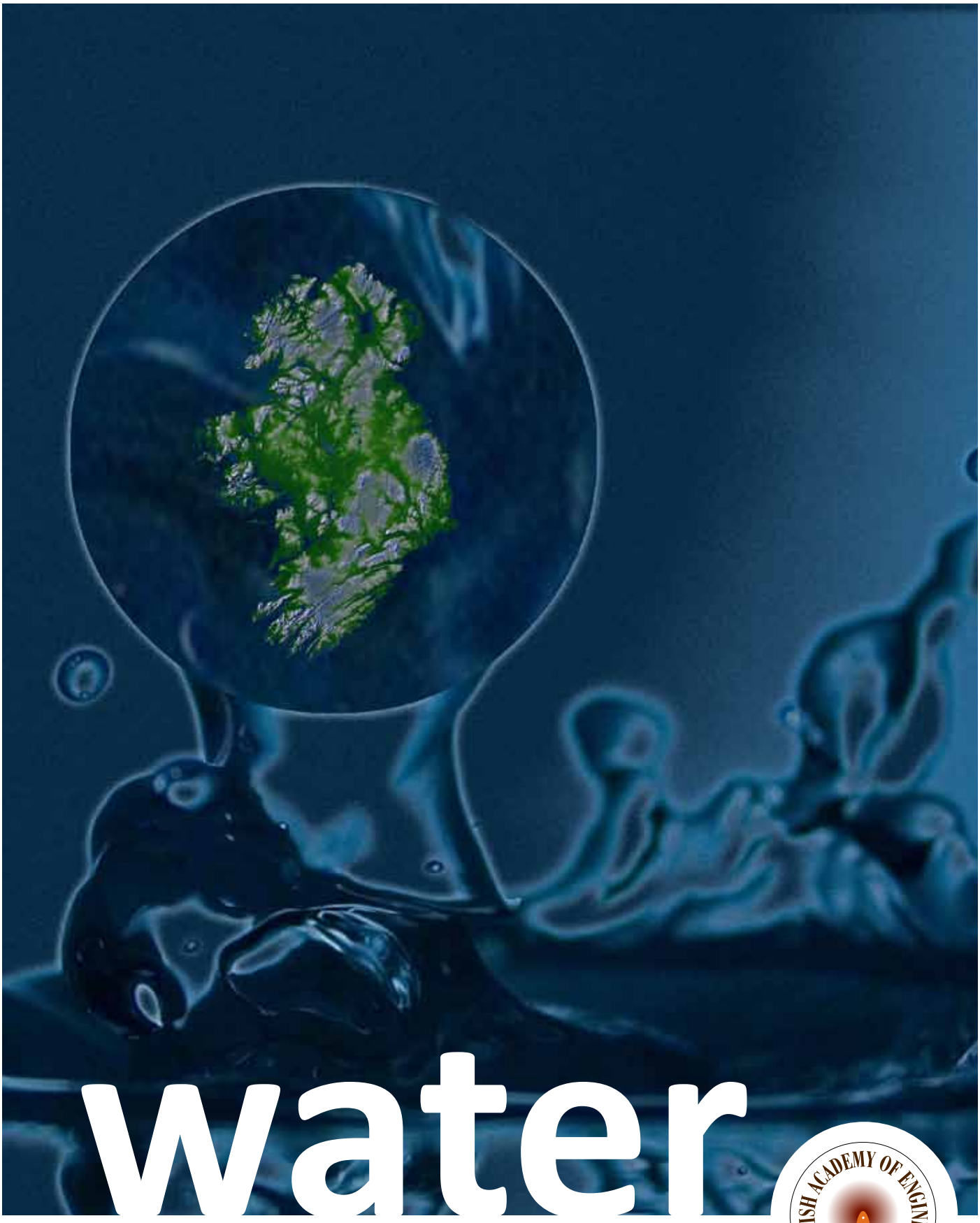

water

DELIVERING IRELAND'S WATER SERVICES FOR THE 21ST CENTURY July 2011

THE IRISH ACADEMY OF ENGINEERING

ENGINEERS IRELAND

PREPARED BY

This report has been prepared by the Irish Academy of Engineering and Engineers Ireland, both of which are all-island engineering organisations.

THE IRISH ACADEMY OF ENGINEERING

The Irish Academy of Engineering is an all-Ireland body concerned with long-term issues where the engineering profession can make a unique contribution to economic, social and technological development. Its members are Irish engineers of distinction, drawn from a wide range of disciplines and membership currently stands at approximately 120. Drawing on the experiences and knowledge of its distinguished members, the Academy works to facilitate communication and dialogue on engineering-related matters. It publishes reports and analysis, some jointly with other learned and professional bodies.

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ENGINEERS IRELAND

Engineers Ireland was founded in 1835, has over 24,000 members and is the largest professional body operating on the island of Ireland. It is concerned with promoting the development of the engineering profession and an environment which will stimulate world-class development on the island. Engineers Ireland is the operating name of the Institution of Engineers of Ireland.

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The members of the taskforce, all of whom are chartered engineers, participated in extensive discussions in the course of a series of meetings and submitted comments on drafts of the report. Its content conveys the general tone and direction of the discussions, but its recommendations do not necessarily represent the views of the organisations to which the members belong.

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"The water services sector has become increasingly complex in recent years"

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Context

Ireland, as a developed country rebuilding its economic base, requires a first class water service with appropriate capacity for growth and contingency events. Quality water supply and waste water services are considered basic necessities for citizens in modern society and are a fundamental requirement for economic growth.

The Irish government intends to establish a new state-owned water utility company, Irish Water, to lead the development of Ireland's water infrastructure. This is a fundamental departure from the existing structure of water services in Ireland and must be recognised as an opportunity to position Ireland's water services for the challenges of the future. The Irish Academy of Engineering and Engineers Ireland jointly submit this report to the Minister for Environment, Community and Local Government for consideration by those deciding on new structures and arrangements for water services.

Since the 19th century, Irish local authorities have delivered high quality water and wastewater services, providing the best outcome for the limited funds available. However the Irish model of water services, whereby 34 local authorities provide local services based largely on exchequer funding, is now facing a double crisis. On one hand, there is the ever-increasing demand for high-quality water while on the other hand Ireland's economic problems have severely disrupted investment plans. The funding crisis affects both operating and capital budgets, with both national and local revenue sources under severe strain. The recent IMF/EU programme recognises the need to establish a self-financing water utility.

A water service requires to operate at a scale in order to build and retain the necessary skills and resources. The example of shared services in the Dublin area demonstrates the benefits of up scaling in work such as reducing leakage and in meeting wastewater treatment standards.

The water services sector has become increasingly complex in recent years and faces numerous other challenges which are common across local authorities including:

- Insufficient investment coupled with a serious legacy of failure to provide sufficient funding for asset replacement.
- Excessive bureaucracy tending to stifle innovation in service delivery.
- Changing rainfall patterns both seasonally and geographically, caused by climate change – under current circumstances water will not be available where and when needed.
- Pressure to reduce or limit abstractions in order to help meet EU Water Framework Directive (WFD) requirements for 'good' water quality by 2015
- Increase in the incidence of viruses (e.g. cryptosporidiosis and norovirus) which has pushed local authorities towards technically complex and more costly membrane plants or ultra-violet treatment systems in vulnerable catchments.
- Risks to quality due to obsolete treatment plants, old mains and open or inadequately protected water storage systems.
- Major infiltration and exfiltration in urban waste water networks

03 EXECUTIVE SUMMARY

Security of supply, particularly to the Dublin Region, is of critical economic importance for Ireland, and the delivery of the proposed Dublin Region Water Supply Project is a key part of that security. The biggest risk to such a major infrastructural project is the uncertainty of the planning process and resulting time delays.

If a national water utility is to be established, then the legislation enabling it must ensure that a self-sustaining, well funded, quality driven, and customer focused organisation emerges as Irish Water, capable of addressing the challenges noted above and improving the service currently delivered by local authorities.

From a review of international practice it is clear that there are many models used for the successful delivery of water services. Most of these models have core elements which the new structure for the Irish water services sector should encompass, including:

- Overall policy and regulation is determined by public representatives and public servants, whether at state, regional or municipal level
- Direct customer charges for water and wastewater are practically universal outside Ireland and are the primary source of revenue
- Capital and operational budgets are developed in an integrated manner against defined priorities and programmes that generally contain service standards including environmental and other policy objectives. These budgets are linked to the revenue stream, with surpluses generated to provide future capacity.
- Regulation exists to ensure a quality service, to control prices and to drive efficiencies and value for money, in what is a monopoly service
- Water services planning has regard to economic, environmental and social needs as, for example, enshrined in the EU Water Framework Directive

If water services are transferred from local authorities there will still be a range of important water related services which will be retained by local authorities and which must be adequately catered for in the re-organisation. It is essential to ensure that the transition from current structures and responsibilities to the new organisation of services is carefully planned to avoid disruption to services and unwarranted costs.

Ireland is exceptional among OECD countries in not charging domestic customers for water, which has nurtured a view that water, and by extension water services, is free and has militated against effective implementation of water conservation measures. The Irish Government has stated repeatedly in recent months that it intends to introduce domestic water charges based on metered consumption and that a budget of €500m is required to achieve universal metering of the domestic sector. International experience suggests that the cost is more likely to approach €1bn. Also, in UK water companies an average of only 30% and a maximum of 65% of domestic customers have been metered after 25 years of privatisation.

Water metering is thus a complex and costly exercise. The national and individual affordability of universal water metering and the timescale over which it can practically be achieved must be carefully considered before the initial programme is rolled out nationwide. This should be a key role for the Water Regulator i.e. independent regulation of not only charges but also the justification of the expenditure that underlies charges.

Irish Water must be self sustaining if it is to be successful. To assist this, and promote water conservation, it would be best to have no “free allowance” but to cater for disadvantaged customers by having a payment made to Irish Water by the Department of Social Protection on their behalf. Such a model already operates successfully for free energy allowances. It would be preferable to have a block tariff arrangement where the cost per litre increases with usage so that those less well off are treated fairly and

04 EXECUTIVE SUMMARY

those who behave well are favoured with a lower charge than those who waste water. The charging system must cater for both metered and unmetered users.

In recent years there has been a dramatic increase in the operational costs of managing the substantially enhanced water services being provided, greatly challenging the capacity of the Local Government Fund to meet these costs. With unaccounted-for water levels still running at more than 60% in places, and nearly 50% nationally, it is apparent that further significant investment is required nationally in water conservation and mains rehabilitation as currently being delivered successfully in the Dublin Region.

The present level of charges to the non-domestic sector does not cover the current cost of water services and will not cover future costs. Water services cost €1.6bn in 2008, and combined water charges at present rates for domestic and non-domestic customers would not achieve 50% of that amount. Inadequate funding from water charges will result in the Government having to make up an unsustainable shortfall.

Funds which are raised for water services, through water charges or any taxation measures, must be ring-fenced for water services provision and not used to cross-subsidise any other public services or private business opportunities. Irish Water will almost certainly require State subvention in the early years, but the objective must be to move to a cost neutral position and to deliver a dividend to the state in the long term.

If Irish Water is to be established as a self sustaining public utility it should be structured on a fully commercial basis and have the power to raise funds for capital investment in its own right, including bank borrowing, utility bonds, or alternative funding mechanisms independent of the sovereign state. This would be in line with other commercial state companies in Ireland.

