Assessment of Water and Waste Water Services for Enterprise

September 2008

Forfás

Table of Contents

Executive Summary

The provision of adequate and affordable water and waste water services is crucial to ensure the sustained growth and development of enterprise in Ireland. Access to secure and competitively priced water supplies, at appropriate quality levels, is core to the delivery of these services. Adequate waste water treatment capacity is essential for environmental sustainability. This report assesses Ireland's performance in meeting the water and waste water needs of enterprise, in terms of capacity, costs and quality for the designated gateways and hubs under the National Spatial Strategy and examines key policy issues arising.

There has been significant investment in water and waste water infrastructure under successive national development plans to meet the needs of a growing economy. Between 1994 and 2006, a total of €4.4 billion was invested, of which €3.7 billion was spent under the National Development Plan (NDP) (2000-2006). The current NDP (2007-2013) provides for further significant investment and has earmarked some €4.75 billion for water and waste water service infrastructure over the lifetime of the plan.

Key Findings

- Using a model designed to assess the ability of current and planned water services infrastructure to meet the current and future needs of enterprise in the National Spatial Strategy gateways and hubs, a number of deficits are forecast to occur in key centres over the next five years. The areas forecast to have a water supply shortage by 2013 are Athlone, Dublin, Galway and Letterkenny. These cities and towns are also forecast to face shortages of waste water treatment in 2013, as are Mallow and Wexford.
- Ireland has relatively high levels of unaccounted-for water (treated drinking water that is lost through the distribution network, largely via pipe leakage and illegal connections). On average 43 percent of the total volume of treated drinking water produced in the gateways and hubs is lost before it reaches the final customer.
- There are 34 local authorities involved in the provision of water and waste water infrastructure and services in Ireland, which hinders the development of a coordinated approach to strategic planning and prioritisation of capital investment projects in this area.
- The average combined charge for water and waste water services in Ireland's gateways and hubs is €2.03 per m^3. Costs vary across local authorities from a low of €1.50 per m^3 in Galway county to €2.71 in Wexford.
- Water services charges in Ireland are competitive. The average combined charge per m^3 in Ireland's five largest cities is €1.67 compared to an average of €3.24 in the top five cities in a selection of European countries benchmarked.
- However, there is a lack of transparency with regard to how local authorities price water and waste water services for the business sector. In addition, domestic users do not pay for water services and it is not possible to ascertain how much it costs to provide water and waste water services to these users.

- Water quality in Ireland is generally high, particularly in the main urban centres. However, the outbreak of cryptosporidium in Galway city in March 2007 highlights the importance of having adequate infrastructure in place to prevent contamination of water supplies.
- The availability of performance indicators to measure the quality of water and waste water services, particularly for indicators of most relevance to enterprise, is limited.

Key Conclusions and Recommendations

Although water services policy is still in a state of transition as the Department of the Environment, Heritage and Local Government and local authorities move toward the targets of the EU Water Framework Directive, there are a number of policy requirements to ensure Ireland's water services meet the needs of enterprise.

Capacity

Although Ireland has made substantial investment in water and waste water infrastructure in recent years, an analysis of the future supply of and demand for water and waste water capacity indicates that current and planned infrastructure will not be sufficient to cater for expected increases in demand by enterprise in certain urban centres in the medium term. The main policy actions required to address this are outlined below:

- Prioritise investment in the gateways and hubs in future water investment programmes to ensure that these locations can accommodate future enterprise development and population increases, in particular, those centres where deficits are forecast to occur within the next five years.
- Reduce unaccounted-for water levels, which are high in many of the gateways and hubs. This needs to be the first course of action taken by local authorities to increase capacity levels. In this context, no Exchequer funds should be allocated to provide additional capacity to any urban centre until action plans to reduce leakages to an acceptable level are being implemented.
- Enhance awareness of the need for water conservation. Greater conservation will help to protect a precious resource, as well as reducing the need for capital investment in new infrastructure. Reducing water use will require behavioural changes by both enterprise and the domestic user.
- Move to a river basin district basis for the planning and provision of water services so as to maximise potential economies of scale, both in the building of infrastructure and the operation and delivery of services;
- Develop a long term strategic approach to water services policy and planning at national level. To date, only Dublin has developed a long term perspective of its future water services requirements. Future planning and developments in water services should be consistent with national objectives as set out in the National Spatial Strategy and take into account the needs of future enterprise development.

Costs

Over the last number of years, local authorities have introduced metering and volumetric pricing for enterprise and commercial users. Although the water services charges in Ireland are competitively priced compared with the benchmarked countries, a number of issues need to be addressed. They are:

- Introduce greater transparency and consistency with regard to how the charges for water and waste water services are calculated by local authorities. It is currently not possible to determine if water charges are fully cost reflective.
- The full cost of providing water services for domestic users needs to be clearly identified to ensure the requisite funding levels are provided by the Exchequer. Currently, these costs are met as part of the Department of the Environment, Heritage and Local Government's 'general fund' for local authorities. Having established the cost of delivering water services to domestic users, an analysis of the merits of retaining the derogation on domestic water charges needs to be undertaken to determine how best to fund water provision between user and exchequer sources.

Quality

The availability of quality performance data is extremely limited both at national and international level, making it difficult to benchmark quality performance. The following actions are required:

- Quality indicators of relevance to enterprise need to be collected, monitored and published by the Department of the Environment, Heritage and Local Government, including measures on unplanned service interruption, risks of low pressure and customer response and service.
- A customer charter including service level guidelines needs to be developed and monitored by the Department of the Environment, Heritage and Local Government to ensure a consistent approach across local authorities.

1. Introduction

The provision of adequate and affordable water and waste water services are crucial to ensure the sustained growth and development of enterprise in Ireland. Access to secure and competitively priced water supplies, at appropriate quality levels, is core to the delivery of these services. Adequate waste water treatment capacity is also essential for environmental sustainability.

The demand for water and waste water infrastructure capacity in Ireland has grown sharply in recent years as a result of strong economic and population growth. To cater for that increase in demand, significant investment in water and waste water infrastructure has been made under successive national development programmes. Between 1994 and 1999, €1.2 billion was provided and €3.7 billion was invested under the last NDP (2000-2006)[1]. A further 4.75 billion has been allocated under the current NDP (2007-2013) for water and waste water treatment infrastructure. Much of this investment is targeted towards meeting the requirements of the EU Water Framework Directive. The main objectives of the directive are to achieve a good level of water quality by 2015, establish a water management system based on river basin districts instead of administrative boundaries, and introduce pricing policies which enable full cost recovery.

