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Chambers Ireland Submission on the National Water Resources Plan

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Chambers Ireland's Perspective on the National Water Resources Plan

Chambers Ireland is the State's largest business representative network. We are an all-island organisation with a unique geographical reach; our members are the chambers of commerce in the cities and towns throughout the country – active in every constituency. Each of our member chambers is central to their local business community and all seek to promote thriving local economies that can support sustainable cities and communities.

Our member Chambers are anxious to see the National Water Resources Plan rapidly finalised and put into action. We note that the availability of water resources, both regarding the supply of potable water and the management of wastewater, are severe constraints upon the ambition of the National Development Plan.

The swift execution, and success, of the National Development Plan is essential for our national wellbeing – given the immediate economic hurdles our country faces. Between the demands that the Brexit process and the Covid-19 crisis have placed on the political and administrative resources of the state, the economic constraints that were a necessary part of the public health response to the pandemic, and Brexit's damage to supply chains – we are far from where we need to be if we are to meet the challenges which the coming decades will place upon our capital infrastructure, our society, and our environment.

For our network it is critical that infrastructure programmes, such as that underlying the resilience work within the National Water Resources Plan are rapidly advanced at the earliest opportunity.

There are three reasons for doing so:

1. The ongoing and unprecedented slump in our domestic economy
2. The persistent underinvestment in our water infrastructure
3. The opportunity to lock-in extremely low interest rates for capital financing

The Collapse in Domestic Demand

The domestic economy is in trouble, housing commencements collapsed in 2020, the Covid-19 lockdown has accelerated the decline in commercial retail, and the shift towards remote working is putting the future of some flagship corporate HQs at risk.

This has the direct effect of depressing demand across the economy, while also creating an opportunity for more efficient public spending in infrastructure – because public spending during these uncertain times is less likely to crowd out private spending.

Complementing this, increased spending on infrastructure during the duration of the slump will not only add to the national capital stock, the costs associated with it will receive a *de facto* subsidy as a result of the decrease burden the automatic stabilisers, such as unemployment payments, will have on the exchequer.

The costs of persistent unemployment may be higher than is typical of Irish economic downturns as an element of the current crisis which is distinct from earlier ones is the global, and particularly anglophone, nature of the economic shock. While traditionally, the exchequer burden of economic downturns has been reduced through the mechanism of emigration. This 'pressure valve' is unlikely to have a significant effect over the near term as Britain is likely to continue have one of the weakest economies among our trading partners, while others countries that are traditionally targets of Irish

emigration such as Canada, the United States, New Zealand, and Australia may be slow to reopen their borders to migrants. With few obvious destinations available for migrants, it is likely that far larger numbers of disproportionately young people, a population that is still developing its skill base, will remain in Ireland compared to historical economic downturns.

Programmes of public works that promote employment may have a role to play in ensuring the political resilience of our country.

The Investment Gap

While it is unfortunate that the infrastructure which Irish Water is unifying into a national network has suffered from generations of underinvestment this means that there are many obvious and advanced projects that need urgent work.

Our water system is desperately in need of an overhaul. Public works projects such as those that will be approved through the utilisation of the National Water Resources Plan will have an important role to play in providing a stimulus to our relatively fragile country. This infrastructure, while distributed widely across the country will support the National Development Plan's densification agenda in our urban areas. These investments will be a cornerstone of making our country more economically resilient and environmentally. The upgrading of our water networks to support the densification targets of the National Development Plan is fundamental to our national success – if we are to create a more productive, more efficient, and more sustainable economy that will allow our society to truly flourish.

Unprecedented Access to Capital

A lack of readily available capital, at low cost, has been a problem that has held back our country for the last century. With our long run debt profile stabilised, and negative yields on many of our debt instruments there has never been a better time to invest in ourselves.

Furthermore, should increased investment be directed towards efforts that support the densification of our population, this will facilitate the wider green transition and will help create an impetus for retrofitting existing buildings within our urban centres. This will in turn aid in ameliorating the ongoing housing crisis.