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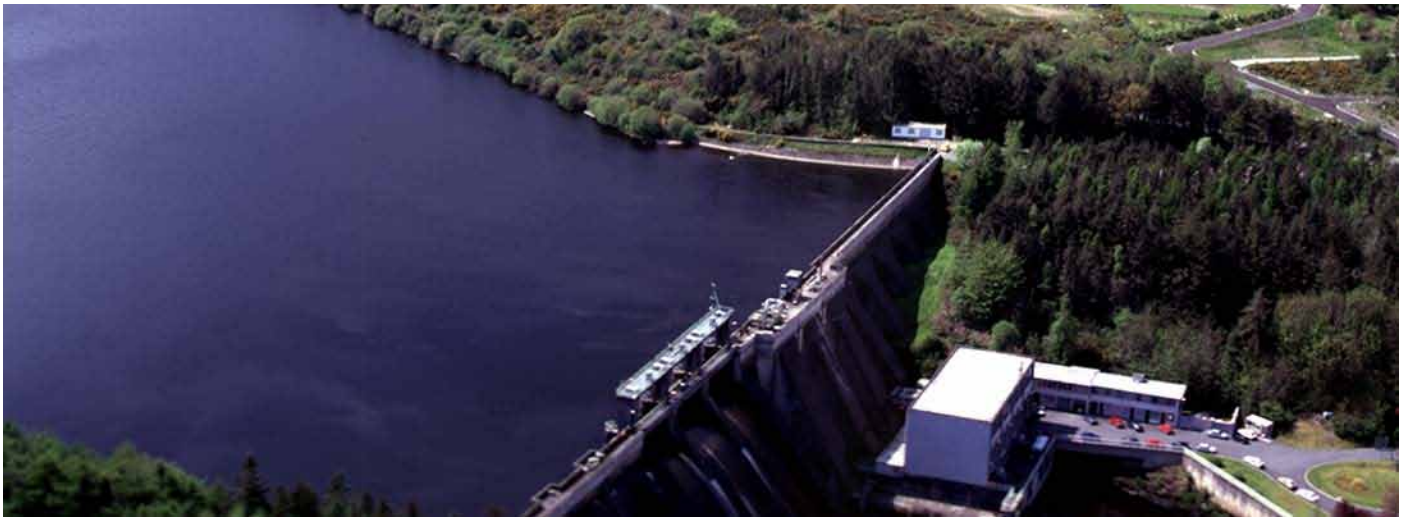
Key Recommendations

STRUCTURE

1. In re-organising the water services sector focus on the organisational model that will improve the efficiency and effectiveness of service delivery and thus produce an improved, value for money service for consumers over that currently provided
2. The legislation to establish Irish Water should facilitate the evolution of a self-sustaining, adequately funded, and publicly owned water services utility company. Its responsibilities should encompass both water and waste water services and it should be given powers to bill for and collect charges for these services. Enabling legislation should permit detailed implementation by way of Ministerial Order. An office of Water Regulator should be established in tandem with the establishment of Irish Water. The legislation should ensure clarity and separation of the roles and responsibilities of the key parties in the future water services sector e.g. The Department of Environment, Community and Local Government; Irish Water; Local Authorities; EPA; Water Regulator; Office of Public Works etc
3. The new structures should facilitate management of water resources on the basis of River Basin District areas in compliance with the EU Water Framework Directive
4. Water Services comprise vital national infrastructure and are a monopoly. Whatever legislation is enacted and structures put in place should ensure the State exercises ultimate governance and control over the water services industry on behalf of citizens.
5. The new model for water services must ensure that any residual water related responsibilities retained by local authorities are identified together with the resources required for their successful delivery.
6. It is essential to ensure an orderly transition from the current situation to full implementation of Irish Water in consultation and full engagement with local authorities, customers, regulators and other key stakeholders



06 EXECUTIVE SUMMARY

Key Recommendations

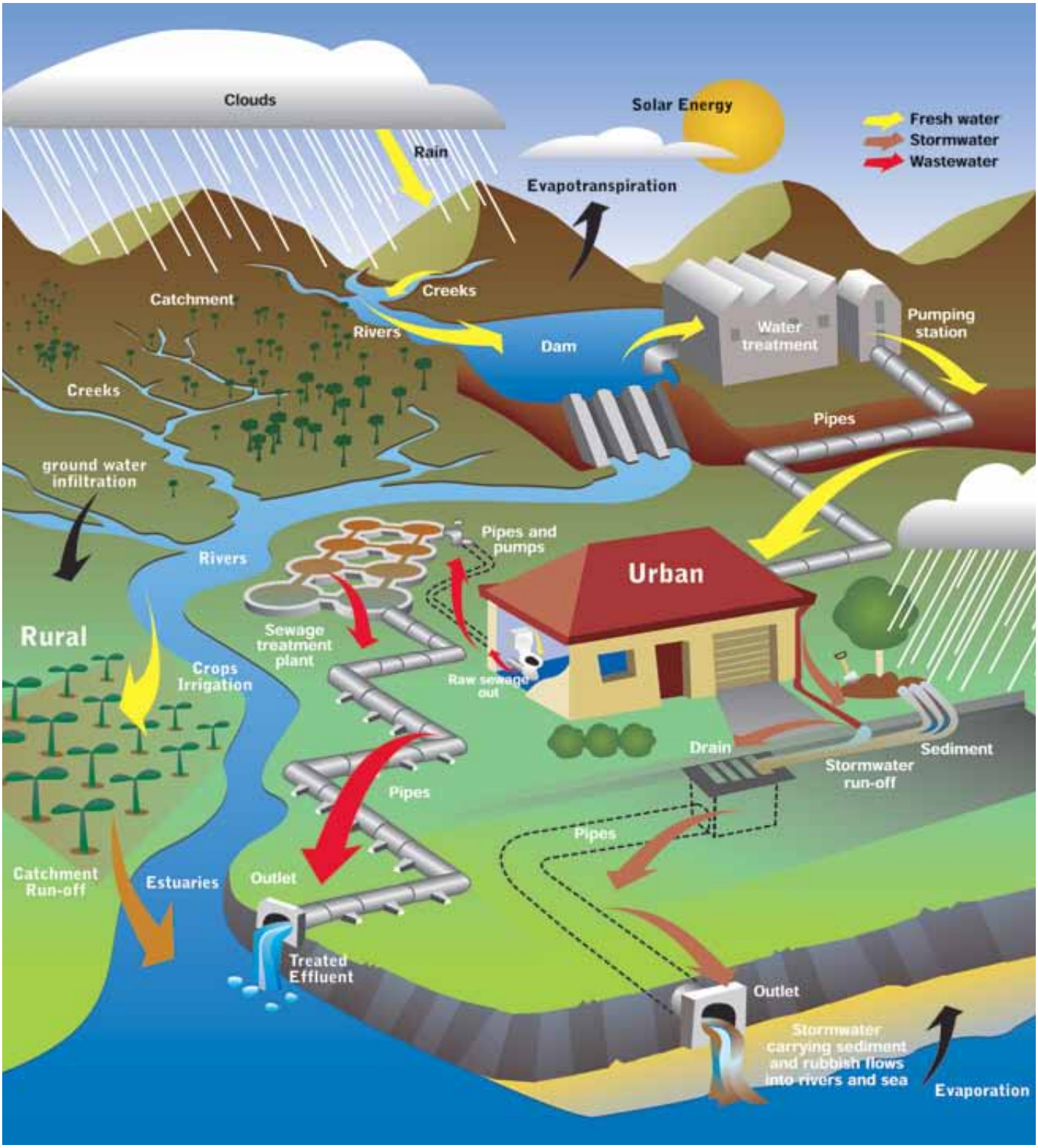
FINANCIAL

1. A funding model should be developed that will allow Irish Water to be self-sustaining after a transition period where State subvention will be necessary to bridge the gap between customer charges and existing cost bases. This model should encompass an adequately funded national programme to effect the necessary reduction in water losses in the networks; adequately fund asset replacement and also cover the cost of implementing a meter installation programme. Prior to metering of domestic customers Irish Water will need sustainable revenue immediately via a fixed water charge, which can be based on occupancy, floor area or rateable valuation criteria.
2. Funds raised for water services, through water charges or any taxation measures should be ring-fenced for water services provision and not used to cross-subsidise other public services or private business opportunities
3. The national and individual affordability of universal water metering and the timescale over which it can practically be implemented should be clearly established before the initial programme is rolled out nationwide. The charging system should cater for both metered and unmetered users. The decision to proceed with water metering for all domestic customers should be referred to an independent Water Regulator to confirm that it is in the ultimate best interests of the customer.
4. The proposed national water utility (Irish Water) should be required, and have authority, to develop 5-year and 10-year strategic investment plans that are linked to national and regional development and economic plans. The plans should integrate the operational and capital investment needs of the service and be approved by the Water Regulator.
5. Irish Water will have to own the asset base and have powers to raise funds on international markets if it is to operate as a commercial state company.

SOCIAL PROTECTION AND COMMUNICATION WITH CONSUMERS

1. The social protection structures of the state should be employed to assist those in difficulties. Government should ensure that water is available for those that need it; yet deal robustly with those who can pay but won't pay.
2. If water charging based on metered usage is introduced for domestic customers there should be no "free allowance". Rather disadvantaged customers should be catered for by having a payment made to Irish Water by the Department of Social Protection on their behalf. Such a model already operates successfully for free energy allowances. A block tariff charging arrangement should be implemented, subject to the appropriate development of smart technologies, where the cost per litre increases with usage.
3. A thorough and professional communications programme is essential to win the confidence and trust of customers and to ensure customers begin to appreciate the value of drinking water, the true costs associated with water supply and wastewater treatment, and that water is not free.

"Ireland is exceptional among OECD countries in not charging domestic customers for water"



CHAPTER ONE – INTRODUCTION

The Irish Government intends to establish a new state-owned water utility company, Irish Water, to take over responsibility for Ireland's water infrastructure. This is a fundamental departure from the existing structure of water services in Ireland and must be recognised as an opportunity to position Ireland's water services for the challenges of the future.

Since the 19th century, Irish local authorities have delivered high quality water and wastewater services, providing the best outcome for the limited funds available. The relatively high success of local authorities in the role of water service authorities is due in no small part to the professionalism of those involved in the delivery of the service.

However the Irish model of water services, whereby multiple local authorities provide local services based largely on exchequer funding is now facing a double crisis. On one hand, there is the ever-increasing demand for high-quality water in the context of greater environmental awareness; while on the other hand Ireland's economic problems have severely disrupted investment plans. The funding crisis affects both operating and capital budgets, with both national and local revenue sources under severe strain; and the IMF/EU programme recognises the need to establish a self-financing water utility.