This report assesses Ireland's performance in meeting the water and waste water needs of enterprise in terms of capacity, costs and quality, and examines key issues arising. Section 2 provides an overview of water services in Ireland. Section 3 examines the ability of current and planned water services infrastructure to meet the current and future needs of enterprise in the gateways and hubs identified by the National Spatial Strategy (NSS)[2]. Section 4 assesses the comparative cost of water services nationally and internationally while section 5 looks at water quality. The report concludes by setting out the main policy issues and recommendations.

In late 2007, Forfás commissioned Mott McDonald Pettit to undertake an assessment of how well the water services needs of enterprise are being met. The project was overseen by a Steering Group comprising of the Department of the Environment, Heritage and Local Government, the Department of Enterprise, Trade and Employment, IDA Ireland, Enterprise Ireland and the Environmental Protection Agency (EPA).

[1] The increase in drinking water treatment capacity funded under the last NDP was equivalent to the needs of a population of 838,000. The increase in the waste water treatment capacity since 2000 was equivalent to the needs of a population of 3.2 million.

[2] The Gateways are Athlone, Cork, Dublin, Dundalk, Galway, Letterkenny, Limerick, Mullingar, Sligo, Tullamore and Waterford. The hubs are: Ballina, Castlebar, Cavan, Ennis, Killarney, Kilkenny, Mallow, Monaghan, Tralee, Tuam and Wexford.

2. Overview of Water Services in Ireland

Under the provisions of the Water Services Act 2007, each of the 34 local authorities is responsible for the management and strategic planning of water services within their areas[3]. It is the duty of the Minister for the Environment, Heritage and Local Government to facilitate the delivery of water services infrastructure. The Department is responsible for overseeing strategic planning at a national level. Overall responsibility for water services quality rests with the EPA.

2.1. Water Services Regulation

The EU Water Framework Directive 2000, which aims to promote sustainable water use based on the long-term protection of available water resources, is a key driver of water legislation in Ireland and across the EU[4]. The main objectives of the directive are to achieve a good level of water quality by 2015, establish a water management system based on river basins instead of administrative boundaries, and introduce pricing policies which enable full cost recovery.

The island of Ireland has approximately 400 river basins which have been grouped into eight river basin districts, three of which are cross-border districts and one which is based entirely in Northern Ireland. Each river basin district encompasses a minimum of six local authority areas. The objectives of the Water Framework Directive are to be achieved through the development of river basin management plans, beginning in early 2009. These plans will provide a strategy for the management of water sources and will feed into the development of local authority strategic water services plans[5].

2.2. Water Pricing Policy

The EU Water Framework Directive requires the implementation of the "polluter pays principle" subject to established practice. This means that all water users should pay the full costs for their use of water and waste water services. The Irish Government has secured a derogation from the directive in relation to domestic water users on the grounds that there was no established practice of charging them for their use of water services. The Local Government (Financial Provisions) Act 1997 specifically prohibits charging domestic users for their use of water services. As a result, the Government pays for the provision of these services to the domestic sector. Non-domestic users (largely comprised of the enterprise sector) are charged for water services. National policy does not allow for the cross-subsidisation of services between domestic and non-domestic users.

Business users pay the marginal cost for capital projects, that is, they pay the difference between the cost of providing water service infrastructure to domestic users and the total cost of providing

[3] In the context of the Water Services Act 2007, local authorities are referred to as water services authorities.
[4] There are a number of other EU Water Directives which regulate the provision of water services with regard to issues such as Drinking Water (1980), Urban Waste Water Treatment (1991) and Bathing Water (1976). The Water Pollution Acts 1977 and 1990 and their ensuing regulations give effect to these Directives and constitute the main national legislation in this regard.
[5] Under the Water Services Act 2007, local authorities are required to develop strategic plans for six year cycles.

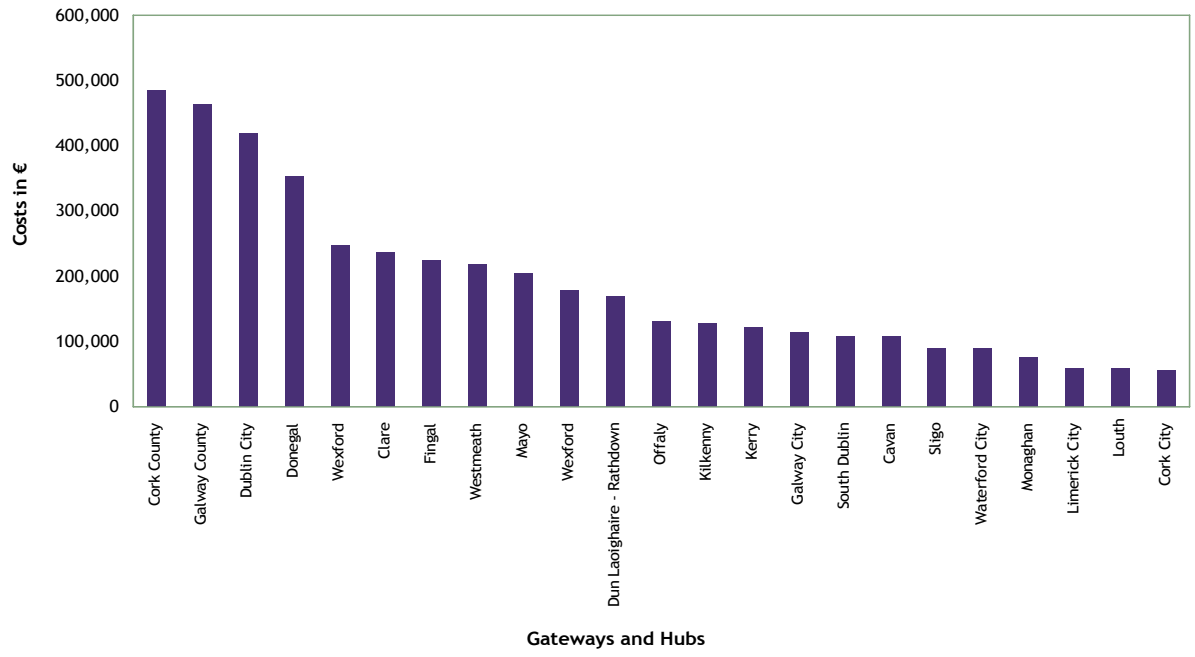
water to all users. Business users also pay the average operational costs for water services. The Department of the Environment, Heritage and Local Government has stated that the "basket of water charges set by the local authority must demonstrably reflect the cost of providing the water and waste water services to the non-domestic sector and must not include any element of profit"[6].

