisations:
 - national environmental organisations, especially those with educational programmes
 - national organisations representing people with specific interests
- Mass Media and the Arts:
 - media (e.g., press, television, radio, electronic media)
 - bodies representing the arts
- Educational organisations:
 - national associations of educators
 - national organisations representing educational institutions
 - national associations representing museums and similar facilities visited by the public
 - libraries and information networks
- Religious organisations
 - religious institutions
 - religious orders and movements
- Industry, Business and Professional groups:
 - representatives of major businesses and industries in the public and private sector
 - representatives of the trade unions
 - national associations of those professions which have a major impact on the environment (e.g., planners, architects)
 - national associations representing major recreation activities that have an impact on the environment (e.g., tourism)

4.2 ENVIRONMENTAL EDUCATION AND TRAINING

Environmental education is “linked to virtually all areas in Agenda 21” (Chapter 36). In Malta the provision for environmental education is enshrined in the Environment Protection Act (2001).

National Environmental Education Strategy

A major environmental education event in Malta, following the Rio Summit was the *National Training Workshop on Environmental Education* (26-27 May 1995). The workshop set out to bring together all local environmental education organisations to (a) become aware of the state of environmental education in Malta (b) identify the problems, needs and support required for the successful implementation of environmental education initiatives and (c) discuss the possibility of co-ordinating these initiatives so as to improve their effectiveness (Pace, 1996). The event’s recommendations proposed the setting-up of a *National Environmental Education Strategy* (NEES), in line with Agenda 21’s guidelines, that would “... focus its action on the formal and informal sectors of education with the goal of directing educational processes towards the development of a new environmental ethic - education for sustainability.”

Based on the principles of environmental education outlined in the Tbilisi Conference (UNESCO–UNEP, 1978), and acknowledging that every citizen has a valid contribution to make towards the achievement of a sustainable society (IUCN/UNEP/MWWF, 1991), NEES initiated consultation with six different target groups.

Since its inception, NEES was constrained by limited resources. In addition, for some of the target groups, environmental education was not a priority and their participation in the consultation process was inadequate. In spite of these handicaps, the strategy is now in its final stages of development and a list of guidelines and suggestions for the promotion of sustainable lifestyles is being prepared.

Institutional Arrangements

Environmental education is carried by three major organisations in Malta, namely, the Education Division (the Government’s agency responsible for

formal education), the Malta Environment and Planning Authority (MEPA) and the University of Malta. Various other organisations, including the Malta Standards Authority and environmental NGOs, are also involved in environmental education. Although there have been attempts to co-ordinate such educational activities, each organisation usually functions independently of the others, sometimes resulting in duplication of effort.

The new National Minimum Curriculum (NMC) process heralded a new era of curriculum development in Malta in which various stakeholders in education were formally involved in a thorough nationwide consultation exercise to determine the content of the curriculum. Although the proposed curriculum does not contain provisions for environmental education, nevertheless it proposes several measures (such as interdisciplinarity and a learner-oriented pedagogy) that, if adopted, would facilitate its infusion in the educational system (Government of Malta, 1999). However, a proper environmental education policy is lacking and, as a result, environmental education in schools is rather sporadic, not intimately related to the curriculum and easily overlooked. Over this last decade, the incidence of environmental topics and the range of environmental issues considered in school syllabuses have increased. However, the approach remains one of providing environmental information, and the fostering of pro-environmental values is not given due importance in educational programmes.

The environmental dimension is increasingly being featured in the various professional tertiary level courses offered by several faculties at the University of Malta. Personal development components are integral features of the environmental education course offered by the Faculty of Education for student teachers, with a focus on the promotion of sustainable lifestyles. The Faculty also initiated a research programme through which several environmental education curriculum resources were produced. Furthermore, in collaboration with MEPA and the Education Division, the Faculty organised several in-service courses aimed at helping teachers to apply environmental education principles in their teaching.

Informal and non-formal environmental education has become more varied and has characteristically involved an input from a host of governmental and non-governmental organisations. Consequently a large proportion of community resources (e.g., na-



ture reserves, industry and historical sites) are increasingly being mobilised and used as sites of environmental interpretation and education.

Opportunities for public participation in environmental decision-making relating to the approval of development projects have become a regular feature. However, the vast majority of the public lack the necessary skills to interpret the data presented in Environmental Impact Assessment reports and to organise themselves into effective pressure groups.

Issues to be Addressed and Measures to be Taken

There is the need for Malta to make environmental education a national priority. The recent appointment of an environmental educator on the National Commission for Sustainable Development was a step in the right direction.

Matters that need to be addressed to ensure quality environmental education include:

- Putting in place a *National Strategy for Environmental Education* and adopting a clear policy about environmental education in the National Minimum Curriculum.
- Appointing an environmental education co-ordinator responsible for the implementation of environmental education in schools.

Children attending an activity promoting environmental awareness. Environmental education must start at a very young age and continue throughout adult life.

- Providing environmental education programmes, especially for adults, which promote lifelong learning, the adoption of sustainable lifestyles and active participation in the resolution of environmental problems.

4.3 INFORMATION FOR DECISION-MAKING

Malta is passing through a data and information revival, with the National Statistics Office acting as the focal point for this activity. During the past decade, data have been generated at a rapid rate by different organisations, notably the Malta Environment and Planning Authority, the University of Malta and the National Statistics Office.

With the advent of fast and reliable on-line systems, the procedures for data storage, querying and dissemination have been radically altered. Organisations can now acquire access to information at the touch of a button from any location they may be in, within or outside the country.

This development pushed Malta ahead into the international arena with a number of projects being developed, such as on-line databases, image-mapping, Web-GIS and e-government.

The Malta Government website (www.gov.mt) which serves as the principal point of entry to all Government information and services.



Information Dissemination

The promotion of information relating to sustainable development in Malta has been enhanced through the e-Government programme, on which the Maltese government has embarked, to improve public service delivery, to increase citizen participation and to step up efficiency through the streamlining of public service. The Government of Malta invested heavily in Communication and Information Technology to bring the benefits of e-Government to the citizens and many electronic transaction-based services have been placed on line.

Linked to this, is the implementation of the Government portal (www.gov.mt), which serves as the principal point of entry to all Government information and services. Another stream is the innovative development of the m-Government initiative, whereby Government is working with the local mobile telephony companies to offer electronic public services via mobile technology. In Malta, a very high percentage of the population owns a mobile telephone, rendering this means of communication a very important means of service delivery.

The website of the Malta Environment and Planning Authority (www.mepa.org.mt) contains search facilities and e-commerce services that have considerably improved public access to information related to planning (including applications) and environmental policies. The Authority's GIS was placed on line allowing users to browse maps and aerial photography. Planning applications, enforcement notifications and scheduled sites may be located through this system on the Internet. This website has received international acclaim (see, for example, Hall, 2002).

Bridging the data gap

Data gathering in Malta occurs at various aggregation levels. The basic and most common level of data gathered is based on 68-area administrative levels called Local Councils. Most data published by the National Statistics Office are aggregated at this level.

At the micro-level, the Malta Environment and Planning Authority gathers data at point, street and Enumeration Area (EAS) level.

Whilst point data are used for highly detailed studies such as ecological research, micro-management and land-use studies, socio-economic research occurs also at the EAS level. This level of

aggregation allows sub-local council studies such as analysis of social deprivation, housing deterioration, and others.

Recent initiatives such as the Common Database Project aim to bring together most data in government repositories and develop a national database that can be queried by users through a networked infrastructure. There are some restrictions on use (for example, due to confidentiality). At the private organisation level, data are rapidly increasing in volume.

The Malta Observatory for Sustainable Indicators (SI-MO) initiative is an attempt to develop a number of indicators in line with the recommendations outlined by Agenda 21 (see www.um.edu.mt/intoff/si-mo). This initiative is being undertaken by the Islands and Small States Institute of the University of Malta in collaboration with the National Statistics Office. The indicators are based on the UNEP/MAP list of 130 indicators, covering a range of themes, including demography, environment, culture, education and health, and are being computed by a team of specialists in the individual fields.

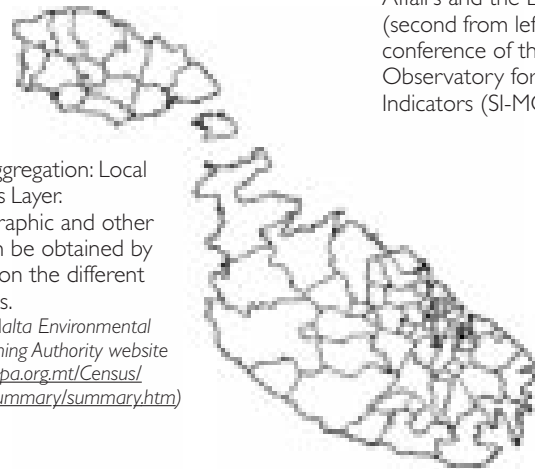
Building on Agenda 21's information initiative, Malta developed a series of programmes that helped to analyse the environmental situation. Recent initiatives include the State of the Environment Reports in 1998 and 2002, a series of Urban Land Use Monitoring Reports (Planning Authority, 1997 and 1999) and the set of sustainability indicators used for the Strategic Environmental Assessment of the Structure Plan, developed by the Planning Authority.

Other initiatives in this regard are the publication of a collection of environmental data in *Malta at a Glance* issued by the National Statistics Office (COS, 1998), the CAMP (Malta) Project, which used sustainability indicators to assess, monitor and evaluate projects in the north of Malta (www.pap-thecoastcentre.org/camp-text-Malta.html), and the publication of a study on sustainable development in Malta, by Friends of the Earth (Ragonesi, 1997).

Another development relates to the hosting in Malta of the Mediterranean Global Observing System (MedGOOS) secretariat, which networks the main marine research centres in the region. MedGOOS aims to develop an operational coastal/coastal observing and forecasting system that will provide data for sustainable management of resources in the Mediterranean basin.



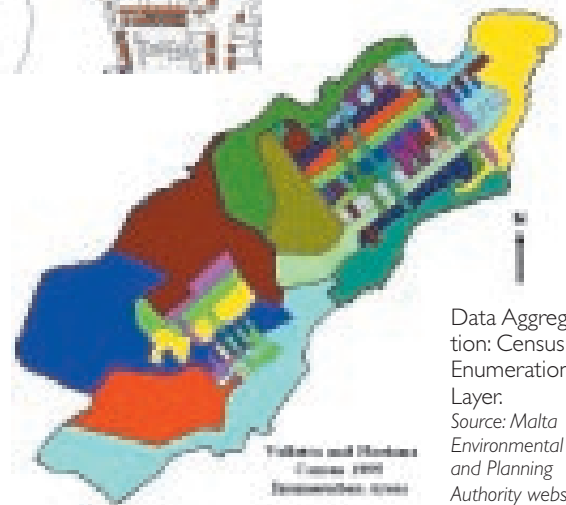
Tonio Borg, Minister for Home Affairs and the Environment (second from left), addressing a conference of the Malta Observatory for Sustainability Indicators (SI-MO) in June 2002.



Data Aggregation: Local Councils Layer: Demographic and other data can be obtained by clicking on the different locations. Source: Malta Environmental and Planning Authority website (www.mepa.org.mt/Census/archive/summary/summary.htm)



Data at the Micro-level: Address Points. Source: Malta Environmental and Planning Authority website.



Data Aggregation: Census Enumeration Layer. Source: Malta Environmental and Planning Authority website.

Issues to be Addressed and Measures to be Taken

Although considerable progress has been registered in Malta with regard to data availability, there is the need to address a number of issues in this regard, with the aim of further improving this accessibility. One problem is that data are sometimes hoarded and territoriality is evident in some quarters – often leading to duplication of effort.

In some areas, especially with regard to environmental quality (for example, on soil pollution and coastal erosion) data are lacking.

There is the need for the development of a National Information Strategy aimed at ensuring that all citizens are in a position to access and utilise the country's knowledge. Such a strategy should aid access to infrastructure, produce reliable and updated content, as well as provide access to skills development to convert data to information, and subsequently to knowledge. Particular attention should be given to persons with little or no access to IT, such as home-based persons – women, the elderly, and the disabled. Access control and use of public data should be tackled within this framework.

4.4 INFORMATION TECHNOLOGY

Systems management and innovation services have given rise to better dissemination of information, thereby permitting wider use of data for decision-making. Malta has been quick to make use of information technology and has based its latest

information access innovations on the use of the Internet as the conveying medium.

Prior to 1992, no integrated network existed, resulting in various proprietary databases, individual organisation protocols and non-transferable formats. This has now all changed and, through the launching of Internet services, particularly the World Wide Web, new dimensions have been opened to data owners and users alike.

The relevance of the Internet to current thinking has helped to provide diverse products, from low tech/low cost to high tech/highly expensive systems, but always aiming at user-accessibility. This was achieved through the investigation of data accessibility issues and an assessment of the social and technological barriers that hindered it.

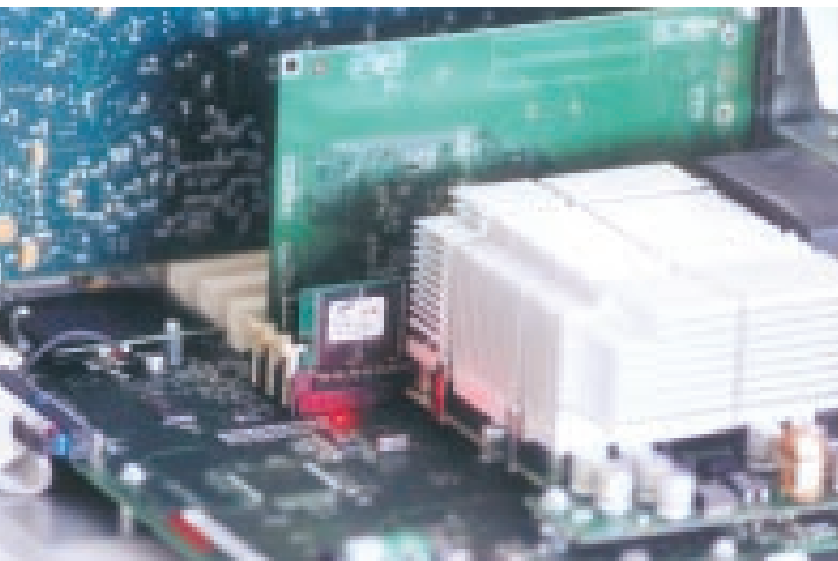
Standardisation of Information

Malta has made major steps towards the standardisation of its information infrastructure. New legislation (Government of Malta, 2000a; 2000b) has been adopted (Act No. XXVI, 2001), legislation relating to digital information has been introduced through the Electronic Commerce Act (May, 2002) and the Data Protection Act (March, 2002).

Malta supports open systems that provide easy cross-operating data transference, distributed database query facilities, as well as on-line information systems. Standards being investigated include the Open-GIS Consortium Inc., the Dublin Core metadata standards and other Web-related knowledge management tools. Diverse projects have shown that this could be achieved very rapidly. This is enhancing capacity-building with regard to datasets that are now easily accessible, mostly in HTML format.

Through the use of Internet technology, Malta has provided a series of information systems that rank amongst the most advanced in the world. Users can access data without the need to possess high-end and very expensive software. Through the use of such technologies as web-mapping and on-line querying systems, users can access databases containing information useful for decision-making.

Whilst the first web-mapping exercise was aimed at providing the Malta Census 1995 in an image and database format, new developments have brought dynamic information systems to the general public.



Amongst these is the Malta Environment and Planning Authority site and its Web-Server function that allows users to access spatial data in a map or database format. Other organisations are also developing their systems or looking into the possibility of integrating their data with the MEPA web-server.

Important measures in this regard include the activities of the Malta Information Technology and Training Services Ltd. (MITTS) entrusted with the setting-up of IT systems in government organisations and the Malta Commission that has been set up under the auspices of Ministry of Justice and Local Government.

