



MALTA RESOURCES AUTHORITY

Annual Report 2007-2008



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The Authority

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Chairman

Dr Joseph Cilia, *B.Elec.Eng., M.Sc. (Nott.), Ph.D. (Nott.), MIEE*

Deputy Chairman

Mr Thomas Galea, *Dip.Eng., M.Sc. (Soton)*

Members

Mr Carmel B. Ellul, *Dip.Eng. (Hons) Mech.*

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Ms Marthese Vella, *B.Elec.Eng. (Hons), M.Sc. (Lanc.)*

Dr John Bonello, *BA, LL.M. (IMLI), LL.D.*

Secretary to the Authority

When the term of office of the Board expired on 30 July, 2008, a new Board of the Authority was nominated for the term between 1 August, 2008, and 30 September, 2009.

Ing. Carmel B. Ellul, *Dip.Eng. (Hons) Mech.*

Chairman

Dr Joseph Cilia, *B.Elec.Eng., M.Sc. (Nott.), Ph.D. (Nott.), MIEE*

Deputy Chairman

Mr Godwin E. Bencini

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Dr Eugene Buttigieg, *LL.D., LL.M (Exon), Ph.D. (Lond.)*

Ing. Kevin Spiteri, *B.Mech.Eng. (Hons), M.Sc. (Brunel), MCIBSE, MASHRAE, Eur.Ing.*

Dr John Bonello, *BA, LL.M. (IMLI), LL.D.*

Secretary to the Authority

Ing. Antoine Riolo, *B.Mech.Eng. (Hons)*

Chief Executive Officer

Dr Godwin Debono, *B.Sc., M.Sc., DIC, Ph.D. (Lond.)*

Director for Mineral Resources Regulation

Dr John Mangion, *D.Geol. (Milan), FGS*

Director for Water Resources Regulation

Ing. Godwin Sant, *B.Elec.Eng., M.Sc. Regulation*

Director for Energy Resources Regulation

Mission Statement

The Malta Resources Authority seeks to serve the Maltese community through effective, coherent, holistic and transparent regulation of the energy, minerals and water resources sectors of the economy, ensuring their advancement and sustainable use to support the integrated environmental, social, economic and business development of the Maltese Islands. It further seeks to contribute to and participate in ongoing regional development and assist in the nation's efforts to fulfil its international obligations in these spheres.

Chapter 1

Energy Resources Regulation

The Energy Directorate is responsible for the regulation of all practices relating to generation, transmission, distribution, supply and use of energy, whatever the sources of any such energy.

Liberalisation of the Inland Fuel Market

Liberalisation of importation and storage of petroleum products

The liberalisation of the importation and storage of petroleum products was initiated on 2 October, 2007. Since then, three operators submitted an application: Enemalta Corporation, Fuel Energy Ltd and Island Petroleum Ltd. Their applications were successfully processed and evaluated by the MRA. To date the two new operators have already started operations.

It is recognised that the operators need time to adapt to the new environment. The regulations and conditions attached to the operating licence are sufficient to allow for an orderly transition from a single-operator market to a multi-operator one.

The Authority expects that, as a result of liberalisation, competition is stimulated, potentially leading to an upgrading of standards, especially where quality, price of products, quality of service rendered and safety in operations are concerned.

Establishment of regulations on fuel quality

Quality of Fuels Regulations (LN 44 of 2008) transpose Directive 2005/33.EC on, among others, the sulphur content of marine fuels in Malta.

The Legal Notice updates existing legislation about the quality of fuels used on land and introduces new regulations related to marine fuels, grouping fuel quality in a single, coherent regulation.

These regulations set out the type of fuels that can be used in different sectors, including transport, agriculture and non-road mobile machinery, as well as in the maritime sector.

Regulating the Liquefied Petroleum Gas Market

Establishment of the LPG Market Regulations

A major effort was undertaken to prepare and present to Government for approval, the licensing and legislative framework necessary to put into effect new provisions to regulate the Liquefied Petroleum Gas market. The Legal Notice 249 of 2008 was put in force on 7 October, 2008.

The Petroleum for the Inland (Wholesale) Fuel Market Regulations gave the MRA the capacity to issue authorisations for the importation, primary storage and bottling of LPG cylinders. The proposed regulations would allow the MRA to issue authorisations in

all other sectors of the LPG Market, i.e. LPG cylinder distribution, bulk LPG distribution, LPG fixed piped networks, LPG secondary storages and autogas.

The scope of the new legislation was to introduce new regulations into the LPG market, thereby increasing safety both at the LPG Cylinder Filling Depot and at secondary storage installations. More importantly, it aimed at increasing the security of supply of this fuel, which is very important to the Maltese household.

Improvement of security at LPG installations

Prior to the coming into force of the LPG Market Regulation, the Authority sent letters reminding all owners of LPG secondary storages, e.g. hotels, private residents and the industry, to certify their installation in line with the regulations on the installation and use of bulk LPG installations.

In 2008 the Energy Directorate was contacted by a partnership of a local and foreign consultancy firm involved in the LPG market. The firm suggested that local engineers obtain certification in the LPG installation sector under the British Vocational Certification System. After the Malta Qualification Information Centre approved these qualifications, the Authority gave the go-ahead for these courses to take place.

Work on MRA Codes of Practice

In the United Kingdom, gas operators design, construct and operate in the LPG market in conformity with Codes of Practice issued by the Liquefied Petroleum Gas Association (LPGA). The Codes of Practice cover most sectors of the LPG market, including location of

storage vessels, regulation of autogas, storage and filling of cylinders, and technical details on LPG accessories, such as safety valves and piping.

Most of the UK Codes of Practice are being transposed to the Maltese LPG scenario with the authorisation of the LPGA. This exercise enjoys the close collaboration of a number of Authorities like the OHSA, CPD, MSA and MEPA, due to the overlapping and intersecting of competences that such a codification entails. Work on these Codes of Practice should be finished by the second quarter of 2009.

Privatisation of the Enemalta Corporation Gas Division

The Authority was informed by the Government Privatisation Unit (PU) of the upcoming privatisation of Enemalta Corporation's Gas Division. A number of meetings were held between the PU, the MRA and Gasco Ltd, made up of Liquigas S.p.a. and Multigas Ltd, winner of the bid for privatisation to ensure that the interests of the general public are safeguarded.

The business plan of the consortium aimed at two specific areas – to expand the LPG market in an intelligent way and to enter into new areas of business. The privatisation of the Gas Division will result in a number of benefits as well as new investment and the bringing into force of new legislation.

One of the investments will be the development of a new storage and refilling plant at Bengħajsa, built up to international standards and in conformity with EU law related to the Control of Major Accident Hazards (COMAH) regulation. This will also result in the

authorisations issued to Gasco/Liquigas. Enemalta Corporation will continue making use of the Qajjenza site to sell gas cylinders wholesale to the new consortium until the new plant at Bengħajsa comes online.

Liquigas (Malta) will be responsible for the operation of Enemalta's Gas Division with immediate effect and will start to inspect the LPG cylinders that are in the market. It will also mark and certify these cylinders so as to offer more security to its clients. Liquigas will introduce a high level of service to its clients as well as a 24-hour emergency service every day of the week. The MRA insisted on this during negotiations with the new consortium.

Regulation of the Electricity Sector

Lahmeyer International Study – Energy Interconnection Malta-Europe

MRA analysts were directly involved and worked in liaison with Lahmeyer International in the study on connecting Malta to the European energy grid.