Ireland is exceptional among OECD countries in not charging domestic customers for water, which has nurtured a view that water is free and militated against effective implementation of water conservation measures. However government has signalled its intention to introduce water charges and implement a programme to install water meters for domestic customers. (Commercial customers are currently metered and charged for water)

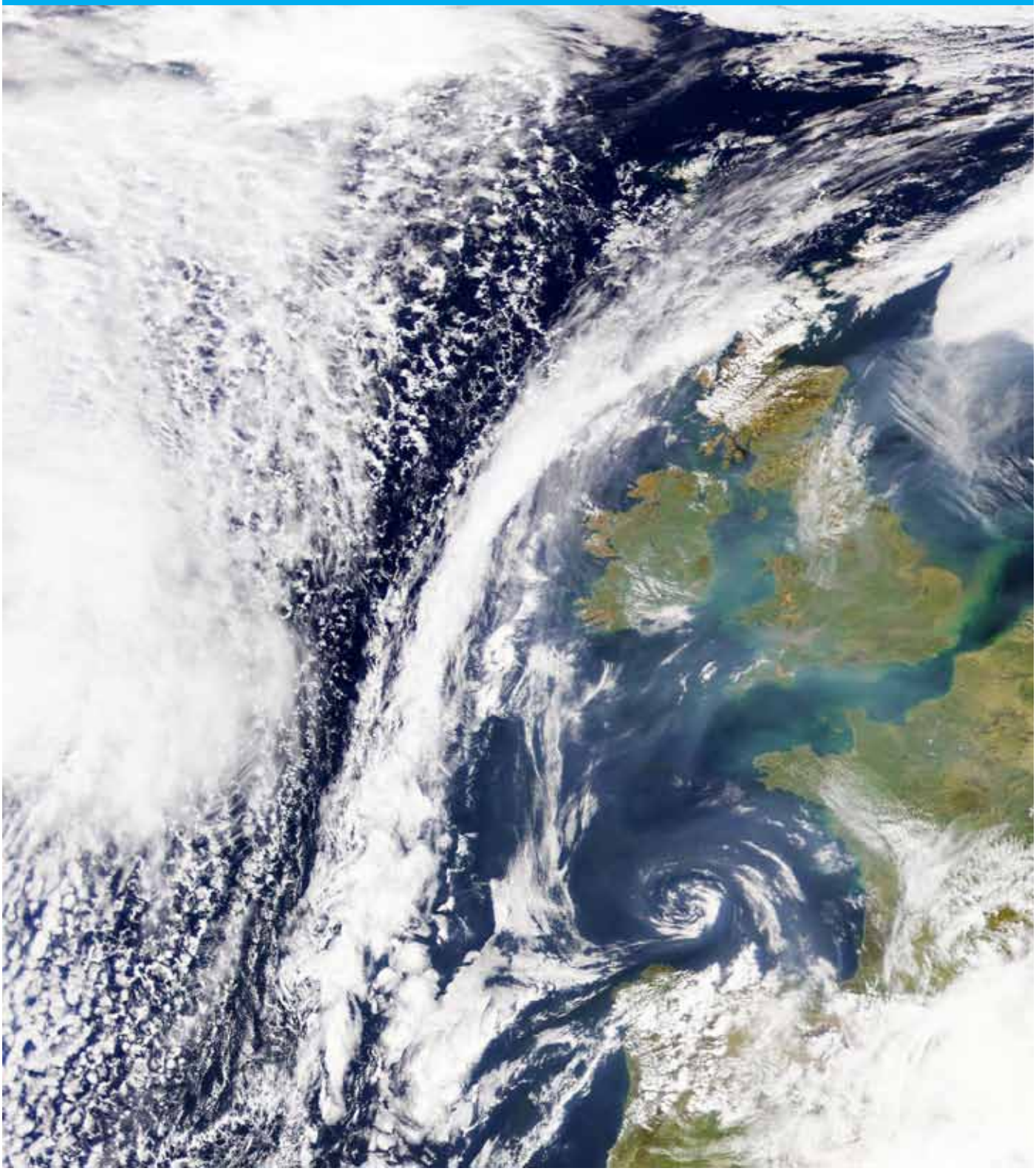
Ireland, as a developed country rebuilding its economic base, requires a first class water service with appropriate capacity for growth and contingency events. Quality water supply and waste water services are considered basic necessities for citizens in modern society and are a fundamental requirement for economic growth. If a national water utility is to be established, then the enabling legislation must ensure that a self-sustaining, well funded, quality driven and customer focused organisation emerges as Irish Water.

A solution for the future delivery of water services in Ireland must draw both on a sound understanding of the water sector in Ireland and best international experience and practice. The new public policy for water must address the legal, regulatory and technical issues that surround the delivery of water services.

The Department of Environment, Community & Local Government has commissioned a consultancy report to assess –"the most effective structure(s) for delivering high quality competitively priced water services to customers (domestic and non-domestic) and for infrastructure provision".

The Irish Academy of Engineering and Engineers Ireland jointly submit this report to the Minister for Environment, Community and Local Government for consideration by the parties involved in completing the consultancy assignment and by those charged with ultimately making decisions on the best way forward. Our report reflects the combined experience and expertise of both organisations and builds on previous relevant reports published by us (see References).

"There are 34 local authorities that manage 950 public water supplies in Ireland"



CHAPTER TWO – CURRENT SITUATION & KEY ISSUES

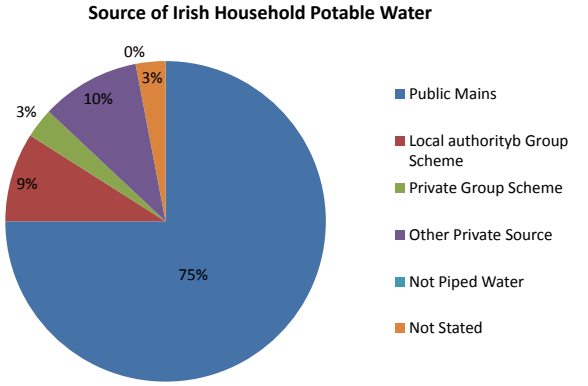
2.1 THE WATER SECTOR IN IRELAND TODAY

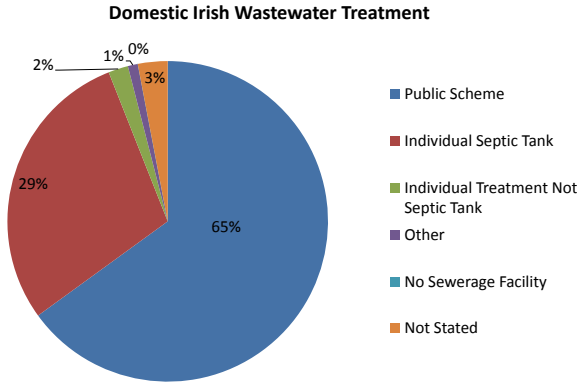
Ireland is a small country blessed with adequate average annual rainfall over the country. According to Met Eireann, the eastern half of the country gets between 750 and 1000 mm of rainfall each year; while rainfall in the west averages between 1,000 mm and 1,400 mm.

According to the 2006 Census, 1,093,189 households (out of 1,462,296) receive a direct supply of piped drinking water from a local authority; while a further 126,609 households receive public drinking water indirectly via a private group water scheme. Slightly fewer (956,239) households are connected to the public sewerage network.

Private Group Water Schemes have played an important role in the delivery of treated water to those households that are outside the range of public water supply schemes. It is expected that, with the ongoing support of the Rural Water Programme, these private schemes will continue to serve their communities. A substantial number of households also rely on private wells.

There are 34 local authorities that manage 950 public water supplies in Ireland, producing 1,600 million litres of potable water daily through a network of over 40,000 km of pipes. Seven of these local authorities form the Dublin Region Water Supply Area which is responsible for the water needs of almost half the population of Ireland. Meanwhile, the remaining local authorities manage a plethora of smaller schemes down to those serving small villages; for example, Kerry County Council has to manage over 70 individual water sources while Waterford County Council has over 100 water supply schemes many of which have multiple sources.





09 CURRENT SITUATION & KEY ISSUES

Local authorities, often working within very limited capital and operational budgets, have delivered high quality water services since the mid 19th century. However the dispersed nature of the organisational structure has not helped to develop a coherent and consistent service, with engineering and technical skills spread thinly; often too thinly. Today, many water supply and wastewater facilities are under strain to meet higher demand and quality requirements.

In addition to a wide range of water supply and waste water services, local authorities also provide many other water related services which must be taken into account in reviewing any re-organisation of the water services sector - see Appendix 1

In 1997 Ireland partially replaced domestic water charges with exchequer funding; while non-domestic customers generally pay for water on the basis of a combination of a standing charge and a volumetric (metered) charge. As part of the implementation of national water pricing policy, most non-domestic customers are now metered. However, revenue collection remains a challenge for most local authorities.

The average non-domestic water charge (excluding standing charges) is approximately €2.30 /m3. These charges for local authority managed services appear to be competitive with other northern European regions, including the UK where the climate and plumbing systems are comparable to Ireland.

The Department of the Environment, Community & Local Government (DECLG) is responsible for policy and legislation in relation to water quality issues. The Department also develops and implements government policy in the area of water and wastewater services, managing the public funding to part finance both operational and capital programmes of investment. The investment programmes of local authorities are almost totally dependent on the determination by the DECLG on the allocation of funding across 34 local authorities. The DECLG monitors the provision of water services by local authorities. However, the DECLG does not manage or own the water service assets on a national basis devolving this function to the local authorities, and operational demands are not coordinated with national capital expenditure to any great extent.

The Environmental Protection Agency (EPA) discharges the role of regulator of water quality, both in the natural environment and as processed drinking water.

The public water and wastewater sector in Ireland comprises more than the 3,000 public sector employees. There is also an important supply chain that provides employment to engineers, plumbers, scientists, managers and others in the private sector. Most of the larger urban centres (and quite a few smaller towns also) now have modern treatment plants operated by private companies on behalf of the local authority. Private sector consultants and contractors have been most visible in the capital investment programme; in the design and construction of new water, waste water and drainage schemes.

2.2 RECENT DEVELOPMENTS

In the five years from 2003 to 2008, local authority current expenditure on water supply and sewerage grew from €381.5m to €699.12m. By 2008, capital account expenditure had reached an annual figure of €973m. In 2011 however, Ireland has become a very different place. While current expenditure on water services has remained stable, capital expenditure has reduced dramatically. This has been reflected in the impact on the private sector supply chain where thousands of jobs have been lost.

10 CURRENT SITUATION & KEY ISSUES

Ireland has had to obtain international funding support to avoid national bankruptcy. In December 2010, Ireland signed an agreement for funding with the International Monetary Fund (IMF) and the European Union (EU). The Memorandum of Understanding stated that in advance of the introduction of (domestic) water charges and by the last quarter of 2011:

"The Government will have undertaken an independent assessment of transfer of responsibility for water services provision from local authorities to a water utility, and prepare proposals for implementation, as appropriate with a view to start charging in 2012/2013."

The memorandum also stated that Ireland was *"planning to move towards full cost recovery in the provision of water services."*

In November 2010, the Irish Government published a National Recovery Plan in which a case was made for the introduction of water metering followed by water charges. The plan stated that *"a crucial element of implementing this initiative will be the appointment of a Water Regulator"*. While the National Recovery Plan has been overtaken by events, this remains the most recent official reference to a Water Regulator.

Then, in March 2011 following a general election, the incoming coalition government published "Government for National Recovery 2011-2016". Among the many references to water services, the following key statement was made:

"To achieve better quality water and environment we will introduce a fair funding model to deliver clean and reliable water. We will first establish a new State owned water utility company to take over responsibility from the separate local authorities for Ireland's water infrastructure and to drive new investment. The objective is to install water meters in every household in Ireland and move to a charging system that is based on use above the free allowance."

The Department of the Environment, Community & Local Government has appointed consultants to report on the steps required to establish a national water company. The consultants are due to issue their final report by October 2011. It is hoped that the consultants and those charged with ultimately making decisions on the way forward, will have regard to the comments and recommendations contained herein when preparing their report.

However, the economic crisis has not been the only recent development. December 2010 brought the most severe cold weather conditions experienced in Ireland for many decades. Frozen and burst pipes caused severe disruption to water supply in most parts of the country. The insurance sector dealt with 30,000 claims relating to damage to homes and businesses due to burst pipes, at a cost of €223m.

Also the European Court of Justice has found against Ireland for a failure to implement an inspection and licensing system for small on-site wastewater treatment plants (septic tanks), and the European Commission is seeking the imposition of fines.
All of this is happening in the context of Ireland's adoption in 2010 of River Basin Management Plans in accordance with the EU Water Framework Directive (2000/60/EC). Local authorities in the river basin districts are developing implementation programmes for these plans, but will be heavily dependent on Government funding to meet the commitments set out in the plans. Any new structure should reflect the strengths of the River Basin Management Districts and their potential to share services across existing local authorities.