The main objective of MITTS is to provide business solutions and technical expertise to the various sectors of the Public Service. MITTS has been instrumental in the implementation of an infrastructure linking all Malta Government departments and enabling the sharing of information across the Public Service.

Issues to be Addressed and Measures to be Taken

There is of course room for improvement in connection with information technology, especially with regard to compatibility.

The main lacuna in the research and information field remains one of access to data. A large amount of information is still in an analogue (hardcopy) format and has yet to be digitised to allow for fast retrieval and cross-context analysis.

There is therefore the need for an island-wide exercise to convert more public domain information into digital versions, allowing wider access and improved distribution of data to interested users.

4.5 THE ROLE OF NGOs

NGOs play an important role in Maltese society. They perform the important function of awareness-raising and engage in lobbying for the causes they uphold. They establish and operate programmes of education, environmental protection, social welfare and economic improvement, and some of them have the promotion of sustainable development as their main objective.



The Local Situation

During the last ten years there has been a rising interest in NGOs (Abela, 2001). In 2000 a total of 63,718 people were members of non-governmental organisations – signifying a substantial rise of 31.1 per cent during the previous four years (*The Times*, 2001). However, environmental and animal rights groups and organisations concerned with social welfare, health, local community, third world development and human rights tend to attract fewer young people than other organisations such as sports or religious ones. Female membership tends to be lower than that of males, and most of the leadership positions are in the hands of males. NGO members tend to have a high standard of education (Caruana, 1998).

Some important trends have been observed during the past decade with regard to NGOs:

- The Rio Summit and its declarations have been a constant reference point for many of Malta's NGOs.
- Various local NGOs have forged links with NGOs in other countries or affiliated themselves with international NGOs (Caruana, 1998). They often participate in international conferences and in transnational projects.

NGOs perform the important function of awareness-raising and engage in lobbying for the causes they uphold.

- A number of new NGOs have been formed focusing on issues relating to justice and environmental concerns. Issues barely discussed till recently, such as animal rights and fair trade, have been attracting increasing interest. Some cultural organisations have started to take environmental issues seriously.
- NGOs are increasingly being recognised by government as potent forces for social, environmental and economic development.
- While the fragmentation often associated with the NGO movement persists, a trend towards more cooperation and collaboration has been noticed. Four environmental NGOs have joined forces to form a stronger umbrella organisation and to use human and physical resources more efficiently. Others have come to an agreement to collaborate together on specific issues. Seven Development NGOs have formed the Maltese Platform for Development Cooperation.
- Church groups and movements, that still represent an important force in Maltese society, have been urged to take the issue of respect and responsibility for the environment seriously (Overend, 2001).

A common problem faced by most NGOs is access to funding (Caruana, 1998). Even when NGOs manage to access funds they frequently feel that funding is not secure. In addition, NGOs funded by one agency sometimes find their independence under-

mined. The limited funds tend to discourage positive developments in the field of NGO co-operation and networking.

An interesting initiative in this regard is that taken by the Malta Environment and Planning Authority, which over the years has accumulated funds as a form of planning gain associated with the issue of particular development permits. The Authority has identified a number of NGOs that could benefit from such funds, and has offered to work in partnership with them for the execution of environmental improvement projects.

Issues to be Addressed and Measures to be Taken

Although many NGOs, particularly the environmental ones, have been actively envisioning a sustainable Malta and raising public awareness of unsustainable practices and their consequences, they need to improve their effectiveness as agents of social change. This calls for the enhancement of the NGOs' capacity in both mobilising citizen support and in shoring up grassroots involvement, especially in situations where the State and donors might not be open to popular participation (Caruana, 1998).

Legislation recognising the importance of NGOs involvement and participation in civil society should be put in place, in consultation with the NGOs themselves. This would create an enabling environment for such organisations.

4.6 LOCAL AUTHORITIES INITIATIVES IN SUPPORT OF AGENDA 21

Local authorities are well poised to support Agenda 21 in view of their proximity to local needs. Subsidiarity, as practised through local self-government, offers considerable scope and opportunities for local authorities' direct involvement in any initiative intended primarily to improve the living standards of the citizens they represent. Agenda 21 is, undoubtedly, one such initiative.

Local Government in Malta

Local government in the Maltese Islands was introduced for the first time in June 1993, through the Local Councils Act. Through the application of

The emblems of the Maltese Local Councils.



the principle of subsidiarity, as enunciated in the European Charter of Local Self-government of the Council of Europe, which Malta ratified in September of the same year; a political vision was translated into a commitment to create and develop the right conditions and administrative framework within which the overall objectives of sustainability could be effectively achieved.

However, Malta's geographical size and infrastructural configuration are, and will continue to be, determining factors on the mode and level of participation of the local authorities in any national programme or strategy (including Local Agenda 21). The extent of their dependence on central authorities in the sphere of the environment and ecosystems inevitably restricts their effectiveness. Any review exercise intended to appraise Maltese local authorities' level of performance in the context of Agenda 21 must, therefore, indispensably take these constraints into account.

The fact that Malta came late on the scene in setting up local authorities has certain advantages, such as the possibility of modelling the institutional framework on the experience acquired by others over time. However, the fact that the system is new presents problems of experimentation, and trial and error.

The Maltese Local Councils have acquired considerable experience in managing and administering certain basic infrastructural services. They have also participated in partnership schemes with a number of government agencies. However, to-date, Maltese local authorities have not, in any way, formally or otherwise, developed a pre-defined national action plan to subscribe to the Agenda 21 programme. Plans are underway to do this in partnership with NGOs and the Ministry for Home Affairs and the Environment.

Initiatives of relevance to Agenda 21

The "Mediterranean Local Agenda 21 Conference" hosted by the Mayor of Rome on 22-24 November, 1995, offered the first opportunity to the Maltese Local Councils to subscribe to the "environment and social development partnership" programme which focused on the Mediterranean region. The Maltese delegation recommended, *inter alia*, that (a) Malta should not "remain indifferent to the emerging scenario" and (b) a co-ordinated local action plan should be drawn up and implemented through an *ad hoc* Steering Committee, led by the then Planning



Authority and including the Local Councils' representatives in its constitution.

A Local Council initiative.

A further recommendation was put forward to induce the Local Councils to subscribe to the "Charter of European Cities and Towns Towards Sustainability", generally referred to as the "Aalborg Charter", which commits the signatories to work towards sustainability within their respective communities on the basis of the Charter's agenda.

In the absence of a formal national strategic action plan based on Agenda 21, the Local Councils, either collectively through *ad hoc* partnership schemes promoted by central agencies, or by individual councils on their own initiative, did embark on a number of initiatives of direct relevance to Agenda 21. Details of these joint efforts and their respective contexts are given in Table 4.1 (next page).

Issues to be Addressed and Measures to be Taken

The recently enacted Environment Protection Act represents a long-expected and unique opportunity for the Local Councils to contribute towards the formulation and eventual application of any policy document.

The following is a set of measures (starting from the most immediate priority) that need to be addressed for the Local Councils to be direct participants in the context of any local Agenda 21 programme:

- The Local Councils Association could be designated as the Authority responsible for the co-

Table 4.1 – Initiatives of relevance to Agenda 21

Programme	Activity	Partners/Sponsors	Status
<i>Sebbah Pajjizek</i> Competition (in English "Embellish your Locality")	This local environment embellishment initiative was introduced in early 1995 as a national competition open to all Local Councils with the title <i>Sebbah Pajjizek</i> (Embellish Your Locality). The scheme is on the lines of the "People and Places Programme" supported by the Tidy Britain Group whose advice was sought before launching the scheme. The modalities of the competition were revised in 2000 as a result of which 3 award-giving ceremonies are organised each year covering different categories of environmental improvement and upgrading initiatives. Competing Local Councils are given the opportunity to win cash awards offered by the sponsors and to receive merit certificates. The competition includes entries covering: playing fields, gardens, parks, sandy and rocky beaches and bays, promenades and building facades.	<ul style="list-style-type: none"> • The Ministry responsible for Local Government (through the Local Councils Department) • Ministry of Tourism • Bank of Valletta • Maltapost • Central Cigarettes Ltd • Middle Sea Group 	Ongoing (annual event)
Med-Urbs	This programme was developed (and subsidised) as part of the European Union policy to create a Euro-Mediterranean partnership in order to promote decentralised co-operation between EU local authorities and those in the Mediterranean Non-EU Member countries. By creating these links, Med-Urbs aims were to develop the capacity of local authorities to pursue economic development, social stability, management of the environment and higher quality of life. In this context, a number of programmes were initiated locally, including "LADD" which covered the training of Local Councillors and Councils' Executive Secretaries, and "Heritage Tourism" which determined the necessary framework and the required transfer of expertise to regenerate the Victoria Lines; in the process, creating awareness for the procurement of supplementary funds for other restoration projects to enhance local tourism (Mosta Local Council – lead authority). Other "Med-Urbs" programmes involved the localities of Bormla (Cultural Tourism), Swieqi (co-operation in urban economic development), Siggiewi (Hinterland Tourism), Iklin ("Med Polis" – urban environmental planning and management) Bormla/Isla/Birgu ("Poleis" – Promoting cultural patrimony in the Mediterranean), Valletta (Local Development Strategy for Urban Port Areas) and Santa Lucija ("Clever City Network" – harmonisation of urban development with environmental planning)	<ul style="list-style-type: none"> • European Union (sponsor) • EU local authorities (partners) • Non-EU Mediterranean local authorities (partners) 	1992-1995 programme (since superseded by the MEDA programme)
"Urban Environmental Improvement Partnership Scheme"	The aim of this competition was to offer Local Councils the opportunity to devise schemes to improve the quality of the physical environment in urban areas (especially, Urban Conservation Areas), having regard to their competencies in terms of the Local Councils Act. Local Councils competed for funding (cash awards) on strict criteria based on a number of factors, including the physical appearance of the area, the expected benefit to the local community and value for money. The scheme was initiated by the Planning Authority as a "pilot" project during 1995, assuming that supplementary funding would be eventually sourced from the Local Councils Department.	<ul style="list-style-type: none"> • Planning Authority 	Scheme withdrawn after trial for one year; consequent to lack of funding support

Programme	Activity	Partners/Sponsors	Status
"National Environmental Health Action Plan" (NEHAP)	NEHAP is a mandatory action plan on environmental health, incorporating the necessary mechanisms to ensure that national strategic plans are implemented by all key players. The Local Councils have been identified as key players. NEHAP is a product of the Helsinki Declaration (June 1994) and also echoes the global aspirations of Agenda 21. NEHAP's main aim is to promote a healthy environment based on the three groups of actions (priorities) set by WHO. Local Councils, in the discharge of their functional responsibilities, are expected to take into account all NEHAP's expectations. The Local Councils Department is expected to act as Co-ordinator on all related initiatives. A paper with the theme: "NEHAP Implementation – the local agenda" was presented by the rapporteur during the Workshop held on 9 June, 1998.	<ul style="list-style-type: none"> The Department of Health Policy and Planning (Ministry of Health) 	Ongoing
Social Housing Partnership Scheme	The National Conference held on 13 April 2000 with the theme: "Social Housing Now and in the Future" discussed the role Local Councils could have as key partners. The paper entitled: "Defining a Role for Local Councils" gave participants the opportunity to seriously consider involving the Councils in the formulation of a national integrated policy on social housing for medium and long-term application. Emphasis was laid on the need to have Local Councils on board as pro-actors (partners), rather than "reactors", when dealing with social housing problems. Besides the collection of rents and the distribution of literature (brochures), Local Councils could also be involved in a number of Social Housing Schemes such as those referring to the subsidisation of essential repairs, adaptation works, dangerous structures, disability-assistance and embellishment/upgrading of existing structures.	<ul style="list-style-type: none"> The Ministry for Social Policy Housing Authority Department for Social Housing 	Under consideration
Social Services Support Scheme	The Local Councils' Annual Conference held on 3 March, 2001 with the theme: "Local Government for Social Inclusion" considered a number of sectors in which the Local Councils were already playing, or could in the future play, a very important supportive role in the provision of social services. These included the dissemination, exploitation and application of information technology and also Councils' participation in the "Social Welfare Development Programme". The current government's social programme focuses on the enhancement of the quality of life through social inclusion schemes in which the Local Councils are and would be active partners.	<ul style="list-style-type: none"> The Ministry of Justice and Local Government (through the Local Councils Department) The Local Councils Association The Social Welfare and Development Programme (now Appogg) eMalta Commission 	Ongoing

ordination, overseeing and monitoring of all Local Councils' initiatives undertaken in the context of the *National Strategy for Sustainable Development* (NSSD).

- The Local Councils Department (LCD), within the Ministry of Justice and Local Government, could be designated as the Co-ordinator of all NSSD initiatives. This will require the support of other public bodies or the facilitation of any devolution measures proposed by the Local Councils Association and aimed at the attainment of Agenda 21 objectives within the context of the NSSD.
- The Malta Environment and Planning Authority, as the designated competent authority to regulate the environment sector; should be encouraged to seek closer formalised co-operation with the Local Councils to better monitor the implementation of and compliance with the provisions of this Act.
- Local Councils, through their Association, should seriously consider the advantages of subscribing to the Charter of European Cities and Towns Towards Sustainability (the "Aarborg Charter").

The signing of a collective agreement.



A meeting between representatives of employers and trade unions.



4.7 STRENGTHENING THE ROLE OF WORKERS AND THEIR UNIONS

The right of all citizens to work, and the State's role in promoting the conditions to make this right effective, is recognised by Malta's 1974 Constitution. The Constitution also upholds a number of workers' rights, such as the maximum number of daily working hours, a weekly rest day, minimum working age, gender equality, professional and vocational training for workers, contributory social insurance and the provision of the means of subsistence for those unable to work.

Labour Legislation in Malta

The main legal provisions establishing the minimum conditions of employment, including overtime rates, working hours and holidays, are provided in the Conditions of Employment (Regulation) Act, 1952, which is soon to be replaced by the Employment and Industrial Relations Act, 2002, currently being discussed in Parliament.

Table 4.2 - Labour Legislation in Malta

Conditions of Employment (Regulation) Act (Act 11 of 1952) Chapter 135 of the Laws of Malta

Industrial Relations Act (Act 30 of 1976), Chapter 266 of the Laws of Malta

Social Security Act (originally Act 10 of 1987) – Chapter 318 of the Laws of Malta

Employment & Training Services Act (Act 28 of 1990)

Equal Opportunities [Persons with Disability] Act (Act 1 of 2000)

Business Promotion Act (originally Act 21 of 1988) – Chapter 325 of the Laws of Malta.

Occupational Health and Safety [Authority] Act (Act 28 of 2000) – Chapter 424 of the Laws of Malta

Malta Council for Economic and Social Development Act (Act 15 of 2001)

Employment and Industrial Relations Act (2002) – bill published 22 April 2002 (will replace the Conditions of Employment (Regulation) Act, and the Industrial Relations Act)

Industrial relations

The other pivotal piece of labour legislation is the Industrial Relations Act, 1976, also currently being revised. The Employment and Industrial Relations Act, 2002, will consolidate the principle of collective bargaining at enterprise level as the principal means of agreeing on wages and other working conditions in the private sector. It will recognise the rights of workers and employers to form and register associations and establishes a state-provided framework for the settlement of industrial disputes on the basis of mediation, conciliation or tribunal services.

Professional arbitration services are also now available and regulated by specific legislation enacted during 2001. Public employees, in contrast, have their recruitment, career progression and discipline governed by the Public Service Commission, while conditions of employment are guided by a cumulative set of internal circulars, known as the Estacode.

Except in relation to very small enterprises, where benign paternalism is practised on essentially family labour, bipartite industrial relations on an enterprise level are well established. A number of collective agreements are in force, typically for 3-year periods, fixing conditions of employment for practically all employees in the public sector, and for some 70 per cent of those in the private sector.