2.3. Water Services Investment Policy

The current Water Services Investment Programme (2007-2009) covers 955 projects across the country with a combined estimated cost of €5.8 billion, (including the €4.75 billion allocated under the current NDP). It is an indicative three year building programme of projects due to start between 2007 and 2009.

The Department of the Environment, Heritage and Local Government's 'Developing Areas'[7] initiative tracks planned water service investments to support better co-ordination with other public investments and to support the overall implementation of the NSS. The planned investment in water services infrastructure in local authorities with gateway or hub towns is illustrated below.

Figure 1: Planned Investment in Water Services Infrastructure under the 2007 – 2009 Investment Programme[8]



Source: Mott McDonald Pettit

Note: Figure 1 only includes planned expenditure in local authorities with a gateway or hub town.

[6] Department of the Environment, Heritage and Local Government, 2006, WSP5/06 Implementation of National Water Services Pricing Policy Water Metering – Notes for Guidance.

[7] The Developing Areas initiative focuses on locations where strategically important and rapid development is occurring and/or planned to occur over the next five to ten years. The initiative is focussing initially on the nine gateways and hubs identified in NSS. The objective of the project is to ensure that the necessary physical and social infrastructure is delivered in a joined up manner to facilitate the sustainable and high quality development of such areas.

[8] Seventy percent of the total planned investment for combined water service infrastructure is targeted at local authorities which have a gateway or hub town. Figure 1 shows planned expenditure by location under the current Water Services Investment Programme.

3. Water and Waste Water Capacity

The demand for water and waste water infrastructure in Ireland has grown sharply in recent years. This is as a result of strong economic and population growth. A key goal of this study is to assess Ireland's capability to meet the future water and waste water needs of enterprise in terms of capacity. Based on a detailed model which was developed for this study, this section examines the ability of current and planned water services infrastructure to meet current and future needs of enterprise in the gateways and hubs.

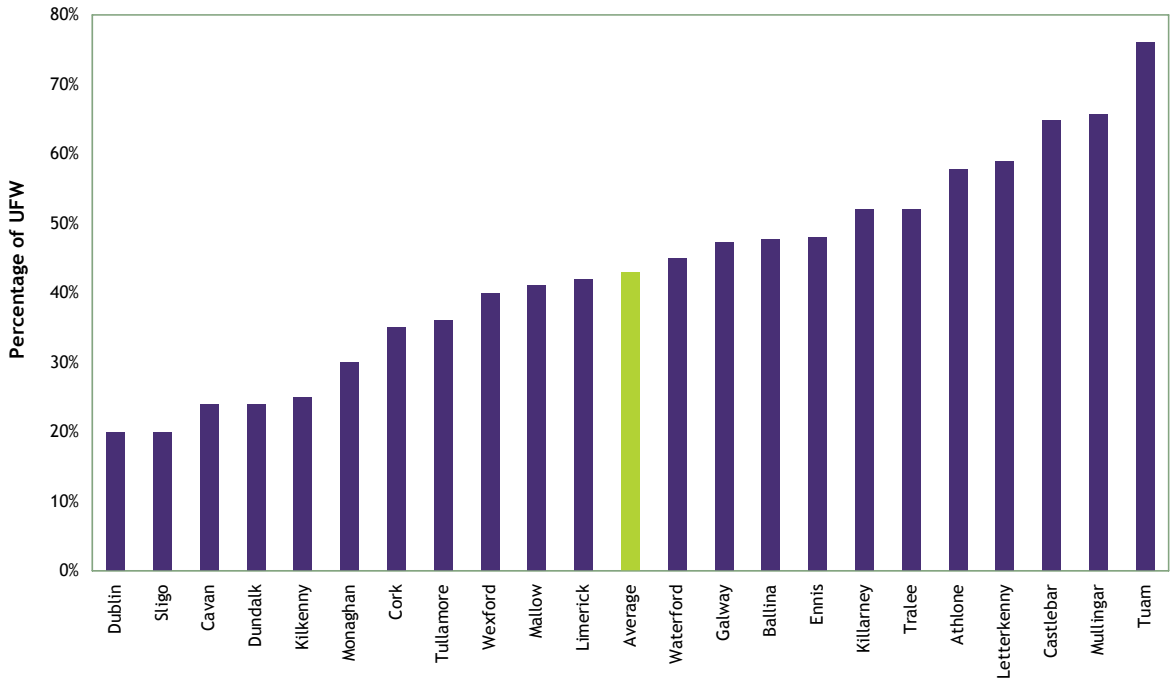
3.1. Current Infrastructure Capacities

The current capacity of water treatment plants in each of the gateways and hubs to effectively treat water on a daily basis is set out in Table A.1 (Appendix A). Where available, the existing daily source capacity is also listed. This is the maximum daily amount of water for which the local authority can reliably extract water under all expected weather conditions. Currently, Limerick, Letterkenny and Tralee are exceeding their source capacity and Cavan and Waterford are very close to reaching their maximum capacity levels.

The adequacy of current treatment capacity is also dependent on the quality of the water supply distribution networks. Unaccounted-for water (UFW) is the term given to losses in water supply distribution networks which cannot be accounted for through known usage. In general, distribution systems in Ireland suffer from high levels of UFW due to leakage from damaged and old pipelines and unknown and illegal connections[9]. UFW accounts for 43 percent of the volume of treated drinking water produced in the gateways and hubs (Figure 2). Tuam, at 76 percent, has the highest level of UFW, while Dublin and Sligo have the lowest levels at 20 percent.

[9] Section 55 of The Water Services Act 2007, which transposed the Water Framework Directive into Irish law, significantly strengthened provisions with regard to illegal connections to the water supply and its application should result in a decline in unaccounted for water levels.

Figure 2: Percentage of Unaccounted-for Water in Gateways and Hubs



Source: Mott McDonald Pettit

The economic level of leakage is the point at which the cost of reducing leakages is equal to the cost of producing more water. At that point the benefits of delivering any further leakage reduction would be outweighed by the cost of doing so. In general, where a deficit in the water supply has been identified, the reduction in the level of unaccounted-for water to the economic level of leakage through upgrading and refitting pipelines should be the first step in increasing the volume of water available to meet new demand[10].

