Malta Resources Authority

Annual Report 2002 - 2003

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MISSION STATEMENT

MRA

MALTA RESOURCES AUTHORITY

The Malta Resources Authority seeks to serve the Maltese community through effective, coherent, holistic and transparent regulation of the energy, minerals and water resource sectors of the economy, ensuring their advancement and sustainable use to support the integrated environmental, social, economic and business development in 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.

The inside text pages were printed on paper made from 100% specially selected recycled fibres (RCF) conforming to NF EN 643 (1994).

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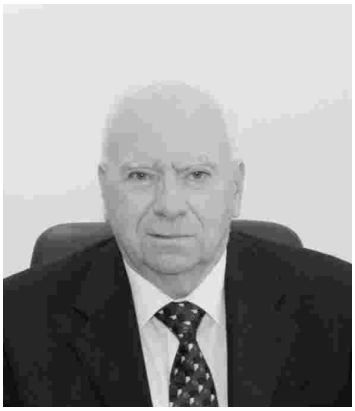
CHAIRMAN'S STATEMENT



MRA's regulatory functions are concerned with the sustainable use of water, energy and mineral resources. As MRA's operational span developed and the course of events unfolded, the period under review has indeed proved to be a most challenging year. Since inception MRA's programmes have been forged using the relative EU directives as a guiding philosophy. Once Malta's accession to the EU was affirmed, MRA's activities gained impetus and the organisation has had to sustain a rapid gain in momentum to align itself and also to enable the regulated sectors comply accordingly. Broad reforms in the traditional structures and practices of these sectors are required. These reforms cannot be achieved merely through legislative amendments and institutional restructuring, but also by cultivating a nation-wide appreciation for our precious resources.

The importance of regulation can only be understood when one considers the changing functions of Governments. Modern concepts such as liberalisation and privatisation, reduce Government's role as the provider of services but bring to the forefront the need to regulate the competition that emerges from such developments. Expertise, transparency, and objectivity are the pillars of independent regulation and the basis of MRA's policy recommendations to Government. Indeed the reforms taking place are being seen as signals, and MRA is witnessing serious private interest emerge from local and foreign investors. MRA has to keep pace with a progressive regulatory regime that can dynamically respond to such fast evolving external forces without abandoning the socio-economic aspects. As its regulatory strategy unfolds, MRA continues to maintain direction by upholding the ethos of sustainable development.

During this year, staff continued to participate in important programmes and to attend conferences and fora aimed at improving regulatory practices in Europe and the Mediterranean area. Moreover, MRA has been establishing a number of memoranda of understanding with other authorities to avoid duplication of work, costs and time in the processing of applications.

The general public, stakeholders and government, are always at the forefront of our objectives and at every significant juncture MRA continues to seek, consider and balance broad viewpoints and contending interests through consultation processes. However, MRA's response to enquiries has not been adequate and educational campaigns are needed to change engrained cultures.

The year 2002/2003 has been a taxing one, 2003/2004 will be a landmark year for MRA when its role will be put to test as its operations will focus on implementing the new legislation that has been enacted.

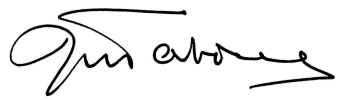
For example, the utilities will be given their first operational licences. MRA has long been ensuring that Enemalta Corporation, Water Services Corporation and the Drainage Department can comply with their new obligations. MRA will now have to monitor that the utilities are operating according to the norms of their licences.

MRA had launched a public consultation process on the introduction of Renewable Energy Systems in May of 2001. During 2003 a tender for consultancy services for the development of a strategy for the exploitation of RES was issued. The consultancy will seek to assess the potential of RES in Malta and assist MRA in developing the regulatory framework for the sector.

Next year we hope to have some feedback as to the possible implementation of a more sustainable policy for the quarrying industry which could be adopted in Malta.

With the assistance of the FAO, a comprehensive groundwater policy with the scope of sustainable management of the aquifers will be launched in 2004 following an extensive stakeholder consultation exercise.

I would like to thank the members of the Board for their determination in maximising the performance of MRA. My thanks also go to the members of staff in realising their commitments which cannot be achieved without a high degree of professionalism.



Joseph N. Tabone
Chairman

CHIEF EXECUTIVE'S INTRODUCTION

It is my pleasure to introduce this second annual report of the Malta Resources Authority, covering the twelve month period ending 30th September 2003.

This has been a year of fast transition in most of the areas of concern to the Authority.

The need to ensure competitiveness of the economy in the new realities of today is one of the major national priority objectives that is generally accepted. The design and implementation of reforms of sectors, sometimes fundamental reforms, is an important contribution towards reaching these objectives, besides being necessary to meet our obligations as a member state of the EU.

It is against this background that one has to look at the Authority, its functions and performance even at this early stage of its history. Accordingly, last year we concentrated on basic studies that are of strategic importance in defining the way forward and in making a difference to the various sectors.

This is clearly seen in our work - both internally with our own resources, and together with consultants and major stakeholders - on the reform of the electricity sector.

The concept of reform that we are adopting goes in the direction of liberalisation. The aim is to provide a framework which will not only allow but rather encourage stakeholders, especially the private sector, to utilise their initiative and investment to make the electricity supply in Malta the cheapest possible within parameters of quality and environmental standards and fair competition. The changes being proposed are substantial, but moving forward toward the liberalisation of the electricity market should not be limited or conditioned by fear of change, but rather should be undertaken in a spirit of prudent innovation. Prudence suggests a measured approach that will allow stakeholders to learn as the reform proceeds, give adequate time for regulatory and administrative procedures to be consolidated while ensuring progress at a sustained rate.

Another specific example of a project that should have major impact on a sector of fundamental importance is the development of a groundwater policy. This is often referred to by the major output that is expected of it - a fair, knowledge-based groundwater allocation policy. This has been a long-standing missing link in national water management and one that has led to the unregulated borehole drilling for improper exploitation of the aquifers. Extensive agricultural and other economic activities have grown around it over the years. Disregard of basic physical laws in the frenzy of harvesting groundwater, perceived to be an unlimited free source, has been counter-productive and in many cases, the quality of the water so obtained has proved to be damaging to the applications it was intended to favour.

These projects are also good examples of how projects of high national importance and relevance dovetail into our obligations brought about by EU accession.

In fact, this year we devoted a lot of our resources to supporting the EU negotiations and accession processes. We were responsible for making recommendations on the transposition of several directives into Maltese law, and in some cases, coordinating compliance with other agencies.

The work that the Authority should do is very extensive. We approach it with a spirit of innovation, a positive attitude and a holistic vision. We wished we had more resources to accomplish more and to have been of greater service to the country and stakeholders. We had

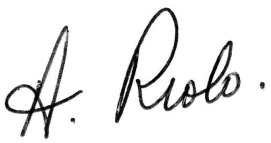
to prioritise the areas of our activity and unavoidably, our choices may have been disappointing to some.

Yet, significant work has been undertaken, as I hope our stakeholders appreciate. We recognise that stakeholders demand transparency in our performance. We have sought to satisfy this by facilitating community involvement and public participation in our initiatives at appropriate stages when direction and policy development can be influenced, and not only at the reporting stage when decisions are already taken.

Following last year's publication of a consultation paper on the development of a strategy for exploitation of renewable energy sources and the development of a corporate website, this year we published two other consultation papers; one on a proposed draft licence to the Water Services Corporation for the production, supply and distribution of potable water and a second on the transposition and implementation of the Water Framework Directive. Stakeholders are also being directly consulted on various other aspects including within the context of the utility regulation project carried out by Oxera Consulting Ltd. Further stakeholder engagement is also envisaged during this year including consultations in the course of the FAO project on water policy and allocation.

As for next year, we are looking forward to further consolidation of the Authority in terms of available resources, and hence output. We look forward, with God's help, to be efficient contributors to the national objectives, while being a result-oriented organisation that operates with a minimum of bureaucracy. I know I can count on the efforts of our staff to achieve this. Their work is appreciated and I thank them for their contribution last year.

I hope this report goes some way in addressing our stakeholders' expectations of transparency and look forward to feedback.



Antoine Riolo
Chief Executive

THE AUTHORITY

Mr. Joseph N. Tabone KM, CPPA, FIA, FCIB, FCIF, FBIM.	Chairman
Mr. Amadeo Mifsud A. & C.E.	Deputy Chairman
Mr. Robert C. Aquilina	Members
Dr. Eugene Buttigieg LL.M. (Exon.), LL.D.	
Ms. Marthese Dimech B.Eng. (Hons.), M.Sc.	
Mr. Louis Padovani FIA, CPAA (appointed 1st February 2003)	
Mr. Mario Caruana (resigned 25th April 2003)	Secretary to the Authority
Mr. Antonio Depasquale (appointed 16th June 2003)	

Ing. Antoine Riolo B.Sc, (Eng.) M.Sc. (Glas.), M.I.Mech E., C.Eng.	Chief Executive Officer
Ms. Phyllis Farrugia DMS (Lond.), MBA (Brunel)	Director for Energy Resources Regulation
Dr. Godwin Debono B.Sc., M.Sc., D.I.C., Ph.D (Lond.)	Director for Minerals Resources Regulation
Dr. John Mangion D.Geol. (Milan), FGS	Director for Water Resources Regulation

CORPORATE STRATEGY & REVIEW

CORPORATE STRATEGY & REVIEW

The Malta Resources Authority was established by the Malta Resources Authority Act XXV of 2000. The role of the Malta Resources Authority is to support the socio-economic development in the Maltese Islands through effective, coherent, holistic and transparent regulation of the energy, minerals and water resource sectors.

This report outlines the Authority's activities undertaken and progress achieved between October 2002 and September 2003.

Strategic Management

The Authority continued in its implementation of the 3-year strategic plan which was adopted the previous year.

Following an analysis of the environment in which the Authority operates, external factors, local Government policies and the concerns of the stakeholders, strategic objectives and priorities were identified and the Authority's efforts in the period under review can be categorised as follows:

1. Support to the EU accession process, subsequently changing to participation in the adoption and implementation of the EU acquis following the conclusion of the negotiations in 2002;

2. Arbitration between market operators to promote fair competition;

3. Implementation of programmes aimed at promoting development and innovation such as reform in sectors and introduction of new technologies;

4. Operation of licensing schemes as regulatory tools, including the development of first time licences to the major utilities;

5. Consultations to MEPA.

The above will be detailed in the reports of the various directorates.

Support to the EU Accession Process

Participation by MRA

With the negotiations for accession to the EU practically completed, the first six months of the year were taken up with screening of new acquis, confirming the technical adaptations to the treaty (work that eventually formed part of the Treaty of Accession) and progress reporting.

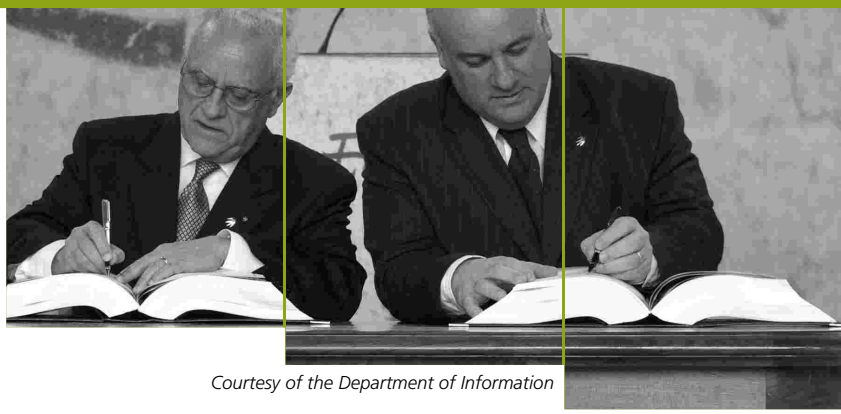
The process changed in March when Malta became more involved in the decision-making process. At this point, all material submitted to the Council of Ministers related to water or energy was forwarded to the MRA for comment. An increase in the volume of documentation related to the EU was therefore noted. A superficial analysis of this documentation revealed that approximately 530 documents (5500 pages) were received in this period. This strained MRA's human resources.

At this time, the situation with regard to EU legislation was different for the major sectors of concern to the MRA.

In the energy sector, major legislative proposals were at an advanced stage, close to conclusion, and with little time available for review. These included the proposals for revisions of the electricity market directive, the natural gas directive, the fuel stocks directive, the co-generation proposal, the proposals on biofuels and other environmental issues.

The situation with regards to water was different. The EU had just concluded the Water Framework Directive, a major legislative work, in 2001. Since then, guidance documents on various aspects of the directive were being prepared by the Commission, with the MRA continually following the process, either through participation in meetings or through internet fora.

Figure 1 illustrates the process that is being followed. For convenience, this process is divided into three phases:



Courtesy of the Department of Information

- the drafting phase during which a common position is drafted by the Commission;
- the common position phase during which this draft legislation is moulded by the political process into a directive (or other form of legislation); and
- the post-legislation phase when the directive is transposed to Maltese legislation.

This is, of course, not an official flowchart of the Government, but is inserted to clarify the following text.

A key directive that was received in the drafting stages was the draft proposal for a directive on the protection of groundwater against pollution. This is the first daughter directive of the Water Framework Directive. The MRA had been following the process, on behalf of Government, since 2001 with participation in working groups, and thus it was able to make a positive contribution to the draft with particular reference to conditions in coastal aquifers. The participation in the EU-funded Fifth Framework project - Baseline - was particularly useful in this regard as other partners in the project then also supported the MRA's position.

In the energy sector, most (if not all) documentation received referred to documentation that was already at the political stage. Participation at this stage of the process confirmed that a significant level of technical expertise in many areas is to be made available to the MRA so that it be in a position to give advice with the time limits and the level of detail that is desirable.

The MRA also participated in the development of the National Development Plan and of the Single Programming Document.

New EU legislation enacted during the year

- Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

- Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport.

- Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC.

- Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC.

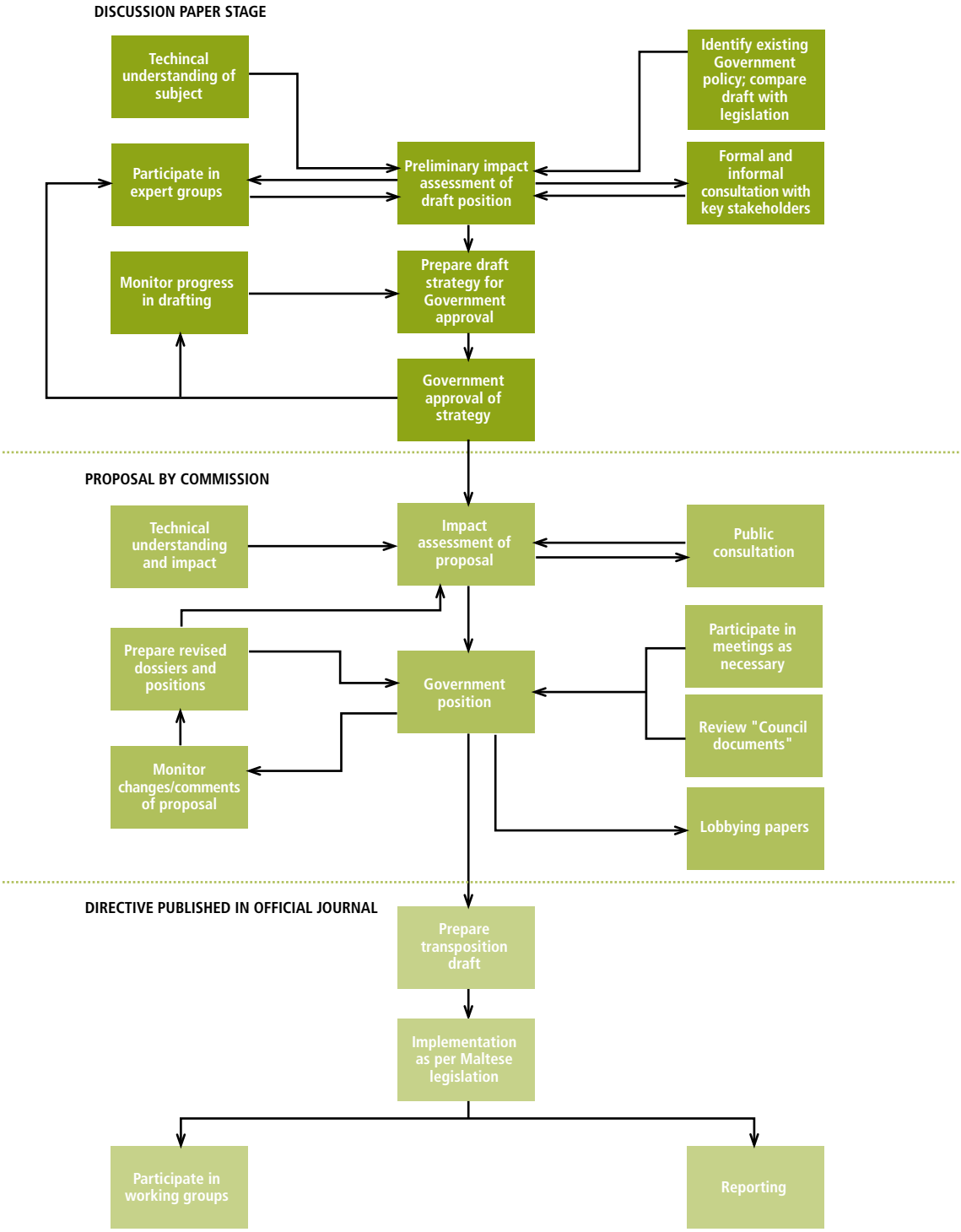
- Regulation (EC) No 1228/2003 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity.