On a national level, labour relations in Malta operate in a tripartite framework, with the Government, employers and union as social partners, playing a vital role in social and economic development. In 1990, the Malta Council for Economic Development was set up by Government in order to provide a tripartite forum to debate national issues. The social partnership model of industrial relations in Malta has recently been bolstered by specific legislation, establishing a revamped Malta Council for Economic and Social Development (MCESD) which also incorporates a forum for civil society, primarily NGOs. The MCESD enjoys full consultative rights on most labour and employment matters.

Employee unions are legitimate players on the local policy stage. This is a natural consequence of the large size and 'catch all' nature of the two largest unions – the General Workers' Union (GWU) with over 48,000 members and the Union Haddiema Maghqudin (UHM) with over 25,000, from a national labour force of about 150,000. Their concerns extend



beyond 'bread and butter' issues and include workplace safety, vocational and in-service training, social housing, price control, fair taxation and social justice in general. Thirty-two other unions, mostly organised on a company, profession or trade basis, gain the legal right to collective representation once they can provide evidence of having over 50 per cent plus one of the workers they seek to represent as their members. The largest amongst these are the Malta Union of Teachers (MUT) – Malta's oldest trade union, set up in 1919 – and the Malta Union of Bank Employees (MUBE) with some 5,500 and 2,900 members respectively.

In all, the total trade union membership amounted to just over 87,000 in 2001, which was approximately 57 per cent of the labour force. This ranged sectorally from some 90% in the public sector to 23% in private market services. Approximately a quarter of these were females. Females are less likely to become trade union members than males, but the gap is narrowing.

Malta has enjoyed relative industrial stability over the last two decades. Industrial disputes registered with the Department of Industrial and Employment Relations have decreased markedly in recent decades. Since 1995, there have been on average 11 trade disputes a year, featuring an average annual loss of 6,000 person days. Such disputes are almost exclusively confined to the public sector.

Malta has an Occupational Health and Safety Authority, forming part of the Department of Industrial and Employment Relations. Its major functions are related to the promotion of health and

The concerns of employee unions extend beyond "bread and butter" issues and include workplace safety.

safety at places of work. The Authority also tenders advice to interested parties and voluntary bodies on issues related to occupational health and safety, to the enforcement of the Act for the Promotion of Occupational Health and Safety (Act VII of 1994) and to the investigation of occupational accidents, injuries and diseases. Its remit also includes the health evaluation of workers involved in high risk occupations.

Issues to be Addressed and Measures to be Taken

The next step with regard to labour and employment is the adoption of the remaining provisions of the EU social policy as laid down in the *acquis communautaire*. The main legal provisions establishing the minimum conditions of employment – including overtime rates, working hours and holidays – are already provided for in the Employment and Industrial Relations Act (2002). Malta is also introducing Gender Equality legislation in areas including employment and training, based on EU legislation.

Steps are being taken to adopt the *EU Employment Strategy*, based on employability, entrepreneurship, adaptability and equal opportunities. Malta will have to prepare a *National Action Plan for Employment* for the European Commission, which will enable the latter to review the country's performance in this regard.

4.8 STRENGTHENING THE ROLE OF BUSINESS AND INDUSTRY

Sustainable development is often associated with the environmental impacts arising from economic activities. Following the 1992 Earth Summit, the

business world has become increasingly aware that the environmental impacts of economic production, such as those relating to levels of pollution in air, water (including sea) and land, also have serious welfare implications.

The Maltese Industrial Sector

In recent years, new legislation has been enacted to protect the environment from human activities including industrial processes. This has taken place as a result of attempts to align Maltese environmental legislation with that of the EU, as well as in response to pressure from the environmental lobby. In addition, the environmental committees within the Malta Federation of Industry and the Malta Chamber of Commerce have taken an active part in the consultative process regarding waste management plans and strategies.

The manufacturing industrial base in Malta consists of over 5000 enterprises. The absolute majority (over 85 per cent) employ between 1 and 5 employees, 14 per cent employ between 6 and 100 employees, with a very small minority having a workforce of over 100. The main pressures on the environment by industry are associated with energy consumption and the resultant air-polluting effects, and the production of hazardous/problematic waste. A few enterprises use cutting edge technologies that incorporate measures to minimise adverse pollution impacts, while the majority employ technologies with high potential environmental impacts.

While large firms with transnational connections have made considerable progress in their environmental performance, the thousands of small and micro enterprises lag far behind. In fact, only a very small proportion of manufacturing firms have adopted environmental management systems (ISO 14000).

Steps towards sustainability

In response to its concerns and following various reports, the Government in 1994 decided to establish the Cleaner Technology Centre (CTC). The Centre, situated at the University of Malta, is the result of a tripartite agreement between the former Environment Protection Department, the Government's Department of Industry and Malta University Services. The Centre's main brief is to assist industry in finding feasible solutions to environmentally challenging situations through the adoption of cleaner technology.

Industry in Malta is concentrated in 13 industrial estates. The Technopark at Mosta is a facility housing companies engaged in technological development.



In close collaboration with the Malta Federation of Industry and other organisations such as the Institute for the Promotion of Small Enterprise (IPSE) and the Institute for Energy Technology, the CTC embarked on a sustained programme of seminars and workshops to sensitise industry to its environmental obligations. These provided the opportunity for local industrialists to meet local and foreign experts to discuss various challenges and come up with possible solutions. The seminars covered issues such as tourism, construction, metal plating and chemical industries, energy management, waste management, liquid effluents, environmental design, environmental health and EU Environmental Law.

Other initiatives consisted of collaboration with the Environment Protection Department and the Malta Federation of Industry in an EU LIFE-funded 16-month programme to introduce Environmental Management and Audit System (EMAS) to manufacturing industry in Malta. Surveys on waste generation by industry have also been carried out in an effort to try and introduce waste minimisation programmes in areas where particularly problematic waste is being generated. Pilot energy audits have been offered free of charge to small and micro enterprises in order to help them improve their energy use efficiently.

In 2001, the Ministry for the Environment established an Environment Award for Industry to reward those enterprises that take proactive steps in environmental protection procedures. In collaboration with the Malta Federation of Industry, the Malta Government Drainage Department has managed to establish a rudimentary voluntary agreement system to curtail the disposal of hazardous effluents. A recent survey (Pizzuto and Rizzo, 1999) carried out by the CTC amongst the industrial community concluded that environmental issues were not high on the agenda of small firms. This may be due to their belief that the environmental harm caused by small firms is negligible.

Issues to be Addressed and Measures to be Taken

Awareness regarding the association between sustainable development and industrial activities needs to be stepped up through continuous education campaigns involving all the stakeholders. In addition, research on the environmental impacts of industrial activity should be encouraged, with a view to, amongst other things, quantify emissions of



polluting gases and waste generation, and to promote the sustainable use of materials and energy. It is also important to strengthen legislative and enforcement structures, with a view to reducing polluting activities.

Training of people involved in the upgrading of cleaner production (this incorporates life cycle analysis and product design) is a priority. In this regard, the competitiveness factor should also be taken into consideration.

In the long term, carrot and stick economic instruments such as incentives, fees and taxes should be used more extensively to discourage environmental damage while encouraging the use of cleaner production. In this regard, it is important to develop methods of accounting for environmental costs, so as to foster an awareness of the externalities associated with industrial and commercial activities and to assess the impact on prices associated with the internalisation of costs.

Self-regulation should also come into play as markets reflect environmental as well as purely financial realities. This process will be enhanced as consumers become more prone to support environmentally friendly processes through their buying preferences.

Waste minimisation is essential particularly in areas where problematic waste could be generated by industry.

4.9 STRENGTHENING THE ROLE OF FARMERS

The Maltese agricultural sector is relatively small, accounting for about 2 per cent of GDP in recent years. Agricultural land has been on the decline in recent decades, and currently covers about 10,700 hectares, which is approximately 33 per cent of all land area.

Nevertheless, Malta's agricultural sector remains an important one from a national development perspective.

Table 4.3 - Agricultural Land as a Percentage of Total Land Area

Year	Agricultural Land	Per cent of total land area
1971	15,000 hectares	47
1991	12,000 hectares	38
2001	10,700 hectares	33

Source: Ministry of Agriculture and Fisheries.

The Importance of Agriculture

The farming community constitutes an important component of Malta's social structure, contributing to the maintenance and enhancement of Malta's rural environment and landscape and, indirectly, to Malta's tourism industry. Furthermore, in view of Malta's island status in the periphery of the production centres of Europe, Maltese agriculture affords a limited but vital source of food security.

Constraints

The development of agriculture in Malta is constrained by:

- The small size of the Maltese Islands and the highly

fragmented holdings leading to limited production capacity.

- A limited range of products and limited possibilities for use of large machinery.
- The opportunity cost of land with the resultant high economic rental value compared to that in other developing and neighbouring countries.
- Scarcity of water for irrigation, with more than half of Malta's water supply originating from costly desalination processes.
- Scarcity of agricultural land with resultant over-cropping, poor soil fertility, low yields per hectare, and lack of crop rotation methods.
- High labour costs in a situation where the rate of national unemployment is only about five per cent.
- The need to import practically all the required agricultural inputs.

In spite of all these constraints, Malta is self-sufficient in fresh vegetables, processed tomatoes, eggs, poultry, rabbit meat, pork, fresh milk and fresh milk products.

However, Maltese agriculture is highly protected though import licence control and prohibitive import levies. Even with such protection, there is high dependence on imports of wine-grapes, fresh fruits and beef. Malta is not a producer of cereals, sugar, rice, butter, cheese, and most fresh fruits, all of which have to be imported.

Agriculture and Malta's accession to the EU

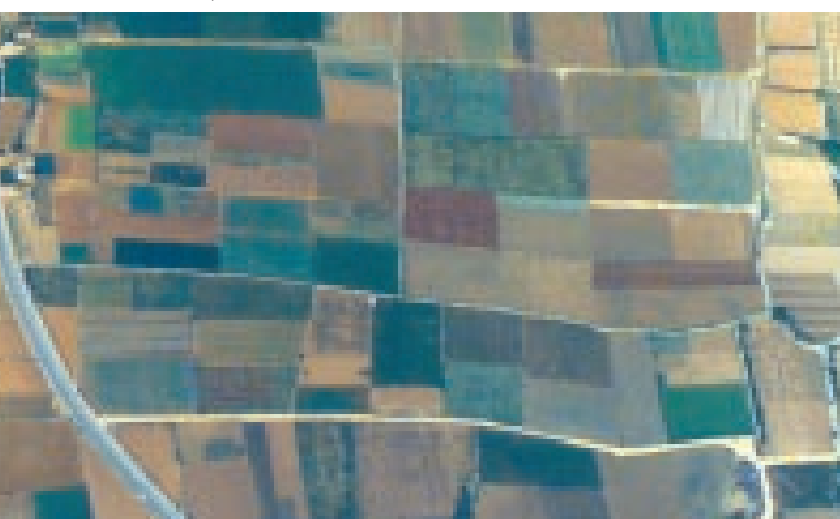
With Malta's application for membership of the European Union and with the eventual adoption of the Single Market and Common Agricultural Policy measures, import controls through import levies will have to be dismantled and substituted by support measures contemplated by the reformed Common Agricultural Policy, as well as by specific support measures that are considered necessary to ensure and strengthen the livelihood of Maltese farmers.

These measures are considered an integral part of Malta's endeavours towards the liberalisation of imported food and agricultural products and the adoption of the Common External Tariff.

Issues to be Addressed and Measures to be Taken

To strengthen the role of farmers, following Malta's accession to the EU, specific supply arrangements (especially for cereals for animal feedstuffs), are being requested. In addition, specific support measures such

Maltese agriculture is highly fragmented, and is characterised by a limited range of products and restricted possibilities for use of large machinery.



as permanent aid per hectare are being introduced to serve as direct income support for farmers.

Malta intends to make full use of the reformed EU *Rural Development Programme* to strengthen the role of farmers within the modern concept of multifunctional agriculture. Thus, plans are in hand to give greater attention to policies aimed at the consolidation of agricultural land, the structural modernisation of farms and the improvement of marketing and processing of agri-food products. In addition, attention is being focused on agri-environmental measures aimed at conserving the traditional characteristics of Maltese agriculture and the production of market-oriented, high-quality products.

The *Rural Development Programme* has, as its main short term objectives, the decrease in the salinity level of the water table and of soil erosion, increased environmental awareness and responsibility amongst farmers, enhanced competitiveness in farming, and development of multifunctional agricultural activities. The medium term objectives of the Programme include the slowing down of the loss of agricultural land and of the number of full-time farmers, the maintenance of the cultural landscape, the generation of positive externalities associated with culture, tourism and food security, and the conservation of the environment, including protection of biodiversity. To achieve these aims steps are being taken to strengthen the administrative and technical capacity of the Ministry of Agriculture and Fisheries. The setting-up of Producer Organisations will also be promoted and encouraged, with the objective of ensuring that production is planned and adjusted to demand, while improving product quality with reduced production costs.

An important objective that needs to be pursued is the promotion and encouragement of sustainable farming practices and technologies. Towards this end, it is necessary to develop a policy framework that provides incentives that motivate farmers to adopt such practices.

4.10 THE SCIENTIFIC AND TECHNOLOGICAL COMMUNITY

Scientists have an important role to play with regard to sustainable development by, amongst other things:

- Alerting society to problems, including those associated with sustainable development.



Onions, tomatoes and potatoes: major crops produced by Maltese farmers.

- Carrying out studies; which, in the case of Malta included the State of the Environment Reports.
- Devising methods for environmental monitoring.
- Assessing the costs and benefits of alternative energy and environmentally friendly technologies.

Post-Rio Developments in Malta

Post-Rio, there was a strong interest in Malta among policy-makers, practitioners and the research community in Agenda 21. This led the Malta Council for

Science and Technology (MCST), the advisory body to Government on national science and technology policies, to set up the National Agenda 21 Group in 1993, in order to co-ordinate Malta's response to Agenda 21 in the fields of Science and Technology. The Group brought together a wide spectrum of interests and expertise, including the Ministries of Foreign Affairs, Agriculture and the Environment, the University of Malta and the Planning Authority. The Group was effective in tackling the following tasks, with regard to science and technology:

- Formulating Malta's proposals for the restructuring of the "Barcelona Convention" and related programmes in the light of the Rio Conference (1992).
- Setting up of a Regional Commission for Environment and Development for the Mediterranean. The Agenda 21 Group was successful in promoting the restructuring of the "Barcelona Convention" in 1994.
- Co-ordinating Malta's position on Agenda 21 in international fora.
- Advising on the setting-up of a Local Agenda 21 Directorate.
- Updating the National Report to UNCED and compilation of a National Agenda 21 Directory.
- Co-ordinating the implementation of Agenda 21 at a national level .

Education and research

The work of the Agenda 21 Group gave rise to the formulation, amongst other activities, of the National Science and Technology Policy Document adopted by Government in 1994 – drawing on the policy recommendations and strategies developed by MCST (Government of Malta, 1994). The Document identified two key national policy objectives, firstly

sustainable development in recognition of the Rio Summit (1992) and Agenda 21; and secondly, the development of the Integrated Resource Management (IRM) concept. The National Science and Technology policy was thus not oriented primarily at developing Science and Technology *per se*, but as a means to an end, i.e., supporting the country's sustainable development.

The Document states that:

"Delays in the growth of a scientific and technological culture can only mean retarded development... To secure our future prosperity we cannot wait for a natural organic growth in our scientific awareness and proficiency; we have to spearhead a rapid and strategic Science and Technology penetration in all areas (institutional, educational, industrial). This process would require initially a considerable stimulus from above to combine with a diffused bottom-up approach."

This highlights an important orientation for the development of a National S&T policy, through open processes of social participation and not through exclusively top-down approaches. The S&T Policy Document also features a number of innovative concepts, including S&T prospecting for the anticipation of emerging technologies and related niches; strategic long-term technology planning; S&T audits of public and private sector institutions to replace obsolete practices; and public-private sector partnerships.

