

Response to the Consultation Document on the Development of "A Water Policy for the Future"

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MALTA RESOURCES AUTHORITY CONSULTATION PAPER

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RESPONSE TO THE CONSULTATION DOCUMENT ON THE DEVELOPMENT OF "A WATER POLICY FOR THE FUTURE"

1. INTRODUCTION

The Malta Resources Authority, with the collaboration of the Food and Agriculture Organisation of the United Nations (FAO), issued a consultation document entitled "A Water Policy for the Future". The document was published in March 2004 and was open for consultation until the 12th April 2004.

The main aim of the document was to report on the results of a Groundwater Resources Review commissioned by the Food and Agriculture Organisation for the Malta Resources Authority. The document thus proposes a policy framework intended to provide the basis for rational management of groundwater within and sustainable use of water resources in Malta and Gozo.

The document set out the following five main elements for the development of a holistic water policy:

- prevent further deterioration of water bodies and improve their status in relation with their function and use;
- promote sustainable water use based on long-term protection of available water resources;
- protect and improve the aquatic environment, including coastal waters and groundwater;
- ensure progressive reduction of pollution of groundwater and prevent its further pollution;
- contribute to mitigation effects of floods and droughts.

This document summarises the written responses received by the Authority and the Authority's response to the views expressed in these representations.

2. RESPONSE TO CONSULTATION PAPER

2.1 Analysis of representations

The following is an analysis of the written representations made in response to the consultation paper and a commentary on the key issues raised and highlighting the Authority's response.

There were a total of 18 responses, 12 of which were submitted electronically. These responses contained approximately 42 pages of comments from a variety of organisations and individuals. Table 1 provides a full list of respondents, organized into 6 categories of type of respondent.

The responses received were uniformly distributed among all of the interested stakeholder groups. In addition to focusing on the specific guiding principles presented in the consultation document, respondents commented on broader issues related to the implementation of the proposed Water Policy and its relevance within the Catchment District Management Plan. This will be established under LN194/2004 entitled “Water Policy Framework Regulations” better known as the Water Framework Directive.

#	Organisation	Date Rec'd	Category
1	Malta Labour Party	10-Mar	Public Body
2	Greta Pace	16-Mar	Individual
3	Malta Chamber of Commerce & Enterprise	24-Mar	NGO
4	Institute of Agriculture	25-Mar	Academic
5	Philip B. Grech	25-Mar	Consultant
6	Ministry for Rural Affairs and the Environment	29-Mar	Government/Regulatory Authority
7	Ministry for Rural Affairs and the Environment	5-Apr	Government/Regulatory Authority
8	APS Bank	5-Apr	NGO
9	Malta Environment and Planning Authority	6-Apr	Government/Regulatory Authority
10	Investia Consult Ltd	6-Apr	Consultant
11	Farmers' Central Coop Society Ltd	7-Apr	NGO
12	Ministry for Rural Affairs and the Environment	12-Apr	Government/Regulatory Authority
13	Sustech Consulting	12-Apr	Consultant
14	Malta Enterprise	14-Apr	Government/Regulatory Authority
15	Ministry of Finance	21-Apr	Government/Regulatory Authority
16	Malta Environment and Planning Authority	22-Apr	Government/Regulatory Authority
17	Water Services Corporation	22-Apr	Public Body
18	Water Services Corporation	17-May	Public Body