- Decision No 1229/2003/EC of the European Parliament and of the Council of 26 June 2003 laying down a series of guidelines for trans-European energy networks and repealing Decision No 1254/96/EC.

- Decision No 1230/2003/EC of the European Parliament and of the Council of 26 June 2003 adopting a multi-annual programme for action in the field of energy: 'Intelligent Energy-Europe' (2003 -2006).

CORPORATE STRATEGY & REVIEW

FIGURE 1: INFORMAL PRESENTATION OF PROCESS FROM MRA POINT OF VIEW



Progress monitoring

This year was also characterised by continuous monitoring on the transposition and implementation of the EU legislation and the commitments made during the negotiation. Weekly reports were requested by the Office of Review of the Ministry, apart from ad-hoc reviews by the EU Commission.

In September 2002, a peer review was conducted on the administrative capacity in the environment sector. This peer review is conducted by experts from Member States. The conclusions note that there may be areas of overlap between the MRA and MEPA, but the smallness of the country and the already existing informal coordination between the two authorities can assist effectiveness.

In October 2002, the Commission published its regular report on Malta's progress. It noted progress in both water and energy sectors. It also noted that the administrative capacity of the Malta Resources Authority still has to be completed through appropriate recruitment.

In the environment sector, the Commission has been annually reporting progress through a specific report. This compares Maltese legislation with EU directives article by article. Implementation is measured using a comprehensive questionnaire. The report of November 2002 noted substantial progress in transposition of the directives of the water sector, though little progress was noted in implementation during that year.

A monitoring mission was in Malta in February 2003 to monitor progress in both environment and energy sectors.

A repeat exercise of the approximation progress of the environment acquis was completed in March 2003.

Feedback for a comprehensive monitoring report was requested in May 2003. This covered both energy and water sectors and tables with progress in approximations since the November regular report were requested.

An EU monitoring mission was also scheduled to cover both energy and environment sectors in July 2003.

In August 2003, the Commission also sent out a questionnaire on implementation of key energy sector legislation. This covered the directives and decisions concerning the internal market in gas and electricity and the new directive on renewable energy sources.

Arbitration between Market Operators to Promote Fair Competition

Decisions of the Authority

During the period under review, the Authority issued the following decisions:

- Decision Notice 001/03/ED of the 22nd February 2003 on the number of persons needed to unload fuel to Delimara power station and the minimum number of persons required to ensure the import and safe discharge of fuels at six specified unloading sites.

- Decision Notice 003/03/ED of the 25th September 2003 in virtue of the Malta Resources Authority Act (Cap. 423) on the complaint of Falzon Service Station Ltd. with regard to its hawker's licence.

CORPORATE STRATEGY & REVIEW

Resources Appeals Board

An appeal against an Authority's decision to close down certain boreholes illegally abstracting groundwater was lodged on the 4th September 2002. A judgement on appeal 001/2002 was issued on the matter on the 9th January 2003 confirming the Authority's power to take enforcement action. The appellant has now made a further appeal to the Court of Appeal.

Operation of Licensing Schemes and Other Regulatory Tools

The Authority approved an Enemalta Corporation proposal regarding changes to the tariffs for the meter charge and for the supply of electricity to commercial premises. These changes offer an optional (lower) tariff for commercial consumers with a high power factor and were intended as an incentive to industry to embark upon power factor correction schemes.

Subsidiary legislation was issued by the Minister for Resources and Infrastructure, after consultation with the Authority, establishing rules for the licensing activities in the electricity sector and laying down rules relating to the organisation and functioning of the electricity sector in Malta, access to the market, the operation of the system and the regulation of electricity tariffs.

During the year under review the Licensing, Monitoring and Enforcement (LME) Unit within the MRA continued to administer the licences falling within the regulatory framework of the three Directorates. Table 1 lists the types and number of licences administered.

Projects for improvements

Following the experiences and information gained during the first year since its setting up, the Unit was in a better position to identify improvements to streamline processes and enhance customer relations. To this effect a number of specific projects were initiated during the period under review.

Verification and update of data in databases

After the first experience in licences' renewals, it became evident that a verification and updating exercise of the databases was necessary. During the past year a special effort was made to update the swimming pool licence database, which is the second largest (in number) database administered by this Unit.

The Unit also administered an information gathering campaign for the Directorate for Energy Resources Regulation by sending detailed questionnaires to licence holders within the fuel distribution sector. Apart from updating the respective databases the information

TABLE 1: LICENCES ADMINISTERED BY THE LME UNIT (OCTOBER 2002 - SEPTEMBER 2003)

Directorate for Energy Resources Regulation		Directorate for Water Resources Regulation		Directorate for Minerals Resources Regulation	
Licence Type	N°	Licence Type	N°	Licence Type	N°
Wiremen	3,023	Swimming Pools	3,310	Quarries	92
Petrol Stations	49	Industrial Effluents Discharge Permit	58		
Kerbside Pumps	34	Inspections for Discharge of Industrial Effluents	3,000		
Gas Distributors	31	Permit for the Construction of a Cesspit	16		
Kerosene Hawkers	22	Permit for Electricity Supply to a Pump Room	52		
Bunkering	7				
Jobbers	6				

Note: The processing of the generator licence, which totals some 925 entries, was initiated during this period.

Courtesy of the Island Hotels Group

obtained is intended to help establish criteria for the regulation and eventual liberalisation of this market.

Amendments in supporting legislation

The supporting legislation governing these licences is in many cases out of line with current needs. Therefore an exercise to determine the required amendments has started.

In the case of the Legal Notice governing regulations for operating a swimming pool (LN 146 of 1998) the amendment process is at a very advanced stage. Initial efforts were also made to update the supporting legislation related to electricity generation and fuel distribution.

Process streamlining

Another issue addressed during this year was that of process streamlining. This involved streamlining internal procedures used in administering the licences, as well as those procedures involving interaction with other entities such as MEPA. The objectives of this exercise are multifold and include:

- reducing costs for the administration of these licences;
- reducing waiting timeframes for applicants;
- reducing duplication of paperwork and monitoring and enforcement efforts;
- increasing the ease of data transfer;
- curbing developments that might have a negative effect on natural resources.

In particular, reference should be made to the Memorandum of Understanding between MRA and MEPA regarding the licences for the operation of quarries. Other discussions were held to streamline procedures relating to permits and licensing falling within the Directorate for Water Resources Regulation, particularly swimming pool licences and other developments, such as cesspits, that could have a negative impact on groundwater resources.

Other activities

Wiremen Committee

This Committee was set-up to technically interview applicants who apply for a Wiremen Licence. The LME Unit also administers the procedure to ensure the efficient functioning of this Committee. During the period under review this Committee recommended the issue of 85 new Wiremen Licence 'A' and 28 new Wiremen Licence 'B'.

Effluent discharge permit unit

As indicated in Table 1, the LME Unit continued to perform inspections and administer and issue permits for discharges into the sewers. In September 2003, this function was re-entrusted to the Drainage Department, which is the utility responsible for the operation and maintenance of sewers.

Projected works

Introduction of an adequate IT system

The Authority is seeking to upgrade its licensing information system to increase efficiency and customer

orientation. Currently, studies are underway to determine the best option available given the number and diversity of the licences issued.

Introduction of service standards

The data verification and process streamlining exercises would enable the Authority to start introducing service standards. Thereby applicants, be they individuals or other authorities or utilities, would be better guided in their interactions with the Authority. These would also increase the degree of confidence and decrease the amount of litigations arising from misunderstandings.

Further amendments to legislation to enhance effectiveness

It is envisaged that the programme to continue amending the legislation supporting the licences in question will continue. This will also ensure the setting up of definite guidelines to improve on the administration of these licences.

Finance and Administration

Apart from the members of the Authority, the chief executive officer and the heads of the three directorates, the Authority currently employs 6 professionals, 2 administrative assistants and 5 clerks.

During the year, the Authority transferred its head office from Floriana to new offices at the Millennia Building in Marsa. The offices at Floriana were retained to service the public in the processing of licences, both for new applications and the renewal of existing ones.

The clerical staff employed with the Authority joined the Unjoni Haddiema Maghqudin (UHM), which union then proposed a collective agreement for these employees. Discussions are still underway with the UHM with the aim of finalising negotiations on this collective agreement. During these discussions, the UHM resorted to two industrial actions against the Authority to signify their disagreement with the proposal being put forward by the Collective Bargaining Unit and the Authority to those originally proposed by the UHM itself.

The MRA website is hosted at the address www.mra.org.mt. The website continued to be updated on the same lines as last year, and is slowly being populated with additional legislation and the Authority's decisions.

DIRECTORATE FOR ENERGY RESOURCES REGULATION

Courtesy of Enemalta Corporation

DIRECTORATE FOR ENERGY RESOURCES REGULATION

The year under review was hectic. Progress has been registered on most fronts, albeit at a pace conditioned by human and financial resources that were available. Most of the projects in conception stage during the pervious year moved on to commissioning and implementation.

Recruitment to fill some key positions in the Authority's structure is still either under way or pending. The Directorate for Energy Resources Regulation needs the input of multi disciplinary expertise and has to look beyond the technical and operational perspectives that have characterized the energy sector until recently. While the technological aspects remain fundamental for reaching significant objectives of security of supply, efficiency of the energy system and environmental protection, the economic aspect is becoming increasingly relevant as the sector is subjected to competition rules.

Energy regulation within a small economy is still a novel discipline for Malta. The operation of competition rules within the energy sector has still to be tested. Malta's policy to reform the sector, influenced by the EU accession process, has to respond to global and regional transformation of the energy scene and Government's commitment to an open market economy in those sectors (or segments) where it is potentially competitive. Indeed, the regulatory framework is still being built and a number of projects that have now commenced or are nearing completion aim at formulating the best regulatory approach for Malta. The goal is to have an integrated and holistic approach that can be progressively implemented. This is only the beginning and is part of a learning process. The strategies to be adopted both by operators and MRA for their regulation must deliver social and economic improvement.

Market reform is only one of the challenges. Environmental protection must be ensured and integrated with market reform objectives. As Malta's consumption of energy increases, the system has to develop to keep pace with the growth trend and projections. While the MRA accepts that energy costs to households and industry should be affordable, yet it is inevitable that heavy and irrational consumption should be discouraged and where practical certain energy sources which pollute less than others given preference.

MRA's aim is to ensure that the future of the sector is sustainable in the long term and market policies and mechanisms should, while ensuring secure and regular supplies, promote rational, efficient and diversified production and use of energy.

Support to the EU Accession Process and Adoption of the Acquis

MRA's role

The Ministry for Resources and Infrastructure is the lead ministry responsible for the Energy Chapter. MRA is both the implementing and advisory agency to this Ministry for this sector. The Authority is also consulted with regard to some environmental, fiscal and safety issues, which though not covered in the energy chapter, relate directly to energy. In such issues, the Authority takes on a participatory rather than a leading role.

MRA's main thrust during the period under review focused on implementing the commitments made during the negotiations on the Energy Chapter (closed in May 2002). MRA has paced its work-plan to take on the various aspects of the EU accession process.

Adoption and implementation of the energy acquis

The body of acquis relating to the internal market, security of supply and infrastructure is adopted as subsidiary to the Malta Resources Authority Act, while the numerous directives and regulations relating to energy efficiency, energy labelling and product safety are adopted through the Product Safety Act. Since Malta does not use nuclear energy for power generation, other nuclear aspects are dealt with by the Ministry of Foreign Affairs in the context of the EURATOM Treaty and by the Radiation Protection Board where it relates to safety. Obligations emanating from the energy acquis that require Malta to provide regular statistical information to the European Commission are handled by the National Statistics Office.

DIRECTORATE FOR ENERGY RESOURCES REGULATION

Hon. Minister N. Zammit at the meeting of Energy Council of Ministers

During the period up to September 2003, the following pieces of legislation were adopted and/or brought into force:

- Legal Notice 238 of 2002 - The Natural Gas (Marketing) Regulations, 2002 which transposed Directive 98/30/EC concerning common rules for the internal market in natural gas and was brought into force by LN 423 of 2002. Though Malta does not use natural gas, Malta would qualify as an 'emergent market' if and when it does use gas, and consequently would be exempt from Article 4, Article 18 (1), (2), (3), (4) and (6) and Article 20, as foreseen in Article 26 (1) and (2) of the Directive.

- Legal Notice 164 of 2003 - Electricity Regulations which transposed Council Directive 96/92 concerning common rules for the internal market in electricity. Since the Maltese electricity system falls within the definition of a 'small isolated system' in the Directive, Malta will be implementing this directive within the provisions of derogations provided from chapters relating to transmission system operation, distribution system operation, unbundling and access to the system.

- Legal Notice 13 of 2003 - Gas Transit (Grid Requirements) Regulations 2003 which transposed Council Directive 91/296/EEC of 31 May 1991 on the transit of natural gas through grids.

- Legal Notice 14 of 2003 - Electricity Transit (Grid Requirements) Regulations 2003 which transposed Council Directive 90/547/EEC of 29 October 1990 on the transit of electricity through transmission grids.

The implementation of LN 164 of 2003 ' the Electricity Regulations' is the subject of a number of current projects being undertaken by the Authority that will assist in the formulation of the electricity reform strategy and its implementation. They are outlined under 'projects of a strategic dimension' overleaf.

EU membership

After the signature of the Accession Treaty, Malta gained observer status within the EU Council and Parliament and the right to attend meetings of the Council of Ministers, though without any voting rights until 1 May 2004. Energy forms part of the Transport, Telecommunications and Energy configuration of the Council and usually there are two council meetings every year.

The first Energy Council of Ministers meeting took place on 14th May 2003. The Minister for Resources and Infrastructure attended and was assisted by the technical expertise of the Directorate for Energy Resources Regulations.

The MRA assisted in the technical assessment of the Council proposals and other documents relating to Energy pipeline legislation for eventual participation (as may be necessary) in the working groups or Permanent representatives' meetings. During the year under review, most proposals had already gone through a series of consultations before Malta started taking part and hence most were either in mid-stream or near-final drafts. In areas whose competence is found in other entities, MRA took a co-ordinating and consultative role. The technical input of Enemalta Corporation remains one of the most valuable inputs in the process until a position is recommended to

Government. As new proposals emerge, the process undertaken by MRA will be more structured and consultative with wider range of stakeholders.

Projects of a Strategic Dimension

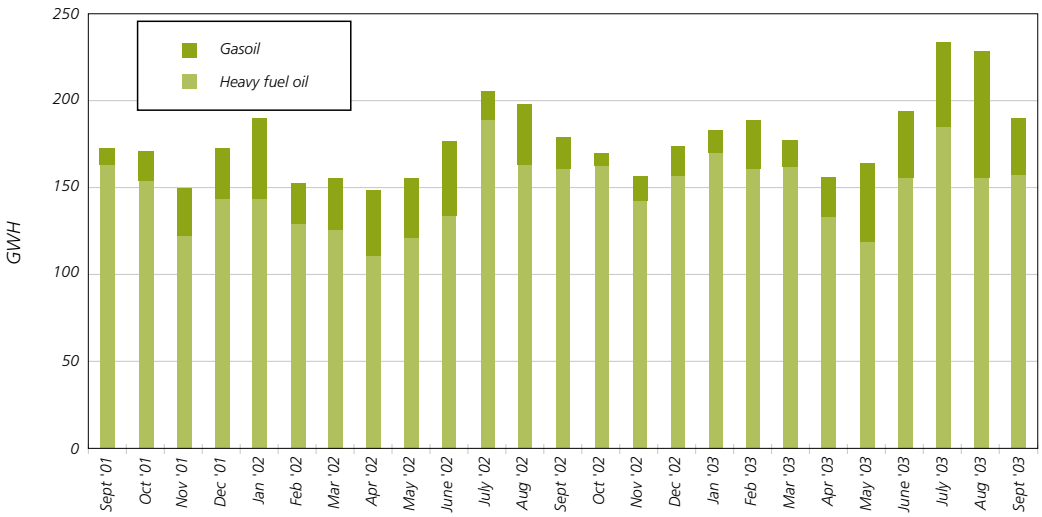
Electricity sector

The creation of a single market is a key priority of the EU and a key objective of EU's energy policy. The aim is to create the most effective, secure and most competitive energy market in the world. An important step was the adoption of the electricity and gas directives in 1996 and 1998. These were both amended by new and more specific directives in July 2003 which aim at total opening of the gas and electricity markets by 2007 for all customers.

