

Water Sector Reform Programme

Report of the Inter- Departmental Working Group on Affordability Measures

December 2013



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Chapter 1: Executive Summary

The Programme for Government provides for the introduction of a fair funding model to deliver clean and reliable water. The Programme for Government also contains a commitment to move to charges based on usage above a free allowance. In the context of the Programme of Financial Measures for Ireland agreed with the EU/IMF/ECB, water charges for domestic customer will commence on 1 October 2014 and, the first bills will issue in 2015.

The Government has also indicated that support will be given to households which face particular affordability issues or have a high usage of water due to medical conditions. An inter-departmental working group has been established to consider how these issues might be addressed. The questions arising are:

- (a) which groups of the population would be most at risk of increased poverty and inability to pay as a result of water charges;
- (b) how can any subsidy for water charges be targeted and implemented; and
- (c) the cost to the State of any subsidy.

Supported by the ESRI, the Group have sought to identify the key groups which would be impacted from a poverty perspective by water charges. While the extent of the population impacted is dependent on both the level and range of charges, consistently single occupancy households and large families (which are income constrained), emerge as two of the potential target groups. This view was endorsed by the engagement of the Group with the Community and Voluntary Pillar, which also highlighted these groups and people with medical needs.

However, these potential target groups do not map to an existing cohort within the social protection system and care has to be taken to ensure that measures are not counter-productive from a labour activation perspective. Two factors are most relevant to decisions on the subsidisation of the target groups – household composition and household income. No single agency has comprehensive information on household income which is the key criterion for possible support. This makes the devising of a scheme both technically and administratively difficult. Both the policy and administrative difficulties which would arise for the Department of Social Protection and the concerns of Irish Water, the Commission for Energy Regulation (CER) and the National Federation of

Group Water Schemes in relation to water providers administering a scheme are set out in Chapter Four.

The impact of water charges on particular households will depend on the pricing structure and the availability of metering. For example, if there is a small standing charge and a metered usage charge this will assist smaller households but larger households will face larger bills commensurate with usage. Tariff design could, therefore, be a significant mitigating factor if appropriately designed. There is also potential for the universal free allowance to be tailored to reflect variations in household size, as set out in Chapter Five. The need for and the approach to affordability measures could then focus on those customers that are most acutely financially or medically vulnerable.

The Group proposes to conduct further work to seek to fully assess the case for an affordability measure over and above the proposed free allowance and, in light of that assessment, to provide Government with a range of workable options. It is likely that any options for an affordability measure would need to be based on some form of self-declaration which can be randomly audited. The characteristics of any subvention should be that it is simple to administer, well targeted and cost effective. This will not be simple to achieve and there are trade-offs between all three. The key questions are how and by whom eligibility criteria will be set, how any affordability scheme will be administered and how much it will cost. Depending upon the targeting and value of the free allowance, and the level of average charges, the number of additional households needing support could be relatively small. While this would greatly reduce the risks of a self-assessment system, proportionality of the administrative costs and burdens involved will have to be evaluated in that context. Both Irish Water and the Department of Social Protection have raised very significant concerns about cost and implementation of any social tariff/support scheme.

Further work on the funding model for Irish Water, including Eurostat confirmation on aspects thereof, will determine the extent of support which can be provided in general subvention and the free allowance. This will impact on the general level of charges and, in the case for, the level of targeted affordability measures. The free allowance can, even without further targeting, assist in alleviating the position of disadvantaged households. However there may still be a small percentage of households who will struggle to pay water charges.

It is also clear that there is a small group of consumers that would be adversely affected by charges based on usage, as they have high usage requirements due to medical need. As there will be a system of assessed charges which are to be a good proxy for average usage, allowing such household to opt for an assessed charge rather than metered charge, would be an effective cap on their bills.

Next Steps:

The Group understands that further parallel work on funding matters (including free allowance) is being advanced and in the light of this considers that the next steps for the Group should involve:

- (a) Determining the need for arrangements beyond free allowance and tariff design, which would involve:
 - Further profiling by the ESRI of the potential target groups that may require additional assistance in light of the emerging approach to free allowance and water charges design;
 - Consideration of the appropriate body to determine eligibility, data sharing and validation and funding of recipients/water providers (Irish Water and Group Water Schemes) ;
 - Identify the likely costs involved in providing the recommended measures.

- (b) Looking at the wider package of measures which can impact on water affordability – water conservation, debt management, including:
 - Meeting with Money Advice and Budgeting Service (MABS) and explore the options in relation to debt management and alternative mechanisms for dealing with individuals with an inability to pay.

- (c) Outlining the administrative arrangements required to deliver on the recommended approach with a high level action plan, including the criteria to apply to concession for those with high usage due to medical need.

Chapter 2: Introduction and Background

The Programme for Government provides for the introduction of a fair funding model to deliver clean and reliable water. The Programme for Government also contains a commitment to move to charges based on usage above a free allowance. In the context of the Programme of Financial Measures for Ireland agreed with the EU/IMF/ECB, water charges for domestic customer will commence on 1 October 2014 and, the first bills will issue in 2015.

A public consultation on the proposed programme of water sector reform was undertaken in early 2012 and the consultation paper¹ highlighted that the introduction of water charges can lead to issues of affordability when the portion of disposable household income used to pay water charges exceeds a certain threshold. Affordability does not always arise due to low incomes alone; households with large families or those with medical conditions requiring the use of large quantities of water may also have affordability issues. The paper signaled that further work would be undertaken with regard to the approach to be taken to support households with specific affordability issues.

The proposed approach therefore could involve two different forms of support being provided as follows:

- Free allowances for domestic households which would reduce water charges generally; and
- Affordability measures targeted at addressing water poverty or high essential usage due to medical need.

Both forms of support will have to apply to Irish Water and Group Water Sector customers in proportionate terms. Irish Water is expected to have some 1.35 million customers, most of whom will receive both water supply and waste water services, while approximately 190,000 (Census 2011) receive their water supply from either publically or privately supplied group water schemes.

The Commission for Energy Regulation will be advancing work in relation to the establishment of connection charges for new customers, customer charters and customer protection measures which

¹ 'Reform of the water sector in Ireland, Position Paper, January 2012', Department of the Environment, Community and Local Government

will have to be in place for the 1 January 2015. To underpin the Commission's work Government decisions will be required on the approach to the free allowance and affordability measures in order to inform the consultation on tariff structure scheduled for April 2014.

In this context, the Cabinet Committee on Economic Infrastructure (CCEI) agreed that an interdepartmental working group should be established to advise the Government on the appropriate method for addressing potential water poverty issues which might arise from the introduction of charges. The Group, the membership of which is set out at Appendix 1, consists of representatives from the following Departments:

Department of Environment, Community and Local Government,
Department of Social Protection;
Department of the Taoiseach;
Department of Finance;
Department of Public Expenditure and Reform.

The Group was tasked with the following:

Phase 1

1. Identify the groups likely to face affordability issues;
2. To examine the appropriate mechanisms for addressing affordability issues for these groups, taking account of the broader social welfare policy agenda including systems integration and labour activation initiatives;
3. Outline the administrative arrangements required to deliver on the recommended approach with a high level action plan.
4. Identify the likely costs involved in providing the recommended measures
5. To prepare a report, for consideration by the Government.

Phase 2 (2014)

Oversee implementation of the agreed approach.

Approach of the Group to determining Affordability Support/ Social Tariff or Social Support

The Group has progressed consideration of all relevant issues including:

- The case for an additional affordability support (above the proposed universal free allowance);
- the likely target groups;
- the possible alignment with existing social protection schemes (e.g. Fuel Allowance or Household Benefits Package);
- administrative and policy issues arising from the introduction of either a new social support scheme or social tariffs by water providers, including the availability across the Government/local authority system of relevant data.

It was clear to the Group as the process evolved, that the approach to affordability measures cannot be developed in isolation from either the design of water charges (including assessed charges) or the proposed free allowance as it is the combined effect which will impact on particular household circumstances.

Deliberations of the Group

In order to fully inform their work on the issues, the Group met with a wide range of stakeholders over the last number of weeks. These groups are as follows:

- Economic and Social Research Institute (ESRI)
- National Federation of Group Water Schemes
- Irish Water
- Department of Social Protection (Free Schemes)
- Housing Section, Department of the Environment, Community and Local Government
- Health Services Executive
- Department of Health
- Commission for Energy Regulation
- Community and Voluntary Pillar (SVP Representatives)
- TASC
- Publicpolicy.ie

Chapter 3: Target Group for Affordability Supports

In considering the approach to be taken to addressing affordability issues that are likely to arise, the following questions arise:

- which groups of the population would be most at risk of increased poverty and inability to pay as a result of water charges;
- how can any subsidy for water charges be targeted and implemented; and
- the cost to the State of any subsidy.

The level of targeted support required is related to the number and type of households who would be considered to be in “water poverty” by virtue of the introduction of charges.

What is Water Poverty?

The ESRI were commissioned by the Department earlier this year to examine and report on approaches to a universal free allowance, in line with the Programme for Government commitment, and targeted affordability measures. Within this report (‘Affordability and the Provision of Water Services in Ireland : Options, Choices and Implications’ at Appendix 5), the ESRI broadly defines households suffering water poverty as being those whose expenditure on water is between 3-5% of disposable income (income net of tax and social insurance contributions) TASC in a paper presented to the Group acknowledged that while noting that there is no commonly agreed rule, the absolute level of affordability is often measured as a percentage of disposable income and indicated that in most OECD countries the average of water and wastewater bills as a share of income of the lowest decile of the population is less than 2.5%. The Group recommends that sensitivity testing of any proposed supports be carried out for lower income thresholds. From the Group’s analysis, it appears that 5.6 per cent of households and 4.4 per cent of individuals will be ‘water poor’ in the sense that it is estimated that they would spend more than 3% of their income on water services.

Further analysis has been undertaken by the Group, to determine whether there are specific attributes of “water poverty” as defined above, which would mean that the target groups would be different from households who are already income constrained.

Who may be affected by water poverty?

The ESRI report found that households vulnerable to water poverty are likely to be small sized households, apartment dwellers, younger persons and single parent families, as well as households

containing an individual with a medical condition necessitating a high water use. The Group considered all available information in relation to the target groups using the ESRI data on those likely to experience water poverty and also those already identified as experiencing poverty, as measured by national poverty measures. Given the different profiles of those likely to experience water poverty and those already experiencing poverty in the State, the Department of Social Protection, with the assistance of the ESRI, has undertaken additional analysis to cross-reference these groups. The results of this consideration are set out in the following set of tables, which are based on data from the ESRI (ESRI Analysis November 2013 is attached at Appendix 2).

It should be noted that a Free Allowance has not been applied to the ESRI calculations and they used an average charge of €446 for metered households and €499 for unmetered households. The average charges used were based on the ESRI analysis of the likely cost of water services based on estimated future cost and customer number assumptions, with a predicted reduction in the consumption of water of 10% and all households capable of being metered having a meter installed. The application of a free allowance would decrease these average household charges and as a result the proportion of households at risk of water poverty would decrease.

Table 3.1 sets out the impact of water charges across the income deciles in the State and indicates that the effect of water charges will be felt to the greatest extent in the lower income deciles. According to the CSO there were 1,654,208 households in the State in 2011. Each income decile accounts for approximately 165,000 households with approximately 330,000 households in the bottom two deciles on this basis.

Table 3.1: Impact of water charges across the income distribution: water charges as a percentage of baseline disposable income

<i>Decile of disposable income per adult equivalent</i>	<i>Income Range of Decile €</i>	<i>% of income which would be spent on water services (No Free Allowance or welfare payment)</i>	<i>No of households in this category %</i>
Bottom	<179.98	-3.0	9.7
2 nd	<222.83	-1.9	10.1
3 rd	<259.55	-1.6	10.0
4 th	<294.01	-1.4	11.2
5 th	<345.94	-1.3	9.3
6 th	<402.53	-1.1	9.2
7 th	<464.22	-1.0	9.2
8 th	<566.99	-0.9	9.7
9 th	<746.33	-0.7	10.2
Top	>746.33	-0.5	11.5
All		-1.0	100

Table 3.2 sets out the impact of water charges on those already in poverty in the State as measured by the ‘at-risk-of-poverty’, ‘in consistent poverty’, ‘basic deprivation’ and ‘vulnerable to consistent poverty’ measures.²

Table 3.2: Impact of Water Charges on Income by Poverty Status

	At-risk-of-poverty (below 60% of median) %	Basic deprivation (enforced lack of 2+ basic items) %	Consistent poverty (at-risk-of-poverty and experiencing basic deprivation) %	Vulnerable to consistent poverty (below 70% of median income and experiencing basic deprivation) %
Poor	-2.6	-1.4	-2.4	-1.7
Non-poor	-0.9	-1.0	-1.0	-1.0

This table demonstrates that there is a considerably higher reduction in income net of water charges for those identified as poor using the at-risk of poverty measure and those identified as in consistent poverty than for other groups.

Table 3.3 below looks at the overlap between those likely to be in water poverty and those identified as poor using the four national measures. 26.6% of those at-risk-of poverty could be considered as potentially “water poor” based on the measures described. This rate is similar to those in consistent poverty, with 22.7% likely to experience water poverty. The water poverty rates for those in basic deprivation and vulnerable to consistent poverty are much lower, at 6.7 and 14.9 per cent respectively.

² At-risk of poverty – income (adjusted for household size and composition) falls below 60 per cent of median (adjusted) household income; basic deprivation – deprived of two or more items included in an eleven-item index of basic deprivation; consistent poverty – at-risk-of-poverty *and* experiencing basic deprivation; vulnerable to consistent poverty – below 70% of median (adjusted) household income *and* experiencing basic deprivation

Table 3.3: Water poverty rate and profile by national poverty measures (individuals; SILC 2011)

	Water poverty rate (% of those identified as poor using national measures who are also in water poverty)	Water Poverty Composition (profile) (% of those in water poverty who are also identified as poor using national measures)
At Risk of Poverty	26.6	94.6
Basic Deprivation (enforced lack of 2+ basic items)	6.7	36.6
Consistent Poverty	22.7	34.9
Vulnerable to Consistent Poverty (below 70% of median income and experiencing basic deprivation)	14.9	35.5

In terms of the composition of each group, almost all of those in water poverty are also at risk of poverty (94.6% of those in water poverty are in the at-risk of poverty category). This is to be expected as both are similar income-specific measures, with one (water poverty) being a sub-set of the other. By contrast, there is a far lower share of those in water poverty in the other national poverty categories, generally only a third. That two-thirds of the water poor are distinct from the national poverty priority categories is of significant concern in terms of effectively targeting the most vulnerable.