Table 1: Responses received to the Consultation Document

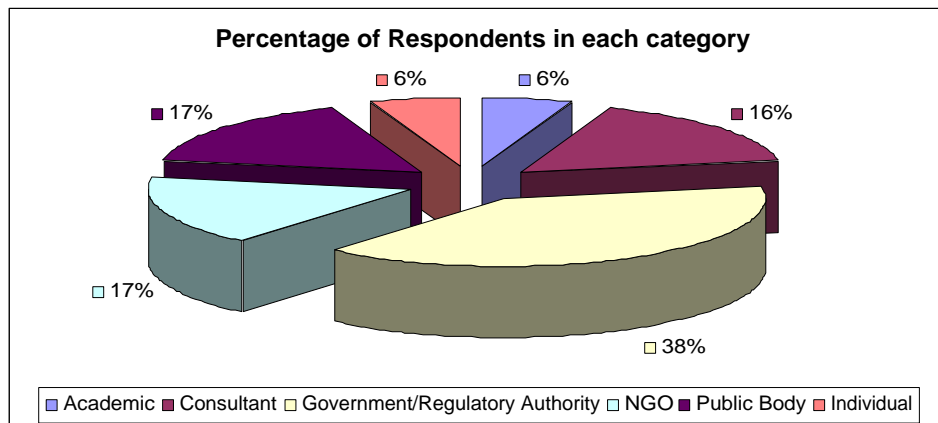


Table 2: Percentage of Respondents within each category.

3. COMMENTARY ON KEY ISSUES AND THE AUTHORITY'S RESPONSE

3.1 General Issues

3.1.1 Water Policy

Four consultees noted that a water policy cannot be limited to groundwater protection only but should be holistic and in line with the Water Framework Directive. Comments varied and consultees noted that:

- i. The Policy would benefit from a deeper consideration of the institutional context in Malta in the area of water protection, which would allow the proposed framework to be more closely related to the different actors in this field. Thus, the Policy should seek to address certain institutional lacunae such as for example regarding the organisation which is responsible for storm water and valleys;
- ii. The relationship between the proposed water policy and the Water Catchment Management Plan required by the WFD should be explained;
- iii. The policy should clearly define the competence of the different authorities in the water sector; with particular reference to the competent authorities defined in the Water Framework Directive;
- iv. The Policy should take into consideration the current development plans (Structure Plan) and any policy on Industrialisation and Agricultural Development;
- v. The concept of good water status as defined in the Water Framework Directive should be included in the policy;
- vi. The Water Policy is hampered since there is no National Development Plan, except perhaps the Acquis Communautaire;
- vii. The proposed policy is really an attempt to comply with EU Directives;
- viii. The objectives outlined in the consultation document would become stronger if associated with specific targets;
- ix. The third policy objective of the consultation document should be renamed "*to ensure the protection and improvement of Malta's environment*".

Authority's response

Comments (i), (iii), (v), (vi) and (vii) have been noted and will be considered in the policy development process.

With respect to comment (ii), the Authority notes that the policy will aim to address the most pressing issues within the short term. However it is the Authority's aim that the policy, in the long term, will address the aims and objectives of the Water Framework Directive, and thus serve as the foundation of the Water Catchment Management Plan which has to be operational by 2009.

With respect to comment (iv), the Authority observes that the proposed water policy will aim to protect the aquatic environment in consideration of the holistic environmental scenario in the Maltese islands.

With respect to comment (vii) the Authority notes that the achievement of 'good status' as defined by the Water Framework Directive is being implemented because it is beneficial for our environment.

With respect to comment (ix) the Authority will amend the title of the relevant policy objective in order to clearly deliver the message that the water policy will be formulated in the context of the wider environmental scenarios.

3.1.2 Public Consultation

Two consultees observed that the public consultation process should be widened and extended to all potential stakeholders.

Authority's response

It is noted that the Authority intends to adopt a continual consultative process whereby stakeholder will be invited to submit ideas and specific issues at further stages within the policy formulation process. It is the aim of the Authority to extend the consultative process even in the implementation of the Water Framework Directive.

3.1.3 Surface Water

One consultee noted that in line with the Water Framework Directive, surface water should be given greater consideration since although it is present in quantities which are not significant for exploitation it is critical with respect to the survival of a number of indigenous species, some of which are endemic.

Authority's response

The Authority agrees with the comments and the issue of surface water will be given due consideration in the policy formulation process.

3.1.4 Environmental Considerations

One consultee noted that the forthcoming policy document should be accompanied by a joint policy between MRA and MEPA regulating land-use planning with due consideration being given to issues such as flooding, aquifer protection zones and valley protection areas.

Authority's response

The Authority will refer to existing work being undertaken by MEPA and will seek greater co-ordination with this entity.