The new Electricity Directive (2003/54/EC) was adopted by the European Parliament and Council in 2003 and this directive repealed Directive 96/92/EC. It introduced various salient changes from the original directive. It requires a faster rate of opening of the internal electricity market allowing for 100% opening by 2007. It narrows the options for implementation based on experience gained in the 5 years of working of the first directive in Member States. It defines public service obligations that may be imposed on undertakings in recognition of the essential nature of electricity to social and economic well-being that cannot be threatened by market imperfections. Due to it small and isolated electricity system, Malta is still eligible to apply for derogations, which will allow Malta to implement this directive according to its circumstances and economic parameters.

Significant progress has been registered in three complementary projects which are assisting the energy directorate in the reform of this sector and the implementation of the European acquis. Their outputs, taken together will converge to provide a sound foundation for a holistic and comprehensive vision of sectoral reform and of the policy and instruments to implement it, taking into full account of the current and likely future situation of the sector in general.

FIGURE 2: ELECTRICITY GENERATED BY FUEL SOURCE



Enemalta Corporation operates Combined Cycle Gas Turbine plant (CCGT) and classic steam plants to generate electricity. The former burns gasoil and the latter heavy fuel oil. Between January 2001- December 2003, 13.6% of electricity was produced by CCGT plant

Source: Enemalta Corporation

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Courtesy of Enemalta Corporation

Policy for reform of the electricity market

The objective of this project is to put forward recommendations on the reform policy and strategies to be adopted for the electricity sector in Malta, including a market model for the electricity sector, covering issues such as rate and degree of the opening of the market, access to the network to be given to power producers and recommendations on the legislative and procedural instruments to be established for the implementation of reform and regulation.

This project went from the concept stage in 2002 to evaluation to implementation stage during 2003. It is a Twinning Light project funded completely through the pre-accession funds for 2002. It was commissioned to the Ministry of Labour and Economics (Lower Saxony - Germany) in July 2003.

The German team of experts started their assignment with a fact finding mission in August 2003. Extensive consultations were held with the various stakeholders, particularly the management of Enemalta Corporation as any reform policy of the sector will affect both the internal operations of the utility and its external operating environment.

The project is expected to progress over the following months with at least two other field missions in Malta by the experts and is scheduled for completion by March 2004.

An assessment of the financial performance of Enemalta Corporation

The financial standing and performance of the Enemalta Corporation is an important issue. With the market model likely to be adopted, that Corporation has an important part to play. Its viability must be ensured even if the restructuring of its operations and possibly of its management and legal form is essential to improve its efficiency and effectiveness in carrying out its mission at a time of change.

One of the requirements for reform and potential opening of the electricity market is the removal of internal cross subsidies from electricity tariffs and the full internal separation of accounts of the vertically integrated utility. Furthermore, the liberalisation of the electricity sector in Malta (albeit limited within the attributes of our small isolated system) will require Enemalta Corporation (network operator) to provide fair access to the distribution network on the basis of published tariffs to other producers, including production from renewable sources.

To consider such matters, MRA commissioned this consultancy project to a reputable firm of auditors and consultants in July 2002 and it was finalised in November 2003. The assessment, discussions, and report address the financial standing, performance and projections of Enemalta Corporation, its cost and revenue structures and the impact of the electricity directive and of other directly related acquis. The project provides options and guidance on regulatory accounting methods, their format and use for tariff restructuring. A preliminary benchmarking exercise with other countries was also carried out.

Based on this report, the first Regulatory Accounting Guidelines (RAGs) were issued to Enemalta Corporation as a first step towards fulfilment of the Electricity Regulations which will come into force on 1st May 2004.

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Consultations with Enemalta Corporation are still ongoing in order to reach an agreement on the regulatory accounting principles to be adopted, investments, removal of internal subsidisation, tariff structuring, cost and revenue allocations, and efficiency improvements (technical, quality and financial) that will also provide for the required operational transparency. This objective will be achieved progressively and in line with market development.

Utility regulation

The physical and market attributes of the Maltese market, the explicit obligations of the regulator under the new Electricity Directive (2003/54) and the fact that regulation of the electricity sector within a market economy is relatively novel in Malta have prompted MRA to seek the assistance of outside expertise to help it plan the way forward in utility regulation. With valuable support (including financial) of the British Government through its High Commission in Malta, the U.K. Department of Trade and Industry and MRA commissioned a group of highly reputable consultants in the field to undertake the task.

The consultancy project was commissioned in July 2003 with the objective of formulating a focused policy, structure, instruments and mechanisms to be employed by the MRA (and other authorities as may be necessary) to regulate the utilities, including the various commercial activities of Enemalta Corporation, in a practical, modern and outcome-focused manner. The appointed consultants will be on a hands-on fact finding mission in Malta in October 2003. They will be meeting with various stakeholders and giving a two-day seminar on the principles and instruments of regulation and principally, economic regulation. It is expected that the consultants will submit their preliminary report for discussion and review by March 2004.

Regulation of Enemalta Corporation is a cornerstone for the adoption and implementation of the reform strategies of the electricity sector. The objective of regulation, which MRA fully subscribes to, is to ensure the delivery of best quality products to the consuming market at the lowest possible price.

It must be borne in mind that the restructuring of the sector and of the utility itself is not brought about by regulatory decisions, but the other way round. Having one dominant operator in a small electricity sector calls for close, possibly pervasive yet simple and effective ex-ante regulation, which may recede and change in time depending on the behaviour of the market. The MRA is also cautious not to burden itself with high regulatory operational costs that would have to be recovered through licence fees and other charges which will be passed on to customers.

Renewable energy

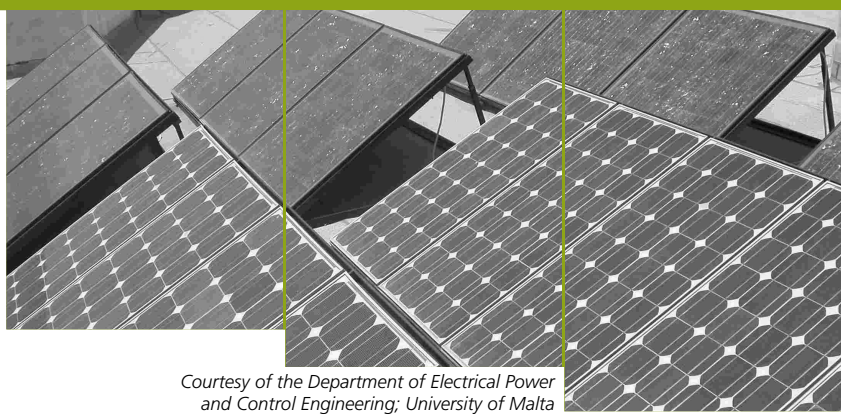
EU energy policy

The primary aim of the European Union's energy policy, as set out in the green paper "Towards a European Strategy for the security of energy supply" adopted by the European Commission in November 2000 (Final Report June 2002), is to ensure a supply of energy to all consumers at affordable prices while respecting the environment and promoting healthy competition on the European Market.

Protection of the environment has been emphasised in recent years, as was underlined by the signature of the Kyoto Protocol on Climate Change. The European Union has undertaken to reduce emissions of CO_2 by 8% in relation to its 1990 levels.

In line with EU energy policy goals, the specific environmental objectives of energy policy on environmental integration are the reduction of the environmental impact of energy production and use, the promotion of energy saving and energy efficiency and increasing the share of production and use of cleaner energy, including renewables. Council Directive 2001/77 sets the EU indicative target of 22% share of total energy consumption to be met by renewable sources by 2010. Malta's indicative target was set at 5%, which will be reviewed in 2005 as provided for in the same directive.

Meeting the EU renewable energy targets will be challenging for all present and future Member States.



Courtesy of the Department of Electrical Power and Control Engineering; University of Malta

Financial, fiscal and administrative barriers, the low economic competitiveness of some renewables and the lack of information and confidence amongst investors all hinder the development of renewable energies. These 'non-technical barriers' are one of the key action areas of the Framework programme 'Intelligent Energy for Europe' which was launched by the Commission in July 2003 and in which Malta will participate from 01 January 2004.

Introduction of RES in Malta

Between April and June of 2002, the MRA consulted on the formulation of the terms of reference for a comprehensive assessment of the potential and means to be adopted for the feasible exploitation of Renewable energy for electricity production (RES-E) in Malta. The comments received were taken into account, the terms of reference finalised and the call for tenders was issued in December 2002. There were three bidders, whose offers were evaluated by a team of independent consultants. At the time of reporting, the award is imminent.

The findings of the consultations will advise the MRA on the potential of RES-E in Malta that can be feasibly, technologically and economically exploited in Malta. It will also take into account the limitations and potential opportunities that the electricity system and network offers against the projections of growth for electricity demand. This will be the basis for the review of indicative targets by October of 2005 under the obligations of Council Directive 2001/77 to be met by Malta by 2010.

The consultants will also recommend on the administrative and other mechanisms that must be established and operated for the effective and successful implementation of the strategy and exploitation of the indicated potential. This strategy will converge with other strategic measures for the reform of the sector and its integration with measures to minimise environmental degradation from energy production and use. Indeed, the electricity scenario of the next decade should be quite different from the current one.

The MRA is also actively promoting the use of renewable energies in major projects currently underway in Malta, where it is more likely to be economically and technically feasible. Such projects include energy recovery from the sewage treatment and other waste treatment plant projects currently in the planning or development stage.

The MRA has also authorised two pilot projects using solar panels for the production of electricity and for their connection to the grid.

The use of renewable energy for transport is fairly novice in Malta although private industry has already taken up the production of bio-fuels, albeit in very small quantities. The EU Council Directive 2003/30 of the 8th May 2003 on the promotion of the use of biofuels or other renewable fuels for transport requires that Member States set indicative targets for percentages of petrol and diesel marketed in their territory to be derived from biofuels. These are set to be 2% by the end of 2005 and 5.75% by the end of 2010.

Fuels Sector

Fossil fuels are the primary energy source for Malta and are expected to remain so, despite the various efforts underway to diversify the energy mix.

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Kerosene Consumption by Households

It is estimated that only 2% of Maltese households use kerosene as a household fuel. Their annual expenditure expense on the fuel was estimated to be approximately Lm83, equivalent to 56 litres/month.

Source: Household Budgetary Survey 2000/2001 – National Statistics Office

The inland fuel market is thus far exclusively handled by the Petroleum Division of Enemalta Corporation operations. The Directorate for Energy Resources Regulation of MRA is focussing its attention on the fuel market structure and trading regulation.

With regard to quality of fuels and other related environmental aspects, MRA takes a supporting role to the Environment Protection Directorate of the Malta Environment and Planning Authority. During the year under review, there was the complete phasing out of leaded petrol from our markets, and the full compliance to Council Directive 98/70 on the quality of fuels (which was incorporated into Maltese law by Legal Notice 222 subsidiary to the Environment Protection Act).

The importation and wholesale de facto monopoly of Enemalta Corporation will be eliminated by December 2005. By that time, the phased price adjustment mechanism for petrol, diesels and kerosene launched in November 2001 by the Minister is Finance is expected to be completed. This will pave the way for the eventual elimination of trading restrictions. Fuel price regulation and its quarterly review is currently handled by the Ministry of Finance and Economic Affairs.

The retailing industry structure of fuels in Malta remains that established in 1978; that is jobbing and hawking of fuels for industrial and household uses, and through petrol stations for the automotive sector. The number of retail operators has not changed either, although interest has been expressed by various entities that wish to participate in an eventual liberalised scenario. However the MRA is giving priority to the restructuring of the current trading and distribution structures.

The restructuring plan for the retailing of heating and commercial fuels, namely diesel and kerosene is nearing completion. Options for delivering these fuels efficiently while ensuring a fair and level playing field for the market operators and elimination of abuses have been proposed and are being considered internally. A consultation process with stakeholders will be conducted, and the restructuring plan is to be launched in 2004. It will take into account of the true and current needs of the Maltese household and industry.

Fuels for bunkering

With its establishment in 2001, the MRA was entrusted with the economic regulation of bunkering trade. Since bunkering trade is liberalised, its specific economic regulation is limited. The environmental and safety aspects of bunkering remain under the sole regulatory governance of the Malta Maritime Authority (MMA).

While the MRA is the licensing agency for these operators, its aim is to limit its intervention in the bunkering segment to what is essential and within the context of an all-inclusive approach towards the energy economy in Malta. Its monitoring intervention focuses on minimising the possibility of abuse by operators active in both the inland and bunkering segments which may result in unfair advantages until the inland fuel prices are fully adjusted to market prices.

The MRA and MMA also worked together towards a more streamlined approach for the licensing and monitoring of these operations with an aim to avoid duplication of effort, ensuring regulatory transparency and minimising costs associated with regulation. Activity in this segment is reportedly slowing down.

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Key Energy Figures for 2002

Total Primary Energy Supply (TPES) (MToe)	***0.790***
Population	***385,941***
TPES per capita (toe/capita)	***2.0471***
GDP (million Lm)	***1,675***
TPES / GDP (toe /000Lm)	***0.472***
Total Electricity Generated (MWh)	***2,057,301***
Electricity Consumption /capita (MWh/capita)	***5.331***
Electricity consumption /GDP (kWh/Lm)	***1.228***

Note: TPES includes all inland consumption of fuel (automotive fuels, gasoil, kerosene fuel oils and LPG)

Source: Enemalta Corporation, National Statistics Office, Malta Resources Authority

Licensing, Monitoring and Enforcement

Licensing

The MRA is, up to the time of reporting still generally operating the licensing regime set up by the previous regulators, i.e. the utilities. The licensing process itself is currently the subject of an ongoing review and update in order to streamline the current systems, and improvements have already been identified and implemented. However, major changes will take place as new and amended legislation comes into force reflecting the restructuring of the sectors, the policies being adopted and a general update of procedures to reflect a new commercial and technical environment.

Wiremen: The Licensing Unit handled 2,959 renewals and processed 213 new applications through the Technical Committee. This committee was set up in July 2002 to make recommendations to the Energy Directorate on the granting of licence to applicants who had passed the Wireman Exams held annually by the Department of Education. For the year 2002/3, there are around 100 persons who passed the exams, sixty of which have already put in their application with MRA for the granting of a license. Apart from the above, there 887 dormant licences and 208 pensioners whose licence has been suspended at their request. The concept and practice of 'dormancy" in licensing was introduced by Enemalta Corporation when it held regulatory powers, but is now being reviewed by the Authority.

The MRA licenses 83 petrol stations (including kerbside pumps) of which there are 5 non-operational (not established) although they hold a licence. A policy with regard to non-operational petrol stations has been formulated. In 2003, these licences had been renewed until December 2003 and in arrears for 2002.

Fuels wholesaled by Enemalta Corporation is retailed by 6 jobbers (diesel and kerosene in bulk) and 22 hawkers (kerosene and light cycle oil). In 2003, these licences were renewed until December 2003 and in arrears for 2002. Licences for this segment are being revised with the restructuring process which will address the true and evolving market needs of both households and other larger commercial and industrial consumers.

Gas distribution: There are 31 licensed gas distributors (29 in Malta and 2 in Gozo) who operate under contract with the Gas Division of Enemalta Corporation and within their respective geographical areas on a door-to-door basis. In the forthcoming year, this retailing activity will also be subjected to a structural review with an aim to improve the service to consumers, ensure safety and efficiency of operations.

Monitoring and Enforcement

The monitoring and enforcement activities of MRA to date are limited, reflecting the available resources. Allegations of market malpractices, unfair competition or other breeches of licence conditions are investigated once

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a complaint is received. It is believed that the requirement of a dedicated enforcement task force on the market can be avoided in fairly structured and liberalised market segments where market forces are at play. It is however acknowledged that certain market and consumer practices must be directly addressed for the benefit of safety, consumer satisfaction and the creation of a level playing field for operators.

Complaints dealt with by the MRA through its Directorate for Energy Resources Regulation relate mainly to the fuels segment, and covered allegations of abuses and unfair advantages taken by certain traders, of spillage of duty free fuels onto the inland market and of unlicensed storage of fuels. Complaints handled were:

- In February 2003, the MRA was requested by Enemalta Corporation to establish the minimum number of persons required under Article 64(6)(d) of the Employment and Industrial Relations Act to ensure the import and discharge of fuels at all unloading sites in Malta.

- Validation of a hawker's licence and to be allowed to uplift kerosene from Enemalta Corporation's depots against a thus far dormant licence.

- Malta Freeport Terminals Plc: complaint made originally to Enemalta Corporation on the price of diesel being paid by Malta Freeport Plc who claimed that according to Malta Freeports Act they are exempt from duty and excise on goods used for their operations. MRA intervened in the case at Malta Freeport's request. A decision was issued in its September sitting. Enemalta Corporation's appeal to this decision is being heard.

