

LAND AND WATER RESOURCES MANAGEMENT IN MALTA

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A large proportion of the world's food, and an important share of its non-food crops, are grown under intensive farming conditions. This is particularly true of the Mediterranean Region. A large percentage of this land has to be irrigated. The techniques for getting water to the fields vary.

Leaving aside simple methods of conserving rainwater, there is a basic distinction between surface diversion from reservoirs, valleys or rivers and ground water extraction. In countries like Malta, even though the methods of surface diversion are less expensive, the water needed cannot be obtained by such methods (for nearly 9 months of the year) and it is through ground water extraction that most of the water needed for Maltese irrigation is obtained. More recently the method of fowl water purification has also been introduced. The endless effort needed to fit water for irrigation purposes takes place because irrigation permits the growth of high-value crops. Beside that it reduces the risks out

of using bought-in-inputs, such as improved seed varieties, fertilizers and pesticides.

Irrigated agriculture extends over some 250 million hectares in the world. Over the last two decades the agronomic package made possible by irrigation has been largely responsible for the ability of the world to supply food to its growing populations.

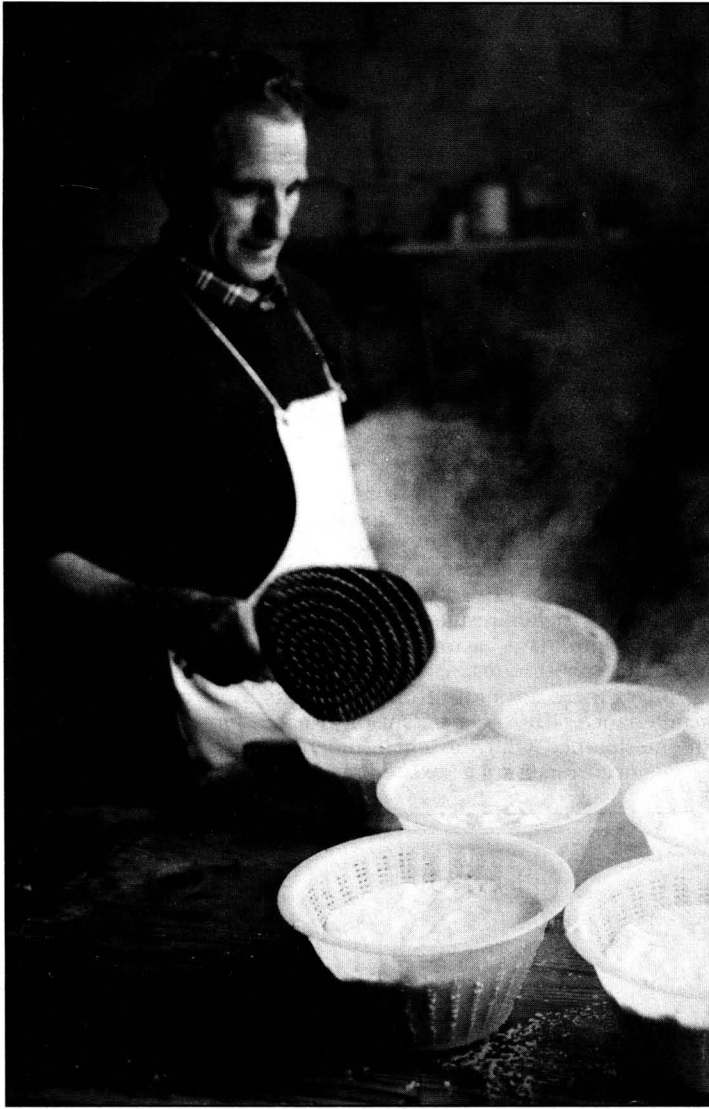
It has been estimated that over the next twenty years the growth of world demand will require a 40 per cent increase in the irrigated area and a 60 per cent increase in the average yield of irrigated crops.

