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# INTEGRATION AND HARMONIZATION OF WATER POLICIES IN MALTA WITH SPECIAL REFERENCE TO IRRIGATION

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## PRESENT SITUATION IN MALTA

Scarcity of water is a fact of life in Malta: as far as historical records go back, it has always been so and there seems to be no realistic likelihood that it will be any different in the foreseeable future. Modern society also makes ever-increasing demands on the limited supply as both the population (local and tourist) and the standard of living go up. Given this background, one would expect that there should be coordination between the various sections of society to make sure that water is used in the best possible manner. However, experience shows that this is rarely the case and rather than cooperation there is usually fierce competition between the potential users.

Among the sectors putting pressure on the water supply is, undoubtedly agriculture. This is an essential sector of Maltese society and one that merits protection and assistance. However, as always happens, even in other countries, the amount of water used by agriculture bears no connection to the actual production value. In Malta, agriculture uses 40% of the groundwater while producing only about 2% of the GDP.

## OBJECTIVES FOR THE FUTURE

At the present time, the water sector in Malta is facing the following major challenges and development objectives (EMWIS):

1. Meeting water demand by different sectors.
2. Achieving EU quality standards for drinking water supply.
3. Governing water resources and allocating water to all users in a fair manner.
4. Managing all water resources in an integrated manner,
5. Recognising the diverse requirements of different sectors of the economy.
6. Maximising efficiency and cost effectiveness in the use of water resources.
7. Applying "user pays" and "cost-recovery" principles effectively.
8. Restoring the aquifers and protecting the aquatic ecosystems.
9. Raising public awareness on water conservation.

## OVER-EXTRACTION

This is a serious concern, principally because some farmers extract water illegally and, obviously, have no intention of cooperating with the authorities to curb the abuse. It is one important instance where lack of coordination is glaringly apparent.

The practice has an adverse effect on the water quality and the farmers themselves are usually aware of it. They still prefer to use such methods because they want to hide from the Inland revenue Department the fact that they are irrigating their land and therefore earning higher incomes than those declared officially.

As often happens in such cases, those who break the law in this way are also putting their more law-abiding colleagues at a disadvantage.

## COOPERATION IN ENFORCEMENT

One should perhaps consider whether the Ministry for Rural Affairs and Environment (MRAE) should cooperate with the Water Services Corporation (WSC) in enforcing the law in this regard, through inspections, reports and, above all, through an information and education campaign to render the farming community conscious of the harm that such illegal practices are doing.

Another initiative to be taken is the setting up of a distribution network for recycled water – the planning stage should involve not only the WSC, MRAE and farmers' organisations but also the Malta Environment and Planning Authority (MEPA) as one can imagine the amount of bureaucracy that would be involved in laying down such an extensive system.

## **NEW SOURCE OF WATER FOR IRRIGATION**

In the (relatively) near future Malta will have a new source of irrigation water that could represent a small revolution in agriculture. As signatory of the 'The Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean', Malta is in the process of treating all sewage effluent and this will have a side-effect of producing about 12 million m<sup>3</sup> of so-called 'second class' water which is suitable for industrial and agricultural use.

Although the country as a whole will still suffer from scarcity of water, in this particular sector of economic activity, water resources will no longer be the limiting factor they are at present.

Re-use of treated waste water will become increasingly important in Malta's overall strategy. Although the reclaimed water will not necessarily be of very good quality because of its high salinity, it will be a reliable resource, even during the dry season, and can thus substitute potable water for secondary uses. Agriculture and Industry are two potential sectors where treated sewage can be safely employed after suitable treatment. If it becomes economically feasible, this water can undergo further processing to lower its salinity and thus improve its agronomic qualities. Decentralised treatment of sewage close or, at the point of use, needs to be also examined further as it will allow multiple usage of the effluent while doing away with expensive distribution networks.

Ironically, Maltese agriculture does not, at present, have the capacity to make full use of this soon-to-be-available resource and this is again, another instance where more integration between the WSC and the MRAE is called for. The agricultural system is adapted for a situation where water is very scarce and one of the constraints limiting production. This means that crops are grown which need as little water as possible. Application efficiency is the only practical consideration for irrigation.