Another monitoring function, emanating from MRA's functions under the Act, relates to minimum security stocks. The MRA monitors on a monthly in arrears, the supply and demand/consumption of both fuels (including LPG) and electricity.

Despite the financial burden involved in setting aside security stocks, the MRA notes with a degree of satisfaction that except for some variations in one category of fuels, these stocks were built in 2003 and are kept in accordance to the legal requirements. These stock requirements will be revised in January 2004, taking into account the consumption during 2003. On average, it is being estimated that consumption in 2003, would have increased in the region of 5% over 2002 figures.

Operational inventories of fuel kept by the trader (Enemalta Corporation) to conduct its day to day trading were kept at an levels corresponding to 10 to 15 days' national consumption in 2003.

Electricity Generation

In summer 2003, at peak loads some parts of the electricity network reached their rated capacity. This was predominantly in certain parts in the north of the island, and at times power outages were reported, due to overloading of the cables. This was mainly explained by the demographic move of the population to the

Malta's obligations to hold the minimum security stocks of fuels for 2003

Stock holding obligations were designated to Enemalta Corporation and are:

Category I ***(motor spirits)***	*7,700 tonnes, equivalent to 40 days consumption in 2002*
Category II ***(jet fuel, kerosene and gas oil/diesel)***	*29,908 tonnes, equivalent to 45 days consumption in 2002*
Category III ***(fuel oils)***	*67,210 tonnes, equivalent to 45 days consumption in 2002*

northern areas during the holiday period. It is therefore evident that the electricity network needs to be reinforced. The commissioning of the 132kV Mosta DC will certainly help to address the problem.

Owing to the nature of the load imposed on the power station, the amount of reactive power is relatively high. In the beginning of 2003 MRA approved a proposal from Enemalta Corporation for tariffs to include incentives to improve the power factor. Tariffs on this basis offered a financial incentive to commercial and industrial consumers who opted for the scheme and who have their power factor corrected to a value better than 0.92. These tariffs were published in Legal Notice 99 of 2003. They are to be considered as a first step and need improvement.

Relations with Other Organisations

Consultative roles

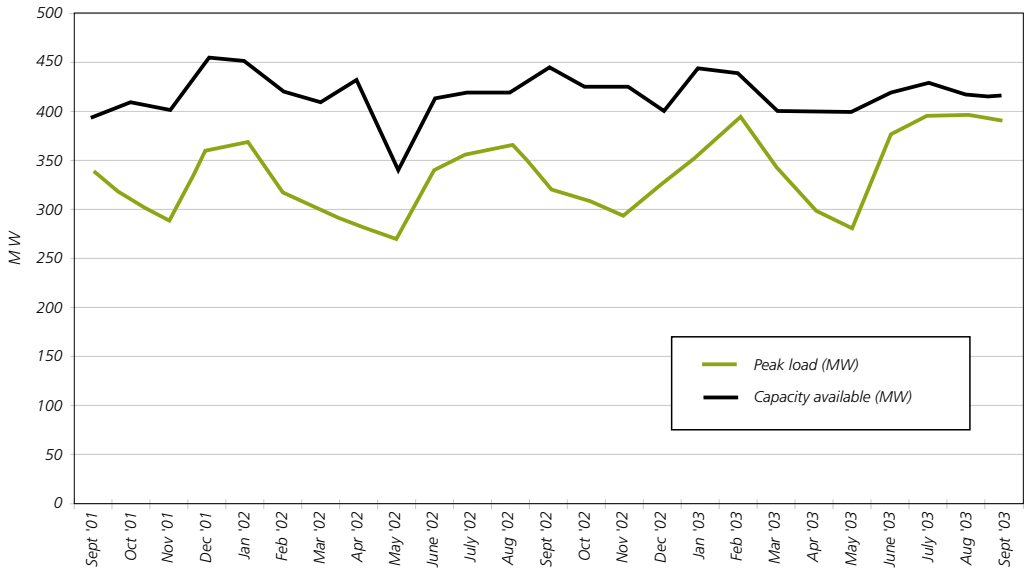
Environmental policy

Activities in the energy sector, (including electricity generation and use including transport) are the cause of major degradation of air quality and are responsible for other environmental pollution. Competent authorities in the environmental policy sphere (Ministry of Environment and Rural Affairs and MEPA) consult and co-ordinate with MRA on issues and legislation that affect the sector and vice versa. During the year under review, a whole body of legislation was brought into force that requires the electricity sector to burn better quality (lower sulphur) fuels and employ other emission abatement technologies to reduce dust, nitrogen oxides and sulphur oxide emission; the transport sector will be using lower sulphur and lead free petrol and certain installations will be seeking and adopting the best available technologies to fulfil the Integrated Prevention and Pollution Control Directive.

A task force set up under the auspices of the Environment Protection Directorate of MEPA, is also addressing the potential for reduction of greenhouse gas emissions, of which the power generation sector is the primary emitter of carbon dioxide.

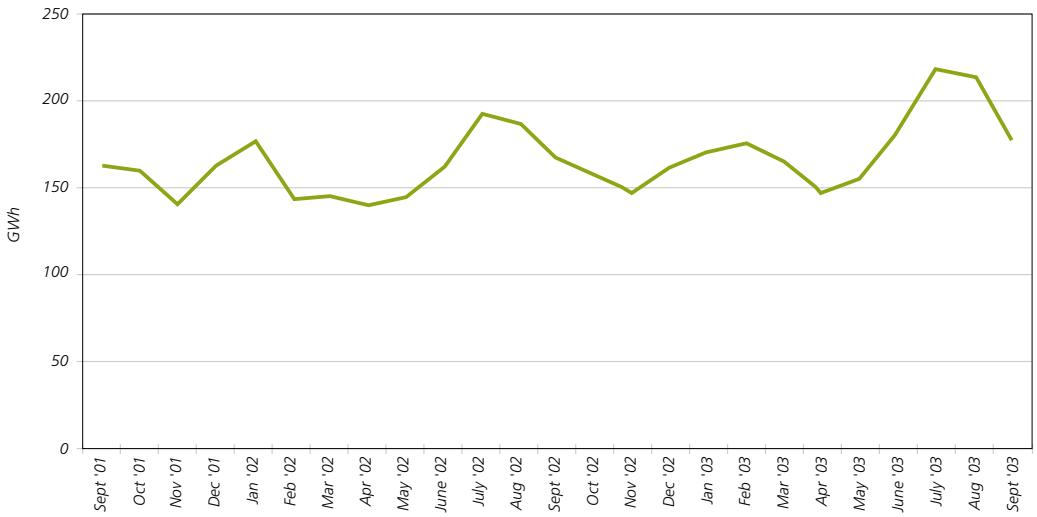
The integration of energy and environmental policies is seen as essential and the MRA will continue to strive towards the minimization of environmental degradation brought about by energy production and use. Current

FIGURE 3: ELECTRICAL POWER DEMAND CURVE 2001/2003



Source: Enemalta Corporation

FIGURE 4: ENERGY EXPORTED FROM THE POWER STATIONS



Source: Enemalta Corporation

demand projections indicate that energy consumption will continue to increase at a steady rate brought about both by economic activity and the standard of living and hence the decoupling trend set forth in the last 5 years, that is the rate of increase of CO_2 emissions is slower than that of energy consumption should be maintained and improved. While energy supply technologies and efficiencies remain the most easily controllable aspect of the energy chain, demand management assisted by price signals and other mechanisms are necessary and the MRA shall employ its available resources to stimulate an energy conscience.

Standardisation

The MRA was invited by the Malta Standards Authority to sit on the joint IEC / CENELEC National Committee.

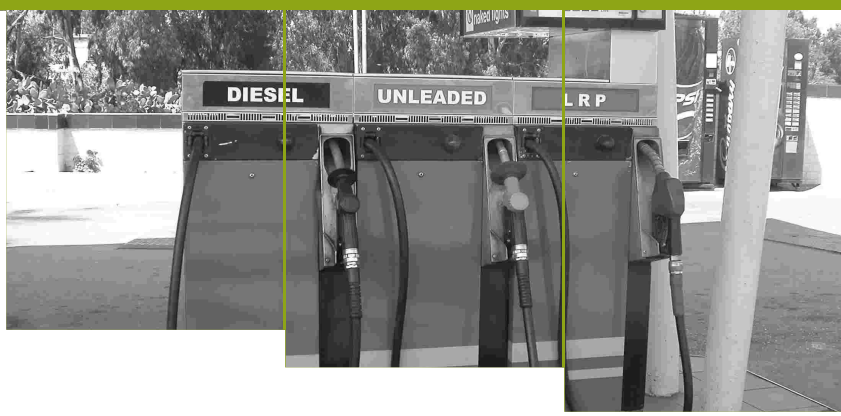
The International Electrotechnical Commission (IEC) is a global organisation that prepares and publishes international standards for electrical, electronic and related technologies. These standards also serve as a basis for national standardisation.

The European Committee for Electrotechnical Standardisation (CENELEC) is comprised of the National Electrotechnical Committees of 23 European Countries and creates standards requested by the market and also harmonized standards in support of European legislation. These voluntary electrotechnical standards help develop the Single European Market/European Economic Area for electrical and electronic goods and services, removing barriers to trade, creating new markets and cutting compliance costs.

The responsibilities of the National Committee include implementing the policy of the international bodies, recommending voting position of the MSA on CENELEC drafts, and also making policy recommendations to the MSA.

During the year under review, the two principal issues discussed within the National Committee concerned the qualification of electrical contractors and the changes to the colour coding of cables to align with CENELEC document HD308 rather than the current BS7671 standards.

The CENELEC proposal for qualification of electrical contractors was eventually withdrawn by its proponents. The issue of colour coding of cables has safety implications. The MRA and MSA will be joining forces and pooling resources with industry and other



stakeholders to conduct an information campaign in order to ensure a smooth and safe transition to the new colour coding of cables.

Participatory roles

Energy Charter Treaty

Malta, through MRA, followed the proceedings of the annual conference organised by the Energy Charter Treaty Secretariat (December 2002) and of the 5 working groups meetings (held twice yearly). In accordance with the Protocol on energy efficiency and related environment issues (PEEREA), MRA drafted and submitted Malta's first regular review on energy efficiency in October 2003. It was presented and discussed in the PEEREA working group meeting on the 19-20 November 2003.

Euro-Mediterranean Energy Forum

Malta, through MRA is an active member of the Euro-Mediterranean Energy Forum.

The setting up of this forum was proposed at the Athens Workshop (1995), was approved by the Trieste Euro-Mediterranean Energy Conference (1996) and officially launched in Brussels (1997). The Forum drew up an action plan for the period 1998 - 2002 to cater for the achievement of the agreed three energy policy objectives of the region, namely: security of supply, competitiveness of the energy industry and environmental protection.The 1998-2002 Action Plan of the Euro-Mediterranean Energy Forum comprises two main axes:

- Cooperation at the political and administrative level aiming to strengthen the institutional and legislative framework of the Mediterranean Partners in the field of energy and to draw up energy policy guidelines.

- Cooperation at industrial level aiming to adapt the energy companies (production and equipment) to market evolutions, to increase energy efficiency, and to facilitate cooperation between energy and energy equipment producing businesses on either side of the Mediterranean.

That Action Plan defined the creation of three ad-hoc groups, one for energy policy, one for interconnections and another one for economic analysis. The groups were launched during the 3rd meeting of the Forum (Granada, 2000), and had their first meeting in Brussels, on July 4-5, 2002. The objectives of the three ad-hoc groups are as follows:

- "Energy Policy" ad-hoc group- to develop guidelines for Mediterranean energy policy. Its work will consist in a review of national energy policy guidelines with the aim of pursuing the three energy policy objectives.

- "Interconnections" ad-hoc group- to promote the development of interconnected networks for electricity, gas and oil in the Mediterranean area.

- "Economic Analysis" ad-hoc group-to study the proposals regarding the national and regional development prospects in the context of a future EU-Mediterranean Free Trade Area (FTA).

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Malta through MRA participated in the workings of these three groups. The conclusions on the priority actions for 2003-2006 period were adopted during a ministerial meeting in Athens on the 21st May 2003 during which a joint declaration was signed by all Ministers.

CEER Council of European Energy Regulators

Following the adoption of the new electricity directive which gave a more significant role to the Council of Energy Regulators, and the signing of the accession treaty, Malta was invited to attend the CEER meeting held in July 2003. This was the first time that Malta attended as a member and not as observer as in the previous year.

Launch of the programme: Intelligent Energy for Europe (EIE)

MRA attended the first committee meeting of this programme. Malta will participate in it, free of any participation charge as from 1st January 2004. The next call for proposals will be published in October/November 2004. MRA will be organising an information campaign, including seminars about the programme. Some capacity building at MRA is needed in order to be able to handle the duties of programme focal point, even if MRA were to take advantage of the experience of other national entities who had managed similar programmes.

The 'Intelligent Energy for Europe' programme is intended to support the European Union's policies in the field of energy as laid down in the green paper on Security of Energy Supply, the White Paper on Transport and other related Community legislation (Towards a European Strategy for the security of energy supply, COM (2000) 769 final). Its aim is to support sustainable development in the energy context, making a balanced contribution to achieving the general objectives of security of energy supply, competitiveness and environmental protection (article 1 of the programme decision).The EIE programme is designed as the main community instrument for non-technological support in the field of energy. For Member States and other acceding countries, it provides continuity for the actions under SAVE and ALTENER and to a certain extent

SYNERGY programmes

For its EU focused activities, EIE has to contribute to two broad objectives which are:

- The promotion of energy efficiency, thereby reducing CO_2 emissions and contributing to the aim of saving 18% of EU energy consumption by 2010 compared to business as usual;
- Increasing the share of renewable energy sources in gross energy consumption, with the aim of reaching 12% by 2010.

Activities funded by the EIE programme alone cannot reach these targets. The EIE programme is intended to encourage the evolution, demonstration and take up of energy efficiency products and services and renewable energy sources. The creation and expansion of these market opportunities together with an enhanced legal framework can make it possible for the enlarged EU to reach the overall targets. The EIE programme will be the incubator for the policies and measures that will promote the technologies and rational use of energy in the EU.

Other Issues

Safety of earth electrodes

In the context of its obligations and in response to a number of enquiries from consumers concerned at the degree of safety provided by earth electrodes installed at their premises, MRA commissioned an investigation into the current situation and practices adopted by contractors who undertake this work.

This investigation will determine the extent, if any, of the problem and whether corrective action is warranted and/or essential. It would also provide a basis for the adoption and implementation of the suitable legal and regulatory framework necessary to control and regulate this activity in Malta and in line with the best available standards and practices.

Enemalta and Water Services Corporations are actively participating in this initiative.

DIRECTORATE FOR MINERALS RESOURCES REGULATION

DIRECTORATE FOR MINERALS RESOURCES REGULATION

Directorate's Functions, Policies and Strategic Objectives

The Directorate for Minerals Resources Regulation is responsible for promoting and regulating the exploration and exploitation of Malta's mineral resources. The Directorate's purpose is to facilitate the development of the mineral extractive industry while meeting contemporary expectations for social, economic and environmental outcomes.

The strategic objectives of the Directorate for 2002-2005 are summarised below:

- To provide a coherent legislative framework and policies such that the extractive industry continues to provide a competitive environment for resource exploration and development;
- To provide a consistent and transparent regulatory regime for the extractive industry;
- To ensure consumer confidence on services provided by the minerals industry;
- To provide industry specific facilitation and marketing services and to promote the development of the extractive industry;
- To meet the targets and international obligations set by Government;
- To address minerals related issues through sound science and credible technological methods.

To attain the abovementioned strategic objectives various priority actions were carried out during 2003. The most significant was the approval of a comprehensive list of policies relevant to all the various stages of planning, developing and managing mineral resources, including the after use of exhausted extractive sites. Efforts to restore disused quarries were sustained during 2003 and as a result, major restoration works of disused softstone quarries were initiated. An important project that is meant to minimise the impacts of quarrying on the environment was also commissioned during 2003.

Legislative Framework and Sectoral Policies

Policies

Quarrying operations in Malta and Gozo are today regulated through a development permit issued by MEPA and a quarry licence issued by MRA. While MEPA remains responsible for functions relating to land-use, the MRA is responsible for functions relating to the extraction of mineral resources.

The issuing of quarry licences is based on a mineral resources management plan built on economic, social and environmental considerations. These considerations are formulated in a comprehensive list of policies relevant to all phases of the extractive industry. These policies were finalised during 2003. They relate to new operations, reactivation of old quarries, extensions, renewals, restoration of disused quarries, conservation of mineral resources, protection of the environment, social and community issues, fair competition, price regulation, quality standards, information, consultations with interested parties and national and international obligations. These policies are summarised in Table 2 overleaf.

In addition, during 2003, the Directorate identified further policies regarding the rational utilization of softstone and these will be adopted in the near.

The Directorate also assessed the effectiveness of existing mineral resources control mechanisms and developed and introduced new mechanisms in line with the adopted management strategy. These included the utilization of waste stone generated in quarries and major excavations as well as the restoration of disused parts of operational quarries.