It appears from the Group’s analysis that a specific income-based affordability issue arises for approximately 4% of the population, almost all of whom are in the bottom income decile. These are primarily single people living in apartments, either socially or privately rented. In addition, however, there is a separate generalised poverty issue facing people who experience basic deprivation and are on low income (though not necessarily in the bottom decile), who are more likely to have children, live with other adult welfare dependents, and are in rented housing (social and private). **The fact that the water poverty factor is not closely aligned with existing poverty measures makes targeting difficult.**

Therefore, the Group suggests that in defining the target groups, the following households are worthy of further analysis in terms of financial support:

- 1 adult over 65;

- 1 adult under 65;
- 1 adult with children;
- 2 adults with 3+ children;
- Other households with children; and
- Households with individuals identified with specific medical conditions.

Data constraints

Determining the target groups with precision requires information on household income and composition. The Group examined data available and the scope for data exchange between relevant organisations (Department of Social Protection, Revenue, Irish Water, Local Authorities, Housing Agency) in relation to targeting group and designing an appropriate approach to administering affordability supports.

There is considerable data available within each organisation, however, the data is held mainly on an individual rather than a household basis. Data in relation to household composition and income is only held for certain groups and it is not possible to identify household income and composition for every household in the State on the basis of data currently held.

Income details are held by Revenue for individuals but not households, as the latter are not taxable entities from a Revenue perspective. Limited household composition data is available, for example linking between some spouses, but this would not be sufficient to build a register of all individuals in a household and their incomes. Only individual designated liable owners are definitively linked to particular properties on the Local Property Tax Register.

The Department of Social Protection holds a considerable amount of information in relation to those on welfare payments but this information is held at individual rather than at household level. The Department of Social Protection do not have income information for many of their customers, such as pensioners in receipt of the State Pension, and therefore could not provide income information on this group other than Social Welfare payments made.

There is good data available in relation to individuals and households in social housing but not in relation to the private rented sector.

Medical need

A particular issue arises for those with specific medical conditions requiring higher than average water usage. This target group could be dealt with separately from the other groups. The HSE has

specifically identified people who are on home haemodialysis, which requires a large volume of potable water. This varies by frequency and type of dialysis but at a maximum could involve 163,800 litres of water per year for home haemodialysis only (more than double average consumption for an individual). It is estimated that by the end of 2014, there will be up to 80 patients in this category. Similar to other utilities, these could be dealt with as priority customers, with their bills capped at the normal usage for their household type and other requirements being addressed such as issues relating to any possible interruption of supply.

In the UK, other groups identified as eligible for support due to medical need and where they are part of income constrained households, are those with desquamating or weeping skin conditions. Further work is required with the HSE to determine an appropriate list of conditions for Ireland.

Summary

- Households likely to face affordability issues when water charges are introduced are likely to be single occupancy households, lone parents and large families mainly within the bottom decile of income in the State. [Estimated at 4% of the population based on average charges in the range of €450-€500, but not taking into account the impact of a universal free allowance].
- A number of households with specific medical needs will face significantly higher charges if they are on metered charges.
- The lack of data on household income and composition makes the targeting of measures to the potential groups very difficult.

Chapter 4: Options in relation to targeted affordability supports

Water policies pursue four general objectives (environmental, economic, financial and social) which can give rise to potential conflicts in relation to policy making. Against the backdrop of these potential conflicts a number of European states have introduced specific provisions to ensure that water services are available to low-income households at a reasonable cost. A summary of some European examples is set out at Appendix 3. The options tend to involve:

- (a) Social tariffs – a mechanism by which the utility (with regulatory approval) uses different tariffs for different classes of customers depending on vulnerability status, financed through direct cross subsidisation of all remaining customers;
- (b) Direct support – a mechanism by which the Government would approve a level of discount to be taken from customer’s bills – the financing of this would come from Government;
- (c) General supports – dealing with the matter as a normal income redistribution issue – through social protection and taxation systems.

In the Irish context, each option needs to be evaluated in the context of adequately addressing the needs of the target groups and efficiency of administration (particularly given that bills will issue from 1 January 2015). The Government is already committed to providing a universal free allowance. It remains to be decided whether this universal allowance will be targeted (i.e. some consumers will get a greater free allowance than others) and/or whether some sort of two tier subvention system needs to be put in place for those households particularly at risk. This chapter considers the potential different mechanisms of support, in addition to a universal free allowance, for households who might otherwise experience water poverty.

Social Tariff (without Government subvention)

Social tariffs involve a range of lower tariffs being available to some eligible customers funded through cross-subsidisation. The ‘Watersure’ Scheme in the UK is a national scheme funded by cross-subsidisation. To extend the type of support available, additional social tariff schemes have been introduced by a number of the private water companies themselves and are being considered by others. A similar approach is in place in some other European countries. Analysis by the

Commission for Energy Regulation (CER) of some European examples, suggests that social tariffs, in the forms used, have the following disadvantages:

- They are not successful in targeting vulnerable groups;
- They can impact on the potential revenue of the water provider such that they can have difficulty attracting investment; and
- They can lead to poorer services in some areas.

A key issue in relation to social tariffs is the willingness of other customers to fund social tariffs through their water services bills. This was identified as an issue by the CER in an Irish context and also by the National Federation of Group Water Schemes (given the small pool of customers in group schemes within which such cross-subsidisation would occur). The UK Consumer Council for Water undertook research on social tariffs in 2007 and 2010 finding that customers had a low willingness to cross subsidise customers on social tariffs. In 2007, 69% of water and sewerage customers were found to be willing to pay an extra £1 per year on their bills to help vulnerable customers. Customers were less comfortable with an extension of the subsidy – 39% said they would support increasing this to £2 per year, 19% up to £5 per year and just 3% would support an increase of more than £10 per year. When asked to identify alternative ways of providing assistance with water charges, 48% of consumers cited Government assistance. By 2010, this willingness to cross-subsidise had improved with 16% of respondents saying they would support extending the subsidy to £2 per year, 19% would support extending to £5 per year, 19% up to £10 per year, and 6% would support beyond £10 per year.

A number of other issues arise with this approach:

- This option would involve Irish Water introducing four distinct ranges of tariffs for domestic customers; a metered tariff, an assessed tariff, a social metered tariff and a social assessed tariff. Irish Water would apply the social tariffs, which would be discounted tariffs, to those households identified as qualifying for additional assistance. The acceptability of charges would be a significant issue if there were four charges instead of two (metered and assessed.)
- There may be data protection issues in relation to a commercial utility holding the type of information necessary for Irish Water to decide on eligibility for a social tariff e.g. income

levels of customer. The setting of such criteria by either the water provider or the CER would seem inappropriate from a social policy perspective.

- It would be very important that a consistent approach be taken across all water customers in relation to affordability. Customers not on the public supply would therefore have to be eligible for lower tariffs. The voluntary nature of the National Federation of Group Water Schemes poses great difficulties if affordability measures are to be addressed by group schemes themselves, both in terms of administration and data protection/confidentiality in small communities.
- Irish Water would also encounter a number of problems in the administration of any scheme which would involve assessment of means as it would be administratively difficult (particularly in an immature organisation) and Irish Water is not entitled to gather this type of information or hold it. These problems include:
 - full procedures and processes would need to be put in place to administer and maintain such a scheme;
 - maintenance and validation of the data would be a major issue and there would be a considerable cost to setting up such a system; and
 - IW will not have the power to follow up false declarations and apply penalties.

Social Tariff (with Government subvention)

Some of the issues outlined above could be addressed if the funding was provided by Government to the relevant water providers and the eligibility for support was set out by Government. TASC outlined an approach to the Group on this basis which would involve a series of “water credits” tailored to particular income needs, with no allowance for higher income groups. In their view, this has merit, from a funding and overall acceptability perspective, and could follow approaches similar to the current Household Benefit Package if both the households to be supported and the quantum of support were decided by Government. Irish Water would then simply have to reflect this support in qualifying customer’s bills. However, as described below and in the preceding chapter the lack of data on household income and composition makes both the identification of the target groups and the delivery of targeted support on this basis problematic.

Social Protection Scheme (with Government subvention)

This option would involve the use of existing social welfare schemes as a 'passport' to receiving a water payment. The schemes in particular that were examined were the Fuel Allowance Scheme and the Household Benefits Package. One benefit of this option is that the Department of Social Protection could provide a cash allowance directly to Group Water customers and avoid the administrative burden on Group Water Schemes in implementing a social tariff or social support scheme. The same scheme would apply under this option to both Irish Water and Group Water Sector customers allowing for consistency and fairness of approach.

However, the Department of Social Protection has highlighted that neither the Household Benefits Package nor the Fuel Allowance Scheme are targeted at those who are at risk of poverty.

The use of either of these schemes as a 'passport' to receiving a water payment would have poor outcomes in terms of targeting the individuals most in need of support. For instance approximately 600,000 households are in receipt of one or both of the Household Benefits or the Fuel Allowance scheme. However, approximately 330,000 households are in the bottom two deciles – those deemed most at risk of suffering water poverty. Therefore the use of either of these schemes as a 'passport' for a water payment would clearly be an inefficient use of available resources as inevitably individuals who would not require such a water payment would benefit.

In addition, it should be noted that the Department of Social Protection does not capture or collect income information in relation to many recipients who are in receipt of either the Household Benefits Package or the Fuel Allowance such as individuals in receipt of a State Pension.

The ESRI examined the option of providing an extra €5 a week to households in receipt of the Household Benefits Package and the Fuel Allowance Scheme. It should be noted that there are approximately 800,000 households receiving either the Household Benefits Package and/or Fuel Allowance – approximately 200,000 of which are in receipt of both the Household Benefits Package and Fuel Allowance. Therefore if an additional €5 per week was provided to households who were entitled to either Household Benefit Package or Fuel Allowance this would cost approximately €156 million per annum (based on 600,000 households).

Of these two schemes, the ESRI found that the fuel Allowance Scheme captures a marginally larger share of prospectively water poor households, however neither scheme is particularly useful for targeting groups vulnerable to water poverty. Therefore aligning with these schemes would result in a scheme reflecting a high cost per household moved out of water poverty and a high proportion of households receiving the benefit who are not water poor.

Using existing re-distribution mechanisms

In their presentation to the Group, publicpolicy.ie argued strongly that the existing tax and social protection systems provided a high level of progressivity and should be used as an appropriate re-distribution mechanism to address water affordability issues, as weekly expenditure on water is likely to be substantially less than other utilities and could therefore be considered “marginal” in a poverty context. This would align with the approach in Germany, where water charges are high, but the costs involved are factored into the overall analysis of costs when setting social protection levels or in addressing child benefit costs, if it transpires that the greatest impact is on large families. While there are past precedents in using the taxation system in the waste area, the focus in recent years has been to streamline the tax system through a curtailment of such reliefs.

Administration

The characteristics of any subvention should be that it should be simple to administer, well targeted and cost effective. This will not be simple to achieve and there will be trade-offs between all three. For example if an existing DSP scheme was chosen as a ‘passport’ for qualification for a water affordability payment, this could be viewed as administratively advantageous but would be costly and badly targeted in terms of households that genuinely require assistance.

The key questions to reduce cost and complexity are how and by whom eligibility criteria will be set, how any affordability scheme will they be implemented in practice and how much it will cost.

The Department of Social Protection (DSP) has highlighted the fact that the potential groups do not match its existing customer base. DSP has serious concerns about any proposals, including a social tariff, which would require a new assessment/decision making process by DSP. Any new assessment process would have very serious policy, operational and resource implications for DSP and would negatively impact on the delivery of its current reform agenda, including activation, while keeping its customers in payment. Any water payment linked to existing social welfare payments (such as Fuel Allowance) would cut right across the Department’s activation agenda and would create further poverty traps and disincentives to work.

The lack of relevant household income and composition data makes the design of a targeted support system complex irrespective of whether it is delivered by the water providers or the social protection system. A relatively straightforward and streamlined system is required within the timescale available. The approach to all options should, therefore, include a system of self-declaration as this appears to be the most appropriate approach to follow given the data available at present is insufficient to use as a basis for a scheme of support and assessment of eligibility. Self-declaration would also appear easier to implement based on the Local Property Tax experience. Validation could be carried out on a certain proportion of declarations, this would be important to incentivise correct declarations, with appropriate penalties for the provision of false information such as withdrawal of the allowance and recouping of monies paid plus interest.

The self-assessment approach could be used for any form of subvention chosen be that a social tariff operated by Irish Water, a two tier system (free allowance plus an additional subsidy payment) or a targeted universal allowance (i.e. different values of free allowance by household). The cost and complexity of introducing a completely new household based means test for a significant body of the population solely for this purpose could not be justified.

The Group is therefore considering progressing the following elements:

- (a) Households which require higher water use due to specific medical conditions could be put on a capped bill and this could be administered through Irish Water, based on a medical practitioners report; and
- (b) Consideration of additional affordability measures – the extent of which is dependent upon the approach to the free allowance and overall level of charges - to be based on a system of self-declaration used to target other financially vulnerable customers. Eligibility conditions would have to be defined for target groups by Government.

As the groups impacted by water poverty issues are dependent on the overall level and design of charges, there needs to be integration between tariff design and the free allowance, to ensure that no unintended consequences arise for particular groups through such design e.g. proportionately higher bills for single occupancy households and very high bills for large households. It would be useful if potential issues for these household groups could be addressed through these mechanisms to the maximum degree possible.

Summary

- Every effort should be made in designing tariffs and the free allowance to take cognisance of potential water poverty issues and avoid creating inherent inequalities through the tariff structure.
- Households which require higher water use due to specific medical conditions could be put on a capped bill and this could be administered through Irish Water, based on a medical practitioners report.
- Any new targeted support will have to be based on self-declaration of circumstances with follow up validation on an auditing basis (the nature and extent of such support would be related to the approach to the free allowance and overall level of charges.)

Chapter 5: Impact of water charges tariff design and free allowance

The manner in which tariffs and the universal free allowance are applied, could be a significant mitigating factor if appropriately designed, to reduce impacts on smaller households and larger households with children, which have been identified as potential at risk groups from the analysis in chapter 2 - and may even negate the need for a comprehensive additional affordability measure. Depending on the targeting and the value of the free allowance, the number of additional households needing support could be relatively small. This would greatly reduce the risks of a self-assessment system.

Responsibility for the design of tariffs rests initially with the water service providers and will be managed in the following manner:

- *Irish Water:* Under the Water Services No 2 Act 2013, responsibility lies, in terms of public water services, with Irish Water to prepare a water charges plan for approval by the Commission for Energy Regulation (Section 22 of the Act).
- *Group Water Sector.* Water charges for the group water sector are set by each individual group. They are not subject to economic regulation.

In the case of public water services, both Irish Water and the Commission may be subject to policy direction of the Minister. In the case of the Commission this is of a “general policy nature” and subject to prior consultation with the Commission and the Joint Oireachtas Committee (Section 42), while in the case of Irish Water such direction is proposed in relation to the performance of its functions under the Act and the direction is to “comply with such policies of the Government as are specified in the direction” (section 26). In the case of the group water sector, the practice has been that certain conditions have been applied by the Department in the context of the provision of the current household subsidy applying in the sector, which would influence tariff design (appendix 4).