Besides looking at the interconnection between Malta and Sicily, the study included capacity add-ons in local power generation, considered the phasing out of the Marsa Power Station, alternative fuel substitution and diversification due to the increasing cost of fuel and full fuel dependency.

The study proposed the least cost expansion plan, considering the technical and economic feasibility, security of supply, and environmental, legal and regulatory aspects, meeting the EU Energy Directives. It also considered the possibility of integrating renewable energy from a wind farm.

During this study, the MRA organised various meetings with relevant stakeholders, mainly Enemalta.

After it was finalised, the study was presented to the Prime Minister on the 7th August, 2008.

LN511/2004 Electricity Regulation Amendment

The MRA proposed amendments to the Electricity Regulation, which mainly transpose the Directive 2005/89/EC on measures to safeguard security of electricity supply and infrastructure investment. This included an amendment to introduce smart metering, the requirements of the network code to ensure security of supply, evaluation and cost effectiveness, and safeguarding the consumer in case of an interconnection. The amendments also included the obligation for the Distributor System Operator to publish its objectives on the quality of supply and the obligation to the Generator to publish a report on the generation plan covering future power generation requirements. Other amendments included the obligation of the Generator to have reserve capacity required for the integration of intermittent energy coming from renewable energy sources.

The transposition of the Directive also enabled a Twinning on the legislation's requirements for an open Electricity Generation market.

Licensing of Wiremen

The MRA continued its obligations as the accrediting body issuing licences to wiremen to operate as Licence A in single phase electrical installations and Licence B in three-phase electrical installations. Since October 2008, the Electricity Board carried out 17

sessions, interviewing 86 candidates for Licence A and 52 candidates for Licence B, with 66 being recommended for Licence A and 33 for Licence B.

This activity is being carried out to ensure that the workforce in the field of electrical installations is well prepared to provide good workmanship, ensuring adequate safety requirements during their tasks and for the users of their installations.

Revision of Wiremen Licence syllabus and examinations

The MRA felt that the wireman licence categories had to be reviewed and proposed a method for the transition of the existing licensees to the proposed new categories.

Since the syllabus currently being covered was last reviewed in 1970, the MRA felt the need to review it to meet today's and tomorrow's requirements. This would include various other requirements updated to today's technological changes, more awareness of health and safety requirements and regulation, inclusion of energy efficiency measures in buildings or as it is better known Building Management Systems, and further specialisations, including integrating alternative energy resources.

The syllabus for both Licences I and II (renamed this way to distinguish between present Licence grades) has been prepared and meetings were held with relevant stakeholders for the first preparation. So far the syllabus has been discussed with MCAST and other private tutors who agree on the contents but are a bit concerned about the timing since more material is involved and this may prolong the course hours.

A change in the syllabus and wireman licence categories is a welcome, much-needed opportunity to review the examination and interviewing methods. Meetings were held to discuss this with the Director of Examinations and a mutual agreement on this review was reached.

Fuel Quality Monitoring Programme

Publication of the Quality of Fuels Regulations

Implementation of the fuel quality monitoring programme

Following the issue of the Quality of Fuel Regulations, 2008 – Legal Notice 44 of 2008, the MRA was designated the competent authority on issues related to fuel quality. In terms of the regulations, the Authority regulates the quality of fuels used in the Maltese territory and on ships, especially the content of pollution-causing chemicals, such as sulphur and benzene.

The Authority is required to establish a monitoring programme throughout the Maltese Islands to monitor the quality of fuels being released in the Maltese fuel market. In this regard the MRA is in the final stages of establishing and starting to implement its fuel quality monitoring system to ensure compliance with EU Fuel Quality Directives.

Participation in Carbon Labelling Project

The MRA continued its participation in the Carbon Labelling Project under the “Intelligent Energy for Europe Programme” of the European Commission. This project involves a set of concurrent work package activities aimed to evaluate different aspects of

carbon labelling in the fuel, lubricant, vehicle and freight sectors. The pilot project aims at gauging the interest in introducing a Europe-wide label showing the CO₂ footprint reduction obtained through the use of bio-fuels, fuels and lubricant additives. The programme brings together countries looking at carbon labelling programmes that can work best in their country.

The MRA as part of the framework of this project organised a one-day workshop entitled 'Biodiesel and other Bio-fuels for smaller EU Member States' on 11 December, 2007, at Project House, Ministry for Resources and Infrastructure, Floriana. The Authority also prepared educational leaflets and a brochure on the use of biodiesel for distribution to the public and a study on Reaching the Bio-fuels Target in Small EU Member States – Opportunities for pre-blending.

Twinning Light Project of Fuels on the Liberalisation of the Fuel market

An application from the MRA with the EU was made using transition facility funds of 2006. The proposed twinning was accepted by the EU and, following the issuing of a tender for the award of this twinning programme, Germany was awarded the tender with a total budget of €249,000.

The aims of this project are to:

- provide the MRA with the technical background required to fully ensure that its remit in the newly liberalised scenario is fulfilled; and
- equip the Authority with the necessary regulatory and legal skills for it to fulfil its function to *ex-ante* regulate and monitor the petroleum sector, also in view of Malta's obligations arising out of Articles 85 and 86 of the EC Treaty.

Other Issues

Participation in four TAIEX programmes

During the year in review the Energy Directorate participated in four TAIEX (Technical Assistance and Information Exchange Instrument of the Institution Building unit of Directorate-General Enlargement of the European Commission) funded programmes:

As part of the TAIEX project organised in 2007, in May 2008 officers of the UK Department of Environment, Forestry and Rural Affairs (DEFRA) visited Malta to help officers of the MRA lay the foundation work for the co-generation feasibility study required by Directive 2004/8 on the promotion of cogeneration.

In October 2007, MRA officials participated in a TAIEX funded project on issues relating to safety in fuel installations arising out of the implementation of Council Directive 1996/82 on the Control of Major Accidents Hazards involving dangerous substances as amended by Parliament and Council Directive 2003/105, Directive 1996/61 on Integrated Pollution Prevention and Control (IPPC), and Directive 2005/65 on enhancing port security.

In January, 2008, three MRA officials attended a three-day TAIEX sponsored study visit on Electricity Purchase at the Commission for Energy Regulation (CER), the electricity utilities regulator in Ireland. The aim of the visit was to:

- determine the most appropriate scheme for the purchase of electricity;

- determine a methodology to be used to allocate costs and revenues for generation, distribution and supply of electricity, and the appropriate incentives for higher efficiency and cost minimisation;
- formulate a tariff structure tailored for the local electricity market; and
- identify the costs for ancillary services and remuneration methodology.

In January 2008, three other MRA officials visited the UK Department of Transport, responsible for the implementation of the Fuel Quality Directive in the UK. The purpose of the visit was to understand the implementation of bio-fuels regulation in the UK. The MRA officers had meetings with officers of the Renewable Transport Fuels Obligation Team within the Department, the UK Petroleum Industry Association, the Renewable Energy Association and the Home Grown Cereals, a private firm that produces biodiesel.

As part of its enlarged remit on fuel quality, in May 2008 MRA officials visited the Ministry of Environment in Helsinki, Finland. The visit was a TAIEX funded project on the transposition and implementation of Directive 1999/32 and Directive 2005/33 on the reduction and monitoring of the sulphur content of the liquid fuels used in the Member State's territory.