Licensing, Monitoring and Enforcement

There are a total of 92 quarries in Malta and Gozo, 58 of which are soft stone quarries and 34 are hard stone quarries. The Licensing, Monitoring and Enforcement Unit of MRA processes licences for these quarries and collects the annual fees. During 2003 no changes were made to these fees.

DIRECTORATE FOR MINERALS RESOURCES REGULATION

Regulations

The Directorate is in the process of establishing effective regulations on the economic operations of quarries, ensuring acceptable environmental impacts, conservation of the resource and fair competition and equity. To achieve this, the Directorate has translated the policies into rules and will establish the legislative instruments and mechanism for their implementation. These regulations will complement the planning guidelines on quarries of MEPA.

Administration of mineral resources

An effective mechanism for the processing and issuing of quarry licences continued to function during 2003. This process is done in close consultation with the MEPA to ensure the harmonisation of planning, environmental and mineral resources requirements. Several consultations were held with the MEPA on applications for development permits of quarries, renewals of quarries permits, applications for dumping into quarries, applications for rehabilitation of quarries, and applications of development permits of major projects involving major excavations of mineral resources. The Directorate also participated in the selection of disused quarries for the construction and operation of an interim landfill for municipal waste.

During the year a Memorandum of Understanding (MoU) between the Authority and MEPA was drafted. The aim of this MoU is to clarify the roles and responsibilities of the participating authorities with respect to land use, mineral extraction regulations, development permitting, mineral extraction licensing, monitoring and enforcement activities and to promote a consistent approach towards regulation.

In addition, the Directorate continued to liaise with various other statutory bodies including the Building Industry Consultative Council on minerals standards and stone specifications.

Meeting the Targets and International Obligations Set by Government

There were no new targets and international obligations set by Government in the area of mineral resources to be met during 2003.

Consumer Confidence

No complaints were registered during the reported period.

Industry Specific Services

In contributing towards the development of the extractive industry, the Directorate believes that it should provide high quality geological information on Malta's mineral resources, and maintain a historical geological database. For this purpose a GIS was acquired by the Directorate during 2003 and preliminary work has started on the setting up of an effective geological data bank.

Addressing Mineral Related Issues through Sound Science and Creditable Technological Methods

A study to assess the potential and implications for the extraction of stone by mining techniques was commissioned during 2003 and it is expected to be

DIRECTORATE FOR MINERALS RESOURCES REGULATION

TABLE 2: SUMMARY OF POLICIES ON MINERAL RESOURCES

Functional Aspect	Policy N°	Description of Policy
Mineral Resources	RES01	MRA shall establish which mineral resource may be exploited commercially on the basis of economic, environmental and social considerations.
	RES02	MRA shall endeavour to provide a reliable and sustainable supply of good quality minerals to the construction industry and, where appropriate, to other industries.
	RES03	MRA shall undertake a detailed study to assess the feasibility of importing, where appropriate, minerals as a substitute to local minerals, based on economic, environmental and social considerations.
Regulation of Mineral Extraction	REG01	The extraction of minerals by open pit or mining operation shall require a licence issued by MRA for a specified term.
	REG02	MRA shall issue regulations to the extractive industry defining the licensing terms and the conditions under which operations may be conducted.
Resource Conservation	CON01	MRA shall endeavour to conserve mineral resources by minimising waste, providing protection against sterilisation of resource by non extractive developments, and safeguarding against non-competitive and/or excess/under exploitation.
	CON02	MRA shall undertake a detailed study to identify any economic use of mineral waste, including demolish stone.
	CON03	All excavations deeper than 5 metres, including those of housing developments, shall require the approval of MRA.
	CON04	No excavations deeper than 1 metre are permitted in the Blue Clay Formation where such formation forms part of the slopes beneath Upper Coralline Limestone scarps. Such areas include those within the Building Scheme.
Environment Protection	ENV01	In assessing applications for licences for the extraction of minerals, MRA shall give due regard to the restoration of the geo-environment and shall demand the restoration of extraction sites to the original conditions once the mineral is exhausted.
	ENV02	In granting applications for extensions of existing licensed extraction sites, MRA shall demand the restoration of the exhausted site prior to the commencement of extraction from the extension.
	ENV03	No excavations or quarry operations in geo-environmentally sensitive areas shall be authorised. These areas include sites of geological, geomorphological, hydrological and hydrogeological interest.

	ENV04	MRA shall undertake a study to assess the feasibility of alternative extractive techniques that are environmentally more acceptable than traditional ones.
Fair Competition	CMP01	MRA shall ensure fair competition in all practices, operations and activities in the extractive industry.
Price Regulation	PRC01	MRA shall regulate the price structure of any activity related to mineral resources and, where appropriate, shall establish the mechanisms whereby the price for the acquisition, production, processing, storage and distribution of the mineral resource is determined.
Quality and Security Standards	STD01	MRA shall establish minimum quality standards of the resources in accordance with established international practice.
	STD02	MRA shall establish minimum safety standards for the operators and activities of the extractive industry.
Information	INF01	MRA shall provide general information to the public and the industry on matters relating to mineral resources.
	INF02	MRA shall undertake an educational campaign in schools to promote a better understanding of the importance of minerals in daily life.
International Obligations	OBL01	MRA shall ensure that all regulations, monitoring and control of practices, operations and activities related to the exploration and exploitation of minerals shall comply with obligations entered into by the Government.
Government Policies	POL01	MRA shall provide advice to Government on policies relating to the exploration and exploitation of minerals.
	POL02	MRA shall perform such other functions as may from time to time be assigned to it by the Government.
	POL03	MRA shall liaise with all other entities connected with the extractive industry in order to ensure the harmonised conduction of all practices, operations and activities of the industry.
Consultations	CST01	In assessing applications for mineral extraction licences and their extensions, MRA shall consult with other entities that have a vested interest in the extractive industry.
	CST02	No mineral extraction licence and no extension to an existing licensed extractive site shall be granted by MRA if the application violates any relevant policy of MEPA as defined in the Minerals Subject Plan, or if the relevant Local Council has a valid objection to such licence or extension.

DIRECTORATE FOR MINERALS RESOURCES REGULATION

completed in the first quarter of 2004. The introduction of mining techniques as a substitute to present day open pit extraction would safeguard the continued production of aggregates and dimension stone while drastically reducing the negative environmental impacts. Additionally, it would also make a considerable volume of minerals that are presently inaccessible by traditional quarrying methods, available for extraction.

Two other studies identified in the Strategic Plan are:

1. Study to assess the feasibility of importing aggregates. This study will assess the economics and benefits of the importation of aggregates to Malta from the surrounding coastal Mediterranean states. The study will deal with quality, availability and economics of the imported aggregates. Such practice, if feasible, would safeguard the geo-environment, archaeological sites, sites of scientific interest and the environment at large and improve markedly the quality of concrete products and road surfacing.

2. Study to identify the re-use value of waste stone. This study is meant to identify possible economic re-uses of waste globigerina stone. Such uses could include manufactured stone materials; agriculture; paper industry; medicine; paints industry; and other applications.

The Directorate participated at the annual meeting of the Forum of European Geological Surveys held in Prague and attended by all EU Member and Accession States. The meeting reviewed the current trends of each Geological Survey of the EU and discussed various themes of the mineral extraction industry.

DIRECTORATE FOR WATER RESOURCES REGULATION

DIRECTORATE FOR WATER RESOURCES REGULATION

During the period under review, the Directorate for Water Resources Regulation focused on the implementation of the priority actions set in the strategic plan for its first term of operation (2003-2005). As from the onset of its operations, the Directorate endeavoured to align its objectives with the relevant EU legislation, in particular the Water Framework Directive, the Groundwater Directive and the Urban Waste Water Treatment Directive. In this context, it sought to address water issues in the wider context of basin management, and taking cognisance of socio-economic and environmental constraints.

It is relevant to note the Directorate's efforts to develop the first instruments of regulation, the licences to be issued to the Water Services Corporation and the Drainage Department. This was perceived to be the first step in the exercise of powers conferred under the MRA Act to regulate the water and wastewater sector in Malta. It must be stressed however that the drafting of the licences evolved through a consultation process in line with the Directorate's philosophy to work with all stakeholders in the national interest.

It is the Directorate's intention to issue a similar licence to all water operators supplying or distributing water and sewerage operators collecting, treating and/or disposing sewage. Such licences will be tailored to specific requirements and operations in such a way that the entire sector will fairly regulated.

The Directorate has also initiated the process of implementing the Groundwater Directive and is currently undertaking a number of tasks to this effect. This directive was transposed into local legislation through Legal Notice 203/2003. Furthermore, the developments of the drafting of the new directive were closely followed. Communications were exchanged with the Commission to express our view on the list of EU-wide parameters and their threshold values, as some of these were present in high levels due to our natural conditions.

The need for a comprehensive groundwater policy, is considered today as key to the sustainable management of the aquifers. The Directorate has thus started this year a project for the development of a new groundwater policy with the assistance of the FAO.

The policy will seek to rationalise groundwater use, taking into account environmental and socio-economic factors. It will develop a set of guidelines for the allocation of groundwater to different users and to meet the demand by different economic sectors in a fair and equitable manner, while recognising the value of our groundwater as a strategic reserve.

Regulation of the Water and Wastewater Industry

Operations review of the Drainage Department

In its efforts to improve the efficiency and service provided by the utilities, the Directorate commissioned the Management Efficiency Unit to undertake a study for the purpose of reviewing the operations of the Drainage Department.The objectives of this study were to:

1. Develop a mission and vision statement and formulate a set of strategic objectives against which the operator's performance can be benchmarked.

2. Propose revised organisational structure with specific roles and responsibilities focusing on the need for any mergers between existing entities as well as on the identification of areas of potential collaboration.

3. Issue a code of practice and standards.

4. Identify consequential issues that have to be introduced as a result of the introduction of the new standards.

5. Establish the technology status and any need for upgrading.

6. Establish whether a customer service charter is in place and if not to develop one accordingly.

Subsequently to the completion of the study, the Drainage Department was amalgamated as part of the Water

St. Antnin Sewage Treatment Plant.
Courtesy of Water Services Corporation

Services Corporation. The results of the study were also taken into account in establishing licence conditions for the provision of sewerage services.

Licences to the utilities

During the periods under review, the text of the first licence to be issued to the Water Services Corporation for the production, supply and distribution of potable water was drafted. A similar licence was also concurrently drafted to be issued to the Drainage Department for the collection, storage, disposal and treatment of sewage.

The text of the draft licence was submitted to the utilities for their comments and in December 2002 the licence was published as a consultation paper for comment by the general public and interested stakeholders. The WSC also made comments mainly related to the timeframes foreseen in the draft licence.

The licences are considered to be the main instrument for effective regulation of the utility. The scope and purpose of the licences are intended to establish:

i. the structured introduction of concepts of regulation in Malta in the water sector;
ii. the structured compilation of information from the Water Services Corporation that will enable effective, coherent and transparent regulation of the utility;
iii. a basis for further development of regulation of the water sector.

Thus, the MRA will be developing on this first licence based on experience gained in the first year of operation. We expect it to be modified with experience in the first year of operation, and also to take into account the recommendations of a study commissioned this year on the regulation of the utilities.

These licences are required by the MRA as a framework for monitoring of corporate performance of the utility to ensure:

a. Proper execution of the utility's public service obligations. The utility operates a service of general economic interest. The licence delineates the basic obligations of the licensee and identifies such services of general economic interest;

b. Consumer protection. The licence further establishes the framework for a customer contract, service standards, emergency response and security planning, asset management planning etc.

The licences also establish the framework for effective economic regulation of the utility, accounting and reporting requirements including unbundling of accounts and to ensure against cross-subsidisation.

Specific EU Directives and Other Legislation

Water Framework Directive

Groundwater characterisation

The Directorate for Water Resources Regulation is undertaking the characterisation of groundwater bodies to assess their uses and the degree to which they are at risk of failing to meet the environmental objectives that

will be established in accordance with Article 4 of the Water Framework Directive. The analysis involves a thorough assessment of existing hydrogeological data leading to the definition of:

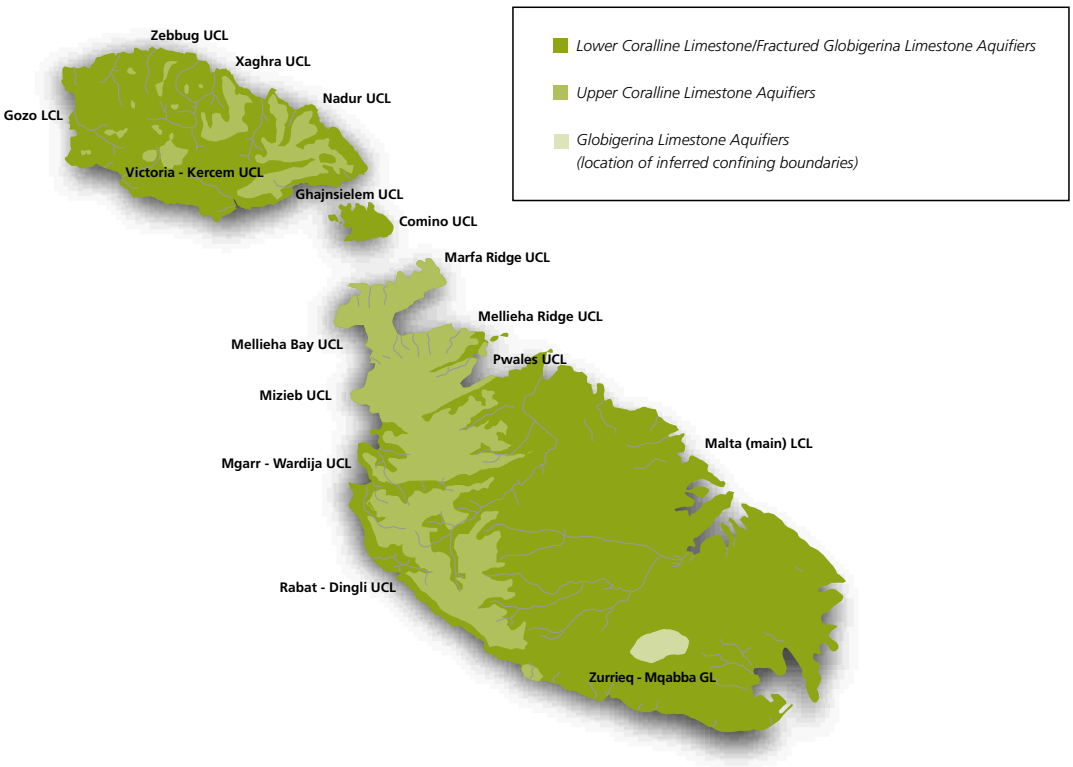
- the geographical boundaries of each groundwater body;
- the pressures to which they are liable to be subject namely:
    - diffuse sources of pollution;
    - point sources of pollution;
    - abstraction;
    - artificial recharge.
- hydrogeological character of the unsaturated zone;
- surface waters that are directly dependent on groundwater bodies.

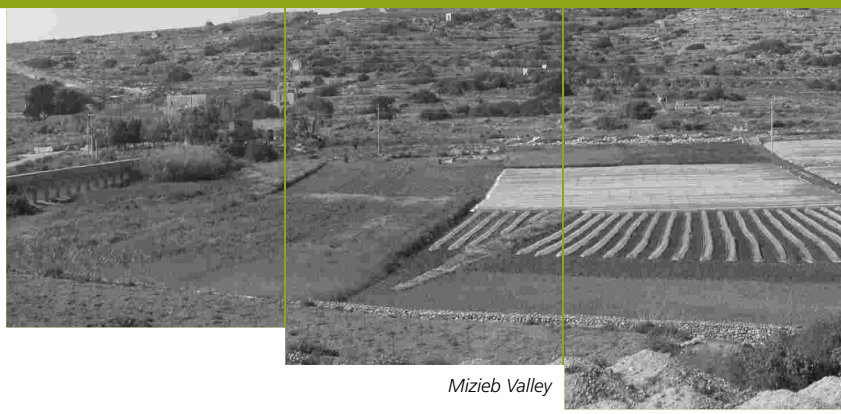
Criteria for the undertaking of this work have been set by Member States in a Common Implementation Strategy, now published by the Commission. Accordingly, the geographical limits of local groundwater bodies are taken to coincide with the geological boundaries governing groundwater flow unless further subdivision is necessary to describe accurately their current status. In determining whether geological strata qualify as aquifers, a distinction is made depending whether this could either provide more than $10m^3$/day of groundwater or is directly associated with surface water systems. Strata that meet either of these criteria are considered as aquifers.

