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Sectoral Integration of Biodiversity in Malta

Contents

1. Introduction

Malta reported[1] on agriculture & rural development (rural development, Good Agricultural Practice, cross-compliance, organic farming), fisheries & aquaculture, tourism, air quality, climate change, development control and land use planning (including environment assessments), water.

2. Agriculture & Rural Development

Agriculture and biodiversity are inexorably interlinked. Whereas biodiversity underpins agriculture productivity, agroecosystems can provide an important habitat for many native species particularly those that rely on farmed land for their survival (*e.g.* provision of food, availability of a refuge). Farmed land in Malta and associated rural structures, such as rubble walls, form an integral part of the landscape and further serve as an essential ecological corridor between fragmented semi-natural habitats. Being the main land user in the Maltese Islands (amounting to 51% of land cover based on Land CORINE Cover Data of 2006) reflects the importance that farming has for Malta's natural environment.

Although the agriculture sector contributes little towards the domestic economy (2.6% to the GDP in 2005), it nonetheless imparts the country some degree of self-sufficiency in terms of food security. The various farming practices also contribute to the maintenance of the rural character and countryside recreation. In addition, this sector's potential to enhance other more economically prolific sectors, such as tourism, has been acknowledged. Strengths, Weakness and Needs of the Agriculture Sector in Malta have been documented (see Rural Development Strategy for Malta 2007-2013).

The 2005 State of the Environment Report identifies land abandonment, farm intensification, poor farming practices and fragmentation of ownership as the "most critical land-related **agro-environment issues**". The agriculture sector in Malta contributes around 5 % of the total national greenhouse gas emissions. The **mean annual GHG emissions from the agriculture sector**, as reported in Malta's GHG Inventory covering the time series 1990 to 2007 (MEPA 2009), amount to 68.0 Gg CO_2 equivalence. Enteric fermentation is the major source of GHG emissions, followed by the emissions from manure management. The contribution from agriculture soils is relatively small and amounts to about 5 Gg CO_2 equivalence annually.

Malta's Rural Development Plan for 2007-2013 (section 3.1.3.2.2) acknowledges the importance of **harmonising agricultural practices with biodiversity conservation in Natura 2000 sites**. This need is evident when considering the amount of agricultural land that falls within Natura 2000 sites in Malta – "Therefore, in order to preserve the natural environment and landscape, and to protect and improve

[1] Malta (2010). Fourth National Report to the Convention on Biological Diversity, Malta Environment and Planning Authority,

natural resources, as required by Natura 2000 designation, agricultural practices within such sites need to be brought in line with environmental requirements. In order to diminish the loss of biodiversity till the year 2010, protection and management plans in respect of Natura 2000 sites should be implemented. These will aid to increase the quality of life in rural areas by identifying and avoiding tendencies that lead to ecological, economic and social decline."

In an effort to harmonise agriculture activities with biodiversity conservation in protected areas, the project "Integration of environmental considerations into Malta's agriculture on the basis of the IRENA operation" funded under Malta's Rural Development Plan (RDP 2004-2006) was initiated in January 2007 and ended in July 2008. This project aimed to examine and improve the performance of the different types of farming systems and agricultural land management practices in the protected northwest coastal cliffs area of Malta on the basis of the IRENA approach. The IRENA project analysed the applicability of 35 indicators to the Maltese Islands and the data available. Recommendations were given as to how certain indicators can be worked out for Malta.

Rural Development

National Rural Development Plans (RDP) have been compiled for the two consecutive EU financial programming periods: 2004-2006 and 2007-2013 under the reference frameworks provided by the national strategy plans and in line with the requirements of EU Rural and Environmental Policy. Essentially, such national rural development policy seeks to encourage the multifunctional role of the agricultural sector within a wider framework for integrated rural development aiming at achieving sustainable development.

In 2008, the Rural Development Department (RDD) was responsible for the management and implementation of the various measures funded under the Guidance and Guarantee (EAGGF) 2004-2006 programmes. With regard to the Guidance funds, the RDD was the final beneficiary under the Single Programming Document for Malta, and as such it was responsible for the implementation of the 3 priority measures, mainly Investments in Agricultural holdings and Improving in Marketing and Processing of Agricultural Products. With respect to measures funded under the RDP Guarantee section, the RDD acted as the Authority responsible for the management, implementation and authorisation of payments linked with the various measures under the 2004-2006 programme. The Rural Development Plan for the programming period 2007-2013 was approved in December 2007. Under this new programme, the RDD assumed the role of Managing Authority and, together with the Paying Agency within the MRRA, took the necessary steps towards the successful implementation of the funding programme under the European Agricultural Fund for Rural Development (EAFRD).

Uptake of **agri-environmental measures** under the RDPs assists in addressing biodiversity concerns in this sector. Agri-environment measures under RDP 2004-2006 included the following:

- Preservation of Rubble Walls;

- Organic Farming;
- Conservation of Autochthonous Species: Maltese Oak & Maltese Ox Species.

Progress in implementing the 2004-2006 RDP during 2007 was reported to the Commission through the Annual Progress Report (APR). Another major reporting task entrusted to the Managing Authority is to provide for the setting up and submission of Malta's ex-post evaluation report. The ex-post evaluation is an evaluation process which informs authorities, the general public, the EU and other stakeholders involved about the outcomes of the 2004-2006 RDP. With regards to the agri-environment measures, the ex-post report documents the findings as shown in Table 11, overleaf. In the case of the rubble walls sub-measure, the uptake can be considered to be good, although only 79% of the target had been reached by end 2008. Initial administration and control difficulties delayed the processing of payments for a time. The conservation of the Maltese Ox sub-measure met with a degree of success; this was the least complex as there was only one beneficiary involved. Although the target was not fully reached, and this for reasons outside the control of the programme, the measure can still be considered to have been successful. The Holm Oak sub-measure met with very limited success, with only 25% of the original target having been achieved, this in spite of altering of the criteria for eligibility, which to a measure increased the degree of participation in 2006. This may be attributed to insufficient efforts towards animation, but is also most probably due to the relatively small compensation being offered compared to costs. The organic farming sub-measure also met with limited success, with only 20% of the original target having been achieved. According to MRRA statistics, the agri-environmental measure achieved a degree of success in enticing farmers to increase record-keeping, although this indicator was attained at only a 53% level compared to the original target. Some further improvement can however be expected with the continued outlays on the agri-environment measure in coming years (Source: Malta's ex-post report)

Table 1 - Agri-Environment Measure - Indicators and Results

Objective	Indicators	Targets as per RDP	Actual Realised Targets as at end 2008	%
Reducing Soil Erosion	Area of rubble walls restored	200,000m^2 of rubble wall restored	158,683*	79%
Conservation of Autochthonous species	Number of Maltese Oxen conserved	Survival of 9 Maltese Oxen with projected natural increases as per breeding program	6	67%
	Conservation of the areas with Holm Oak populations and their buffer zones	Conservation of at least 50% of the buffer area around Holm Oak Populations- Area around Holm Oak populations at least 13ha	3.243**	25%
Promotion of organic farming	Applicants practising organic farming methods	A maximum of 30 applicants undertaking organic production signifying an increase of producers	6	20%
Increasing records	Applicants keeping farm records through Whole Farm Management Plan	10% of the farming community keeping farm records (Total farmers – 17,969 FSS 2005)	952	53%

Based on spot control Figures made in 2008 based on claim year 2004/05/06

***The area decreased comparing to end of 2006 due to the commitments were not continued*

Source: MRRA

In a national context, EAFRD's Axis II as considered in Malta's RDP 'intends to improve the environment and the countryside through encouraging the retention of agricultural activity and promotion of environmental friendly production methods in line with rural heritage'. Several measures, especially under Axis II measure 214, are related to farming activities that reduce the impact on biodiversity. Measure 213 (Natura 2000 payments) was not adopted. Allocations for Axis II amount to 25,025,000 Euro of Public funds of which 10,525,000 Euro are for measure 214. Environmental complementarity under Axis III measure 323 would also be attained via the development of Natura 2000 and environmental management plans with an estimated allocation of about 8,000,000 Euros.

Agri-environment measures under the current RDP 2007-2013 include the following:

- AEM 1: Use of environmentally friendly plant protection products in vineyards
- AEM 2: Traditional cultivation of sulla through crop rotation
- AEM 3: Low input farming
- AEM 4: Suppress the use of herbicides in vineyards and fruit orchards
- AEM 5: Establishment and maintenance of conservation buffer strips
- AEM 6: Conservation of rural structures providing a natural habitat for fauna and flora
- AEM 7: Providing a healthy forage area for bees
- AEM 8: Support for Organic Farming
- AEM 9: Support for the Conservation of species in danger of genetic erosion

On a specific area a farmer can apply for one of the above measures or for a combination of two measures according to the following packages: AEM2 + AEM3 and AEM1 + AEM4.

The current RDP (2007-2013) links environmental measures to the objectives of the Sixth Community Environment Action Programme (6th EAP). In 2008, the RDD launched a number of measures contained in the Rural Development Plan 2007-2013. Axis II "*Improving the environment and the countryside"* was fully launched. This launch consisted in Measures 212 and Measure 214 which together accounts for 25% of all the funds available under the RDP 2007-2013. The measures were publicised with the distribution of numerous leaflets and publications. In conjunction with these initiatives, numerous posters were produced accompanied by billboards and audiovisual clips.

Good Agricultural Practice

The Code of Good Agricultural Practice (CoGAP) for Malta constitutes an exhaustive compilation of all good practices pertinent to a number of EU Directives, prevailing national legislation, good farming practices as well as a number of potential practices under a voluntary basis. The Code contains

recommendations concerning all aspects of agricultural production namely: animal husbandry, manure handling, fertilization practice, irrigation practice, and plant protection. Such recommendations are divided into the following categories:

- Codes that are obligatory for all farmers because they form part of the EU Nitrates Directive, more specifically of the Malta Action Programme for the Nitrates Directive;
- Codes that are obligatory for all farmers because they form part of other EU Directives;
- Codes that are obligatory for farmers entering into any agri-environment commitment and/or are in receipt of compensatory allowances in Less favoured Areas, since they form part of the Good Farming Practices; and
- Codes that are voluntary for farmers.

Cross-compliance

Farmers receiving direct payments under the Common Agricultural Policy (CAP) are required to follow cross-compliance requirements *i.e.* are required to abide to Statutory Management Requirements (SMRs) in the field of the environment, food safety, plant and animal health, and animal welfare. In addition, farmers are obliged to keep their land in Good Agricultural and Environmental Conditions (GAECs) in compliance with standards established by Member States.

The "Cross-Compliance Related to EU Aid Applications in terms of the Paying Agency Regulations, 2005" (LN 346 of 2005 as amended) lays down the structure for the management of cross-compliance, and EU obligations related thereto, in Malta. The Competent Control Authority is the Control Unit of the Paying Agency within the Ministry for Resources and Rural Affairs (MRRA). In its capacity as the Control Authority, this Unit ensures compliance with all SMRs and GAECs in Malta.

On a national level, cross-compliance on all direct payments has been introduced since 1 January 2005. Farmers receiving direct payments were required to respect SMRs referred to in Annex III of Regulation (EC) 1782/2003 and the GAECs over a three year period. In 2005, the GAECs, all the environmental SMRs and the identification and registration of SMRs were applied. As from 1January 2006 a number of SMRs relating to public, animal and plant health came into force and started to be controlled, while in 2007 the same applied to the animal welfare SMRs.

On-the-spot checks are delegated to three specialised bodies. Cross-compliance national guidelines define the SMRs and minimum standards for GAEC for the implementation of cross-compliance in Malta. Malta developed the GAECs on the basis of the framework set up in Annex IV of Regulation (EC) 1782/2003, taking into account the specific characteristics of Maltese conditions. Although all the issues indicated in the annex were covered, not all the standards were applicable to Malta. Ten national standards were established, targeting soil erosion, soil organic matter, soil structure and minimum level of maintenance. In Malta, the standards for each SMR were developed by the government department

or agency with the most relevant experience of the issues covered by the SMR standards. The standards themselves were based on existing national legislation. Each Competent Authority developed its own checklist.

The Control Unit acquires data from the Competent Authorities, either through direct link with IT systems or via correspondence as agreed in a memorandum of understanding. The Control Unit carries out checks every year on a sample of farmers that would have applied for aid under both Pillar I and Pillar II measures of the CAP. On-site inspections are carried out to ensure that farmers are complaint with the relevant SMRs and GAECs applicable to them. For those farmers who apply for measures under Axis II of the EAFRD, additional controls are made with regards to minimum requirements on the use fertilisers and plant protection products. Inspectors assess their findings on the basis of standard checklists. The results of an inspection are then inputted in the control system software and in this way the outcomes are calculated in accordance to the 'Cross-Compliance Related to EU Aid Applications in terms of the Paying Agency (Amendment) Regulations, 2009' (LN 207 of 2009). The farmers are informed about non-compliances found and breaches (if any).

