Future Group Water Scheme Investment Needs as identified by the NFGWS

Task

‘To quantify what additional investment will be required to equalise treatment between those availing of domestic water services and those availing of private supplies ... in keeping with the principles of social, economic and environmental sustainability.’

Joint Oireachtas Committee on the Future of Water & Wastewater Services

Introduction

This submission relates to the regulated and exempted group water scheme sector only. It does not include small private supplies or private wells. It is reasonable to assume that at least 300,000 citizens rely on community-owned group water schemes for their potable supplies representing just over 6% of the total population and 16.6% of the rural population which the CSO defines as including small towns and villages of less than 1,500 inhabitants.¹

Community-owned group water schemes have been distributing potable supplies to rural communities since the early 1960s, providing an essential utility without which large swathes of the Irish countryside would have been depopulated.² Combining the best of voluntary endeavour with an increasingly professional approach to service provision, the contribution of group water schemes to rural Ireland is recognised and appreciated across the political spectrum. The partnership approach to rural water services introduced under the agreed Rural Water Programme in 1998 has delivered for rural Ireland and for the State. Maintaining and building upon close working relationships that have developed over the past 23 years makes sense, especially in light of the stated commitment by the all-party Joint Oireachtas Committee - endorsed by both Houses of the Oireachtas - to support the GWS

¹Based on figures from the EPA Drinking Water Report for 2019, more than a quarter of a million citizens rely on regulated group water schemes. Of these, 193,480 are on privately sourced schemes (i.e. abstract, treat and distribute a water supply), while a further 70,432 are on publicly sourced schemes that distribute water supplied to them by Irish Water. While this suggests a total of 263,912, the EPA report does not include those privately and publicly sourced schemes that are unregulated (i.e. supply water to <50 persons and have no commercial/social connections). Similarly, some local authorities in their sampling programmes do not distinguish between Irish Water-owned supplies and the schemes that take water from them through a bulk meter.

² See Appendix 3 for a synopsis of the development of the group water scheme sector.
sector into the future, ensure equitable treatment with public supplies and address any additional investment gaps that currently exist or that may arise.

**Capital supports**

From the outset, it is important to state that the vast bulk of the capital investment programme in this sector has already been completed. Under the Rural Water Programme, upwards of €1 billion has been provided towards a range of GWS infrastructural projects including, *inter alia*, source development and protection, the design and provision of treatment facilities, construction of storage reservoirs, upgrading of distribution pipework with associated valves and fittings, as well as installation of bulk meters, district meters and meters on all connections. While there will always be a requirement for a capital programme that protects this investment, we are confident that the heavy lifting has already been done and this is borne out by a steep decline in the annual drawdown under the capital programme in recent years.³

At the height of the investment, during the 5-year period 2004-2008, allocations to the GWS sector under the capital programme totalled €642 million (an average of just over €128 million per annum). A period of much more modest investment commenced in 2012, reflecting the fact that the DBO construction phase was largely completed in 2011. Allocations during the 5-year period 2014-2018 totalled €71,647,668 (an average of €14.3 million per annum). Actual drawdown during this period came to €54,283,934 (an average of €10.86 million per annum), a figure that includes €5 million spent on the taking-in-charge of group water schemes by Irish Water.

An Expert Panel evaluates all applications for funding under the capital programme, employing an evidence-based approach to its recommendations, which it presents to the appropriate Minister of the day.⁴ Whereas 100% support is provided towards treatment processes, group water schemes are required to contribute 15% towards all other aspects of projects, including civil works. Projects funded under the Rural Water Programme are subject to normal procurement rules.

With regard to future additional capital investment needs (i.e. those over and above current capital supports aimed at protecting the infrastructural investment), we anticipate that these will largely be informed by the demands of the recast Drinking Water Directive and the Water Framework Directive. In this regard, measures will be required at catchment and source to protect and improve raw water quality.⁵

Additional monitoring systems will also be required at the water abstraction, treatment and distribution stages of a water supply as part of wider Water Safety Planning. Building resilience in the sector in preparation for the impacts of climate change and severe weather events will include automated systems at abstraction points as well as back-up power generation facilities and alternative energy infrastructure, where warranted. The NFGWS is of the view that the best way for a group water

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³ The drawdown towards capital works was considerably lower in 2019 due to the late announcement of the programme and in 2020 due to the impact of the Covid pandemic. 2021 is likely to be similarly affected.