Other initiatives that are contributing to the implementation of Agenda 21 with regard to science and technology, are Malta's participation in a number of EU Research Programme projects (FP4 and FP5) in the environment and sustainable development field. The interest in joining these projects within the public sector and academia has been encouraging and will no doubt have a long-term impact on the country's sustainable development.

The MSCT also encourages the training and mobility of researchers. Co-operation between MCST, the Institute for the Promotion of Small Enterprise (IPSE), the Malta Development Corporation (MDC), and the Malta Business Bureau, promoting joint science and technology ventures, is being sought. This should encourage the participation of the private sector in international programmes.

"Delays in the growth of a scientific and technological culture can only mean retarded development".



Issues to be Addressed and Measures to be Taken

The following issues relating to science and technology still need to be addressed, with the aim of promoting more sustainable use of resources through science and technology, to address national and local priorities, as well as to contribute to the international challenge of sustainable development.

There is the need to adopt a National Strategy for Science and Technology and to establish appropriate systems for a holistic and focused approach in national expenditure on research and development.

With regard to research on sustainable development, there is a need to overcome the fragmentation arising from situations where different people and organisations work in isolation from one another. There needs to be some effort invested in evaluating ongoing research in order to identify its quality (in relation to international benchmarks), potential areas of strength and weakness, and gaps that need to be addressed urgently. There is also the need for capacity-building in this regard, involving more dedicated resources, possibly through a national research funding programme.

There exists the need for enhanced collaboration on matters relating to the environment and science and technology, between key policy advisory bodies to Government, in particular the Malta Environment and Planning Authority, the Malta Council for Science and Technology, the Malta Council for Economic and Social Development and the University of Malta. This needs to extend to government departments, local authorities and non-government agencies responsible for implementing these policy recommendations. The National Commission for Sustainable Development could be a useful platform in this regard.

4.11 WOMEN AND EQUITABLE DEVELOPMENT

Maltese Legislation and Women

The Maltese Constitution prohibits discrimination based on sex. Moreover, a White Paper on "Gender Equality Legislation" (Government of Malta, 2002) has been drafted to include the regulation of the private sector and to establish a structure of redress in cases of alleged sex-based discrimination. Following



the ratification of the UN "Convention for the Elimination of all Forms of Discrimination Against Women" (CEDAW) in 1991, Malta committed itself to implement the 1995 Beijing UN World Conference on "Women: Platform of Action". Legislation and practices are also being reviewed and amended in line with Malta's drive to join the European Union.

Gender mainstreaming

Gender mainstreaming has been adopted as the main strategic tool for achieving gender equality, thus ensuring the integration of the male and female perspectives in all government work, including provision of services and conditions of employment. During 2001, with the assistance of the Commonwealth Fund for Technical Co-operation (CFTC), "gender awareness" for senior public officers and "training the trainers" workshops have been undertaken in order to empower the Public Service to develop and implement this strategy (Department for Women in Society, 2001).

The role of the Department of Women in Society has been instrumental in this regard. This Department is the Government's entity responsible for the execution of gender policy, and works closely with the Commission for the Advancement of Women, which is an advisory body on gender issues.

The Maltese Government has adopted gender mainstreaming as the main strategic tool for achieving gender equality.

Education and vocational training for women

During the 1990s, significant progress has been made in women's participation in post-secondary education. However, women still lag behind in vocational education. In 1999, only 32.5 per cent of students attending vocational education were women. These were mainly attracted to banking, accounting, secretarial, insurance and tourism studies, with a negligible female participation at the technical institute. This situation was mirrored in certain areas of tertiary education, such as engineering, where males greatly out-numbered females. However, during the past decade, the number of university female students has tended to increase, and stood at 56 per cent in 2002.

The Government is committed to monitoring the modernisation of the vocational education and training system in Malta to ensure that both female and male students have a viable alternative to university education. Opportunities in vocational training continue to be developed for school-leavers in order to meet skill shortages in the labour market. The opening of the Malta College of Arts, Science and Technology (MCAST) in 2001 brought together five institutions catering for engineering, business, art and design and maritime studies and inaugurated the Institute of Information and Communication Technology.

The participation rate of women in the Maltese labour market is low by European standards – the Maltese Government is committed to raising it.



A Non-Government Organisation that is involved in training and lifelong learning for women is the National Council of Women, which is an umbrella organisation with 24 affiliated organisations. Established in 1964, this organisation has been crucial in the social and economic advancement of women in Malta.

The labour market and women

The Maltese Government is committed to raising the participation rate of women in the labour market, particularly in the light of an ageing population and the need for economic growth to further national development, including the sustenance of the welfare system. To this effect, the Employment and Training Corporation is drawing up a gender action plan together with the relevant stakeholders. Moreover, Government has been focusing on the implementation of measures to address gender gaps, including the enactment and enforcement of comprehensive gender equality legislation and the amendments in the conditions of employment legislation.

Women's participation rate has risen to about 32 per cent in 2000 from about 27 per cent in 1994 (ETC, 2001). The number of persons in part-time employment increased considerably in the last 10 years, and at the end of 2000, it amounted to 13.2 per cent of persons in full-time employment. Women made up 60.6 per cent of these persons (source: COS, 1999; and NSO).

The rate of registered unemployment has remained fairly stable over the last decade (averaging around 5 per cent). The unemployment rate of women (around 2 per cent) was lower than that of men. Unemployed women tend to have higher qualification profiles than unemployed men (ETC, 2001). However, this may conceal the fact that a number of low-skilled women operate outside the formal economy.

Flexibility at the work place, the promotion of family-friendly working arrangements and provisions to control discrimination, victimisation and harassment are among the issues covered in the White Paper that has recently been published to cover private sector and public agencies. The provisions include longer and more flexible maternity leave, three months of parental leave and urgent leave for family reasons, the possibility to revert to a reduced working schedule, as well as legal measures to deal with discriminatory behaviour at the work place.

Poverty alleviation and women

The 1995 Census Data revealed that women made up 79.3 per cent (5,914) of a total of 7,462 lone parents. Of these, 30.8 per cent have to care for dependent children. There is no evidence of widespread poverty in Malta as the level and coverage of non-contributory assistance offers a safety net. Women tend to be the major beneficiaries of social assistance. During 1998 and 1999, single and separated women made up 84.2 per cent and 87.5 per cent respectively of the total number of female beneficiaries (Abela, 1998b:122).

Women and decision-making

Women make up 9.2 per cent of elected members of the House of Representatives, a slight increase over the previous General Elections held in 1996. The percentage of female representation in Local Council stood at 21 per cent (as at December 2001), again, a slight increase over the previous two years. Government-appointed Boards and Committees include 362 (18.1 per cent) women among their 2,000 members.

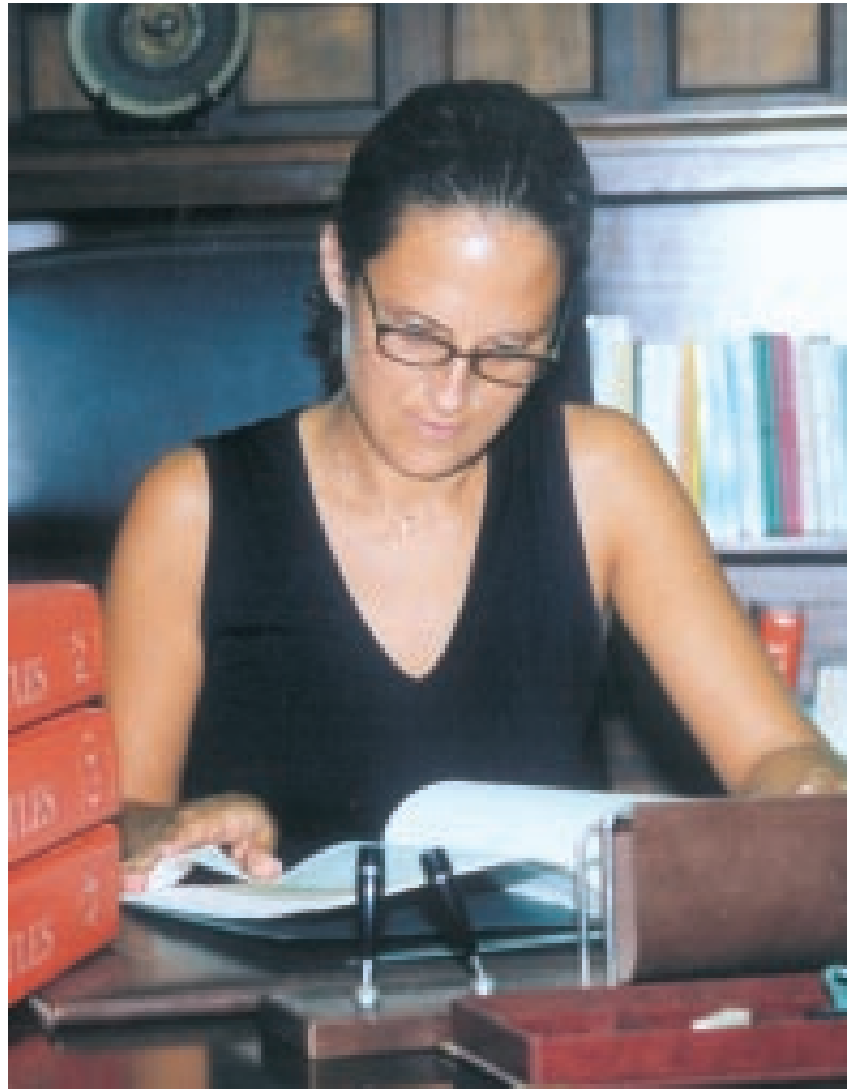
In December 2000, female public officers made up 11 per cent of officers in the top five scales of the Public Service (Department for Women in Society, 2000), although there were no women officers in the top three scales.

Issues to be Addressed and Measures to be Taken

With regard to gender mainstreaming, the next step is the setting-up of structures within the various ministries/departments/entities for the execution of gender impact assessments in policy, planning and operations of government work.

Financial provisions have been made for the training of public officers to empower them to carry out this exercise. This strategy will bring about a focus on the needs and expectations of both women and men, at all ages, in all sectors, thus encompassing the development of society as a whole.

It is anticipated that vocational training for women will be stepped up, as a result of the development policy and strategy on human resources to be drawn up by the Employment and Training Corporation (ETC). The Corporation is also formulating policies to attract women to traditionally male-oriented vocational training. There is the need for measures to



encourage women in entrepreneurship and the co-operative system.

The preparation of a strategy to increase the number of women in decision-making levels of the Public Service will be further developed following the implementation of the recommendations contained in the report entitled "Maximising Talent in the Maltese Public Sector" (Leighton, 2001) which was drawn up in January 2001.

The legal, social and economic provisions underway will empower women in their drive towards self-development and fuller participation in the economic, political and social spheres of the country. Their ripple effect could be translated into a higher national productivity that could contribute towards the sustenance of the welfare services which would cushion other women in distressful situations. Thus, gender equality may foster the achievement of sustainable and equitable development of the whole of society.

Gender equality may further the advancement of women and could also foster the sustainable development of society as a whole.

4.12 CHILDREN AND YOUTH IN SUSTAINABLE DEVELOPMENT

Vulnerability of Children and Young People

Children and young people are not only highly vulnerable to the effects of present environmental degradation but they will also have to face the future consequences caused by the actions of today's society. It is crucial to take into account the specific needs of the young in matters relating to environment and development, in order to safeguard their interests. Furthermore, children and youth are also the future guardians of the Earth so there is the need to instil positive values towards the environment in young people.

In Malta, the State provides a high level of education for all, yet a systematic approach to encourage the participation of children in the process leading to sustainable development is not given due importance.

Several NGOs have carried out environmental projects for children and young people – yet these are generally sporadic and lack the participatory processes required in the context of sustainable development.

Children and youth are the future guardians of the Earth.



Xummiemu: the likeable hedgehog used to promote public awareness on the environment, among young people.

The Environment Protection Department created a cartoon character called *Xummiemu*, in order to promote environmental education amongst children. This has proved to be very popular among children and has helped to foster awareness of environmental issues among the younger generation (Farrugia *et al.*, 2001).

Issues to be Addressed and Measures to be Taken

There is the need to develop a well-defined educational strategy for sustainable development among



children and youth. Though the *Xummiemu* character has helped to foster awareness on environmental concerns among young people, such initiatives need to be consolidated and integrated into a plan with clearly defined short-term and long-term goals. The emphasis should be more on sustainability, rather than on basic environmental protection.

In addition, educational programmes that promote a better quality of life for all should be devised. One important aspect of such programmes should relate to pro-environmental values at the household and community level.

It is important to encourage the participation and empowerment of young people by establishing procedures allowing for consultation and participation of youth in decision-making processes with regard to the environment and sustainable development in general.

The mobilisation of communities through schools and local civic centres should be stepped up so that children and youth can bring environmental issues to the fore within their community. Procedures should be established to incorporate the concerns of the young generation into all relevant policies for environment and development.

One way of increasing the participatory role of young people is by promoting further dialogue with youth organisations at the drafting and evaluation stage of environment plans and programmes.

4.13 CONCLUSION

The focus of this chapter was on awareness and public participation, which the Government of Malta considers to be a major prerequisite for the promotion of sustainable development. It has been shown that Malta has taken a number of actions with regard to education, public awareness, training, and information for decision-making. Action has also been taken to strengthen the roles of major groups in this regard. This task however is not completed, and much remains to be done.

This Chapter has pointed to a number of areas that need to be addressed with the ultimate aim of promoting active and meaningful participation by civil society, in issues associated with sustainable development. Further attention needs especially to



be given to Agenda 21, as an educational process through which civil society could be involved in a learning and development experience, and through which citizens find it possible to make informed decisions about matters that affect them and future generations.





5

MALTA'S CONTRIBUTION TO THE INTERNATIONAL COMMUNITY

The commitment of Malta to the ideals of the United Nations, particularly in the environmental sphere, is evident in Malta's numerous initiatives at the United Nations. Two notable contributions by Malta were those related to the concept of the Common Heritage of Mankind with regard to the international sea-bed and ocean floor and its subsoil, in 1967, and the Protection of Global Climate, in 1989. These were important initiatives contributing to the employment of international machinery for the promotion of the economic and social advancement of all peoples.

Edward Fenech-Adami, Prime Minister of Malta, addressing the Millennium Summit of the United Nations, in September 2000.

5.1 INITIATIVES WITHIN THE UNITED NATIONS

The commitment of Malta to the ideals of the United Nations, particularly in the environmental sphere, is evident in Malta's numerous initiatives at the United Nations. Two notable contributions by Malta were those related to the concept of the Common Heritage of Mankind with regard to the international sea-bed and ocean floor and its subsoil, in 1967, and the Protection of Global Climate, in 1989. These were important initiatives contributing to the employment of international machinery for the promotion of the economic and social advancement of all peoples (Government of Malta, 1990a and 1998; Borg, 1998).

Malta has also played an important role at the UN by promoting the strengthening of environmental co-operation in the Mediterranean where the problems of pollution are becoming a threat to ecosystems and to the socio-economic development of countries bordering the Mediterranean Sea. In fact, Malta has been at the forefront in setting up a Mediterranean Commission for Sustainable Development under the auspices of the Mediterranean Action Plan (MAP).

Arvid Pardo,
Malta's former
Permanent
Representative
at the United
Nations.
*From a painting
by Raymond Pitré.*



Malta has also played an important role in matters affecting the special needs of Small Island Developing States (SIDS) and was instrumental in the development of the concept and measurement of an index to measure the vulnerability of such states (United Nations, 1997). The construction of such an index was first formally proposed by Malta in 1990, during an UNCTAD meeting at the UN Headquarters in New York. Subsequently the United Nations called for the construction of such an index in Articles 113 and 114 of the 1994 Programme of Action for the Sustainable Development of Small Island Developing States (United Nations, 1994).