Cross-compliance checks are carried out on a minimum of 1% of farmers receiving direct payments. Most of the penalties issued on GAEC breaches were related to the abandonment of agricultural land. Inspectors regularly carry out inspections and when in contact with the farmer explain what their mission is and what irregularities (if present) should be corrected. From the 2008 controls, 293 farmers were selected for controls, out of which 23% were fully compliant with all the SMR's/GAEC. Although an intensive promotion campaign was conducted in 2008, 66% of the farmers were sanctioned with 1% and 5% of their direct payments. Nonetheless, there is evidence that cross-compliance is effective in that it leads to an improvement of the degree of compliance. Evidence showed that cross-compliance induced a lot of farmer activities aimed at improving their farming practice up to EU standards. Farmers are definitely more aware of what good agricultural practices entail as well as the impact pollution may have on the environment in general.

The Control Unit was strengthened through a capacity-building programme so as to be able to perform all the controls. The inspectors carrying out cross-compliance checks in Malta have a University Diploma and/or postgraduate degree in agricultural sciences. They are familiarised with the various directives pertaining to each SMR as stipulated in Council Regulation EC 73/2009. Specialised training is also provided by the National Competent Authority for the respective Regulation and Directive.

Organic Farming

The Organic Farming Unit was set up in 2003 within the Rural Affairs and Paying Agency Division and entrusted with *inter alia*, promoting and increasing awareness of organic farming in the Maltese Islands. Malta's Control Authority on Organic Farming is the Malta Standards Authority (MSA).

Till the end of 2007 there were about 12 approved and certified producers of organic products in Malta. In total, these producers farmed 17.3 ha of agricultural land (0.17% of total UAA) and when compared with the previous year, a decrease of 14% in organically farmed land is noted. This decline has been attributed to the decline in land used for organic production of olive trees, which currently occupies 40% of the organically farmed land (State of the Environment Indicators 2007). Updated information is provided by the SOEI 2008. An appraisal of the State of affairs of organic agriculture in Malta is available by Calleja (2004) is available online.

After accession to the EU, Malta embarked on the process of adopting specific rules on organic farming, aligned on EC rules on organic farming. In 2004, the Organic Farming Regulations of 2004 (LN 237 of 2004) were published in order to transpose Council Regulation (EEC) 2092/91, thereby laying out the measures to be taken to control the organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs, and hence creating the setup which would enable the certification of local organic products. LN 237 of 2004 was subsequently amended by LN 180 of 2005 and LN 232 of 2007 (Legal Notices available for download from here).

Other Information

The Rural Strategy Topic Paper adopted in 2003 and developed as part of Malta's Structure Plan review process, advocates the integration of development with the local rural context, with an emphasis on the protection of the countryside and the efficient use of natural and man-made resources for present and future generations. The National Strategy for Sustainable Development in Malta – 2007 to 2016 (NCSD, 2006) highlights a number of important issues that need to be addressed in order to integrate sustainability into the agricultural sector in Malta.

The **National Rural Network for Malta** was recently officially launched during a seminar in 2009 with the aim of drawing together stakeholders (representatives from local councils, cooperatives, local communities, civil society and NGOs who are interested in the agriculture sector so as to discuss within focus groups related themes (climate change, bioenergy, biodiversity, water resource management) and thereby drive forth sustainability of this sector. This network together with networks of other Member States will form the European Network for Rural Development.

With regards to data related to the agricultural, husbandry and horticultural sectors, Unit B4: Environment and Resources within the National Statistics Office generates the data shown in Table 2.

Table 2 – Data related to the agricultural, husbandry and horticultural sectors

Label	Description	Frequency
AGRI	Results of Farm Structure Surveys	ANNUAL
AGRI	SGM Coefficients	SEQUENTIAL
ANI	Gross Indigenous Production - Cattle	SIXMONTHLY

ANI	Gross Indigenous Production - Pigs	QUARTERLY
ANI	Gross Indigenous Production – Sheep & Goats	SIXMONTHLY
ANI	Structure of Hatcheries	ANNUAL
ANI	Livestock Survey - Cattle - November/December	ANNUAL
ANI	Livestock Survey - Cattle - Size of Herd	BIANNUAL
ANI	Livestock Survey - Pigs - November/December	ANNUAL
ANI	Livestock Survey - Pigs - Size of Herd	BIANNUAL
ANI	Livestock Survey – Sheep & Goats - November/December	ANNUAL
ANI	Livestock Survey – Sheep & Goats - Size of Herd	BIANNUAL
ANI	Supply Balance Sheets - Eggs	ANNUAL
ANI	Supply Balance Sheets - Meat	ANNUAL
ANI	Slaughterings	MONTHLY
ANI	Trade of Chicks	MONTHLY
FRUCTUS	Orchards Survey - 5 yearly	FIVEYEARLY
REGIOAE	Agricultural Accounts at Regional Level Annual.	ANNUAL
REGIOAE	Animal Populations at Regional Level.	ANNUAL
REGIOAE	Crop Production at Regional Level	ANNUAL
REGIOAE	Land Use at Regional Level	ANNUAL
VITIS	Vineyards - Forecast - Annual	ANNUAL
VITIS	Vineyards - Areas - Annual	ANNUAL
VITIS	Vineyards - Grub (re)planted - Annual	ANNUAL
VITIS	Vineyards - Wine Production - Annual	ANNUAL

3. Fisheries & Aquaculture

Fisheries

The **fisheries industry in Malta** is considered mainly to be artisanal, that is, predominantly non-industrial. Maltese fisheries can also be considered as multi-species and multi-gear fisheries, whereby fishers alter between fishing gears throughout the year depending on the species they are targeting. The majority of Maltese fishers operate on a part time or leisure basis and as such their livelihood does not depend solely on catching and selling fish. The social and cultural importance of the Maltese fishing industry far outweighs its negligible economic contribution. In 2007, the National Statistics Office (NSO) published the "Census of Fisheries 2006". This provides detailed information on the structure of fishing vessels used by fishers in Malta and Gozo including data on the production, expenditure and labour force relating to this sector. In addition the type data shown in Table 3 is also generated by the NSO.

Table 3 – Fisheries related data

Label	Description	Frequency
FISH	Fishery Captures Statistics	ANNUAL
FISH	Fishery Aquaculture Statistics	ANNUAL
FISH	Fishery Landings Statistics	ANNUAL
FISH	Fishery Landings Statistics	MONTHLY

Source: Unit B4: Environment and Resources, NSO

The Agriculture and Fisheries Regulation Division (AFRD) in Malta regulates and manages the capture fisheries together with all other related activities and including the aquaculture industries. This regulatory body promotes an **ecosystem-based approach to fisheries** by applying sound fisheries management in order to safeguard the sustainability of living marine resources. With respect to fisheries, the AFRD aims "to manage marine areas and preserve fisheries stocks, including their means of sustenance". The Fisheries Conservation and Management Act (CAP. 425) makes provision for the regulation, conservation and management of the fisheries of Malta and matters incidental thereto. This Act has a wider scope and is not just limited to the safeguard of fish that are captured for direct consumption, since certain provisions of the Act also provide a legal basis for the protection of turtles, dolphins and other aquatic organisms [Article 38(2)h]. The Armed Forces of Malta (AFM) in collaboration with the AFRD are responsible for fisheries enforcement within Malta's jurisdiction.

Overfishing of Mediterranean fish stocks is a burgeoning concern. The **International Commission for the Conservation of Atlantic Tunas** (ICCAT) and the **General Fisheries Commission for the Mediterranean** (GFCM) have acknowledged that a number of important stocks in the Mediterranean, especially those of migratory species, are considered to be fully exploited or close to being fully exploited. Malta is a member of both ICCAT (as from 7 August 2003) and the GFCM (as from 29 April 1965). The three most important commercial species in Malta are Bluefin tuna (*Thunnus thynnus*), Swordfish (*Xiphias gladius*) and Common dolphinfish (*Coryphaena hippurus*).

Malta has observed the 1994 ICCAT Recommendation on **Bluefin tuna** catch limits and has regulated fishery through the Fishery Regulations (Government Notices 206/1934 and 148/1935) which lay down detailed licensing and operational regulations. In March 2003, the AFRD issued a Government Notice stating that it was ready to receive a maximum of four applications for the fishing of tuna. Subsequently, two licenses were issued to fishing vessels already registered in the Maltese Fishing Vessel Register to target Bluefin tuna using purse seine nets. In 2007 the number of authorised purse seiners was also 2. With respect to surface long line fishing of Bluefin tuna, 89 vessels were authorised in 2007 to operate in the ICCAT Convention area. This number of vessels has been stable for the last eight years. With respect to Bluefin tuna fishing, Article 4 paragraph 2 of Council Regulation (EC) No 1559/2007 establishing a multi-annual recovery plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean, states that for those quotas smaller than 5% of the Community quota, Member States 'may adopt a specific method to manage their quota in their fishing plan' (Source: Fisheries Operational Programme for Malta 2007-2013).

Swordfish is known to be an over-exploited species. The size of the fish landed over the years appears to involve a large number of smaller fish and immature images. In view of this a close season in force from 15 October to 15 November has been instituted in an attempt to save juveniles. Another important species (in terms of catch) is the Mediterranean dolphinfish which is also a GFCM priority species. During a recent study on the species, it was found that **dolphinfish** fisheries mostly target 'age 0' fish (2 to 8

months) thus depending on annual recruitment which is considered to be very variable. It was also concluded that the relationship between maturity and size is not regular and that the important parameters in the measurement of the fishing effort for this FAD fishery is the number of FADs deployed and the number of fishing trips made (Source: Fisheries Operational Programme for Malta 2007-2013).

Given the importance of both Bluefin tuna and Swordfish to the local fishing industry, it is clear that a shift towards less threatened species as well as aquaculture species will need to take place over the coming years (Source: Fisheries Operational Programme for Malta 2007-2013).

The **adjustment of fishing effort** is included as one of the objectives under priority Axis 1 "Adaptation of the Community fishing fleet" of the Fisheries Operational Programme for Malta 2007-2013. The result indicator is a 6% Reduction in fishing capacity of Malta fleet sector for declining species (Bluefin tuna and swordfish) by 2015. This axis includes the following measures:

- Measure 1.1: Public aid for permanent cessation of fishing activities - The general objective of the measure is to adjust the fishing capacity of the Maltese registered fishing fleet as well as to manage the fishing effort in accordance with the aims of the CFP.
- Measure 1.2: Public aid for temporary cessation of fishing activities - The general objective of this measure is to provide temporary support to fishers and owners of vessels who in the context of the fishing adjustment plans referred to in Article 21(a) of Regulation No 1198/2006 must temporarily cease their fishing activities.
- Measure 1.3: Investments on board fishing vessels and selectivity - The general objective of this measure is to enhance safety and improve working conditions on board fishing vessels. It is also aimed at safeguarding the environment by reducing the impact of fishing.
- Measure 1.4: Socio-economic compensation for the management of the Community fishing fleet - The general objective of the measure is to support the management of the Community fishing fleet through the diversification of skills and activities and the upgrading of professional skills.

Since 1971, Malta has managed a 25 nautical mile management zone *i.e.* an extended fisheries management zone, beyond the 12nm territorial waters. Throughout all these years a strict licensing system was maintained within this zone, keeping large-scale industrial fishing such as trawling at a minimum. On the 28 June 2002, Malta and the European Union reached an agreement that the 25nm management zone will continue to be managed by the Maltese Authorities. During the negotiations it was argued that unrestricted access to the 25nm zone would undermine the sustainability of the fish stocks in this ecologically important area, more so since fishing fleets of other neighbouring countries are known to be better equipped and more technologically advanced. The Malta-EU negotiations on the **Fisheries Management Zone** have led to the adoption of Council Regulation (EC) No. 1967/06 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea. This Regulation lays down detailed conservation measures in connection with the zone's management regime (see Chapter X – Measures for the Waters around Malta – Articles 26 and 27) and also calls for the designation of Fisheries Restricted Areas in zones beyond or partly within the jurisdiction. Article 4 of Council regulation EC 1976/06 also lays down provisions that safeguard

***Posidonia* meadows, coralligenous habitats and mäerl beds** by prohibiting certain fishing practices to operate above these habitat types. In line with Article 3 of EC 1967/2006 Malta is also obliged to monitor the seagrass beds affected by bottom towed nets and in order to fulfil this obligation in collaboration with the University of Malta, a pilot study has been initiated to identify the impacts of towed gears on the *Posidonia oceanica* ecosystem (Source: Fisheries Operational Programme for Malta).

Notice to Mariners 67/2004 and 5/2008 provide for the creation of **Conservation Areas around Wrecks and Artificial Reefs**, for the protection of species and habitats in these areas, through restrictions of use of fishing gears in these areas. The AFRD and the Malta Maritime Authority (the latter is now Transport Malta) are the competent authorities for the implementation of these regulations.