MEPA Consultations

Currently there are two types of consultations (from the Development Planning Act 1992) being held with MEPA on the handling of development applications:

- development applications, received by snail mail, where a reply is given within 30 days from date of receipt; and
- EIAs, received by e-mail, where a reply is given within 21 days from date of receipt.

An Internal Committee was set up to:

- determine which directorates are involved in the consultations;
- ensure that all documentation is recorded in the appropriate files;
- ensure that all cases are entered in a database showing details that include the proposal content, date received, date of reply, recommendations, etc.;
- inform and/or advise directors on inputs required by respective directorates;
- prepare a weekly status report on the pending cases;
- follow up the work delegated to appointed case officers within the directorate;
- ensure that input from any directorate is processed in an appropriate and timely manner;
- ensure that the Chairman and Board Directors have access to information on these applications; and
- ensure that a holistic reply reflecting the views of the three MRA Directorates is sent to MEPA.

A time frame was assigned to each of the procedures and the process was implemented and improved as time passed. In September 2008, MEPA decided to handle all consultations electronically and the procedure was modified accordingly.

Chapter 2

Energy Efficiency and Renewable Energy

During 2008, the MRA compiled the national energy efficiency action plan. The main objectives of the plan were savings in energy end use in line with the energy services Directive 2006/32/EC. The document includes descriptions of past, ongoing and proposed measures to reach the national energy efficiency target, and the renewable energy sources target as stipulated in the energy services Directive and in the proposal for renewable energy sources. The expected energy savings resulting from each measure is also calculated.

The function of the MRA is to implement legislation, policy and schemes in line with the national energy efficiency action plan. In the past year these included the:

- transposition of energy services Directive 2006/32/EC to Maltese legislation;
- continuation of the energy efficient rebate scheme;
- administration of ongoing nationally funded grant schemes on roof insulation, photovoltaic, micro wind and solar water heaters;
- design of a domestic aid scheme for the uptake of renewable energy sources; and
- design of a commercial aid scheme for the uptake of energy efficiency and renewable energy sources.

Support scheme to promote energy efficient domestic appliances

The energy efficient domestic appliances scheme announced in the 2007 Budget continued until 6 July, 2008. The scheme, which attracted over 40,000 applications, required technical documentation to demonstrate the eligibility of the registered appliances for the rebate. Appliances that were registered for similar schemes in other EU Member States and/or subject to third party verification were exempted from the need to be covered by this verification.

The results of the scheme were a market transformation process, as indicated in the table below. The weighted average sales of each category of appliances increased in the A class sector. The poorest performing sector was that of air-conditioners, inundated with cheap equipment imported from outside the EU with poor energy classifications. The data in this table is the result of a very limited response from importers participating in the scheme.

Category		2006 level of sales	2007 level of sales	2005 level of sales in EU15
Refrigerators	A+, A++	10%	29%	8%
	A, A+, A++	36%	77%	59%
Air-conditioners	A	16%	44%	Not available
Washing machines	A	75%	86%	85%
Dishwashers	A	85%	96%	80%

Table 1: Transformation in the appliances market

	Number of applications	Savings (kWh/year/unit)		2010 savings in MWh	
Sub-activity		Min.	Max.	Min.	Max.
Refrigerators and freezers	12,000	300	500	2,900	4,800
Washing machines	22,000	50	100	500	1,100
Dishwashers	2,000	200	200	200	200
Tumble dryers	50	100	200	5	5
Air-conditioners	7,000	200	600	1,400	5,800
Total				5,005	11,905

Table 2: Number of applications and savings in MWh

The calculations assume that around 50% of applicants to the scheme for washing machines and dishwashers and 20% for refrigerators are free riders¹. This may be an overestimation and will need to be confirmed by conducting research and on the basis of harmonised methodologies. Furthermore, the savings per appliance per year are generally based on data used for similar schemes in other EU member states. More information on consumption in the domestic sector taking into account climate effects will be required. A major difficulty with these calculations is the assumption that savings from an extension of the scheme in the future will remain constant. Improvements in technology and/or changes to legislation (minimum standards) may change the situation significantly.

¹ Free riders are customers who participate in an energy efficiency programme, but who would have undertaken the same conservation effort even if the programme were not offered.

Subsidy schemes for domestic users

To enhance energy efficiency and renewable energy uses, the MRA administered a number of schemes. These included roof insulation, micro wind, photovoltaic, electric cars and solar water heaters.

Roof insulation

In 2008, Government subsidised roof insulation up to 20% of the value up to a maximum of €232.94.

A review of the scheme and its combination with the promotion of other actions to reduce heating and cooling load was carried out for 2009. The subsidy for the installation of roof insulation will be 33% up to a maximum of €300. The roof insulation scheme will be extended to include double glazed windows as well.

Solar Water Heaters

In 2008 Government granted a rebate of 20% on solar water heaters up to a maximum grant of €232.94. In the coming year this subsidy is expected to be increased to 50% of the cost with a maximum grant of €460. This measure is being taken to increase the uptake of solar water heaters. The expected penetration rate is 3,000 solar water heaters per year. The energy savings for 2010 are as stated in the table below:

	Early action savings	Measure start year	Take-up		Savings (kWh/year/unit)		2010 savings in MWh	
Subactivity	kWh		Min.	Max.	Min.	Max.	Min.	Max.
Solar water heaters	3,520,000	2006	3,000	3,500	1,050	1,050	12,970	14,545

Table 3: Expected annual savings in 2010

Furthermore, when solar water heaters are installed in new buildings that were not previously supplied by electricity, Enemalta (the distribution system operator in Malta) waives the connection fee (€163.06).

Visits are organised by the Institute of Energy Technology when the home owner applies for the grant. A technical inspection is made on the installed solar heating system. A pre-defined technical form is used. Observations made include measuring the azimuth and the inclination of the panels, checking the water storage tank size and solar panel area to see if sufficient collector area is available to heat the water effectively and checking on lagging, insulation and back-up heating settings. A questionnaire is also filled in to understand the lifestyle of the users and advise on certain measures that could save on hot water usage. Following the visit, an official report is sent to the owner, highlighting the good results as well as those measures that need to be taken to improve the performance of the solar system with the scope of saving more energy and obtaining better customer satisfaction.

Estimates of savings are based on daily savings of 5 kWh per day for 210 days per year. These need to be confirmed using field data or other models. These calculations assume an increase in take-up associated with an increase in funding availability.

The target take-up will yield 27,000 units installed, in addition to an estimated 10,000 already installed by the end of 2007. Total annual savings will be 13 GWh, out of 1,720 GWh electricity end use. Changes to the housing stock (in terms of impact on availability of roof space) in future may lead to further restrictions on the levels of penetration.

Micro wind

The MRA administered schemes for the promotion of micro wind turbines to be installed in households. Through this system wind energy is converted into electric energy. The micro wind system is then connected with the national electrical grid.

Eligible applicants were offered a grant of 25% on the purchase of the wind energy system subject to a maximum grant of €232.94.

PVs

A PV grant was also administered by the MRA. Eligible systems were PV systems that are installed in a residence, through which solar energy is converted into electrical energy, which is then fed into the national electric grid system.

Eligible applicants could apply for a once-only grant of 20% on the purchase price of a photovoltaic system with a minimum installed size of one kilowatt peak, plus or minus five per cent (1 kWp +/-5%), and this subject to a maximum grant of €2,329. Applicants were also eligible to an additional grant of €582.34 for every additional installed kilowatt peak, plus or minus five per cent (1 kWp +/-5%), subject to a total maximum input power of 3.7 kilowatt peak (3.7 kWp). Fractions of a kilowatt peak installed additionally above the minimum of one kilowatt peak (1 kWp) were treated pro rata.

