

Note on the state of the Water Supply Position by the Chief
Water Engineer

The consumption of water during the last few days has increased to such an extent that it calls for a review of the general supply position.

UNDERGROUND SUPPLIES

Development works on underground supplies were completed about two years ago and no further works are envisaged.

The works carried out since the Morris Report was published are the following:-

Lower Coralline Limestone

Present Yield
in gals/day

1. Ta' Qali Pumping Station	1,056,000
2. Ta' Kandja	1,900,000
3. Ta' Bakkja	1,600,000
4. Ta' L-Isperanza	1,150,000

Upper Coralline Limestone

5. Miziep	400,000
6. Binjemna	240,000
7. Falga	30,000
8. Mgarr Not yet in production	

In addition a number of boreholes have been sunk in the Lower Water Table yielding a total of about 600,000 gallons per day.

Therefore the total additional source since 1944 is about 6,946,000 gallons per day.

The yield from the old pumping stations and springs is about 1,918,000 gallons per day.

The total available supplies therefore is 8,914,000 per day.

SALINITY

It must be remarked that the above amounts of water have only been possible through over extraction with possible danger of prolonged and in some cases also permanent damage.

Dr. Morris had proposed that when the new pumping stations were completed the old ones at Wied Dalam, Wied-il-Ghasel, Wied-il-Kbir and Tal-Hlas should be closed down. He also stated that the new stations will not be capable of more than 1 million gallons per day at reasonable salinity.

Because of continued demand for more water this Department has not been able to follow Dr. Morris' recommendations with the result of a general rise in salinity all over the water table.

The present salinities in the eight pumping stations in the lower water table with pumping at full rate are as follows:-

Ghar Dalam	120	p.p.	100,000
Wied-il-Ghasel	160	"	" "
Tal-Hlas	62	"	" "
Wied-il-Kbir	85	"	" "
Ta' Kandja	70	"	" "
Ta' Qali	60	"	" "
Ta' Bakkja	35	"	" "
Ta' L-Isperanza	28	"	" "

It will be noted that in six out of eight pumping stations the salinity is well above the accepted maximum salinity in other parts of the world which is 50 p.p.100,000.

The water of the first two stations is undrinkable and condemned by the Medical and Health Department. Because of this we had to shut down Ghar Dalam and, not being able to afford the complete shut down of Wied-il-Ghasel, we have reduced pumping from 830,000 gallons per day to 120,000 gallons, thus reducing the salinity to 75 p.p. 100,000.

Because of high salinity we had to shut down also, a few months ago, Zabbar Borehole and Misrah Lewza Borehole. In each case the salinity had gone up to 190 and 175 p.p. 100,000.

The consequent overall reduction of supplies is about 1 million gallons per day. If we go on pumping at the present rate it may well be that in a short time we shall be forced also to close down other stations or to reduce pumping because of the undrinkable state of the water.

CONSUMPTION

Ever since development works started, the consumption of water has kept close pace with increase in supplies and invariably every summer it outstrips the supply, the balance being made out of the reserves.

Due to a reduction of 1 million gallons per day referred to above we are in a difficult situation of being faced with a demand higher than we can cope with. This situation started last year when we introduced a system of control to combat excessive draw. We continued with restrictions throughout the winter without causing great inconvenience to the public.

These restrictions were only lifted a few days ago when:

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due to a sudden rise in consumption especially in Sliema and Valletta there was a sudden drop in pressure in the upper parts of the two towns.

The supply position in the upper areas of both towns is now normal as in other years. The reserves, however, are being steadily and mercilessly encroached upon, and it is anticipated that we shall be forced to resort to restrictions in a few weeks' time if consumption continues at the present rate.

The consumption has reached at times 9.89 million gallons as against 8,914,000 gallons of pumping.

DOMESTIC TANKS

Domestic tanks are used all over the world as a safeguard against breakdowns in the public supplies, even in countries where the supplies are copious. In Malta as in all countries where there is lack of water, they are a necessity. They afford a chance to the Water Authorities to keep the pressure on the low side as a safeguard against wastes.

Tanks are used universally in the upper parts of Valletta, Sliema and other areas where the water pressure becomes low during the hours of heavy draw. These are the only safeguards against the present difficult situation.

Some years ago I had proposed the adoption of tanks universally all over Malta including the lower areas. My proposal was for automatic control tanks as a replacement of the water meters but the proposal which was dealt with by a Committee at the Treasury was turned down because of the cost involved.

It was anticipated that the time would come when the Water Department would be faced with a difficult situation. It would appear that this time has arrived.

Although I do not ask for a reconsideration of my previous proposals, I would however, ask that as much publicity be given as possible to the use of tanks, as otherwise we shall of necessity have to inconvenience many people in the next few years before more water is available through distillation.

Even after more water is available, through distillation the use of tanks would still be very useful.

As I said above these tanks help to keep the pressure low, as high pressure involves of necessity wastes.

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With water coming from distillation costing so much money it is more than ever desirable that there should be no wastes.

Even the most efficient Water-Works have at least 12% of losses due to leakages, misuse, etc. In an article in the American water journal "WATER WORKS ENGINEERING" of June 1963, it is stated "all meters have been re-tested and repaired where necessary and only 10% to 15% of water is now unaccounted for. This is a drastically improved performance."

If we could claim that our Water-Works was as efficient as this we would still have an appreciable amount of losses which at distillation costs might run into thousands of pounds.

DISTRIBUTION

The programme of distribution of supplies to all parts of the Island is well advanced.

Towns and villages which a few years ago were without water or very scantily supplied have now been provided with a reasonable supply either through extensions or renewals of the water mains or through boosting stations. Such places are Zabbar, Zurrieq, Zejtun, Rabat, Mgarr, Naxxar, Gharghur and Mosta. No complaints have been made so far this year from any of these areas and it is expected that the position will remain good for many years.

But it must be realized that efficiency of distribution in any area is highly influenced by the changing pattern of buildings in the area. A factory or a communal building or large extensions of buildings about which there was no premonition when the main was laid would throw the water supply in the area out of balance and would necessitate a review of distribution in the particular area.

This is what happened in the Sliema Area. A 12" main was laid in 1952 from Birkirkara to Sliema so that Naxxar Reservoir might be reserved for this town. Then it was thought that the problem had been solved.

But Sliema kept increasing both horizontally and vertically to the extent that this main has alone become insufficient. A new main has now been constructed from Naxxar Reservoir to Misra Lewza Tank, and pumps are being ordered so that it might be possible to cope with the increased demands through this main.

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At the same time the local distribution mains in Sliema due to the increased consumption require an overhaul in places, to make them capable of meeting the added supply.

The problem of distribution, therefore, can never be said to be completely solved so long as buildings continue to expand and mains become old and incrustated.

CONCLUSION

However, water distribution is a much lesser problem than availability of supplies. The expansion of towns and villages cannot go on much longer, and most probably the crux of the distribution problem is over. However, consumption is expected to go on increasing for many years to come if we are ever to reach the standard of other European countries. The average overall consumption in Malta is 28 gallons per head per day as against 40 gallons per head per day domestic consumption alone in other European countries.

The trend of consumption even in Europe is on the rise and if we follow the same trend there will be no end to the demand.

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