The Malta Centre for Fisheries Sciences (MCFS), the national institution responsible for scientific monitoring and research related to capture and culture fisheries in Malta, has participated actively in FAO subregional projects such as the FAO-COPEMED Tuna Programme initiated 1998; the ongoing MedSudMed Project, which was launched in 2001 to investigate the ecosystem approach to fisheries (EAF) in the Mediterranean, and is also actively participating in the Mediterranean International Bottom Trawl Survey (MEDITS Trawl survey), which has been collecting information on the status of a number of commercially important species in the Mediterranean Sea. The MEDITS survey is performed in order to collect data on abundance and biological aspects of 38 species of the priority MEDITS list, including fish, crustaceans and cephalopods. MEDSUDMED also finances two research survey programmes in Maltese waters: the Echosurveys and the Ichtyoplankton survey.

As an EU member state, Malta is required is obliged required to conduct an annual **National Fisheries Data Collection Programme (NFDCP)**, in line with the EU Data Collection Regulations (DCR) EC1639/2001 and EC1581/2004, amended by Council Regulation EC199/2008 followed by the Commission Decision 2008/949/EC. The programme contributes to a better knowledge of the main fishery resources of Malta from the biological, managerial, economical and social points of view. In this regard, three species are studied in detail: Bluefin tuna *(Thunnus thynnus)*, Swordfish (*Xiphias gladius)* and Dolphinfish *(Coryphaena hippurus)*. The MCFS is also responsible for the development and maintenance of the databases and information systems of the NFDCP. Data on Bluefin tuna and swordfish length by sex are reported to ICCAT for their use in the respective stock assessment exercises. Data on pelagic sharks are also sent to ICCAT as requested.

A national plan of action to combat **illegal, unreported and unregulated fishing (IUU)** has been developed. Malta's commitment to fight against IUU activities was reiterated during a national seminar held in 17 April 2008 with the theme "'Preventing, Deterring and Eliminating Illegal, Unreported and Unregulated Fishing (IUU)', and attended by both the Minister Responsible for the Environment and the European Commissioner for Fisheries and Maritime Affairs (DOI Press release 0552).

The prohibition of the capture, killing, taking, possession and disturbance of strictly protected marine species such as marine turtles (LN 76 of 1992 and LN 311 of 2006, as amended), cetaceans (LN 203/03 and LN 311/06, as amended) and certain chondrichthyes species (LN 311 of 2006, as amended) are covered by the provisions of the particular regulations enacted under the Environment Protection Act. Exploitation of these species is therefore strictly forbidden. In addition, any form of destruction or disturbance to natural habitats harbouring such species is also prohibited. A specific requirement of Regulation 25 under the 'Flora, Fauna and Natural Habitats Protection Regulations, 2006' (LN 311 of 2006, as amended) is mentioned in sub-regulation (2), which obliges the Competent Authority to set up a system to monitor the incidental capture and killing of animals listed in Schedule V and VI. These schedules include a number of species of marine species that are affected by incidental capture namely as **by-catch** as a result of certain fishing techniques. Regulation 31 of LN 311 of 2006 (as amended) prohibits the use of indiscriminate means and forms of capture capable of causing local disappearance of, or serious disturbance to, populations of mammals and fish listed in Schedule XI to these regulations, which for fish covers poisons and explosions. These Legal Notices are administered by the Malta Environment and Planning Authority (MEPA).

Awareness raising activities targeting fishermen have been undertaken. The AFRD is also the National Focal Point to the FAO's Code of Conduct for Responsible Fisheries (FAO, 1995). This Code of Conduct has been published in Maltese and a seminar has been held to launch its publication in Maltese and to spread awareness amongst fishermen. The Sea Turtle Handling Guidebook for Fishermen (UNEP/MAP/RAC-SPA, 2001) has been translated in Maltese and has also been distributed amongst fishermen following an awareness campaign targeted at fishing communities by MEPA with the assistance of the AFRD. The MCFS assists the activities of the Environment Protection Directorate (MEPA) in connection with the rehabilitation of injured turtles. Surgical intervention is carried out on injured turtles (generally to extract swallowed hooks), and the said turtles are kept for rehabilitation and under observation for a number of weeks, as deemed necessary, before their actual release. Data on by-catch of marine turtles is collected by MCFS. The MCFS is also carrying out research projects on the incidental by-catches of seabirds as well as awareness raising with local fishermen (part of the EU LIFE Yelkouan Shearwater Project – published research under the Garnija project is available here).

In 1999, MEPA published a **Cetacean Stranding Protocol**. Through this protocol a Stranding Network has been developed to take action in the event of strandings of cetaceans. On the basis of the same Protocol another network dealing with marine turtle strandings has been developed. These stranding networks provide for assistance in stranding events together with Environmental NGOs. Another objective of these networks is to collect data on the stranded animals.

Aquaculture

Since its inception in 1991 on a commercial scale, the aquaculture industry in Malta has experienced several developments, which have included the setting up of a National Aquaculture Centre (NAC) at Fort St Lucian in 1988, and later renamed the **Malta Centre for Fisheries Sciences (MCFS)** in 2001. The aquaculture industry started off with the initial establishment of marine-based fish farming of European

seabass and Gilthead seabream and then also progressed to the introduction of tuna penning of wild-caught Bluefin tuna (*Thunnus thynnus*), where the first development permit was issued in 2001. When considering developments that have occurred over the last four years, the following are also noteworthy:

- The re-opening of the pilot marine hatchery at the MCFS and its operation focusing on research into aquaculture species diversification in 2005. The pilot hatchery is in operation and research is being carried out on *Seriola dumerilii* [Amberjack Project] and *Thunnus thynnus*.
- The establishment of an offshore aquaculture zone in the period 2004 to 2006 where it was made operationally following the issuance of a development permit.

In Malta, the assessment of environmental impacts caused by fish farms has been initiated in 1994 through the adoption of the "Policy and Design Guidance for Aquaculture", originally developed to ensure the maintenance of healthy environmental conditions in and surrounding fish cages, and subsequently amended in 2001. One of amendment made, laid down the requirement that 'no new aquaculture development would be considered in areas less than 1 nautical mile from the shore, or in sites having a water depth of less than 50m (give or take 5m) whichever is the lesser'. Since then, existing inshore aquaculture units have been encouraged to relocate at a greater distance from the shore and in deeper waters, to mitigate any environmental impacts. This was successfully done with two inshore farms in 2001.

The legal mandate for the regulation of the aquaculture industry in Malta is laid down *inter alia* by the following primary legislation:

- Chapter 425: Fisheries Conservation and Management Act (FCMA) of 2001 and subsidiary legislation thereto
- Chapter 356: Development Planning Act of 1992 (as amended by Act XXI of 1992, XVI and XXIII of 1997, XXIII of 2000, VI and XXI of 2001, L.N. 22 and 47 of 2002, and Act VI of 2002) and subsidiary legislation thereto;
- Chapter 435: Act XX of 2001 Environment Protection Act (EPA - as amended by Act II of 2006) and subsidiary legislation thereto.

Malta is also bound to follow EU policy on aquaculture under the Common Fisheries Policy.

Development in aquaculture both on land and at sea necessitates a development permit and an environmental assessment is required before an aquaculture development is initiated. Fish farms are required to fulfil and adhere to environmental monitoring programmes as required by development permit conditions. Such terms and conditions also apply for the management of the fish farm in question. Provision calling for the restoration of a site to address the eventuality of the cessation of the fish farm, is also secured before development takes place. If such development is proposed to occur within or in the vicinity of a marine Special Area of Conservation, an appropriate assessment is required to be carried out in line with Article 6 of the EU Habitats Directive. The role of granting development permission of aquaculture facilities and the protection the environmental is assigned to the Malta Environment and planning Authority (MEPA) under its respective directorates.

The MCFS is involved in scientific monitoring, research and development in addition to the technical advice it offers to the Maltese aquaculture and fishing industry and other information it provides to the general public.

The MCFS is one of the marine research institutes participating in the EU-financed SELFDOTT Project (Self-sustained Domestication of Bluefin Tuna) which started in 2008 and deals with the reproduction, larval rearing and nutrition of the Bluefin Tuna. MCFS is involved in the project as a scientific research centre and through the industry with Malta Fishfarming Ltd which provides the cages and broodstock for the experiments.

Malta's Fisheries Operational Programme (2007-2013) prepared in accordance with Council (EC) Regulation No. 1198/2006 on the European Fisheries Fund (EFF), sets as one of its objectives under Priority Axis 2 to reduce the negative impact of aquaculture on the environment. This axis also aims to contribute to the development and sustainability of the aquaculture, processing and marketing sectors. Support under this axis is available for aqua-environmental measures. The actions that are eligible under this measure are the implementation of aqua-environmental methods aimed at protecting and enhancing the environment and producing more eco-friendly aquaculture products -

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4. Tourism

Tourism is an important economic industry in Malta and is in fact one of the main contributors to Malta's GDP. In 2007, the number of inbound tourists was estimated at 1,243,510 - an increase of 10.6 per cent over 2006. The purpose of visit was primarily as a holiday experience (1,046,176) followed by business trips (98,811) (NSO 2008).

The organisation of the public sector side of tourism and the upgrade and promotion of tourism in the Maltese Islands is entrusted to the Malta Tourism Authority (MTA**)**, which was set up in 1999 (following a merger of various organisations) under the mandate of the "Malta Travel and Tourism Services Act, 1999" [Cap. 409 - Act XII of 1999].

Tourism is one of the four economic sectors in Malta considered to have the most significant impacts on the environment (MEPA 2006, SOER 2005), in that it 'increases demand for development of coastal and other scenic land, places pressure on sensitive ecological or cultural sites such as garigue areas, beaches and archaeological sites, and increases traffic congestion, noise pollution, and waste production.' **Tourism infrastructure development** has also grown over the years mainly in terms of construction of new accommodation facilities. Tourism is in fact one of the major users of coastal areas lapping Malta and Gozo and to a lesser extent Comino. Threats to coastal & marine biodiversity by coastal and mass tourism are mentioned in Malta's National Report on the Strategic Action Plan for the Conservation of Maltese Coastal and Marine Biodiversity **(**SAP-BIO Report). "The increase in the tourism industry also led to increased pollution and waste discharge, high pressure on infrastructure and to socio-cultural impacts on the local population." (CAMP-Malta Inception Report)

Approximately five percent of Malta's 1km coastal buffer area was developed between 1990 and 2004, indicating significant development pressures coming mainly from tourism and recreation (MEPA, 2006 – SOER 2005). Low-lying areas, beaches and sand dunes are under continuous pressure from tourism and recreational activities, which have led to the obliteration of certain areas (see Coastal Strategy Topic paper). The 2005 State of the Environment Report (SOER) acknowledged the need for developing a sustainable tourism strategy. The report further draws attention to the potential to improve national coastal and marine policy by better integrating sectoral policies such on tourism and recreation, and the environment.

Malta's Structure Plan identifies three interrelated objectives for tourism, namely market diversification, seasonality reduction and product/tourist upgrading. The Tourism Topic Study prepared under the Structure Plan Review process was adopted in 2001. This study examines current trends in the tourism sector including land use implications, current policies and future demands and options. Various surveys were carried out to obtain the required data. This Topic Study acknowledges the importance of embracing tourism product development with the environment as well as the safeguard of both natural

and cultural heritage. Although the Tourism Topic Study touches on the topic of tourism activity along the coast, it is dealt with in greater detail in the Coastal Strategy Topic Paper, which reviews tourism as one of the coastal uses and acknowledges the need for measures to protect existing sandy beaches and low-lying rocky shorelines within popular bathing areas from development.

CAMP-Malta was initiated in February 2000 and aimed to introduce and apply the principles, methodologies and practices of sustainable coastal management in Malta. The project area dealt with the island of Malta on a first level and its northwest area as the operational level. Due to a high demand for further economic development and intensive expansion of all kind of activities, in particular tourism, the NW is subject to increasing pressures and user conflicts, requiring therefore urgent sustainable management measures. The Programme involved 5 thematic project activities, amongst which was Environment Health Impacts on Tourism which included the following objectives:

- to contribute to a sustainable development of tourism in Malta, reducing/eliminating potential impacts on health of the resident population and tourists, and in particular related to the NW area,
- to contribute to the protection of the environment and rational use of tourism resources, improving health conditions and increasing the level of sanitary protection and control,
- to formulate recommendations for land use and future development of tourism taking into consideration the relevant health aspects identified, and
- to formulate proposals for a follow up of the activity.

This programme resulted in the formulation of an integrated resource plan on the NW of mainland Malta.