3.1.5 Rent Laws

One consultee commented that "*Landowners already face huge difficulties in gaining access to land that they have legal title but is occupied by tenants. One clause in the law stipulates that if the land is classified as irrigated, eviction is even more difficult. One has to be very careful on how this would be interpreted; or rather the new policy on water will come into effect after a revision of the agricultural rent law*".

Authority's response

These comments were noted and will be given due consideration.

3.1.6 Climate Change

One consultee observed that the expected effects of climate change phenomena such as changes in rainfall patterns and the rise in the mean sea level have not been included in the policy document.

Authority's response

The Authority agrees that the effects of climate change will affect the water resources scenario in the Maltese Islands in the future; and due consideration to these changes will be given in the Water Resources Review Report which will be published during the course of the project. However, it should be clearly pointed out that the effects of climate change should be reviewed as part of a long term holistic water policy; and are generally not considered of critical importance in the short term.

3.1.7 Water Conservation

One consultee noted that "*Efforts should be made to encourage consumers to preserve water. Programs in this respect have been running for years in other EU countries with reasonable results.*"

Authority's response

The Authority considers water conservation programs as part of the general deliverables of the process. Reference is also made to the efforts in this sense being made by the WSC; which the Authority encourages and wherever required will provide the necessary input.

3.1.8 Use of Renewable Energies

One consultee noted that should the country have to resort to stepping up the production of RO water, then suitable alternative energy sources could be identified for the running of RO plants.

Authority's response

Comments were noted.

3.2 Data Gaps

Four consultees noted that there exist significant gaps in data availability. Three consultees suggested that collective research programs should be set up with the involvement of MRA with the purpose of gathering more data.

Authority's response

The Authority acknowledges that there are significant gaps in the quality and range of existing data; but notes that the Review of Water Resources which was conducted within the project framework and included an extensive analysis of existing data; served the purpose of highlighting these gaps. These will be addressed in the proposals being formulated as part of the implementation process of the Water Framework Directive; and new monitoring procedures will form an intrinsic part of the Catchment District Management Plan.

The Authority welcomes the suggestions for joint research in the water sector with interested stakeholders.

Four consultees requested further information on the following points:

- i. Why in the land-use classification presented, garigue and waste land were lumped in one sector;
- ii. The maximum sustainable yield of the aquifers;
- iii. The difference between the terms 'real losses' and 'apparent losses' as used in the 'estimated water demand' and 'billed water consumption and losses in the public distribution system' illustrations;
- iv. The coefficients used for the calculation of the water balance data;
- v. Why WSC data for the period 1999/2000 was used when more recent data could have been utilized.

Authority's response

With respect to comment (i); the Authority acknowledges the importance of garigue and the characteristic habitats it harbours. However, for the purpose of the evaluation, it clarified that garigue and waste land (meaning unutilised agricultural land) were considered together since they present similar characteristics from a water resources point of view. Further subdivisions of land-use categories will be used in the final document to ensure clarity of this point.

With respect to comment (ii); it is noted that as part of the collaboration with FAO, the Authority is currently reviewing the Quantitative Status of the various aquifers

in the Maltese Islands. The issue of the sustainable yield of the aquifers will be treated in this report which will be publicly available.

With respect to comment (iii) regarding 'real and apparent losses' it is clarified that: 'Real losses' are the actual losses from the potable water distribution system - ie leakages;

'Apparent losses' comprise three principal sources of unaccounted for water (metering errors, water theft and billing anomalies) that result in water that is actually consumed but not billed.

With respect to comment (iv) relating to the coefficients used for the calculation of the water balance; it is clarified that these were taken from various studies including:

- BRGM Study of the Freshwater resources of Malta (1991)
- ATIGA Consortium Wastes Disposal and Water Supply Project Malta (1972)
- J. Edelmann The Conservation of Runoff Water (1968)

The gross coefficients were mostly based on BRGM. The BRGM report dealt with the Hydroclimatological aspects in a quite exhaustive manner. In fact, BRGM based their models on a 100-year time series for hydroclimatological data. The variability induced by the long term series considered would be expected to easily cater for any changes which could have occurred during the last decade. However, even in this field, further research is required and the Authority will participate and support in any studies proposed.