Since the mid 1990s Dublin has managed to meet the requirements of phenomenal growth rates in housing and commercial development with a combination of modest increases in water supply and a comprehensive leakage control programme. The four Dublin local authorities are working together to replace 280 kilometres of old mains in the Greater Dublin Area where repair is no longer economically viable due to the age and condition of the pipes. This project, which is due to start shortly, will be carried out over the next five years at a total cost of €118 million.

Other local authorities are also currently replacing old and damaged pipelines, with financial assistance from the Department of the Environment, Heritage and Local Government. The Department provides full funding for the preparatory works and 90 percent funding for the

[10] The imminent completion of the water system mapping programme should allow local authorities to reduce their unaccounted for water levels significantly. The Complete Information System (CIS) is an application for the management and mapping of water services assets. It will record data on the location of all water and waste water related assets using a highly accurate Global Positioning System (GPS). The GPS data will be fed into Information Services to assist in daily operations and in the management of waste water services.

upgrading and refitting of pipes to reduce leakage levels. €285 million has been earmarked in the current water services investment programme.

3.2. Future Water Services Capacity

One of the key objectives of this study is to assess the ability of current and planned water services infrastructure to meet current and future needs of enterprise in the gateways and hubs. The methodology underpinning the model used to identify future surpluses and deficits is set out in the text box overleaf.

Most gateways and hubs are well positioned to meet future demand for water (Table 1). Planned infrastructure in Waterford will eliminate the current deficit. However, Letterkenny's deficit is predicted to increase over the next ten years. Without further investment in water treatment capacity, Athlone, Dublin and Galway are forecast to also experience deficits by 2013[11].

Seven urban centres are currently exceeding their waste water treatment capacity levels, which may be resulting in the under treatment of waste water. By 2013, it is expected that planned water infrastructure investment will address the deficits in Tullamore and Ennis. However, by then Mallow and Wexford are expected to be exceeding their capacity levels. It is forecasted that during the next five years, the national deficit of waste water treatment capacity will increase by 13 percent from 170,879 m^3 to 196,483 m^3. By 2013, Cork and Ballina are forecasted to exceed their waste water treatment capacities, while Limerick will be at full capacity[12].

[11] Details regarding water service usage by m^3 in each of the gateways and hubs are contained in Table A.3 in Appendix B.
[12] Details regarding waste water service usage by population equivalents in each of the gateways and hubs are contained in Table A.4 in Appendix B.

Methodology for Forecasting Future Water Services Supply and Demand

The availability of water and waste water infrastructure to meet demand is a function of a number of parameters. For the purposes of this study, demand has been forecasted based on a small number of key variables for each of the gateways and hubs. This report focuses on the ability of infrastructure to meet enterprise development needs in 2013 and 2018.

The model builds upon on a number of key assumptions, such as the CSO's forecasts for population growth, the level of water demand per capita and current and future enterprise development[13].

Water and waste water treatment capacity levels are based on available data. As part of this study, each of the 21 local authorities which cover the gateway and hub locations were requested to complete a survey to assess the current and planned capacity of their combined water service infrastructure. Seven of the local authorities contacted provided information relating to water and waste water infrastructure for the following population centres: Dublin, Ennis, Mallow, Tuam, Tullamore and Waterford City. For all others, information received as part of the National Urban Waste Water Study (2004), the National Water Study (2000), the Drinking Water National Monitoring Programme (2004), and the previous Forfás Water Study (2002) were used to determine the infrastructural information. The Department of the Environment, Heritage and Local Government has also been consulted in the development of the assumptions underpinning the model.

[13] These include the planned strategic sites in Dublin, Cork, Galway, Waterford and the Midlands.

Table 1: Percentage of Water and Waste Water Infrastructure Capacity Surplus / Deficit to 2018

	Water Treatment			Waste Water Treatment		
Population Centre	**2008**	**2013**	**2018**	**2008**	**2013**	**2018**
Athlone	3	**-39**	**-57**	10	**-35**	**-54**
Ballina	90	81	72	7	1	**-5**
Castlebar	9	6	3	68	55	44
Cavan	150	15	2	30	16	5
Cork	31	15	2	2	5	**-7**
Dublin	**0**	**-7**	**-13**	**-9**	**-16**	**-3**
Dundalk	35	39	20	120	75	46
Ennis	7	50	42	**-32**	24	15
Galway	14	**-13**	**-30**	**-23**	**-33**	**-41**
Kilkenny	76	65	55	**-5**	18	12
Killarney	169	150	143	23	64	57
Letterkenny	**-26**	**-37**	**-45**	**-52**	**-59**	**-64**
Limerick	109	171	156	18	8	0
Mallow	6	33	25	4	**-4**	**-11**
Monaghan	20	12	6	133	115	100
Mullingar	105	71	46	**-19**	65	87
Sligo	39	31	25	45	25	10
Tralee	98	90	82	25	17	9
Tuam	42	36	21	23	13	5
Tullamore	12	42	55	**-38**	5	43
Waterford	**-10**	17	1	**-100**[14]	54	29
Wexford	25	14	4	5	**-3**	**-11**

Source: Mott McDonald Pettit

Notes:

- *The table shows supply volumes as a percentage of demand in each region. Positive figures indicate that supply is surplus to demand, while negative figures indicate the percentage deficit in supply.*
- *Planning horizons for water projects do not normally extend beyond five years. Therefore, it is expected that there will be additional future investment (i.e. greater than 5 years hence), which has not yet been planned or identified, to address longer term shortages.*

[14] Waterford currently only has primary waste water treatment facilities. The above table is based on a minimum of secondary level waste water treatment.

4. Costs of Water Services

Local authorities have introduced metering and volumetric pricing for enterprise over the last number of years to meet the requirements of the EU Water Framework Directive for fully cost reflective water pricing. The comparative costs of water services nationally and internationally are examined in this section.