⁴ Schemes seeking funding towards pipe replacement, for example, are required to complete a 3-stage process to establish that the suggested project meets the criteria for funding as per the programme framework published in 2019.

⁵ These measures will be over and above those that are required under existing EU and National policies, such as the Guide to Good Farming Practice. The new CAP will inform the scale of likely investment, with capital supports primarily coming from the Department of Agricultural, Food and the Marine.
scheme to build resilience if to reduce water loss in the network to the European norm where many major water utilities are achieving UFW of less than 10%. Most schemes already have the infrastructure in place to complete the water auditing process that would inform the progression of UFW reduction.

As for additional investment in distribution networks, there are two areas that would benefit from a sustained short-term investment; the completion of water audits on all schemes (many have already completed audits under the Rural Water Programme) and the digital mapping of all GWS infrastructure (this has already been completed on many larger schemes). Such an investment will help identify and prioritise pipe infrastructure requiring future capital investment. An investment in energy audits would also be useful in terms of building resilience in the sector and indicating to schemes where savings might be made (e.g. through reducing UFW/enhancing pumping regimes), thereby reducing operational costs in the medium to long-term.

The rationalisation and amalgamation of existing schemes will require enabling works such as the construction of interconnecting pipework, but also works to ensure participating schemes are brought to comparable levels of infrastructure. The NFGWS would welcome a dedicated measure under the MARWP towards such projects.

A once-off national programme of intensive source monitoring is required (similar to the National Raw Water Monitoring Programme completed circa 2000, but more focused). This short-term investment will result in savings in the medium to long-term, as those parameters shown not to be of concern on individual supplies may then be removed from the compliance monitoring programme. To spread costs, this could be achieved over the period of the life cycles of two successive MARWPs.

**Operational supports**

In terms of State supports for the day-to-day running of group water schemes, the current operational subsidy (including additional terms and conditions) was informed by the deliberations of the Joint Oireachtas Committee and its recommendation that the provision of water to domestic consumers should be met by the State. Taking this into account and in light of the loss of revenue for schemes that had domestic charges in place, a rate of operational subsidy was agreed that would support the provision of a safe and wholesome water supply to the domestic members of group water schemes. This subsidy is paid on actual expenditure and is subject to terms and conditions. The annual drawdown is approximately €28 million. Because the subsidy is capped, we do not anticipate any significant increase in this figure. Indeed, there are a number of factors that have the potential to reduce drawdown of the Strand A subsidy, which is capped at a maximum €231 per household:

- the taking-in-charge by Irish Water of group water schemes connected to public water mains (by agreement).
- rationalisation of schemes, resulting in economies of scale.
- continued reductions in daily water demand, leading to lower energy demand (the single largest expense in water supply apart from employment costs).

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6 There are two broad strands of payments; Strand A subsidy is available to all schemes that meet the required terms and conditions, while Strand B provides additional supports towards schemes in long-term *bona fide* Design Build Operate contracts. A third, Strand C subsidy introduced to encourage rationalisation of schemes with <100 houses is also available.

7 Full details of these subsidies and the associated terms and conditions are available [here](#).
Savings in these areas may be offset to some extent by the recruitment of managerial and operations staff on rationalised GWS entities within which we aim to include a minimum of 400 households. At present 95 schemes have managers in place, while more employ caretakers and/or administrators. While the sector will continue to rely on volunteerism in terms of the role of boards of management, there has been a marked increase in the professionalism of the sector over the past 20 years. This should continue to be supported.