The Tourism Policy for the Maltese Islands (2007-2011) has been developed in response to four key areas: governance, competitiveness, sustainability and macroeconomic matters. It puts forward the guiding principles upon which decisions, actions and other matters relating to tourism in Malta are to be based. The accompanying Tourism Plan outlines a series of actions that are to be implemented mainly by ministries, governmental entities and the private sector over a five year period in order to drive forth the achievement of the objectives set out in the policy. One of the key issues featuring in such policy is that of developing tourism in a sustainable way to ensure an improved quality of life through the conservation and maintenance of environmental and socio-cultural resources. The objective sought is that of 'direct[ing] tourism activity towards complementing the three pillars of economy, environment and society rather than allowing them to work in conflict' and incorporates a number of central priority areas which include:

- Ensuring the optimal use of the financial and human resources dedicated to tourism within the public sector
- Providing direction to the tourism industry and implementing better regulation initiatives

- Deepening the tourism offering focusing on the existing product elements and on those activities which improve quality and service provision
- Encouraging creative thinking and seek ways of increasing tourism value added also through the provision of innovative and authentic products
- Training and retraining of personnel working in the industry, create the right environment for maintaining existing employment, generate more and better jobs in tourism, also in the non-traditional segments of the industry, and invest in education and lifelong learning
- Achieving a fair distribution of income from the tourism industry
- Favouring construction for tourism purposes that respects our cultural and natural heritage
- Addressing the structural reforms required in tourism
- Developing synergies between tourism and other development sectors, ensure an integration of tourism policies within the other development sectors' policies and plans and vice versa
- Maintaining tour operator business and improve relationships with tour operators also at a strategic level
- Incentivising local tourism business to operate and invest responsibly and sustainably whilst ensuring that the effort of the industry is rewarded through awarding mechanisms that operate to promote the businesses themselves and that benefit from long-term contracts engaged upon with tour operators
- Improving the quality and depth of information available through tourism statistics and work on the formulation of tourism satellite accounts
- Creating the right image and perception of Malta in overseas markets and deliver the promise of an enriching stay
- Managing tourism zones by ensuring that basic facilities are available, well preserved and maintained
- Identifying the most important niches in the different zones and directing investment accordingly;
- Develop and implement a tourism zone management plan
- Encouraging tourism service providers to provide a proper service which makes us more competitive and which offers good value for money
- Monitoring Malta's overall price competitiveness and curb practices of overcharging through increased enforcement and consumer protection measures
- Ensuring adherence to set standards by the tourism service providers and clamp down on practices which harm tourism (e.g. littering and illegal dumping, illegal hunting, vandalism, lack of maintenance)
- Taking initiatives which address the seasonality issue
- Marketing Gozo as a unique rural destination
- Facilitating access between Malta and Gozo through sea and air links
- Making Malta more accessible, facilitating the development of air transport networks and attracting a mix of distribution channels
- Increasing visibility on the web and initiatives aimed at direct online booking and further use of information technology for marketing and information provision
- Maximising benefits of EU membership and actively participate in the decision-making process and discussions held at an EU level

- Ensuring that all the initiatives and project development undertaken by the public sector and by the wider private sector in the tourism industry contribute towards the Sustainable Development Strategy for the Maltese Islands.

A number of salient tasks that are given continuous priority include:

- active participation in Agenda 21 for Tourism and European Tourism Sustainability Group;
- continued assessment of EU proposals (both legislative and non-legislative);
- stakeholder consultation meetings;
- the continued carrying out of EIAs for major tourism projects;
- regular monitoring of tourism impacts on the environment;
- corrective measures to rectify damage;
- issuance of legislation on environmental management of construction sites;
- criteria for assessing public and private sector proposals;
- eco-certification of tourism service providers;
- seeking ways of how tourism can benefit the environment (curbing illegal development, strengthened enforcement, encouraging participation of the private sector).

A series of measures targeting beaches, coastal shores and the marine environment are established under the theme "Our product offer and destination management" as well as measures targeting the landscape (protecting and managing rural areas, afforestation projects). Of these the following are mentioned:

- Action 8.1 - Management of existing and new beaches
- Action 8.12 - We will work in order to get blue flag status for all our prime exiting and new beaches
- Action 8.17 - We will undertake anti-pollution measures particularly by eliminating the outflow of sewage into the sea through waste water treatment plants.
- Action 8.20 - We will designate marine protected sites and ensure their management and protection (2009);
- Action 8.21 - We will increase tourists' and locals' awareness about the fragility of our marine environments (June 2007 and beyond);
- Action 8.33 - We will continue and increase our efforts to protect our flora and fauna (2007 and beyond)
- Action 8.35 - We will continue to implement our tourism zone policy and take actions accordingly including the maintenance of such zones. This will entail better co ordination between entities concerned.
- Action 8.39 – We will encourage afforestation projects which respect our natural environment including programmes such as the Tree4U campaign and other initiatives involving the private sector.

Endeavours at strengthening Malta's tourism industry in terms of competitiveness and offering innovative tourist products and services, have focused on the diversification of the national tourism market, with the following marketing segments receiving particular attention: meetings, incentives,

conferences and events business (MICE); leisure and tour-operating business; sports tourism; Gozo-based holidays; culture and heritage; English language learning, as well as other growth niche markets (including cruise and stay, film production, health and wellness, short breaks and vacation ownership).

Tourism at peak periods in the summer can overpower the carrying capacity of fragile environments. Therefore, efforts are also directed at reducing the seasonality of tourism by minimising the peak flow in the summer months (June to September and peaking in August) and hence diminishing associated pressure on the infrastructure during these months (in terms of energy consumption, roads, traffic, visits to cultural sites) and increasing the share of tourist arrivals in the winter and shoulder months. Guidelines for tourist scheduling and policies were presented in the 2002 Carrying Capacity Assessment published by the Ministry of Tourism. Recommendations included *inter alia* the need to adopt the limited-growth scenario and to stabilise the total accommodation capacity and directing commercial policies to low season.

A number of other initiatives are being undertaken by the MTA in collaboration with other national organisations. Such initiatives encompass the heritage scene through restoration of historic buildings and other features of cultural interest; the rural scene involving for instance an assistance scheme for landscaping projects, and the issuance of booklets laying out a series of planned countryside walks for Malta and Gozo, as well as a branding exercise aiming at more effective marketing of Malta in the various tourism segments. Part of the latter branding exercise has involved a detailed questionnaire-based study - Malta Brand Survey - which contributed to determine the three core values of Malta's brand platform: *Heritage*, *Diversity* and *Hospitality*. There are also various ongoing activities of quality assurance. A noteworthy activity is the ongoing **Eco-certification Scheme**. This scheme encourages tourist accommodation establishments that are interested in reducing operational costs and their impact on the environment, apart from improving their image, 'to deliver a better product to meet the demand of the ever increasing environmentally aware tourist.' In order to participate, hotels must comply with a number of criteria in the following 10 areas of assessment and that are all aimed at improving the hotels' environmental performance and increasing environmental awareness amongst employees:

- Environmental management systems
- Waste management
- Products and materials
- Energy use
- Water use
- Air quality
- Noise protection
- Buildings and green areas
- Local culture
- Guest information

Another scheme that is of particular relevance in linking nature protection and tourist-related activities, is the international voluntary Blue Flag certification scheme run by the Foundation for Environmental Education (FEE). This scheme has recently been adopted in Malta. Beaches and marinas achieve a Blue Flag status if they conform to the following criteria:

- Bathing water quality
- Environment protection and management (nature protection, waste separation, sewage treatment)
- Environment education and awareness
- Safety and services

Blue Flag International is represented by Nature Trust. To date the following beaches are Blue Flag certified: St George's Bay (St Julians – the first certified beach in 2007) and the perched beach in Qawra. Other beaches are currently engaged in the process of obtaining the Blue Flag Award. These beaches include Ramla Bay in *Xagħra* Gozo and *Għadira* Bay in *Mellieħa*.

Over the past few years, attention has increasingly been drawn towards the importance of sustainable tourism development. Sustainability in the tourism sector is advocated by national policy including the National Strategy for Sustainable Development.

The National Strategic Reference Framework 2007-2013 encompasses initiatives to sustain the tourism industry and promote culture under the strategic direction "Sustaining a growing, knowledge-based, competitive economy". Under the financial support of the European Regional Development Fund a €10 million Grant Scheme is available for Sustainable Tourism Projects undertaken by tourism enterprises in Malta. This scheme is managed by the Tourism and Sustainable Development Unit within the Office of the Prime Minister. To be eligible for funding projects must not only strengthen Malta's competitive advantage in tourism, but must also increase good environmental practice by these enterprises.

A tourism awareness campaign for children entitled in Maltese as "Apprezza", *i.e.* "appreciate" has been launched. It targets children and aims to increase their awareness on Malta's history, culture, heritage and natural environment (see -). The Campaign aims to engage and educate young children towards a future in tourism by exposing them to its multifaceted nature. The campaign aims at achieving substantial results in the long run. It is understandable that what the project is setting out to achieve is in essence a cultural change which is not something that can happen overnight.

The **Rural Development Plan for Malta (2007-2013)** acknowledges the rural landscape as an important backdrop for tourism. Encouragement of tourism activities is included as an eligible measure (measure 313, alongside two other measures) under "Axis 3 – Improving the Quality Life in Rural areas and Diversification of the Rural Economy". This axis, through its three measures, aims to contribute to '… the

enhancement and rehabilitation of rural areas and landscape amenities that will provide the opportunities for diversification associated with tourism and informal recreation.' The legal basis for measure 313 stems from Article 55 of Council Regulation (EC) No. 1698/2005.

The rural tourism project entitled *Malta Goes Rural: Sustaining Rural Tourism* has been submitted by the Malta Tourism Authority under the European Agricultural Fund for Rural Development (2007-2013). This project was submitted by the MTA during May 2009 and currently awaits approval by the Managing Authority. The project aims to strengthen the rural tourism offer whilst diversifying the rural tourism product; it seeks to achieve an effective reduction in the seasonality problem of tourism demand and shall contribute towards fairer distribution of tourism generated income.

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5. Air Quality

Environmental problems linked to air emissions include *inter alia* acidification and eutrophication as a result of emissions of SO_2, NO_X and NH_3; anthropogenic climate change; ground-level ozone and, the associated damage to ecosystems and wildlife. Measures aimed at reducing such emissions can hence also benefit biodiversity. To this end the following paragraphs provide a brief overview of national measures being implemented or planned to curb air pollution and to address climate change issues.

The monitoring of air pollution in ambient air (excluding indoor air) and the coordination of abatement measures in Malta falls under the responsibility of the Malta Environment and Planning Authority (MEPA).

Air monitoring activities in Malta fall under two categories:

- *Passive Monitoring*: A monitoring network was launched in 2000 as a **National Air Monitoring Programme**. Passive diffusion tubes installed in a number of streets in 44 localities in Malta and Gozo are used. Such sites can be considered to be representative of "roadside", "urban intermediate" and "urban background" sites. Air pollutants monitored by this method are: SO_2, NO_2, O_3, and hydrocarbons (benzene, toluene, ethylbenzene and xylenes).
- *Real Time Monitoring*: Currently carried out by using four air monitoring stations at fixed sites to complete the real time measurement network, representing different air pollution regimes, *e.g.* background, suburban, traffic *etc*. Real time data is available online.

Requests for access to the actual diffusion tube data should be made by email. Access to diffusion tube maps for the various pollutants is also available.

National legislation on ambient air quality transposes the legislation of the European Commission, and thus aims for the same objective, that is, to develop a long-term, strategic and integrated policy advice to protect against significant negative effects of air pollution on human health and the environment. The EU legislative framework on air quality is mainly based on Council Directive 96/62/EC commonly known as the **Air Quality Framework Directive** and its four daughter directives. Under Article 5 of the Framework Directive, Member States, including Malta, are required to undertake a preliminary investigation of ambient air quality prior to the implementation of the Daughter Directives, which in turn, set limit values regulating specified ambient air pollutants within Europe. The **Maltese agglomeration** as per requirements of Air Quality Framework Directive is composed of Valletta, Sliema districts and some surrounding environs. These sites were chosen on the grounds of being the most significant continuous urban area in Malta with an assumed population of greater than 250,000 inhabitants. All other territories and urban areas outside of this agglomeration form part of the Maltese zone.

A preliminary assessment of air quality within Malta has been conducted for the pollutants regulated by the **1st, 2nd and 3rd Daughter Directives** on ambient air quality in 2002 by Stacey and Bush (2002) in order to establish estimates for the overall distribution and levels of pollutants, and to identify monitoring necessary to fulfil the required obligations. Based upon the observations made for the Maltese agglomeration, Stacey and Bush (2002) concluded that certain pollutants at the time were above, or, where measurements were not available, likely to be above thresholds; and thus require fixed measurements to be made for compliance with the Daughter and Framework Directives. Based on emission inventory calculations for 1997, the most significant **sources contributing to emissions of NO_x, SO_2 and PM_{10}** were combustion in the energy and transport sector. With respect to complying with the requirements of the **4th daughter directive**, an interim report was published by MEPA in 2007 presenting the findings of a preliminary assessment of arsenic, cadmium, nickel and mercury in the air.