4.1. Water Services Charges Across Local Authorities

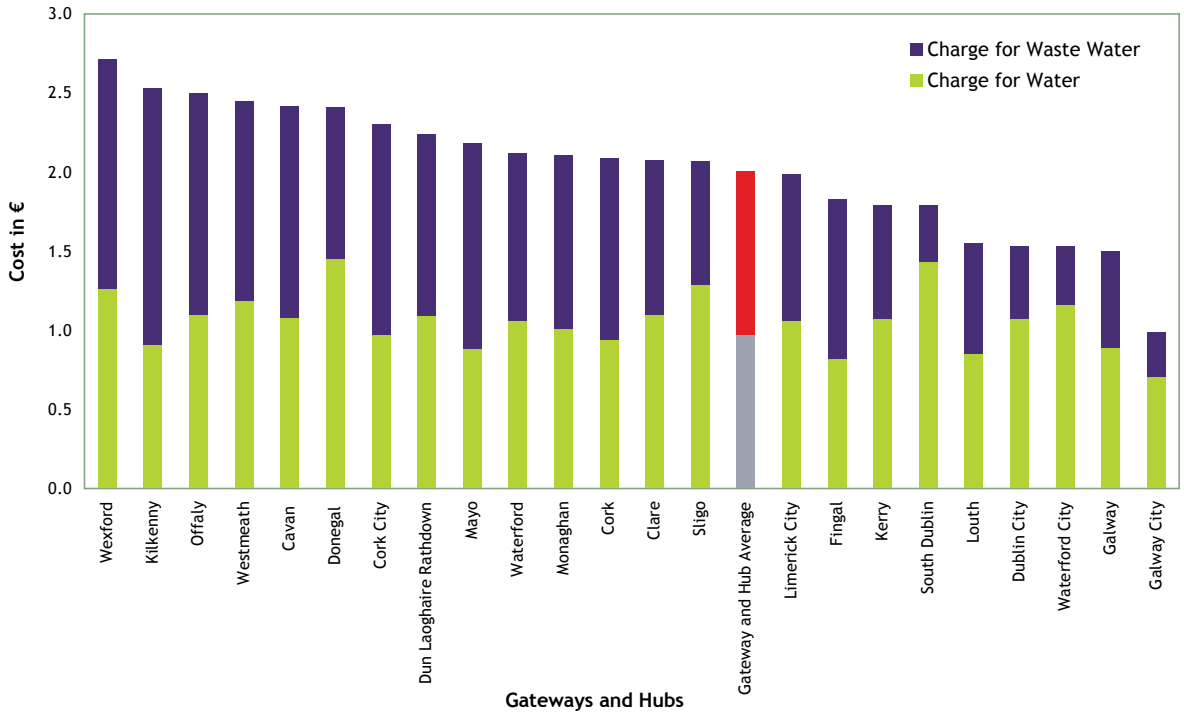
The average consolidated charge (i.e. water plus waste water charge) across all local authorities in Ireland in 2008 is €2.08 per m^3, while the average cost in the gateways and hubs is marginally lower at €1.98. Costs vary across the gateways and hubs from a minimum of €1.50 in Tuam (Galway County) to €2.71 in Wexford (Figure 3)[15]. Galway City currently has the lowest combined water charge due to a reduction in water charges following the cryptosporidium outbreak in 2007.

Water charges across the various local authorities are influenced by a number of factors:

- Local and regional geographic factors;
- Level and quality of existing infrastructure (level of investment required);
- Asset depreciation; and,
- Economies of scale.

[15] A complete list of non-domestic charges for all local authorities, including those which do not serve a gateway or hub town is included in Appendix D.

Figure 3: Combined Water Service Charges for Local Authorities with Gateways and Hubs



Source: Mott McDonald Pettit

4.2. International Comparison of Water Service Costs

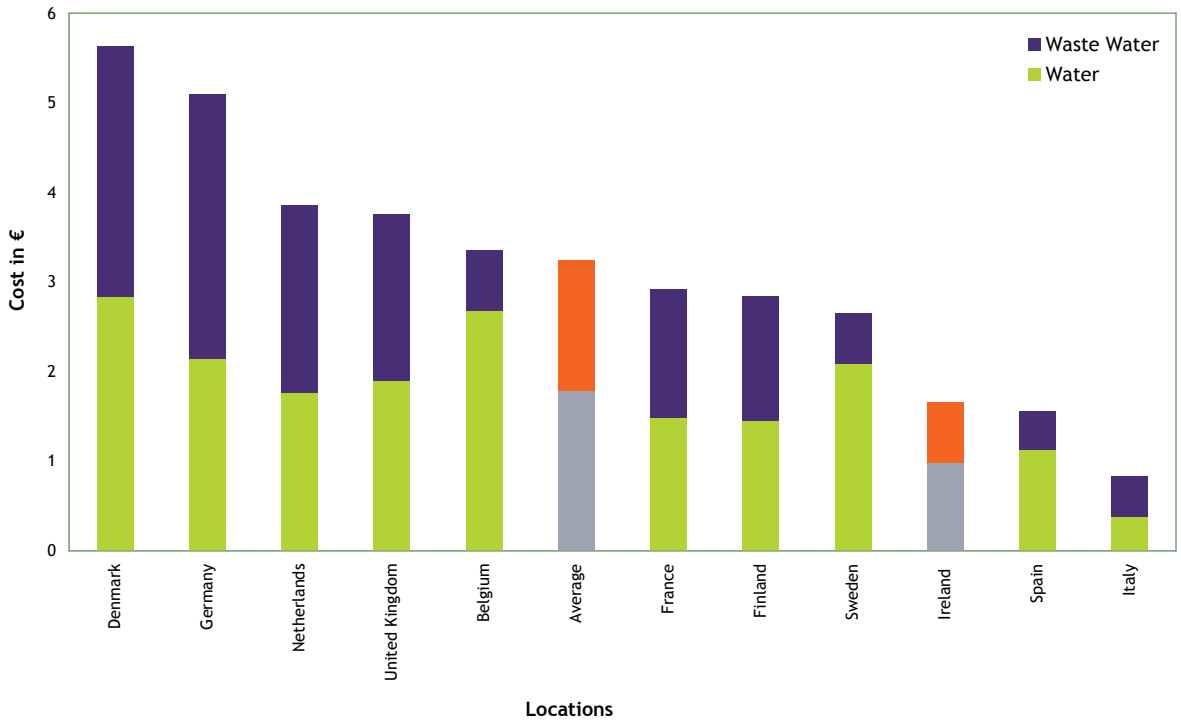
There are a number of challenges and limitations to comparing combined water costs across borders[16]. However, the comparisons presented in this section give an indication of Ireland's water service cost performance.

Ireland's water services costs compare well with the ten other countries benchmarked (Figure 4). The average cost of water and waste water services in the top five Irish cities of €1.67 per m^3 is well below the group average price of €3.24 and is the third cheapest of the eleven countries benchmarked[17].