Against this background, this chapter examines how the tariff design might be used to mitigate possible issues of affordability and how this might underpin general policy directions to Irish Water/CER/Group Water Sector, as well as how the available resources for the free allowance might be used in tandem as a further means of ameliorating the impact of water charges. The analysis, which is based on public water supplies, assumes that similar approaches would apply, in a proportionate manner to the group water sector.

Water consumption and costs

Over the period to end 2016, meters will be installed in all meterable domestic properties. This will facilitate charges based on usage³. Where meters are not in place, an assessed charge will apply.

Consumption patterns will vary between households and data on typical consumption in Ireland will become available as the metering programme progresses. Studies to-date, which are validated by international research, indicate that while there is a relationship between household occupancy and consumption, the increase in consumption per additional person in a household is far less than the consumption of a single occupancy household. See table 5.1.

Table 5.1 – Household water consumption patterns⁴

No in household	1	2	3	4	5	6	7 or more
Average usage [m3 per annum]	77.8	115.7	153.7	191.6	229.5	267.5	No data
Number of Households (public system)	304,000	370,000	225,000	198,000	102,000	35,000	
Number of Households (GroupWater Schemes)	42,000	53,000	33,000	32,000	20,000	8,000	

As charging will commence in Quarter 4 2014, before the end of phase 1 of the metering programme⁵, the majority of households will commence on assessed charges, and then migrate to metered charges (timing will be determined as part of a code of practice with the Commission and will not involve choice for households).

Therefore, before considering the approach to how the free allowance might operate when the majority of households are on metered charges, it is useful to examine how the allowance might be reflected in assessed charges. The objective is to ensure that assessed charges are as close a proxy as possible to charges based on usage. Taking account of the issues arising on the possible poverty impacts, to the degree practicable, it would be appropriate to reflect occupancy. Given that this is

³ According to a survey carried out by the National Federation of Group Water Schemes in 2011, it is estimated that 90% of Group Water Schemes, public and private, are metered.

⁴ Household Consumption data taken from 'A Study into the Application of Domestic Allowances on Non-Domestic Water Charges for Public Water Services' prepared by Atkins for the CCMA March 2006 and Household composition data from Census 2011

⁵ Phase 1 covers all "meterable" properties – estimated at 1.35 million of the 1.6 million homes on public water supplies. Those which are not immediately meterable include apartments and houses on common services. A pilot study is underway to see how the metering of such properties might be addressed in further phases.

not readily available and would need to be self-declared, a banding approach would be preferable. An illustration of a possible approach which ensures that large families are not unduly impacted by higher charges is set out below.

		Home type		
		Small	Medium	Large
Occupancy	0-1	Price 1 (Lowest)		
	Medium	Price 2	Price 3	Price 4 (Highest)
	Large	↑	↑	↑

Under this arrangement, a special tariff would apply to single households, at a lower level than other charges, thus addressing the needs (in a universal manner) of this household type which have been identified through the work of the ESRI and the Group. Many of the UK water companies also apply such tariffs for single households. It is estimated that some 25% of Irish Water’s customers are single households.

Having a single band that incorporates tariffs for both medium sized and larger households would be to the advantage of larger households, a further group identified by this report as potentially facing affordability issues. While not all larger household are families with children, about 50% of Irish Water’s customers have children.

Government support and free allowance

Submissions from both TASC and publicpolicy.ie argued against the universal application of a free allowance on the basis that it is a subsidy for all households regardless of means and circumstances and therefore would neither satisfy the polluter pays principle or equality principles. A free allowance is not common in European water charging systems, with the only example arising in Flanders, Belgium where it is funded through cross-subsidisation. The ESRI raised similar issues regarding the free allowance, with a preference for greater targeting of support through affordability measures. The ESRI did however recognise that as a transitional measure the free

allowance may have value. As the free allowance is a Programme for Government commitment, the issue arising is the level of funding provided through this mechanism – which reduces overall water charges and provides funding in a targeted fashion.

It is envisaged for reasons of social and economic policy that the Government will continue to provide support to the sector for a considerable period. This reflects the fact that:

- (a) there is a historical backlog of capital investment which is contributing to underlying inefficiencies in the delivery of water services; and
- (b) a programme of transformation is envisaged by Irish Water which will lead to greater operational efficiencies and this will be a focus of the economic regulation of water services.

At the same time, the charging mechanism needs to reflect the usage by households in the interest of both equity and sustainable use of water resources. State support is likely therefore to be in the following forms:

- (a) equity/capital grant to support the core asset replacement and enhancement;
- (b) an operational subsidy which will decline over time as the efficiencies referred to above emerge which would be considered a product subsidy in Eurostat rules; and
- (c) the funding of a free allowance for households which may be either in the form of a subsidy (product subsidy) or volume of water.

The level of water charges has to be set at a level such that the revenue from charges is at least half the operational costs (market corporation test)⁶ or Irish Water will not count as a commercial body under Eurostat rules which would mean that expenditure would not be off the Government balance sheet. The general approach proposed will be the subject of a formal submission by the CSO to Eurostat shortly and this will ultimately determine the manner in which State support can be provided to Irish Water.

An option in relation to the free allowance would be to indicate that the free allowance is part of the transition phase as suggested by the ERSI to be replaced by a more sophisticated targeted affordability model when the appropriate data is available and systems can be put in place. The allowance needs to be set at a level which allows households to transform their consumption

⁶ The market corporation test is a requirement that more than 50% of production costs are covered by sales. 'sales' exclude taxes on products but include all payments made by general government or the Institutions of the European Union and granted to any kind of producer in this type of activity, i.e. all payments linked to the volume or value of output are included, but payments to cover an overall deficit are excluded.

patterns over time, so that they do not face a substantial bill shock if the allowance is removed or tapers off over time.

Administration of a free allowance

The most straightforward system for water providers is the provision of a household allowance, similar to that currently provided for the group water sector. Further complexity is added if the allowance is reflective of household type, whether on occupancy which would have to be self-declared or property type, as a proxy to consumption patterns. A balance will have to be achieved in terms of the cost of administration and equity, and there will also have to be an alignment with any targeted affordability measures which are available to some households. In any event, a system of self-declaration which could be undertaken as part of the customer validation exercise planned by Irish Water would be required. Similar to the local property tax, it would seem sensible for cost and efficiency reasons, to ensure that the declaration was held for a period of time (e.g. to end 2016, which is the scheduled end of the metering programme) and that the charging regime remains the same during this period. Otherwise the water providers would have to deal with changes in household numbers for each quarterly bill. The self-declaration process does raise concerns about fraud and adequate systems for auditing and therefore penalties for the provision of false information would be required.

Summary

- There is potential through the tariff design and free allowance to address affordability issues for key potential target groups.
- Consideration should be given to self-declaration of entitlement for a set period, if there are any complexities to the free allowance beyond an allowance per household.
- Any false declaration should lead to loss of the free allowance.

Chapter 6: Next Steps for Working Group

Based on the fore-going and meetings with stakeholders, there are a number of matters to be further progressed by the Group. Further work on the funding model for Irish Water, including Eurostat confirmation on aspects thereof, will determine the extent of support which can be provided in general subvention and the free allowance. This will impact on the general level of charges and, the case for, and the level of funding available for targeted affordability measures. The free allowance can, even without further targeting, assist in alleviating the position of disadvantaged households. However there may still be a small percentage of households who will, struggle to pay water charges.

The Group proposes to conduct further work to seek to fully assess the case for an affordability measure over and above the proposed free allowance and, in light of that assessment, to provide Government with a range of workable options. It is likely that any options for an affordability measure are likely to be based on some form of self-declaration which can be randomly audited. At this point of the Group's deliberations, there would seem to be at least two clear choices from an overall policy perspective:

<p><i>Option (a) Maximise the support to vulnerable households</i></p>	<p>A package of measures on this basis could include:</p> <ul style="list-style-type: none"> • general subvention to Irish Water (expressed as a product subsidy) which reduces the overall costs of water for domestic consumers and is expressed as a small free allowance per household; • design the water charge in a manner which seeks to address particular needs of single household and larger families (<i>this would require policy direction to Irish Water and the CER</i>); • provide for additional allowances for households who are income constrained or in medical need (<i>this is administratively difficult for the reasons set out above</i>).
<p><i>(b) Provide general support to all households and limited support to some categories of</i></p>	<p>Under this scenario, a general subvention to reduce the water costs would still apply, but the bulk of the resources would be geared to a more generous free allowance in a package of measures involving:</p> <p>(a) a universal free allowance tailored in some form to reflect differing</p>

<i>household</i>	<p>needs of single households and larger families;</p> <p>(b) provide for additional support for households who are income constrained or in medical need, depending on the overall level of water charges.</p>
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The Group understands that further parallel work on funding matters (including free allowance) is being advanced. The next phase in the Group’s work will be determined in the light of this work and could include further examination of the profile of the target groups that may require additional assistance. It will also involve outlining the administrative arrangements required to deliver any additional affordability measures with a high level action plan and an identification of the likely costs involved in providing the recommended measures. Depending upon the targeting and value of the free allowance, and the level of average charges, the number of additional households needing support could be relatively small. While this would greatly reduce the risks of a self-assessment system, proportionality of the administrative costs and burdens involved will have to be evaluated in that context. Both Irish Water and the Department of Social Protection have raised very significant concerns about cost and implementation of any social tariff/support scheme

Other elements of the consumer package

The engagement with a number of stakeholders, including the CER, the National Federation of Group Water Schemes, Irish Water and the St. Vincent de Paul and National Youth Council on behalf of the Community and Voluntary Pillar Group pointed to the need for a range of measures, not solely associated with financial support, such as:

- water conservation information and advice to allow households to manage their consumption;
- specific support to address leakage, or provide water saving devices (perhaps along the lines of the warmer home schemes operated by SEAI); and
- a range of payment options.

The Group will also meet with Money Advice and Budgeting Service (MABS) and explore the options in relation to debt management and alternative mechanisms for dealing with individuals with an inability to pay.

Next Steps

The next steps for the Group should involve:

- (a) Determining the need for arrangements beyond free allowance and tariff design, which would involve:
 - Further profiling by the ESRI of the potential target groups that may require additional assistance in light of the emerging approach to free allowance and water charges design;
 - Consideration of the appropriate body to determine eligibility, data sharing and validation, and funding of recipients/water providers (Irish Water and Group Water Schemes);
 - Identify the likely costs involved in providing the recommended measures.

- (b) Looking at the wider package of measures which can impact on water affordability – water conservation, debt management, including:
 - Meeting with the Money Advice and Budgeting Service (MABS) and exploring the options in relation to debt management and alternative mechanisms for dealing with individuals with an inability to pay.

- (c) Outlining the administrative arrangements required to deliver on the recommended approach with a high level action plan, including the criteria to apply to concession for those with high usage due to medical need.

Appendix 1: Membership of the Group

Department of Environment, Community and Local Government:

Maria Graham (chair)

Deirdre Mason

Catherine Comer

Department of Social Protection:

Simonetta Ryan

Neil Egan

Jim Walsh

Seosamh MacCarthaigh

Department of the Taoiseach:

George Burke

Yvonne Jackson

Department of Finance:

Brendan O' Connor

Terence Hynes

Department of Public Expenditure and Reform:

Marie McLaughlin replaced by Tom Heffernan (D/ECLG Vote)

Colin Menton, Kevin Meaney (DSP Vote)



**Water Charges, Affordability and Poverty:
Analyses for the
Affordability Working Group**

Tim Callan, Michael Savage

The Economic and Social Research Institute

November 2013

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Section 1

Introduction

Gorecki et al. (2013a, b) undertook a study of Affordability and the Provision of Water Services in Ireland: Options, Choices and Implications for the Affordability Working Group. This wide-ranging study included examination of the impact of water charges in terms of commonly used international definitions of “water poverty” – typically defined in terms of water charges amounting to more than a set percentage of income, usually 3 or 5 per cent. It also examined the potential of a number of policy options to address this issue, and examined the sensitivity of the findings to assumptions regarding the sensitivity of water demand to income levels and to prices. The set of policy options examined by Gorecki et al. includes:

- a) A cash allowance in respect of water charges paid to those who currently qualify for the National Fuel Allowance
- b) A cash allowance in respect of water charges paid to those who currently qualify for the Household Benefits Package
- c) An allowance of a certain quantity of water without charge
- d) Combinations of cash allowances and quantities of water without charge i.e., a) and c) or b) and c)

A number of issues were raised by the Affordability Group in its recent consideration of these findings. In particular, the Group raised issues concerning the impact of proposed water charges on those who are defined as being “at risk of poverty” i.e. with equivalised incomes below 60 per cent of median income per adult equivalent; or the subset of this group who are defined as being in “consistent poverty”, i.e., falling below the income-cut off and experiencing basic deprivation. While the Gorecki et al. report contains information on the extent to which these groups would experience “water poverty”, which is the key focus of their study, a broader view of the impact of water charges on those at relatively low incomes or experiencing consistent poverty is also of interest.⁷

Water charges will also have significant implications for those above the poverty line, so that an analysis of impacts across the income distribution – adjusted for the size and composition of households using equivalence scales – is also warranted. The Social Inclusion Division of the Department of Social Protection has also undertaken an analysis of the impact of a flat rate water charge, modelled using the SWITCH tax-benefit model’s routines for the now defunct household charge. This analysis has raised some issues concerning the extent to which one-person households, and retired persons, are likely to be affected by water charges.

⁷ Gorecki et al. note that the approach proposed by Hills (2012), in the context of fuel poverty, is to identify as “fuel poor” those who fall below the income threshold of 60 per cent of median income per adult equivalent (i.e., are “at risk of poverty”) *and* have energy costs which are above the median for a household of that size and composition. A parallel definition of water poverty would also be possible – focusing attention on those who are at low income and have higher than average costs.

Following discussions, it was agreed that a rapid investigation of these issues would be undertaken (as per the letter from DECLG to Tim Callan, 4 November 2013):

- “1. Examining the impact of water charges on broader definitions of poverty – specifically the “at risk of poverty” measure which is one of the Laeken indicators, and the “consistent poverty” measure which is targeted by national policy.
2. Examining differences between impacts of water charges across the distribution of income based on equivalised and unequivalised household disposable incomes.
3. A closer examination of impacts on single person households, including options which vary the level of the standing charge.”

Our analysis is undertaken using the same data (SILC 2011, the latest available income distribution data) and the same modelling approach as Gorecki et al. In Section 2 we recap briefly on the main features of that approach, and outline the options selected for investigation here. Section 3 then sets out the impact of water charges on the disposable incomes (net of water charges) of those who are at risk of poverty, and those experiencing consistent poverty. Section 4 examines the broader distributional impact of water charges on household disposable incomes, again on a “net of water charges” basis. Issues relating to the impact of water charges on one-person households are examined in Section 5.

