

Water Supply Project
Eastern and Midlands Region

**Preliminary
Options Appraisal
Report (POAR)**
Non Technical
Summary

November 2015



Background

Irish Water's remit includes the delivery of a sustainable and resilient water supply nationally. As part of that remit, Irish Water is now almost two years into an intensive research and assessment process to identify a new major source of water for the Eastern and Midlands Region of the Country.

The existing supply sources and infrastructure for the region, do not have the capacity or resilience to meet future requirements. Population and industrial growth will generate a demand for an additional 330 million litres of water per day by 2050 (which is the equivalent of 130 Olympic sized swimming pools). The present infrastructure is struggling to meet current need as evidenced by a number of significant and costly outages in Dublin over the past 4 years, one of which coincided with the Web Summit in November 2013. While fixing leaks and water conservation initiatives will provide valuable water savings, this will not provide a long term solution for our water supply requirements.

The Water Supply Project, Eastern and Midlands Region, represents the first major comprehensive upgrade to Ireland's 'new source' infrastructure in over 80 years. It is a key element of Irish Water's overall nationwide remit as it will meet the domestic, commercial and industrial needs of over 40% of Ireland's population into the medium to long-term future (to 2050).

Assessing Potential Sources

Over the past two years, four technically viable options have been assessed. These four were validated from an original list of 10 possible options, examined previously in 2010. Four were examined in the Preliminary Options Appraisal Report under the same assessment criteria which include:-

Environmental factors:

- Biodiversity, Flora and Fauna
- Fisheries
- Water
- Air/Climatic Factors
- Material Assets (Energy)
- Cultural Heritage (including Architecture and Archaeology)
- Landscape and Visual
- Material Assets (Land Use)
- Tourism
- Population
- Human Health
- Soils, Geology and Hydrogeology

Technical and Risk factors:

- Safety
- Planning Policy
- Engineering and Design
- Capital and Operating Costs
- Sustainability
- Risk (including technical, environmental, planning, financial and socioeconomic)

In addition to the assessment criteria above, many constraints such as ecology, cultural heritage, geology and other sensitive receptors were also examined to determine the location of infrastructure associated with each of the technically viable options in a manner which would minimise impact on, and disruption to, the areas in which they would be located. This is further referenced below.

Public consultation in June to August 2015 was focused on the constraints and assessment criteria proposed by Irish Water as their methodology for identification of an Emerging Preferred Option. Relevant feedback from that consultation process, results from 'on-the-ground' investigations, as well as assessment of options using the constraints and assessment criteria, has led to the identification of an Emerging Preferred Option.

Further details on the background and implementation of the assessment process are set out in the Preliminary Options Appraisal Report.

Moving from Four Possible Options to One Emerging Preference

The four technically viable options which have been under consideration are:

1) Lough Derg (Direct)

A constant abstraction design concept. This option involves abstraction and treatment on the north eastern shore of Lough Derg, followed by 122km of treated water transfer pipelines, in a configuration which could supply treated water to other communities along the route.

2) Lough Derg And Storage

This would have the same design concept as the Lough Derg (Direct) option, but involves variable abstraction (in this case, on the north eastern shore of Lough Derg) in combination with storage of raw water at Garryhinch in the Midlands. The storage facility would accommodate up to two months average water supply requirements (for Dublin). This option could supply treated water to other communities along the route from Garryhinch to Dublin.

3) Parteen Basin Direct

This would have the same design concept as the Lough Derg (Direct) option, but involves a longer distance (165 km), for treated water transfer pipelines. This option could supply treated water to other communities along the route from the Parteen Basin to Dublin. Abstraction and treatment of water at the Parteen Basin reservoir in Tipperary, together with a treated water pipeline, is emerging from the assessments to date as the option most likely to provide the best and most widely beneficial new source of supply for the Eastern and Midlands Region.

4) Desalination

This option involves the abstraction of sea water from the Irish Sea in North Fingal and desalination of this water through a Reverse Osmosis (RO) desalination plant, together with the discharge of brine (from the treatment process) back into the Irish Sea. The process includes the pumping of treated water through approximately 35km of pipelines to existing and proposed reservoirs located in northern and western parts of Dublin.

Shannon v Desalination (Irish Sea)

While Desalination from the Irish Sea still remains a possibility, the Shannon is emerging as the most suitable source of new water supply for a number of key reasons;

It provides treated water, delivered in a way which brings the greatest availability and economic advantages to the widest group of communities in Irish Water's Eastern and Midlands Region. Towns and communities along the proposed pipeline route through the Eastern and Midlands Region will gain a secure water supply to meet future domestic, commercial and industrial water requirements and therefore the opportunity to develop and grow their economies. All consumers will have a reliable and sustainable water supply to international standards of service.