[16] National agencies publish different types of indicators, expressed in different units (such as per household, per rateable valuation, per m^2 floor area, etc.) and currencies. National statistics seldom distinguish between domestic and non-domestic rates, or between water supply and waste water treatment charges. Pricing and financing structures can differ significantly not only from one country to another, but also between neighbouring regions within the same country. This potentially hides important differences between levels of subsidies, customer services, water infrastructure investments and water quality between and within countries.

[17] Ireland's five main cities are Cork, Dublin, Galway, Limerick and Waterford.

Figure 4: The Price of Combined Water Services in Largest Cities in Euros per m^3 [18]



Source: Mott McDonald Pettit

5. Water Services Quality

The availability of performance quality data is extremely limited both at national and international level. It is, therefore, difficult to benchmark quality performance across the gateways and hubs or to make any firm comparisons between international locations. In particular, there is a dearth of information available concerning quality performance indicators of relevance to enterprise.

The key water service quality parameters for enterprise have been identified as:

- An uncontaminated drinking water supply;
- Security of water supply (with minimum pressures); and
- Clarity of charges and charging mechanisms.

[18] Costs are for 2007 with the exception of Ireland which is based on 2008 figures.

5.1. An Uncontaminated Drinking Water Supply

The need for improved quality of drinking water has been identified in recent EPA reports and the investment priorities identified in the current Water Services Investment Programme reflect this. Water quality in Ireland is generally high, particularly in the main urban centres.

However, a major outbreak of cryptosporidium in Galway City in March 2007 and a number of smaller outbreaks elsewhere highlight the importance of having adequate measures in place to prevent cryptosporidium from entering the source of water supplies in the first instance. These incidences have also emphasised the importance of having an adequate treatment barrier in place in the event of the parasite being present in the source water. Contamination of water supplies, such as an outbreak of cryptosporidium, have a major impact on enterprise, particularly those in the food and biopharma sectors.

The Drinking Water (No 2) Regulations, 2007, have strengthened the enforcement provisions in relation to drinking water standards. The Regulations provide for the supervision of local authority drinking water supplies by the EPA. . The EPA has recently introduced a more comprehensive process for measuring the quality of drinking water which involves monitoring all aspects of water supply from source to tap and has identified 339 public water supplies where detailed profiling is required from source to tap to ensure consumers have a reliable supply that is consistently of a satisfactory standard[19]. The Department of the Environment, Heritage and Local Government and the EPA are working in conjunction with local authorities to identify, agree and implement appropriate solutions in these cases[20].

Ireland has made good progress in meeting targets under the EU Urban Wastewater Treatment Directive. At the start of 2000, compliance with the required target for the provision of secondary waste water treatment was 25 percent. By the end of 2007, it had risen to an impressive 92 percent.

International metrics on water quality are difficult to source. The most recent report by the European Commission on the assessment of drinking water quality noted that analysis of performance was difficult due to incomplete information from Member States[21]. It stated, however, that an improvement had been seen with regard to the information provided by Ireland. This report also found that Ireland's compliance with standards as established by the Drinking Water Directive is high compared to other EU Member States.

[19] EPA, " The Provision and Quality of Drinking Water in Ireland: A report of the Years 2006 -2007", 2008

[20] The Department of the Environment, Heritage and Local Government has provided contingency funding of €10 million in 2008 for smaller scale upgrading works to schemes included in the EPA list. Any major upgrading schemes required have been approved for funding under the Water Services Investment Programme.

[21] The Quality of Drinking Water in the European Union – Synthesis Report on the Quality of Drinking Water in the Member States of the European Union in the Period 1999-2001'

5.2. Security of Water Supply

Water pressure is affected by the availability of water but also by the efficiency of the infrastructure through which it is supplied. Ireland's high unaccounted-for water levels have a negative impact on the security of supply.

To date, water shortages are rare in Ireland. However, it is likely that the number of shortages will increase due to increased demand and climate change. It is predicted that annual rainfall levels will remain consistent. However, it is forecasted that periods of drought will increase and be more prolonged, while flooding will also occur with greater frequency and severity.

5.3. Clarity of Charges and Charging Mechanisms

There is a lack of clarity on water pricing and underlying methodologies in Ireland. It is understood that both the Department of the Environment, Heritage and Local Government and local authorities are making inroads into the development of charging mechanisms and methodologies. These mechanisms should be made available to the users that are being charged rates so as to provide transparency and clarity. A number of clients of the development agencies have expressed concern over the process of setting water charges – in particular being requested to pay up-front for water infrastructure and then ongoing water service charges.

6. Policy Recommendations

As the implementation of the EU Water Framework Directive progresses, it will be important that local authorities, the EPA and the Department of the Environment, Heritage and Local Government engage with the enterprise sector to ensure that future needs are met and that Irish water policy supports national competitiveness objectives. The main policy priorities for enterprise are set out below.

6.1. Capacity

Ireland has made substantial investment in water and waste water infrastructure in recent years and the current NDP allocates €4.75 billion for the further development of the national water service system up to 2013. The Forfás analysis of the future supply of and demand for water and waste water capacity indicates that current and planned infrastructure will not be sufficient to cater for expected increases in demand by enterprise in certain centres in the medium term. The main policy actions required to address water and waste water capacity issues are outlined below:

- Prioritise investment in the gateways and hubs in future water and waste water investment programmes to ensure that these locations can accommodate future enterprise development needs, in particular, those centres where deficits are forecast to occur within the next five years (Athlone, Dublin, Galway, Letterkenny, Mallow and Wexford). To date, the water service investment programmes have, through necessity, focused on addressing widespread water and waste water infrastructure deficits. Future investment programmes need to be more forward looking to ensure that the gateways and hubs can meet the future water and waste water needs

of enterprise. The Department of the Environment, Heritage and Local Government's "Developing Areas" initiative provides a useful mechanism for greater co-ordination between investment in water services and other public infrastructures. Future water services investment should be closely integrated with other aspects of the public capital programme.