Convention on the Law of the Sea

Malta's principal contribution to the international community date back to August 1967 when, through its Ambassador Arvid Pardo, Malta submitted a memorandum to the Secretary-General of the UN requesting him to include in the agenda of the Twenty-Second Session of the General Assembly an item entitled: "Examination of the question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the sub-soil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interest of mankind".

Later in December of that same year, the General Assembly unanimously adopted a resolution that began a process culminating, three years later, in another unanimous Declaration of Principles which stated that "the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction... as well as the resources of the area are the common heritage of mankind". This led to the Third UN Conference on the Law of the Sea, which adopted the final text of the new Convention on 30th April 1982. The final Act of the Conference was approved by consensus and was signed by 117 States and two other entities at a formal ceremony in Jamaica in December 1982. Malta was one of the signatory states of the Convention, which it ratified on 20th May 1993. Malta has also participated in the Preparatory Commission for the International Sea-Bed Authority and ratified this agreement on 26th June 1996.

Malta has been elected in the Council of the International Sea Bed Authority for the period 2000-2004 and was instrumental in bringing to a fruitful conclusion the negotiations, leading to the adoption of the Mining Code on Polymetallic Nodules on the Seabed beyond National Jurisdiction.

The Delegation of Malta to the UN also played an active role in the discussions leading to the establishment of the UN Informal Consultative Process on Oceans and the Law of the Sea, by the General Assembly during its 54th session. In this respect the Delegation of Malta had previously submitted a proposal during the 7th session of the Commission on Sustainable Development. The purpose of this process is to coordinate actions in ocean affairs taken by the international community.

Protection of Global Climate

Malta's role in international affairs was further underlined when, on 9th September 1988, the Government of Malta requested the UN Secretary-General to include an item on the agenda of the 43rd session of the General Assembly entitled "Conservation of climate as part of the Common Heritage of Mankind". This initiative taken by Malta brought to the attention of the world community the urgent need to conserve climate in the interest of present and future generations of mankind. The Maltese government felt that such a strategy should be initiated by a UN resolution, because only the UN General Assembly provided the adequate forum wherein an effective and comprehensive strategy to protect climate could be formulated.

At a Special Plenary Meeting of the same session of the General Assembly, Malta introduced the item describing this new initiative on climate change as an important and urgent issue that "may threaten the very existence of life on earth" and that "unless urgent action on a global level is taken, this change could very well lead to irreversible damage".

In the days that followed, Malta piloted a draft resolution, which, after intensive negotiations in the Second Committee, was unanimously adopted by the General Assembly as resolution 43/53 entitled "Protection of global climate for present and future generations of mankind". This resolution described climate change as the common concern of mankind. It strengthened the mandate of the Intergovernmental Panel on Climate Change (IPCC) established in June 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP). Malta has been active in the work of the IPCC and was the first country to present the international community with elements of a "Climate Change Convention".



Since 1989, Malta has continued to take a prominent part in the debate and consideration of this subject at the UN and other international fora. The adoption of General Assembly resolutions 44/207 and 45/212 and 46/169 gave the Maltese initiative a new internationally accepted dimension to a universally recognised common concern.

Joe Borg,
Foreign
Minister of
Malta,
addressing the
54th session of
the UN
General
Assembly.

Malta ratified the "Climate Change Convention" on 17th March 1994 and the obligations entered into force in the same year. A Maltese delegation also participated in the 6th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change held in Bonn. This session will be remembered in the history of the international community as the session which resuscitated the climate change process because, despite many political setbacks, the "Climate Change Convention" took the necessary commitments to breathe life back into the "Kyoto Protocol". Malta continued to participate in this process by signing the Protocol on 17th April 1998 and by ratifying it on 9th November 2001.

Extra-Territorial Spaces

At the 44th session of the UN General Assembly, Malta put forward for active consideration another initiative entitled "The Environmental Protection of Extra-territorial Spaces". In this regard, Malta suggested through a draft resolution that a group of eminent persons be established by the UN Secretary General to prepare a study, which would, *inter-alia*, make recommendations with respect to the identification and extent of extra-territorial spaces, the state of the environment in such spaces, the rights and

duties of states and the international community therein, and possible strengthening of relevant existing legal instruments. The group of experts would also make proposals on how the effective and comprehensive environmental protection of such spaces can best be achieved.

An important and significant step was taken by the International Law Commission, which at its 45th session discussed in detail the environmental protection of the "global commons". In presenting his fifth report to the commission in July 1989, the Special Rapporteur on "International Liability for Injurious Consequences arising out of Acts not Prohibited by International Law," referred specifically to the issue of liability in respect of activities causing harm to the "global commons", in areas beyond the national jurisdiction of any State and, in particular, those constituting the common heritage of mankind.

Malta believes that unless action to protect extra-territorial spaces is undertaken, current efforts to protect areas falling under national jurisdiction could prove futile.

A Guardian for Future Generations

The initiatives undertaken by Malta at the UN and other Organisations in the course of the last thirty-five years were all directed at the protection of the interests of future generations. Malta took one step

further in this direction when, during the Second Session of the Preparatory Committee of UNCED, Malta made the following proposal for inclusion of the "Earth Charter":

"We declare that each generation has, in particular, the responsibility to ensure that in any national or international forum, where it is likely that a decision be taken affecting the interests of future generations, access be given to an authorised person appointed as 'Guardian' of future generations to appear and make submissions on their behalf, so that account be taken of the responsibilities stated in this Declaration and the obligations created thereby".

The appointment of a 'guardian' with the right to make representations on behalf of future generations is an innovative idea reflecting the conviction which the Government of Malta has, namely that as progress is made through increased research in the field of science and technology, the possibility that activities of the present generations affect the lives and well-being of future ones, is increasing rapidly. Present generations have therefore an ever-growing responsibility to keep the interests of future generations in mind in everyday decision making.

The appointment of a 'guardian' for future generations with a right to make representations on their behalf can go a long way in encouraging present generations to focus more attention on the effects which their activities may have on the lives of future ones, and consequently act in such a way as not to prejudice their existence or well being.

It is appropriate to point out that in 1986, UNESCO assigned the International Environment Institute, in Malta, which is part of the Foundation for International Studies, as the permanent secretariat for the Future Generations network which is part of a UNESCO programmed called "Responsibilities Towards Future Generations and their Environment".

The Trusteeship Council

Malta has also put forward a proposal to the United Nations regarding the transformation of the United Nations Trusteeship Council into a guardian and supervisor of the common heritage of mankind.

The Charter of the UN under its Chapter XII established an International Trusteeship System for

Present generations have an ever-growing responsibility to keep the interests of future generations in mind.



the administration and supervision of territories the peoples of which have not yet attained a full measure of self-government. Since its establishment, the Trusteeship Council has monitored and administered most of the territories and peoples that today have, in their majority, acquired their independence.

To extend the mandate of the Trusteeship Council so that it can play a more beneficial role in the contemporary world, Malta has proposed that the Council should be given a new function, additional to the ones it already has under the Charter; to hold in trust for humanity its common heritage and its common concerns: the environment; the protection of the extra territorial zones and of the resources of the sea and of the sea-bed; the climate; and the rights of future generations.

Mediterranean Commission for Sustainable Development

Malta played a leading role in the creation of the Mediterranean Commission for Sustainable Development (MCSD). In the meeting of legal and technical experts to examine amendments to the "Barcelona Convention" and its related Protocols, and the Mediterranean Action Plan, which took place in Barcelona between the 14 and 18 November 1994, Malta's Delegation stated that the Government of Malta considered that the time was ripe for the creation of the MCSD and that the "Barcelona Convention" was the ideal legal instrument through which the Commission could possibly become functional.

The Mediterranean Commission for Sustainable Development was established in 1996 within the framework of Mediterranean Action Plan (MAP). It constitutes a forum for dialogue and consultation on policies for promoting sustainable development in the Mediterranean Basin on the basis of activities and contributions identified by MAP Phase II and implemented by Parties and the MAP in line with Agenda MED 21. It tenders advice on activity programmes and formulates recommendations of the Contracting Parties.

The Commission is composed of 36 members, representing each of the 21 Contracting Parties, as well as five representatives from each of the following three groups: local authority networks, socio-economic actors and NGOs. The First Meeting of the MCSD was held in Rabat, Morocco on 16-18 December 1996.



The MCSD has also been instrumental in the development of sustainability indicators for the region. Here again, Malta played an important part by hosting a meeting, in November, 1999, during which the Contracting Parties, adopted a "joint set" of 130 indicators for sustainable development in the Mediterranean.

Meeting of the Mediterranean Commission for Sustainable Development hosted by Malta in November 1999. Malta has participated actively in Mediterranean fora on sustainable development.

5.2 MALTA'S MULTILATERAL LEGAL OBLIGATIONS

Overview

Multilateral Environmental Agreements (MEAs) not only have an important role in the protection and management of the environment at the global level, but they also affect environmental policies and practices at the national level. They open up possibilities for transboundary co-operation and raise public awareness in the countries that are Parties to these Agreements. Sustainable development has been widely accepted as the ultimate objective of Post-Rio multilateral legal instruments relating to environment protection, and these agreements lay down standards, thresholds and action plans towards this end.

Malta is Party to a number of MEAs relating to environmental protection and sustainable development, as explained below.

MEAs Relating to Biodiversity

Malta has a major obligation as a State Party under the "International Plant Protection Convention" to

have a national organisation for plant protection. As a Contracting Party, Malta requires consignments of particular plants or plant products to be imported only through specified points of entry. Such restrictions on points of entry shall not be made unless the plants, or plant products, concerned are required to be accompanied by phytosanitary certificates, or to be submitted to inspection or treatment.

As a Contracting Party to the "Convention on Wetlands of International Importance especially as Waterfowl Habitat" (Ramsar) as amended by the "Paris Protocol" of 1982, Malta has designated suitable wetlands under the Convention. These Wetlands were selected and listed on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology.

By virtue of it being a Party to the "Convention on International Trade on Endangered Species of Wild Flora and Fauna" (CITES), Malta regulates international exports and imports of specimens of species of live and dead animals and plants and their parts and derivatives. This is based on a system of permits and certificates that can be issued if certain conditions are met and which have to be presented before consignments of specimens are allowed to leave or enter a country. As a Party, Malta also maintains records of trade in specimens of species included in Appendices I, II and III of the Convention. Malta prepares periodic reports on the implementation of the Convention and transmits to the Secretariat annual and biennial reports on legislative, regulatory and administrative measures taken to enforce the provisions of the Convention.

Under the "Convention on the Conservation of European Wildlife and Natural Habitats" Malta is obliged to conserve wild flora and fauna, and their natural habitats.



Under the "Convention on the Conservation of European Wildlife and Natural Habitats" Malta is obliged to conserve wild flora and fauna and their natural habitats, especially those species and habitats whose conservation requires the co-operation of several States, and to promote such co-operation. Particular emphasis is given to endangered and vulnerable species, including endangered and vulnerable migratory ones. Malta takes requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level that corresponds to ecological, scientific and cultural requirements, while taking account of economic and recreational factors, and the needs of sub-species, varieties or forms, locally at risk.

As a State Party to the "Bonn Convention on the Conservation of Migratory Species of Wild Animals" Malta promotes co-operation to support research on migratory species. Malta is obliged to provide immediate protection to such species. Malta has also concluded agreements to conserve and manage migratory species namely, the "Agreements for the Conservation of European Bats" (EUROBATS) and the "Agreement for the Conservation of Cetaceans in the Mediterranean, Black Sea and their Contiguous Zone" (ACCOBAMS). The objective of each of these agreements is to restore the migratory species concerned to a favourable conservation status.

As a Party to the 1982 "Convention and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks", Malta undertakes to co-operate with other State parties to adopt measures that would improve the conservation and management of fish stocks particularly migratory fish stocks. Ships registered under the Maltese flag are also subject to the obligations of the Convention. Malta's accession was significant because it brought the Convention into force.

Malta is in the process of preparing a national strategy and programme to implement the obligations of the 1992 "UN Convention on Biological Diversity". Malta has also embarked on a process to integrate conservation and sustainable use of biological diversity into the relevant sectoral and cross-sectoral plans, programmes and policies. As a Party to the "Convention to Safeguard the Sustainable Use of Biodiversity", Malta is also integrating the consideration of conservation and sustainable use of biological resources into national decision-making and to minimise or avoid adverse impacts on biodiversity.

MEAs relating to Pollution Control

Malta is a Party to the “International Convention for the Prevention of Pollution of the Sea by Oil”, the “Convention on the Continental Shelf”, and the “Convention on the Territorial Sea and the Contiguous Zone”. These Conventions however have been superseded by the 1982 “Convention on the Law of the Sea”, to which Malta is also a Party as noted above. In addition, Malta is Party to the “Civil Liability Convention” and the “International Convention on the Establishment of an International Fund for Oil Pollution Damage.” These two Conventions were superseded when Malta ratified the 1992 “International Convention on Civil Liability for Oil Pollution Damage” and the 1992 “International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage”. These new Conventions have a wider scope of application by providing for oil pollution damage not only in territorial waters but also in the Exclusive Economic Zone (EEZ). Furthermore, the Conventions have an in-built mechanism to increase compensation limits.

As a Contracting Party to the 1972 “Convention on the Prevention of Marine Pollution by Dumping of Wastes at Sea and other Matter”, Malta has agreed to this Convention thereby accepting that dumping is a source of marine pollution, and that States should use the best practicable means to prevent such pollution and develop products and processes which will reduce the amount of harmful wastes to be disposed of. Malta therefore is obliged to promote the effective control of all sources of pollution of the marine environment, and pledges itself to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities, or to interfere with other legitimate uses of the sea.

Malta's obligations relating to sustainable development and environmental law also include the provisions on the protection of the marine environment and those relating to fisheries. Under the “Law of the Sea Convention”, Malta is to notify other States and other competent international organisations if they are likely to be affected by imminent or actual damage to the marine environment by pollution. To this end, Malta has developed and promoted contingency plans for responding to pollution incidents in the marine environment.



By virtue of the “Law of the Sea Convention”, Malta has been able to establish its right as a coastal State to set up, implement and enforce legislative measures and obligations regarding the exploitation of marine living resources situated within the marine territory over which it has jurisdiction. Malta, for example, claims an Exclusive Fishing Zone but has not declared an Exclusive Economic Zone. As a coastal State, Malta is empowered to enforce national conservation legislation such as fishing methods, closed and open fishing seasons and the restriction of fishing in certain ecologically vulnerable areas.

Malta's obligations under the 1979 “Geneva Convention on Long-Range Transboundary Air Pollution” is to endeavour to limit and, as far as possible, to gradually reduce and prevent air pollution.

MEAs relating to Nuclear Safety

Malta is a Party to the “Treaty banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water” and the “Treaty on the Prohibition

Malta's obligations relating to sustainable development and environmental law include the provisions on the protection of the marine environment.

of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof". The aim of these two Treaties is mainly to ensure that the atmosphere, outer space, the sea-bed, and the ocean floor and its subsoil, are not used for nuclear testing or stockpiling of nuclear weapons, in order to maintain world peace and to ensure that the marine environment is used by humankind only for peaceful purposes. In order to promote the objectives of and ensure compliance with the provisions of these Treaties, Malta as a State Party shall have the right to verify through observation the activities of other State Parties.

Regional MEAs

Malta has been a Party to the "Convention for the Protection of the Mediterranean Sea Against Pollution" now called the "Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean". Malta ratified the Amendments to the "Barcelona Convention" in 1999. The amended Convention changed the name of the existing Convention to "The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean". The amendments have not yet entered into force because not enough States have ratified the Convention. The amended version of the Convention includes within its objectives post-Rio concepts in international environmental law and policy, where the ultimate goal is not only to eliminate pollution in the Mediterranean Sea to the fullest extent possible, but also to contribute towards its sustainable development.