Furthermore, such investments will sit easily within various EU funding programmes, and European Investment Bank green bonds. which will further depress the real cost of these projects while mitigating the impact of the global economic down-turn upon Ireland and will also help position Ireland to become a leader in the green transition.

National Water Resources Plan Priorities for Chambers Ireland

Chambers Ireland is calling on Irish Water to accelerate their action on the implementation of the National Water Resources Plan, particularly around the investment in infrastructure. Since the creation of Irish Water, far more has happened to the global, and our domestic economy, than could have been reasonably anticipated.

An important lesson for us is that the economic turmoil that has persisted in many guises over the last twenty years is likely to continue for a considerable period to come. This is not necessarily a negative thing for a small and agile country which is plugged into many markets across the globe. But, as was highlighted at the Fiscal Advisory Council Conference[1], the time it takes our economy to return to baseline after an economic shock, *ceteris paribus*, is often longer than we have been between economic shocks. This highlights the importance of the role which the Government and Semi-State bodies have to play in stimulating domestic demand if we are to evade the long-term scarring and damage which hysteresis effects have upon our national economic opportunity.

The importance of the National Water Resources Plan to the National Development Plan

The National Water Resources Plan must support the updated National Development Plan to accommodate the changes that have arisen since it was initially published.

[1] https://www.fiscalcouncil.ie/wp-content/uploads/2021/02/Presentation-Irish-Fiscal-Policy-Council-Fatas.pdf

Most immediate in their proximity are the twin economic shocks of Covid-19 and Brexit, however more important to the National Development Plan's capacity to meet the needs of the National Planning Framework will be the Climate Action Plan (due to be revised itself this year) in the context of the more stringent EU Climate Action CO_2 reduction targets, and opportunities for Ireland presented by the European Green Deal.

Our support for the National Development Plan's goals fold into and support our longer-term agenda to see Ireland become the home of a stable, sustainable, prosperous people with a society which ensures that everyone who lives here benefits from a quality of life that will be the ambition of our peer nations globally.

Chambers Ireland sees the National Water Resources Plan as the bedrock upon which the National Development Plan will be built, if that is weakened in any respect, it will undermine the National Planning Framework's goals.

Chambers Ireland and the Sustainable Development Goals

Our network of chambers uses the Sustainable Development Goals to prioritise our policy analysis and recommendations with five of these being most prominent in our considerations:

1. Decent Work and Economic Growth
2. Sustainable Cities and Communities
3. Gender Equality
4. Industry, Innovation and Infrastructure
5. Climate Action

As a business representative body, Decent Work and Economic Growth (Goal 8) is important to us, not least because our success at accomplishing the aims of the Sustainable Development Goals is underpinned by the general health of our economy. In particular, times of economic downturn in Ireland have often been accompanied by a pro-cyclical decline in public capital infrastructure investment. This tradition of under-investment has not only made downturns more pronounced, this austerity-driven amplification process also put our economy onto long-run output trajectories which have been characterised by lower economic production capacities (against pre-downturn levels) that has arisen out of economic scarring[2], other hysteresis processes such as emigration[3], and most importantly the undermining of our competitiveness through the large opportunity costs that have been associated with the failure to deliver on necessary investments.

It is essential the investments of Irish Water over the next decade, and longer, support our economic growth to minimise the long-run consequences of the shocks our domestic economy is currently experiencing, and also to ensure our longer-term resilience against future shocks, particularly climate shocks.

Other Sustainable Development Goals are not only positive, in and of themselves, they are also a means by which our economic goals can be achieved. While Irish Water has a unique responsibility around Clean Water and Sanitation (Goal 6) and Life Below Water (Goal 14) these are of such fundamental importance to our national wellbeing that a failure in them undermines all the other goals.