11 CURRENT SITUATION & KEY ISSUES

"Security of supply, particularly in the Dublin Region, is of critical importance"

The main recommendations from the following recent reports on the water services sector are detailed in Appendix 2 and have been taken into account in completing this report:

- Engineers Ireland "Delivering Water Services for the 21st Century" 2004
- Irish Academy of Engineering "Ireland at Risk – Water" 2007
- Forfás "Assessment of Water and Waste Water Services for Enterprise" 2008
- Irish Academy of Engineering "Infrastructure for an Island Population of 8 million" 2010

2.3 CURRENT CHALLENGES

In a 2004 report, Engineers Ireland identified the following issues that still remain to be addressed in any restructuring of the water services sector:

- A dramatic increase in operational costs to properly manage the substantially enhanced water services being provided, and challenging the capacity of the Local Government Fund to meet these costs.
- The limiting of the allowable charge to non-domestic customers for unaccounted-for water (ufw) to 20%, while many supply schemes have ufw levels of more than 60%; leaving the local authority to absorb the balance of the cost
- The economic feasibility of universal metering of the domestic sector where low consumptions did not appear to justify the costs of meter installation and maintenance
- The uncertainty of future state funding and the "scheme by scheme" system of approvals in the context of 10-year investment plans prepared by local authorities.

However, there are many other challenges that also need to be addressed including:

Organisational and Structural

- The number of water services is a function of geography. Arrangements for sharing services could assist in ensuring a scale to build and retain the necessary skills and resources. Examples of shared services, for example in the Dublin area, have shown the benefits of up scaling in the work of reducing leakage and in meeting wastewater treatment standards
- The dysfunctional funding model and bureaucratic approval processes foster delay, inefficiency, uncertainty of delivery and tend to stifle innovation.
- Local authorities have been tasked with further responsibilities and programmes. They now have to obtain wastewater discharge licenses from the EPA for municipal wastewater treatment plants; and the conditions attaching to these licences frequently demand expensive capital investment.
- The legacy issues arising from previous legislative and public policy decisions such as self-certification of water and wastewater services in private housing developments, which has failed to work and has left Ireland with poor quality infrastructure to be adopted by the State.
- Security of supply, particularly to the Dublin Region, is of critical economic importance for Ireland, and the delivery of the proposed Dublin Region Water Supply Project is a key part of that security. Perhaps the biggest risk to such a major infrastructural project is the uncertainty of the planning process and the length of time that this can add to project implementation.
- Water Services are not appreciated by the domestic customer because of perceived inadequacies (quality, pressure, leakage, reliability in weather extremes), the lack of a full range of published performance standards and the absence of payment and a related sense of value.

12 CURRENT SITUATION & KEY ISSUES

"Unaccounted for water levels still running at more than 60% in places and at nearly 50% nationally"

Technical

- Pressure to reduce or limit abstractions in order to help meet EU Water Framework Directive (WFD) requirements for 'good' water quality by 2015
- The increase in the incidence of cryptosporidiosis in recent years has pushed local authorities towards technically complex and more costly membrane plants or ultra-violet treatment systems in vulnerable catchments.
- Pipeline corrosion and attendant loss of integrity and water quality impact
- Risks to quality in obsolete treatment plants, old mains and open or inadequately protected water storage systems
- Combined sewer overflows (CSOs) and major infiltration and exfiltration in urban sewerage and pollution of urban stormwater systems due to misconnections
- Structural deficiencies of both water and sewer mains and services
- Large-scale lead services in older housing stock
- Common services to the rear of properties (in private property) giving rise to leakage and poor pressure.
- Inadequate service storage.
- Altering the timing of abstractions and providing seasonal storage
- Implementing water conservation measures
- The connection of unsewered populations to municipal wastewater treatment plants that discharge to watercourses with sufficient assimilative capacity at low flow
- The upgrading of wastewater treatment plants and the proliferation of small, outdated and inefficient waste water treatment plants in many rural areas.
- Implementing sustainable drainage systems (SUDS)
- The type, specification and location of water meters

Financial

- Insufficient investment coupled with a serious legacy of failure to provide sufficient funding for asset replacement.
- With unaccounted-for water levels still running at more than 60% in places, and nearly 50% nationally, it is apparent that further investment is required in water conservation and mains rehabilitation. This is in the context of the proposed implementation of universal water metering in the next few years and the challenge posed by compliance with the EU Drinking Water Directive's reduction in the permitted level of lead dissolved in water by 2013.
- The separate consideration of capital and operational funds makes for sub-optimal decision making and loss of long term optimum output for the funds committed
- Asset management and optimum asset performance are not prioritised, largely because of financial and resource constraints. Therefore a substantial funding deficit in asset renewal and capital replacement has developed which compromises future service quality and performance.
- The depletion of local revenues (levies and reduced non-domestic income) increasingly prevents local authorities from taking up capital funds from Government, even when the latter become available, and hinders maintenance of the assets to deliver optimum performance

Climate Change

- Changing rainfall patterns both seasonally and geographically will mean that under current circumstances water will not be available where and when it is needed.
- Reductions in groundwater levels, potentially resulting in impacts on the quality and quantity status of our water bodies.

13 CURRENT SITUATION & KEY ISSUES

"The bulk of the costs of providing a water service are fixed availability costs"

2.4 KEY ISSUES RAISED BY CURRENT ARRANGEMENTS

The wide range of challenges that have to be considered in the development of an improved model for the delivery of water services in Ireland highlights a number of key issues which should receive attention in the current review being carried out by consultants on behalf of the Department of Environment, Community and Local Government

Roles & Responsibilities

- The need to ensure that the new water services utility, Irish Water, is self sustaining and capable of improving the service that is currently delivered by local authorities.
- It will be important to ensure that the roles, responsibilities and authority of the key players in the industry – The Department of Environment, Community and Local Government; Irish Water; Local Authorities; EPA; Regulators; Office of Public Works etc, are carefully addressed to ensure clarity, transparency and optimum efficiency and effectiveness.
- In any new organisation the local authority sector must retain the appropriate engineering resources and expertise to deliver those water and environmental services for which it will retain responsibility.
- Aside from the local authorities the role of other parties in the value chain (e.g. private contractors, consultants, service providers and suppliers) should be considered to ensure a stable and sustainable water industry that is not subject to shock rises or falls in activity and costs.
- The transition from current structures and responsibilities to the desired ultimate arrangements must be properly planned and implemented over a practical timescale.

Funding Model & Metering

- Irish water charges to the non-domestic sector are broadly in line with those of our northern European neighbours and many parts of North America and must not fall out of line. However Ireland is exceptional in developed countries in not charging domestic customers for water services.
- The Irish Government has repeatedly stated in recent months that it intends to introduce domestic water charges based on metered consumption and that a budget of €500m is required to achieve universal metering of the domestic sector. International experience suggests that the cost is more likely to approach €1bn.
- In UK water companies an average of only 30% and a maximum of 65% of domestic customers are metered after 25 years of privatisation. Water metering is thus a complex and costly exercise and may not necessarily prove to be value for money. Therefore, the costs and benefits and the national and individual affordability of universal water metering must be carefully considered before the initial programme is rolled out nationwide.
- The charging system must cater for both metered and unmetered users. This may be a key role for the Water Regulator and is in itself a strong argument for independent regulation of not only charges but also the justification of the expenditure that underlies those charges.

14 CURRENT SITUATION & KEY ISSUES

- Water charges set at the present level of charges to the non-domestic sector would not cover the current cost of water services in Ireland and will not cover future costs. Water services cost €1.6bn in 2008, and combined water charges for domestic and non-domestic customers would not achieve 50% of that amount at present rates.
- If Irish Water will be required to carry the full cost, capital and operational, of metering domestic customers the revenue stream will have to be very strong to pay for this as well as meeting its other responsibilities.
- Water metering of potentially 1.2 million domestic properties, plus any residual non-domestic properties, is a major procurement and logistical exercise and a very significant cost. While water metering may prove to be the most equitable payment method; equity comes at a cost. There is a value in metering domestic connections, but it is predominantly through its availability as a means of leakage detection and network management.
- The bulk of the costs of providing a water service are fixed availability costs, i.e. the costs of building treatment plants, reservoirs and pipe networks. In some cases the availability costs can be up to 85% of the overall costs of water, yet pricing structures have to try to reflect these costs to some extent in a consumption charge.
- Water meters will take several years to install and even then there will be a significant minority of customers that will never have a unique metered connection. Therefore, there will always be a need to have an assessed fixed charge for water services; initially perhaps for all domestic consumers, but some consumers will never have a metered bill.
- Other utilities in Ireland (gas and electricity) are exploring the feasibility of smart metering in collaboration with the Commission for Energy Regulation (CER). Clearly, water services will shortly have an opportunity to develop smart metering within the framework developing for the other utilities; but only if it is shown to be of benefit to the customer at reasonable cost.
- Irish Water must be self sustaining if it is to be successful. To assist this it would be best to have no “free allowance” but rather to cater for disadvantaged customers by having a payment made to Irish Water by the Department of Social Protection on their behalf. Such a model already operates successfully for free energy allowances. It would in any event be preferable to have a block tariff arrangement where the cost per litre increases with usage so that those less well off are treated fairly and those who behave well are favoured with a lower charge than those who waste water. It is important to note that inadequate funding from water charges will result in the Government having to make up a huge shortfall.

15 CURRENT SITUATION & KEY ISSUES

Asset Management & Capital Investment

- The Department of the Environment, Community & Local Government has developed a rolling multi-annual investment programme for public water services, known as the Water Services Investment Programme. This programme informs local authorities as to how much part-funding will be allocated for individual schemes over a 3-year period. The plan is informed by an assessment of needs undertaken by each local authority, but the overall strategic direction is set by Central Government. However, it is widely assumed that each of the thirty-four local authorities must be satisfied to some extent, rather than national spatial planning taking precedence.
- Such a programme of capital investment is certainly an improvement over previous models which were more subjective; however, it is still compromised by the separation between the funding authority and the delivery authority.
- At present there are wide differences in the water services investment needs of individual local authorities as set out in the Water Services Investment Programme 2007-2009. The cost of the WSIP 2007-2009 per head of population ranges from €437/head for one urban County Council to €2,942/ head for a rural County Council. There is no national model implemented across local authorities which would assist in the prioritisation of investment programmes to ensure best outcomes for consumers for the investment funds available
- A reliable National Water Services Asset Register does not exist to facilitate optimum investment decisions.
- There is not a robust mechanism in place at a national level to ensure that the needs of balanced regional economic development and population growth are accommodated up to 20-year horizons and beyond.

16 CURRENT SITUATION & KEY ISSUES

"The social protection structures of the State must be employed to assist those in difficulties"

Customer Service

- As Ireland moves into a period of change in both the delivery of water services and the funding model there are those who are vulnerable and will find it difficult to pay for water services. The social protection structures of the State must be employed to assist those in difficulties. Ireland must ensure that water is available for those who need it, yet deal robustly with those who can pay but won't pay.
- The Irish people have never paid for water directly. This has created a dependency culture where people are less likely to accept personal responsibility for water services within their property or to conserve water.
- The absence of direct water charges has also left a void where there would normally be very clear service delivery standards, as is the norm in other utilities

It is useful to note that households in Ireland pay for the full cost of utility services provision for electricity, gas, fixed line telephone/broadband and mobile phones. The cost of these services to the typical household is of the order of €500 to €1,000 per year for each of the utility services. The prices are generally seen to be affordable by most people and are seen to represent the cost and value of the services. The table below tabulates data on the average household expenditure for various utilities / services based on the Central Statistics Office Household Budget Survey 2004-2005 with an allowance for inflation to 2009 using CS0 indices.