These schemes will be revised to increase uptake using Community funding.

Energy generation from micro-RES is currently paid for by Enemalta Corporation using a net metering scheme. Enemalta also provide the necessary metering free of charge.

Electric Vehicles

Another scheme administered by the Malta Resources Authority is the promotion of electric vehicles. This includes:

- a grant of €2,329 on the purchase of a new electric vehicle;
- removal of registration fees on electric cars and electric motor bikes;
- reduction of registration tax on hybrid cars to 16.5% (from 50.5% to 75% for similar cars);
- elimination of road licence for low powered two- and three-wheeled scooters;
- exemption from payment of 'congestion' fees for entry into Valletta for electric cars.

Government will consider extending incentives to hybrid cars. Furthermore, the review of the registration and annual fees to a system based on emissions will further give people incentives to purchase lower consuming vehicles.

The uptake of the schemes was as follows:

Scheme	2005	2006	2007	2008 (to date)
Solar water heaters	358	1,573	1,652	1,352
PV panels		4		
Electric Cars	1			
Hybrid Vehicles			1	
Roof Insulation		49	43	72

Table 4: Uptake of schemes

The uptake of energy efficient appliances was considerable but the scheme ended in July 2008.

The uptake of photovoltaic and wind turbines was negligible and the MRA designed a scheme for both the domestic and non-domestic sectors. The schemes will offer a greater investment aid. These schemes together with the increase in electricity tariffs should improve the demand for Renewable Energy Sources. The new schemes will be launched in the first quarter of 2009.

Subsidy schemes in the Industrial and Commercial Sectors

The MRA designed an aid scheme and applied for EU-funded investment aids on renewable energy sources and energy efficiency through the European Regional Development Fund to finance it. Energy efficiency measures include power factor improvement, industrial cooling, Combined Heat and Power (CHP) and other issues identified during audits. The renewable energy sources include micro wind and photovoltaic energy.

A variety of means will be employed to inform the industrial and commercial sectors on renewable energy and energy efficiency, including workshops, seminars, and other targeted campaigns. Subsidised energy audits will be provided.

Support mechanisms will be developed and funded under the energy efficiency fund. The schemes are expected to be implemented in the first quarter of 2009.

Renewables scheme proposals

Prior to the Budget, the MRA was involved in discussions about the schemes and was asked to put forward recommendations to make photovoltaic systems more appealing to the domestic sector. Various options were presented with the respective payback period for each option for a given tariff.

Notifications and Authorisations of Photovoltaic systems

The MRA continued to guide the public and other entities, as well as continuing to administer the notifications and authorisations on renewable energy resource installations, primarily in photovoltaic technologies.

Since October 2007, 14 notifications and four authorisations were issued. Following authorisation, applicants were provided with a licence to generate electricity. The MRA also pursued a requirement with Enemalta to draft a Power Purchase Agreement so as to safeguard both Enemalta and the applying generator's interests. So far this has not been finalised.

Photovoltaic system commissioning

The MRA felt the need to reinforce the commissioning and maintenance of large photovoltaic systems, especially those requiring a licence to generate electricity. Analysts prepared an indicative document for reference. In other EU countries, this is a remit of the Distribution System Operator. The MRA discussed this with Enemalta but so far no final decision was taken.

Large-scale photovoltaic farms

The MRA has issued Terms of Reference for the study of installation of photovoltaic farms on a large scale. The study has to include present and developing technologies in the sector and has to carry a techno-economic study of the impact photovoltaics would have on the network and generation costs. This study has not materialised.

Combined Heat and Power (CHP) Feasibility in Malta

MRA analysts are currently carrying out a feasibility study on the use of CHP. Some expert consultation through TAIEX was also provided. As part of the exercise, the MRA organised several meetings with stakeholders of the major sectors, including hotels, hospitals, various industries and the university pool facility. The report is still ongoing due to the requirement of more accurate projections of the feasibility of this technology for the future when using the recently published fuel, gas and electricity tariffs.

Wind farm study

As a promoter of alternative renewable energy, the MRA is co-operating with the Ministry for Resources and Rural Affairs on the wind farm project. The MRA issued Terms of Reference on the requirements needed to develop an offshore wind farm and to perform electricity stability studies. The MRA has been sourcing wind data to create a national wind map. It was also involved in organising meetings with stakeholders in the aviation and maritime sectors to obtain their comments on the impact both onshore and offshore wind farms could have on their operations.

In liaison with Enemalta, the MRA is preparing the Project Description Statement on the electrical connectivity of the proposed locations of an offshore wind farm and several other potential sites, as well as configurations of an onshore wind farm.

Chapter 3

Mineral Resources Regulation

The Minerals Directorate is responsible for promoting and regulating the exploration and extraction of Malta's mineral resources. The aim of the Directorate is to assist in the development of the minerals extraction industry.

Licensing, Monitoring and Enforcement

Licensing

The Minerals Directorate is responsible for issuing quarry operating licences, renewals and extensions of existing licences. It also ensures the harmonisation of planning environment and mineral resource requirements. During 2007-2008 there were a total of 48 valid quarry operating licences in Malta and Gozo, 23 for hard stone quarries and 25 for soft stone quarries.

Every year the records are updated, since the quarries' status changes over the years. To minimise the negative visual impacts, efforts for restoration and rehabilitation of the disused quarries are sustained. These are being refilled with inert soft stone waste and returned to agricultural use.

Administration of mineral resources – development applications

Development applications in the Maltese Islands remain under the responsibility of MEPA and are regulated through a development permit. Several consultations between the Minerals Directorate and MEPA are held on applications for the extension of soft stone quarries, hard stone quarries, other development planning applications and applications for restoration of exhausted quarries.

Regulations

The regulations focus on operational issues, such as resource quality and their extraction, deferring land use matters to MEPA, such as impacts and ancillary infrastructure within quarries. The regulations affect all people who work in quarries, and impose obligations on the operator for persons in or around the quarry. These regulations will help in keeping specified records.

Stakeholder Consultations

Blasting Operations in Quarries Working Group

This year the Minerals Directorate was nominated on a working group on the Control of Blasting Operations in Quarries and civil engineering works held by the Ministry for Justice and Home Affairs. At present a number of hard stone quarries are licensed to conduct blasting operations; moreover, one undertaking is licensed to manufacture Civil Explosives, mainly for use in such blasting operations. This working group will help to set up specific legislation with a view to regulating this sector more effectively, particularly with a view to ensuring that blasting operations conform to a set of clearly defined standards and procedures.

Guideline for Recycled Building Materials

The Minerals Directorate was one of the stakeholders that were consulted by the Malta Standards Authority on the Standards of Recycling of Building Materials. These guidelines and the quality regulations they contain set out the requirements as well as the kind and extent of tests provided for recycled building materials. They serve to standardise these requirements and to set a uniform system of designations and technical classification. The aim of recycling building materials is to reach a quality standard that meets the requirements corresponding to the future use of recycled building classification.

Geological map of the Maltese Islands

Continuing with the previous years, the Minerals Directorate is in the process of updating geological information on Malta's mineral resources. This database will be an important tool, which can be used by many professionals, since it provides a detailed view of the geological formations and outcroppings at the surface of the Maltese Islands.