[2] Developments in the Irish Labour Market during the Crisis: What Lessons for Policy? *Journal of the Statistical and Social Inquiry Society of Ireland*, Vol. 44, 2014-5, pp. 18-39
[3] Return Migration and Optimal Tax Rules: A Hysteresis Case, *International Advances in Economic Research* volume 15, Article number: 487 (2009)

The Central Economic Importance of Initiating a National Urban Revival

In consultation with our network, Chambers Ireland has highlighted Urban Revival as an area where our national ambitions need to be expanded. That ambition will be impossible without Irish Water first carrying out the works that are necessary to accelerate the growth of our cities and towns.

Developing Sustainable Cities and Communities (Goal 11) will not only support our economic achievement it also directs us towards investing in our urban cores to support town centre living.

More, and better, urban living not only supports building Sustainable Cities and Communities it also facilitates the development of lifestyles which are more dependent on active travel and so are less carbon intensive. Upgrading and reusing the vacant premises (which are a deadweight on our cities, towns, and Local Authorities) will help us address social policy problems like the housing crisis, and will do so in ways that will consume less of our carbon budget between now and net neutrality in 2050. Upgrading the physical stock of our cities and towns offers us an opportunity to efficiently retrofit those buildings which will not only reduce the cost of living for urban populations but will also have a disproportionate effect on reducing fuel poverty (which is largely an urban problem[4]).

The interactions between better urban living options, active travel, and public realm improvements will support thriving cities and towns which can again become the engines of our domestic economy. The unfortunate decision making that has led us to

[4] Barrington Lecture titled *Has Fuel Poverty Changed and How Should Policy Respond? Charting fuel poverty in Ireland, 1987-2015*, by Dr. Niall Farrell of Queen's University Belfast.

emulate the disastrous practices of late-20th Century US planning systems have hollowed out our once vibrant cities and towns. While this has pushed back our economic potential considerably, it makes clear that an Urban Revival is one pathway towards economic growth that will be durable over a period of decades – if for no other reason than it will take decades to help our cities and towns recover.

A failure to properly transform our urban centres will risk continued reliance on once-off-builds that will ultimately undermine the possibility of achieving our national climate target goals which will have direct costs on the exchequer through fines, and increased costs of public service provision. These costs will be exacerbated by the indirect costs of climate change while also reducing our economic competitiveness through reducing our national productivity. Furthermore, having our transport networks, childcare facilities and working hubs within close proximity will be a key element to undoing the damage that Covid-19 has done to Gender Equality through the imposition of extra work on women in the home, and the highly gendered effects on employment.

A principal goal of the National Water Resources Plan must be to facilitate our transition towards thriving cities and towns.

Do you have any suggestions that you would like Irish Water to consider as part of the draft Framework Plan?

The creation of a sustainable and reliable clean water supply (including the safe disposal of wastewater) is of paramount interest to Chambers Ireland, our member Chambers, and the business community throughout Ireland.

There are the immediate interests of businesses which are dependent on the essential and continuous supply of water to keep their operations open, but there is also the long run interests in Ireland becoming an increasingly sustainable and environmentally sound economy.

Preparation for Climate Change needs to be central to the decision making and the risk assessment processes of Irish Water. The initial impacts of Climate Change have become obvious to us all. The increased volatility and variability of the weather over recent decades is likely to become significantly worse over the coming ones. These factors combined are likely to negatively impact the safety and capacity of our existing and potential sources of water.

Increased periods of drought will likely make sourcing high quality water a greater challenge for Irish Water as they will require the creation of new reservoirs of water to allow for the supply of water to be flattened out across time.

Supplying these new reservoirs will be difficult too as the periods of persistent rain are likely to be lower in frequency, but also higher in intensity, which will make flooding more likely. This leads to two likely negative effects on the security of supply. Firstly, it narrows the window of time when water will be available for capture and storage (meaning that the baseline capacity of the water capture infrastructure will need to be much higher than what is now available). Secondly, run-off from short bursts of intense periods of rain are likely to degrade the quality of our raw surface waters. This pattern of rainfall may also quickly saturate the storage capacity of our surface soils, while at the

same time it may not necessarily allow for hydrating soils adequately at greater depths. Such an effect should see the water levels of our lakes and rivers become much more variable than has traditionally been the case.