The Ministry needs to bring together the farmers' organisations and start thinking how best to utilise this water by modifying the traditional agricultural practices; such a consultation process is already long overdue.

There are two main changes that will probably need to be made to exploit the abundant reclaimed water: the types of crops which are cultivated and the irrigation systems to be employed. Most farmers are at present cultivating relatively salt-tolerant crops but in some areas, more sensitive crops are grown. Areas where irrigation water has low salinity should not be supplied with recycled water (unless this can be further treated) as it would lower the quality of the available resources.

Ideally, the WSC and the MRAE would discuss the matter and draw up a general plan for the islands identifying and distinguishing between the different areas and how they are to be supplied. This would be especially important if the WSC can feasibly provide different grades of water.

## **IRRIGATION SYSTEM**

At present the most popular and widespread system is drip irrigation. In general this has had a beneficial effect – the amount of irrigated land has passed from 5% in 1993 to 10% in 2005. However, drip irrigation has advantages and disadvantages from an agro-environmental aspect. It does avoid water loss and makes the most of scarce resources and the same amount of water can be used to irrigate a wider area. At the same time it can give rise to localised problems with concentration of salinity near the roots, especially when the water has a high salt content. This means that the reclaimed water, with its high salinity will exacerbate the problem.

At present, because of the scarcity of irrigation water, the advantage has outweighed the disadvantage, however this may change in future. As irrigation water becomes less scarce, the advantage will decrease. At the same time, the probably higher salinity of the recycled water will emphasise the disadvantage of the drip system.

## **DRIP IRRIGATION SALINITY PROBLEMS**

This has been the experience in other countries:

*“The re-use of drainage water for the irrigation of salt tolerant plants is one of several methods being developed to address salinity and drainage problems on the Westside San Joaquin Valley.*

*However, there have been serious failures of drip systems due to salt accumulation around drip emitters – indicating serious potential problems in arid areas (such as the San Joaquin Valley) with the sustainability of some types of drip irrigation.”* **California State University**

## **NEED FOR INFORMATION**

At the moment, this is of course, all based on theory. Studies have to be carried out to see what will be the real risk of salinity if drip irrigation continues to be used. Alternative systems will eventually have to be developed – perhaps re-introduced and modernised – in view of the new agronomic circumstances.

Another variable that will need to be considered is soil fertilisation. Up to a few months ago, the vast majority of farmers used artificial fertilizers especially nitrates and ammonium sulphate. Their use is now severely curtailed because of health considerations as expressed by EU ‘Nitrates Directive’. Gradually manures and composts will have to be utilised more widely in place of the mineral ones. This will hopefully augment the organic content of the soils and have a beneficial effect by lowering salinity both through physical and chemical means.

## **ECONOMIC ASPECTS**

Economic considerations also have to be kept in mind: how much will it cost to make use of this water and what will be its effect in terms of added value to agricultural production. When looking into this aspect, we must not look only at the market value of the produce but also at the environmental costs of over-exploitation of groundwater. A major benefit of making recycled water widely available could be this: it would no longer be economically feasible for farmers to extract groundwater illegally.

## **RECOMMENDATIONS**

More cooperation is needed between public and private stakeholders such as the Ministry for Rural Affairs and Environment, the Water Services Corporation and farmers’ coops and producer organizations. This cooperation is essential to implement the present regulations regarding water-use and extraction.

Moreover, there should be a joint committee between Malta Resource Authority, the WSC, MRAE and the Malta Union of Farmers to establish a general policy for the use of recycled second class water. Studies will also have to be carried out by the MRAE (with the help of the farmers’ organizations) regarding the most appropriate irrigation system to adopt in order to make the best use of the available water. Both public and private enterprise should create – possibly together - specific projects to restructure agriculture so that the available water may be used in the most rational manner.

The recycled water will have to be distributed to farmers throughout the country and, for this purpose, a distribution network should be established. This would involve not only the WSC, MRAE and farmers but also the Malta Environment and Planning Authority.

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