Further Studies

One of the strategic objectives of the Directorate is to carry out studies, research or investigation on any matter relating to resources. The two studies that the Minerals Directorate is proposing are the importation of minerals and the identification of economic uses of mineral waste.

Chapter 4

Water Resources Regulation

The Water Directorate is responsible for the regulation of all practices relating to water resources, drainage and sewage.

During the period under review the Directorate for Water Resources Regulation focused its efforts on three strategic policy areas with the objective of improving the sustainable management of water resources and ensuring a more effective delivery of water services by putting good water governance into practice. The policy areas can be grouped in three categories:

- resource development, protection and control;
- regulation of service providers; and
- stakeholder consultation, public participation and database management.

Resource Development, Protection and Control

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 fresh water. Within its corporate function, the Directorate was delegated responsibility for implementing the obligations required by the EU Water Framework Directive 2000/60/EC transposed under Maltese Legislation as LN194/2004.

National Implementation Process of the Water Framework Directive

The Water Framework Directive is a framework legislation aiming to achieve high environmental standards for all water resources by 2015. It establishes a very demanding set of obligations and regulatory reporting requirements scheduled by clearly defined deadlines. Notwithstanding the lack of human resources available to the Directorate, all WFD obligations falling under the remit of the MRA were hitherto fulfilled and reporting obligations were duly met.

The results of the Article 5 'Characterisation' assessment, conducted by the MRA during 2005, indicated that all the bodies of groundwater in the Maltese River Basin District (RBD) could be considered to be 'at risk' of failing to achieve the objectives of the Directive. The provisions of the Directive allow grouping only for those water bodies that are sufficiently similar in terms of aquifer characteristics, pathway susceptibilities, pressures and confidence in their risk assessments. A review of the conclusions of the Characterisation Report was undertaken, and used for the delineation of these 'management' groupings of the groundwater bodies. The resulting groupings are outlined in Table 5.

Group Code	Component GWB Code	Name of Component Groundwater Bodies
MT0_G01	MT001	Malta Mean Sea Level
MT0_G02	MT002	Rabat-Dingli Perched
MT0_G03	MT003, MT006, MT014	Mgarr/Wardija Perched, Mizieb Mean Sea Level, Għajnsielem Perched
MT0_G04	MT005, MT009, MT010	Pwales Coastal, Mellieha Coastal, Marfa Coastal
MT0_G05	MT008, MT015, MT016	Mellieha Perched, Nadur Perched, Xagħra Perched
MT0_G06	MT017, MT018	Zebbug Perched, Victoria-Kerċem Perched
MT0_G07	MT012, MT013	Kemmuna Mean Sea Level, Gozo Mean Sea Level

Table 5: Established groupings of groundwater bodies

It should be stressed that the Directive requires the establishment of a monitoring network that is representative of each groundwater body. The different approaches for establishing monitoring networks have been adopted in the Maltese RBD to take into consideration the relative importance of the groundwater bodies with particular reference to those water bodies that sustain freshwater ecosystems and those that are used as sources of 'water intended for human consumption'. The conclusions of this analysis are:

- for the sea-level groundwater bodies a monitoring density of one site per 16 km² was established. This allows detailed investigations on spatial variations in the quality of these water bodies and also to permit further future upgrades in the resulting monitoring networks; and
- for the perched water bodies a minimum threshold of three monitoring points for each groundwater body grouping, with at least one monitoring point in each groundwater body being established. An additional 'qualitative status' monitoring point was established in the case of the Rabat-Dingli perched groundwater body to provide effective coverage to the surface water systems that this body sustains.

An outline of the number of monitoring sites in each groundwater body is presented in Table 2 below; and spatial views of the established Quantitative and Qualitative Monitoring Networks are presented in figures 1 and 2, respectively.

Group Code	Total Number of Monitoring Sites	Quantitative Monitoring Sites	Surveillance Monitoring Sites	Operational Monitoring Sites	Protected Area Monitoring Sites
MT0_G01	108	15	15	15	50
MT0_G02	14	6	4	4	-
MT0_G03	14	3	3	3	5
MT0_G04	9	3	3	3	-
MT0_G05	9	3	3	3	-
MT0_G06	9	3	3	3	-
MT0_G07	55	7	7	7	34

Table 6: Established groundwater monitoring points

Both MEPA and the WSC, as the main regulatory and operational stakeholders in the water sector, were continually consulted and informed during the compilation of this exercise to ensure the compatibility of these networks with those being currently developed by MEPA for surface water bodies and also with the operational (groundwater abstraction) activities carried out by the WSC.

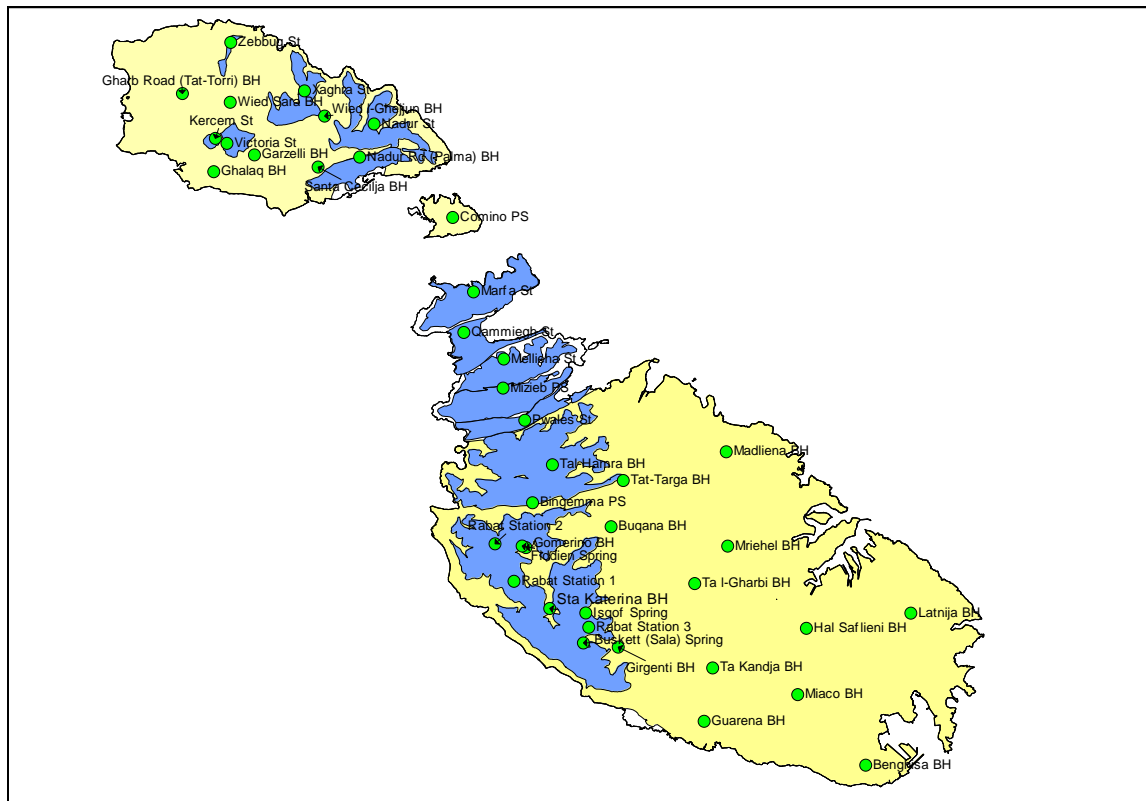


Figure 1: Plan of the proposed 'Quantitative Status' Monitoring Network

A report outlining the monitoring networks and the related monitoring strategies was submitted to the European Commission in August 2007. It is planned that full details of the network setting up process will be made available for public information from the

MRA website during 2008. The process of effectively commissioning regular monitoring in all groundwater bodies is envisaged to be completed during 2008.

