

## Groundwater (wells)

Having diverse types of water sources is the key to a secure water supply yet **Dublin gets 99% of its water from rivers: it has almost *no diversification* which leaves it vulnerable**. Groundwater is a common water source: Paris gets around half of its water from wells, London around 30% and Ireland overall gets around 25% of its water from wells. Groundwater sources can be developed incrementally and offer flexibility in the event of an individual contamination event – as opposed to the “all-or-nothing”, one-source/one-treatment-plant/one-pipeline Shannon project.

The only groundwater report for this project was produced in 2008. It was one of ten options assessed “*at a high, desktop-study level, on limited data*”. Not a single bore hole, test or otherwise, was drilled for the purposes of the report. The author had to rely on studies/data that were not directly relevant – it stated “*the studies and data reviewed for this report have been collected by many individuals/ organisations for a variety of purposes and therefore will be variable in depth and strict relevance to the main focus of this report. Nevertheless, **this is considered to be acceptable for the type and general nature of this report***”. The 2008 report has been criticised as having been too conservative - indeed, it repeatedly described *itself* as “conservative” – yet it identified two major aquifers close to Dublin that it deemed likely to yield **87Mld. These alone would safeguard Dublin’s water supply and give Dublin some much needed diversification away from river water**. One of these aquifers is well located to avail of the brand new Srowland water treatment plant, minimising OPEX and CAPEX costs.

When Irish Water took over this project in 2014 it simply undertook a *desk-based review of the original desk-based report*. **The Kennedy Response (December 2016) spelled out in significant detail (over 11 pages) the errors contained in Irish Water’s 2014 review, which:**

- (i) *failed* to account for the then-expanded supply area - this is significant due to the new supply areas in parts of the country with higher rainfall/groundwater than on the East coast,
- (ii) failed to identify that the “*resource and distance threshold*” test had been applied incorrectly, resulting in the **incorrect conclusion** that only **6 out of 19** aquifers satisfied the test – had Irish Water done its review correctly it would have found that, by that time, **11 out of 19** aquifers satisfied the test,
- (iii) *failed* to address the flawed requirement that groundwater *standalone* must be capable of supplying 350Mld of water: (a) this single-source premise was flawed – multiple sources in combination offer better security, and (b) at the time of Irish Water’s review **it was known that the 350Mld figure was wrong** yet the review concluded: “*groundwater... is insufficient to supply the project demand of 350Mld*”,
- (iv) stated that the original report “*takes account of recharge*”. This was misleading: the original report noted “*experience would indicate that both types of recharge [“rejected recharge” and “induced recharge”] would contribute at least 10% of the water abstracted annually*” but “*owing to the type of study being undertaken it is necessary to make **conservative** estimates for some parameters*” and concluded: “*a **conservative** approach is taken and **both types of recharge are ignored***”,
- (v) failed to address the fact that centring the 80km-radius study zone on *downtown Dublin* was illogical and resulted in a study zone with *more land directly on the East coast (with the lowest rainfall in the state) than on any other meridian*. Had the study zone been located in a more logical location, e.g. within 80km of (a) Dublin’s existing water treatment plants or (b) the *periphery* of the water supply area, then significantly more groundwater would almost certainly have been identified.

**\*\* Irish Water has NOT responded to Kennedy Analysis regarding these errors \*\***

During consultations, the Geological Survey of Ireland (Ireland’s main authority on groundwater) “**strongly suggested that the use of groundwater should not be overlooked, because it is an important natural resource that has a number of advantages over the use of surface water. It is a viable and widely available resource that would be relatively inexpensive to develop at a local level**”. **Instead, Irish Water dismissed groundwater with no further consideration.**