Longer periods of drought, more variable surface water levels, and increased flooding will combine to create severe supply shocks for the Irish population over the next several decades. The baseline case, without significant increased investment in our water supply infrastructure will see Ireland's water supply become fragile.

An aim of the National Water Resources Plan must be the creation of a suitably robust and resilient water network which is sufficient to meet the challenges that are to come. The lessons of the last decade, whether they be ones arising from the Great Financial Crisis, Brexit, Trump, or Covid-19 have taught us that the future is far less predictable than we would like it to be.

Consequently, if we are to be prepared, we will need to apply considerable imagination when it comes to identifying potential risks to consider what the worst-case scenarios may be, whether on balance the risks skew towards upside or downside in their distributions, and how they may interact to create second order effects that will amplify the immediately foreseeable risks.

Meeting the challenge of maintaining security of supply for individuals and businesses in Ireland will force Irish Water to make an enormous investment in its capital base. Such an investment will be needed to accommodate the weather extremes that are now reasonable to anticipate. While we have not suffered to the same degree of intensity in change to our weather patterns which have become normalised in other parts of the world (from California, to Siberia, to Australia – be they floods, fires, hurricanes or blizzards), it is not prudent to assume that Ireland's present exceptionalism will be carried indefinitely into the future.

A prudent approach to operating under uncertainty, and particularly the fat-tailed risks that are associated with complex systems like weather, would require increased redundancy across many of the assets that Irish Water owns and operates. These redundancies will be needed to ensure that there is capacity available to capture water during the limited periods of extremely high volumes of supply – if we are to be able to solve the intertemporal problem of peaks and troughs in rainfall.

A consequence of this will be that the metrics of performance and operational efficiency which are used with respect to Irish Water may need to be considerably revised. Obviously, infrastructure which is designed for use *in extremis* will typically be under-utilised and Irish Water should not be disincentivised from creating such capacity should there be a need.

Consequently, Irish Water needs to become less sensitive to whether it is 'over-capitalised' (and so arguably inefficiently capitalised), and particularly so where such metrics relate to water capture and water storage. The metrics which are used should draw on the level of service which customers experience, involving both the constancy of the quality of the water that is supplied and the frequency with which interruptions to supply occur.

With regard to the infrastructure that is needed for dealing with extreme circumstances, care needs to be taken that to continually monitor the performance of our water systems against our climate change expectations. Should our baseline projections prove to be overly optimistic, and that we spend more time in periods which could be considered extreme (within a normal distribution) then we may need to continuously revise what the 'new normal' distribution may be, and so commit to even greater capture and storage investment ambitions if we are to ensure that continuous, high-quality water is to remain available on tap.

Do you have any suggestions that you would like Irish Water to consider as part of how we have assessed supply/demand balance, water quality, quantity and resilience in the NWRP draft Framework Plan?

Densification of our population is a core aim for the National Planning Framework and an effective National Water Resources Plan will be essential to securing our success in meeting that goal. Achieving our densification targets will be a fundamental to Ireland becoming a resilient, robust and prosperous society that affords everyone the greatest possible opportunity – while staying within the bounds of what will be environmentally supportable over the longest timeframes.

Already our water infrastructure limits the growth of many of our towns and cities:

- Existing water sources and treatment facilities need upgrades and improvement
- Our ageing transmission infrastructure needs upgrading to prevent leakage and so conserve water
- Wastewater carriage and treatment facilities must be overhauled

While Irish Water has been generally successful at ensuring that water is available whenever needed, and to a very high quality, there are locations which are experiencing significant difficulties with all too frequent stoppages that result in an inadequate supply of water. It is probable that making good on generations of underinvestment in water infrastructure is a challenge which may take Irish Water decades to entirely undo in certain parts of the country.

The disruptions to the supply of water have a detrimental impact on the economic opportunities that are available to our regional towns because insecurity of supply inhibits the risk appetite of firms when it comes to investing in their areas. This caution may have a role to play in amplifying the two-speed nature of our economy.