Section 2

Analytic Framework

The costings and analytical framework used here are identical with that used in Gorecki et al. (2013). Households living in apartments are treated as being unmetered, and face a flat rate charge based on average consumption. Most households, however, are treated as being metered, and face both a standing charge (typically recouping about 20 per cent of the costs of provision) and a price-per-litre for water consumed.

Gorecki et al. examine a wide range of scenarios and perform some sensitivity analyses to the nature of demand for water. In the time available, a smaller set of options is considered here. The selection of options is based on the findings of the report itself, which demonstrated clearly that the provision of a quantum of water without charge – whether with a higher per litre rate on further water consumption, or paid for from general taxation – was not an effective way of dealing with concerns about water poverty. Instead, the report states that

“It would be far better to use the welfare system to target households with water service affordability problems”

(Gorecki et al., 2013, p.61)

Here we consider three options designed by Gorecki et al. and specifically aimed at reducing water poverty:

- Payment of a €5 per week allowance in respect of water to all those currently in receipt of the National Fuel Allowance
- Payment of a €5 per week allowance in respect of water to all those currently in receipt of the Electricity/Gas Allowance element of the Household Benefits Package
- An “optimal” benefit, also paying €5 per week, but only to those who would otherwise experience “water poverty”, defined as having water charges above the water poverty cut-off of 3 or 5 per cent of income

Gorecki et al. consider two variants of each of these approaches – one in which the cost of the “water benefit” is borne by increased charges on water; and another in which the costs are financed by government, from taxation. In the current analysis, due to time constraints, we examine only the latter variant i.e., a “water benefit” funded from general taxation. We do not attempt to specify the precise tax changes which would generate this revenue. The results are, therefore, comparable with those of Gorecki et al.’s fuel allowance benefit and HBP benefit “funded by the taxpayer”.

The fact that we study these options should not be taken as implying that we recommend either of these approaches. Gorecki et al. find that:

“These latter two programmes [the National Fuel Scheme and the Household Benefits Package] are very badly targeted at those households experiencing water poverty”.

Gorecki et al., 2013.

The design of a package which would achieve compensation of target groups in an efficient manner is outside the scope of the present report. If a more efficient and effective tailored benefit is to be designed, this is something which could be examined by development of options for a new benefit in the context of the SWITCH model, which could be used to explore both the cost implications, and the impact on water poverty and broader measures of poverty.

For comparability with results from Gorecki et al., we also present results for what they term an “optimal” benefit. This is tailored to provide support only to those in water poverty. As Gorecki et al. indicate, this makes it a target which is effectively unattainable in practice; but it does provide a benchmark or “theoretical upper bound to the cost-effectiveness of welfare-based measures” (Gorecki et al., 2013.p.39). We use quotes around optimal to indicate that there are several limitations in the optimality of this benefit:

- The “optimal” benefit is highly efficient by its definition, but is not sufficient to eliminate water poverty
- Perhaps more important, the benefit is optimal only in relation to the goal of avoiding “water poverty” – it does not take account of the impact of water charges on those who are already falling into “consistent poverty” and/or are “at risk of poverty”

Section 3

Impact of Water Charges on those At-risk-of-poverty or in Consistent Poverty

We look first at the impact of water charges on those who are “at-risk of poverty” i.e., have incomes, adjusted for household size and composition, which are below 60 per cent of median income. In Table 1 we report the average percentage fall in disposable income, net of water charges, for each group. In the baseline situation there is no water charge, so these results can also be read as indicating the average of water charges for each group as a proportion of initial average disposable income. For those who are at risk of poverty, the average reduction in net of water charge income is 2.6 per cent. For those who are not at risk of poverty, the water charge averages just under 1 per cent.

How do the alternative compensation mechanisms perform in limiting the impact of water charges on low income groups? Giving a “water benefit” of €5 per week to those who already receive the fuel allowance⁸ reduces the average impact from 2.6 per cent to 1.7 per cent. There remains a gap between the impact on the at-risk-of-poverty group and those not at risk: water charges average 1.7 per cent of initial disposable income for the at-risk group, and 0.7 per cent of income for those not at risk.

Table 1: *Percentage reduction in income net of water charges, at risk/not at risk of poverty*

	At risk of poverty	Not at risk of poverty
No welfare payment for water	-2.6	-0.9
Welfare payment passported on Fuel Allowance	-1.7	-0.7
Welfare payment passported on HBP	-2.3	-0.8
“Optimal” water poverty benefit	-1.8	-0.8

Note: Those “at risk of poverty” have incomes below 60 per cent of median equivalised incomes.

A “water benefit” based on the Household Benefits Package also reduces the impact on low income households, but to a much lesser extent (a reduction of 0.3 percentage points as against 0.9 percentage points). This is because the Household Benefits Package itself is less targeted towards low incomes than the Fuel Allowance.

⁸ This approach is often termed “passporting” a benefit, as qualification for one benefit acts as a passport to another. There can be dangers with such an approach, as loss of one benefit then entails the loss of both, with consequent damage to financial incentives to work – but these are outside the scope of the current report.

Table 2: *Percentage reduction in income net of water charges, consistent poverty status*

	In consistent poverty	Not in consistent poverty
No welfare payment for water	-2.4	-1.0
Welfare payment passported on Fuel Allowance	-1.6	-0.8
Welfare payment passported on HBP	-2.3	-0.9
“Optimal” water poverty benefit	-1.8	-0.8

Note: Those “at risk of poverty” have incomes below 60 per cent of median equivalised incomes.

Table 2 shows corresponding results for the groups in consistent poverty and not in consistent poverty. The patterns found in the earlier table, based on “at risk of poverty” status, are repeated here.

Section 4

Distributive Impact of Water Charges

In this section we take a broader perspective on the impact of the water charges across the income distribution, and how this is affected by alternative compensatory mechanisms.

Table 3: Impact of water charges across the income distribution: water charges as a percentage of baseline disposable income under alternative compensatory payments

<i>Decile of disposable income per adult equivalent</i>	<i>No welfare payment</i>	<i>Water benefit passported on Fuel Allowance</i>	<i>Water benefit passported on HBP</i>	<i>“Optimal” water benefit</i>
Bottom	-3.0	-2.1	-2.6	-1.7
2 nd	-1.9	-1.1	-1.7	-1.6
3 rd	-1.6	-1.0	-1.3	-1.2
4 th	-1.4	-0.5	-0.9	-0.9
5 th	-1.3	-0.9	-1.1	-1.1
6 th	-1.1	-0.9	-1.0	-1.0
7 th	-1.0	-0.9	-0.9	-0.9
8 th	-0.9	-0.8	-0.8	-0.8
9 th	-0.7	-0.7	-0.7	-0.7
Top	-0.5	-0.5	-0.5	-0.5
All	-1.0	-0.8	-0.9	-0.9

As is usual in analyses of income distribution impacts, households are ranked by disposable income per adult equivalent. The scale used is that employed in national poverty monitoring (CSO, 2012) i.e., 1 for the first adult, 0.66 for subsequent adults, and 0.33 per child. Then households are divided into 10 equal-sized groups or “deciles”, ranked from the poorest (“bottom”) to the richest (“top”).

The baseline water charge, without any compensatory mechanism, would bear most heavily on those in the bottom two deciles, with an impact averaging 3 per cent for the bottom decile and close to 2 per cent for the second decile. For other deciles, the impact ranges from about 1½ per cent (deciles 3 and 4) to ½ per cent for the top decile.

Compensation via a €5 per week payment to those already receiving Fuel Allowance would reduce the impact on the bottom two deciles by close to 1 percentage point. It would also have a similar impact on the 4th decile, and a smaller, but significant impact on the 5th decile, reflecting the fact that the Fuel Allowance itself is not strictly tied to income levels.

A “water benefit” passported on the Household Benefit Package would not have as great an impact on low income households as one based on Fuel Allowance.

Section 5

One-Person Households

Gorecki et al. found that one-person households were a particularly high-risk group with regard to water poverty. In this section, we examine in detail the effect of water charges on one-person households. Analysis undertaken by the Department of Social Protection looked at the distributive impact of a fixed-amount water charge using the ESRI tax-benefit model, SWITCH. Although one-person households could not be directly identified, a fixed water charge (of €500) was found to have the biggest impact on single retired *tax units*, for whom the water charge amounted to about 1.6 per cent of initial disposable income.

Our analysis confirms this pattern. We analyse a fixed water charge for all households, based on the same cost assumptions in Gorecki et al.⁹ and find that while the water charge averages about 1.6 per cent for single retired households, they still face a high risk of water poverty in terms of the 3 per cent cut off. With no water allowances, over 30 per cent of single retired households would have water expenditure of more than 3 per cent of disposable income. Thus, there is no incompatibility between the results based on the SWITCH model and the high risk of water poverty found for one-person households in Gorecki et al.

Table 3 compares the percentage of households in water poverty categorised by the number of people in the household. Examining the baseline scenario with no “water benefits” first, 11 per cent of one-person households would be in water poverty at the 3 per cent threshold, and 6 per cent would be in water poverty at the 5 per cent threshold. Under both thresholds, this is more than double the percentage of any other category of households that is in water poverty.

The welfare payments passported on either the Fuel Allowance or the Household Benefits Package, while in general not well targeted, do reduce the risk of water poverty in all households. The reduction is particularly strong in one-person households under both payments, almost halving the rate of water poverty at the 3 per cent threshold. As expected, the “optimal” benefit achieves the greatest reduction in the risk of water poverty for all households, bringing the risk below 1 per cent for all but one household size.

⁹ With 100% of the total cost placed on the standing charge, the water charges are €421.24 for metered households and €472.08 for unmetered households.

Table 4: Percentage of households in Water Poverty, by number of persons in household

Persons in household	No welfare payment for water	Welfare payment passported on Fuel Allowance	Welfare payment passported on HBP	“Optimal” water poverty benefit
<i>3% threshold</i>				
One	11.0	6.5	6.4	0.3
Two	5.5	4.9	3.9	0.4
Three	3.3	2.5	2.9	0.6
Four	3.7	3.2	3.2	1.2
Five	2.3	2.1	2.0	0.0
Six +	5.2	4.7	5.2	0.4
<i>5% threshold</i>				
One	5.9	3.1	3.9	0.3
Two	2.8	2.6	2.2	0.4
Three	1.2	1.1	1.0	0.4
Four	1.6	1.2	1.6	1.1
Five	0.5	0.4	0.0	0.0
Six +	0.2	0.2	0.2	0.0

Table 5 compares the percentage of households and individuals in water poverty that are in one-person households. Examining households first, with no water welfare payment, between 40 and 50 per cent of water poor households contain only one person.

The lower panel of Table 5 looks at a similar question from a different angle – here the figures describe the percentage of water poor *individuals* who are in one-person households. When analysing poverty, the number of people experiencing poverty is a key concern. Without any water welfare payment, the percentage of water poor individuals in one-person households ranges between 20 and 25 per cent – about half of the rate found at household level.

Table 5: Percentage of households and individuals in water poverty that are in one-person households, under various levels of standing charge

	20% of total cost on Standing Charge	30% of total cost on Standing Charge	20% of total cost on Standing Charge	30% of total cost on Standing Charge
	3% threshold		5% threshold	
<i>Households</i>				
No welfare payment for water	41.7	43.4	47.5	48.0
Payment passported on Fuel Allowance	32.9	34.2	35.0	36.1
Payment passported on HBP	34.2	35.3	42.7	43.3
“Optimal” water poverty benefit	12.3	9.2	12.9	12.9
<i>Individuals</i>				
No welfare payment for water	19.5	20.8	25.3	25.8
Payment passported on Fuel Allowance	14.2	15.1	17.1	17.8
Payment passported on HBP	14.5	15.2	21.7	22.2
“Optimal” water poverty benefit	4.1	3.4	4.4	4.4

Reducing the number of households in water poverty is really an intermediate target; the end goal is to reduce the numbers of individuals who are living in households experiencing water poverty. For this reason we focus mainly on the lower panel of Table 5, dealing with the extent of water poverty at individual level. At the 3 per cent threshold, the proportion of individuals in water poverty is reduced from about 20 per cent to below 15 per cent. If an “optimal” benefit, tailored precisely to those in water poverty, could be implemented it could reduce water poverty below 5 per cent.

In both the household and individual level analysis, increasing the percentage of total cost that is assigned to the standing charge slightly increases the proportion of one-person households among the water poor. Similarly, the “optimal” benefit performs significantly better in terms of protecting one-person households from water poverty, highlighting the poorly targeted nature of the “passported” payments, and suggesting that the design of a better targeted benefit is a high priority for policy and for future research.

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Appendix 3: Overview of Affordability measures in other countries

The 2010 OECD Report on Pricing Water Resources and Water and Sanitation Services found that in about half the OECD member countries, affordability of water charges for low-income households is or could become a significant issue. The OECD reported that different approaches have been taken to protect vulnerable groups broadly classified into income support measures such as discounts, subsidies, easier payment plans etc. and tariff-related measures which keep the cost of water bills low for certain groups through cross-subsidisation from other customers. According to the OECD report, affordability could also become an issue for higher earning groups if financial support measures are not introduced and targeted properly. The burden on paying customers will increase if vulnerable customers with affordability issues fall into arrears and other customers have consequently to pay higher bills. This in turn could lead to affordability problems for those in a higher earning group.

England and Wales

A 2011 UK Government Report 'Water for Life' states that bad debt adds £15 to all customer bills while the 2009 Walker Report on domestic water charges in England and Wales stated that bad debt is placing too much of a burden on water customers who pay their bills and that debt in the water sector in the UK is three times higher than in the energy sector, although the level of water bills are only about one-third of energy bills.

England and Wales have a special 'Watersure' tariff available for certain customers that will allow them to have their bill capped at the average household bill for the water company where they reside. To qualify for this support the customer or someone living with them must be in receipt of a specified benefit such as housing benefit or income support. The customer must also have at least three children under the age of 19 in full time education living in the property or have someone residing with them with a medical condition which requires significant additional use of water. Examples of qualifying medical conditions include Crohn's disease, weeping skin diseases such as eczema or psoriasis and incontinence. Medical conditions not specifically named under the scheme but which also require additional water use can be applied for based on a medical practitioner's report. According to the Walker Report in 2009 this scheme helped around 29,000 customers and was funded by water customers at an estimated cost of £0.40 per household per year. The Walker Report recommended that this scheme should be extended to include high essential water users for medical reasons, discounted bill for low income metered households and a discounted volumetric tariff for low income metered households with children. In England and Wales, water and sewerage companies are allowed (under the Flood and Water Management Act 2010) to include social tariffs in their charges schemes. This allows these companies to reduce charges for individuals who would otherwise have difficulty paying their bill in full. It explicitly allows companies to introduce cross-subsidy between customers.

