Sub (83)

Hands Lane
Rush
Co Dublin
14/3/07

Dr Ian Marnane
EPA
Johnstown Castle Estate
Co Wexford

Ref: Application for a Landfill licence at Nevitt County Dublin
from Fingal County Council

Dear Dr Marnane,

A recent screening of the EPA sponsored television programme ECO EYE announced that it was the intention of Dublin City Council to expand and diversify it's sources of public water supply. The plan envisaged a new pipeline to carry surface water from the River Shannon and the sinking of deep groundwater wells in the vicinity of Dublin – all this in the context of increased future demand and the prospect of continued global warming.

At present, the Dublin region has an unusually high dependence on surface water, in stark contrast to our European neighbours (see attached extract and chart , " Introducing Groundwater", Michael Price, pages 206 and 207). A mere 5% of Fingal's public water supply is supplied by a groundwater scheme at the Bog of the Ring. Contrast this figure with Switzerlands 83% groundwater, Italy 92% and Denmark, a staggering 99%. Why the figures for groundwater usage in Dublin should be so low is not understood (groundwater is cheaper). From a strategic point of view a catastrophic atmospheric or river polluting event could cause major difficulties for the Greater Dublin Area. The planned partial diversification to groundwater sources in 2015 is therefore a prudent strategic step.

The Greater Dublin Area is fortunate in that an extensive aquifer is at hand, stretching form the sea between Rush and Balbriggan inland to County Laoise at that this water is of a high potable quality.

The area of highest potential future public water groundwater abstractions in Fingal has been identified by the GSI as the general area of the Courtlough Valley i.e. from the present Bog of Ring water supply southwards through the townland of Nevitt, to Annsbrook, following the North Dublin Faultline - precisely the two chosen preferred locations for the above proposed landfill. Both locations are clearly unsuitable, and the EPA has therefore a duty to inform the applicant that this is so.

Yours truly,

P.A. Boyle

Patrick Boyle, B.E.

hills, though they are often made as inconspicuous as possible. In flat areas the more conspicuous water towers are a familiar sight; they serve the same purpose of providing a head of water for local distribution, and a constant head for the borehole pump to work against.

Distribution reservoirs provide a small element of storage, each usually holding a volume of water equivalent to about a day's normal supply for the area which it serves. This means that if a pump fails, consumers will still receive water, and there is an adequate reserve to cope with demand at peak times and for emergencies like fire-fighting. This way the well pump can be smaller than it would need to be if it had to cope with all eventualities.

Water engineers are prudent people. Not only do they nearly always have more wells and pumps serving each area than are strictly necessary, they usually arrange that the operating pump can supply all the water necessary by pumping for less than 24 hours each day. Sometimes the pump operates 'on demand', being switched on automatically when the level in the reservoir falls below a pre-set limit, and switched off when the reservoir is full. More often this arrangement is combined with a time switch, so that as much pumping as possible takes place at preferred times (often at night, to use cheap electricity).

In areas underlain by an aquifer, the system outlined above can be very convenient. Wells can be located in or near the areas they serve, avoiding the need for costly pipelines. If demand increases, additional wells can be sunk, so the water-supply system can keep pace with the demand.

This convenience makes groundwater cheap to develop. The capital costs of boreholes and a pumping station are usually much lower than those of a reservoir or a river intake with the same output. Furthermore, because groundwater usually needs little treatment other than routine disinfection, the running costs of a groundwater source are usually much less than those of equivalent surface-water sources, which usually need complex treatment processes to filter and clarify the water.

Cost factors have therefore generally made groundwater the 'preferred option', where it is available with suitable quality, for water for public and industrial supplies in many parts of the world. In most European countries, for example, groundwater provides the majority – in some cases almost all – of the water used for public supplies (Figure 12.2). (In comparing the percentages shown in Figure 12.2 it must be noted that different countries may classify abstractions in different ways: many European countries, for example, classify water abstracted from springs as groundwater, whereas in Britain it is usually classed as surface water.) Similarly, many parts of the United States rely heavily on groundwater (Figure 12.3).

This same convenience can lead to problems. If water is taken from a river catchment then, whether the water is taken from the river or the ground, there will be less water leaving the catchment naturally. This may manifest

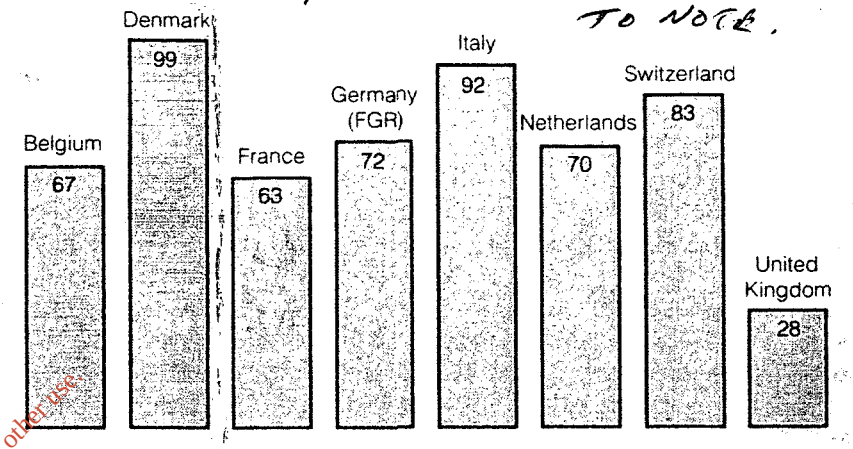

Figure 12.2 Groundwater use as a percentage of public supply: European examples (1986).

If groundwater is used for public supply, or for some industrial processes, it is used but not consumed. Much of the water supplied to our homes is used for washing, bathing and flushing of lavatories. If this water is treated and disposed of to the river whose catchment it was taken from, there need be little net reduction in streamflow. This contrasts with water used for spray irrigation of crops, for example, much of which is lost from the catchment by evapotranspiration.

Problems arise even with non-consumptive use when the water is transferred to another catchment, or treated and returned to the river a long way downstream from its abstraction. Then the flow in the river upstream of the sewage outfall will be reduced. This may not be noticed for some time, because the effect will usually be gradual. It may manifest itself as the less frequent appearance of a winterbourne, or the migration downstream of the perennial head of a river (Chapter 8). For reasons like this there has to be a limit to the amount of water that can be taken from an aquifer in a particular area and many countries now have some form of regulation or licensing system to control abstraction of groundwater or, indeed, water from any source. In England and Wales the current legislation is contained in the Water Resources Act of 1991, and the agency charged with implementing the legislation is the National Rivers Authority (NRA); the NRA is set to become part of a new Environment Agency in 1996.

WATER MANAGEMENT AND CONJUNCTIVE USE