Amplifying this problem of regional-underinvestment are the interactions between wastewater services and the granting of planning permissions for new developments. In many parts of the country capacity limits at wastewater treatment facilities have created an effective cap on the potential for concentrated population growth.

A major pillar of the National Planning Framework is the concentration of future growth in areas that can support denser populations. The capacity of our cities and towns to grow is guided (at least in part) by the potential of often antiquated waste-water facilities to prevent damage to the environment.

If there is insufficient investment by Irish Water to support the rapid growth in our cities and towns then the demand for housing will see the further diffusion of our population across wider areas where it is possible to squeeze once-off housing onto the existing infrastructure.

Thus, Government policy in relation to our long-run development is uniquely dependent on water infrastructure. Moreover, if we are to succeed in our Climate Action Plan aspirations (which are themselves likely to be amended in response to the greater ambitions for our country's emissions targets) then, everything must be done to limit the sprawl which has made Ireland one of the worst performing EU countries[5] when it comes to meeting our environmental obligations.

Furthermore, a programme of creative, careful and ambitious planning that results in our water infrastructure becoming adequate to the task of meeting the growing needs of our cities and towns is of such importance because ongoing works upon water infrastructure is so disruptive to the lives and businesses of our urban centres. This disruption, combined with the capital intensity involved in upgrading such works, argue that the frequency with which these works occur is reduced to a minimum. This again highlights the importance of building capacity within the existing system. An alternative

[5] *Measuring Progress: The Sustainable Progress Index 2021*

scenario that sees repeated iterations of incremental upgrades transfers the costs around construction disruption, and disruption in supply, onto the wider community.

Network Security

The challenges regarding increasing capacity and investing capital, while meeting ever more ambitious environmental targets, are concerns that are present for all our network services, whether electricity, broadband, or water.

However, with water, the unique set of circumstances which left the ownership and servicing of our network dispersed across a variegated set of legal entities and structures has created a particularly complex challenge for Irish Water:

- There is the need to integrate these heterogenous networks into a contiguous whole
- There is the need to ready new sources of supply for abstraction in order to facilitate the growth of the economy and population, and
- There is the need to manage and maintain continuously the existing infrastructure while limiting supply shocks

Amplifying these difficulties are the costs to Irish Water when it comes to increasing supply. While the costs of introducing adequate infrastructure across all parts of the country are substantial for all our utilities, for Irish Water the coming decades are likely involve infrastructure spending which will be an order of magnitude greater than that involved in the creation of the National Broadband Ireland network – given the different nature of the challenges in connecting houses to water networks relative to a cable network, and the sheer mass of the infrastructure which will be needed.

However, without the commencement of an ambitious plan for such a complex series of works the other ambitions of Government will falter, and with it the opportunities for those of us in the business community.

Water-loss

Given the increased challenges regarding the supply and the storage of water which Irish Water is to face for a considerable period of time, ever greater efforts will be needed to ensure that water loss, whether that be through the Irish Water network or through the usage of water by customers, is limited.

Water-loss metrics need to remain a core metric by which Irish Water is evaluated, indeed its importance will only become greater as time passes. Simultaneously, consideration needs to be given to the fact that Irish Water faces a substantial burden with respect to the aged nature of much of the water supply network and the capital/time it will take to improve the network.

The NWRP draft Framework Plan sets out Irish Water's methodology to find high level solutions to address short, medium and long-term issues. Do you have any comments on our methodology?

The National Water Resources Plan identifies five areas which should feature as the primary criteria for assessing projects which are within the remit of Irish Water:

- Resilience;
- Deliverability and Flexibility;
- Progressibility;
- Sustainability (Environmental and Social Impacts); and
- Cost.

Chambers Ireland welcomes the move towards these criteria with the observation that no one factor can be superior to the others – all of these criteria interact with each other. We note, for example, that for the purposes of effecting the National Development Plan/National Planning Framework population goals it is likely that there will be a trade-off between Progressibility and Cost. Such a trade-off arises from the fact that over the next few decades significant changes need to occur in how we work and where we live. Commensurate to that, Irish water infrastructure will need to change to accommodate that transition.