It enables the delivery of more efficient and up to date supply infrastructure by facilitating the development of fewer and more modern water treatment plants to replace the numerous small, inefficient and outdated plants currently operating across the region.

From a total capital and operational cost, it is less expensive by a factor of one and a half than desalination, which is the only other remaining technically viable option.

Parteen Basin – Emerging as Preferred Option

It is apparent at this stage in the assessment process that both North Eastern Lough Derg options have a significantly greater potential to negatively impact on the Shannon system than the Parteen option and that extraction from Parteen also provides additional benefits along a more extensive benefitting pipeline corridor. A number of pipeline corridor options have been examined, and a 'least constrained corridor' has been identified, as shown in Figure 1. overleaf.

All of the pipeline corridors were positioned, from the outset, to cause the least impact possible across a whole range of factors, including population settlements and environmental factors. The current red line, outlined in Figure 1, identifies a 2km wide least constrained route corridor. Feedback from the Preliminary Options Appraisal Report consultation and further detailed assessment, will be required to define a 200m wide preferred pipeline corridor. Detailed design of the pipeline route, within the 'least constrained corridor', will continue to aim for the least impact on people and on the environment. In spring 2016, Irish Water's Landowner Liaison Officers will begin to make contact with landowners within the 2km least constrained route corridor to verify land ownership details or arrange walkover surveys required to identify the 200m preferred pipeline corridor envelope.

The water abstracted from Parteen Basin would comply with the normal operating water level range in Lough Derg and along the Shannon. Minimum statutory flow requirements would also remain unaffected. Treated water would be distributed to locations across the Eastern and Midlands region of the country via an underground pipeline running from Parteen Basin to Dublin. This would provide a reliable and sustainable water supply to current and future domestic, commercial and industrial consumers along the proposed pipeline's 165km route.