With respect to comment (v); the Authority notes that the latest detailed WSC billed consumption figures available are for the period 1999/2000 (source: WSC Annual Report 2000/01). It is noted that WSC during the last three years (and before) has strived to improve the proportion of billed consumption to water production through the reduction of losses (both real and apparent) and that the figures used in the document could potentially tax heavily WSC. More recent billed consumption data, once available, will be used in the final policy document.

3.3 Abstraction of Groundwater

One consultee commented on the issue of the ownership of groundwater; with particular reference to the fact to the '*Bonus Pater Familias*' role the Government will be expected to play in any ensuing policy. It was also suggested that "*the Bonus Pater Familias role should take the following dimension:*

all boreholes to be sealed off;
government owned strategically placed boreholes in rural settings;
water is harvested, stored and distributed via surface mains;
water accessible to all provided against payment;
government to monitor sustainable rate of water harvesting".

Authority's response

These comments were noted and will be given due consideration.

Seven consultees referred to the illegal abstraction of groundwater and the ensuing effects that this unregulated practice is having on the quantitative and the qualitative status of the aquifers. Comments varied and consultees noted that:

- the impact of illegal abstraction on the status of our aquifers has been substantial and reflected in the surge in the chloride content of the abstracted groundwater;
- the position regarding boreholes and machinery imported to make such boreholes should be regulated;
- the sale of groundwater by individuals for private profit is deplorable and should be stopped immediately;
- regulating and reducing groundwater abstraction requires a very determined plan of action by the MRA, coupled by the political will to achieve the desired result;
- the state of groundwater in Gozo is by far worse than in Malta; where one consultee specifically noted that "*it has been unofficially reported that some farmers have had to close their boreholes*";
- any action taken to control groundwater abstraction should be coupled with the provision of alternative sources of water "*to ensure that offenders do not just drill other boreholes in tandem with the closure of existing illegal ones*".

Authority's response

The Authority is of the opinion that protection of the aquifers and their restoration to an optimal functionality requires to re-establish discipline in drilling into the aquifers and in pumping water from them. The existing situation calls for effective control of all drilling and of any significant water pumping so as to ensure a balance between abstraction and recharge, prevent the loss of groundwater storage by over-exploitation, restore freshwater support to important biota and ecosystems and prevent degradation of quality. The ensuing policy document will aim to clearly address these issues as well as propose tools and legislation to deal with the current situation. It is also noted that the establishment of 'good groundwater quantitative and qualitative status' is one of the milestones of the Water Framework Directive.

One consultee commented on the fact that estimates presented showed that private abstraction of groundwater is of the same order of that being abstracted by the Water Services Corporation.

Authority's response

The Authority notes that whilst the Water Services Corporation has considerably reduced its groundwater abstraction in recent years; this appears to have been complimented by an increase in the demand/abstraction from the private sector. This may be due to the fact that groundwater is perceived as an unlimited lower cost source of water; which is not the case. The regulation of groundwater abstraction

with the aim of ensuring 'good quantitative and qualitative status' will be addressed in the water policy document.

One consultee noted that the borehole drilling phenomenon cannot be considered as the solitary contributor to the sad state of affairs of the aquifers since the ever increasing built up areas are greatly reducing the annual recharge to the aquifers.

Authority's response

The Authority acknowledges that the inflow to the aquifers has reduced due to the spread of the built up areas and this fact has also contributed to the deterioration in the quantitative status of the aquifers. It should be noted however that built-up areas are considered as zones of 'artificial recharge' since recharge occurs through leaks in the potable water distribution system and unfortunately even from sewers.

3.4 Pollution threats to Groundwater

Four consultees noted the potential effects of different land uses on groundwater quality. Two comments specifically urged close collaboration between MRA and MEPA (as the land-use regulator in Malta) in the fields of both spatial planning aspects and environmental permitting of developments; and more particularly within the framework of the Structure Plan which is currently being reviewed by MEPA.

Authority's response

The Authority notes it is regularly consulted by MEPA on planning issues which present real and perceived threats to groundwater; and if requested, will also co-operate with MEPA in the review of the Structure Plan.