Malta is also a Party to the 1976 "Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircrafts" as amended and which is now the 1996 "Protocol for the Prevention

and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea". As a Contracting Party, Malta is to prevent, abate and eliminate to the fullest extent, possible pollution of the Mediterranean Sea, caused by dumping from ships and aircraft and incineration at sea with respect to ships and aircraft registered in its territory or flying its flag, as well as ships and aircraft loading in its territory wastes or other matter that are to be dumped. Ships and aircraft believed to be engaged in dumping in any area under its jurisdiction also fall within the scope of its obligations under the Convention. As a Party, Malta is to ensure that its ships, aircraft and other appropriate services, are to report to the authorities, any incidents or conditions in the Mediterranean Sea Area which may give rise to suspicion that the obligations of this Protocol may have been infringed.

Malta is also a Party to the "Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency". As a Contracting Party to this Protocol, Malta is obliged to co-operate in taking the necessary measures, in cases of grave and imminent danger to the marine environment, due to the presence of massive quantities of oil or other harmful substances, resulting from accidental causes of an accumulation of small discharges, which are polluting or threatening to pollute the Mediterranean Sea.

As a Party, Malta issues instructions to the masters of ships flying its flag and to the pilots of aircraft registered in its territory, requiring them to report, through the most rapid and adequate channels, all accidents causing or likely to cause pollution of the sea by oil or other harmful substances. The presence, characteristics and extent of spillages of oil or other harmful substances observed at sea which are likely to present a serious and imminent threat to the marine environment or to the coast or related interests of one or more of the Parties, are also to be reported.

Malta is a Party to the 1996 "Protocol for the Protection of the Mediterranean Sea against Pollution from Land Based Sources and Activities". This Protocol, known as the "The LBS Protocol", was adopted on 17th May 1980, by the "Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea Against Pollution from Land based Sources" held in Athens. The original Protocol was

The Mediterranean coastal regions – under serious threat from pollution.



modified by amendments adopted on 7th March 1996. The amended Protocol, renamed the "Protocol for the Protection of the Mediterranean Sea Against Pollution from Land Based Sources and Activities" has not yet entered into force. As a Party to the Protocol, Malta is to address discharges originating from land based points and diffuse sources and activities within the territories of the contracting parties that may affect the Mediterranean Sea Area, directly or indirectly.

Malta is a Party to the "Protocol Concerning Protected Areas and Biological Diversity in the Mediterranean". Its preamble contains the concept of conservation of biological diversity. This is a regional response to the adoption of the UN "Convention on Biological Diversity" at UNCED. As a Party, Malta is to protect, preserve and manage, in a sustainable and environmentally sound manner, areas which are threatened, as well as endangered species of flora and fauna. In so doing Malta is to identify and compile inventories of the components of biological diversity, adopt strategies, plans and programmes for the conservation of biological diversity and integrate them in policy instruments; Malta is also obliged to monitor the components of biological diversity and identify processes and activities likely to have a significant adverse impact on them.

Malta has already established Specially Protected Areas and is in the process of designating more in the imminent future. This new Protocol provides for an entirely new regime namely the establishment of the list of "Specially Protected Areas of Mediterranean Importance" (SPAMI). As a Party, Malta is to draw a list of these SPAMI.

Malta has also ratified the "Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal". This Protocol has not yet entered into force, because not enough States have ratified it, to date. It is a regional response that supplements and builds upon the "Basel Convention for the Transboundary Movement of Hazardous Wastes and their Disposal". As a Party, Malta's general obligations under this Protocol are to take all appropriate measures to prevent, abate and eliminate pollution of the Protocol area, which can be caused by transboundary movements and disposal of hazardous wastes. Malta has to take all appropriate measures to reduce to a minimum and, where possible, eliminate the generation of hazardous wastes.



Malta is embarking on a legislative and administrative process to reduce to a minimum the transboundary movement of hazardous wastes, and, if possible, to eliminate such movement in the Mediterranean. Under this Protocol Malta, as a Party, has the right to ban the import of hazardous wastes. Other parties shall respect this sovereign decision and not permit the export of hazardous wastes to States which have prohibited their import.

Pollution from land-based sources and activities presents a serious threat to the marine environment.

Miscellaneous MEAs

Malta's major obligations under the 1982 "Vienna Convention on the Protection of the Ozone Layer" relate to the adoption of legal and administrative control on a municipal level to protect human health and the environment from the adverse effects of ozone depletion. In so doing, it is obliged to cooperate, harmonise and formulate agreed measures, procedures and standards for the implementation of this Convention. As a Party, Malta has to assess the causes and effects of ozone depletion and is duty bound to transmit that information and to exchange information and technology.

Malta is also a Party to the "Montreal Protocol on Substances that Deplete the Ozone Layer" as amended in 1990. Under this Protocol, Malta has set firm targets to reduce and eventually to eliminate consumption and production of a range of Ozone Depleting Substances. Consequently, Malta has established controls of consumption and production patterns to protect the interests of producers and importers, and to deter price inflation and over-production in the interim period till the phase-out.

As a Party to the “Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal”. Malta has taken steps to control and safely dispose of hazardous wastes that are subject to transboundary movement. Under this Convention, Malta is to ensure that the generation of hazardous waste or other waste, is reduced to a minimum, taking into account social, technological and economic considerations. Furthermore, it has to make available adequate waste disposal facilities, for the sound management of hazardous and other wastes.

Malta is finalising the process that would enable it to fulfil its commitments under the “United Nations Framework Convention on Climate Change” namely, to develop, update, publish and make available to the Conference of the Parties, national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol. It is obliged to formulate, implement, publish and regularly update national programmes containing measures to mitigate climate change, by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the “Montreal Protocol”, and to take measures to facilitate adequate adaptation to climate change.

Francis Zammit Dimech, then Minister for the Environment, addressing a seminar on the coming into force of the “Basel Convention” in Malta, in November 2000.



Malta ratified the “Kyoto Protocol” to the “United Nations Framework Convention on Climate Change” in November 2001.

As a Party to the “United Nations Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification”, particularly in Africa, Malta is bound to ensure the participation of all stakeholders in the design and implementation of programmes to combat desertification.

5.3 MALTA AND THE EU POSITION ON SUSTAINABLE DEVELOPMENT

Overview

The European Union was one of the main contributors to the United Nations Conference on Environment and Development. The Union assumed the lead, amongst the members of the international community to address environment and development challenges to ensure sustainable development in accordance with Agenda 21.

To meet its responsibility as a key player in bringing about sustainable development, the EU, together with other states that endorsed the “Rio Declaration”, committed itself, at the 19th Special Session of the United Nations’ General Assembly in 1997, to draw up a strategy for sustainable development in time for the 2002 World Summit on Sustainable Development.

The *European Union Sustainable Development Strategy* was adopted by the European Commission on 15 May 2001 and contains a number of proposals and recommendations aimed at improving policy effectiveness. It seeks to make sure that different policies reinforce one another and not pull in different directions. It includes a set of headline objectives and specific measures at the EU level to address the most serious challenges to sustainable development in Europe as well as concrete steps to implement the strategy and to review its progress.

Malta, together with EU Member States and other candidate countries, has improved its policy coordination in order to ensure that all new legislation and policies include a sustainable development

considerations covering social, economic and environmental repercussions.

Harmonisation with the EU

The EU environmental *acquis* is based on the concept of sustainable development and, although Malta is not yet a member of the EU, a number of measures required by EU environmental legislation have already been transposed locally or are about to be transposed (Briguglio, 2001; Government of Malta, 2001a).

The new Environment Protection Act, 2001 has entered into force in September 2001 and aims to protect and manage the environment in a sustainable manner. Section 3 of this Act provides that: "It shall be the duty of everyone together with the Government to protect the environment and to assist in the taking of previous and remedial measures to protect the environment and manage natural resources in a sustainable manner".

As stated elsewhere, the Act provides for the setting-up of a National Commission for Sustainable Development in line with the principle of integration of environmental protection requirements into social and economic factors as required by the conclusions of the Helsinki European Council and Article 6 of the EC Treaty. The primary function of the Commission is to advocate sustainable development across all sectors in Malta, review progress in the achievement of such sustainable development and build consensus on action required to achieve further progress.

Subsidiary legislation, transposing the EU environmental *acquis* under the Environment Protection Act, (2001) includes regulations on air quality assessment and management; freedom of access to information on the environment; pollution caused by certain dangerous substances into the aquatic environment; quality of petrol and diesel fuels; waste permits, control and incineration; urban waste water treatment; and the protection of waters against pollution by nitrates; to name a few. Other regulations are, and will continue to be, published under the Environmental Protection Act and under other framework Acts.

5.4 ISSUES TO BE ADDRESSED AND MEASURES TO BE TAKEN

Environmental law and policy in Malta are currently undergoing major restructuring. Environmental issues



feature high on the national agenda and this requires substantial improvement in the legal framework, and backing by the appropriate administrative structures and adequate implementation and enforcement measures.

Above all, Malta needs to integrate environmental concerns into its socio-economic policies to ensure that its rapid development does not occur at the expense of the quality of the natural environment, which has, over the last thirty-five years, been considerably impaired.

Membership within the European Union should lead to a significant leap forward in ensuring that environmental standards are maintained and improved upon.

Membership within the European Union should lead to a significant leap forward in ensuring that environmental standards are maintained and improved upon.





6

CONCLUSION

This Report has reviewed Malta's progress in implementing sustainable development during the past decade. It has been shown that, since the 1992 Rio Earth Summit, successive Maltese governments have enacted laws, adopted policies and taken action to address several important economic, social and environmental issues. However, sustainable development has only recently started to emerge as a specific goal. In particular, the translation of the commitments of Agenda 21 to a Local Agenda 21 remains a major challenge and an opportunity for Malta.

6.1 OVERVIEW

This Report has reviewed Malta's progress in implementing sustainable development during the past decade. It has been shown that, since the 1992 Rio Earth Summit, successive Maltese governments have enacted laws, adopted policies and taken action to address several important economic, social and environmental issues. However, sustainable development has only recently started to emerge as a specific goal. In particular, the translation of the commitments of Agenda 21 to a Local Agenda 21 remains a major challenge and an opportunity for Malta.

6.2 THE COMMITMENTS

Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by Governments, by major social groups and by the UN agencies themselves. By adopting Agenda 21, countries committed themselves to build capacity through education, information and training, to adopt national strategies for sustainable development, and to enlist the participation of major groups towards this end. Governments that accepted to implement Agenda 21 also committed themselves to promote sustainable

The promotion of sustainable development calls for increased cooperation and collaboration among public institutions and civil society,



development at the global level, since sustainable development problems do not stop at national boundaries.

6.3 THE MAIN ACHIEVEMENTS

To summarise, the actions taken by Malta in line with Agenda 21, include:

- Enacting a body of legislation conducive to environmental protection and sustainable land use.
- Strengthening institutional set-ups of relevance to sustainable development.
- Providing financial outlays and securing funding from international bodies to undertake investment conducive to sustainable development.
- Encouraging wider application of science to policy formulation and collating environmental data, useful for decision-making.
- Increasing environmental awareness through educational initiatives and dissemination of information.
- Putting in place new procedures to encourage and enable public and stakeholder participation in decision-making with regard to environment and development issues.
- Participating in international initiatives for the promotion of sustainable development at the local and global levels.

6.4 FUTURE DIRECTIONS

As indicated throughout this Report, there are many sustainable development issues in Malta that have not been successfully addressed since 1992, and that warrant priority attention by Government. The Report listed gaps with regard to the major environmental concerns, namely those relating to energy, transport, freshwater, the marine environment, solid and liquid waste, biodiversity and land use. Other gaps were identified with regard to information, awareness and participation by civil society.

From an overview of these gaps and shortcomings, a number of cross-cutting needs emerge. These include:

- Increased co-operation and collaboration among public institutions and civil society in matters relating to sustainable development.
- Improved integrated management of the environment.

- More efficient use of resources.
- Promotion of sustainable consumption patterns and production methods.
- Wider application of economic instruments, including subsidies, tariffs and fees to encourage good practices and discourage unsustainable ones.
- Setting of targets, development of indicators and establishment of codes of practice for improved environmental quality.
- Substantial investment to upgrade the physical infrastructure.
- Stepping up the monitoring and enforcement of legislation.
- Enhancing capacity in institutions, funding research and improving data relating to sustainable development.
- Developing a strategy to improve awareness, accessibility, participation and inclusion.

6.5 THE WAY FORWARD

Agenda 21 created a new development model, aimed at preparing the world for the challenges of the 21st century. It placed the primary, though not exclusive, responsibility on the national governments, who were expected to adopt national strategies, plans, policies and processes conducive to sustainable development, in order to secure the well-being of current and future generations.

The Maltese Government views this as a major challenge for the future. It is implementing major legislative and institutional changes towards this end, and is taking steps to formulate a national strategy for sustainable development.



Agenda 21 is an important tool for securing the well-being of future generations.

REFERENCES

- Abela, A.M. (1998a). "A Comparative Analysis of Poverty and Social Exclusion in Malta and Spain". In Korayem, K. and Petmesidou, M. (eds). *Poverty and Social Exclusion in the Mediterranean Area*. Bergen, Norway: CROP Publications.
- Abela, A.M. (1998b). *Women and Men in the Maltese Islands, Statistics from the Census of Population and Housing*. Malta: Union Print.
- Abela, A.M. (2001). *Youth Participation in Voluntary Organisations in Malta*. Malta: Ministry of Education.
- Attard, D.J. (coordinator) (1993). *Implications of Expected Climatic Changes on Malta*. Athens, UNEP-MAP (also carried in Jeftic L., Keckes S., and Pernetta J.C. (eds) *Climatic Change and the Mediterranean*, Vol. 2, pp. 322-430
- Axiak, V., Gauci, V., Mallia, A., Mallia E.A., Schembri, P.J. and Vella, A.J. (1999). *State of the Environment Summary Report for Malta 1998*. Malta: Environment Protection Department of the Government of Malta.
- Axiak, V., Gauci, V., Mallia, A., Mallia, E.A., Schembri, P.J., Vella, A.J. and Vella, L. (2002). *State of the Environment Report for Malta 2002*. Malta: Environment Protection Directorate, Malta Environment and Planning Authority.
- Borg, S. (1998). *Environment Conservation in Malta: an Ultimate Test in Sustainable Development*, Paper presented on behalf of Malta at the IMA-SIDS Ministerial Meeting, 24-27 November 1998. Malta: IMA-SIDS Document No. 17.
- Briguglio, L. (1995). "Small Island States and their Economic Vulnerabilities," *World Development*, Vol. 23, pp. 1615-1632.
- Briguglio, M. and Mercieca, K. (1998). "Solid Waste Management Policy in the EU and the Euromed Process: Some Reflections on the Way Forward for Malta." In Xuereb, P.S. (ed.), *Malta, the European Union and the Mediterranean: Closer Relations in the Wider Context*. University of Malta: European Documentation and Research Centre.
- Briguglio, M. (2001). "Environmental Implications Associated with Malta's Accession to the EU," In *Malta EU Relations: Exploring the Options*. Malta: UHM and Europadvice Ltd.
- Caruana, V. (1998). *Maltese Environmental NGOs and Sustainability: the Way Forward*. Unpublished M.Sc. dissertation. London, U.K.: South Bank University.
- Central Office of Statistics (1998). *Malta at a Glance*. Malta: Central Office of Statistics.
- Central Office of Statistics (1999). *Women and Men 1999*. Malta: Central Office of Statistics.
- Cilia, J., Cardenas, R., Pena, R., Blasco, R. and Asher, G.M. (2002). *Sensorless Control of Induction Machines for Wind Energy Applications*. IIEE Power Electronics Specialist Conference. Queensland, Australia.
- Cilia, J., Rizzo, A. and Spiteri Staines, C. (2001). *Spectral Analysis in Water Leakage Detection*. EDPE Conference, Slovak Republic.
- Cilia, J. (1995). *The Potential of Utility Interactive Photovoltaic Generation for Malta*. Report submitted to EneMalta Corporation.
- Darmanin, P.J. and Mallia, E.A. (1996). "Wind Energy in Malta," *Xjenza*, Vol. 1, pp. 16-40.
- Department for Women in Society (1998, 2000 and 2001). *Annual Reports*. Malta: Government Printing Press.
- Employment and Training Corporation (2001). *National Development Plan. Situation Analysis: Employment and Training*, draft presented to Sectoral Working Group. Malta: ETC.
- Farrugia, R. and Scerri, E. (1997). "Analyses of Wind Characteristics in the Maltese Archipelago," *Renewable Energy*, Vol. 12 (4), pp. 339-350.
- Farrugia, R., Cortis Micallef, C. and Galea Seychell, O. (2001). *National Report (Malta) on the Follow-Up of the World Summit for Children (2001)*. Malta: Ministry for Social Policy.
- Fsadni, M., Mallia, E.A., Nasser, S., and Sayigh, A.A.M. (2000). "Sustainability in the Energy Sector in Malta." In Sayigh, A.A.M., *Proceedings of the World Renewable Energy Congress, VI*. Amsterdam/New York: Permagon.
- Government of Malta (1990a). *Malta at the United Nations*, Malta: Ministry of Foreign Affairs Publication.
- Government of Malta (1992). *Malta's National Report to the United Nations Conference on Environment and Development*, Malta: Office of the Parliament Secretary for the Environment.
- Government of Malta (1994). *A Science and Technology Policy Document*. Malta: Government Printing Press.
- Government of Malta (1997). *Economic Survey*. Malta: Ministry for Economic Services.
- Government of Malta (1998). *International Treaties and Conventions to which Malta is a State Party*, Malta: Ministry of Foreign Affairs Publication.
- Government of Malta (1999). *Creating the Future Together*. Malta: Ministry of Education.