As for Subsidy B, which is provided towards the operation of 141 treatment plants managed as part of *bona fide* Design, Build, Operate (DBO) contracts, this comprises two elements; a fixed charge and a volumetric charge. Increases in either charge cannot exceed contractually agreed inflationary indices. The volumetric charge is likely to reduce given the success of ongoing GWS efforts to control daily water demand through the elimination of water loss from distribution mains and their focus on water conservation at the consumer side of connections. As there is a significant variation in the volumetric charge from one DBO project to the next, ranging at contract signing stage from €0.04 per m$^3$ to €0.50 per m$^3$, the scale of financial savings due to water demand reduction will reflect this divergence. Having said that, the benefits of reducing water demand go far beyond cost.

**Areas Requiring Investment**

The Water Services Policy Statement 2018-2025 sets down three key themes and policy objectives to guide the development and delivery of water services; Quality, Conservation and Future Proofing. Taking each of these criteria as a measure of where the GWS sector likely to require investment, the NFGWS has identified the areas where capital expenditure is likely to occur.

**Quality**

Enormous progress has already been made by the GWS sector in relation to drinking water quality and only modest capital investment is now needed by way of end-of-pipe solutions to remedy outstanding water quality issues (e.g., THMs), where these cannot be dealt with at source/catchment level. Investment in new and/or upgrading of existing source and treatment facilities may be required where newly amalgamated schemes are established. In keeping with its obligations under the new Drinking Water Directive and the Water Framework Directive, the GWS sector is increasingly focused on water quality at source and this is where most future investment will be required. As a further guarantee of water quality, the GWS sector is embedding its well-established Quality Assurance system to Water Safety Plans (WSPs) that will be completed on all schemes over the period of the life cycles of two successive MARWPs. WSPs will also incorporate the recommendations of integrated source protection plans currently being developed.

- **Catchment & Source:**
  - A year-long intensive programme of raw water sampling to ascertain those parameters that are a risk and those that are not

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8 The NFGWS believes that 20% UFW is an achievable target across the GWS sector in the short to medium term. Using the technology at their disposal a growing number of schemes have surpassed this target and are achieving European UFW levels of less than 10%.

9 The European Commission closed its case against Ireland in 2010 in recognition of the major progress made in addressing water quality issues in the GWS sector. Plans to introduce licensing of group water schemes were set aside for the same reason.
- Continuous online raw water Turbidity & UVT monitors (many schemes will already have these installed, but they should be installed on all surface water supplies and supplies influenced by surface waters (e.g. springs and boreholes in karst areas).
- Development of Integrated Source Protection Plans (a once-off investment) on a phased basis to align with the 3rd cycle of the River Basin Management Plan
- Installation of appropriate mitigation measures at source, but also in the wider catchments based on ISPP.10
- Development of new and/or upgrade of existing sources to facilitate amalgamation where required

- **Abstraction**
  - Optimum repositioning of intake pipes on surface water supplies where required
  - Periodic cleaning of boreholes (where raw water quality deteriorates or a decrease in the abstraction rate due to suspected clogging)

- **Treatment**
  - Renewal of 20-year DBO contracts – many are up for renewal over the next few years as indicated in the NFGWS submission to the DHLGH in August 2020
  - Treatment plant upgrades to meet the challenges and requirements of Drinking Water Directive (investment, where required, will be spread over several years)
  - Development of new and/or upgrade of treatment facilities to accommodate amalgamation where required
  - Improved automation of treatment processes (informed by online monitoring systems)
  - Compliance with the EPA Filtration Manual (particularly on surface water supplies and supplies influenced by surface water
  - Scheduled upgrades of disinfection systems and associated infrastructure to ensure compliance with the EPA Disinfection manual. This may include completion of cryptosporidium risk assessments.