One consultee commented on the issue of groundwater pollution from livestock manure; where it was noted that *"livestock farms are usually located on sites having poor soil properties - thus the site would lack the obvious protection/buffering capacity that would normally be present on areas with appropriate soil depth. Animal units can also be interpreted as a concentrated source of manure. Thus it is no surprise that high levels of pollutants can be traced in their vicinity. I think that the issue here is to quantify this contribution in relation to the total amount. If that is done I think that the contamination arising from these units is lower than what we perceive them to be"*. The consultee urged for an assessment and evaluation of the whole livestock sector since *"there may well be situations where less production will result in less manure at the same or even higher profitability to the producer"*.

Authority's response

The Authority acknowledges that livestock farming does not have the sole responsibility for the high nitrate levels in our groundwater. Other main sources

include manure spreading in agriculture as well as leakages from the public sewer. The Authority has already undertaken a number of separate studies in pilot areas such as Ta Kandja and Bingemma which highlighted the local effect of point pollution sources. However, further research is required in this field; particularly using new scientific tools such as tracing pollutant sources through Natural Isotopes.

The Authority notes, however, that a number of livestock units have unacceptable waste management facilities. This problem is being addressed through a joint effort with MFAE where development plans for new and existing livestock facilities are being critically reviewed and subjected to conditions outlining acceptable waste management procedures.

With respect to the proposed evaluation of the livestock sector the Authority will be forwarding and discussing the issues raised with MFAE.

One consultee noted the efforts being spent by the Agriculture Department in the implementation of the Nitrates Directive; with particular reference to the implementation of the Code of Good Agricultural Practice. Increased support from the MRA to the Agricultural Action Plan was solicited.

Authority's response

The Authority reiterates its full support to the MFAE's efforts towards the implementation of the Code of Good Agricultural Practice and the ensuing Action Programme.

One consultee requested further information regarding the existing plans for the application of the polluter-pays-principle in the ensuing water policy framework.

Authority's response

The Authority notes that the polluter pays principle will be applied in line with the provisions of the Water Framework Directive requiring Member States to take account of the principle of recover of the costs of water services, with due consideration being given to environmental and resource costs; and the actual application details will form part of the ensuing Catchment District Management Plan.

3.5 Groundwater Recharge

Two consultees noted the option of groundwater recharge and observed that this could take place through the diversion of storm water or surplus treated sewage effluent to infiltration basins or to direct injection sites. One consultee noted that "*Post treatment of*

the water for re-injection may be necessary but if required can be done with a relatively cheap post RO treatment".

On the other hand; one consultee noted that the only "*ethically acceptable recharge options are those that occur naturally*"; thereby ruling out artificial recharge as an option in aquifer management.

Authority's response

These comments were noted and will be given due consideration. It is however noted that whilst aquifer recharge is considered as a viable option in aquifer management; its wider implications need to be considered in detail.

3.6 Harvesting of storm-water runoff

One consultee suggested that the use of fiscal instruments in the promotion of a return to direct rain water harvesting should be a cornerstone of the ensuing water policy. Another consultee noted that whereas farmers used to invest in the construction of water reservoirs to collect runoff water; as a result of borehole drilling this has reduced drastically.

Authority's response

The Authority acknowledges the importance of the introduction of incentives to promote storm water harvesting. This issue will however be considered in the wider context of the Water Catchment Management Plan.

Two consultees noted that due to the high runoff potential of urbanised areas, which today cover around 25% of Malta, storm-water runoff is being increasingly perceived as a flood menace. In particular the following points were raised:

- To date, a considerable fraction of the rain water that falls on the Maltese Islands during heavy rain is lost to the sea;
- The management of storm water needs to be integrated into the water policy;
- Flooding of low-lying areas is a recurring event, and climate change phenomena are expected to accentuate similar occurrences for the years to come.

Authority's response

These comments were noted and will be given due consideration.

Three consultees commented on the need to divert and hold rainwater runoff at higher grounds; particularly in valleys. It was noted that "*All our valleys are well organized with dams, their estimated total capacity is 154,000m³. By time, these dams get silted up, loosing the scope for which they were constructed. Today, most of these dams are silted up, which means we are loosing water and soil to our surrounding sea.*" One consultee

observed that *"Their rehabilitation will ensure a cheap and efficient way of recharging to a certain extent our ailing aquifer"*.