France

Direct individual aid: Until 2012 no social tariffs existed and the affordability of water services was solely dealt with through separate social policy. 500,000 households spend more than 3% of their income on water bills and 0.25% of subscribers benefit from the housing solidarity fund, which is managed at departmental level and co-financed by the public authorities and private supply companies. This solidarity system is based on case-by-case analysis of requests, whereby payments to low-income families are targeted directly.

Social tariffs: In light of rising water prices the provision of a cheap allowance is currently being considered in France which so far has operated with a linear charging tariff. Many people are now asking that the first block of water is provided at a cheaper rate while large consumers will be required to pay higher unit prices for water, thus compensating for the loss of revenue. Such a progressive tariff system is being implemented on a growing scale after first being introduced in Dunkirk in 2012.

Effect: Direct financial aid is only allocated following close analysis of requests made by individual households. It is estimated that this bureaucratic approach as well as fears of stigmatisation has discouraged low income households applying for support. Consequently, only a very small percentage of the poor population is assisted in meeting water bills. Due to failure of assisting those in need the French population is now requesting a social tariff system, which is gradually being implemented. Nevertheless, in spite of social tariffs not being the norm in all of France, only 0.7% of users have water debts. The reform of French water affordability measures are, however, unlikely to involve provision of a basic free allowance which is banned under French law. The guiding principle of French water services is thus that water must be paid by water users in proportion with consumption. Meanwhile public authorities do help to finance large investments needed in the water services.

Belgium

Direct aid: Users in the Wallonia region finance a social fund for water through a tax on water consumption. This fund is shared among all municipal social assistance centres, which redistribute the funds to households experiencing difficulties in paying their water bills. 0.5% of subscribers benefit from this fund.

Social tariff: In all three Belgian regions, every building is metered and the first block of water consumption is charged at a lower price. The first block is set at 30 m³ per household in Wallonia and 15 m³ per person in Brussels and Flanders. In Flanders a special tariff for recipients of social benefits also applies. This special tariff includes a reduced sanitation rate and in some cases no standing charge. 200,000 families out of 2.3 million households thus pay water at a lower price. Whereas allocation of free water per household is discriminatory towards larger households or multi-occupied dwellings, whose residents often are poor, the allocation of cheap water on a per capita basis greatly increases the total provision of cheap water. In consequence, the applicable rate for water consumption above this level rises significantly in order to prevent loss of revenue from the utilities.

Effect: Although the provision of a cheap basic allowance may be politically feasible, evidence from Belgium illustrates how allowances based on either households or per capita basis are not straightforward to introduce as it may spark either discrimination or higher costs. Similarly, the Belgian model based on the number of people living in a household requires local registration of residents and may thus not be hard to implement in other countries.

Malta, Spain, Portugal, Greece, Italy, Luxembourg

Social tariffs: Similar to Belgium, increasing block tariff (IBT) systems have been adopted in the Mediterranean countries listed above to assist low income households in paying water bills. Unlike Belgium, these IBTs are nonetheless based on household size.

Effect: With the IBT system the first block of water is paid at a lower price and is intended to ensure access to water for low income households whose consumption is limited. In Malta, for example, two tariffs exist. The first block is sold at €1.5 per m³ and the second at 3.7 times higher. 16% of all households are entitled to water at the lower price which involves removing the standing charge and reducing the unit price of water by 30%.

Other countries, such as Spain, have more than two blocks and progressively increase tariffs in proportion with consumption.

Germany, Denmark, Sweden, Austria

No direct affordability supports appear to be provided in countries such as Germany, Denmark, Sweden and Austria.

In Germany water expenditure allowances are included in core social welfare payments. Water expenditures are recognised as a “standard need” along with other core needs such as food, clothing, energy etc. Depending on the age and type of recipient a monthly allowance between €224-382 will be provided by the German Ministry of Labour and Social Affairs to cover essential costs. Under certain circumstances, e.g. when water is supplied by private operators, the allowance will be higher.

Interestingly, Germany does not face issues of water affordability despite having higher water costs than the European average. Unlike French and Belgian households, for example, water poverty is not seen as an issue by their German neighbours. Here, no or low-income households are exempted from effluent and abstraction charges and receive direct financial transfers through social welfare allowances.

Appendix 4: Grants Available for Group Water Schemes

Introduction

The Rural Water Programme is administered by the local authorities and is comprised of a number of measures to address deficiencies in:

- group water schemes
- small public water and sewerage schemes
- private supplies where no alternative group or public supply is available.

Grants

- **Group Water Schemes**

- Grants of up to 100% of cost of essential treatment & disinfection facilities for schemes participating in bundled Design/Build/Operate (DBO) contracts are available. Other necessary works like buildings, reservoirs, pipelines associated with the contract are grant aided at up to 85% of cost subject to a max of just over 6,475 euro per house
- For new group schemes and general upgrading of networks etc, grants of up to 85% of cost subject to a max of 6,475 euro per house are available

- **Group Sewerage Schemes**

A grant of up to 6,500 euro per house or 75% of the cost of a scheme whichever is the lesser is available for Group Sewerage Schemes where a number of households provide a shared sewage collection/disposal system.

- **Individual Water Supply Grant Scheme**

A grant of up to 75% of cost, subject to a maximum grant of 2,031.58 euro is available for upgrading a private individual water supply where no alternative group or public supply is available.

Subsidies:

An annual subsidy per house is payable towards the cost of providing domestic water to group scheme members:

- up to 70 euro for each house supplied from a local authority source
- up to 140 euro for each house supplied from a private source (well, lake, borehole etc)
- up to 220 euro for each house where water disinfection and/or treatment is provided under a Design, Build, Operate (DBO) Contract.

Appendix 5: ESRI Report to the DECLG March 2013

Affordability and the Provision of Water Services in Ireland: Options, Choices and Implications

By

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A Report Commissioned by the Department of the
Environment, Community and Local Government

15 March 2013

I. Introduction

The Government has decided to create a new company, Irish Water, to own, organise, administer and charge for the supply of public water services¹ in the State, subject to economic regulation by the Commission for Energy Regulation (CER)² and environmental quality regulation by the Environmental Protection Agency (EPA). Irish Water is to be set up as State company within Bord Gais Eireann (BGE). Up until now the supply of water services was the responsibility of 34 local authorities, which were not subject to economic regulation. Local authority water services were funded by revenue from charges on non-domestic users, Exchequer grants and local authority sources such as the Local Government Fund. Domestic users connected to the public water supply have not paid for water services since charges were abolished in 1997. In this sense water services are free at the point of use for such consumers. Amongst OECD countries, Ireland is unique in this respect.³

As with any major change careful consideration is needed of the problems and difficulties that are likely to arise.⁴ In this report our attention is confined to addressing one of these problems: the issue of affordability of water services by domestic users. Of course, up until now affordability has not been a problem. Domestic users were in essence provided with an unlimited free allowance. No charges were applied for the supply of water services. There were no limitations on the quantity of water supplied, except during rare periods of water shortage,⁵ or on the use of waste water facilities.

This report is concerned with evaluating the costs, benefits and implications of alternative ways of addressing the problem of affordability. What is meant by water affordability? What is the rationale for the State intervening? Who are the vulnerable groups for whom water affordability might be a problem? What policy instruments can be used to address the problem of affordability? What are the costs and benefits as well as the wider implications of the use of such instruments? In particular, what are the distributional implications of the way in which water is priced? Does it make a difference which instrument is selected? What is the most appropriate way of addressing the affordability issue?

In addressing these issues the report is organised as follows. In Section II our mandate or terms of reference from the Department of the Environment, Community and Local Government (DoECLG), which commissioned the report, is set out and discussed. In considering issues of affordability the policy context within which Irish Water is being created is specified in Section III. In particular, Irish Water has objectives in relation to funding and conservation that are likely to limit or place constraints on the extent and way in which the issue of affordability is addressed. Some of these constraints reflect wider European Union (EU) legislation.

¹ Water services are defined to include both the supply of drinking water and waste water facilities.

² The supply of water to certain households is not part of the responsibility of Irish Water nor within the regulatory ambit of the CER. Section VI provides further details and discussion.

³ DoECLG (2012a, p. 1).

⁴ For a discussion of the way in which that these issues are being dealt with see DoECLG (2012a; 2012b).

⁵ For example, in the winter of 2010/2011 in Dublin due to shortages occasioned by bad weather, water was turned off for certain periods in order to conserve supplies. Of course, this lack of availability applied to all users of water since it was not possible for the local authority to distinguish between non-domestic and domestic users.

All public policy needs a reasonably well specified objective and rationale. Without an objective it is difficult to judge, for example, whether the policy is a success or not. Thus in Section IV affordability is defined together with its rationale. Two approaches are taken to defining water affordability. First, to determine whether or not there are generally accepted international definitions of water poverty that could be readily employed for Ireland. Second, mechanisms already exist, within a wider framework to address poverty and social exclusion, to assist households that experience fuel poverty in Ireland. Those mechanisms may provide lessons that can be applied to water.

In most areas of public policy different instruments can be used to meet a particular objective, either in combination or singly. Water affordability is no exception. In Section V these instruments in relation to affordability are detailed together with the costs and benefits of each instrument. Of course, a particular instrument can be structured in different ways so that the comparison becomes a more nuanced exercise than might at first appear. In evaluating each instrument attention will be paid to how it is funded, the costs of administration, the degree to which it complies with the binding constraints set out in Section III, and how easily the instrument can be employed to assist those in water poverty.

The discussion so far has related to charging for individual households on the public water supply whose water is metered. This is the remit of Irish Water. However, attention also needs to be paid to affordability issues for individual households which are not supplied with metered water from Irish Water. These fall into two groups. First, households that are part of the public water supply but are not metered (e.g. individual apartments, since only the apartment complex is to be metered by Irish Water). Second, households outside the public water supply which are part of a Group Water Scheme. Such Schemes, which supply 12 per cent of all households, are not to be subject to economic regulation by the CER nor are they to be part of Irish Water.⁶ Affordability issues for these households are addressed in Section VI.

With this as background in Section VII we turn to an evaluation of the implications of the various options for addressing the affordability issue identified in Section V. We explore how pricing structures for water services might affect consumer welfare and how the resulting negative effects on affordability might be mitigated. Results are discussed for two hypothetical future states of the world: a steady state pricing regime in which metering is in place to the full planned extent; and, a short run transitional pricing regime that assumes some meters have been installed but household water prices are still applied on an unmetered basis. Section VII also contains a discussion of the methodology.

Section VIII draws the discussion together and sets out the options and choices for meeting the objective of affordability. In particular, the Section addresses the issues concerning affordability that are discussed in Section II that relate to the terms of reference of the report. Attention is also paid to the transition period from the status quo under which domestic customers are not charged for water services.

The water services sector issues addressed in this report cover a wide array of issues from assumptions about usage and future investment to the intricacies of the social welfare system. We would therefore like to thank officials in the Department of the Environment, Community and Local

⁶ The twelve per cent estimate is from DoECLG (2012a, p. 5) based on the 2006 Census.

Government, the Department of Social Protection, NewEra, the Commission for Energy Regulation, the Department of Public Expenditure and Reform and the National Federation of Group Water Schemes for their advice and knowledge in preparing this report. Our colleagues at the ESRI provided valuable feedback in a seminar at an early stage in the report's preparation. Bertrand Maitre and Dorothy Watson furnished excellent advice on data sources and methods, while Sharon Walsh provided research assistance. We are also grateful to the Central Statistics Office (CSO) for permitting use of the research micro data file of the Survey of Income and Living Conditions for this report.

It should be noted that Section VII contains confidential information supplied by NewEra.

II. Mandate: Terms of Reference

The terms of reference or mandate of the report as set out by the DoECLG, with the emphasis supplied, is as follows:

1. Assess the costs and benefits of introducing a free allowance (at different levels) in accordance with the Programme for Government commitment in this area;
2. Consider options and make recommendations in relation to the *additional affordability* measures that should be introduced to coincide with the introduction of water charges including an analysis of:
 - a. the groups most in need of affordability supports taking account of income levels and other considerations (such as a medical condition necessitating a high water use) and other international models;
 - b. the costs and how such costs should be funded (e.g. by way of exchequer support or social tariffs);
 - c. how the supports should be administered (having regard, inter alia, to the administration of income supports in relation to other utility charges);
 - d. how the application of the free allowance and affordability supports might be reflected in the Group Water Sector?
 - e. The most appropriate way of reflecting the supports in assessed charges (in the absence of a meter.)

On free allowances the Programme for Government states,

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 a free allowance.⁷

No guidance is provided on the level of free allowances, their rationale, how they should be set, how they should be funded or how the level of free allowances relates to other goals for Irish Water such as the drive to new investment. Reference to the manifestos of the two government parties provides no additional guidance.⁸

⁷ Department of the Taoiseach (2011, n.p.).

⁸ In the 2011 General Election the Labour Party (2011, p. 29) was against the introduction of water charges, while Fine Gael (2011, p. 7) in one of its election documents talks about "Exchequer funding will gradually be replaced by new charges linked to water consumption above a 'free allowance.'" In the previous administration the Minister for the Environment and Local Government had suggested a 40 litre per day per person free allowance.

The framing of the terms of reference suggest that the objective of the free allowances is to address the issue of affordability, since paragraph 2 refers to “additional affordability measures.” The terms of reference envisage these additional measures being targeted at those most in need or vulnerable. Implicit in the framing of the terms of reference is thus the assumption that setting the free allowance would not necessarily resolve the affordability issue, with the result that more targeted or selective measures are required. Indeed, if the additional affordability measures are sufficiently well targeted it is questionable whether or not there needs to be a free allowance to address the affordability issue.

It should, of course, be noted that these allowances are not free. Such allowances have to be funded by either other customers of Irish Water paying a higher tariff for water services or taxpayers in general whether current (via out of current tax revenues) or future (via borrowing which will have to be paid back eventually). Hence we will use the term allowances in this report rather than free allowances to mean that at least some domestic consumers of water services will receive some water at no charge, subject to paying a fixed standing charge.

III. Background and Policy Context: Constraints on Affordability Proposals

In considering the question of affordability attention needs to be paid to certain other objectives that the arrangements concerning Irish Water are required to meet. These objectives give rise to binding constraints that need to be satisfied by any affordability proposals. In particular two objectives/constraints are relevant: first, the necessity for Irish Water to be self-funding (Section 3.1); and, second, the need to ensure that water is conserved (Section 3.2). Section 3.3 concludes.

3.1 A Sustainable Financial Model

Irish Water is to become self-financing.⁹ This will require a flow of revenue or income from customers to fund both capital and current expenditure including a normal rate of return. A secure and stable flow of income will enable the creation of a sustainable financial model, which will be able to secure third-party funding through accessing capital markets. The more sustainable the funding model the lower the cost of accessing the capital markets, with concomitantly lower water services charges. Independent economic regulation by the CER provides a credible mechanism for securing such sustainability.¹⁰ The achievement of self-financing is likely to be a gradual process with a Transition Phase (2014-2017) envisaged before the achievement of the Steady State from 2017 onwards.