Household Budget Item	Average Household Expenditure at 2009 prices
Electricity	€ 855 / year
Heating Fuel	€ 1,187 / year
Telephone (fixed)	€ 536 / year
Telephone (mobile)	€ 916 / year

The above are just some of the challenges that must be met if Ireland is to create a sustainable model for the delivery of water services in the context of climate change, customer expectation and financial constraint.

CHAPTER THREE – INTERNATIONAL EXPERIENCE

3.1 INTRODUCTION

There are many different models for the delivery of water services internationally. In Appendix 3 we review a brief summary of some of the models used in other countries. This is not intended to be an exhaustive critique of these models, but simply an attempt to highlight key features that may be appropriate to the Irish situation.

Ireland is not alone internationally in struggling to meet the challenges of water infrastructure and environmental protection. Public infrastructure in general, and not just water, is crumbling in many developed economies as failures to continually renew and reinvest over decades become apparent.

3.2 INTERNATIONAL PRACTICE REVIEW

From the review of international practice in Appendix 3 it is clear that there are many models used for the delivery of water services using different combinations of public and private participation. Most of the models have certain core elements, which include:

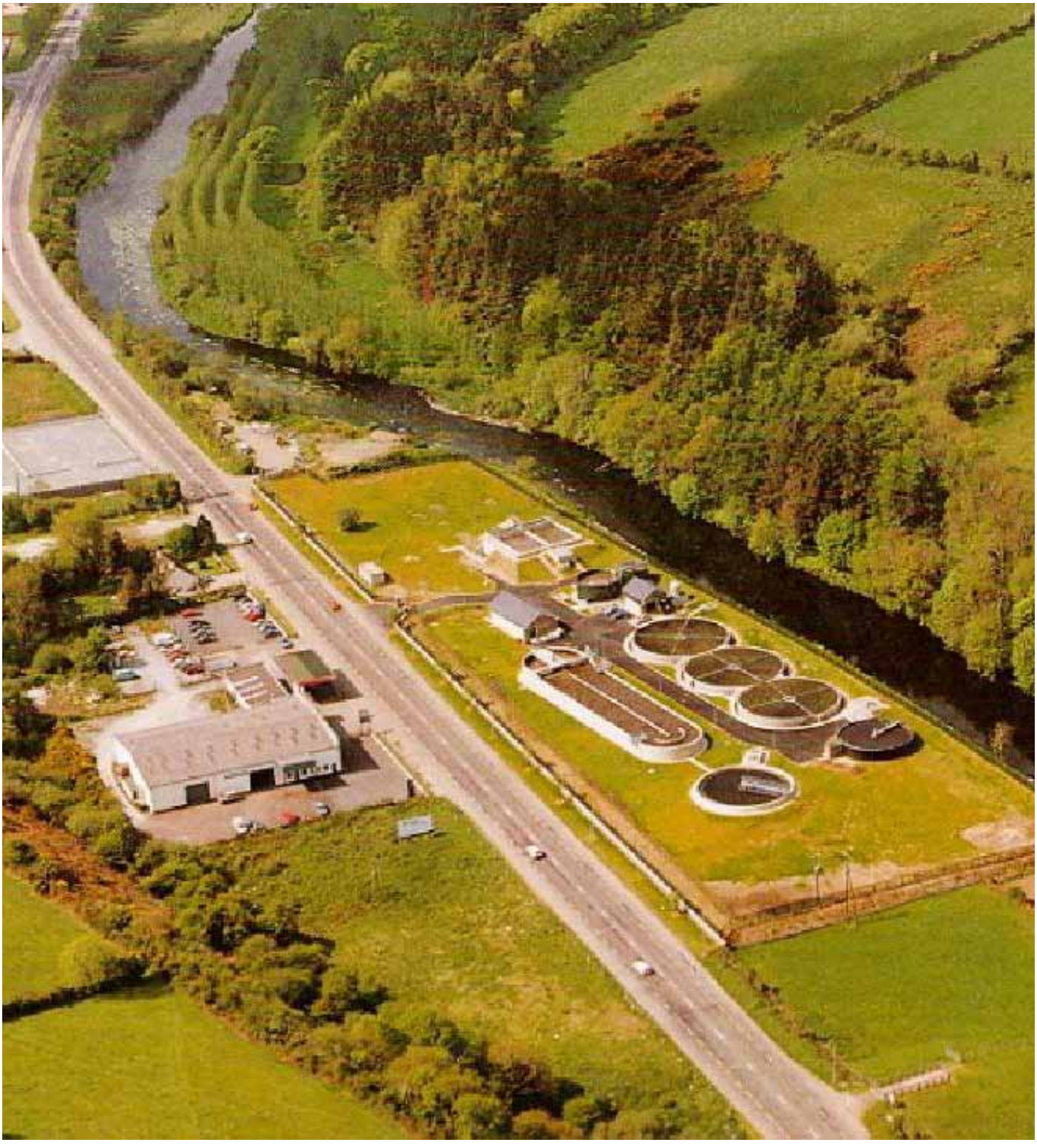
- Overall policy and regulation is determined by public representatives and public servants, whether at transnational (EU), state, regional or municipal level
- Direct customer charges for water and wastewater are almost universal outside Ireland and are the primary source of revenue
- Capital and operational budgets are developed in an integrated manner with defined priorities and programmes that generally contain service standards including environmental or other policy objectives.
- Capital and operational budgets are linked to the revenue stream, with surpluses generated to develop future capacity as in any other utility undertaking
- Regulation exists to ensure a quality service, to control prices and to drive efficiencies and value for money, in the context of what is a monopoly service
- Water services planning has regard to economic, environmental and social needs as, for example, enshrined in the EU Water Framework Directive
- Integrated organisation, combining overall management, strategic planning, capital and operational programmes, programme management, financing and billing, is vested in one organisation.

The following table summarises some of the key features of a number of international water service delivery models:

INTERNATIONAL EXPERIENCE

"Overall policy and regulation is determined by public representatives and public servants"

MODEL	EXAMPLE	FEATURES
Irish Model	**Ireland**	Managed by Municipalities (Local Government). Assets owned by Municipalities. Major shortage of investment due to public policy of non-charging of domestic customers and operates the city's drinking water, replacing a private operator.
New Paris Model	**Paris**	Single public Municipal operator (Eau de Paris) since 2010 manages and operates the city's drinking water.
Management Consultancy	**Riyadh**	Managed by Municipalities with provision of skilled specialists from private sector but with limited authority.
Programme Management of Risk	**Scottish Water**	Finance and construct new water and wastewater facilities with Govt guarantees. Responsibility to deliver capital programme with delivery risk shared (BOT or BOOT hybrids).
O & M Contract	**N East US**	Municipal lead with assets owned by Municipalities. Operations and maintenance risk allocated to private sector operator but overall risk still remains with Municipalities.
Asset Lease	**Cameroon (French)**	Municipal lead. Responsibility to operate and maintain assets to agreed standards allocated by contract to private firms.
Concession	**Sofia Bulgaria**	Municipal lead. Responsibility for investment, O&M and provision of services to agreed standards subject to bids from concessionaires.
Partial Privatisation	**Tallinn Estonia**	Use of Municipalities and private investment. Majority shareholding procured by private sector to take investment and O&M risk
Full Privatisation	**England and Wales**	Unique in world. Full ownership of all assets with private sector working to regulatory standards.



3.3 COMPLIANCE WITH PERFORMANCE CRITERIA

Following the above review of international experience, it is instructive to consider what might be concluded under a range of performance criteria as follows:

LEVELS OF SERVICE:

Common to high quality water services internationally is recognition that the customer is paramount. It is noteworthy that, aside from setting the price, most water regulators also set the service levels that the water company must meet with its customers. These will typically include all aspects of the interface between the water company and the customer

Service level agreements are often encompassed into a Customer Charter; and these are commonplace across utilities, not just those providing water services.

In addition to a Water Regulator, many models internationally also involve a Consumer Council to directly represent the consumer and to investigate complaints.

ENVIRONMENTAL SUSTAINABILITY:

The EU Water Framework Directive is a clear policy driver for the protection and enhancement of the aquatic environment across Europe, including Ireland. The Irish local authorities, organised as River Basin Districts, have prepared the River Basin Management Plans for the implementation of the objectives of the Water Framework Directive. The Catchment Management Authorities in Australia provide an interesting parallel to the Irish River Basin Districts and may provide a future model for the reorganisation of local authority functions as custodians of the aquatic environment.

Internationally the separation of the economic regulator from the environmental regulator is commonplace. Many jurisdictions also have a Drinking Water Inspectorate that acts independently of the Regulators and this is a role that is largely taken up by the EPA in Ireland, with inputs from the Health Services Executive (HSE).

ECONOMIC SUSTAINABILITY:

The standard objective internationally is to implement a sustainable funding model, based on full cost recovery, where the revenues raised for water services are ring-fenced and not allowed to be used elsewhere in government or public services. While the 5-year asset management planning cycle in England & Wales is broadly laudable, it does cause peaks and troughs in investment around the time of the 5-yearly price determination.

FINANCIAL ACCOUNTABILITY:

International experience demonstrates that external financial regulation of the water service provider is fundamental if customers are to be assured that they are getting value for money.

In many countries the water regulator (or equivalent) studies the investment plans of the water authority before setting the proposed charges for the period. This is a crucial protection for the customer.

CHAPTER FOUR – OBJECTIVES & KEY SUCCESS FACTORS

4.1 OBJECTIVES

The development of the new model and the establishment of Irish Water should build on the work of the local authorities to date to ensure delivery of quality water services at optimum cost to the customer.

The objective should be to establish Irish Water as a state controlled, self sustaining utility within a regulated environment with appropriate relationships with other stakeholders including Government departments and agencies, regulators, local authorities, private service providers and customer.

Irish Water must deliver consistent compliance with standards for quality, availability and reliability; support balanced regional economic development and play a significant role in attracting foreign direct investment to Ireland

4.2 KEY SUCCESS FACTORS

The following are some key factors that will determine the success of Irish Water and of the restructuring of the water services sector:

- A focus on the organisational model that will increase the efficiency and effectiveness of service delivery and thus produce an improved service for customers at optimal cost and value for money.
- Irish Water will only be successful if its role, responsibilities and authority, and those of other key stakeholders are clearly and comprehensively defined in legislation
- A strong corporate governance structure within a regulated environment, with a good balance of technical, professional, commercial and administrative expertise.
- Orderly transition from the current situation to the full implementation of Irish Water in consultation and full engagement with local authorities, customers, regulators and other key stakeholders.
- Management of water resources on the basis of River Basin District areas in compliance with the EU Water Framework Directive
- A funding model that will allow Irish Water to be self-sustaining after a transition period where State subvention will be necessary to bridge the gap between customer charges and existing cost bases.
- An asset base and powers to raise funds on international markets as required by other semi-state commercial utility businesses.
- Trust and confidence of customers in Irish Water.
- An appreciation of the value of drinking water and the true costs associated with water supply and wastewater treatment by all customers.

"We therefore support Government's intention to establish a new State-owned water utility company"

CHAPTER FIVE – CONCLUSIONS & RECOMMENDATIONS

5.1 CONCLUSIONS

The Irish Academy of Engineering and Engineers Ireland share the view that whatever new structures are established must keep the needs of the customer at the top of the agenda. These needs include:

- Sustainability of future water supply and environmental responsibility
- Value for money
- Security and reliability of supply
- Drinking water quality and safety.