The Directorate therefore undertook an extensive literature review in an effort to compile available information in a comprehensive document that provides a preliminary description of the groundwater body and supports the groundwater body characterisation study and the assessment of statistical analysis. The preliminary description comprised:

- aquifer name and location;
- importance of the groundwater body;
- hydrogeological character and profile;
- information on the monitoring strategy;

FIGURE 5: MAIN AQUIFER BLOCKS IN THE MALTESE ISLANDS





Mizieb Valley

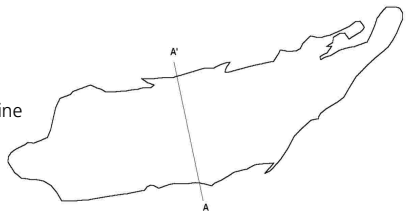
- details on the external pressures, impacts and quality problems;
- groundwater potential;
- water balance (abstraction and recharge);
- conceptual flow model.

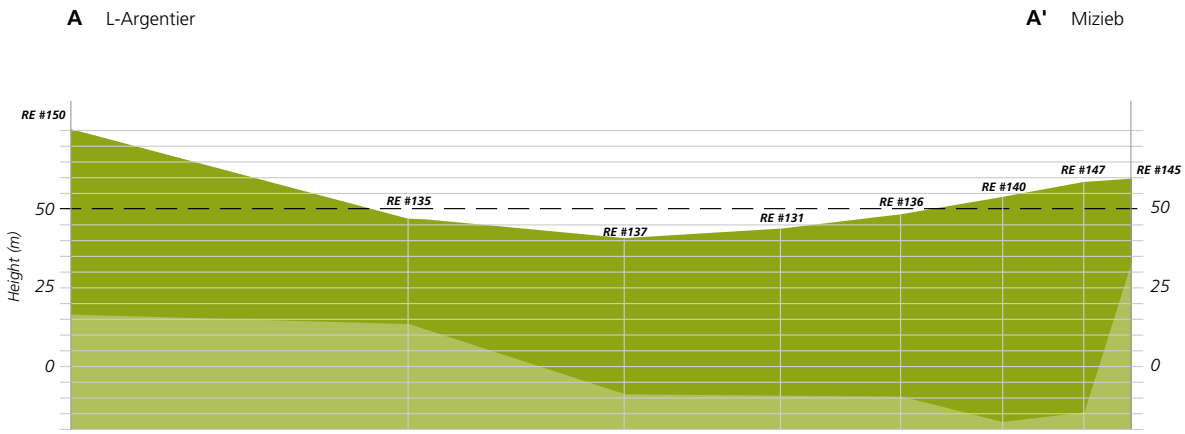
A series of thematic maps describing graphically several parameters of interest such as piezometric levels and salinity, are now being prepared (in GIS format) while an updated water balance and an estimate of groundwater reserves based on recent data are now being computed for all aquifers with the intent of estimating a global figure of groundwater reserves.

The final document will thus provide a thorough insight of the hydrogeological specifics of all groundwater bodies. Furthermore the statistical analysis of a long time-series of quality and quantity data provide the decision makers with powerful tools for understanding the current situation of the aquifers and for adopting rational policies and/or corrective action in future.

FIGURE 6: GEOLOGICAL PROFILE - MIZIEB SYNCLINE

Geological Profile - Mizieb Syncline





Groundwater directive proposal

Groundwater pollution is already the subject of a specific Directive 80/68/EEC of 1980, and it also forms part of the Water Framework Directive (WFD). During the conciliation process of the WFD, there was debate on the conceptual approach to groundwater protection and overall it transpired that the directive being proposed failed to address the problems of groundwater protection.

Hence the WFD included a provision, Article 17, whereby the European Parliament and the Council shall at a future date adopt specific measures to prevent groundwater pollution on the basis of a proposal from the Commission.

Discussions were initiated by the Commission with the stakeholders to prepare the proposal. The Commission also established an Expert Advisory Forum (EAF) that produced a first draft of a proposal for a groundwater directive.

A new groundwater proposal for a directive on the protection of groundwater from pollution was published by the EU Commission in September 2003.

The proposed GWD is intended to complement the WFD and integrate the requirements of the Council Directive 80/68/EC to ensure continuity after the latter is repealed in 2013. It is also aimed to ensure coherence with other relevant environmental legislation such as the Landfill Directive (99/31/EC), the Drinking Water Directive (80/778/EEC as amended by 98/83/EC), the Nitrates Directive (91/676/EC), the Plant Protection Products Directive (91/414/EEC), the Biocides Directive (98/8/EC) and the Commission's Communication Towards a Thematic Strategy for Soil Protection.

In the proposal, a core list of substances and parametric values set out at EU Level were intended to be used for the definition of groundwater chemical status, thus setting the boundary between good and bad status.

The selection of the list of substances linked to status definition was to be based on:

- the precautionary principle requiring a general groundwater protection, subject to derogation regarding naturally contaminated groundwater.
- groundwater use(s), and
- interactions of groundwater with associated surface water and terrestrial ecosystems.

Furthermore the selection was also to rely on:

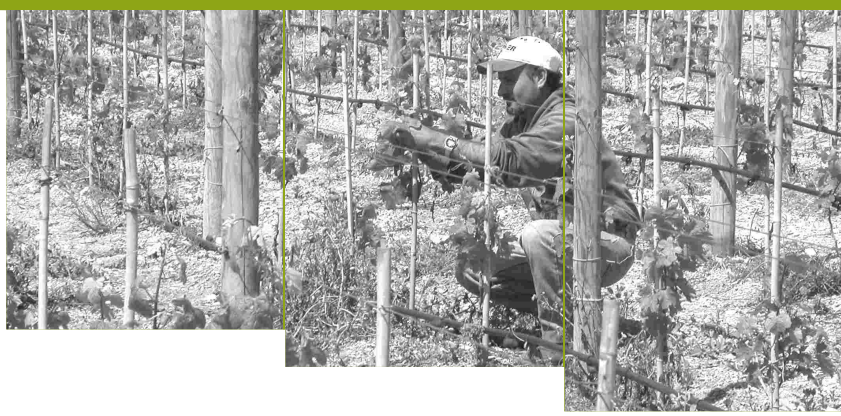
- existing EU legislation;
- drinking water standards;
- priority substances, and
- Member States regulations.

The list of EU-wide substances would be tailored to reflect effectively the main types of pressures on groundwater bodies and should be opened to periodic reviews.

Background levels of non-synthetic substances were to be assessed for the purpose of considering the natural variability. Competent authorities could request derogation for groundwater containing naturally high levels of these naturally occurring substances, the presence of which cannot be attributed to anthropogenic activity.

Of concern was the issue whether EU-wide standards should be established for chlorides and sulphates, in view of our particular geologic conditions whereby these two substances are naturally found in high quantities in our groundwater. We noted that if EU-wide specific standards were to determine good chemical status of Maltese aquifers it could well mean that these will never qualify against this benchmark on account of their natural conditions. Our position in respect of the Draft was presented at the Water Directors' meeting held in Copenhagen in November 2002. The Forum took note of Malta's comments and reported in the "Synthesis" of the meeting as follows "*Quality standards should, however, take the natural groundwater variability into account (e.g. chloride standard with respect to groundwater in contact with seawater)".*

The final draft proposal of the GWD issued on the 19th September 2003 specified the criteria for assessing good groundwater chemical status and the quality standards to be complied with. The only EU-wide parameters that



are directly linked to groundwater protection are nitrates and pesticides.

Comments on the proposal

MRA fully recognises the importance of groundwater as a source of drinking water and the need to protect the resource from deterioration through anthropogenic activity. Hence the Authority welcomes this legislation as it provides an important tool for groundwater management.

The Authority has now invited consultation from all stakeholders in order to have first hand public response on the proposed legislation before making final submissions and recommendations to Government.

Environmental liability

Before the coming into force of the MRA Act, the WSC was responsible for groundwater protection and it applied a precautionary measure based on the "polluter pays principle". Accordingly, all new land-development located in aquifer protection areas were obliged to deposit a bank guarantee or subscribe to an insurance policy that supposedly indemnified the Corporation, then the regulator, from all damages arising as a result of groundwater pollution caused by the development in question.

After conducting a thorough analysis of these policies, the Directorate concluded that the monetary value that can be actually recovered by Government, in the event of a pollution incident, is very dubious. It is also far more important to have measures that prevent pollution, considering the difficulty of remediation of groundwater.

At the same time, the EU Commission is proposing a new Directive on environmental liability whereby operators of "risky" activities will be held responsible for groundwater restoration. The proposal will establish a framework based on environmental liability to waters regulated by Water Framework Directive 2000/60/EC, and land contamination which causes serious harm to public health. Competent authorities will need to ensure that responsible operators either undertake themselves, or finance, the necessary restoration works. The onus of environmental damage will be placed on operators and it will be the responsibility of the Member States to ensure that this is restored. When restoration has been implemented, the competent authority must, in conformity with the 'polluter pays' principle, recover the restoration costs from the polluting operators.

The Directorate is studying this directive and has sought advice from local insurers to identify the most appropriate package that provides security for restoring environmental damage and recovering the costs incurred. It is also considering other forms of obtaining financial security such as bank-guarantees, and/or a common fund that will be financed by individual developers in relation to the type (and risk) of the development being proposed. Discussions on this subject are also proceeding with MEPA who sustain that by making developers liable for restoration costs, the competent authorities will be placing the necessary incentives and deterrents to avoid pollution and recover damages when pollution incidents take place.

Water Resources and Supply Monitoring

Groundwater quality

Fluorides

As part of the Baseline project, the Directorate commissioned fluoride analysis of groundwater in various local laboratories and studied its geological distribution. Analysis of mineralogic and geochemical studies showed that francolite (carbonate fluorapatite) is the only mineral that can lead to fluoride leaching in groundwater. Besides calcium carbonate, this is the most abundant mineral present in the phosphorite beds and is the only one present in the Maltese rock succession that contains fluorine in substantial proportions. Results of the study showed that other minerals such as the clay minerals, kaolinite, illite, smectite and palygorskite and glauconite do not contain fluorine that can account for fluoride presence in the mean sea-level aquifer.

Analysis of values from geochemical X-Ray fluorescence results (XRF) on phosporite pebbles was carried out. These yielded maximum values of 19.3% P_2O_5 and 1.5% of fluoride in the outer surface of pebbles coming from the terminal lower globigerina phosphate conglomerate bed (C_2). Conventional geochemical analysis of pebbles from C_2 give a maximum value of 16.8% P_2O_5 and 1.4% F. Correlation of the fluoride-isopachyte maps generated during the survey, with the fluoride concentrations present in the mean sea level aquifer show that the higher levels of fluoride in the mean sea level aquifer lie in the area of distribution of the upper and the lower main phosphorite conglomerate beds where fluoride levels range between 0.5mg/l and 1.5mg/l. These levels decrease along the margin of the area of distribution of C_1, where C_2 is absent.

Where the phosphorite conglomerate beds are absent, as in east and southeast Malta, fluoride concentration is very low. Contrary to this, in Gozo, where the phosphorite conglomerate beds are markedly developed, fluoride levels are consistently high, ranging between 1mg/l and 1.6mg/l.

As all the rock unit in the Maltese lithologic column contain phosphate, albeit in smaller quantities than those found in the conglomerate beds and as the fluoride content of the perched aquifer is comparatively low, it was concluded that the fluoride levels found in the mean sea level aquifer is the result of solution processes during slow percolation in the globigerina limestone formation and hence are directly related to the vertical thickness of this formation in the unsaturated zone.

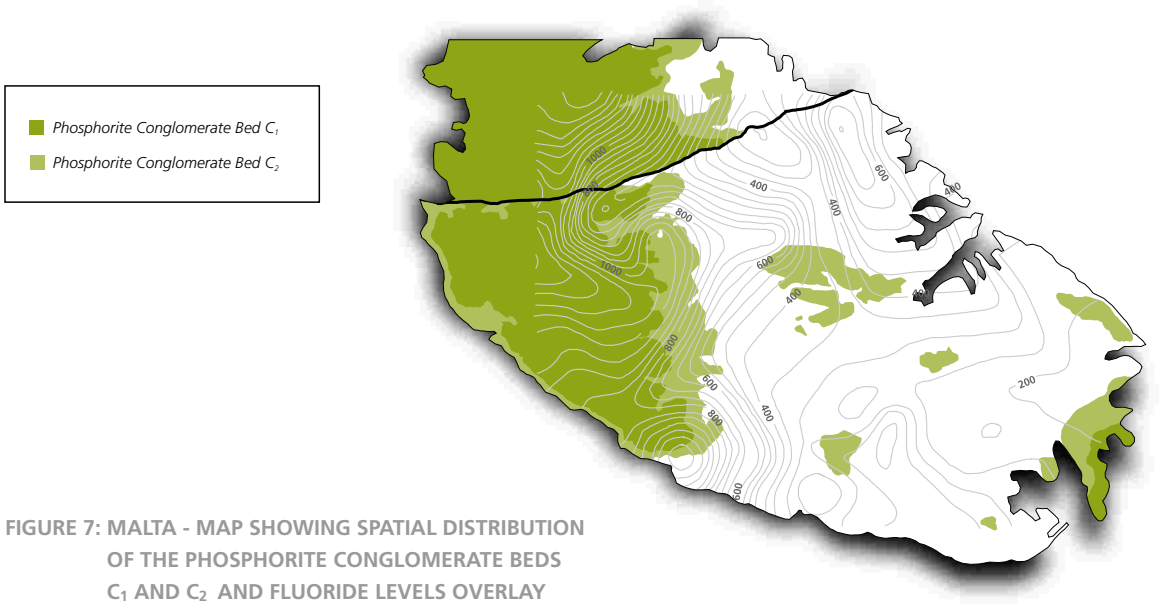
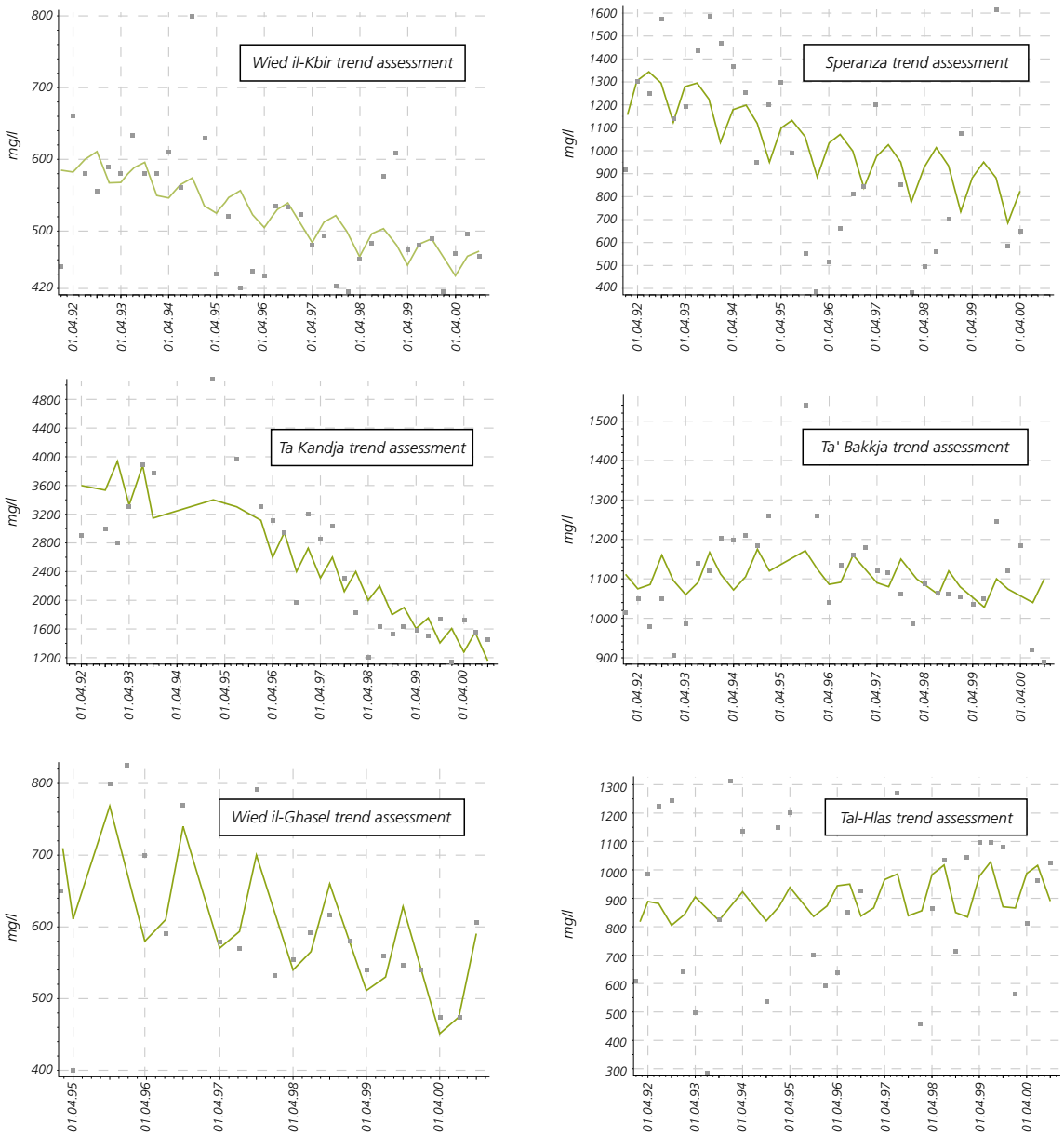


FIGURE 7: MALTA - MAP SHOWING SPATIAL DISTRIBUTION OF THE PHOSPHORITE CONGLOMERATE BEDS C_1 AND C_2 AND FLUORIDE LEVELS OVERLAY

Nitrates & Chlorides

To date, the MRA does not have reliable figures of water quality and abstraction from sources other than those used for water eventually intended for the tap water supply.