- Reduce unaccounted-for water levels, which are very high in many of the hubs and gateways (average 43 percent). This needs to be a key priority of national water policy. Reducing unaccounted-for water levels to the economic level of leakage needs to be the first course of action taken by local authorities to increase capacity levels. In this context, no Exchequer funds should be allocated to provide additional capacity to any urban centre until action plans to reduce leakage to an acceptable level are being implemented. Funding under the Water Service Investment Programme needs to be reprioritised to ensure that leakage levels are reduced;
- Enhance awareness of the need for water conservation. Greater conservation will help to protect a precious resource, as well as reducing the need for capital investment in new infrastructure. Reducing water use will require behavioural changes by both enterprise and the domestic user.
    - *Business Users:* The application of the "polluter pays principle" and the introduction of volume-metric charging provides a clear incentive for enterprise to reduce its water usage levels. Continued and enhanced efforts are required by Government departments and agencies to ensure that businesses are fully aware of how best to reduce their water use. Given that many organisations are already working with companies on a range of waste prevention or energy efficiency initiatives, the opportunity to develop a more integrated approach across a range of related issues should be exploited to create greater awareness among companies, particularly SMEs, of the benefits of reducing water use[22].
    - *Domestic Users:* Given that domestic users do not pay for water services and that their usage levels are not monitored, incentivising domestic water conservation remains challenging. Three years ago, Dublin City Council launched the "Tap Tips" public awareness campaign in the Greater Dublin Area to encourage the conservation of drinking water. Its aim is to show how households and businesses can reduce water consumption. Other local authorities have launched similar initiatives. A national water conservation programme that builds on the scope of the Tap Tips campaign and also encourages other longer term conservation initiative such as rainwater collection and grey water usage could deliver significant reductions in water use.
- Move to a river basin district for the planning, provision and operation of water and waste water infrastructure and services. Currently, each of the 34 local authorities is responsible for the strategic planning and delivery of water and waste water infrastructure and services in their area. Ireland's eight river basin districts provide logical geographic structures for the planning and provision of water services on a scale which would maximise potential economies of scale and deliver greater efficiencies and reduced costs for water users.

[22] The Greenbusiness.ie website provides a water audit tool which enables businesses to identify where they may be losing water through unintentional emissions and the associated costs of this.

- Develop a long term strategic approach to water service policy and planning at national level and examine alternative options for meeting future demand for water. To date, only Dublin has developed a long term perspective of its future water service requirements. Future planning and development of water and waste water infrastructure and services should be consistent with national objectives as set out in the NSS. To ensure enterprise development is not hindered by the lack of a secure water supply in the future, it will be necessary to examine a number of options such as transporting water from areas with a surplus of supply to those with deficits.

6.2. Costs

The Water Framework Directive and the Water Services Act 2007 mandate full cost recovery of water service provision from enterprise. Over the last number of years, local authorities have introduced metering and volumetric pricing for enterprise. Although the combined cost of water and waste water services varies across the country, from €1.51 in Galway county to €2.53 in Kilkenny, Irish water and waste water services are competitively priced compared with other countries benchmarked. However, a number of issues require action:

- Introduce greater transparency and consistency with regard to how the charges for water and waste water services are calculated by local authorities. It is currently not possible to determine if water and waste water charges are fully cost reflective.
- The full cost of providing water services for domestic users needs to be clearly identified to ensure the requisite funding levels are provided by the Exchequer. Currently, these costs are met as part of the Department of the Environment, Heritage and Local Government's 'general fund' for local authorities. Having established the cost of delivering water services to domestic users, an analysis of the merits of retaining the derogation for domestic water charges needs to be undertaken to determine how best to fund water provision between user and exchequer sources.

6.3. Quality

The availability of quality performance data is extremely limited both at national and international level, making it difficult to benchmark quality performance. The following actions are required:

- Quality indicators of relevance to enterprise need to be collected, monitored and published by the Department of the Environment, Heritage and Local Government. For example, Ofwat, the UK water regulator, has developed an overall performance assessment model which allows detailed comparison between the levels of services provided by each water service provider in terms of unplanned service interruption, quality of drinking water, risks of low pressure and customer service.
- A customer charter including service level guidelines needs to be developed and monitored by the Department of the Environment, Heritage and Local Government to ensure a consistent approach across local authorities. Among the proposed areas to be covered by the charter are billing arrangements, response times to service disruption and compliance with quality standards.

Appendix A:

Water and Waste Water Treatment Capacity and Existing Loads

Table A.1 sets out the current capacity for water treatment plants in each of the gateways and hubs to effectively treat water on a daily basis. The "Effective Treatment Capacity" is the amount of water per m^3 which the water treatment infrastructure was designed to process on a daily basis. Where available, the existing daily source capacity is also listed. This is the maximum daily amount of water which the local authority can reliably extract under all expected weather conditions. Currently, Limerick, Letterkenny and Tralee are exceeding their source capacity and Cavan and Waterford are very close to reaching their maximum capacities.

Table A.1: 2008 Water Treatment Capacity and Unaccounted-for Water

Population Centre	Effective Treatment Capacity (m^3/day)	Existing Source Capacity	Unaccounted-for Water (UFW) %
Athlone	10,000	518,400	57.80%
Ballina	13,100	n/a	47.70%
Castlebar	27,000	60,000	64.80%
Cavan	7,514	7,719	24.00%
Cork	135,663	n/a	35.00%
Dublin	473,000	581,000	20.00%
Dundalk	29,500	36,000	24.00%
Ennis	18,000	n/a	48.00%
Galway	38,500	663,000	47.30%
Kilkenny	19,500	29,000	25.00%
Killarney	18,089	36,000	52.00%
Letterkenny	7,380	5,100	58.90%
Limerick	85,000	56,000	42.00%
Mallow	6,080	11,900	41.00%
Monaghan	6,200	11,000	30.00%
Mullingar	22,727	n/a	65.70%
Sligo	24,950	n/a	20.00%
Tralee	36,226	36,000	52.00%
Tuam	11,000	50,000	76.00%
Tullamore	8,905	9,760	36.00%
Waterford	24,240	28,400	45.00%
Wexford	8,000	n/a	40.00%

Source; Mott McDonald Pettit

Table A.2 shows the existing capacity of waste water treatment plants in each of the gateways and hubs. The exiting loading is the amount of waste water currently being processed. Seven of the population centres are currently exceeding their treatment capacities which may lead to the under treatment of waste water.