The Background Report on Air Quality, compiled as part of the development of the 2005 State of the Environment of Malta, illustrates the **sources, situation and trends** of the following major pollutants, which were identified to be of concern to the health of the Maltese population - Sulphur Dioxide, Nitrogen Oxides, Benzene, Ozone and Suspended Particulate Matter - by presenting and analysing the recorded results of air monitoring from passive diffusion tubes (from January 2003 until December 2004; 124 locations in 31 towns and villages across Malta and Gozo) and real time measurements recorded by the three fixed air monitoring stations. Diurnal and seasonal variation patterns for certain gaseous and particulate pollutants are also described. This report shows that "… positive results can be achieved with the introduction of abatement measures, albeit with increased costs".

The 2007 SOER Indicators for Malta document the improvement in reducing the concentration of certain air pollutants, whilst a worsening trend is observed for a number of others. National average SO_2 registered a 41% decrease between 2005 and 2006, in comparison with the 24% decrease between 2004 and 2005. The annual average concentration of O_3 increased by 19% between 2005 and 2006 as it rose from 85.9µg/m^3 to 102.2µg/m^3 respectively. The main sources of O_3 precursors are transport, followed by energy and industry, however the majority of O_3 affecting Malta is of transfrontier origin. Average national NO_2 concentrations remained well below the 40µg/m3 EU annual limit value for human health protection in 2006, although concentrations increased once again, this year by 12% (from 22.8µg/m^3 in 2005), while between 2004 and 2005 the increase was 13%. Malta' national programme prepared as per requirements of the Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants (**NEC Directive**) provides information on policies, adopted and envisaged, and quantified estimates of the effect of these policies and measures on the emissions of those pollutants in 2010.

The Integrated Pollution Prevention and Control Directive (IPPC Directive 2008/1/EC) has been transposed by the 'Integrated Pollution Prevention and Control Regulations, 2002' (LN 234/2002 as amended by LN 230/2004 and LN 56/2008). Since accession, ten of the 14 operational installations have been IPPC permitted. These are two landfills, three pharmaceutical companies, two chemical plants, two power stations and an incinerator. Such permits include conditions which control emissions to the air including requests for self monitoring and compliance with specified emission limit values (Source: MEPA 2009).

An Air Quality Plan was recently issued by MEPA and outlines ways in which the quality of the air around the Maltese islands can be improved. The plan outlines initiatives that aim to reduce vehicle emissions; to encourage a change in travelling patterns and habits; to reduce the traffic impact of new developments; to better manage the road network and to promote cleaner vehicle technologies. This air quality plan is primarily focused to reduce concentrations of PM_{10}, with the aim to bring the daily averages in line with the thresholds present in Directive 1999/30/EC. However in 2006 and 2007 the annual limit value for nitrogen dioxide (NO_2) has been exceeded in the traffic site within the agglomeration. Therefore, these measures are also targeted to bring concentrations in this site in line with the annual limit value for NO_2.

Reducing Air Emissions in the Road Transport Sector

In Malta **road transport** is a significant contributor of air emissions. Malta has experienced dramatic increases in the levels of motorisation in the last years. The National Statistics Office - Transport Statistics Unit (2008 – Press Release No 19/2008) report that "The stock of motor vehicles rose by 1,767 in the fourth quarter of 2007, to stand at 287,120".

A number of activities are currently being implemented or are being planned by the Malta Transport Authority (ADT) (now Transport Malta) to address vehicular emissions.

Amongst ongoing activities the following are mentioned:

- The **Vehicle Roadworthiness Test (VRT)** which was gradually introduced in Malta since October 1999 is now fully obligatory (as from the 1st January 2005).
- The ongoing **SMS Based Emission Alert Campaign** which was initially launched in August of 2005 is contributing to raising public awareness, including amongst all road users, on the negative impact of high vehicular emissions on health and the environment. This campaign also serves as an enforcement tool. This campaign essentially involves the participation of members of the general public who report excessive vehicular exhaust emissions from private, commercial and public vehicles by sending (whilst not driving) an SMS bearing the registration number of the vehicle in question. The reports are then followed up by ADT (Licensing and Testing Directorate), who will call in the vehicle for an inspection during which an emission test is carried out. If the vehicle fails the test, the owner is required to address the problem and is then obliged to return within one week for another emission test. Failure in the second test will result in a licence restriction. The same applies to those vehicles that do not turn up for the test in which case final notices are sent by ADT and if the owner of the vehicle in question fails again to show up, a restriction on the vehicle license will be issued and the vehicle road license will not be renewed until the vehicle is tested.
- Apart from the above, ADT also carries out random road-side checks on private and passenger-carrying and goods-carrying vehicles to ensure compliance with the Motor Vehicle Regulations, including testing for emission levels.
- ADT has also started implementing the **"Valletta Strategy"**, aimed at reducing traffic into the historical capital city of Malta. During the last three years the Government has also granted an operating license for the use of electric mini-cabs in Valletta. Although this service is still not fully carbon-neutral unless the battery powering the mini cab is charged through a photo-voltaic system, they still contribute to cleaner air in terms of NO_x and PM_{10}'s. Other measures that have been taken to reduce emissions in Valletta include a controlled vehicular access system, extension to the Valletta pedestrianisation and the operation of a Park & Ride facility.
- The liberalization of the minibus and coaches sector has included a number of measures to ensure **modernisation of the fleet of public transport vehicles**. Changes made to the regulatory framework by means of LN 149 of 2009, stipulate that as of January 2015, coaches and minibuses will not be able to be older than 28 years, and any bus that is imported from 19 May 2009, cannot be older than five years.
- Tourists now can also avail themselves with the use of open-top tour sightseeing buses which have been in operation on various localised routes around Malta. This will also minimize the use of smaller vehicles such as taxis to larger passenger capacity vehicles therefore meaning less vehicles

making use of the roads at any given time. This will create competition within the various modes and making transport more sustainable.

ADT has also submitted a project proposal for ERDF funding to set up an **ICT-based Intelligent Transport Management System (ITMS)** in Malta as an attempt to alleviate traffic congestion and hence contribute directly to less time travel and therefore less Greenhouse Gas Emissions.

A **reform of the public transport service** is also being planned and is aimed at a high standard of public transport provision and which will contribute to making public transport a more viable alternative to the private car and hence should lead to a modal shift to more environmentally sustainable means of travel.

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6. Climate Change

"The links between biodiversity and climate change run both ways: biodiversity is threatened by climate change, but proper management of biodiversity can reduce the impacts of climate change" (CBD Secretariat, 2007 – Biodiversity and Climate Change – Booklet Prepared for International Day for Biological Diversity 2007).

"**Malta's climate** has changed slightly over the last 50 years, and is slowly becoming warmer and dryer, consistent with international climate change predictions" (One of the key messages delivered by the 2005 State of the Environment Report). Updated information is given by the 2008 SOER – Section on Climate Change.

Malta became a signatory to the **United Nations Framework Convention on Climate Change (UNFCCC)** in 1994 as a non-Annex I country, ratifying the Convention on 17 March 1994. It also ratified the **Kyoto Protocol** on 11 November 2001. As part of Malta's obligations to submit national communications as required by Article 12 of the UNFCCC, **Malta's Climate Change Project** was initiated in March 2001 through collaboration between the Government of Malta and the Department of Physics of the University of Malta. The Project, funded by UNDP's Global Environment Facility (GEF) resulted, *inter alia*, in the compilation of Malta's First National Communication to the UNFCCC. This was submitted officially to the UNFCCC in April 2004 and officially presented at the twentieth meeting of the Subsidiary Bodies of the UNFCCC in June 2004.

Malta's First National Communication (FNC) outlined current and future concerns in relation to climatic vulnerability, arising from current and projected climate change impacts (such as increase in temperature, decrease in precipitation) including:

- Drought;
- Deterioration of freshwater quality and availability;
- Increased risk of floods;
- Increase in soil erosion and desertification and associated impacts on agriculture;
- Increased risk of storms and severe weather incidence;
- Accelerated coastal erosion;
- Changes in sea water mass characteristics;
- Sea level rise;
- Biodiversity loss and degradation.

Malta's FNC gives a qualitative indication of climate change impacts that may affect the Maltese Islands but does not indicate the extent or significance of such impacts. Nevertheless, these concerns are already a reality today. Future climate change will be expected to add on and hence aggravate existing pressures on natural, semi-natural and man-made systems in the Maltese Islands.

Malta's Climate Change Project included a **vulnerability study**, which identified the most important impacts cause by climate change on natural systems. Of special importance for Malta in the context of its island status, are the effects of climate change on the marine environment, which will bring about:

- changes in the physico-chemical parameters, especially changes in sea temperature, localised changes in salinity due to increased runoff and increased turbidity from sediment washout;
- impacts on the important seagrass ecosystems through reduced photosynthesis as a result of increased turbidity;
- increased UV (especially UV-B) radiation, which penetrates well into sea water, can have a negative effect on photosynthesis;
- higher sea temperatures can result in the westward migration of Lessepsian species from the Red Sea and the Levantine basin of the Mediterranean, leading to competition with local species.

A preliminary qualitative analysis of climate change impacts indicates that coastal and marine environments are at risk. Terrestrial coastal biodiversity may be particularly affected by drought, sea-level rise and coastal erosion. In particular, coastal wetlands and other transient aquatic ecosystems present along the coast are very vulnerable to drought and associated deterioration of freshwater quality and availability, as well as inundation and salinisation of coastal aquifers through sea level rise. Such vulnerability is further exacerbated by the poor conservation status of most of the coastal habitats, particularly those located on the low-lying north eastern shores, which in general are restricted to small pockets surrounded by developed areas.

Limitations associated with the information available on climate change effects on Maltese biodiversity, include the following:

- local data on climate parameters (especially long time-series data) is limited, thus also limiting projections of climate change impacts at a local scale;
- local data on vulnerability is mainly qualitative rather than quantitative, therefore while there is an indication of the impacts to which Malta may be exposed to, there is no indication of the extent and/or significance of such impacts;
- the resolution of climate change projections and impact scenarios at a global/regional scale may not be applicable to the Maltese Islands; projections are thus not available at a local scale and vulnerable regions or sectors within the Maltese Islands cannot be identified with certainty;
- global/regional climate change impact scenarios do not necessarily take into consideration characteristics that are specifically associated with small island states;
- long time-series data on species and ecosystems is not available;
- knowledge on the biology of species and their tolerance range to changes in environmental parameters is very limited, hence the species response to climate change impacts is uncertain;
- knowledge on the distribution of marine habitats, with the exception of **Posidonia* beds (*Posidonion oceanicae*) is limited;

Given the scarcity of available information, there is an urgent need for Malta to initiate or strengthen (where already in place) research on climate change, including impact and vulnerability assessments. Research should target the downscaling of regional climate projections and the development of local scenarios which take into consideration local characteristics throughout various sectors. This would entail large-scale data collection throughout various sectors and hence requires cooperation between various entities and capacity building and training.

Although Malta does not have any quantified targets for reducing or limiting GHG emissions over the 2008-2012 period (also known as the first Kyoto Protocol commitment period) under the Kyoto Protocol or under EU Decision 2002/358/EC, nevertheless, as a Member State of the European Union, Malta is still bound by the obligations set out in European Union legislation on various issues related to addressing climate change. Of particular significance is Directive 2003/87/EC transposed into national law via the **"European Community Greenhouse Gas Emissions Trading Scheme Regulations, 2005"** (Legal Notice 140 of 2005, as amended by LN 73 of 2006 and LN 274 of 2006). The implementation of

the EU ETS is regulated by the Malta Environment and Planning Authority (MEPA). The two Maltese installations currently participating in the scheme are the power plants operated by EneMalta Corporation; these plants are also, by far, the largest contributors to overall emissions of greenhouse gases in Malta.

In response to obligations stemming from Article 9 of **Directive 2003/87/EC**, Malta has prepared and submitted to the EU commission **National Allocation Plans for the trading periods 2005-2007 and 2008-2012** pursuant to the Emissions Trading Scheme Directive. Both NAPs have as a basis an extrapolation of the 'business-as-usual' correlation between energy generation, time and GDP. This extrapolation presents a projection of electricity demand over the course of the respective trading phases.

Nationally, MEPA is entrusted with the task of maintaining the **national greenhouse gas inventory** and addressing national reporting requirements in respect of Decision 280/2004/EC establishing a mechanism for the monitoring of greenhouse gas emissions in Community Member States. The **Annual National Greenhouse Gases (GHG) Emissions Inventory** identifies trends of past and present emissions that provide useful information to drive the development of mitigation measures to combat climate change. The most recent GHG inventory (2009) covers the time series 1990-2007 and reveals that throughout the whole period 1990-2007, the **major contributors to the total emissions for Malta** were energy generation, transport, waste and fuel combustion in the industrial, commercial and residential sectors, with minimal contributions by other sources. Besides meeting reporting requirements pursuant to legislation, the inventory also provides a crucial tool to identify the trends of past and present emissions and to enable the development of effective policy measures related to Climate Change. In general, per capita emissions have risen from around 5.5 tonnes per head in 1990 to 7.3 tonnes per head in 2007. Malta contributes around 0.1 % to the EU-27 GHG emissions.

Activity data used for the preparation of this inventory has been mainly obtained from the National Statistics Office, from government entities, from other public bodies such as regulatory authorities and from private establishments.