Often, access to potable water, or wastewater treatment facilities, act as a constraint on the planning process. It is likely that significant major investments will be needed by Irish Water if the potential of the National Planning Framework is to be realised. Therefore, it is essential that while costs must be controlled within Irish Water, those metrics should not act as a constraint upon wider society.

The National Water Resources Plan as an enabler of the National Development Plan

A failure at the national level to focus future growth into denser population centres across the cities and the regions will perpetuate behavioural practices like long commutes, which are not only negative for the wider community, but place enormous costs upon the individual, and also burden our environment with significant carbon emissions.

The National Water Resources Plan needs to act as an enabler for the revised National Development Plan, and the Climate Action Plan (which is soon expected to be updated).

While in the short-term the immediate response to environmentally negative processes (such as the discharge of raw wastewater) needs to be addressed, this must occur in parallel with the medium-term action that is needed to ensure both the continuity of existing supply and the longer-term projects which will ultimately facilitate the development of the resilient water network we need.

Continuity of support for existing plant/infrastructure

Given the need to provide continuous service, it will be important to ensure that existing viable plant is maintained at full serviceability, however with the shift in population that is likely to occur within the lifetime of the existing plant there is a risk that, in the more sparsely populated regions, a modifier might be needed to address the burden that those stranded assets may place upon Irish Water infrastructure.

It is a reasonable assumption to make that by 2040 some parts of the country may be over-serviced, in terms of water infrastructure. At the same time, it may be less capital intensive to maintain the existing water infrastructure than to construct new infrastructure which is at a scale appropriate to this future population.

A careful balance needs to be placed on depreciating the capital value of legacy plant, while at the same time protecting the flow of capital maintenance that is required to support continuity of service.

Viability of abstraction sources

The continued utility of sources of water, at a capacity which exceeds their recharge rate, will result in further shocks to the Irish Water network that will undermine its long run resilience. It is essential that Irish Water rapidly addresses the reliability of its water sources and the environmental impact that abstraction is having on them.

Evidently, there are many strong environmental arguments for maintaining the viability and integrity of our water, however there are economic ones too. Uncertainty over the viability of our existing supplies will see an inefficient allocation of resources and investment at those locations where we have existing plant. Consequently, there is the considerable risk that we will reinforce and upgrade infrastructure to accommodate abstraction rates that exceed the real potential of their hydrological yield.

Not only will drawing from sources at a rate which exceeds their recharging rate reduce the value of the investments we are making in them, it will also divert resources away from other sustainable sources which will inevitably undermine the long-term resilience of the Irish Water network.

Chambers Ireland supports the balance which the "Preferred Approach" has towards addressing excess demand for water. While it is important to increase the supply of water through improving and investing in abstraction sources, the targets of a 30% savings in water-loss and the 10% reduction in demand that is foreseen through usage optimisation, will significantly reduce the pressures we place upon our water supply, and ultimately ensure the longer-term viability of our abstraction sources.

Option Development

Chambers Ireland is a strong supporter of the National Water Resources Plan's proposed Option Development process.

Exploring the full space of possible options, then narrowing the proposals through a successive series of filters to establish the set of viable alternatives, followed by weighting them across a range of criteria to identify the projects which are most suited for continued exploration is an appropriate way to:

- Balance the various and competing community interests,
- While allowing for the beneficial feedback loops within the sustainability the progressability, and the environmental observations, and then
- Finally addressing the total costs of the various options (having also established the associated externality costs of the different options)

appears to be a robust pathway towards building a resilient network.

Chambers Ireland suggests that the earliest stages of the option identification process, (such as the "Unconstrainted Options" list stage), should involve the maximum amount of consultation with stakeholders and community members as possible.