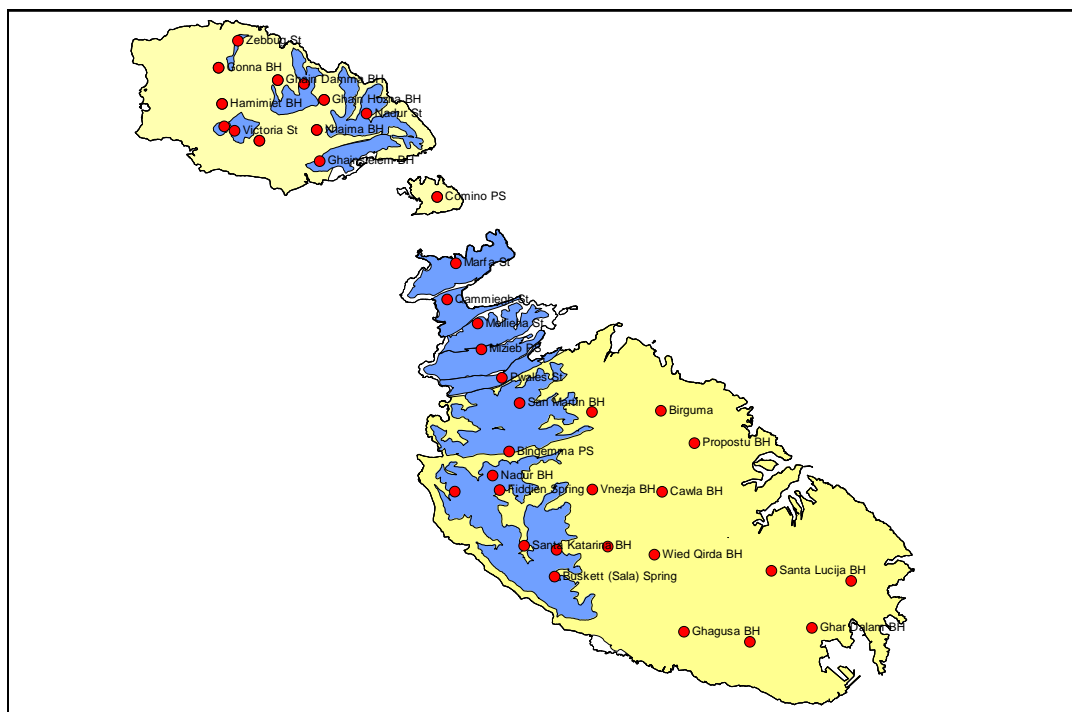


Figure 2: Plan of the Proposed 'Qualitative Status' Monitoring Network

Identification of significant water management issues

In line with the requirements of Article 14 of the WFD, EU Member States need to identify significant water management issues for each River Basin District and to present them to the public for consultation. On the basis of the results of the Article 5 Characterisation assessment, six main water management issues were identified for the groundwater bodies in the Maltese Water Catchment District.

Non-sustainable abstraction practices – the quantitative problem

Overall over-abstraction is problematic for 10 out of the 16 groundwater bodies, which were classified as being at risk or potentially at risk because of groundwater quantity issues. In particular, the 'at risk' group includes the two main mean sea level aquifer systems that are of strategic importance for the country. 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.

Groundwater chemical quality status in particular with regard to nitrate and chloride concentrations

Recent trends in groundwater quality have shown an important increase in nitrate and chloride concentrations in groundwater. Average nitrate concentrations are often exceeding the 50 mg/l Groundwater Quality Standard, with values as high as five times this value being reported in the perched aquifer systems. As a result, 15 out of 16 groundwater bodies have been classified as being at risk of not reaching the WFD's Environmental Objectives due to qualitative issues.

Major challenges with the regulatory framework and enforcement

The implementation of the WFD requires reinforcing the current legislative structures to enable effective enforcement of sustainable practices. It will also depend on more co-operation between stakeholders, for example, in implementing cross compliance regulations by the agricultural sector in particular where the Nitrates Directive is concerned. For the environmental objectives of the WFD to be achieved, more emphasis will also be made on the interaction of water policy with other policy areas affecting land use and economic development. Hence, the allocation of sufficient financial resources is key to these issues if the WFD objectives are to be achieved within the expected timeframes.

Information and awareness-raising

Water is essential to people's life and to the sustainability of the Maltese economy. But there is a general lack of education on water issues and limited understanding of:

- the nature and magnitude of the problems Malta currently faces with regard to groundwater sustainability in the light of current practices and the effects of climate change;
- the consequences of individual actions in the origin of these problems;
- the direct and indirect responsibility and liability one might have; and
- the potential solutions to solving groundwater management problems.

A key challenge is therefore facilitating the citizen's access to data and knowledge, while creating the required educational facilities to generate a more 'water-aware' society. This will invariably need to be tackled within the information and consultation processes required under the EU Water Framework Directive.

Enhancing the knowledge base

The Characterisation assessment identified several data gaps in key water management areas, calling for further research and investigations to obtain a better understanding of the anthropogenic impact on groundwater. There are still several unknown figures that will ultimately throw more light on the measures required to improve groundwater management. Such issues include the impact of private groundwater abstraction, the impact arising from the use of treated effluent for irrigated agriculture, the nitrate balance, the impact of pesticides on groundwater and the impact of solid waste disposal, in particular the disposal of hazardous priority substances by the industrial sector.

An in-depth evaluation on the impact of measures has been conducted by the Directorate with the assistance of a Twinning partner, the International Office for Water (OIEAU).

Financing the water sector, cost recovery and pricing

The Water Framework Directive under Article 9 requires Member States to achieve an adequate recovery of the costs of water services by water users.

The aforementioned water management issues will be considered in the development of the Water Catchment Management Plan and the formulation of the related Programme of Measures. The WFD prescribes a wide public information and consultation process, which is to be developed to support the formulation of these Management Plans.

Results of Commission Screening of Articles 3 and 5 Reports

In March 2007, the Commission issued a Working Document titled Towards a Sustainable Water Management in the European Union, which analysed the quality of the first two WFD implementation reports submitted by Member States.

Overall, the results presented by the Commission are satisfactory with regard to the reports submitted by Malta where the main problems identified related to the delayed submission of particular sections of these reports.

Implementation Programme of the WFD

The implementation strategy for the Water Framework Directive envisages a number of important activities in the next two years. These are:

- the effective commissioning of regular monitoring of the quantitative and qualitative status of groundwater bodies during 2008;
- the development of a draft Water Catchment Management Plan, to be issued for public consultation by December 2008; and
- the publication of the final Water Catchment Management Plan by December 2009.

	Monitoring Activities		Water Catchment Management Planning Activities
2007	Define Monitoring Networks Submit a report on the design of the Monitoring Networks to the European Commission		Publish an interim overview of the significant water management issues in the Water Catchment District for general consultation.
2008	Surveillance Monitoring	Quantitative Status Monitoring	Publish a draft of the first Water Catchment District Management Plan for consultation
	Operational Monitoring		
2009	Operational Monitoring	Quantitative Status Monitoring	Finalise and publish the first Water Catchment District Management Plan.
	Operational Monitoring		Finalise the Programme of Measures required to achieve the Directive's Environmental Objectives. Submit a report on the Water Catchment District Management Plan to the European Commission.