The Government objective of ensuring that Irish Water is self-financing is consistent with EU legislation. Article 9(1) of the Water Framework Directive states that, “Member States shall take into account the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted ... and in accordance in particular with the polluter pays principle.”¹¹ An environmental cost of water abstraction identified by the Joint Oireachtas Committee on Environment, Transport, Culture and the Gaeltacht (2012, p. 77) “would be a reduction in water levels in rivers and lakes and subsequent harm to the aquatic ecosystems the water body supports.”¹²

A sustainable financial model for Irish Water would result in a reduction of the national debt. In other words, the debt for the provision of water services would move from the State, where it presently resides, to a commercial semi-State company, Irish Water. However, for this to occur under EU accounting rules Irish Water must cover at least 50 per cent of its costs from commercial activity, such as charges to consumers for water services.¹³

At the present time there is a considerable gap between the level of current and capital expenditure and the income that local authorities collect from commercial customers. Figure 3.1 is likely to overstate the gap between income and expenditure for Irish Water in at least two ways. First, a system of water charges is likely to lead to a lower demand for water, feeding through to lower

⁹ This discussion is based on DoECLG(2012a, pp. 13-14; 2012b, pp. 5-8).

¹⁰ On the importance of economic regulation and credibility see Gorecki (2011).

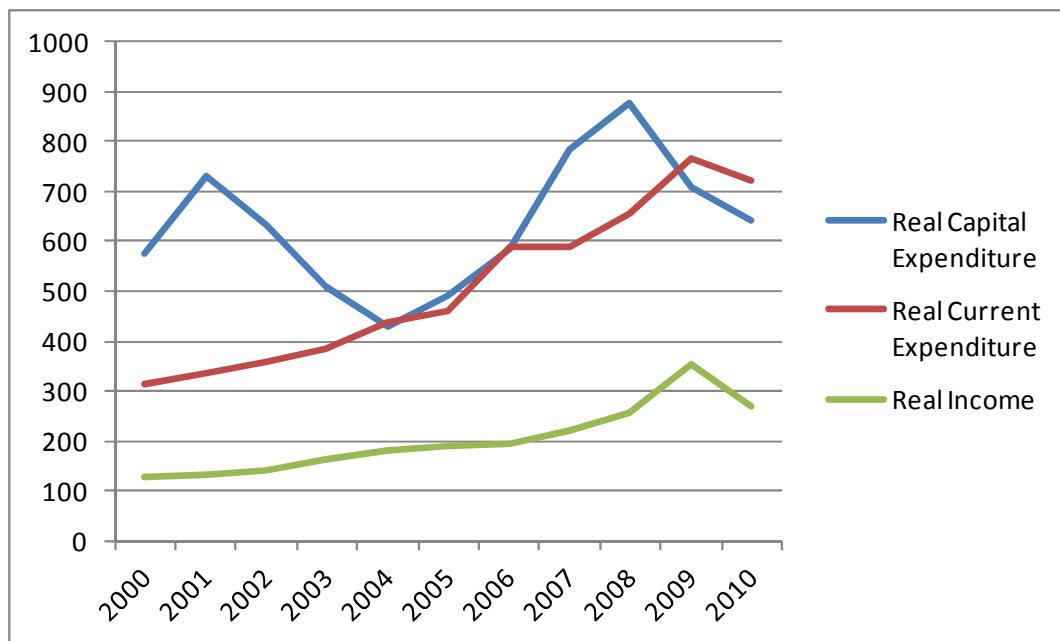
¹¹ EU (2000).

¹² See also Clark *et al* (1998, pp. 1-8).

¹³ Fitz Gerald and Morgenroth (2012) for a further discussion of this issue.

capital and current expenditure.¹⁴ Second, water services in Ireland have been delivered on the basis of 34 local authorities, with no economic regulation or benchmarking against best practice or an incentive to be efficient. Hence it is likely that there may be efficiencies that can be realised in water services provision that will lower current and capital expenditures. On the other hand, there will be certain additional capital and current costs incurred by Irish Water – installing meters, creating and operating a billing system and participating in the economic regulatory process – that do not apply currently to local authorities in delivering water services. Notwithstanding these qualifications to Figure 3.1, it seems reasonable to assume that the initial gap between income and capital expenditure is likely to be substantial.

Figure 3.1
Water Services, Capital and Current Expenditure and Income, €million, Ireland, 2000-2010



Note: Nominal amounts converted to real using GDP deflator, 2010 = 100

Source: National Income and Expenditure for real capital exp; Local Government Accounts for current expenditure and income.

In terms of future projections the DoECLG (2012a, p, 15) sees the steady state investment in water services at €600 million per annum.¹⁵ However, due to the financial crisis and pressure to reduce capital expenditure, State investment in water services has declined from €435 million in 2011 to an anticipated €296 million in 2014 (*ibid*, p. 14). Hence not only will Irish Water have to fund the ongoing €600 million but also the backlog of deferred investment that has built with the onset of the recession and, as noted above, the cost of installing meters and other costs not currently incurred by local authorities. All this investment will, of course, be subject to the scrutiny of the CER as part of its regulatory remit.

¹⁴ See Mahony (2012, Table 3.1, p. 120) for a summary of estimates of elasticity of demand. Not surprisingly the elasticity is higher in the long than the short run, an issue discussed below. The elasticity is also higher in the summer months as discussed in Section 5.4 below.

¹⁵ The DoECLG (2012a) in turn draws on PwC (2011, p. 47).

3.2 Conserving Water

Clean water is a scarce resource. Investment is needed to cater for rising demand as the population increases,¹⁶ to raise water quality standards and maintain the existing infrastructure. The sums are not small, as evidenced by the ongoing need to invest €600 million per annum in new and existing facilities. It is therefore important that the right level of investment is made. Typically in market based economies the right level of investment is determined by charging customers so that at the margin the consumer benefit is equal to the price.¹⁷ By charging for water services consumers are incentivised to economise on the use of water. Instead of using the public water supply to water the garden the householder might collect rain water in a butt or barrel, if a tap is dripping the washer is replaced, in cold weather instead of running a tap for fear of freezing pipes, pipes are insulated and showers are substituted for baths. Providers of household appliances are incentivised to innovate to develop water efficient devices – for example, dual flush toilets. Information programmes can assist the consumer in selecting water efficient appliances.

In creating Irish Water the public policy has combined an objective – conserving water – with a means - charging for the metered quantity of water used. In setting out this aspect of policy reference is made by the DoECLG to the necessity to “conserve our natural resource.”¹⁸ Metering of water is recognised as providing households with an incentive to economise on water resources. The result is “reduced levels of abstractions as well as significant savings in the operational cost of treating and storing water.”¹⁹ The emphasis on charging for water was part of the original December 2010 *EU-IMF Programme of Financial Support for Ireland*.²⁰

The use of charges to conserve the use of water is also consistent with the Water Framework Directive. It states, under Article 9 (1) that “water-pricing policies provide adequate incentives for users to use water efficiently, and thereby contribute to the environmental objectives of this Directive.” One of the purposes of the Directive outlined in Article 1(b) is to “promotes sustainable water use based on a long-term protection of available water resources.”

3.3 Conclusion

Irish Water will have to be financially sustainable, while at the time using a water charging regime that will encourage conservation in the use of water. These two objectives are consistent with one another. While a number of different charging structures might result in self financing, only a subset will encourage conservation and efficient use of water. For example, a charging system based on a fixed or standing charge with no variable component, would provide no incentive for the household to economise on the use of water, since the price of consuming an additional unit of water is effectively zero. Indeed, consumers might feel that since they have paid for the water that there is no need to economise on consumption, with the result that they might consume more.

¹⁶ Eurostat (2011) sees Ireland’s population increasing the second fastest of the EU-27 Member States between 2010 and 2035, 23.4 per cent, and the fastest between 2010 and 2060, 46 per cent.

¹⁷ Ideally the price should reflect any negative externalities occasioned by abstraction referred to above.

¹⁸ DoECLG (2012c, p. 44).

¹⁹ *Ibid*, p. 44.

²⁰ EU-IMF (2010, p. 26). The commitment to water charges, to be introduced by the end of 2013, was reaffirmed in the most recent EU-IMF (2012, p. 9) update on the programme of financial support for Ireland.

IV. Affordability: Concepts and Definitions

Up until now, water services were paid for out of general taxation. However, from 2014 onwards water charges are to be introduced. If all users of water services were charged cost reflective tariffs by Irish Water then certain households would be unable to pay or, if able to pay, have to forgo other essential items of expenditure such as fuel or food. Lack of access to the required level of water services might lead to problems of human health and sanitation. This, in turn, might have wider repercussions in terms of, for example, the spread of disease: in short negative externalities. Furthermore, it is often argued that for reasons of human dignity and social inclusion that all members of society should have access to a certain minimum level of essential services including water. Indeed, this right has been recognised by the United Nations General Assembly in July 2010.²¹ Hence for both efficiency and equity reasons the State intervenes to ensure that households are able to access essential water services.

While the concept or idea of water poverty seems, at first glance, easy to understand at an intuitive level it nevertheless still begs the question of how water poverty should be defined for the purposes of designing policy instruments for addressing the problem. There are a number of ways of approaching the problem. In Section 4.1 we consider whether or not there is a generally accepted definition of the term that is used internationally. Are there, for example, certain groups that typically experience water poverty? Is there a generally agreed level of expenditure on water in relation to income above which water poverty is experienced? What is the incidence of water poverty in Ireland by income decile using the internationally accepted definition?

In Section 4.2 the focus shifts to Ireland, where within the overall approach to addressing poverty and social exclusion, we consider specific schemes to assist households in fuel poverty. Like water, the supply of electricity and gas is a utility type activity that provides essential services to households. These schemes might provide useful precedents for defining water poverty, in terms of groups meriting assistance or a methodology to address the problem of affordability.

In Section 4.3 we consider whether or not there are particular types of households that are likely to experience water poverty. This discussion builds on Section 4.1 which defines water poverty and Section 4.2 which suggests possible household types that might experience water poverty. However, the discussion goes beyond these household types. Section 4.4 concludes.

4.1 International Definitions of Water Poverty

There does not appear to be a well established internationally accepted analytically based method of defining in an operational sense when an individual or household is in water poverty.²² Instead what has developed internationally are income based measures in which water poverty is expressed as spending more than a certain percentage of income on water services. Income is usually disposable income, sometimes net not only of income tax but also housing costs. The percentage used by

²¹ See http://www.un.org/waterforlifedecade/human_right_to_water.shtml#mets. Accessed 30 January 2013. It should be noted that the Irish government abstained from this vote (Tasc, 2012, pp. 5-6).

²² Even where there is an elaborate rationale it appears on closer inspection to be, to a considerable extent arbitrary. In the UK, for example, fuel poverty was “originally based on double the ‘median’ or typical expenditure on fuel bills” (Ofwat, 2011a, p. 9).

governments and international agencies usually falls in the range of 3 to 5 per cent.²³ The World Bank, for example, has chosen 3 to 5 per cent, the UK 3 per cent, the US 2.5 per cent, while the Asian Development Bank selected 5 per cent.²⁴

What this literature suggests is that there is no bright line in terms of income threshold for water poverty. It is not 0:1 situation, but rather one where there is perhaps a scale from experiencing problems paying for water services to having to forgo an essential task because of water poverty. Furthermore since water poverty is a function of both income and the price of water services, water poverty is likely to increase during periods of austerity and slow/negative economic growth and when water service charges have to increase because of a heavy investment programme. Both of these factors are likely to be at play in Ireland in the near to medium term.

The 3 or 5 per cent thresholds provide a headcount measure of the incidence of water poverty, rather than the extent or depth of the problem. To measure this attention needs to be paid to expenditure in excess of the 3 or 5 per cent threshold. By considering the depth of water poverty also assists in formulating policy based on the 3 or 5 per cent threshold. To fully address the problem of water poverty thus implies ensuring that households are compensated such that their expenditure on water is no more than 3 or 5 per cent of disposable household income. If, for example, a 5 per cent threshold was selected, a household that has a disposable income of €300 per week and spends €70 per week on water, should receive a compensating payment of €55 per week.²⁵ However, financial and other exigencies may mean that the problem can be only partially addressed.

Notwithstanding all of the caveats concerning the use of 3 or 5 per cent thresholds, Table 4.1 presents the incidence of water poverty by income decile for Ireland for 2011.²⁶ Section VII sets out the data and methods used to derive these estimates, including the costs which are similar to those set out in Section 3.1. It was not possible to reliably estimate the depth of poverty due to the small size of the number of observations in each cell. Overall only 5.6 per cent of households in 2011 would have spent more than 3 per cent of their disposal income on water services, had charges been in place; 2.7 per cent if the 5 per cent threshold were used. The table shows that water affordability issues are concentrated, not surprisingly, in the lower income deciles: using the 3 per cent threshold, almost a half of households experience water poverty; the 5 per cent threshold, slightly more than a quarter of households. However, for the second decile no households experience water poverty using the 5 per cent threshold and virtually zero – 0.01 per cent - using the 3 per cent threshold. Hence the concern over water affordability issues amongst low income households is well merited.²⁷

²³ See, for example, OECD (2010, p. 28).

²⁴ For details see Frankhauser & Tepic (2005, Table 1, p. 5) and Ofwat (2011a, p. 10).

²⁵ €70 – (0.05 x €300) = €55.

²⁶ The pricing assumptions underlying the table are those of the baseline price scenario in Table 7.1 below. For metered households, for example, it is assumed that the standing charge is €89.11 per year and the volumetric charge is €0.002683 per litre. There is no allowance and no welfare payments to households or individuals related to water poverty under this scenario.