Awareness of the issue of climate change has increased and discussions have gained momentum in the past months. The **Biennial Report on Climate Change policies and measures (PAMs)** covers information on national policies and measures considered as most effective in reducing GHG emissions in the various sectors. Malta has recently submitted its 2009 PAMS report on projections and national programmes in fulfilment of the obligations arising from Article 3(2) of **Decision 280/2004/EC** concerning a monitoring mechanism for greenhouse gas emissions in the European Community. The report was prepared by the Malta Environment and Planning Authority in collaboration with various entities involved in developing and implementing policies and measures affecting emissions of direct GHG and presents the state of play as at the end of 2008. The report includes information on those national policies and measures considered as most effective in reducing GHG emissions or in raising awareness on the need to reduce emissions from the various sectors, and in particular measures targeted at the energy sector which is the main emitting sector. Estimated projections of GHG emissions until 2020 for the various sectors, ranging from energy to waste agriculture, are also included in the report. The policies and measures

described in the report and taken into account in developing the projections include **implemented as well as planned measures**; however, policies and measures still under discussion or at consultation stage have not been included. The information provided is without prejudice to future developments taking place in Malta since these may change with time depending on various factors such as availability of the necessary resources and economic, technical and social developments.

Malta's actions in the area of climate change, not only aim at addressing mitigation of emissions, directly or indirectly, but also stem from the need for adaptation to the impacts of the effects of climate change. The latter is very important in view of the particular circumstances (geophysical, economic and social) of the nation as a small island state, making it highly vulnerable to such effects. To date local action on climate change issues has focused on mitigation measures; the vulnerability and adaptive capacity of the Maltese Islands are only recently being addressed. Initiatives undertaken by the Government to help mitigate to the impact of climate change include *inter alia* the Energy Policy Proposal for Malta and the National Strategy for Policy and Abatement Measures to the Reduction of Greenhouse Gas Emissions.

Currently Malta is working on the compilation of the Second National Communication to the UNFCCC. This second communication will be focusing on vulnerability and adaptation in the Maltese Islands, hence **climate change impacts, vulnerability and adaptation** will be assessed for various sectors.

In addition, the Physics Department of the University of Malta is embarking on **regional climate modelling**, which shall be established as one of the Department's research areas. These initiatives shall provide scientific data and projections to support the nation's efforts in tackling the challenges of climate change.

A recently appointed the **National Climate Change Committee** has also been tasked with the drafting of a National Strategy on Adaptation for Climate Change tailored to address Malta's adaptation concerns.

Energy Efficiency – Reducing GHG emissions by the Energy Sector

The Malta Resources Authority (MRA) is the authority responsible for the **regulation of energy utilities and management** in the Maltese Islands. MRA is responsible to implement legislation relating to energy efficiency, reduction of sulphur content of fuels, and renewable sources regulations, amongst others. Such measures contribute to a decrease in the use of fossil fuels, and thus a reduction in emissions.

A National Energy Efficiency Action Plan **(EEAP)** in accordance with the requirement of the recent Energy End-Use Efficiency and Energy Services Directive (2006/32/EC) has also been developed. The scope of this action plan is savings in energy end use in line with **Directive 2006/32/EC**. This plan of action notes that "Energy efficiency finds synergy in the achievement of all Government's energy policy objectives - it assists the economy, as well as help to achieve social and environmental goals."

Plant Loading and Fuel Switching

EneMalta Corporation (EMC) is Malta's only electricity producer and distributor on the island. This corporation is responsible to monitor and, where possible, reduce emissions from the two power plants located in Marsa and Delimara by respecting the relevant emission limit values present in the **Large Combustion Plants Directive** (LCPD - 2001/80/EC) and operating the power plants at best available techniques, where practicable and possible, as outlined in the Directive on Integrated Pollution Prevention and Control (1996/61/EC). EneMalta made the switch to a more expensive low sulphur fuel in January 2004 - a sulphur content of 1% bringing a drastic reduction in SO_2 emissions. The Marsa Power Station (MPS) steam boilers with a total capacity of 240MW have been subject to the 20,000 hours operation time limit since 1st January 2008, in line with the requirement of the LCPD. The complete shutdown of this plant has to occur by not later than 31 December 2015. Due to this requirement the plant dispatch and load management of EneMalta has changed, with a larger proportion of the load being met by the Combined Cycle Gas Turbine (CCGT) plant in the Delimara Power Station (DPS). The effect has been a reduction in the overall GHGs emitted per MWh generated, in view of the higher efficiency of this plant and the lower emissions per TJ of gas oil compared to heavy fuel oil.

Planned Activities

A number of measures aimed at energy efficiency are also in the pipe line and include for instance the supply and installation of an Automatic Meter Management system complete with Smart Electricity Meters. It is envisaged that such a new metering system will enable the implementation of time-of-use tariffs, believed to contribute to reduction in energy demand (i.e. reduction in CO_2 emissions). Energy efficiency measures in street lighting are also being explored considering that street lighting consumption accounts for more than 1% of the total MWh of energy generated in the Maltese Islands. Malta is also currently assessing the potential of renewable energy generated by wind farms.

Grant schemes for energy efficiency and renewable energy projects

Various grant schemes are ongoing and which target the non-residential sector and the residential sector.

(A) Non-residential sector

The **energy grant scheme**, which is to be funded through the European Regional Development Fund (ERDF) (2007 to 2013), was launched in February 2009. Funds of €10,000,000 are available under this scheme. This incentive scheme aims to assist companies to implement projects related to energy efficiency (such as the installation of intelligent lighting systems, solar heating, thermal insulation, building management systems and energy-saving lighting) and electricity generation from renewable sources such as solar and wind. The scheme is being administered by Malta Enterprise, the government agency responsible for the promotion of foreign investment and industrial development in Malta. Approved and selected projects (through competitive call) will be refunded 50% of their investment cost on renewable resources and energy efficiency, with a minimum investment of €25,000 and not

exceeding €200,000. The first call for applications for funds has been closed and the contracts for the funding are to be signed by the end of August 2009. This scheme is being run in parallel with a scheme aimed at assisting companies to carry out energy audits for their systems and energy use, this scheme is funded by the Maltese Government through Malta Enterprise. **Energy audits** can identify measures which can then be funded through the energy grant scheme. The grant amounts to 40 per cent up to a maximum of 300 Euros on audits for small enterprises and up to 1,000 Euros for large enterprises. The aim is that 1,000 enterprises will undertake such audits during the course of 2009.

(B) Residential Sector

Promotion of Solar Water Heaters

Since January 2006, Malta has been implementing financial incentives for the **passive use of renewable energy**. In 2009, the financial support in the form of grants for solar energy products for domestic premises was increased from 25% to 66% on the capital costs of these products. The capping to this grant was also increased from €233 to €465. In addition, in the case of Solar Water Heaters installed in new households, EneMalta is waiving €163 from the connection fee.

Grants on purchase of micro RES generation equipment

Malta has continued to adopt measures to increase the penetration of **micro-generation from wind and solar photovoltaic (PV)**. The capital grant schemes for micro wind and solar photovoltaic systems introduced in 2006 continued to be applied up to the end of 2008.

In 2009, the previous capital grant scheme for the residential sector was replaced by the following financial support mechanism:-

- Capital grants of 30% on the purchase price of micro-wind turbine generating systems for installation in residential premises (subject to a maximum grant of € 750).
- Capital grants of 50% on the purchase price of solar PV systems for installation in residential premises (subject to a maximum grant of € 3,000). A fund of € 500,000 was allocated for this grant.

In addition to these grants:

- the cost for the installation of the meter necessary to monitor the output of these technologies is waived by the Maltese Distribution System Operator (EneMalta Corporation); and
- a net metering mechanism exists for electricity generated from renewable energy sources with a spill tariff of € 0.07/kWh for any excess electricity fed into the grid.

Distribution of Energy Saving Lamps in the residential Sector

Government launched a scheme in 2009 in which security vouchers were distributed to every family entitling them to free energy saving lamps. This measure is aimed at creating awareness in favour of energy efficient lighting in the residential sector, and discouraging the purchase of incandescent and fluorescent bulbs and tubes, to reduce electricity wastage.

Raising Awareness on Energy Efficiency

The Malta Resources Authority, the Ministry for Resources and Rural Affairs, the Malta Transport Authority and other entities are collaborating in a sustained educational campaign to generate awareness and instil a new culture on ideal behaviour in energy consumption. Indeed, a considerable amount of communication, education and public awareness (CEPA) activities have been undertaken to instil a new culture on ideal behaviour in energy consumption in Malta.

Media was used in the widest possible manner in order to target the general public at large. Energy Saving Tips were published on local newspapers (both in English & in Maltese). These were also published in local magazines. Media coverage included discussions over local radio stations as well as TV programs are being broadcasted over a span of several months. Talks on energy saving in everyday lives were given at public places and local councils. These talks proved to be very successful and requests were made by schools, private companies and government green leaders for other similar talks to be given. Demo videos were used in the talks and TV programs. Popular material has also been developed. Flyers have been distributed at homes and around all Maltese youths.

A booklet entitled "Concern for the environment requires us to take energy efficiency very seriously" was published by the Malta Resources Authority (MRA). The booklet delivered the message: "The environment benefits from less pollution and you can get lower bills while enjoying same or better comfort in our homes." The booklet guides the consumer on how to save energy as well as provides information on available grants. An evaluation of the energy saving campaign has also been carried out by MRA in order to provide *inter alia* insight as to how the Maltese public received TV commercials, as well as to deduce whether action was taken by the public to save energy, and if not, why. Another booklet was published on "Tips about reducing green house gases and climate change" by the former Ministry for Rural Affairs and the Environment. Tips cover ways of reducing GHGs on the road and at home.

The ongoing campaign on "SWITCH – To efficiency" is one of the green initiatives led by the government. This campaign includes a number of information spots with national TV personalities indicating how one can save energy in his/her everyday life. An e-mail and free phone helpline have also been set up for any queries posed by members of the general public, along with articles, a booklet and a presentation on the topic.

Significant work has thus been carried out to promote energy efficiency in Malta. More CEPA activities are in the pipeline such as on building energy efficient homes and renewable energy.

Main Sources of Information:

- 1st National Communication of Malta to the United Nations Framework Convention on Climate Change, Ministry for Rural Affairs and the Environment, University of Malta, April 2004. Report prepared by the University of Malta Physics Department (editors Charles V. Sammut and Alfred Micallef) for the Ministry for Rural Affairs and the Environment, April 2004.
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- MEPA (2009c). *National Overview on vulnerability and impacts related to Climate Change on Mediterranean marine and coastal biodiversity*. National Report to SAP-BIO Stage 2 Process.
- Information submitted by MRA-Energy Directorate as part of compilation of this report

7. Development Control and Land Use Planning

Land is considered as Malta's primary non-renewable natural resource. Competing demands for land use arise from various sectors, including increased use of private transport, increase in tourism infrastructure, demand for new housing, space requirements for industry, extensive quarrying and land intensive waste disposal. Human influence is the principal factor driving land-use change. The main strategic factors affecting **land use change in the countryside** are urbanisation, quarrying, agriculture and recreation. Urbanisation is one of the most significant pressures on the Maltese countryside (2005 State of the Environment Report - Land).

Since March 2002, environment protection (under the remit of the Environment Protection Department) and land use planning (under the Planning Authority) have merged under the responsibility of one institution, the Malta Environment and Planning Authority (MEPA). The legal mandate is provided by the Environment Protection Act (EPA - Act XX of 2001 as amended by Act II of 2006) and the Development Planning Act (DPA - Act I of 1992 as amended), respectively. The merger was aimed to increase co-ordination, efficiency and effectiveness in these two strongly interlinked areas.

The **Development Planning Act (DPA)** regulates and controls land use in the Maltese Islands and aims at mainstreaming the land use sector with environmental protection. One of its requirements is that land development, including changes of use, requires planning permission by MEPA. The DPA also extends development planning and control to the sea. For a development to be carried out, development permission is required. This matter is regulated by Article 32 of the DPA.

MEPA carries out an ongoing development control process whereby proposals for development are vetted with respect to their environmental impact. Development control involves the processing of all development planning applications both of a scale which legally designates them as "Major Projects" and those which are certainly more prolific but are lesser in size. The Authority is obliged to monitor all development operations to ensure that development is carried out in accordance to development permits. Development Control Commissions (DCCs) carry out the function of determining development planning applications. In line with the main objectives of the MEPA reform project, a number of changes are envisaged to take place in the development control process in order to ensure greater efficiency and improved consistency in the analysis and decision-making processes when it comes to development permission applications.

"Planning enforcement" encompasses actions taken by the MEPA where there is illegal development. This could be either any development without a planning permission or breaches of conditions imposed in development permits. **Monitoring** is undertaken by the Enforcement Unit and each inspection is recorded on a database outlining the stage of development reached on site at that particular time.