Table 7: Timetable of implementation activities for the coming two-year period

The New Groundwater Directive (2006/118/EC)

Publication and Transposition Requirements

The new Groundwater Directive was adopted on 12 December, 2006. This complements the environmental objectives of the Water Framework Directive, establishes a framework that defines quality standards for groundwater, and introduces measures to prevent and limit the input of pollutants into groundwater with due consideration being taken of the different regional and national specificities of groundwater bodies.

Implementation programme of the Groundwater Directive

The implementation strategy for the Directive requires Member States to bring into force laws, regulations and administrative provisions for its implementation by January 2009.

Member States are also required to set 'Threshold Values' – groundwater quality standards at Member State Level – for all those parameters that were identified by the WFD Article 5 analysis as contributing to the risk of achievement of the Environmental Objectives of the Directive; and determine the starting point for the reversal of the trends in the concentration of these parameters in groundwater. These requirements will be reported to the European Commission within the River Basin Management Plan required under the WFD.

Common Implementation Strategy for the Water Framework Directive: Participation in WFD Working Groups and other EU Fora

EIONET Data Submission – 2006

The European Environment Information and Observation Network (EIONET) aims to provide the necessary tools and data to enable the European Environmental Agency (EEA) to produce timely and quality-assured reports on the state of the environment in Europe and the pressures acting on it.

The Water Directorate is the National Focal Point for Groundwater Quality reporting on this information network. Quality data covering the calendar year 2005 on the major aquifer systems in the Maltese islands were submitted by the Directorate to the EEA during October 2006.



EWN3: Groundwater quality			Data delivered on time and in the requested format. General descriptions provided. Quality data provided. No data on pesticides and hazardous substances provided. GIS data provided. Saltwater intrusion data provided.
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Figure 3: Summary Result for the 2006 Groundwater Quality Report submitted by the MRA

Further details on this reporting exercise can be downloaded from the website of the European Environment Agency:
http://reports.eea.europa.eu/corporate_document_2007_3/en.

Participation in EU Fora

Groundwater Working Group

Officials from the Directorate for Water Resources Regulation participated in the two meetings of the Groundwater Working Group held under the Common Implementation Strategy of the Water Framework Directive. During these meetings, which were held in Lisbon and Berlin, the European Commission presented for discussion guidelines for the implementation of provisions of the WFD.

Within this Working Group the MRA is also collaborating with other Mediterranean member states to bring issues specific to our region to the forefront. This, since the pressures on the aquifers (the regional semi-arid climate, higher population densities, the influx of tourism) and the resulting impacts (water scarcity, saline intrusion) in the Mediterranean region are quite different from those experienced in other member states and need specific measures and considerations. The MRA is also stressing that EU legislation in the water sector must be flexible enough to be able to take into consideration issues related to climate change, given that current studies indicate significant impacts on the water availability in our region.

Within this working group the MRA is also supporting a Commission initiative to increase the dialogue on water issues with other Mediterranean countries to ensure increased co-operation in the region. A number of comments made by the MRA were accepted by the Commission and eventually included in the guidance documents.

Officials from the Directorate were invited by the Commission to contribute to the drafting and development of a Commission guidance document on the methodologies to be adopted for the determination of Groundwater Threshold Values and for the setting up of Groundwater Status determination tests.

Environmental Objectives Drafting Group

Officials from the Directorate also participated in the Commission drafting group on the environmental objectives and exemptions under the Water Framework Directive. The aim of this drafting group is to develop guidelines for member states on which requests to the Commission for exemptions from the achievement of the objectives of the WFD are to be determined.

EU Water Directors' Meetings

Two meetings of the EU Water Directors were held, one in Dresden and the other in Lisbon. At the meeting held in Lisbon, the issue of exemptions to the environmental objectives required under Article 4 of 2000/60/EC was extensively discussed with particular emphasis on the disproportionality of costs.

The conclusions of these discussions are being reported in view of the economic implications on a national scale. Emphasis was made by the EU Commission on the application of exemptions as a last measure to be applied only under exceptional circumstances. Furthermore, the burden of financial costs arising from obligations for compliance with the old directives cannot be taken into account when deciding on disproportionality of costs.

The Authority alerted Government to proceed with inter-ministerial discussions that will support the preparatory work for Malta to build its case with the Commission. A number of research projects currently undertaken by the Directorate for Water Resources Regulation will support this decision-making process but it needs to be pointed out at this stage that preliminary studies conducted by the MRA led to three main conclusions:

- Malta will fail to reach the qualitative objectives required by the WFD in 2015;
- nitrate levels in groundwater will not drop to the 50 mg/l threshold by 2015, even with the enforcement of strict measures limiting the input of fertilisers; and
- quantitative measures meant to alleviate pressures on groundwater resources imply high investment costs, as alternative (non-conventional) sources of supply will be required to replace groundwater.

Working Group D Reporting Obligations

The overall objective of the group is to identify information and data to be transmitted, and to prepare guidelines on the transmission and processing of information and data gathered in the framework of the WFD. These guidelines are also meant to cover the reporting aspects resulting from other water directives and are drafted with the view of collecting targeted data and information, avoiding duplication and ensuring an efficient use of available data and information. During 2007 the Working Group convened twice and discussed issues concerning the Water Information System for Europe (WISE) and the State of the Environment and Trends Report. Preparation of the 2010 Guidance was also initiated with the preparation of the reporting sheets for the 2010 River Basin Management Plan and for the New Groundwater Directive. The Working Group also issued guidance on the reporting obligations on the Urban Wastewater Treatment Directive, priority substances and the new Floods Directive.

Review of Groundwater Quality

During the year in review, the MRA carried out an extensive survey of the chemical quality of groundwater abstracted from boreholes and pumping stations operated by the Water Services Corporation. The study was carried out in support of the threshold value setting process currently being undertaken by the MRA in line with the requirements of the new Groundwater Directive.

The results obtained indicated that generally:

- the levels of sea water-related ions, such as chloride, sodium and sulphate, are generally high with the levels of 23, 8 and 2 of the samples found exceeding the indicative values of the Drinking Water Directive, respectively, for each ion;
- the levels of nitrate exceed the EU Quality Standard of 50 mg/l in all but two stations; and
- the levels of heavy metals, pesticides and other organic compounds were significantly lower than the drinking water quality standards in all stations.

It should be clarified that these results do not reflect the quality of the potable water supplied by the WSC since this water is blended with desalinated water, lowering the content of these parameters in line with the quality objectives of the Drinking Water Directive. Further investigations on these results were carried out to assess the possibility of any anthropogenic origin for the high levels of the sea water-related ions.

Upgrading of water quality data management system

The Directorate for Water Resources Regulation owns a long series of water quality data that needs to be structured in a way that it allows easy handling for monitoring purposes. For this purpose a new database system has been developed using proprietary software, Hydrogeoanalyst, which combines point data with GIS (spatial) data. This feature reduces processing time and increases data analysis possibilities.

It is envisaged that this data management tool will facilitate the determination and visualisation of the chemical status of the aquifers. The database structure developed will group all the chemical quality data available and the integration with the GIS structure will enable this data to be available on a spatial scale. Moreover, the spatial (GIS) interface will enable the development of pictorial representations of the chemical quality of the aquifers and thus prove an important tool to reach out to the public.