Local authorities, the Environmental Protection Agency and the Department of the Environment, Community & Local Government have performed well within tight financial constraints to deliver and improve a public water supply service and a public wastewater collection and treatment service. However there is now a need for a major change in the way that water services are organised in Ireland. This need arises from the current economic situation that has exposed the weaknesses of the existing funding model and the less than optimum nature of current structures.

We therefore support Government's intention to establish a new State-owned water utility company, Irish Water, to take over responsibility for Ireland's water and waste water infrastructure. This is a fundamental departure from the existing structure of water services in Ireland and is an opportunity to position Ireland's water services to meet future challenges. We believe that Irish Water should ultimately be a commercial semi-state utility company operating within a regulated environment and with effective ownership of the assets.

A national water services utility company is a major undertaking and will have to evolve out of existing structures in a managed and sustainable manner. If water services are transferred from local authorities there will still be a range of important water related services retained by local authorities that must be adequately catered for in the re-organisation. It is essential to ensure that the transition from current structures and responsibilities to the new arrangements is carefully planned so that a quality service is delivered with optimum effectiveness and efficiency and best value for money for customers.

The future funding model for water services in Ireland is fundamental to the success of Irish Water in meeting the needs of the customer. The key principle in this model should be the direct relationship between the customer and the service provider embodied in direct water charges and regulated service levels. Irish Water must be self sustaining if it is to be successful. To assist this, and promote water conservation, it is best to have no "free allowance" but cater for disadvantaged customers by having a payment made to Irish Water by the Department of Social Protection on their behalf. Such a model already operates successfully for "free" energy allowances. It is also preferable to have a block tariff arrangement where the cost per litre increases with usage so that those less well off are treated fairly and those who behave well are favoured with a lower charge than those who waste water. The charging system must cater for both metered and unmetered users.

22 CONCLUSIONS & RECOMMENDATIONS

While the ultimate aim should be to make Irish Water a fully self-funding entity, there will remain for several years a need for the Irish Government to provide a multi-million euro annual subvention for capital investment. This will be in addition to customer water charges and private-sector investment raised against the asset base and revenue streams. This subvention will partly compensate for historic under-investment but will also support the national strategic interest for balanced regional development.

In the course of preparing this report, we debated the merits of a national water metering programme. Water metering is a complex and costly exercise and may not necessarily prove to be value for money. The national and individual affordability of universal water metering must be carefully considered before the initial programme is rolled out nationwide. The decision on water metering should be taken in the context of the wider water conservation and mains rehabilitation programmes to achieve best value for money overall. We conclude that the decision to proceed with water metering should be referred to an independent Water Regulator to confirm that it is in the ultimate best interests of the customer.

The Academy and Engineers Ireland believe that the evolution of Irish Water will provide great potential for the development and upskilling of professional engineers which will benefit both the water services and customers. The scale of a national water company will provide better opportunities to pursue a career in water services in Ireland. Irish Water will also provide better opportunities to trial new technologies and form partnerships with other sectors, such as the development of energy retrieval technologies from wastewater treatment processes. Ultimately, there may be the opportunity for Irish Water to trade services internationally and win revenue for the State.

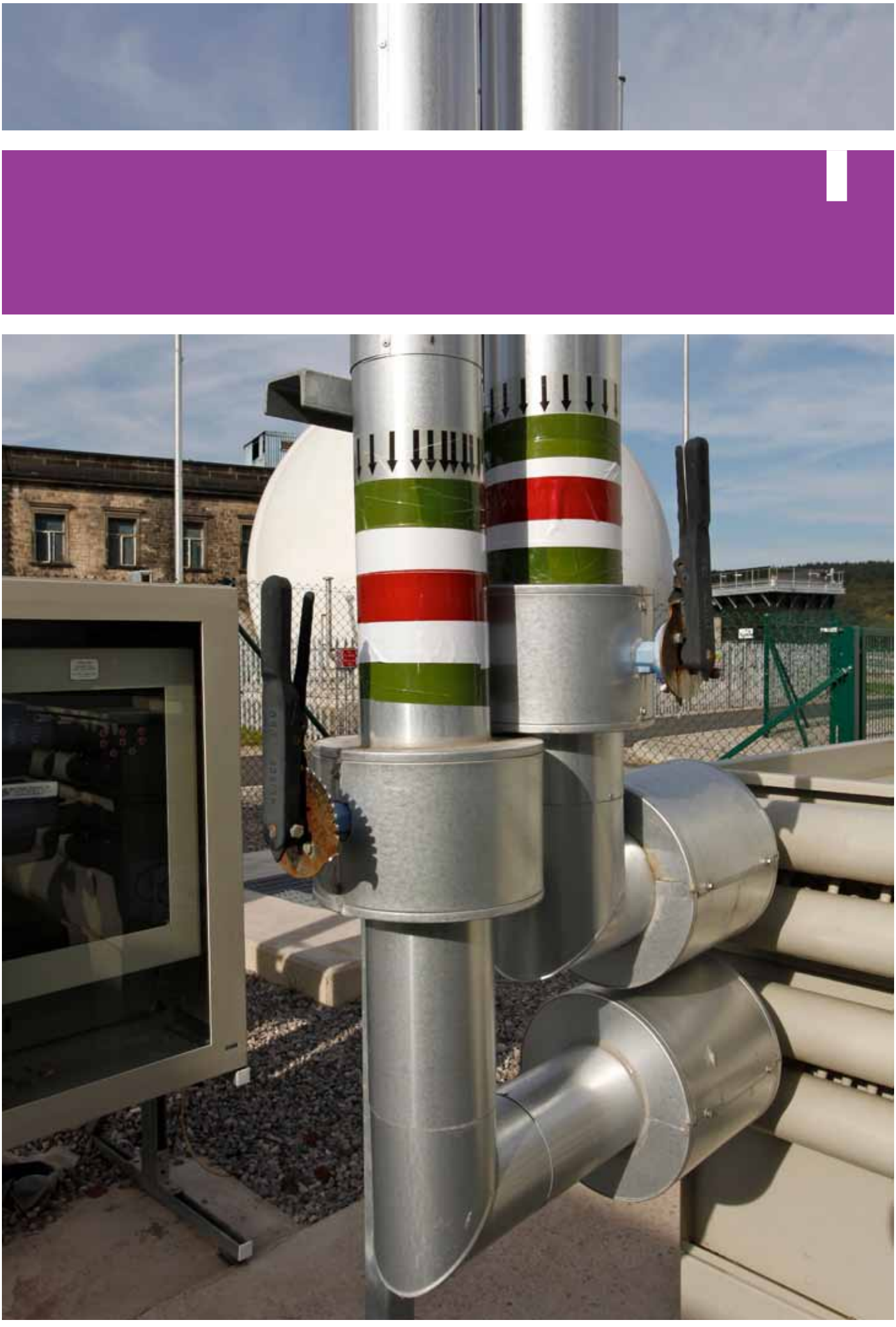
5.2 RECOMMENDATIONS

STRUCTURE:

- In re-organising the water services sector, focus on the organisational model that will improve the efficiency and effectiveness of service delivery and thus produce an improved, value for money service for customers over that currently provided by local authorities.
- The legislation to establish Irish Water should facilitate the evolution of a self-sustaining, adequately funded, and publicly owned water services utility company. Enabling legislation should permit detailed implementation by way of Ministerial Order. The legislation should ensure clarity and separation of the roles and responsibilities of the key parties in the future of the water services sector.
- Water Services comprise vital national infrastructure and are a monopoly. Whatever legislation is enacted and structures put in place should ensure the State exercises ultimate governance and control over the water services industry on behalf of its citizens.
- The responsibilities of Irish Water should encompass both water and wastewater services from abstraction of raw water through all stages of the process to the eventual discharge of treated wastewater. Therefore, Irish Water would not have responsibility for flood management, which would remain with the Office of Public Works (OPW). Furthermore, the management of catchments and natural water bodies would not form part of the responsibility of Irish Water, but would be retained by local or regional authorities and the EPA.

23 CONCLUSIONS & RECOMMENDATIONS

- Irish Water should be given a mandate to develop indigenous Irish water and wastewater technologies and processes, with a view to future international sales. This is an area where Enterprise Ireland could and should play an important role in support of Irish Water.
- Particular attention should be paid to the role of local authorities in the evolution of Irish Water. In designing and implementing the new model for water services ensure that any residual water related responsibilities retained by local authorities are identified together with the resources required for their successful delivery.
- The Department of the Environment, Community & Local Government should retain responsibility for water services policy on behalf of the Minister and the Government of Ireland.
- The Environmental Protection Agency (EPA) should continue to act as the quality regulator and enforcement agency; although its scale of charges should be regulated independently. The EPA should remain responsible for the licensing of discharges into the aquatic environment and should also assume responsibility for licensing abstractions for water service needs. Further consideration should be given to the roles of the EPA and the Health Services Executive (HSE) in the effective delivery of the functions of a Drinking Water Inspectorate; these functions may best be consolidated within the EPA.
- An office of Water Regulator should be established with immediate effect, possibly combining with the existing Commission for Energy Regulation (CER), if Irish Water is to be a utility company as recommended. The Water Regulator should set a reasonable level of water charges based on independent verification of the value to the customer of the investment plans proposed by Irish Water. The Water Regulator must also set the service levels with which Irish Water must comply to ensure that the customer receives the quality of service expected. The Water Regulator, rather than the EPA, may be best placed to license the delivery of water services.
- The National Consumer Agency, within its proposed new location in the Competition Authority, appears to be the organisation best suited to represent customers' interests and provide a means to appeal against water bills and poor service. The Data Protection Commissioner should also be involved in the development of Irish Water to ensure that customer data is not misused; this could be particularly problematic in any proposal to provide a free allocation based on occupancy.
- Ensure an orderly transition from the current situation to full implementation of Irish Water in consultation and full engagement with local authorities, customers, regulators and other key stakeholders.