A compliance **certificate** is issued in terms of Article 61 (1) and (2) of the DPA. The Planning Enforcement Officer (PEO) inspects the site in question and confirms whether the development has been carried out in accordance with the approved plans and the conditions imposed in the permit. This document is considered as one of the most effective enforcement tools. New development cannot be provided with water and electricity services unless such a compliance certification is issued by MEPA. **Direct Action operations** are carried out on a regular basis throughout the year in various localities around Malta, Gozo and Comino. Direct action may involve the use of official MEPA seals to close off premises to cease works and/or prevent further unauthorized land use. Another possibility is for the Direct Action Team to enter the land and physically remove or demolish the illegal development. MEPA is also empowered to clamp, disable or remove machinery or tools that may be caught on site used in the execution of illegal development (Article 55 A.1) Expenses incurred during direct action are considered as civil debt and therefore billed to the owner of the land (Article 55 A.4).

In the recent past MEPA has taken initiatives and has also been involved with interested Government agencies to clear **eyesores from the country side**. Such action included the direct removal of scrapped vehicles from various rural locations. Current cooperation with such an agency is focusing on a clean-up of scrap (rusty oil drums etc) which had for years injured the appearance of the rural landscape and damaged the protected traditional rubble wall. Enforcement action by MEPA and the PARCS Department has yielded the removal of 6,812 objects from the countryside over a span of 13 months. 5,867 of these objects were oil drums from fields situated in ODZ, across 26 localities.

The Enforcement Unit is also highly involved in the investigation of **complaints** concerning planning enforcement issues regularly received from the general public, media and NGOs. All received complaints with subsequent results, replies and action taken by the enforcement officers are regularly maintained in a Database by the Enforcement Unit Complaints Office. The quantity of yearly complaints exceeds the 2000 mark.

The development framework for the Maltese Islands is laid out in the Structure Plan for the Maltese Islands adopted through the Development Planning Act. Seven Local Plans apply the Structure Plan

policies at the local level: Marsaxlokk Bay Local Plan (MBLP); Grand Harbour Local Plan (GHLP); North Harbour Local Plan (NHLP); North West Local Plan (NWLP); Gozo & Comino Local Plan (GCLP); Central Malta Local Plan (CMLP) and South Malta Local Plan (SMLP). The Structure Plan hence aims to influence the quality and distribution of land uses through a set of sectoral and area-based policies that take into account the socioeconomic and environmental conditions of the Maltese Islands. The objectives of this national planning tool are three-fold. The Structure Plan provides guidance to Local Plans and Subject Plans, and gives a general direction for development control as well as strives to conserve and enhance the countryside by prohibiting urban development outside the development zone.

The Development Planning Act contains the powers necessary for the designation of Urban, Rural, and Marine Conservation Areas. The **Designated Urban Conservation Areas** in Malta and Gozo cover a total of 15.14 square kilometres. The DPA thereby provides for the scheduling (statutory protection) of property in view of environmental, cultural, aesthetical, geomorphological, archaeological and other considerations. A database for scheduled property is available online. The Development Planning Act provides owners of scheduled property the right to request MEPA to reconsider the scheduling, and if MEPA's reconsideration is not satisfactory to the owners they may seek redress through an appeal. Scheduling ensures protection at a national level thus covering also those habitats and/or species that might not be covered by the EU Habitats Directive. Scheduling also targets the preservation of the natural landscape *per se* through the designation of Areas of High Landscape Value.

In the Conservation Areas development control is stricter and more specific. Development is guided by a number of Structure Plan policies including:

- *RCO Policies* - aiming towards the conservation of natural habitats, natural features and the landscape;
- *ARC Policies* - aiming towards the conservation of archaeological areas and sites within urban, rural and maritime areas;
- *MCO Policies* – aiming towards marine conservation;
- *CZM Policies* – aiming towards coastal zone management;
- *AHF Policies* – aiming towards encouraging major improvements in agriculture, horticulture and fisheries while still safeguarding natural resources for future generations;

RCO policies provide conservation measures with respect to the following:

- scenic value;
- agricultural land;
- ecology;
- rehabilitation of degraded habitats and landscape;
- sandy beaches and dune areas;
- control of erosion;
- protection of valleys;
- trees and afforestation;
- cultural and archaeological heritage;

- minor islands;
- education and research;

Within Rural Conservation Areas the following sub-areas can be designated, using the International Union for Conservation of Nature definitions and criteria where relevant:

- Areas of Agricultural Value: areas comprised of high grade agricultural land including irrigated and partially irrigated land - None of these have been legally designated nonetheless such sites have been referred to in Local Plans.
- Areas of Ecological Importance: relatively large areas designated to protect typical and rare habitats. 187 AEIs have been scheduled to date – when those sites which are designated both as AEIs and SSIs are also considered, the number increases to 214.
- Sites of Scientific Importance: sites containing individual species and populations, species assemblages, and geological features. 87 SSIs have been scheduled to date – when those sites which are designated both as SSIs and AEIs are also considered, the number increases to 114
- Areas of Archaeological Importance: concentrations of valuable archaeological sites – 13 designated to date.
- Sites of Archaeological Importance: individual and/or isolated archaeological sites.
- National Parks: relatively large areas of national significance not materially altered by human use, with managed visitor access and amenities. The GCLP (2006) identified the Qawra/Dwejra area (Gozo) as a Heritage Park area. The Qawra/Dwejra Heritage Park Action Plan (2005) provides detail on the protection and planning parameters of this National Maritime Park area.
- Areas of High Landscape Value – cover a total of 61.69 square kilometres (combined cultural and natural heritage AHLVs) (Please note that the majority of these sites overlap since AHLV boundaries are normally delineated on areas covered by other scheduling.)

Areas of Ecological Importance (AEI) and **Sites of Scientific Importance (SSI)** cover a total of 61.27 square kilometres. However, several areas contain multiple levels of protection (for instance a site may be scheduled as a Level 1 AEI as well as a Level 2 SSI). Therefore, if the total area occupied by such overlap is eliminated the resultant scheduled natural heritage occupies a total land area of 48.89km² (the spatial extent of scheduled natural heritage). Table 4 provides numerical data on the designation of these sub-areas within the over the last 15 years (Source MEPA).

Table 4 – Number of AEIs and SSIs designated 1994–2008

	AEI	SSI	AEI/SSI	Total
1994	2	0	0	2
1995	38	12	0	50
1996	74	23	0	97
1997	8	1	0	9
1998	0	1	0	1
1999	7	1	1	9
2000	1	0	0	1
2001	4	9	1	14
2002	10	21	0	31

2003	8	1	0	9
2004	0	1	0	1
2005	7	2	0	9
2006	7	2	6	15
2007	0	0	0	0
2008	21	13	19	53

The Structure Plan is currently undergoing a process of review, steered by a Core Team and chaired by the Director of Planning within MEPA. The review process comprises three phases:

- Phase 1 of the review process involved the preparation of **topic papers on all land-use sectors** that shall be addressed through the revised plan and the preparation of subject plans. Topic papers address the following key issues: demography; housing; social facilities and community care; employment (including an industry subject study, garages and warehousing); retail; tourism; leisure and recreation; minerals; waste; public utility services; urban conservation (including archaeology); rural strategy (including agriculture); coastal strategy (including aquaculture and fisheries); visual landscape and transport. The development of each topic paper has involved various stages of consultation with key players before a final draft was published for public consultation. These topic papers are available online. To assist the consultation process, a radio programme series was prepared in-house and aired live on a local radio station.
- Phase 2 includes the Strategic Growth Scenarios Paper and the Issues Paper. Whilst the former examines the implications of catering for alternative levels of housing and employment growth for the Structure Plan Review, the Issues paper collates and identifies the key issues raised in the topic papers.
- Phase 3 is the strategy and policy formulation stage and is complemented by the strategic environment assessment process. To this extent a scoping report has been prepared. This outlines the proposed SEA methodology and will initiate the environmental assessment process, which will be ongoing. The assessment will cover both the strategy formulation and policy formulation stages of the New Structure Plan process.

Supplementary policy guidance to the Development Planning Act is also developed and all guidance documents are available online. Approved guidance for instance includes the ''Guidelines on trees, shrubs and plants for planting and landscaping in the Maltese Islands'' which was issued in 2002. This policy guidance document promotes the planting of appropriate native trees, shrubs and plants to improve the rural and urban environment.

The strategic objective for land use in Malta as set out in the National Strategy for Sustainable Development is "[to] protect, maintain and improve the urban and rural environment and through the planning system protect the open countryside from uses, particularly residences, which can be more appropriately located in urban areas." This strategy recognises land development as a human-mediated activity whose consequences lead to undesirable ecosystem changes. One way of foreseeing and hence

preventing/mitigating adverse affects of land development on biodiversity is by undertaking environmental assessments.

Environment Assessments

Environment Assessment comprises the carrying out of **environment impact assessments (EIA)** for development projects that may have significant impacts on natural and human populations, and the undertaking of **strategic environment assessments (SEA)** for plans or programmes that may result in significant effects on the environment. The Malta Environment and Planning Authority (MEPA) is the competent authority responsible for the environmental assessment of projects, whilst the SEA Audit Team within the Office of the Prime Minister (OPM) is the competent authority responsible for Strategic Environmental Assessment on plans and programmes.

Malta's EIA and SEA procedures reflect the requirements of the relevant EU directives as well as national legislation particularly the **'Environmental Impact Assessment Regulations, 2007'** (LN 114 of 2007) and **'Strategic Environmental Assessment Regulations, 2005'** (LN 418 of 2005 as amended by LN 327 of 2008). Biodiversity concerns are integrated in the development and review of EIA/SEA reports. Although there is no specific national guidance on environmental assessments and biodiversity, a comprehensive set of **guidance** for the implementation of the EIA procedure and another on SEA, which will complement the existing legislation and ensure greater consistency in the application of the related EU Directives and good practice, are under preparation. EIA procedure and legislation are constantly under review in order to improve practice.

MEPA, in line with the EU Directive 85/337, as amended, on the assessment of the effects of certain public and private projects on the environment, undertakes **screening** for projects requiring an EIA. MEPA holds **scoping meetings** with applicants, consultants and stakeholders, including NGOs and Local Councils, prior to the finalisation of terms of reference for EIAs. **Public hearings** related to EIAs are also held, during which stakeholders and the public are given the opportunity to voice their views on the findings of a respective EIA. All decisions are taken in a public meeting, where the findings of the **Environmental Statement** and all feedback from consultation processes are presented to the decision-making body. MEPA's Environmental Assessment Unit also provides its technical assistance to the SEA Audit Team by screening proposals for the preparation of plans and programmes, and reviewing scoping reports and environment reports, as required by LN 418 of 2005, as amended.

The development of the EIA and SEA processes adopted in Malta has been assisted by **capacity building** which has involved training courses and workshops. For instance, a three-day training course on EIA techniques was organised by MEPA in conjunction with the Institute of Environmental Management and Assessment of the UK. The course was attended by graduates and professionals working in the field of EIAs. A two-day course for EIA consultants in government departments and agencies also followed.

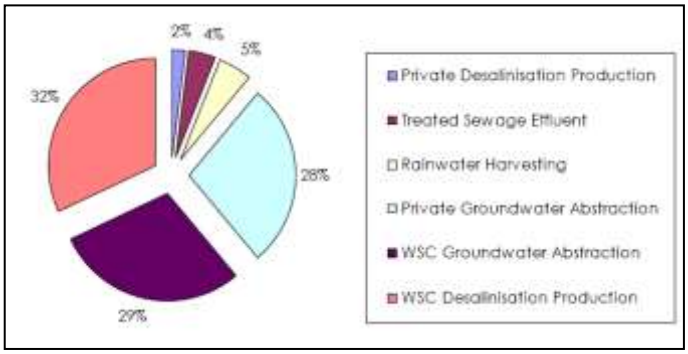
Appropriate assessment (AA) under Article 6 of the EC Habitats Directive is also carried out in the context of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The rationale of the AA process is ultimately similar to that behind the better-known EIA, albeit the scope is strictly related to the EC Habitats Directive and the EC Birds Directive. The AA process is regulated by the 'Flora, Fauna and Natural Habitats Protection Regulations, 2006' (LN 311 of 2006 as amended). The AA is not a substitute for the EIA, nor vice-versa. If the development qualifies for both AA and EIA, then both need to be carried out and submitted as free-standing documents (whilst striving to avoid any unproductive duplication of studies). **Similarities between the EIA procedure and the AA procedure** include:

- **Screening** - Both EIA and AA involve screening of proposals to verify whether an assessment report is required or otherwise. The screening processes are however somewhat different.
- **Scoping** - Both EIA and AA involve a scoping stage where Terms of Reference for the assessment report are drawn up.
- **Assessment reports** - Both EIA and AA procedures involve the drafting of an assessment report that describes the project and assesses the likely impacts as a result of a proposed development. The AA is more focused than the EIA in that it deals only with impacts of proposals on Natura 2000 sites. Moreover, while the EIA report assesses and predicts the significance of a likely impact on the environment without concluding whether a development proposal should be approved or otherwise, the AA report is to provide a clear conclusion on whether a proposal will have an impact on Natura 2000 site or otherwise. Both assessments however are aimed for decision-makers to take an informed decision.