Table A.2: 2008 Waste Water Treatment Capacity and Existing Loadings by population equivalent

Population Centre	Existing Treatment Capacity	Existing Loading
Athlone	30,000	27,189
Ballina	20,000	18,629
Castlebar	35,000	20,826
Cavan	22,000	16,907
Cork	447,201	439,433
Dublin	2,026,000	2,234,983
Dundalk	179,535	81,622
Ennis	28,000	41,191
Galway	91,600	118,208
Kilkenny	107,650	113,877
Killarney	42,825	34,831
Letterkenny	13,203	27,400
Limerick	130,000	110,573
Mallow	18,000	17,320
Monaghan	43,833	18,792
Mullingar	20,000	24,721
Sligo	50,000	34,557
Tralee	43,450	34,708
Tuam	25,000	20,386
Tullamore	16,000	26,000
Waterford	0	99,546
Wexford	30,000	28,476

Source; Mott McDonald Pettit

Appendix B

Water and Waste Water Infrastructure Surplus / Deficit to 2013

Table A.3 shows that Dublin and Letterkenny are currently exceeding their effective capacity levels. This means that their water treatment plants are carrying loads beyond the capacity for which they were designed. Unless further infrastructure is put in place by 2013, Dublin's water treatment capacity deficits will have increased significantly. Letterkenny's deficit will continue to grow but to a much lesser extent. Without investment, Galway and Athlone will also experience deficits by 2013.

Table A.3: Water Infrastructure Surplus / Deficit to 2013 per m^3 per day

Population Centre	2008	2013
Athlone	336-	-6,503
Ballina	6,190	5,844
Castlebar	2,296	1,551
Cavan	4,512	4,031
Cork	32,436	17,696
Dublin	-1,994	-35,784
Dundalk	7,692	10,101
Ennis	1,117	5,971
Galway	4,792	-5,806
Kilkenny	8,436	7,700
Killarney	11,365	10,845
Letterkenny	-2,612	-4,258
Limerick	44,283	53,686
Mallow	340	1,987
Monaghan	1,017	684
Mullingar	11,650	9,459
Sligo	6,959	5,944
Tralee	17,949	17,172
Tuam	3,257	3,171
Tullamore	952	3,174
Waterford	-2,760	5,370
Wexford	1,599	964

Source; Mott McDonald Pettit

Table A.4 shows that seven of the population centres are currently exceeding their treatment capacities and this may be resulting in the under-treatment of waste water. By 2013, it is expected that planned water infrastructure investment will address the deficits in Tullamore and Ennis. However, by then Mallow and Wexford are expected to be exceeding their capacities. It is forecasted that during the next five years, the national deficit of waste water treatment capacity will increase by 13 percent from -170,879 m^3 to -196,483 m^3.

Table A.4: Waste Water Infrastructure Surplus / Deficit to 2013 by population equivalent

Population Centre	2008	2013
Athlone	2,811	-16,430
Ballina	1,371	167
Castlebar	14,174	12,426
Cavan	5,093	3,040
Cork	7,768	23,899
Dublin	-208,983	-389,196
Dundalk	97,913	77,186
Ennis	-13,191	10,591
Galway	-26,608	-44,819
Kilkenny	-6,227	12,440
Killarney	7,994	23,510
Letterkenny	-14,197	-18,708
Limerick	19,427	9,855
Mallow	680	-782
Monaghan	25,041	23,481
Mullingar	-4,721	45,266
Sligo	15,443	10,032
Tralee	8,742	6,253
Tuam	4,614	2,868
Tullamore	-10,000	1,364
Waterford	-99,546	67,090
Wexford	1,524	-1,017

Source; Mott McDonald Pettit

Appendix C

Setting Water and Waste Water Service Prices in Ireland

The Department of the Environment, Heritage and Local Government (DEHLG) has developed a methodology for calculating water costs for non-domestic water users such as the enterprise sector, schools and hospitals. The marginal cost of capital projects and the average operational cost (fixed and variable) must be recouped from the non-domestic user. In general, fixed costs are less than 20 percent of the overall operational charge and cover costs such as meter installation and meter reading. It is anticipated that for typical users (i.e. those using less than 100 m^3 per day or discharge less than 100 p.e./day) fixed costs may be included in the overall consolidated charge.

The DEHLG does not fund future domestic development and local authorities are expected to recoup the costs associated with same from development levies. Partial funding of future domestic development is allowed in certain circumstances under Service Land Initiative Schemes. Generally, the provision of neutral infrastructural works (e.g. storm water infrastructure) is not funded by government.

Usually water and waste water charges are combined to produce a consolidated charge (capital and operate and maintenance costs). National policy requires all non-domestic charges to be based on metered readings by 2010. Where metered readings are not currently being used, estimates of usage are determined and the rates mentioned above are applied.

Appendix D

Table A.5: Non-Domestic Charges for Water and Waste Water per m^3

Local Authority	Charge for Water	Charge for Waste Water	Combined Charge
Carlow	1.00	1.30	2.30
Cavan *	1.08	1.34	2.42
Clare*	1.10	0.98	2.08
Cork*	0.94	1.15	2.09
Cork City*	0.97	1.33	2.30
Donegal *	1.45	0.96	2.41
Dublin City*	1.07	0.46	1.53
South Dublin*	1.43	0.36	1.79
Dun Laoghaire Rathdown*	1.09	1.15	2.24
Fingal*	0.82	1.01	1.83
Galway*	0.89	0.61	1.50
Galway City*	0.71	0.28	0.99
Kerry*	1.07	0.72	1.79
Kildare	0.85	0.56	1.41
Kilkenny*	0.91	1.62	2.53
Laois	1.14	1.26	2.40
Leitrim	0.85	0.84	1.69
Limerick	1.10	1.50	2.60
Limerick City*	1.06	0.93	1.99
Longford	1.25	1.15	2.40
Louth*	0.85	0.70	1.55
Mayo*	0.88	1.30	2.18
Meath	1.22	1.08	2.30
Monaghan*	1.01	1.10	2.11
Offaly*	1.10	1.40	2.50
Roscommon	0.82	1.09	1.91
Sligo*	1.29	0.78	2.07
Tipperary North	1.10	0.80	1.90
Tipperary South	0.95	1.75	2.70
Waterford*	1.06	1.06	2.12
Waterford City*	1.16	0.37	1.53
Westmeath	1.19	1.26	2.45
Wexford	1.26	1.45	2.71
Wicklow	1.34	1.11	2.45
Average	**1.06**	**1.02**	**2.08**

Source; Mott McDonald Pettit

*Note: * denotes a local authority with a gateway or hub town.*

The National Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation

Wilton Park House, Wilton Place,
Dublin 2, Ireland

Tel +353 1 607 3000
Fax +353 1 607 3030

www.forfas.ie

Forfás