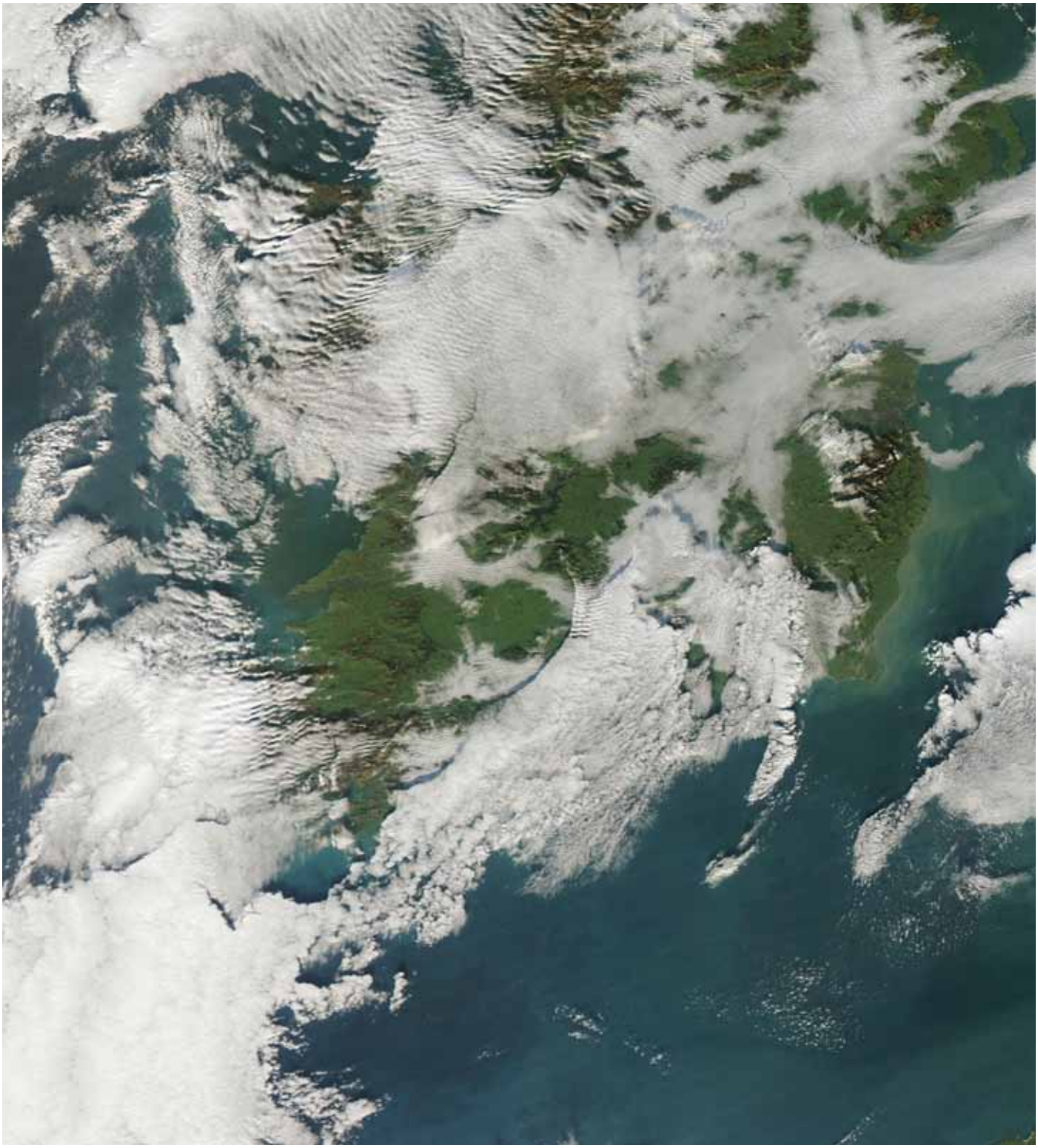
24 CONCLUSIONS & RECOMMENDATIONS

FUNDING:

- Develop a funding model that will allow Irish Water to be self-sustaining after a transition period where State subvention will be necessary to bridge the gap between customer charges and existing cost bases. This model should encompass an adequately funded national programme to effect the necessary reduction in water losses in the networks and also cover the cost of implementing a meter installation programme if this is delegated to Irish Water. Prior to metering of domestic consumers Irish Water will need sustainable revenue immediately via a fixed water charge which can be based on occupancy, floor area or rateable valuation criteria.
- Ensure that funds which are raised for water services, through water charges or any taxation measures are ring-fenced for water services provision and not used to cross-subsidise other public services or private business opportunities. Review the implications of this for local authorities and put in place an appropriate recompense mechanism if required.
- Water metering is a complex and costly exercise. The national and individual affordability of universal water metering and the timescale over which it can realistically be achieved should be carefully considered before the initial programme is rolled out nationwide. The charging system should cater for both metered and unmetered users. The decision to proceed with water metering for all domestic customers should be referred to an independent Water Regulator to confirm that it is in the ultimate best interests of the customer .
- Irish Water should be required, and have authority to, develop 5-year strategic investment plans, linked to national and regional development and economic plans, which integrate the operational and capital investment needs of the service and are approved by the Regulator.
- Provide Irish Water with the asset base and powers to raise funds on international markets to enable it operate fully as a commercial state company. The Irish Water utility company must be free, within a regulated environment, to raise capital based on a revenue stream and effective ownership of the water and wastewater assets.
- Irish Water should be required to pay abstraction (and discharge) fees to local authorities to provide revenue for local authorities to protect the aquatic environment and manage catchments. This revenue stream, perhaps administered by local authorities on a river basin scale, would help to provide a funding stream for implementation of river basin management plans in compliance with the EU Water Framework Directive.

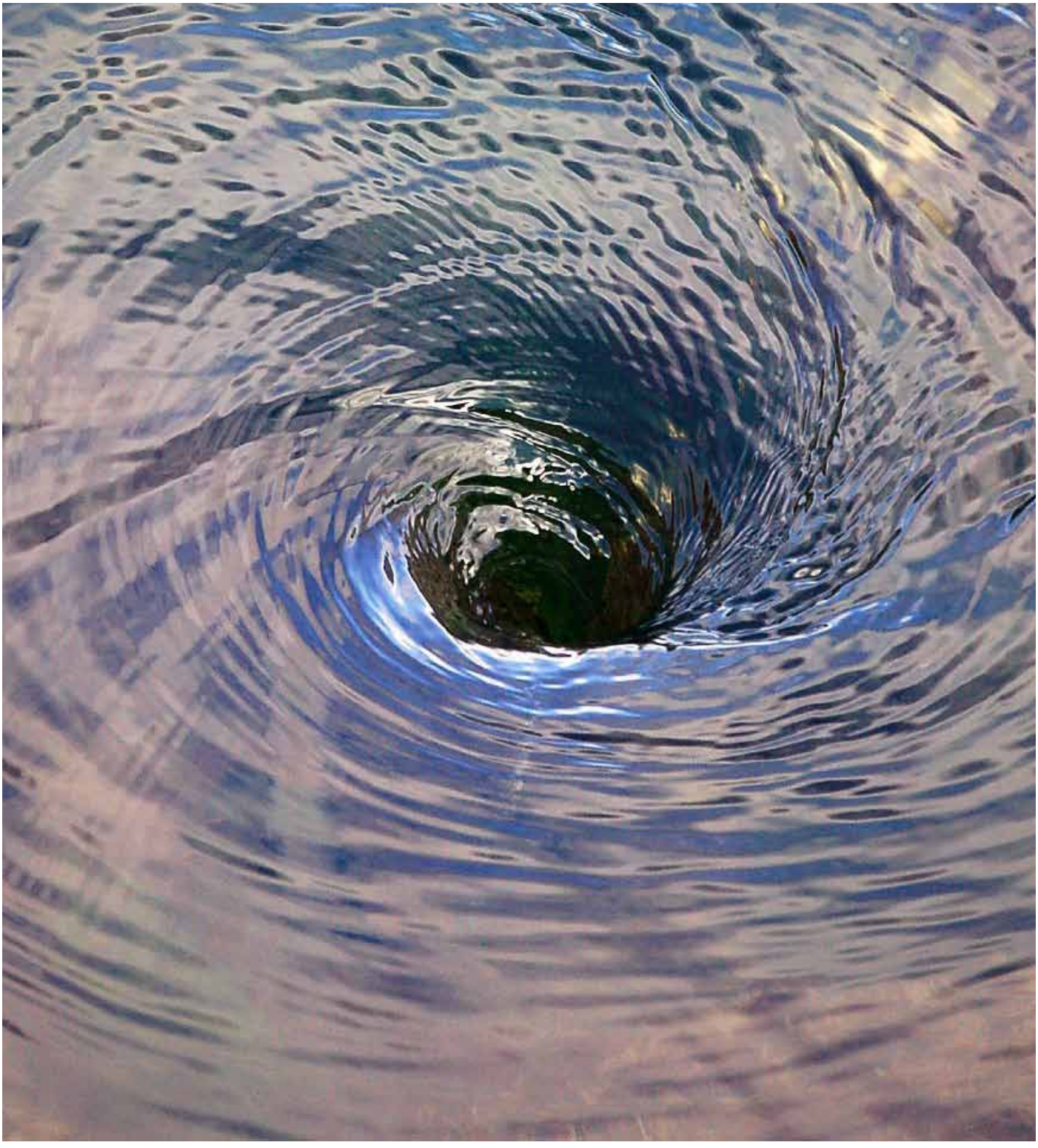
SOCIAL PROTECTION AND COMMUNICATION WITH CONSUMERS

- The social protection structures of the state should be employed to assist those in difficulties. Government should ensure that water is available for those that need it; yet deal robustly with those who can pay but won't pay.
- If water charging based on metered usage is introduced for domestic customers there should be no "free allowance". Rather disadvantaged customers should be catered for by having a payment made to Irish Water by the Department of Social Protection on their behalf. Such a model already operates successfully for free energy allowances. In the longer term, and subject to the appropriate development of smart technologies, block tariff charging arrangements should be implemented where the cost per litre increases with usage.
- Implement a thorough and professional communications programme to win the confidence and trust of customers and to ensure that customers begin to appreciate the value of drinking water, the true costs associated with water supply and wastewater treatment and that water is not a free commodity.



REFERENCES

- The Institution of Engineers of Ireland “Delivering Water Services for the 21st Century”, June 2004
- The Irish Academy of Engineering “Ireland at Risk – Water”, September 2007
- Forfás “Assessment of Water and Waste Water Services for Enterprise”, September 2008
- The Irish Academy of Engineering “Critical Infrastructure: Adaptation for Climate Change”, 2009
- InterTradeIreland, Irish Academy of Engineering, Engineers Ireland “Infrastructure for an island population of 8 million”, February 2010
- Engineers Ireland “The State of Ireland – A review of infrastructure in Ireland”, May 2011
- Local Government Management Services Board “Service Indicators in Local Authorities 2009”, 2011
- Central Statistics Office “Census 2006”, 2007
- Environmental Protection Agency “Provision and quality of drinking water in Ireland: a report for the years 2008-2009”, 2011
- Environmental Protection Agency “Drinking Water Report 2008-2009: Remedial Action List”, 2011
- Environmental Protection Agency “Water Quality in Ireland Report 2007-2009”, 2011
- Government of Ireland “Government for National Recovery 2011-2016”, March 2011
- The Environmental Protection Agency Review Group “A Review of the Environmental Protection Agency”, May 2011
- Water Industry Commission for Scotland “Who’s who in the Scottish water industry” March 2011
- OECD “Environmental Performance Review of Denmark” 2007
- DANVA “Water in Figures” 2010
- Turnbull Group (NZ) “Governance of Water” July 2009
- Water New Zealand “2009/2010 National Performance Review Report Water Utilities” 2010



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Appendix 1: Some water related services provided by local authorities

In addition to a wide range of water supply and waste water services, local authorities also provide other water related services such as:

- Fire services, including the need to ensure there are adequate flows of water for fire fighting in the system;
- Storm water drainage of paved areas and highways, including local pluvial flood control and response;
- Emergency response services to major accidents and natural disasters;
- Water resource management and catchment risk management, including water quality monitoring and reporting (to EPA);
- Supporting the Office of Public Works (OPW) in flood control, including the hydrometric monitoring stations;
- Licensing and support to private group water schemes, including bulk supplies of water in certain cases;
- Administration of grants for private wells;

Appendix 2: Some recommendations from recent reports

A2.1 ENGINEERS IRELAND STUDY 2004

In June 2004, the Institution of Engineers of Ireland (now Engineers Ireland) published a submission to government entitled "Delivering Water Services for the 21st Century". This document addressed the structural and funding issues that it was felt had to be tackled if a quality water service was to be guaranteed into the future. The report made several recommendations at the time, including:

- A comprehensive review of the organisational arrangements for delivery of water services should be carried out, and a regional approach based on river catchments adopted;
- Local/regional water authorities should be established for the management and delivery of water services;
- A Water Services Regulator should be established to set standards and targets for service delivery by these water authorities, and to approve water charging mechanisms and charges;
- While ensuring water authorities are incentivised to deliver an economic service, the need for possible Government subvention for particular water authorities should be addressed by the Regulator;
- A water charging regime based on full cost recovery from all customers should be implemented.