- **Storage**
  - Installation of by-pass facilities to facilitate reservoir cleaning, where required.
  - Improved security at reservoir sites
  - Adequate contact time in the context of complying with the EPA Disinfection Manual
  - Installation of continuous chlorine monitors/secondary dosing systems where required ex reservoir

- **Distribution**
  - Intensive pipe cleaning, where required (e.g., to remove manganese build-up)
  - Dedicated operational sampling points, including the installation of sampling kiosks where appropriate

### Conservation

Water demand management/water conservation is well advanced in the GWS sector and with continued modest capital investment we are confident that we will see further progress in this area. As an indication that group water schemes are focusing on this issue, it should be noted that of the

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10 A once-off investment that will possibly be met through the DAFM where the measures are related to agricultural activity and are additional to those already required of farmers under the Nitrates Directive, Good Farming Practices Guidelines etc.
141 DBO treatment plants, the vast majority are operating within their design capacity. As a result of their focus on water demand management, group water schemes are achieving reduced pumping costs, less abstraction pressure on sources, improved operation of filtration systems, less backwashing and sludge disposal and less wear and tear on distribution networks.

- Abstraction
  - Over abstraction issues to be addressed on waterbodies identified by the EPA as being at risk from over abstraction
- Storage
  - Refurbishment of reservoirs and tanks to address any leakage issues
- Distribution mains
  - Digital mapping of all distribution systems
  - Bulk meter leaving every reservoir/treatment facility where not installed (most supplies already have these installed, but they will require replacement over time)
  - District meter/sluice valves at the head of every District Metered Area (DMA)
  - The completion of water audits when the infrastructure mentioned above is in place
  - Critical mains replacement (where justified by results from a water audit)
  - Adequate pressure controls (e.g., PRV installation) where required
  - Bulk and district meter telemetry upgrades
  - Universal and district meter replacements (possibly every 10 – 15 years)

**Future-proofing**

The sector’s focus on source water quality and water demand management is already future proofing group water schemes and building their resilience in the face of climate change and extreme weather events. We are convinced that reducing water demand is the single most important contribution any water supplier can make to this effort. Increasingly schemes are installing (or ensuring the availability of) generators to respond to mains electricity power outages, while alternative off-grid energy sources are also being operated successfully on several schemes. Energy auditing has been completed on several schemes and we regard this as a priority for all supplies in the coming years. Investment in new and/or upgrading of existing GWS infrastructure to facilitate amalgamation and rationalisation of schemes is essential to create resilient and sustainable supplies into the future. Current efforts are focused not just on future-proofing the sector, but on providing leadership at a local level towards wider environmental goals, meeting Ireland’s obligations under the Water Framework Directive, the Habitats Directive and the Nitrates Directive. It is noted that there is some cross over between items listed below and requirements under quality and conservation above.

- Catchment
  - Many of the items listed under the quality heading above, in particular the formulation and implementation of Integrated Source Protection Plans
- Abstraction
  - Many of the items listed under the quality and conservation headings above
  - Improving the resilience of drinking water sources to react to climate events
  - Reducing long-term abstraction pressure through ongoing water conservation
- Installation of Level sensors (already installed in many schemes) to better understand the impact of weather events on sources, particularly in the context of climate change
- Weather stations to better understand the relationship between extreme weather events on key parameters that impact the treatment process (e.g., turbidity)
- Renewal of pumping infrastructure as required
- Borehole rehabilitation as required

- **Treatment**
  - Renewal of 20-year DBO contracts – as highlighted under quality, will provide stability and reassurance to participating schemes, while maintaining high levels of water quality compliance
  - Improving the resilience of all treatment plants (e.g., to cope with power outages during extreme weather events where adequate storage is unavailable)
  - Development of new and/or upgrade of treatment facilities to accommodate amalgamation where required
  - Adoption of new and improving technologies as they become available
  - Implementation of off-grid renewable energy technologies where possible

- **Storage**
  - Possible additional storage requirement in the context of future amalgamations

- **Distribution**
  - All items suggested under the quality and conservation above
  - Works to enable and facilitate amalgamation and rationalisation projects including interconnecting pipework and individual GWS upgrading works to ensure a common standard is achieved across all participating schemes.
  - Phased replacement of all valves & meters
  - Automated scouring valves at the end of pipelines, where justified/required
  - Improving public access to drinking water (e.g., installation of water fountains) to eliminate the purchase of single-use plastic water bottles and help promote the ethos of free access to drinking water under the Drinking Water Directive
  - Installation of dedicated operational sampling points (to address the post-Covid reluctance of householders to provide access to kitchen taps)