Authority's response

These comments were noted. It is further noted that the management of rainwater runoff will be considered in the wider context of the Water Catchment Management Plan.

Six consultees commented on the storm water retention capacity in the Maltese islands; where it was noted that *"Large, ancient and fairly recent underground reservoirs can be found in every town and village. These practically cater for all the irrigation needs of our urban and rural landscaping and public gardens"*. The identification and repair of these reservoirs was urged in order to make use of their full potential.

Authority's response

These comments were noted and will be given due consideration.

Two consultees noted that in recent developments; the law which stipulates that a rain water well has to be built is not enforced. It was also noted that in larger developments ; promoters include underground parking spaces but do not even consider the construction of rain water reservoirs. The consultees concluded that *"As long as such people can get cheap potable water supplied by borehole owners for all their needs, this situation ought to persist, aggravating the situation further"*.

A plan for the inclusion of rainwater reservoirs in the rehabilitation of quarries was also submitted by one consultee.

Authority's response

The Authority notes that in the Planning and Design Guidelines 2004 as issued by MEPA; it is stated that *"Rainwater runoff should be collected and recycled (for uses which do not require potable water). This applies both to residential and non-residential development, where the collected run-off may be a useful resource. Collection also reduces the amount which needs to be dealt with by the storm water drainage system, and so may have wider benefits. Plans submitted with applications should show the proposed location of the water cistern"*. The document provides also guidelines on the optimum/required sizing of the cistern.

One consultee noted that the construction of large scale storage facilities for rain water runoff would *"encroach upon the precious land areas of the already over crowded country"*; whilst the storm water collected would be too polluted for direct re-use and would have to be treated thereby requiring the construction of polishing plants.

Authority's response

These comments were noted and will be given due consideration.

3.7 Re-use of treated sewage effluent

Four consultees considered the re-use of treated sewage effluent as a major key to the achievement of a sustainable water management system in the Maltese Islands and urged MRA to include a plan for the re-use of treated effluent within the Water Policy Framework Document. One consultee however commented that the availability of treated sewage effluent cannot be necessarily expected to supplant existing water demands since there is a real chance that it will create fresh demands since "*there is a suppressed demand in Malta for water intensive industries which would develop if given access to reasonably priced sources*".

Authority's response

These comments were noted. It is noted that water demand management issues will constitute an integral part of the proposed water policy.

Three consultees commented on the existing sewage treatment plans; where it was claimed that the proposed siting of the sewage treatment plants was heavily based on the existing sewerage infrastructure with little consideration being given to its re-use potential. The following further suggestions were received:

- the plant at Cumnija (Malta North Sewage Treatment Plant) should be re-located to Ghallis; where the potential for effluent re-use is enormous;
- decentralised treatment plants for wastewater could be installed at sites where there is a need for the re-use of the water. These sites, if necessary, could be totally independent of the national sewage grid.

Authority's response

These comments were noted. The Authority shall be discussing the issues raised with the Water Services Corporation.

Three consultees pointed out that the re-use options will definitely depend on three main factors:

- the quality of treated water,
- the price which users will be willing to pay,
- the local demand for alternative sources of water.

Comments and suggestions were made on the following:

- the demand for treated sewage will never be adequate unless (cheaper) abstraction from boreholes is curbed;
- if the salinity of the effluent produced seriously impairs re-use then salinity discharges in the public sewer should be regulated;

- the main drawback against the use of treated sewage is the salinity in the effluent produced;
- the use of treated effluent in industry will greatly depend on the constant availability of water at a desired quality and at a competitive price;
- a study with the objective of quantifying the ability of the local industry to utilize second class water as a substitute to groundwater/mains should be undertaken;

Authority's response

These comments were noted and will be given due consideration.

One consultee observed that owing to the fact that land availability in Malta is rather limited and thus restricting quantitative production; our main potential should be diverted to the production of high quality products. The consultee asked what will be the repercussions of the use of treated/polished/recycled sewage in this sector as regards its compatibility with what consumers perceive as a quality products.