A2.2 Irish Academy of Engineering Report "Ireland at Risk – Water" 2007

In September 2007, the Academy produced a report titled "Ireland at Risk- Water", that considered the potential impact of climate change on the water environment. Inter alia, the report recommended that:

- Critical infrastructure should be reviewed for climate proofing

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and adapted where necessary;
- Water infrastructure schemes must be flexible, adaptable, and subject to rigorous risk assessment;
- Introduce new measures to reduce water usage and improve water conservation;
- All water authorities should set maintenance and leakage targets to be achieved in specified time periods.

A2.3 Forfas Report "Assessment of Water and Waste Water Services for Enterprise" 2008

Forfás issued a report in 2008 titled an "Assessment of Water and Waste Water Services for Enterprise. In that report, Forfás recommended that the following were among the main policy issues to address an expected increase in demand by enterprise in the medium term:

- Prioritise investment in the gateways and hubs to ensure that these locations can accommodate future enterprise development;
- Reduce unaccounted-for water levels;
- Move to a river basin district basis for the planning and provision of water services so as to maximise potential economies of scale;
- Develop a long term strategic approach to water services policy and planning at national level;
- Introduce greater transparency and consistency with regard to how the charges for water and wastewater are calculated;
- A customer charter including service level guidelines needs to be developed and monitored by the Department of the Environment, Heritage & Local Government to ensure a consistent approach across local authorities.

A2.4 Irish Academy of Engineering Report "Infrastructure for an Island Population of 8 million" 2010

The Academy produced a further report in February 2010 titled "Infrastructure for an Island Population of 8 million, which dealt with water and wastewater as well as the broader infrastructural needs of Ireland in 2030. The report recommended that the State:

- Manage demand for water with an emphasis on conservation, loss reduction, metering and an economic charge for water;
- Develop a shared water mains network which will allow for bulk transfer of water between sources of supply and population centres;
- Undertake a programme of sewer renewal in urban areas

Appendix 3: Examples of water services structures internationally

A 3.1 UNITED KINGDOM

Perhaps nothing better illustrates the wide variety of models for water services than the differences to be found between the models employed in Scotland, England & Wales, and Northern Ireland.

SCOTLAND

When the Institution of Engineers of Ireland wrote its report in 2004, the water sector in Scotland had recently been reorganised from three (3) regional public water authorities into a single national water company. There are 130,000 business customers and 2.2 million household customers in Scotland and the plumbing systems would be similar to those found in Ireland.

Scottish Water is a publicly-owned business, answerable to the Scottish Parliament and the people of Scotland. It provides water and wastewater services to households and operates Scotland's network of pipes, water sources and treatment works. It also acts as a wholesaler of water and wastewater services in a competitive regulated market for business customers. Since 2008, businesses and public bodies in Scotland have been able to choose their water and wastewater service provider. These retail suppliers are licensed by the regulator, i.e. the Water Industry Commission for Scotland.

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The Scottish Parliament, through its Ministers, defines the policies and sets the objectives that Scottish Water must achieve. The Water Industry Commission for Scotland (WICS) is an economic regulator whose role is to ensure that the Scottish water industry provides a high quality service and value for money to customers. WICS has a statutory duty to promote the interests of customers. It sets the price for water services and facilitates competition in the industry.

In addition to WICS, the Scottish Environment Protection Agency (SEPA) aims to provide an integrated environmental protection system for Scotland. SEPA monitors the discharges from the water company and advises the Ministers on the need for future investment. The Scottish model also has a separate Drinking Water Quality Regulator (DWQR) that provides an independent check that Scottish Water is complying with the legal standards for drinking water in Scotland. Waterwatch Scotland is a consumer representative body for the water industry that investigates complaints against the licensed suppliers.

Across all of the above stakeholders, the performance of the sector is monitored by the Output Monitoring Group which comprises representatives from all of the principal stakeholders. The Water Industry Commission for Scotland would argue that regulation has led to a cut in leakage of more than a third in Scotland and that customers enjoy lower bills than the average in England & Wales. Households are not charged directly by Scottish Water, but pay for water on a fixed charge through their Council Tax which is collected by local authorities and remitted to Scottish Water.

ENGLAND & WALES

Private companies deliver water and sewerage services in England and Wales, largely on a regional basis; albeit any one region is as large as the entire water sector in Ireland. There are ten (10) regional companies that provide both water and sewerage services, a further eleven (11) regional companies providing water services only, six (6) local companies providing either water or sewerage or both, and seven (7) water supply licences offering services to large customers.

The regional companies have a regional monopoly for their services based on boundaries that were fixed at privatisation in 1989. The assets and resources of the public authorities were transferred into the ownership of the private water companies at the time. Water charges are regulated by the water regulator, Ofwat, which is charged with protecting the interests of consumers and promoting competition in the market. However, Ofwat must set prices such that water companies can finance and properly carry out their functions.

The Department for Environment, Food & Rural Affairs (Defra) sets the overall water and sewerage policy framework in England, including the setting of standards, drafting legislation and creating special permits. In Wales, the same functions are managed by the Welsh Assembly Government.

As in Scotland, there is a Drinking Water Inspectorate in England & Wales that checks to see that the water meets the regulated standards. There is also a Consumer Council for Water to represent customers and investigate customer complaints. Ofwat would argue that the water and sewerage sectors in the UK have made significant progress since they were privatised over 20 years ago. It is estimated that leakage levels are 35% lower now than at their peak in the mid 1990s; there is higher environmental compliance, and 99.6% compliance with EU standards for drinking water.

According to Ofwat the water companies invest around £80m (€90m) a week in the maintenance and improvement of assets

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and services, which amounts to more than £3,500 (€4,000) for each household since privatisation. The UK Government would probably argue that it could not have funded this investment from its own balance sheet, but the private water companies have been able to raise finance on the back of the regulated asset base (RAB) model.

It is fair to say that the privatisation of the water industry in England & Wales has had its problems; particularly in the early years. However, the structure has now had time to reach a steady operational state. That is not to say that no challenges remain. The 5-year cycle of Asset Management Plan (AMP) has created a cyclical approach to investment by the water companies that has resulted in disruption to the supply chain every five years.

While water charges in England and Wales are paid directly by the customer to the water company, only a little more than 30% of customers are on water meters. Most customers still pay a fixed charge based on the rateable value of their property. Metering is largely an option for the customer but most customers do not avail of the opportunity, fearing that it will increase their water charge. It is only in recent years, driven by a need to conserve water in times of drought that the water companies are moving towards compulsory metering with the consent of the regulator.

NORTHERN IRELAND

The water service in Northern Ireland is delivered by Northern Ireland Water, a Government owned company that claims to have substantial independence from Government. Northern Ireland Water supplies 625 million litres of clean water a day for almost 1.7 million people, as well as treating 134 million m3 of wastewater every year.

Similar to elsewhere in the UK, there is a Consumer Council to represent the customer and investigate complaints. There is a Drinking Water Inspectorate to monitor the quality of drinking water and take enforcement action. There is also an Environment and Heritage Service to protect the aquatic environment. However, rather than have a specific economic regulator for water, the role in Northern Ireland has been combined with other public utility service regulators in the office of the Utility Regulator. These arrangements came into force in 2007, and from April 2010 the Utility Regulator has been required to set price limits for Northern Ireland Water.

Northern Ireland Water has had to deal with challenging times; not least the recent severe weather in the winter of 2010/11. The performance of the company was criticised severely at the time and in subsequent investigations for a failure of its executive leadership and execution of emergency planning.

A 3.2 EUROPE

The common approach in Europe is for the municipality to delegate operational and capital investment contracts through procurement processes. The level of regulation varies from one jurisdiction to another.

A comparison with the level of water structure investment in Denmark is useful as it is a country with a similar population size to Ireland (5.4 million) and is generally regarded as a leading European state in terms of water services and infrastructure. According to the OECD Environmental Performance Review for Denmark (2007) spending on water infrastructure rose form €600m in 1998 to €792m in 2003. Funding for this infrastructure comes from all consumers with no Government subsidies. Denmark has a legal requirement that all premises are metered. Average annual household water bills were €715 in 2007.

DANVA represents the biggest water and wastewater utilities in Denmark and its members supply 90% of the Danish population

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with water. There are more than 100 water and wastewater utilities providing services in Denmark and DANVA produces detailed statistics to benchmark the quality of service each year. In 2010 DANVA reported that the average price of water in Denmark was DKK 0.052 per litre, which is equivalent to €7.00/m3, or three times the rate of water charges for non-domestic customers in Ireland. This reflects the policy of full cost recovery in Denmark. The average household water consumption in 2010 was 114 litres per person per day.

In France the municipal authorities in Paris have taken back control of water services from the private sector. As of January 1, 2010 a single public operator Eau de Paris manages and operates the city's drinking water from production to distribution. The move ends a quarter century of private control.

In 2011 researchers at the Centre for Water Law, Policy & Science at the University of Dundee in Scotland published a review of water governance mechanisms within Europe. Tariffs and customer standards were analysed under 14 criteria for water services in England, Scotland, France, Italy, Spain and the Netherlands. The researchers reported that existing national regulatory frameworks provide very different mechanisms to increase transparency, customer engagement and access to justice. However, within these differences, some likenesses can also be found. For example, water prices and service levels are typically controlled, but in different ways; such as, a regulatory agency, by contracts, or by an internal approach.

The report found that customers have benefited from the uniform national rules for access to information provided by the regulatory agency as in the UK. The contract approach is favoured in Mediterranean countries, although concerns have been raised regarding the degree of control that the local authorities exert over water operators. The researchers found that the self-regulatory approach, where water authorities internalise the regulatory mechanisms, was the least likely to provide transparency and opportunities for customer engagement.

A 3.3 AUSTRALASIA

In New Zealand the water services are typically delivered by private water utilities acting under long-term contract to the local municipal authorities, where the assets are owned by the local authorities. In recent years there have been moves to promote a national structure similar to that of Scottish Water.

In Australia water is managed on a state-by-state basis. Although there is a national approach to some issues, each state retains ownership of its own water industry.

In Victoria water is managed by 19 state owned businesses that report to the Victorian government. Each supplies water and/or sewerage services to customers within its service area. An additional entity, the Northern Victoria Irrigation Renewal Project (NVIRP) has been created to deliver an AUS$2bn irrigation upgrade to the Goulburn Murray irrigation system. In addition to these businesses, there are ten (10) Catchment Management Authorities (CMAs) that are responsible for coordinated catchment management in their region and effectively undertake the role of "caretaker of river health" for their region.

The state of Tasmania recently reformed their water sector. Previously, water services were provided by approximately 30 local councils (the population of Tasmania is about 500,000 people). In 2009 the water sector was restructured to take the responsibility away from local authorities and put it into the hands of 3 newly formed state-owned companies. Southern Water, the largest of these companies and serving the main town of Hobart, is currently installing water meters. Once complete, a two-part pricing system will come into effect with a fixed charge for large infrastructure costs and a volumetric charge for consumption.

LIST OF ACRONYMS

CER	Commission for Energy Regulation
CSOs	Combined sewer overflows
DECLG	Department of Environment, Community and Local Government
Defra	Department of Environment, Food and Rural Affairs (UK)
EPA	Environmental Protection Agency
EU	European Union
HSE	Health Services Executive
IMF	International Monetary Fund
OPW	Office of Public Works
SEPA	Scottish Environment Protection Agency
SUDS	Sustainable urban drainage systems
WFD	EU Water Framework Directive
WICS	Water Industry Commission for Scotland