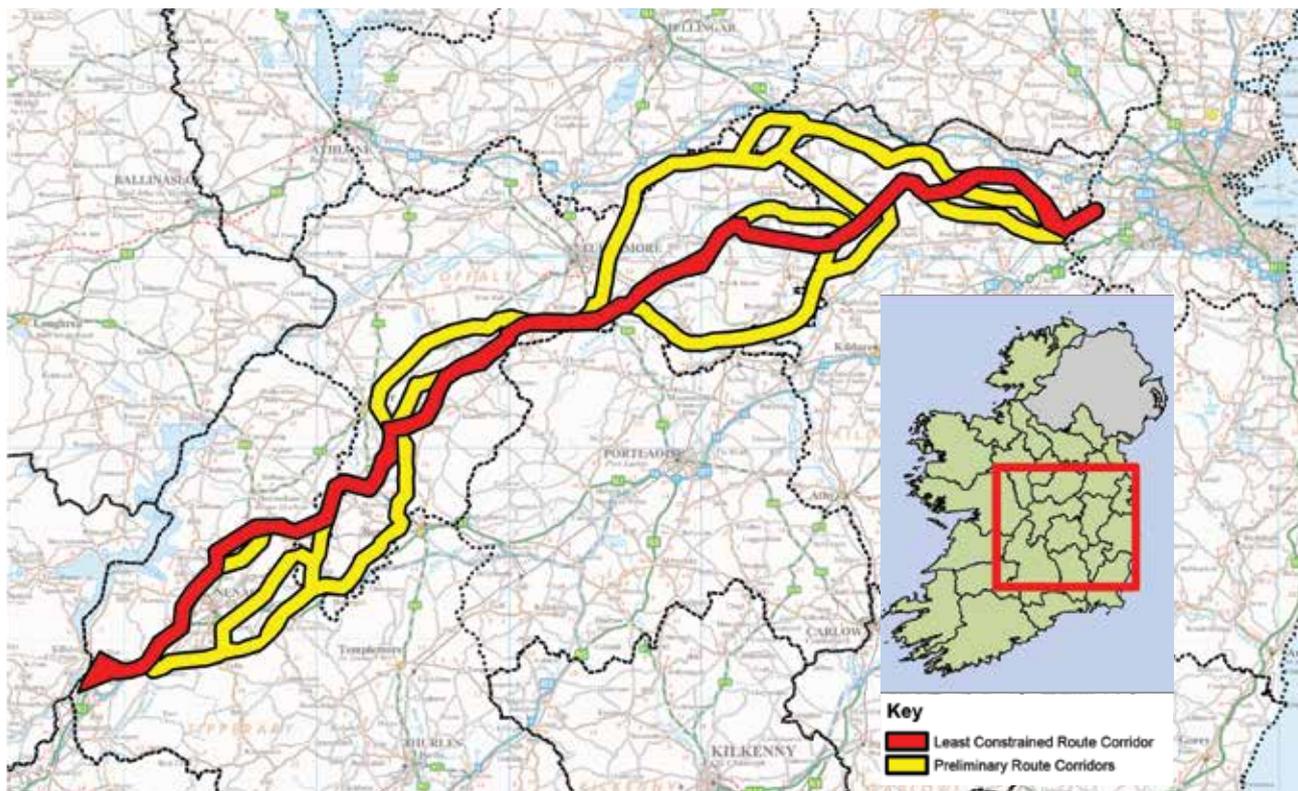


Figure 1: Preliminary Corridors and Least Constrained Corridor

The Parteen Basin:

- This option has, by far, the least environmental impact of the three Shannon options which have been under consideration. It is the closest location to the river estuary with all of the water having already flowed through the Shannon to Parteen. By contrast, the North East Lough Derg abstraction option with storage at Garryhinch, involves abstraction much further up-river in Lough Derg, it carries greater risk of environmental impact and also risks transfer of potentially environmentally damaging alien species, such as Asian clams and zebra mussels, into other river catchments.
- The pipeline from Parteen has the potential to serve treated water to more locations, towns and communities along the route from Shannon to Dublin than any other option.
- Parteen is already highly regulated because of the presence of the hydro-power plant. The proposed abstraction of water is, in essence, an abstraction of water from the hydro-power scheme. Abstraction of water from hydro-electric power schemes is commonly employed worldwide to enable environmentally sustainable availability of drinking water.

Desalination – Possible but Not Recommended

Desalination has come through the assessment process, carried out to date, as the only other viable option, but is much less suitable than the Parteen Basin option for a number of reasons;

- It is a Dublin-centric solution, so it does not deliver the widespread benefits to towns and communities throughout the Eastern and Midlands Region.
- This option has a higher impact on the environment, due to the high energy input required to desalinate and treat the water. This leads to a greater carbon footprint.
- It is at least one and a half times more expensive, from a total capital and operational cost of water delivered.

Community Gain

As with all strategic infrastructure projects, the planning process requires that due consideration of community gain is undertaken by the planning applicant. Irish Water has set out its approach to Community gain in Section 10 of the Preliminary Options Appraisal Report. Section 10 indicates that there is potential for a significant element of community gain for those living and working in the area selected for the new Eastern and Midland Region water supply.

In addition to improved and sustainable domestic and commercial water supplies, the communities along the route of the pipeline are also in a position to gain some specific additional benefits.

Many products and services needed during construction will be sourced from local businesses; the construction phase of the project will provide a range of employment opportunities for local people; Irish Water, working with Local Authorities and other relevant bodies, propose to provide financial support for training schemes to enable as many local people as possible to work on the project and Irish Water also propose to support the development of environmental education and protection initiatives, sports and leisure facilities.

Of the two remaining water supply options under consideration, the Emerging Preferred Option (Parteen Basin) has the potential to give rise to the greatest breadth and variety of community gain as its 165km pipeline (See Figure 1) crosses several counties en-route between the Shannon and Dublin. The Desalination Option benefits a much smaller area.

More detailed information on community gain can be found in Section 10 of the Preliminary Options Appraisal Report and in the FAQ section of the project website at www.watersupplyproject.ie. All interested parties now have an opportunity to give their views.

Moving to a Final Decision

While the Parteen Basin option is emerging as the preferred new water supply source for the Eastern and Midlands Region of Ireland, more research and assessment needs to be done to ensure that all possible relevant factors (including environmental impacts and the required energy use) are examined in reaching a final decision. That process will involve further assessment under the relevant criteria and constraints, additional 'on the ground' investigations and a series of further public consultations where all interested parties will be invited to contribute to the decision making process.

Public Consultation

A ten week public consultation process follows the publication of the 'Preliminary Options Appraisal Report'. It is open to the public and asks for views on the findings outlined in the Preliminary Options Appraisal Report.

The feedback on this consultation will be included as part of the final phase of research and assessment on the options which will conclude in Spring 2016 with the publication of the Final Options Appraisal Report. At that point a preferred option will be put forward for public consultation before proceeding to the remaining phases of the planning process in 2017, which will involve consulting on the 'Scope of the Environmental Impact Statement (EIS)' and submission of the planning application to An Bord Pleanála for their independent adjudication. An Bord Pleanála will undertake all necessary statutory consultations including Oral Hearings where all interested parties will again be entitled to have their say.