Authority's response:

These comments were noted. The Authority shall be discussing the issues raised with MFAE.

One consultee commented that the impression given during the workshop was that there was a general lack of real data in the sewage sector where all quoted data regarding sewage flows and volumes were estimates based on water consumption rather than actual measured data.

Authority's response

The Authority notes that these issues were raised during discussions with the Water Services Corporation. It is also noted that from these discussions it emerged that WSC is taking the necessary actions to redress the situation.

One consultee remarked that treated sewage could either be discharged to the sea or be further polished to irrigation level. The consultee requested information regarding:

- the level of purity required for treated sewage effluent to be used for irrigation;
- the crops which can be irrigated with treated sewage effluent;
- if the EU has any legislation which dictates if and which polished sewage water can be used for irrigation.

Authority's response

The Authority notes that these issues have been dealt with quite extensively in a report prepared by Dr. A. Angelakis (FAO consultant) which is available on the Authority's web-site.

Issues regarding the potential re-use of treated sewage effluent will also be dealt with in the water policy document which will be prepared by the Authority.

The Agriculture Department proposed that should there be "*a joint agreement between MRAE and MRA that treated sewage effluent is to be used for irrigation, then certain water quality criteria need to be integrated in the design of the three planned sewage treatment plants. If these plants will produce the same, or similar quality to that that is currently being produced at SASTP, this will result in crop damage and more importantly soil degradation through salinisation, nutrient and possibly heavy metal loading*".

Authority's response

The Authority notes that any decision regarding the usage of treated sewage effluent in agriculture will be taken after a wide consultation process with all interested stakeholders. It is also noted that such a decision would also have to be taken in agreement with MRAE.

3.8 Water demand by the agricultural sector

One consultee observed that the increased groundwater exploitation in recent years has resulted in a marked increase in the production of agricultural products. This trend was also reflected in an increase in the area declared as irrigated land.

Authority's response

These comments have been noted.

One consultee remarked that one of the objectives of the water policy should be to conserve water so that it is fit for purpose. Thus, since agriculture is a major water user, the quality of water which is fit for irrigation should be determined and defined. Comments received from another consultee stated that the "*acceptable level of electrical conductivity of irrigation water ranges between 700 and 800 μ S*". It was further noted that groundwater extraction from agricultural boreholes ranged around the figure of 2000 μ S.

The same consultee a stated that it does not envisage any significant growth in the vegetable production sector since the current production is satisfying the local needs and no large scale exports are envisaged. However, "*the cultivation of vines, fruit trees and olives which are also being irrigated is increasing. Therefore it is expected that the total irrigated area will rise to about 3000ha.*" It was also observed that "*the potential gross volume water that will be needed (by the agricultural sector) will be about 30 million m³ per year*".

Authority's response

These comments were noted. The Authority will be seeking further consultation with MFAE on this subject during the formulation of the policy proposal.

Two consultees commented on the methods employed in the calculation of the agricultural water demand and noted the following points:

- Crop water requirement estimates should be confirmed with pilot measurements such as metering of sample boreholes used with different agro-systems (soil conditions, irrigation techniques, crop types,...);
- Official (NSO) irrigated land data seems prima-facie to be unreliable particularly in the case of the island of Gozo.

Authority's response

Estimates for the water requirement of crops were based on the report compiled by J. Mischoff in 1990 and data on irrigated land provided by the NSO and MFAE. The Authority acknowledges that further research is required in this field and will proposed joint research projects with interested stakeholders in order to address this issue.

Land-use data were obtained from official surveys carried out by the National Statistics Office. It is understood, however, that irrigated land is currently being surveyed by the Department of Agriculture and this exercise is expected to provide more accurate and reliable data; concerning both the amount of irrigated land as well as its spatial distribution. It is hoped, that when available, this data will enable the Authority to analyse and project the (ground)water demand of the agricultural sector to a groundwater body level.

One consulted remarked that the proposed water policy should consider discussing and addressing the traditional agricultural water sharing practices and agreements.

Authority's response

These comments were noted and will be given due consideration in the formulation of the policy proposal.