²⁷ This is consistent with international evidence that sees the incidence of water poverty decline as income increases. See, for example, OECD (2003, Table 2.6, p. 42). However, the incidence of water poverty in Ireland as represented in Table 4.1 is lower than the corresponding table for England and Wales for 2008-09 (Ofwat,

Table 4.1**Projected Incidence of Water Poverty, By Disposable Household Income Decile, Baseline Price Scenario,^a Ireland, 2011.**

Income Decile (Ranked lowest to highest)	Spending more than 3% of income on water (% of number households in decile)	Spending more than 5% of income on water (% of number households in decile)
1	47.9	26.4
2	0.1	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	0.0	0.0
10	0.0	0.0
All households	5.6	2.7

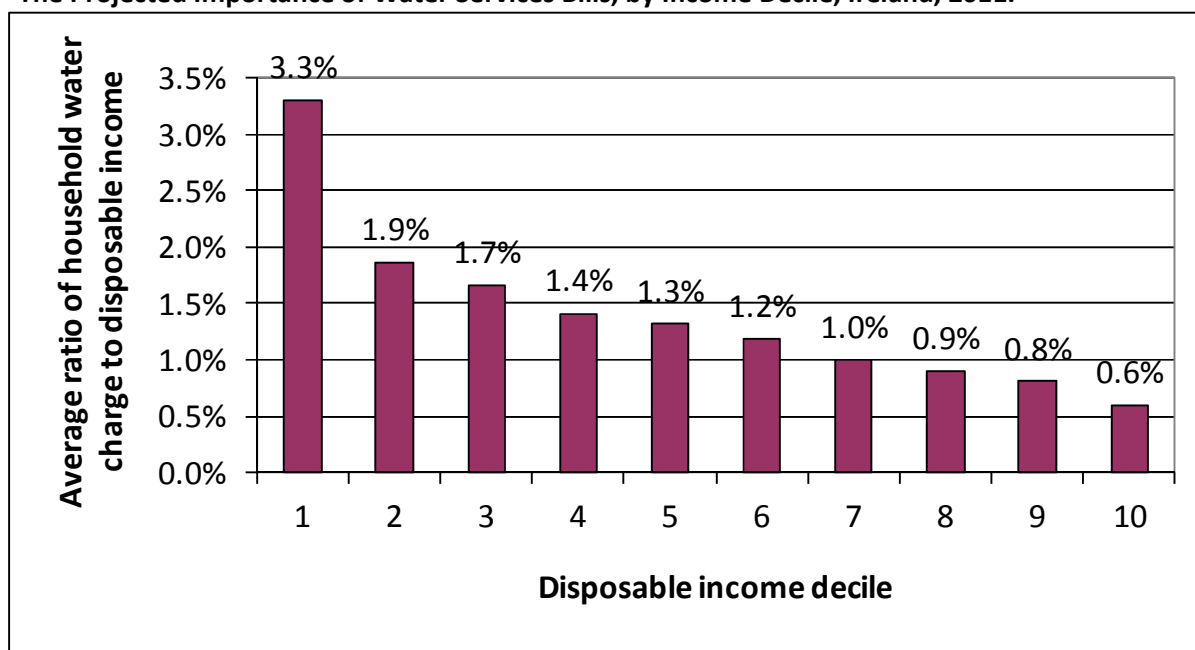
a. The baseline price scenario is set out in Table 7.1 below.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

An alternative method of examining the distributional impact of water service charges is to estimate household water bills, using the methodology outlined in Section VII, and express the bill as a percentage of household income, by income decile. As can be seen from Figure 4.1 households with lower incomes allocate a higher proportion of their income to water services than do richer households. For example, the poorest 10 per cent of households is expected to spend over five times as high as a proportion of their disposal income on water services as the richest 10 per cent of households – 3.3 compared to 0.6 per cent. This is consistent with Table 4.1.

2011b, Table 2, p. 11) where 87 per cent of households in the lowest decile spend more than 3 per cent of their income on water services; 74 per cent using the 5 per cent threshold.

Figure 4.1
The Projected Importance of Water Services Bills, by Income Decile, Ireland, 2011.



Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

4.2 Poverty and Social Inclusion in Ireland: Fuel Poverty Schemes

The definition of poverty that has been used by the State since 1997 is:

People are living in poverty if their income and resources (material, cultural, and social) are so inadequate as to preclude them from having a standard of living which is regarded as acceptable by Irish society generally. As a result of inadequate income and resources people may be excluded and marginalised from participating in activities which are considered the norm for other people in society.²⁸

In order to measure the incidence of poverty and social exclusion a measure of consistent poverty has been developed. It is defined as receiving less than 60 per cent of the median income, combined with lack of access to two of 11 items specified.²⁹ If attention is only confined to lack of access to two of the 11 items specified this is defined as basic deprivation. There is, not surprisingly, no reference among the 11 items to lack of access to water services, since these are currently provided at no charge to most domestic customers. However, water services are undoubtedly essential.

Targeting consistent poverty through policy consists of income support measures (i.e. social welfare payments) and specific measures designed to supplement these measures.³⁰ In this respect two of the 11 items referred to above relate to fuel poverty: “Had to go without heating during the last year

²⁸ DSP (2007, p. 20).

²⁹ *Ibid*, pp. 24-26. If attention is paid to households with an income below 60 per cent of the median household income, this is referred to as being at risk of poverty.

³⁰ For details see DSP (2007; 2012d).

through lack of money,” and “Keep the home adequately warm.”³¹ There are specific schemes that are aimed at fuel poverty, which is defined as “the inability to afford adequate warmth in a home or the inability to achieve adequate warmth because of the energy inefficient of the home.”³² These schemes are the National Fuel Scheme and, the Electricity or Gas Allowance which is part of the Household Benefits Package. We consider each of these schemes to determine if there are any lessons that can be learnt with respect to addressing the issue of defining water affordability.

4.2.1 National Fuel Scheme

The National Fuel Scheme entitles eligible persons to a fuel allowance of €20 per week for 26 weeks from October to April.³³ Only one allowance is paid per household. The rate increased from €9.00 in 2005 while the duration has decreased since it was 29 weeks in 2005.³⁴ Qualification is based upon:

- being in receipt of one of 17 payments administered by the Department of Social Protection (DSP) including State Pension (Contributory or Non-Contributory), Invalidity Pension, and Deserted Wife’s Benefit or Allowance, or two payments administered by the Health Service Executive (HSE);
- living alone (or with a person falling into certain categories);
- and a means test designed to test for whether the household can meet their heating needs from their own resources. The means test applies where “you and members of your household have savings and investments of more than €58,000 or a combined weekly income of more than €100 above the appropriate maximum Irish contributory pension for your situation.”³⁵ Those already on a qualifying means tested payment are *not* required to undertake this additional test.

The six leading eligible schemes that recipients of the National Fuel Scheme are in receipt of are detailed in Table 4.2 for 2011. It includes a wide array of low income groups including pensioners, lone parents and the disabled. The National Fuel Scheme has expanded substantially in recent years, with the number of recipients increasing from 259,000 in 2002 to 295,800 in 2007 to 383,910 in 2011.³⁶ In terms of expenditure the corresponding numbers are €81 million, €158 million and €228 million, respectively.³⁷

³¹ *Op cit*, p. 93.

³² DCMNR (2007, p. 53).

³³ Rates refer to 2012-2013.

³⁴ DSP (2011, Table 8.78, p. 196).

³⁵ DSP (2012a, p. 6).

³⁶ These time series numbers are taken from DSP (2011, Table 8.77, p. 195). However, this source shows 483,910, which is inconsistent by about 100,000 from Table 4.2. It appears that Table 8.77 contains a mistake – it should be 383,910.

³⁷ These data are taken from DSP (2011, Table 8.77, p. 195).

Table 4.2**Number of Recipients, National Fuel Scheme, by Six Leading Eligible Schemes, 2011.**

Payment	Number of Recipients of National Fuel Scheme	Means Tested or Universal
Long-term JA/PRETA/Farm Assistance	85,980	Means tested
One Parent Family Payment	64,935	Means tested
State Pension (Contributory)	59,414	Non-means tested
State Pension (Non-Contributory)	52,451	Means tested
Disability Allowance	48,182	Means tested
Widow's Pension (Contributory)	43,129	Non-means tested
Total All Recipients	382,557	-

Note: Number of recipients as of April 2011. Long-term JA = long term jobseeker's allowance; PRETA = Pre-retirement Allowance for those over 55 years of age who left the labour force, no new applications were accepted after 4 July 2007; Farm Assist= means tested income support for farmers similar to Jobseekers Allowance.

Source: DSP (2011, Table 8.80, p. 197).

The purpose of the National Fuel Scheme is to “*help* households that depend on long-term social welfare or Health Service Executive payments and are unable to pay their own heating needs” (DSP, 2012a, p. 3, emphasis supplied). In other words, the National Fuel Scheme is not designed to cover all heating costs of low income households.³⁸ This was made clear in a 1998 review of the Scheme which formulated the objective as “to provide financial supplement to low income households so as to *assist* towards their home heating needs” (DSCFA, 1998, p.20, emphasis supplied). Indeed at that time the National Fuel Scheme payment of £5 per week only covered a third of average weekly heating bills (*ibid*, p. 77). In part this reflects the fact that income support measures are designed, to some extent, to take into account fuel costs.

In the 1998 review the consultants suggested increasing the weekly payment to £10 or two thirds of the weekly expenditure on heating needs, but that was not followed. The review also considered whether to depart from the flat rate payment to one that more accurately reflected the heating requirements of the household, but rejected this on the basis, *inter alia*, that it would be “unduly cumbersome from an administrative point of view,” “add enormously to the cost and complexity of administering the schemes which, as they are presently organised are straightforward and efficient” (*op cit*, p. 39).

There does not appear to be any agreed set proportion nor a methodology to derive the proportion of heating needs that should be funded by the National Fuel Scheme. One approach would be to say that heating poverty occurred when a household's spending on heat exceeded a certain portion of disposable income, as with water poverty. An alternative approach is to define the requirements for adequate heating and the associated household expenditure. If the household in meeting the adequate heating standard exceeds a measure of poverty then policy could compensate the household for the difference.³⁹ As noted above, in Ireland the poverty threshold is set at 60 per cent

³⁸ This is consistent with the discussion in Section 4.1 which argued in relation to water poverty the aim should be to compensate households such that there are at or below the water poverty threshold.

³⁹ This approach is suggested by Hills (2012).

of the median income.⁴⁰ Furthermore the issue is complicated by the interaction of the National Fuel Scheme with other DSP payments.

4.2.2 The Household Benefit Package: Electricity/Gas Allowance

As part of the Household Benefits Package (HBP) there is an Electricity Allowance, a Gas Allowance and an Electricity Group Account Allowance.⁴¹ The Electricity/Gas Allowance is a fixed amount, currently €35 per month, based on supplying a household with 150 units of electricity monthly (or gas equivalent).⁴² An eligible person has to select either an Electricity or Gas Allowance which is usually paid to the supplier, but can be paid into the recipient's account in a financial institution or post office.⁴³ Only one allowance is permitted per household. To be eligible for HBP a person has to be aged over 70 years of age, *or* getting a Carer's Allowance, *or* aged between 66 and 69 and receiving certain payments (e.g. State Pension, Widow's, Widower's or Surviving Civil Partner's (Contributory) Pension etc)⁴⁴ *or* aged under 66 years and receiving Disability Allowance, Invalidity Pension, Blind Pension etc.⁴⁵ *or* aged between 66 and 70 and satisfy a means test.⁴⁶ Hence only the last category has to undergo a means test to qualify for the HBP.

Table 4.3 presents the six leading eligible schemes that recipients of the Electricity/Gas Allowance are in receipt of in 2011. Not surprisingly in terms of the criteria set out above recipients tend to be of pensionable age. Indeed, in 2010 close to 80 per cent of recipients of the Household Benefit Package were over 66 years of age.⁴⁷ The two biggest eligible schemes are non-means tested. In other words, there is no need to demonstrate any difficulty paying for electricity or gas bills. While Table 4.3 is a snapshot in time, the evidence suggests that the number of households in receipt of Electricity/Gas Allowance has increased over time from 299,350 in 2002 to 401,760 in 2011, with a corresponding increase in expenditure from €66.11 million or €220.8 per household in 2002 to €192.4 million or €478.9 per household in 2011.⁴⁸ At the rates payable in 2013 each household is entitled to €420 per annum. With the expected increase in the number of persons over 66 and 70 years of age the HBP is likely, other things equal, to grow in the future.

⁴⁰ CSO (2012, p. 5).

⁴¹ Information on the HBP is taken from DSP (2012c) and the Citizens Information website: http://www.citizensinformation.ie/en/social_welfare/social_welfare_payments/extra_social_welfare_benefits/household_benefits_package.html. Accessed 25 January 2013.

⁴² Rates effective in 2013.

⁴³ In the case of electricity if the supplier is Electric Ireland then DSP pays the allowance to the eligible person's bill, if the supplier is not Electric Ireland, then the eligible person is paid a cash allowance. Electric Ireland accounted for 64 per cent of domestic customers in Q2 2012 (CER, Figure 2.1, p. 9). Since older consumers tend to switch less, among HBP recipients Electric Ireland is likely to account for more than 64 per cent of customers. For gas the allowance can be paid as cash credit to the eligible recipient's gas provider or to the eligible recipient's account in a financial institution or a post office.

⁴⁴ And live alone or with certain excepted persons.

⁴⁵ And live alone or with certain excepted persons.

⁴⁶ And live alone or with certain excepted persons.

⁴⁷ 77.9 per cent. Based on data supplied by the Department of Public Expenditure and Reform. Personal communication 1 February 2013.

⁴⁸ These data are taken from DSP (2011, Table 9.16, p. 215; Table 9.17, p. 216).

Table 4.3**Number of Recipients, Electricity/Gas Allowance, by the Six Leading Eligible Schemes, 2011.**

Payment	Number of Recipients of Electricity/Gas Allowance	Means Tested or Universal
State Pension (Contributory)	161,646	Non-means tested
Widow's, Widower's or Surviving Civil Partnership Partner's Contributory Pension	66,030	Non-means tested
State Pension (Non-Contributory)	57,163	Means tested
Disability Allowance	38,506	Means tested
Carer's allowance	29,887	Means tested
Invalidity Pension	20,815	Non-means tested
Total All Recipients	401,207	-

Source: DSP (2012b, Table G12, p. 93).

The HBP “was introduced in 1967 as a single allowance to cover the cost of electricity for pensioners living alone.”⁴⁹ Even today although under the HBP a recipient can select an Electricity or Gas Allowance, 90 per cent of the expenditure under the HBP is for the Electricity rather than the Gas Allowance.⁵⁰ The HBP has grown considerably beyond pensioners living alone. If a person is aged 70 or over then there is no requirement that the person either lives alone or with certain excepted persons. Additional categories of persons have been added to the HBP such as those on Disability Allowance. It is not clear on what basis these additions were made nor how the HBP relates to the National Fuel Scheme since these are two instruments aimed at the same problem.

As was shown, in contrast to the National Fuel Scheme, the HBP is to a considerable extent non-means tested. In other words, HBP is almost certainly being paid to households that are not experiencing fuel poverty issues. At the same time there are households that are having difficulty meeting heating bills that are not covered by the HBP. The Chairperson of the CER made this point when, in November 2012 appearing before the Joint Oireachtas Committee on Transport and Communications, he stated: “... the biggest difficulties [experienced in paying their energy bills] are faced by families with children. The majority of senior citizens' energy bills are paid by the Department of Social Protection by way of the free weekly allowance.”⁵¹ It is not clear what proportion of the household expenditure on electricity and gas is meant to be covered by the HBP. The €420 per year currently available would cover approximately 50 per cent of the average electricity or gas bill.⁵²

4.2.3 Lessons for Defining Water Poverty

The discussion of the two schemes that seek to address the problem of fuel poverty provides very little assistance in defining water poverty. No guidance is provided as to a methodology to define fuel poverty that could be applied to water poverty. Indeed, it is clear that the HBP provides

⁴⁹ DPER (2012, np).

⁵⁰ DSP (2012b, Table G3, p. 86).