For this aim to be achieved it is extremely important that the traditional methods of irrigation be monitored and if necessary, changed for better results to be achieved. This has to be done because, important as irrigation is to food supply, its continuation and expansion may cause serious environmental consequences unless there are radical improvements in its management and maintenance. The sheer extent of irrigated farming implies a major interference with the environment. The phenomenon is not new, since irrigation has existed in certain parts of the world, par-

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ticularly in the Mediterranean, for two millenia or more, but the extension of the irrigated area has gathered pace over the last few decades. The creation of new schemes, especially where diversion is achieved by building major new dams and reservoirs, alters the physical environment, habitat and economy of large areas. The operation of existing schemes has a different set of effects which if badly managed, or neglected, have the potential for serious degradation of their environments. On the other hand, schemes that are well-designed, adequately maintained, well-managed and responsibly used are perfectly sustainable. Moreover schemes that are small tend to be more successful than large ones. All these factors point to the need for an integrated approach to land and water management. Rather than adopting sectoral plans and policy measures, it would be more useful to plan in terms of space. Malta has since 1992 adopted a Structure Plan which is being implemented by a Planning Authority which is independent of any political influence. Through this Structure Plan we will be protecting as far as possible the agricultural land available in Malta. This is more important when one considers that we only have about twelve thousand hectares of agricultural land for cultivation. It is only the hard work of the local farmers and the introduction of intensive farming such as greenhouses that has made it possible for Agriculture in Malta to feed, at least as regards vegetables and a high percentage of fruit, the local population and tourists totalling four times the amount of the population. I may also add that though limited in land we also manage to export an amount of potatoes yearly.

To achieve these results it was, and is still necessary to protect our agricultural land which, due to industrial expansion, infra-structural development and tourist increases, if not protected will have to give way for more «yielding» investment.

Perhaps the most important feature in the plan is the advocacy of full public participation both in the formulation of the plan and in its implementation. The national plan provides for broad guidelines and general requirements such as environmental impact assessments. This will be followed by a series of local plans which take into consideration the particular features and needs of local communities and structures.

Up to a few decades ago, both land and water were, so to speak, monopolised by agriculture, but with an increase in living standards, tourism and the development of industry, domestic and industrial demands for both land and water increased to such an extent that agriculture is being pushed to marginal land with limited access to water resources. In fact, the Structure Plan recognises that «Malta's basic problem is that rising standards of living and the increasing complicity of private and public sector business require increasingly more space in which to operate. Running counter to this is the fact that Malta is a small country with one of the highest national population densities in the world and an annual rainfall not normally exceeding 500 mm. Both land and water are therefore extremely scarce resources which need to be managed and conserved with particular care». Here again one has to emphasise the importance of this Structure Plan.

Beside being Minister responsible for agriculture, I also hold the portfolio for Housing. Grouped together, agriculture and housing account for over 80 per cent of the land use in Malta. In this respect, Structure Plan analysis found out that, if developed at a realistic medium density, which would allow a full range of house types to be provided, the areas designated for housing development would not be sufficient to meet the forecasted housing demands and at the same time provide a layout for the provision of non-residential uses, mainly community facilities of various sorts and local employment. It is therefore necessary to identify new sites. Care however must be taken not to adversely affect agriculture in the process. The emphasis on protecting our agricultural land comes through the knowledge that the environmental impact, great as much as it can be, is always much less when land is used for agricultural purposes rather than for building.

Similarly domestic consumption of water by households accounts for about two thirds of the total water consumption in Malta which is estimated at 30 million cubic meters per year or a domestic consumption of 150 litres per capita per day. Such a high consumption rate necessitated water production by artificial means particularly sea water desalination. So successful was the endeavour by Malta to overcome the shortage of water for household uses that it is being copied by other countries that face the same problem. Malta had to provide water for a population of nearly four hundred thousand having a relatively high living standard, plus over a million tourists. To achieve this we built reverse osmosis plants along the coastline and plans are in hand for the installation of a more efficient and modern type of distiller soon. But water produced by reverse osmosis is not an economic proposal for use in agriculture. However since about 80 per cent of the domestic water consumption ends up in the sewers, much of this water, properly treated can be made available to agriculture for irrigation. All the sewage is therefore envisaged to be treated in four relatively small sewage treatment plants. I here feel I should add that these plants are installed in accordance with a Master Sewage Plan that protects the local coastline and the whole of the Mediterranean by which Malta is surrounded. One of these plants has been in operation since 1983, and has provided water for irrigation of an area of 240 hectares. There is still a great potential for expanding areas under irrigation outside the ground water protection zones, but treated waste water is not available in sufficient quantities. With the introduction of treatment of all waste water, in future the possibility of expanding the irrigated areas increases. As stated this has already been proved by the installation of the plant I already referred to, as agricultural land previously dry has been converted to fertile irrigated land. ●