- Government of Malta (2000a). *White Paper on the Legislative Framework for Information Practices*, (May 2000), Malta: Department of Information.
- Government of Malta (2000b). *White Paper on the Vision and Strategy for the Attainment of e-Government*, Malta: Department of Information.
- Government of Malta (2001a). *National Plan for the Adoption of the Acquis*. Malta: Ministry of Foreign Affairs Publication.
- Government of Malta (2001b). *Economic Survey*. Malta: Ministry for Economic Services.
- Government of Malta (2001c). *White Paper on the Family Division - Civil Court*. Malta: Ministry of Justice and Local Government.
- Government of Malta (2001d). *A Solid Waste Management Strategy for the Maltese Islands*. Malta: Ministry for the Environment.
- Government of Malta (2002). *White Paper on Gender Equality Legislation*. Malta: Department of Information.
- Hall, P. (2002). "Problems in a Small Island Paradise," *Town and Country Planning*, 2002(3).
- IUCN/UNEP/WWF (1991). *Caring for the Earth. Strategy for Sustainable Living*. Switzerland: Gland.
- Leighton, P. (2001). *Maximizing Talent in the Maltese Public Sector*. Report prepared for the Manpower Planning Office of the Office of the Prime Minister and the Department for Women in Society, Malta.
- Mallia, E.A. and Fsadni, M., (1999). "Energy: Transformation, use and Environmental Impact." In *State of the Environment Report for Malta 1998*, Malta: Environment Protection Department.
- Malta Council for Science and Technology (1993). *National Agenda 21 Directory for Malta*. Mimeograph.
- Malta Tourism Authority (2002). *Strategic Plan 2002-2004*. Malta: Malta Tourism Authority.
- Malta-EU Information Centre (2002). *Malta's EU Accession Process*. Malta: Malta-EU Information Centre.
- Mifsud, C.R. (2002). "Maltese Coastal and Marine Protected Areas – an Inventory and the Legal Framework Available on a National Scale." In *Proceedings of the Mediterranean Symposium on Marine and Coastal Protected Areas*. Catalonia (Spain): 6-10 March 2002.
- Ministry of Tourism (2001). *Carrying Capacity Assessment for Tourism in the Maltese Islands*. Malta: Ministry of Tourism.
- National Statistics Office (2000). *Education Statistics 1999-2000*. Malta: National Statistics Office.
- National Statistics Office (2001). "Information Society" News Release 71/01. 23 July 2001.
- National Statistics Office (2001). "Culture Statistics" News Release 85/01, 6 September 2001.
- National Statistics Office (2002). *Children*. Malta: National Statistics Office.
- Nolle, M., Ellul, R., Heinrich, G. and Gusten, H. (2002). "A Long Term Study of Background Ozone Concentrations in the Central Mediterranean – Diurnal and Seasonal Variations on the Island of Gozo," *Atmospheric Environment*, Vol 36, pp. 1391 -1402.
- Overend, E. (2001). Catholic Laity's Role as Regards the Environment. *The Sunday Times*, December 30, 2001.
- Pace, P. (1996). *Environmental Education: the Way Ahead*. Proceedings of the Second National Training Workshop on Environmental Education in Malta, 26-27 May 1995. Valetta, Malta.
- Pizzuto, A. and Rizzo, S. (1999). *Environmental Awareness in the Maltese Industrial Sector*, Malta: Cleaner Technology Centre.
- Planning Authority (1990). *Structure Plan for the Maltese Islands*, Planning Services Division, Ministry for the Development of Infrastructure.
- Planning Authority (1997). *Structure Plan Monitoring Report 1990-1995*, Malta: Planning Authority.
- Planning Authority (1999). *Structure Plan Monitoring Report 1996-1997*, Malta: Planning Authority.
- Planning Authority (2001a). *Coastal Strategy Topic Paper – Final Draft*. Malta: Planning Authority.
- Planning Authority (2001b). *Demography Topic Paper, Structure Plan Review*, Malta: Planning Authority.
- Planning Authority (2001c). *Gozo Local Plan*. Malta: Planning Authority.
- Planning Authority (2001d). *Final Report on the Waste Management Subject Plan*. Malta: Planning Authority.
- Planning Authority (2001e). *Transport Topic Paper, Draft for Public Consultation*. Malta: Planning Authority.
- Quarrie, J. (ed) (1992). *Earth Summit '92*. UK: Regency Press.
- Ragonesi, R., Manduca, J., Mallia, E.A. and Camilleri, M. (1997). *Towards Sustainable Europe, Sustainable Malta*. Malta: Moviment għall-Ambjent – Friends of the Earth
- Rizzo, A. (2001). "Implementation of a 3-Year Action Plan to Reduce Leakage in the National Water Network to Medium-term Economic Levels and for the Development of the Methodologies and Infrastructures Required to Maintain these Leakage Levels." Malta: Water Services Corporation.

- Schembri, P.J. (1994): *Marine and Coastal Protected Areas in the Maltese Islands: Reviews, Prospects and Proposals*. Malta: Report for the UNEP-MAP Regional Activity Centre for Specially Protected Areas (RAC/SPA).
- Schembri, P.J. (1997). "The Maltese Islands: Climate, Vegetation and Landscape," *GeoJournal*, Vol. 41 (2), pp. 115-125.
- Schembri, P.J. and Lanfranco, E. (1996). "Introduced Species in the Maltese Islands." In: Baldacchino, A.E. and Pizzuto, A. (eds) *Introduction of Alien Species of Flora and Fauna*. (Proceedings of a seminar held at Qawra, Malta, 5 March 1996), pp.29-54. Malta: Environment Protection Department.
- Schembri, P.J. and Sultana, J. (eds) (1989). *Red Data Book for the Maltese Islands*. Malta: Department of Information.
- Schembri, P.J., Baldacchino, A.E., Camilleri, A., Mallia, A., Rizzo, Y., Schembri, T., Stevens, D.T. and Tanti, C.M. (1999). *Living Resources, Fisheries and Agriculture*. (Report prepared as part of the *State of the Environment Report for Malta 1998* project commissioned by the Environment Protection Department, Government of Malta.
- Schembri, P.J., Baldacchino, A.E., Mallia, A., Schembri, T., Sant, M.J., Stevens, D.T. and Vella, S.J. (2002). "Natural Resources, Fisheries and Agriculture." In Axiak, V. et al. *State of the Environment Report for Malta, 2002*. Malta: Environment Protection Directorate, Malta Environment and Planning Authority.
- Spiteri Staines and Cilia, J. (2000). "Development of an Electric Vehicle," Sponsored by ST Microelectronics, *Engineering Today*, pp. 31-34.
- Stevens, D.T. (1999a): *Amendments to Appendix I of the Convention – Proposal by Malta*. Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), Document T-PVS (99).
- Times, The (2001). "More members in NGOs". *The Times*, Wednesday, December 5, 2001. Malta: Allied Malta Newspapers.
- UNDP (2001). *Human Development Report*. New York: Oxford University Press.
- UNESCO–UNEP (1978). *Final Report of the Intergovernmental Conference on Environmental Education* (Tbilisi, USSR). Paris: UNESCO.
- United Nations (1992). *Report on the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*. UN Publications Office.
- United Nations (1994). *Report of the Global Conference on the Sustainable Development of Small Island Developing States (Bridgetown, Barbados, 25 April-6 May 1994)*, New York: United Nations A/CONF.167/9.
- United Nations - (1997). *Vulnerability Index (Revised Background Paper)*. New York: UN-DPCSD, SIDS Unit.
- Vella, A. and Gearty, O. (1998). "Benzene and Toluene in Urban Air in Malta," *Xjenza*, Vol. 3 (2), pp. 29-32.
- Vella, A.J., Callus, J., Galea, H., Vella, A. D. (2002). "Air Quality." In Axiak, V. et al., *State of the Environment Report for Malta, 2002*. Environment Protection Directorate, Malta Environment and Planning Authority. June 2002.
- Water Services Corporation, (2001). *Annual Report 2000 – 2001*. Malta: Water Services Corporation.
- World Health Organisation (2000). *World Health Report 2000*. Geneva: World Health Organisation.

INDEX

A

Aarborg Charter, 63, 66
 Abela, Anthony, M., 8, 19, 61, 75, 94
Acquis communautaire, 12, 14, 68, 89, 95
 Ageing population, 14, 15, 74
 Agenda 21, 5, 8, 40, 48, 55, 56, 59, 62, 63, 64-65, 66, 69, 72, 81, 83, 88, 89, 91, 92, 93, 95
 Agriculture, 15, 17, 24, 27, 31, 34, 47, 50-53, 70-71, 72, 96
 Alien species, 23, 46-47, 48, 96
 Aquaculture, 15, 23, 27, 36, 37, 38, 39, 40
 Aquifers, 23, 34, 35
 Attard, David J., 39, 94
 Awareness, 9, 24, 32, 40, 45, 46, 47, 48, 53, 56-61, 64, 69, 71, 72, 73, 76, 77, 85, 92, 93, 95
 Axiak, Victor, 8, 32, 36, 37, 40, 41, 42, 43, 44, 45, 94, 96

B

Baldacchino, Alfred E., 96
 Baldacchino, Godfrey, 8
 Barcelona Convention, 40, 72, 83, 86
 Biological diversity, 9, 19, 23, 24, 25, 29-30, 36, 38, 39, 40, 45-48, 52, 71, 83, 84, 85, 87, 92
 Birth rates, 13
 Bonn Convention, 39, 81, 84
 Borg Joe, 81
 Borg, Michelle, 8
 Borg, Simone, 8, 80, 94, 100
 Borg, Tonio, 59
 Briguglio, Lino, 5, 8, 18, 94, 100
 Briguglio, Marie, 8, 40, 89, 94, 100

C

Camilleri, A., 96
 Camilleri, Marguerite, 8, 95
 CAMP (Malta), 59
 Cancer, 22
 Capacity-building, 27, 40, 41, 43, 60, 64, 71, 73, 92, 93
 Carbone, George, 8
 Carrying capacity, 14, 23, 29, 30, 50, 51
 Caruana, Maurice, 8
 Caruana, Vince, 8, 61, 62, 94
 Casingena-Harper, Jennifer, 8
 Cassar, Godwin, 8
 Census, 13, 59, 60, 75, 94
 Central Office of Statistics (see also National Statistics Office), 59, 74, 94

Children, 9, 19, 20-21, 57, 75, 76-77, 94, 95
 Cilia, Joseph, 30, 32, 35, 94, 96
 Civil Protection Department, 27, 38
 Civil society, 8, 62, 67, 77, 92
 Cleaner Technology Centre, 68-69, 95
 Climate, 9, 12, 15, 79, 80-81, 83, 96
 Climate change, 31, 33, 38, 39, 81, 88
 Climate Change Convention, 31, 81
 Coal, 30, 32
 Comino, 11, 12, 42, 46
 Common Agricultural Policy, 70
 Common Heritage of Mankind, 79, 80-82
 Composting, 40, 41, 42, 44
 Construction Industry, 15, 16, 33, 40, 41, 45, 50, 69, 80
 Consumption patterns, 18, 32, 53, 93
 Conventions, international, 32, 39, 40, 43, 46, 47, 51, 72, 73, 80-88, 96
 Cremona, Alexandra, 8
 Cultural heritage, 12, 50, 51

D

Darmanin, P.J., 30, 94
 Data, 38, 39, 40, 41, 44, 45, 50, 51, 56-59, 60-61, 74, 92, 93
 Demography, 9, 13-14, 59, 95
 Department for Women in Society, 73, 75, 94, 95
 Department of Health Promotion, 21
 Department of Industrial and Employment Relations, 67, 68
 Department of Industry, 67-68
 Department of Information, 65, 95, 96, 100
 Department of Primary Health Care, 21
 Department of Public Health, 21, 27
 Department of Social Housing, 65, 67
 Department of Social Security, 21
 Desalination, 23, 33, 34, 35, 70
 Desertification, 88
 Disease, 21-22, 68
 Drainage Department, 27, 69
 Dumping at sea, 37, 42, 43, 85, 87

E

E-commerce, 58, 60
 Economic instruments, 44, 53, 69, 93
 Economic openness, 15, 17
 Economy, economic development, 9, 14-18, 49, 62, 64, 67, 75, 79, 80

Ecosystem, 23, 63, 80
 Education, 9, 17, 18, 19-20, 27, 33, 35, 46, 49, 56-58, 61, 69, 72, 74, 76, 77, 92, 94, 95, 96
 Ellul, Raymond, 95
 Employment and Industrial Relations Act, 66-68
 Employment and Training Corporation, 74, 75, 94
 Endangered species, 44, 45, 47, 84, 87
 Enemalta Corporation, 32, 94
 Energy, 9, 15, 17, 23, 27, 30-35, 38, 68, 69, 70, 92, 94
 Environment Impact Assessment, 38
 Environment Protection Act, 24-26, 38, 39, 43, 46, 47, 56, 63, 89
 Environment Protection Department, 31, 38, 46, 69, 96
 Environment Protection Directorate, 25, 37, 39, 96
 Environmental education, 56-58, 96
 Environmental Management Audit System (EMAS), 69
 Erosion, 22, 23, 38, 60, 71, 100
 EU Sustainable Development Strategy, 88-89
 European Union, 9, 12, 14, 15, 16, 17, 18, 21, 22, 25, 31, 32, 33, 35, 43, 46, 47, 63, 64, 66, 68, 69, 70, 72, 73, 74, 88-89, 94, 95
 Exclusive Economic Zone (EEZ), 85
 Extinct species, 24, 44-45

F

Farmers, 50, 70-71
 Farrugia, Louise, 8
 Farrugia, Robert, 30, 76, 94
 Federation of Industry, Malta, 69
 Female employment, 16, 17, 73-75
 Fenech-Adami, Edward, 5, 79
 Fisheries, 15, 27, 36, 38, 47, 85, 96
 Formosa, Saviour, 8
 Freshwater, 9, 23, 29, 30, 33-35, 41, 44, 45, 47, 52, 92
 Friends of the Earth, 95
 Fsadni, Mario, 30, 32, 94, 95
 Future generations, 76, 77, 81-83, 93