8. Water

Issues related to the use and conservation of water resources, types of land use as well as the treatment and re-use of sewage and waste-water, all have a direct impact on biodiversity, and terrestrial and aquatic ecosystems. The need for sustainable actions addressing these issues in an integrated manner has been recognised on a national level. Malta's National Strategy for Sustainable Development also underlines the crucial importance of **integrated management of water resources** at a water catchment district level.

In Malta, **freshwater** essentially occurs either as surface water, flowing out from small springs or stored as temporary or permanent freshwater pools, or, as groundwater, stored as soil and subsurface moisture or in aquifers. **Annual rainfall** has averaged at 466.10 mm over a fifteen year span (1990 to 2005) (NSO, 2006). When compared to other Mediterranean countries, Malta has the lowest natural water resource per capita (less than 100 m^3 per year per inhabitant) and is hence considered below the extreme poverty threshold of 500 m^3 per year per inhabitant (MED-EUWI WG on Groundwater, 2007).



In Malta, the management of all practices, operations and activities relating to water is entrusted to the Malta Resources Authority (MRA) established through the Malta Resources Authority Act (Act XXV of 2000 as amended). Activities carried out annually by this Authority are documented in their published annual reports. The Directorate for Water Resources Regulation within MRA is focusing attention on the following three strategic policy areas with the objective of improving the sustainable management of water resources and ensuring more effective delivery of water services by putting good water-governance into practice:

- Resource development, protection and control
- Regulation of service providers
- Stakeholder consultation, public participation and data-base management.

On the other hand, the production and distribution of potable water is under the responsibility of the Water Services Corporation (WSC) established by the Water Services Corporation Act (Act XXIII of 1991 as amended). Activities carried out by this entity are also annually reported. An **annual water production** of around 31,000,000 cubic metres is documented by the WSC.

An **estimated breakdown of all the water produced, collected and abstracted on the island by sector** is given in Figure 1 (Source: MRA Annual Report 2002-2003).

Figure 1 – Water Production by Sector (MRA, 2003)

Although the **major source of potable water** comes from desalination, Malta also heavily relies on groundwater supply from aquifers, which are tapped both by private entities and by the WSC. Looking at water production and supply between 2002 and 2007 (NSO, 2008) reveals that on average 54.88% was generated by desalination plants while 45.12% of all water production in Malta came from groundwater. MRA (Annual Report 2003-2004) provide a breakdown of estimated full water demand from various economic sectors, that is, consumption of billed water, ground water abstraction, private desalinisation and rainwater harvesting. The agriculture sector is the major user of water resources in Malta followed by the domestic sector.

Considering the local scenario, the sources of water pollution are numerous, and their effects vary depending on the severity of the pollution source and its location.

The Directorate for Water Resources Regulation actively monitors the practices related to resource development aiming at improving the qualitative and quantitative status of all groundwater bodies as a renewable source of freshwater. MRA's Annual Report 2003-2004 documents the groundwater chemical status by assessing the chloride concentration and nitrate concentration of groundwater abstracted from lower coralline limestone (LCL) and upper coralline limestone (UCL) aquifers in 2003. Severe **salinisation of groundwater** abstracted from several boreholes and also from certain pumping stations in the LCL is reported, reaching up to 1000mg/l. The bulk of groundwater abstracted from boreholes and pumping stations in the LCL falls in the 50-100mg nitrate/l range whereas as regards groundwater abstracted from the UCL, sampled groundwater predominantly contains very high levels of nitrate reaching up to 300mg/l. MRA's Annual Report 2006-2007 documents an increasing trend in nitrate and chloride concentrations in groundwater. "Average nitrate concentrations are often exceeding the 50mg/l Groundwater Quality Standard, with values as high as five times this value being reported in the perched aquifer systems."

Over-abstraction of aquifers in the Maltese Islands is another burgeoning concern as evidenced by one of the key messages delivered by Malta's 2005 State of the Environment Report. The latter documents that groundwater reserves are severely threatened by overexploitation, not to mention pollution. This concern is also mirrored in Malta's National Strategy for Sustainable Development, which in turn recommends that: 'Information on and awareness of the importance of groundwater and the risks posed to its integrity by over-exploitation and pollution need to be more widely disseminated. The "polluter pays principle", as well as the EU Environmental Liability Directive provisions, need to be more extensively used and enforced'. New legislation however has been enacted recently and addresses unauthorised drilling and abstraction:

- **Notification of Groundwater Sources Regulations, 2008** (LN 254 of 2008 - as amended by LN 274 of 2008)
- **Borehole Drilling and Excavation Works within the Saturated Zone Regulations, 2008** (LN 255 of 2008) Regulation 4 states: "The drilling of a borehole or any form of excavation works carried out partly or totally within the saturated zone is prohibited, unless a permit to this effect is issued by the Authority."

"Solving over-abstraction problems will require reducing groundwater abstraction by different sectors - either by increasing water use efficiency or procuring alternative sources of water such as treated sewage effluents and rainwater" (MRA Annual Report 2006-2007). The Directorate for Water Resources Regulation has developed a new database system using proprietary software *Hydrogeoanalyst* which combines point data with GIS (spatial) data. It is envisaged that this data management tool will facilitate the determination and visualisation of the chemical status of the aquifers.

MRA have also drafted "Water Policy for the Future", which focuses on three main strategic objectives: efficiency in water use and maximisation of benefits; fair allocation of water resources across different

sectors and environmental sustainability. The policy identifies ten key areas and for each, a set of strategic measures are being proposed. The key areas are:

- Supply of good quality water for human consumption;
- Sustainable groundwater use;
- Reduction and management of flood-risk;
- Rainwater harvesting;
- Use of non-conventional sources;
- Water demand management;
- Effective and transparent regulation of the water industry;
- Protection of freshwater ecosystems;
- Efficient fair and equitable pricing;
- Public participation and stakeholder involvement;

MRA has participated in a number of EU-funded projects amongst which one can mention the Interreg III B Archimed Funded Project - PRODIM – Proactive Management of Water Systems to face drought and water scarcity in islands and coastal areas of the Mediterranean, and the Interreg III A Funded Project INWATERMAN - Sustainable management of water resources in an arid and semi-arid insular context and the use of treated sewage effluent.

Another noteworthy project implemented at a national level is the **MAP CAMP Malta Project - Integrated Water Management of the North-Western Region of Malta.** The objectives set out in this project included the following:

- To contribute to the sustainable management of national water resources
- To reduce dependency on expensive desalinated water
- To provide basic study for future projects namely groundwater polishing, reuse of treated sewage effluent and storm water

A set of recommendations were also developed in order to bring forth the achievement of these objectives.

Water policy in the Maltese Islands is essentially modelled on the requirements of the water-related EU directives including *inter alia*:

- Surface Water Abstraction Directive (75/440/EEC) - transposed by the **Quality required of Surface Water intended for the Abstraction of Drinking Water Regulations, 2001** (LN 339 of 2001 as amended by LN 426 of 2007)

- Bathing Water Directive (76/160/EEC) and the new Bathing Water Directive (2006/7/EC) - transposed by the **Quality of Bathing Water Regulations, 2003** (LN 380 of 2003) and the **Management of Bathing Water Quality Regulations, 2008** (LN 125 of 2008)
- Dangerous Substances Directive (76/464/EEC) – transposed by **Pollution Caused by Certain Dangerous Substances Discharged Into the Aquatic Environment Regulations, 2001** (LN 213 of 2001) and Regulations for the Protection of Groundwater against Pollution caused by Certain Dangerous Substances, 2002 (LN 203 of 2002)
- Freshwater Fish Directive (78/659/EEC) - transposed by the **Quality of Fresh Waters Supporting Fish Life (Protection and Improvement) Regulations, 2001** (LN 342 of 2001)
- Urban Waste Water Directive (91/271/EEC) – transposed by the **Urban Waste Water Treatment Regulations, 2001** (LN 340 of 2001 as amended by LN 192 of 2004 and LN 120 of 2005);
- Nitrates Directive (91/676/EEC) - transposed by the **Protection of Waters against Pollution Caused by Nitrates from Agricultural Sources Regulations, 2001** (LN 343 of 2001 as amended by LN 233 of 2004) All of Malta is designated as a nitrate vulnerable zone under LN 233 of 2004.
- Water Framework Directive (WFD) (2000/60/EC) - transposed by the **Water Policy Framework Regulations, 2004** (LN 194 of 2004);
- Groundwater Directive (2006/118/EC) - **Protection of Groundwater against Pollution and Deterioration Regulations, 2009** (LN 108 of 2009)

Overseeing the implementation of these EC Directives falls under either the sole responsibility of one designated Competent Authority or else under conjoint competences of more than one designated CA as specified in the respective transposing national legislation. For instance, the **bathing water monitoring programme** is carried out jointly between the Health Inspectorate Services through the Environmental Health Unit within the Department for Environmental Health (DEH) (who carries out monitoring of microbiological parameters) and the Environment Protection Directorate (EPD) within the Malta Environment and Planning Authority (MEPA) (who carries out monitoring of physico-chemical parameters).

Looking specifically at the **Water Framework Directive**, implementation of this EC Directive and the corresponding LN 194 of 2004 is entrusted to two designated competent authorities (CA) in Malta:

- the Malta Environment and Planning Authority (MEPA) is the CA for coastal waters and for surface waters found in areas protected by scheduling declarations under the Development Planning Act, and other surface waters found in areas hosting protected species under the Environment Protection Act or the Filfla Nature Reserve Act or other areas of ecological and scientific importance according to provisions of the Development Planning Act or the Environment Protection Act; whereas,
- the Malta Resources Authority (MRA) is the CA responsible for inland water, namely groundwater.

MEPA's portal on water presents a stakeholder map, which illustrates the various organizations /entities and the role they play in the implementation of the multifaceted WFD. The Maltese Islands, including a one nautical mile buffer from the baseline, were designated as one **Water Catchment District**

(equivalent to a **River Basin District**). Malta carried out its typology (characterisation) of both surface and groundwater bodies in compliance with Article 5 of the WFD.

Bearing in mind that protected areas require special protection or conservation of habitats and species that depend directly on those waters, a **national register** is available of protected areas that are covered by the WFD in Malta. The register consists of an inventory of protected area sites as outlined below:

- Waters used for the abstraction of drinking water
- Areas designated to protect economically significant aquatic species
- Recreational Waters
- Nutrient Sensitive Areas
- Areas designated for the protection of habitats or species

Measures involved in implementing the WFD are subject to public consultation, and necessary reports developed through the implementation process are also publicly available – see for instance MRA's and MEPA's websites respectively. There has been a joint initiative between the MRA and MEPA to create a series of web pages on the WFD hosted on the MEPA website. Active participation is also being sought during the different stages of implementation of the WFD. Various bilateral and multilateral meetings; workshops and seminars are organised to promote participation targeting different levels of stakeholders.

Surface Water Quality Monitoring is expected to improve in the next few years. Indeed, a comprehensive monitoring network has been set up. MEPA has carried out an exercise whereby it has consolidated all its present water quality monitoring requirements under the various regulations and formulated a **holistic, integrated water quality monitoring programme** which maximises resource utilization by combining the sampling and analysis for different waters at specific timeframes and for the different parameters required by legislation.

The WFD requires the establishment of a monitoring network which is representative of each groundwater body. Different approaches for establishing monitoring networks have been adopted in the Maltese River Basin District (RBD), in order to take into consideration the relative importance of the groundwater bodies with particular reference to those water bodies which sustain freshwater ecosystems and those which are utilised as sources of 'water intended for human consumption' (Further details found in MRA Annual Report 2006-2007). An EU-Funded Twinning Light Project - Development of Programme of Measures in Maltese Water Catchment District was also implemented in 2007. The project focused on groundwater resources and aimed at identifying the least cost option for restoring the status of groundwater resources in line with the requirements of the Water Framework Directive. This project involved a number of tasks:

Task 1 – Identification of the main water management issues

Task 2 - Risk-assessment for inland water bodies (those falling under the responsibility of MRA)

Task 3 – List and quantification of basic measures

Task 4 – List and quantification of potential supplementary measures

Task 5 – Programme of measures draft framework

Task 6 – Cost assessment

Task 7 – Efficiency assessment

Task 8 – Cost-effectiveness analysis

Task 9 – Draft programme of measures

Article 11 of the WFD requires Member States to draw a **programme of measures (PoM)** aimed at achieving good environmental status of all water bodies by 2015. Certain measures defined under the PoM have been developed with the aim of safeguarding terrestrial and freshwater biodiversity. The measures aim at the ecological restoration of natural valleys and the restoration of hydraulic balances within surface water bodies. The PoM also aims to strengthen the existing planning and environmental regulatory processes related to land and water use planning and management. Environmental policy integration is also another major aim.

Other Sources of Information:

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