This data management system will also find an important application within the implementation process of the Water Framework and Groundwater Directives in the Maltese Islands, being complimentary to the data analysis required under these Directives.

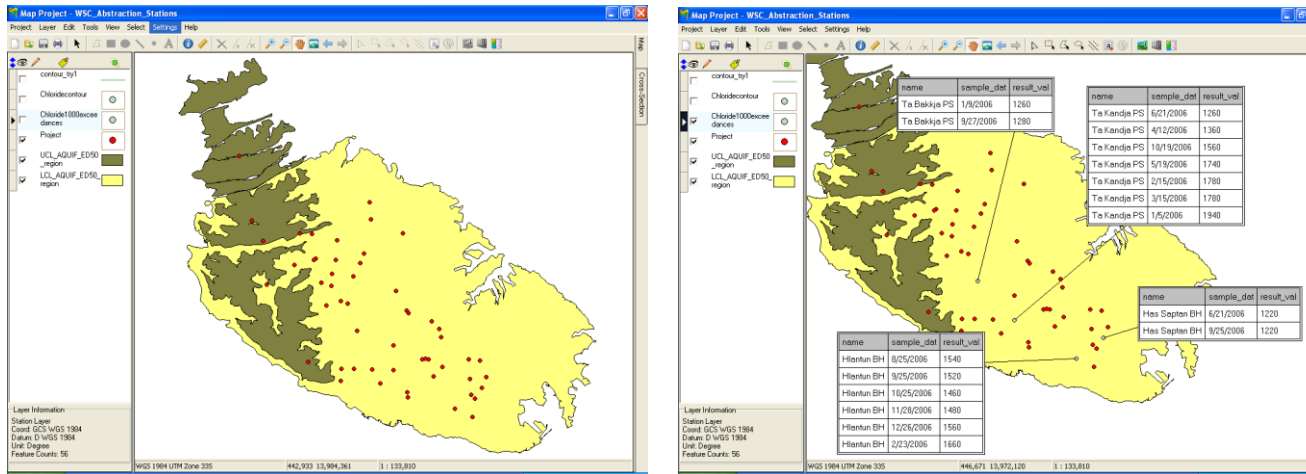


Figure 4: Screen shots from the data management system

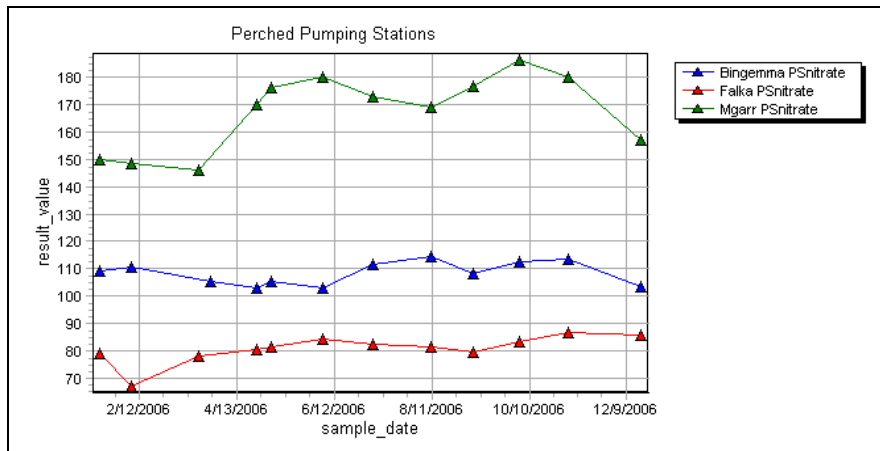


Figure 5: Prototype version for public abstraction wells built up and tested during 2007.

Revision of legislation on discharges into the aquatic environment

The Directorate for Water Resources Regulation is responsible for the stewardship of natural resources and is therefore in duty bound to protect against quality deterioration. Major potential contributors to this deterioration are wastes generated from anthropogenic activity. During the year the Directorate started a review of the legislation on discharges of pollutants into the aquatic environment. Preliminary discussions were held with MEPA, which is responsible for a number of legal notices prohibiting the discharge of dangerous substances.

Discussions are under way with representatives of the industrial sector and the Water Services Corporation, in its capacity as operator of the Public Sewage Network, to revise the Sewer Discharge Control Regulations of 2002.

Chapter 5

Participation in EU Affairs and EU Reporting

EU Directive 2003/30 on the use of Bio-fuels or other renewable fuels for transport

The Authority, in line with its annual requirement, forwards a report to the EU on bio-fuel use in Malta. Apart from including data on the consumption of bio-fuels, the report also includes information on incentives that are in place to promote bio-fuels.

Fuel Quality Directive Land Based and Marine Based

All functions related to fuel quality in the inland market were passed over from MEPA to the MRA following the enactment of Legal Notice 44 of 2008, Quality of Fuel Regulations, 2008, the legislation that covers all the relevant EU directives on fuel quality. Parallel to this, officers of the Energy Directorate also reviewed and proposed amendments to a new fuel quality Directive, which is set to introduce higher percentages for Bio-fuels in fossil fuels.

EU Directive 2003/54 on the Internal Market Report

As an obligation to the EU Commission, an annual report on the internal market of the electricity supply was prepared by the MRA.

EU Directive 2006/67 on the Report of minimum stocks of crude oil and/or petroleum products

As an obligation to the EU Commission, the MRA submits monthly reports on the security stocks held in compliance of the above mentioned Directive

EU Directive 2006/32 on Energy Services

The Energy Services Directive 2006/32/EC was transposed to Maltese legislation and various stakeholders were consulted to ensure that targets and policies were realistically achievable. The Energy Services Directive was presented to Cabinet and shall be approved imminently.

These regulations are expected to:

- remove existing barriers and imperfections that impede the efficient end use of energy;
- set a target of 9% savings in final energy consumption for the next 9 years starting from 2008; and
- create the conditions for the development and promotion of a market for energy services and for the delivery of other energy efficiency improvement measures to final customers. However, Malta, in view of its derogation from the market opening required by the electricity directive 2003/54/EC, had requested that any such derogation be also respected in this directive. This concession is included in the Directive.

The directive applies to:

- providers of energy efficiency improvement measures, energy distributors, distribution system operators and retail energy sales companies;
- final customers; and
- the country's armed forces.

To help Malta achieve these targets and obligations and to ensure that progress can be monitored, the legal notice sets up a harmonised framework through common tools, definitions and methodology. In this context, the LN provides for:

- a system for the qualification, certification or accreditation of energy service providers and the mutual recognition of those certificates;
- an energy efficiency action plan that will identify the progress made in achieving Malta's national indicative energy saving targets of 9% in final energy consumption;
- promotion of energy end-use efficiency and energy services;
- information on energy efficiency mechanisms and financial and legal frameworks;
- ensuring the availability of independent and high quality energy audit schemes;
- using energy efficiency funds as an option; and

- a system that ensures meters and systems that measure accurately and frequently actual energy consumption is put in place and that billing is informative and sufficiently frequent.

During the drafting of the provisions of this legal notice, the Ministry for Resources and Rural Affairs, Enemalta Corporation and the Malta Standards Authority were consulted. Their views and consultations on regulatory and operational provisions, accreditation and certification schemes were taken into consideration. Discussions with these stakeholders were conducted to ensure that the regulatory measures create the minimum impact possible.