Every project will attract those that will oppose it, for a variety of reasons. Ensuring that the widest set of people are engaged in the process from the earliest time possible will help act as a counterweight against those other members of the community that will otherwise be the loudest voices (as we must assume the vast majority of the population are be oblivious to any infrastructure developments that are not occurring directly in front of them) – otherwise there is the risk that those that are merely interested will be mistaken for those who have interests in the development and completion of projects.

Taking people through the process of identifying the range of possible solutions and then understanding why certain of those options are ruled out, and how the remainder of them are prioritised will be an important part of reinforcing community support for and public acceptance of the works that will need to be carried out.

There is likely to be a significant dislocation between those communities where abstraction is possible, and those areas where shortages in supply are felt. It is often the case in infrastructure projects which involve major engineering works that, because there are solutions which are self-evident to those who are expert in a field, there is an undervaluing of the need to explain to people why that solution is the most appropriate one.

This failure in communication often results in exacerbating both community tensions, and tensions across the regions where there is an imbalance of supply and demand – often because the resource creation/transmission infrastructure is not needed where it is being built and so only those who will not directly benefit from the creation of such infrastructure, experience the direct costs associated with building it.

It is paramount that community and stakeholder engagement is a key part of the Options Development process.

Net Present Value and Approach Appraisal

Regarding the Approach Appraisal process: While the constraints of the Public Spending Code's "Lowest Net Present Value" approach has considerable benefits (particularly in the event that the amendments to the Climate Action Plan introduce and integrate more robust assessments of Carbon and Social Costs) an element which may be excluded from the analysis are the risks associated with changes in the rates of interest and inflation.

Given the historically low interest rates we are enjoying at the moment, and the likelihood that they will increase over the medium to long term, and the low rates of overall inflation (when set aside the high rates of inflation within the construction sector), it is possible that the Net Present Value approach may underestimate the real costs of delaying investments (to a period where the costs of capital will be higher).

Therefore, it may be useful for Irish Water to consider using a robustness model which will allow it to compare the likely long run costs (incorporating the range of risks associated with changes to both the real interest rate and the real rate of inflation) of various investments, series of investments, or order of investments as controls for the assumption, that future interest and inflation rates will be very much like today's, (something that is implicit in the Net Present Value methodology).

Such a process may allow for a more robust and resilient financial modelling for Irish Water, particularly considering the timelines its investment schedules operates over, and the frequency of the economic downturns that are likely to be occurring over the coming years.

If such a financing risk assessment was incorporated into the sensitivity assessment process (in conjunction with the existing uncertainty factors) it could be a useful tool, particularly given that it is likely to be correlated with other known risks and will therefore amplify their effects.

Do you have any comments on the Strategic Environmental Assessment (SEA) Environmental Report and associated Natura Impact Statement (NIS) which accompanies the NWRP draft Framework Plan?

Chambers Ireland as a business organisation does not have the technical capacity to assess the proposals which Irish Water presents as part of the Strategic Environmental Assessment, and the associated Natura Impact Statements.

However, Chambers Ireland is strongly supportive of improving our national environmental performance. On almost every environmental metric Ireland falls short of our European peer nations. Significant work will need to be completed if we are to restore our environmental resources.

Many of these actions will be complementary to Irish Water's activities. Creating resilient landscapes that protect our spaces from flooding is an example, using land better – seeing rural landscapes as resources for rain and water management, changing the profile of land usages so that it absorbs more rain, more quickly, will help to avoid the runoff and flooding which pollutes our surface water sources. Tending our land to ensure that it is better at retaining extremes of rain (which we can reasonably assume will occur with greater frequency) will, at the same time, obviate the need for expensive engineered flood defences (with their attendant costs, risks and environmental damage).

Better land management will in turn allow for greater utility of ground water sources as a result of the increased replenishment rates and the associated increase in hydrological yield.

The project roadmap has been updated. Do you have any comments or feedback on this?

Chambers Ireland has no observations on the roadmap for the National Water Resources Plan though looks forward to both its early completion and it being appropriately resourced to ensure the delivery of the National Development Plan.