G

Gauci, Vince, 8, 94
 General Assembly, UN, 80, 81, 88
 General Workers Union, 67
 Geography, 9, 12
 GIS, 58, 60
 Gozo, 11, 12, 24, 34, 35, 36, 41, 42, 43, 44, 49, 95
 Greenhouse gases, 23, 31, 88
 Groundwater, 33-35, 42
 Groups, major, 61-77

H

Habitats, 24, 33, 34, 37, 39, 44-48, 84, 96
 Hazardous waste, 21, 23, 41, 43, 44, 68, 69, 85, 87-88
 Health, 9, 18, 19, 21-22, 24-25, 27, 31, 38, 41, 42, 49, 59, 61, 65, 67, 68, 69, 85, 87, 96
 History of Malta, 12

I

Incineration, 24, 42, 44, 86, 89
 Industrial waste, 40-41, 42
 Inert waste, 41, 43
 Information technology (IT), 18, 20, 35, 60-61, 65
 Institute for Energy Technology, 69
 Institute for the Promotion of Small Enterprise (IPSE), 69, 72
 Insularity, 17
 International Environment Institute, 38, 82
 International Trusteeship Commission, 82-83
 Internet, 58, 60
 IPCC, 81
 ISO 14000, 68
 IUCN, 56, 95

K

Kyoto Protocol, 81, 88

L

Labour legislation, 66, 67
 Labour market, 16-17, 74
 Laiviera, Renee, 8
 Land use, 9, 23, 24, 29, 30, 31, 33, 34, 43, 48-52, 58, 59, 92
 Landfill, 24, 38, 40, 41, 42, 44
 Lanfranco, E., 46, 6
 Law of the Sea Convention, 80-81, 85
 Licari, Lucianne, 8
 Liquid waste, 9, 14, 23, 24, 40, 41-44, 69, 92
 Living resources, 36, 85
 Local Agenda 21, 63, 65, 72, 91, 92
 Local Councils, 13, 27, 41, 44, 51, 56, 58, 59, 61, 63-66

M

Maghtab landfill, 41
 Mallia, Adrian, 94, 96
 Mallia, Edward A., 30, 32, 94, 95
 Malta Chamber of Commerce, 68
 Malta College of Arts, Science and Technology (MCAST), 20, 74
 Malta Council for Economic Social Development (MCESD), 66, 67

Malta Council for Science and Technology (MCST), 32, 38, 73, 95
 Malta Council of Women, 74
 Malta Development Corporation (MDC), 16, 72
 Malta Environment and Planning Authority (MEPA), 13, 25, 33, 37, 38, 43, 47, 50, 51, 57, 58, 59, 61, 62, 66, 94, 96
 Malta-EU Information Centre (MIC), 17, 95
 Malta Information Technology and Training Services (MITTS), 61
 Malta Maritime Authority, 26, 36, 37, 38
 Malta Resources Authority, 25, 26, 32, 38
 Malta Standards Authority, 26, 57
 Malta Tourism Authority, 20, 27, 95
 Malta Union of Teachers (MUT), 67
 Malta University Services (MUS), 68
 Mangion, John, 8
 Manufacturing, 15-16, 41, 68-69
 Marine environment, 9, 23-24, 29, 30, 36-40, 41, 42, 52, 85-86, 92
 MedGoos, 38, 59
 Mediterranean, 11, 12, 15, 20, 31, 33, 37, 38, 39, 40, 44, 46, 47, 59, 63, 64, 71, 80, 83, 84, 86-87, 94, 95
 Mediterranean Academy of Diplomatic Studies, 20
 Mediterranean Action Plan (MAP), 39, 80, 83, 94
 Mediterranean Commission for Sustainable Development (MCSDD), 83
 Mercieca, Kevin, 8, 40, 94
 Mifsud, Carmen, 36, 95
 Mifsud, Paul, 8
 Migration, 13, 14
 Migratory species, 15, 39, 47, 84
 Ministry for Development and Infrastructure, 95
 Ministry for Economic Services, 94, 95
 Ministry for Home Affairs and the Environment, 25, 63
 Ministry for Justice and Local Government, 61, 65, 66, 95
 Ministry for Social Policy, 27, 65, 94
 Ministry for the Environment, 8, 25, 69, 95
 Ministry of Agriculture and Fisheries, 27, 38, 47, 70, 71
 Ministry of Education, 94
 Ministry of Foreign Affairs, 94, 95
 Ministry of Health, 27
 Ministry of Tourism, 50, 64, 95
 Mizzi, Stephanie, 8
 Mortality, 13

Multilateral legal obligations, 9, 25, 83-88
 Municipal Solid Waste, 41, 42

N

National Action Plan for Employment, 68
 National Aquaculture Centre (NAC), 38
 National Commission for Sustainable Development, 25, 26, 38, 51, 53, 73, 89
 National Environmental Health Action Plan (NEHAP), 22, 65
 National Information Strategy, 60
 National Minimum Curriculum, 57
 National Oil Pollution Contingency Plan, 38, 39, 85
 National Statistics Office (see also Central Office of Statistics), 13, 37, 41, 58, 59, 74, 95
 National Strategy for Environmental Education (NEES), 57
 National Strategy for Science and Technology, 73
 National Strategy for Sustainable Development, 53, 66, 93
 Natural resources, 15, 26, 27, 89
 NGOs, 4, 9, 17, 19, 22, 36, 39, 46, 57, 61-62, 63, 67, 73, 76, 83, 92, 94, 96
 Nolle, Michael, 31, 95
 Nuclear Safety, 85, 86

O

Occupational Health and Safety Authority, 25, 27, 66, 67, 68
 Overend, Eric, 62, 95
 Ozone, 23, 31, 32, 87, 95

P

Pace, Paul, 8, 56, 95, 100
 Pardo, Arvid, 80
 Participation, 5, 17, 22, 51, 52, 53, 56-58, 62, 63, 65, 72, 74, 75, 76, 77, 88, 92, 93, 94
 Pizzuto, Anton, 8, 69, 95, 96
 Planning Authority, (see also Malta Environment and Planning Authority), 13, 14, 24, 25, 38, 40, 47, 51, 59, 61, 64, 73, 95
 Political parties, 49, 56
 Pollution, 14, 22, 23, 24, 25, 26, 30, 31-32, 34, 36, 37, 38, 39, 42, 49, 60, 68, 80, 85-87, 89
 Population, 11, 12, 13, 14, 19, 20, 21, 22, 23, 40, 48, 52, 58, 74, 84, 94
 Population density, 13, 22, 23, 40, 48, 52
 Portelli, Rachel, 8, 100

Poverty, 19, 75, 94
 Power station, 30, 32, 33
 Primary school, 20
 Privatisation, 16, 17
 Programme for the Assessment and Control of Pollution in the Mediterranean Region (MEDPOL), 38
 Protected areas, 36, 39, 40, 46, 47, 87, 95, 96
 Public consultation, 8, 9, 25, 32, 43, 56, 57, 62, 77, 83, 95
 Public sector, 15, 16-17, 47, 49, 60, 67, 72, 75
 Pullicino, George, 8

Q

Quarrying, 23, 48, 49, 50, 52

R

Racial divisions, 18
 Ragonesi, R. 59, 95
 Rainfall, 12, 13, 33
 Recycling, 26, 41, 43, 44
 Religious divisions, 18
 Religious organisations, 56, 61
 Renewable energy, 32, 33, 94
 Reverse osmosis, 23, 34, 35
 Rizzo, Anthony, 35, 69, 94, 95, 96
 Rural Development Programme (RDP), 71

S

Said, George, 8
 Sant'Antnin Waste Treatment Plant, 41, 42, 43, 44
 Scerri, Edward, 30, 94
 Schembri, Patrick, 8, 36, 37, 40, 44, 45, 46, 94, 96
 Schools, 19, 20, 49, 57, 77
 Science and Technology, 32, 38, 72-73, 82, 94, 95
 Sea-bed, 37, 79, 80, 83, 86
 Secondary schools, 20
 Sewage, 23, 24, 38, 41, 42, 43, 44
 Shipbuilding, 16, 36
 Ship-repairing, 16, 36
 Small Island Developing States (SIDS), 17, 18, 80, 94, 96
 Social benefits, 19, 75
 Social change, 19, 62
 Social exclusion/inclusion, 19, 53, 65, 94

Social expenditure, 19
 Social housing, 19, 65, 67
 Social justice, 67
 Social partners, 67
 Social policy, 19, 27, 68
 Social security, 16, 18, 19, 21, 66
 Social services, 19, 65
 Social values, 19
 Social welfare, 19, 61
 Society, Maltese, 18-20, 56, 61, 62, 75
 Solar energy, 30, 32
 Solid waste, 24, 40-44, 94
 Solid Waste Management Strategy, 24, 42, 43, 95
 Spiteri Staines, Cyril, 32, 25, 94, 96
 State of the Environment Report, 25, 40, 59, 71, 94, 95, 96
 Stevens, Darrin, 40, 96
 Subsidiarity, 19, 62, 63
 Sultana, Joseph, 45, 96
 Sustainability Indicators, 59, 83
 Sustainability Indicators - Malta Observatory (SI-MO), 59
 Sustainable Development, 5, 7, 8, 9, 14, 22, 24, 25, 26, 27, 29, 30, 32, 35, 38, 43, 51, 53, 55, 56, 57, 61, 66, 68, 69, 71, 72, 73, 74, 76, 77, 80, 81, 83, 85, 86, 88, 89, 90, 92, 93, 94, 96,

T

Tanti, Christine M., 96
 Temperature, 12, 13
 Threatened species, 24, 44-45, 48, 87
 Tourism, 27, 36, 48, 49, 50, 51, 56, 64, 69, 70, 71, 74, 95
 Traffic, 14, 30, 31, 33, 37
 Transport, 3, 9, 16, 17, 23, 24, 29, 30-33, 36, 49, 51, 92, 95

U

UN World Conference on Women, 73
 UNCED/Rio Summit, 56, 72, 82, 83, 87, 88, 91, 92, 95, 96
 UNDP, 18, 96
 UNEP, 56, 59, 81, 94, 95, 96
 UNESCO, 51, 56, 82, 96
 Union Haddiema Maghqudin (UHM), 67, 94
 Unions, 9, 56, 66, 67

United Nations, 7, 8, 9, 39, 79, 80-82, 88, 94, 96
 University of Malta, 20, 30, 31, 32, 35, 38, 39, 57, 58, 59, 68, 72, 73, 94

V

Values, 18, 19, 30, 32, 57, 76
 Vella, Alfred, 8, 31, 94, 96
 Vella, Catherine, 8
 Vulnerability/vulnerable, 17, 18, 19, 21, 22, 31, 35, 45, 76, 80, 84, 85, 94, 96

W

Waste, 9, 14, 22, 23, 24, 25, 27, 29, 30, 31, 34, 37, 38, 40-44, 48, 49, 50, 51, 52, 68, 69, 85-88, 89, 92, 94, 95
 Water, 9, 15, 22, 23, 26, 27, 29, 30, 32, 33-35, 36, 37, 38, 39, 41, 42, 44, 45, 47, 49, 52, 68, 70, 71, 84, 85, 86, 89, 92, 94, 95, 96
 Water Services Corporation (WSC), 33, 34, 95, 96
 Wetlands, 24, 44, 45, 47, 84
 White Papers, 73, 74, 95
 Wildlife, 24, 44, 46, 47, 84, 96
 Wind energy, 30, 32, 94
 Winds, 13
 Women, 9, 19, 21, 22, 60, 73-75, 94, 95
 World Health Organisation (WHO), 21, 96
 World Meteorological Organisation (WMO), 81
 World Summit on Sustainable Development (WSSD), 5, 7, 8
 World Wildlife Fund (WWF), 56, 95

X

Xummiemu, 76-77

Y

Youth/young people, 9, 14, 21, 76-77, 94

Z

Zammit Dimech, Francis, 88

The team of authors of this Report: Lino Briguglio (lead author, third from right) with (from left to right) Rachel Portelli, Paul Pace, Gordon Cordina, Simone Borg and Marie Briguglio



CREDITS FOR PHOTOGRAPHS

Picture	Page	Credit	Picture	Page	Credit
Prime Minister of Malta	5	DOI, Malta	Prehistoric site	51	Ray Attard, Malta
The Maltese Islands	7	ICoD, Malta	Salt harvesting	52	Alvin Scicluna, Malta
Mr Pullicino addressing Conference	8	Martin Psaila, Malta	Man fishing at Birzebbuga	53	Ray Attard, Malta
A section of the audience attending Valletta	9	Martin Psaila, Malta	Happy people	55	Ray Attard, Malta
Location of the Maltese Islands	10	DOI, Malta	Children	57	DOI, Malta
The Malta Freeport	12	Formatek, Malta	SI-MO conference	59	DOI, Malta
Pie chart of GDP	14	Ray Attard, Malta	Inside a computer	60	Ray Attard, Malta
Tourists on a pleasure boat	15	Formatek, Malta	Lobbying	61	Ray Attard, Malta
Elderly people	16	Ray Attard, Malta	Local council initiative	63	Ray Attard, Malta
Schoolchildren	19	Ray Attard, Malta	Unions	66	Union Print, Malta
The New Hospital	20	Martin Psaila, Malta	Technopark	68	Ray Attard, Malta
Hospital bed	21	Ray Attard, Malta	Industry	69	Ray Attard, Malta
Cliffs	22	Ray Attard, Malta	Agricultural land	70	ICoD, Malta
Buildings	23	Ray Attard, Malta	Potatoes, tomatoes and onions	71	Ray Attard, Malta
MEPA Head Offices	24	Ray Attard, Malta	Laboratory	72	Ray Attard, Malta
Session of the NCSD	25	Martin Psaila, Malta	Women	73	Ray Attard, Malta
Windmill in Gozo	26	DOI, Malta	Woman at work	74	Ray Attard, Malta
Ghajjn Tuffieha	27	Alvin Scicluna, Malta	Woman behind a desk	75	Ray Attard, Malta
Traffic	29	ICoD, Malta	Children playing	76	Ray Attard, Malta
Mobile air monitoring unit	31	Ray Attard, Malta	Young girl waking away	77	Ray Attard, Malta
Picture of desalination plant	32	MEPA, Malta	The Prime Minister at the UN	79	Arrigo Azzopardi, Malta
Precious water	33	Martin Psaila, Malta	Arvid Pardo	80	Ray Attard, Malta
Fisherman mending nets	35	Martin Psaila, Malta	Minister Borg addressing UNGA	81	UN/DPI, Eskinder Debebe
Spilled oil	36	Ray Attard, Malta	Current and future generations	82	Formatek, Malta
Ghadira reserve	37	MEPA, Malta	Mediterranean Commission for S.D.	83	DOI, Malta
The islands	39	Ray Attard, Malta	Tamarisk tree	84	Martin Psaila, Malta
Maghtab landfill	40	Alvin Scicluna, Malta	The sea	85	Martin Psaila, Malta
Sant' Antnin waste treatment plant	41	Martin Psaila, Malta	Mediterranean	86	Blue Plan
Aerial view of sewage in the sea	42	Martin Psaila, Malta	Polluted sea	87	Martin Psaila, Malta
Rare Sicilian Squill	43	Mark Mercieca, Malta	Seminar on the Basel Convention	88	Martin Psaila, Malta
The islet of Filfla	44	Martin Psaila, Malta	The flag of the EU	89	DOI, Malta
Common Hawthorn	46	Ray Attard, Malta	Boats at Mgarr Harbour	93	Ray Attard, Malta
Built up areas	47	Martin Psaila, Malta	Shaking hands	92	Ray Attard, Malta
Agricultural land	48	Saviour Formosa, Malta	The future generation	93	Ray Attard, Malta
	50	Julian Manduca, Malta	The contributing authors	100	Ray Attard, Malta