3.9 Economic Regulation of the water sector

Two consultees commented that a number of drivers, including the facts that Malta is committed to:

- construct three sewage treatment plants by 2007 so as to treat all sewage before disposal to the sea and
- meet the requirements of the EU Drinking Water Directive which is expected to involve further investment in desalination capacity;

will induce an increase in the cost of water in Malta. One consultee also noted that "*any attempt by the MRA to regulate the operation of private boreholes and introduce a charge on groundwater abstraction will result in an increase in the operational costs to be borne by a number of stakeholders.*"

Authority's response:

These comments were noted.

One consultee remarked that "*An independent regulator must see that the prices charged for water reflect the most efficient methods possible of producing and distributing water. At the same time, special attention to the handicaps associated with the production of water in Malta, might require the regulator to reduce the market price for a minimum amount of water deemed necessary to ensure proper hygiene levels for all population strata. The regulator might consider desirability to introduce a concept of price and quality benchmarking with other countries/islands that lack water resources. Such an emphasis on transparent water pricing policies for water is deemed central for a water policy which is suitable for Malta. It is important that all inefficiencies in the service provision are brought to light, analyzed and eliminated, rather than covered through subsidies handed over by government.*"

Authority's response

The Authority notes that issues relating to the recovery of costs of water services will be considered in the wider context of the Water Catchment Management Plan.

Two consultees commented on the issue of WSC operational efficiency; comments varied and included the following points:

- "*Given the monopolistic situation benefited by the WSC, local enterprise should not be made to pay for operational inefficiencies on the part of the public utility*";
- The current 33% (real and apparent) losses in the water distribution network are excessive.
- The WSC may need to incur additional costs related to an enhanced distribution system to curb on 'unaccounted for' potable water.

Authority's response

The Authority notes that although the losses in the distribution system are still relatively high; the problem is being tackled quite aggressively by the WSC. It is also noted that issues relating to the operational efficiency of the utility are dealt with in the License for the Utility being currently proposed by the Authority.

Four respondents raised the issue of water subsidies and pricing. Suggestions and comments received were as follows:

- i. Water tariffs for agriculture should be linked to acreage and produce declared at the central markets;

- ii. Water costs for borehole use to hotels and industry are to be based on justifiable assumptions and estimated demand to encourage the preferential use of mains water in deference to groundwater;
- iii. A sewage tax could be built in as an integral part of the cost of water to help stem consumption;
- iv. Water supplied through RO plants should bear the true cost of the water and the subsidies should be dismantled;
- v. If water is a scarce commodity it should be priced accordingly rather than at a fake price resulting in unlimited volumes available for consumption at little cost;
- vi. The cost of water production and distribution and the nature and amount of cross-subsidies should be made transparent to all stakeholders involved; as they should be aware who pays for whom and why;
- vii. Cross subsidies between sectors should be discouraged;
- viii. Any subsidy deemed necessary for social or other reasons should be targeted at the persons or institutions in need and revised as circumstances change.

One consultee requested further explanation of the term "Generally cross-subsidies where one sector pays for another sector's water use, are to be discouraged and slated for phasing out" and particularly on the effects of this statement on the current subsidy on the first few units of domestic consumption.

Authority's response:

These comments were noted and will be given due consideration. A detailed economic study of the water sector will be initiated this year which will analyse from an economical perspective water use in the Maltese islands and propose methods for the achievement of the recovery of costs of water services.

One consultee suggested that industry should be encourage to take water preservation measures through certification and a wider publication of the ECO Awards scheme.

Authority's response:

These comments were noted and will be given due consideration.

One consultee noted that *"The scarce water resources should be allocated preferentially to the most beneficial use in terms of national income, employment and welfare. Water policies should provide disincentives for water uses that result in a low value per cubic metre of water use and/or generate limited or low quality employment"*.

Two consultees mentioned the issue of the quality benchmarks which will be required for water. The following specific points were raised:

- Does all water have to be potable?
- Is it feasible to lower costs by supplanting mains supplies of lower quality with potable water transported by other means?

One consultee further noted that "*The convenience factor has to be considered very seriously as the socio-economic benefits of in-line tap water plumbing are very high*".

Authority's response:

These comments were noted and will be given due consideration.