FIGURE 8: TREND ASSESSMENT OF CHLORIDE LEVELS IN LCLA PUMPING STATIONS



An analysis was carried out earlier this year on the data then available for the pumping stations in the lower coralline limestone aquifer, ranging from 1992 to 2000, as part of the Baseline project.

The analysis followed the statistical methodology proposed in the project and software developed by a working group established as part of the common implementation strategy of the Water Framework Directive (GW-STAT). These pumping stations account for some 50% of abstraction of water for public consumption from the mean sea level groundwater body. This analysis indicated there is a statistically significant downward trend in Wied il-Kbir, Wied il-Ghasel, Speranza and Ta' Kandja pumping stations, while no statistically significant (increasing or decreasing) trend was noted in Tal-Hlas and Ta' Bakkja pumping stations. Screen shots of the results are shown in Figure 8. Figure 9 shows a time series of the distribution of average annual chlorides in these

FIGURE 9: BOX PLOTS OF LCLA PUMPING STATIONS WITH TIME

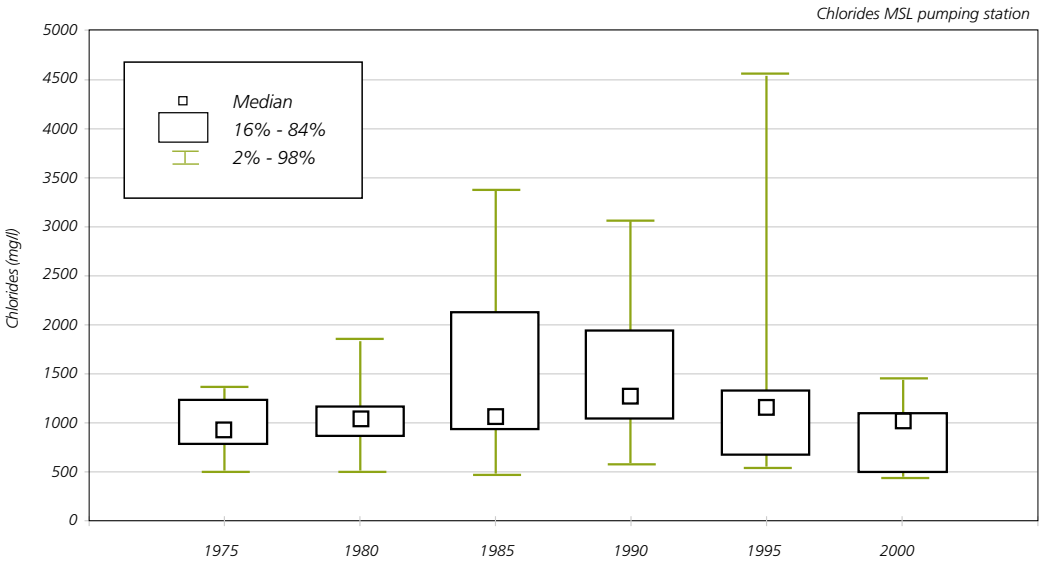
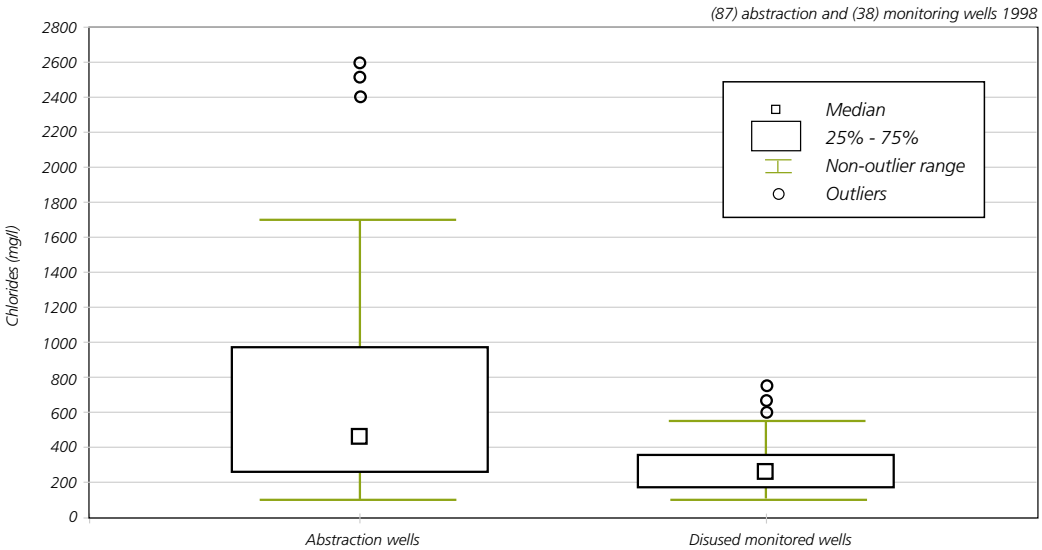
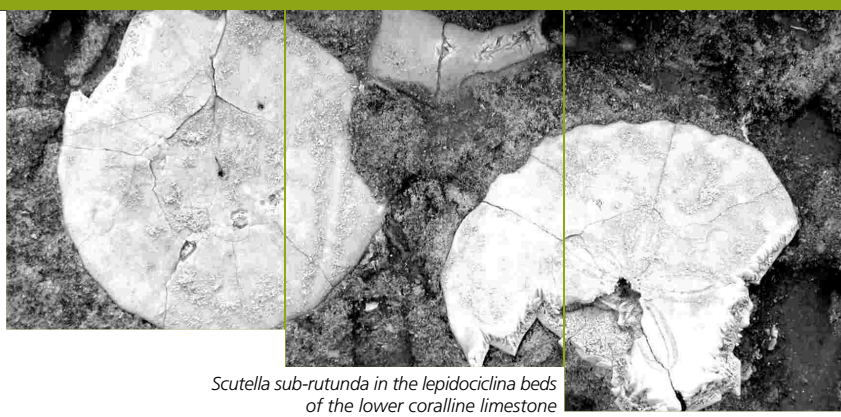


FIGURE 10: COMPARISON BETWEEN CHLORIDES IN DISUSED (MONITORING) AND PUMPING WELLS





Scutella sub-rutunda in the lepidociclina beds of the lower coralline limestone

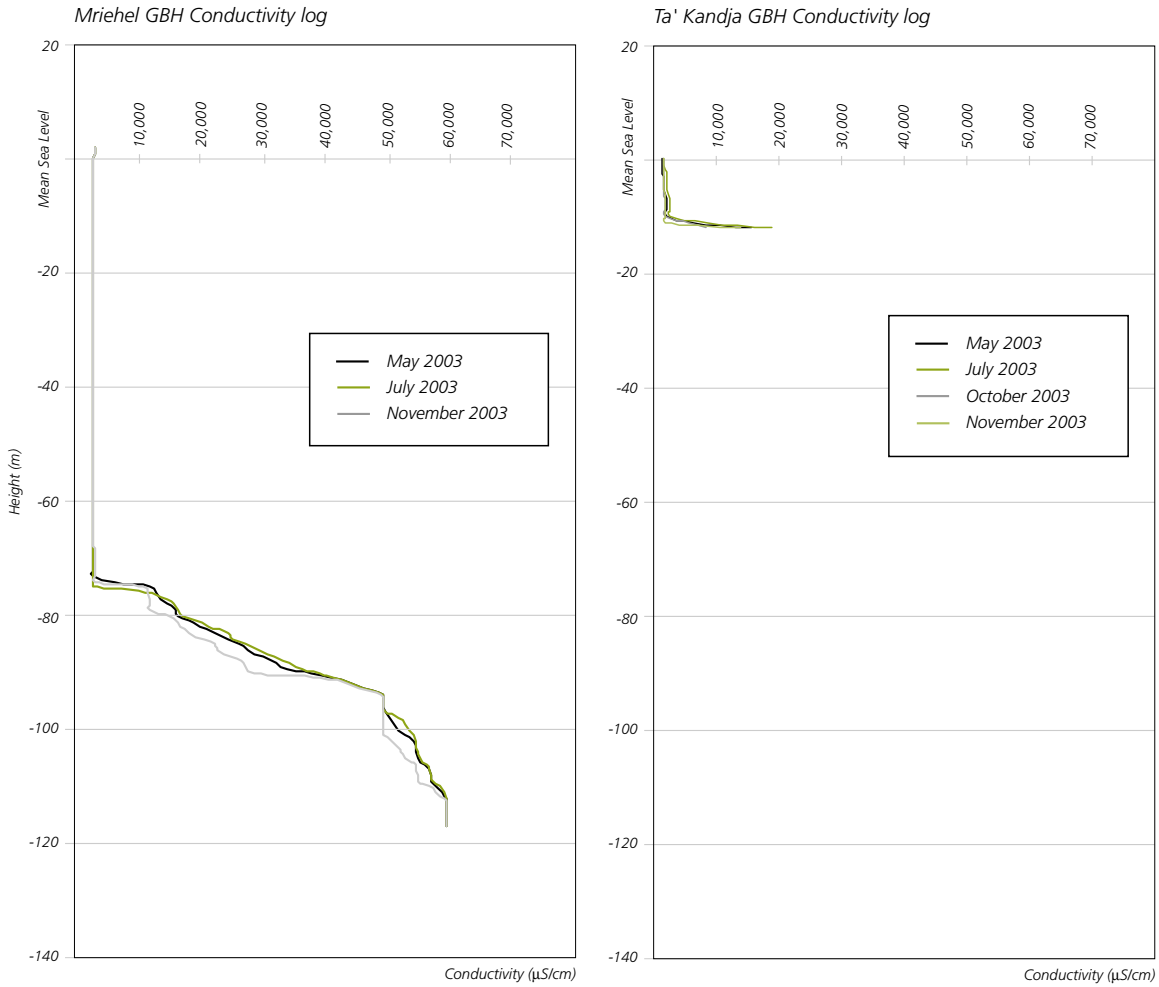
pumping stations. Figure 10 compares the chlorides in pumping wells with the chlorides in non-pumping "monitoring" wells for the last year for which chloride data was available.

It is clear that abstraction points are not representative of the aquifer, but only representative of the localised situation of upconing, as far as chlorides are concerned. This occurs because the abstraction of water from such sites (often in response to operational expediency), in itself, modifies substantially and possibly immediately the quality of the water in localised areas close to those sites, but modifies chloride levels in the background to a lesser extent.

Further analysis was carried out once more recent data was available. Figure 11 below shows the production (this time including public supply boreholes) and weighted average chlorides of the water abstracted. Only abstraction from the Malta lower coralline limestone aquifer was included. The chloride levels for 1995 are influenced by high results and infrequent (two samples per year compared to 12 samples per year) sampling for the pumping stations. Chlorides levels between 1996 and 2002 are significantly lower than the figures between 1982 and 1993. The chlorides for 2002 are higher than the chlorides for the previous four years but still lower than those in the late eighties. One possible cause may be higher abstraction from the sources used for abstraction - it is worth noting that abstraction from the lower coralline limestone aquifer increased in 2002. Further analysis is merited.

FIGURE 11: PRODUCTION AND CHLORIDES IN MEAN SEA LEVEL GROUNDWATER ABSTRACTED FOR POTABLE WATER SUPPLY

FIGURE 12: CONDUCTIVITY LOGS IN GAUGING BOREHOLES



Water supply monitoring

Water quality monitoring at representative sites is carried out independently by the Department of Health and the Water Services Corporation. The data presented below indicates the results of monitoring by the Health Department. Data from the Corporation was not available at the time that the analysis was carried out.

All data is the average for the year under consideration. Nitrates are tested three times a year, while chlorides are tested monthly. One sampling point is considered within the boundary of each local council. At the time of analysis, some data for 2001 was missing. Where the sampling point in a local council was changed, the data for the first sampling point was also discarded from the analysis, and hence in some years the number of localities does not add up. Furthermore, data for 2003 only covered the first six months of the year.

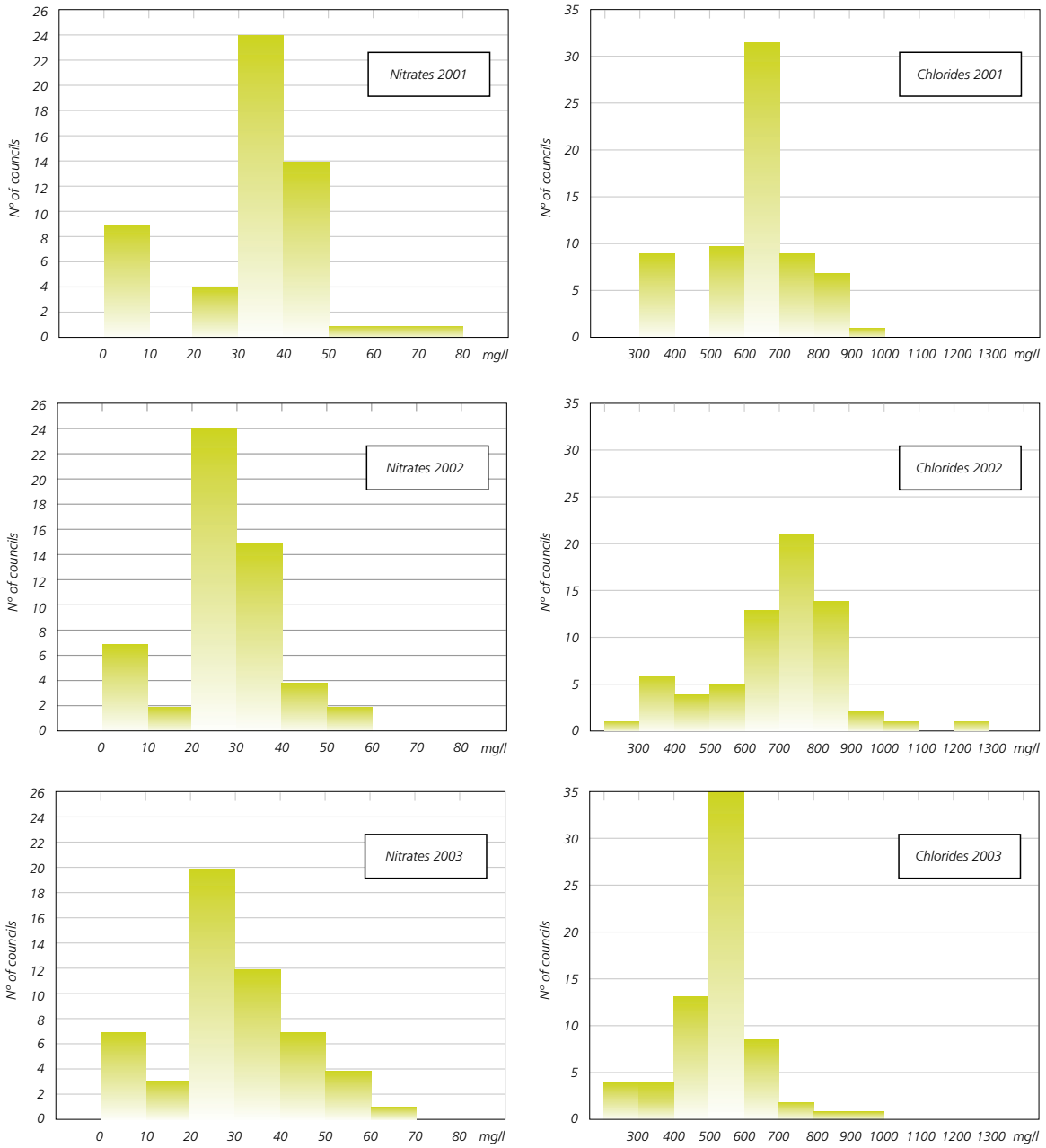
The histograms in Figure 13 indicate:

- There were three localities with nitrates higher than 50 mg/l (the limit in the EU directive on the quality of water intended for human consumption) in 2001. These decreased to two localities in 2002 but have

increased to five localities for the first six months of 2003. The locality with the highest average concentration was in the 70-80mg/l bracket; in 2003, the highest average concentration was in the 60-70 mg/l bracket.

- Following a deterioration in the chloride levels in 2002, the situation in the first six months of 2003 improved with the largest number of localities now having water with chloride levels between 500 and 600 mg/l.

FIGURE 13: HISTOGRAMS OF WATER QUALITY MONITORING (HEALTH DEPARTMENT)



DIRECTORATE FOR WATER RESOURCES REGULATION

Consultations to MEPA on Development Applications

The Directorate is in continuous consultation with the MEPA giving advice in terms of:

- Assessment of threats of pollution as a result of land-use;
- Aquifer vulnerability to surface pollution in areas earmarked for land-development;
- Recommendations of measures to mitigate pollution threats on groundwater;
- Hydrogeological characteristics of specific sites.

The Directorate thus processed 370 applications for land development that included new and extended quarries, tourist complexes, roads, land fill sites, pump rooms, animal breeding establishments and greenhouses.

In essence, the Directorate seeks that that the design of these developments is conducive towards the prevention or limitation of indirect discharges into groundwater as set out in Article 11(3) of Directive 2000/60/EC. Furthermore it recommends measures to reduce the risk of pollution from anthropogenic activity, excessive abstraction and contamination at source. Significant constraints are encountered in the implementation of such measures namely:

- implementing a change of activities and land-use practices that were hitherto allowed, but are now deemed as necessary measures for pollution control.

- dealing technically and legally with effect of past pollution, especially that arising in areas with a long-standing history of groundwater pollution.

- inherent hydrogeological uncertainty as a result of natural geological heterogeneity leading to frequent contestation by developers and their consultants, who often interpret their findings in favour of the development being proposed.

In view of these constraints the Directorate is building the required capacity to be able to conduct desk studies on individual cases integrated with well-focused field surveys and monitoring. The latter provides the necessary supporting evidence and data to improve the confidence level and predictions required in groundwater protection.

In its drive to improve the quality of investigations, the Directorate will be investing heavily in field monitoring and testing - an exercise that involves substantial cost, capital and running. So far this has been borne directly by the Directorate but in line with the "polluter pays principle" the developer will in future be asked to finance

TABLE 3: CONSULTATIONS ON APPLICATIONS FOR DEVELOPMENT

Development Applications	
Type	**Number**
Agricultural Tool Rooms	62
Apiaries	2
Cess-Pits	7
Pump Rooms	30
Deposition of Soil	2
Electricity Related	1
Farms	53
Farm House	29
Fireworks Factory	1
Fuel Related	6
Greenhouses	37
Industrial Development	15
Manure Clamp	1
Mushroom Sheds	2
Reservoirs	65
Road Networks	3
School	1
Sports Facility	1
Stables	5
Various	46
TOTAL	**370**

Measures undertaken by the farming sector against groundwater pollution

the investigations required to process their respective planning application.

A draft scheme of fees for different classes of developments has been submitted to the Authority for its consideration.

TABLE 4: STATUS ON CONSULTATIONS ON APPLICATIONS FOR DEVELOPMENT

Recommended for approval	197
Recommended for refusal	27
Awaiting submission of further information	146
TOTAL	**370**

Consultations on Groundwater Protection

The Directorate is regularly requested to provide expert advice on various land developments that may have a direct or indirect effect on the integrity of groundwater and hence warrant specific measures to avert pollution. During the period under review, several consultations were held with WastServ Malta Ltd to design operational conditions for the dumping of construction and demolition wastes in disused quarries in a manner that is compliant with the provisions of the Landfill Directive. Also, the Ministry of Rural Affairs and Environment is currently holding discussions on the implementation of the Code of Good Agricultural Practice that is being launched this year. One of the aims of the practice is the reduction of nitrate levels from farmyard wastes and the Ministry is currently introducing an educational programme for farmers to address this problem.

International Co-operation and Projects

FP5 and FP6 programmes

MRA participated in a number of the EU Fifth Framework Programme projects together with international partners. During the past year, officials of the Authority were invited to present projects carried out in previous years for an information programme developed by the EU commission.

During the period under review the Directorate undertook several tasks related to "work packages" of projects sponsored by the Commission of European Communities under the Fifth Framework programme. The Directorate participated together with other countries following a call by the Commission for the extension of ongoing projects, by participation from newly accessing states (NAS).

Baseline project

The objective of the Baseline project is to establish criteria for defining natural water quality baselines and develop a standardised Europe-wide approach for use in the Water Framework Directive. Such a standard, based on geochemical principles, is needed to be able to assess scientifically the natural variations in groundwater quality since these alone may breach existing health limits. These criteria are also needed as a reference to assess quantitatively whether anthropogenic pollution is taking place. The project also focused on timescales influencing the natural processes and the rates at which these are occurring and appropriate dating tools (including radioisotopes and CFC's) to be used. The extent to which pristine waters are being depleted by contaminated

waters moving into the aquifer was also assessed. As well as giving the scientific framework, this project provided a forum for discussion between policy makers and end-users, including the utilities and general public. The work was conducted in a number of representative aquifer cross sections in both carbonate and non-carbonate terrain in groundwater catchments in several European countries (Estonia, Poland, Denmark, Belgium, France, UK, Spain and Portugal).

This project was extended to cover additions to the programme of work, intended to augment Baseline within the same working and reporting timescale, using the existing work package format. The main objectives of the extension were to broaden the representativeness of the Baseline project in terms of country, European regions, aquifer type, and the different historical and political aspects relevant to water quality change. The main elements of added value to the project, the EU and to the NAS were:

- An additional five reference aquifers and long time series of trends in groundwater quality to enhance the representativeness of Baseline. These represent special cases not covered already in the programme, notably the karstic aquifer of Malta, the metamorphic limestones of Bulgaria and the high-uranium Cenomanian aquifer of the Czech Republic.
- The opportunity to compare baseline chemistry (with associated pollution impacts) in two new states with those in the existing project (Estonia and Poland).
- The opportunity to bring three NAS countries in line with the scientific knowledge and wider European approach to groundwater quality in the important area of unpolluted groundwaters, which is a focal point of the WFD.
- A common shared and augmented approach to policy questions regarding groundwater affecting the implementation of the WFD at both the National and Community scales.

The MRA participated in parts of the study. The study comprised a geological review of the Maltese archipelago together with a lithological description of all rock formations and units. It highlighted the hydrogeological characteristics of the mean sea-level aquifer. Specifically and within the terms of reference of Baseline, the following activities were undertaken:

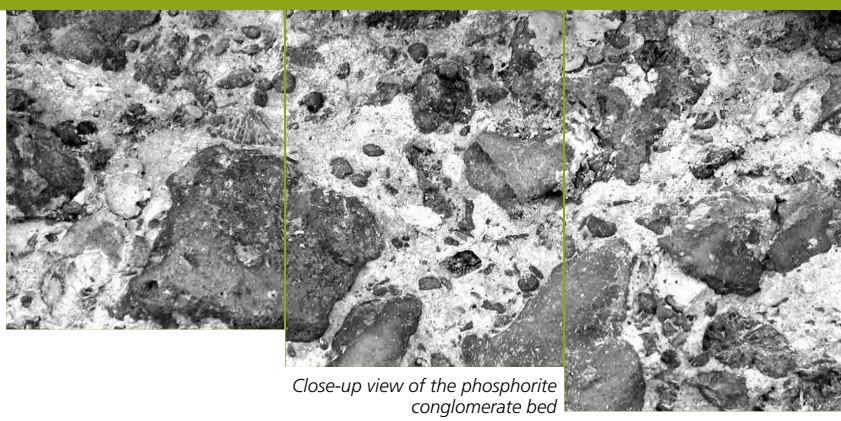
a) an analysis of existing chloride-series from the mean sea-level aquifer;
b) a field survey to map and define the spatial distribution of the lower and upper phosphorite conglomerate beds found in the Globigerina Limestone Formation (Aquitanian - Langhian);
c) correlation of fluoride levels in the mean sea-level aquifer with the thickness of phosphorite conglomerates as mapped in (b);
d) statistical analysis of chlorides and nitrates at representative locations in the aquifer adopting Baseline techniques;
e) reporting.

Technical assistance by the FAO

The fundamental objective of the FAO/MRA project (ref: TCP/MAT/2801) is to chart the way towards a more modern and comprehensive management of groundwater. The Directorate for Water Resources Regulation with the assistance of FAO is assessing the current situation and will propose a new policy for the regulation of groundwater with the necessary implementation tools, administrative, legislative and others. Obviously the new policy shall be aimed at the objectives of the Water Framework Directive, and its daughter directives and will take into consideration local socio-economic and environmental conditions.

Stakeholders are being involved in the process while the general public will be consulted prior to the publishing of new policy (possibly by mid 2004).

The ongoing study will identify sector demand for groundwater and will recommend a set of policies to allocate groundwater in the most cost-effective and equitable manner. It is planned to dovetail this work with the ongoing "characterisation study" of groundwater bodies contemplated by the Water



Close-up view of the phosphorite conglomerate bed

Framework Directive, as this study provides the required scientific background to support the allocation policy.

The project was commissioned on the 2nd June 2003 with the first mission of FAO consultant Dr. Andrew Bullock. As three years had passed since the conceptualisation of the project, the Directorate sought to revise the project objectives to reflect its current requirements. In this first mission it was emphasised that the complexities of our groundwater issues coupled with competitive demand warrant a deeper focus on policy in precedence to legislation. Furthermore the project needs to address these issues in the wider context of basin management in the light of the emerging Water Framework Directive 60/2000/EC.

To do so, the Directorate envisages a need for a Comprehensive National Water Policy, as key to establishing good management practices. Improved legislation is a key tool besides public participation, awareness, demand management and, economic measures by which groundwater management can be successfully implemented.

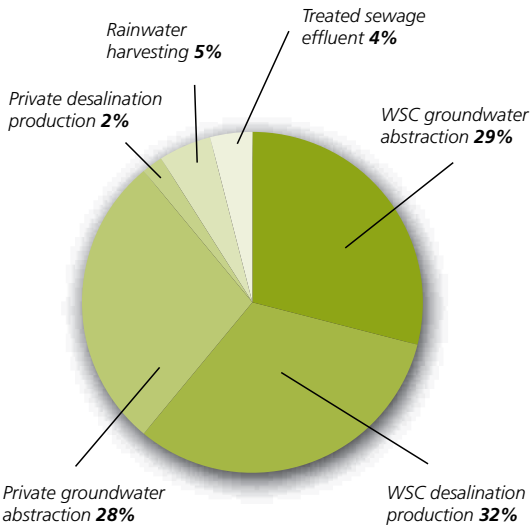
The Directorate therefore determined that the project should deliver four products in support of the core objective, namely:

1. Water Resources Review;
2. Draft National Groundwater Policy;
3. Revised Groundwater Legislation;
4. An Operable Groundwater Allocation System.

The Water Resources Review provides a comprehensive compilation of all available information on the aquifers as the foundation from which to formulate groundwater policy. By design, it will include into a single report 10 components namely:

i. Review of water resources;
ii. Review of water use;
iii. Review of water demand;
iv. Plan of action for re-use of treated water;
v. Value-in-use of water;
vi. Elasticity of demand with regard to price;
vii. Water allocation scenarios and their impact on different water use sectors;
viii. Alternative water supply options;
ix. An overview of current legislation;
x. An overview of current institutions and their mandates.

FIGURE 14: ESTIMATED BREAKDOWN OF WATER PRODUCTION BY SECTOR



The assessment of water resources is being conducted by one of the Directorate's project officers who has been detailed to work exclusively on the project for a period of 4 months. Three other local consultants namely a lawyer, an economist and a water-demand consultant will be recruited for short periods to conduct specific chapters of this review. Their recruitment is currently in process.

TABLE 5: PRELIMINARY ESTIMATES OF AN OVERALL WATER BALANCE FOR THE AQUIFERS IN THE MALTESE ISLANDS

	INFLOW	hm^3/annum	Comments
A	Precipitation	174	Estimate based on an average annual rainfall of 550mm (Met. Office)
B	Surface runoff to the sea	24	Estimate based on a variable catchment area runoff coefficient depending upon land use
C	Actual evapotranspiration	105	Estimate based on a rate of 63% of precipitation in non-urban and inland areas. (Note coastal urban areas excluded). Source: BRGM (1991) Study of the Fresh Water Resources of Malta
D	Natural aquifer recharge	45	(B) and (C) deducted from (A)
E	Artificial recharge from leakages	12	Estimated inflow from potable water and sewage network leakages
F	**Total Groundwater Inflow**	**57**	Sum of (D) and (E)

	OUTFLOW	hm^3/annum	Comments
G	WSC groundwater abstraction	16	Based on official WSC abstraction for hydrological year 2002/2003
H	Private groundwater abstraction	15	Estimate based on water demand of various sectors (industry and agriculture)
I	Subsurface flow to the sea	23	Estimate based on groundwater modelling
J	**Total Groundwater Outflow**	**54**	Sum of (G), (H) and (I)

	WATER BALANCE	hm^3/annum	Comments
K	Total Groundwater Inflow	57	Refer to (F)
L	Total Groundwater Outflow	54	Refer to (J)
M	**Overall Water Balance**	**3**	Inflow (K) less outflow (L)

DIRECTORATE FOR WATER RESOURCES REGULATION

Groundwater rights system

It is commonly accepted by most countries to designate their water resources as a national asset with government having overall responsibility for resource management. This is a first means to reduce interference and ensure conflict resolution between competing users. It also leads to effective implementation of integrated water resources management by:

- Fostering stakeholder participation;
- Increasing demand management and efficiency enhancement;
- Raising revenue for resource regulation;
- Promoting conjunctive use of groundwater with other non-conventional sources (RO, TSE, & SW)

Furthermore it provides users with greater financial security for investment purposes. The Directorate is thus seeking to determine the existing rights over groundwater (if any) held by respective stakeholders (Government, farmers, land-owners etc.). This is a detailed legal exercise, where the ownership/title over groundwater resources is expected to be clearly defined within the current legislative framework.

It will address a number of unresolved issues, and answer several questions related to ownership of water and associated water rights.

Training and development

Officials of the Authority attended a series of seminars and workshops on various issues related to water resources. These included:

- an international co-operation course on water management by river basins. The course was organised by the Spanish Agency for International Co-operation within the Foreign Affairs Ministry of Spain, and the General Directorate of Hydraulic Work and Quality of Waters within the Ministry of the Environment of Spain in collaboration with Tecniberia / Asince and the University of Alcala de Henares (Madrid). The course was carried out under the Azahar Programme and a total of 19 participants from various Euro-Mediterranean countries attended the course. The course included a series of lectures, technical visits and presentations covering various aspects of water resource management with particular focus on the Spanish experience.

- participation in a study visit to the UK on establishing institutional capacity in the Environment. The study visit was organised under MEPA's EU-funded twinning project with the Environmental Agency and project managed by NI-CO. The visit included a series of presentations and site visits covering various aspects of environmental permitting and institutional capacity in the UK. Visits were made to the Environment Agency's Offices in Warrington and Sale, Southport Wastewater Treatment plant, Shell Green Sewerage Sludge Incinerator as well as various waste management facilities including a Hazardous Waste Landfill site and a Waste to Energy Plant.

- a course on Sustainable Use of Water on Mediterranean Islands: Conditions, Obstacles and Perspectives (Sustainis) held in Cyprus. The course was organized by the University of Munster and supported by the Energy, Environment and

Sustainable Development Programme of the European Commission. It brought together thirty advanced students from various disciplinary and national backgrounds from over twenty countries within the Euro-Mediterranean region. Two officials delivered lectures and a third official attended the two-week course. The main aim of the course was to analyze the complex interrelationships between the environmental and social systems that govern the water regimes on Mediterranean Islands and thus provide an interdisciplinary perspective on the involvement of decision-makers and stakeholders in exploring rational and mutually acceptable water management practices.

The Authority also hosted a student (studying business administration specialising in environmental management at the Fachhochschule fuer Technik und Wirtschaft Berlin) for an 18-week internship, apart from providing an opportunity for work experience to five University of Malta students. Staff from the MRA also supervised the projects of four students who were reading for the Diploma in Operational Island Hydrology at the Institute of Water Technology of the WSC.

EMWIS

The Euro-Mediterranean Partnership has long considered water to be a priority area, and one of its first initiatives was the establishment of a Euro-Mediterranean Water Information System (EMWIS), with the participation of the 27 partner countries.

The objective of the system is to collect and disseminate to decision makers information on water know-how, information that would otherwise exists in fragmented, dispersed and heterogeneous manner. The project also serves as a tool for the co-operation between Euro-Med countries in developing, sharing and facilitating access to information and to define common outputs and programmes.

Five EMWIS topics were defined at a Ministerial Conference in Marseille:

- Institutions/organisations;
- Training;
- Research;
- Documentation;
- Data management.

The information is made available by a "National Focal Point" in each country and a central Technical Unit. The website is established on **www.emwis-mt.org** or **www.emwis.org.mt**. The website was substantially revised and also updated during the summer period.

A representative of the Authority attended the coordination seminar for national focal points held in Tunis in December. A presentation was also given at a regional information seminar on EMWIS held also in Tunis. During the first week of October 2002, an information and training seminar for data managers was held in Madrid, where a representative of the MRA was present.

MRA

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