⁵¹ <http://oireachtasdebates.oireachtas.ie/Debates%20Authoring/DebatesWebPack.nsf/committeetakes/TRJ2012112100012?opendocument>. Accessed 4 February 2013.

⁵² This is based on O'Halloran and Pope (2012) and takes into account price changes approved in late 2012 by the CER.

Electricity/Gas Allowances to households that are not fuel poor in view of the lack of means testing for certain eligible groups such as persons over 70 years of age. This suggests that a decision on defining fuel poverty – as revealed by an examination of these schemes – is essentially a political decision with little if any apparent analytical underpinnings. Nevertheless, there are some lessons with respect to the schemes that will be considered in Section V when discussing instruments to address water poverty.

4.3 Water Poverty by Household Type

The incidence of water poverty by different types of household, some of which match the categories used for the National Fuel Allowance and the HBP, is presented in Table 4.4. The household types were selected based on the earlier discussion in this section and other literature on poverty (e.g. Walker, 2011, p. 118; Watson *et al*, 2012). One group that we were not able to identify that might experience water poverty are low income households where there is at least one person with a high essential water use for medical reasons. The household types in the table are not mutually exclusive. A household with at least one person over 70 is likely also to be in receipt of the HBP. Equally, households reporting arrears in utility bills are also likely to be in basic deprivation, in consistent poverty or working poor. Most of the household characteristic descriptions in the table are self-explanatory, where this is not the case the text provides further details.

Table 4.4 shows that there is strong association between poverty in general and water poverty in particular, with 32.0 of the working poor households and 27.8 per cent of households in consistent poverty experiencing water poverty at the 3 per cent threshold.⁵³ However, in contrast to most of the other household types in Table 4.4, the working poor and, to a lesser extent, those in consistent poverty tend to be relatively small in number. Single person households with or without children, especially where the adult is under 65 years of age, are much more likely to experience water poverty than the typical household. Other households with children do not appear to be in particular danger of water poverty compared to the average household.

Having a disabled person in the household (using a broad definition of disability) increases the likelihood of water poverty compared to the average household. In contrast, while a household with at least one member over 70 experiences water poverty slightly above the typical household using the 3 per cent threshold, it is greater at the 5 per cent threshold compared to the typical household. Households in receipt of the HBP or the National Fuel Allowance are more prone to water poverty compared to the general population at the 3 per cent level threshold. However, using the 5 per cent threshold this is much less the case for households that are recipients of the HBP, no doubt reflecting, in part, that a many of those households that qualify for the HBP do so via a non-means tested benefit. Finally, unmetered households, particularly at the 3 per cent threshold, as compared to all other household types in Table 4.4, are especially at risk of water poverty, an issue we will return in Section VII.

⁵³ The working poor are defined as those households below the at risk of poverty threshold (i.e. households with an income below 60 per cent of the median household income) and containing some household members who are in work. See Watson *et al* (2012).

Table 4.4

Projected Incidence of Water Poverty, By Household Characteristics, Baseline Price Scenario,^a Ireland, 2011.

Household Characteristics	Spending more than 3% of income on water (%)	Spending more than 5% of income on water (%)	Total Number of Households in Ireland
One adult 65 yrs & over with no child	8.8	4.2	162,192
One adult under 65 yrs with no child	13.7	7.6	171,761
Two adults at least 1 65 yrs & over with no child	4.5	3.0	163,423
Two adults at least 1 under 65 yrs with no child	4.6	2.4	235,513
Three or more adults with no child	3.2	2.6	164,956
One adult 1 plus children	9.0	4.0	122,102
Two adults & 1 to 2 children	2.8	0.7	397,166
Two adults & 3 or more children	1.2	0.0	62,496
Other households with children	5.0	0.7	157,902
At least one household member over 70	5.9	3.3	271,921
At least one person with a long term illness or disability	7.2	3.3	520,215
In basic deprivation	8.5	3.2	380,925
In consistent poverty	27.8	11.8	105,005
Working poor	32.0	15.5	52,373
Reporting arrears in utility bills	8.0	4.4	215,699
Unmetered households (apartment dwellers)	24.3	3.9	89,124
In receipt of National Fuel Scheme	7.2	3.8	321,158
In receipt of Household Benefits Package	7.5	3.0	376,434
All Households	5.6	2.7	1,637,512

a. The baseline price scenario is set out in Table 7.1 below.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

Two conclusions stand-out from Table 4.4. First, not surprisingly the incidence of water poverty varies considerably across the different households types. At the 3 per cent threshold, nearly a third of working poor households are in water poverty, while for a household with two adults and three or more children, less than 1.5 per cent of such households experience water poverty. Second, the incidence of water poverty across these groups, compared to the typical household, varies by whether the 3 or 5 per cent threshold is used. In a time of recession and austerity when budgetary resources are limited, a 5 per cent threshold might be considered appropriate to define water poverty. If this is the case then the household types that are particularly at risk of water poverty, compared to the typical or average household, are: single adult person households, with or without children; at least one household member over 70; at least one household member with a long term illness or disability; in consistent poverty; working poor; reporting arrears in utility bills; unmetered households (i.e. apartments); and, in receipt of the National Fuel Scheme.

4.4 Conclusion

International norms on water poverty and the approach used in Ireland to assist households in fuel poverty provide a starting point in furnishing guidance as to what constitutes water poverty. International norms suggest a benchmark threshold above which water poverty is delimited: 3 to 5 per cent of disposal income. Careful attention needs to be paid to the depth of water poverty. In terms of policy implications, this measure of water poverty suggests that households should be compensated such that their expenditure on water is no higher than the threshold selected. However, financial and other exigencies may mean that the problem can be only partially addressed. The two schemes to alleviate fuel poverty in Ireland provide limited guidance as to a methodology that might be adapted to define water poverty. Nevertheless, the schemes do suggest certain household types that combined with the international definition of poverty can be used to identify those most likely to suffer from water poverty. These include single person households, the working poor and those living in apartments.

V. Meeting Affordability: Instruments

There are two classes of instruments that can be used to address the problem of water affordability within the terms of reference of the report set out in Section II: allowances; and, categorical or specific support for groups likely to experience water poverty. The distinction is between a universal benefit, an allowance, as compared to selective intervention to address water affordability for vulnerable groups. These instruments can, of course, be used separately or in combination. They are to some degree substitutes and to some degree complements. The cost of relieving water affordability can be borne by the Exchequer and administered by DSP, perhaps using an existing benefit to qualify for assistance as occurs at the present time with respect to the HBP and the National Fuel Scheme. Alternatively some Irish Water customers can pay higher water charges to fund the affordability measures directed at other customers. A universal allowance is likely to lead to an increase in water charges for households that are high water users in order to subsidise those that use a lower volume of water services.⁵⁴

In considering the merits of each instrument we ask the following questions:

- What is the instrument?
- How does it meet the objective of water affordability?
- Is it consistent with the financial sustainability of Irish Water?
- Does it promote water conservation?
- How will it be funded?
- Is it likely to be administratively easy to design and implement?

For each instrument there are likely to be a number options that need to be considered.

5.1 Which Instrument: Allowances and/or Targeting Vulnerable Groups?

The first instrument that could be used to address the issue of water affordability is allowances. A universal allowance as a method of dealing with the issue of affordability is not used extensively in other jurisdictions. Indeed, allowances are very much the exception, which means that there is little in the way of experience elsewhere on which to draw. The second measure is to give direct support to vulnerable groups that are most likely to experience water poverty. Here we can draw on the experience of the National Fuel Scheme and the Household Benefits Package, which are designed to deal with a similar problem in relation to fuel poverty.

5.1.1 Allowances

In employing allowances several dimensions need to be defined:

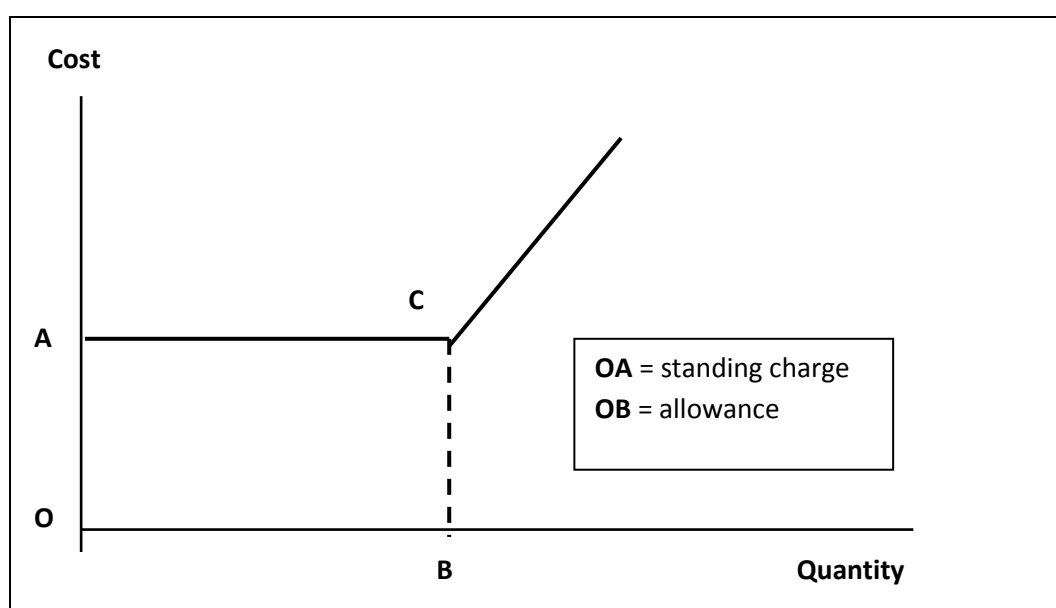
- the magnitude, i.e. how large will the allowance be in (say) litres per day;
- whether it should apply to the individual or the household; and,
- the customer class, i.e. all Irish Water domestic users or a subset.

⁵⁴ For example, if the allowance were set at x litres per household and if the allowance was financed through higher volumetric charges, then households consuming in excess of the x litres would be subsidising those on consuming less than or equal to x litres.

We consider each in turn.

However, before we consider what is meant by allowances in more detail, we discuss how the allowance and charging for water services relate to one another. As shown in Figure 5.1 there is a standing charge that will be paid by all consumers of Irish Water equal to OA, similar to standing charge for other utilities such as electricity and gas. Then there will be an allowance for which there is no charge, OB. For water services above OB there is a volumetric charge based on the volume of water metered greater than B.

Figure 5.1
Pricing Water: Standing Charge, Allowance and Volumetric Charge



Source: See Text

In terms of the *magnitude* of the allowance we have identified two sources that could serve as a benchmark:

- first, the 42 litres per person per day is the allowance given in Flanders;⁵⁵ and,
- second, 50 to 100 litres per person per day set by the United Nations in July 2010 as being sufficient for personal and domestic uses.^{56,57}

These benchmarks vary considerably, with the upper limit of the United Nations recent estimate being more than twice the allowance set in Flanders. The current consumption of water per person

⁵⁵ PwC (2011, pp. 71-72). However, the allowance is not universal (Smets, 2012, p. 8).

⁵⁶ In 1992 the United Nations set 40 litres per person per day as the target for a person to be achieved by 2000 for all urban residents (1992, paragraph 18.58) under Agenda 21. This is consistent with the UN's World Water Assessment Programme which sets 20-50 litres per day person as necessary "to ensure their basic needs for drinking, cooking and cleaning." Source: http://www.unwater.org/statistics_san.html. Accessed 29 January 2013.

⁵⁷ This was set when access to water was recognised as a human right as referred to above. For details see: <http://www.un.org/en/globalissues/water/>. Accessed 29 January 2013.

at 145 litres per day in Ireland is well above the 100 litres maximum for the United Nations and more than three times the allowance set in Flanders.

These benchmarks are, of course, averages. Adults are likely to consume more water than children and within a household there may be economies of scale in use of water in, for example, food preparation or watering the garden. Dresner and Elkins (2007, p. 917) for England find that if the water consumption of the first adult in a household is set equal to 100, then the second and subsequent adult's consumption is 71, while for a child it is 43. Hence in setting allowances attention needs to be paid to whether the allowance is for an adult or a child and whether or not there is more than one adult in the household.

In terms of the *unit* (individual or household) to which the allowance should apply, the Flanders and United Nations benchmarks are, of course, set in terms of per person, not per household which is the unit at which water metering is to take place in Ireland. Therefore to use these benchmarks at the household level it is necessary to measure the number and composition of persons in a household. In the case of Flanders the "numbers resident at a property are verified by reference to the register of identity cards"⁵⁸ which, of course, does not exist for Ireland. Hence determining and verifying the number and composition of persons per household is likely to be a difficult and time consuming task. Self-declaration or certification cannot be relied upon because of the incentives created for under or overestimation. As an alternative the average number of persons per household could be used to derive the allowance. However, this favours smaller households as compared to larger households.

This suggests several possible options for setting allowances that are illustrated in Table 5.1. Two dimensions are considered: the magnitude of the allowance and the number of persons per household that can be used to set the allowance in view of the absence of reliable data on the number and composition of persons living in the house. The table illustrates, using plausible assumptions as to the allowance per person and household size, the allowance per household can vary substantially, from a minimum of 42 litres per day to 391 litres per day.⁵⁹

Table 5.1

Alternative Universal Water Allowance, by Household, Illustrative Examples

Allowance per person per day	42 litres (Flanders Allowance)	75 litres (mid-point UN allowance)	145 litres (Ireland per capita consumption)
1 allowance per household	42	75	145
2.7 allowance per household	113	202	391

Note: 2.7 are the average number persons per household.

Source: See text.

⁵⁸ PwC (2011, p. 72).

⁵⁹ Under Group Water Schemes in Ireland there is an allowance for which households are not charged. This varies from 123 to 370 litres per day per household, with a typical allowance in the range 90 to 100 litres per day per household. Personal communication National Federation of Group Water Schemes, 8 February 2013.

In terms of the *coverage* of the allowance, the Programme for Government leaves the impression that it should be universal. In other words, all households should be included. However, arguably it should only apply to the principle residence of the household and thus not include second homes. Otherwise such households would be getting two allowances. Furthermore, given that households with second homes are concentrated among the more affluent households of society (Table 5.2), it is not clear that on affordability grounds such households should be given an allowance for each property that they own.⁶⁰ Table 5.2 shows, for example, that the top quintile of household by income account for 52.3 per cent of second homes; the top two quintiles, almost three quarters of all second homes.

Table 5.2
Incidence of Ownership of Second Homes, By Income Quintile, Ireland, 2011.

Income Quintile (Ranked lowest to highest)	Distribution of Ownership of Second Homes (Number)	Distribution of Ownership of Second Homes (%)
1	7,419	6.5
2	7,777	6.8
3	14,586	12.8
4	24,532	21.6
5	59,504	52.3
Total	113,818	100

Source: Analysis of Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

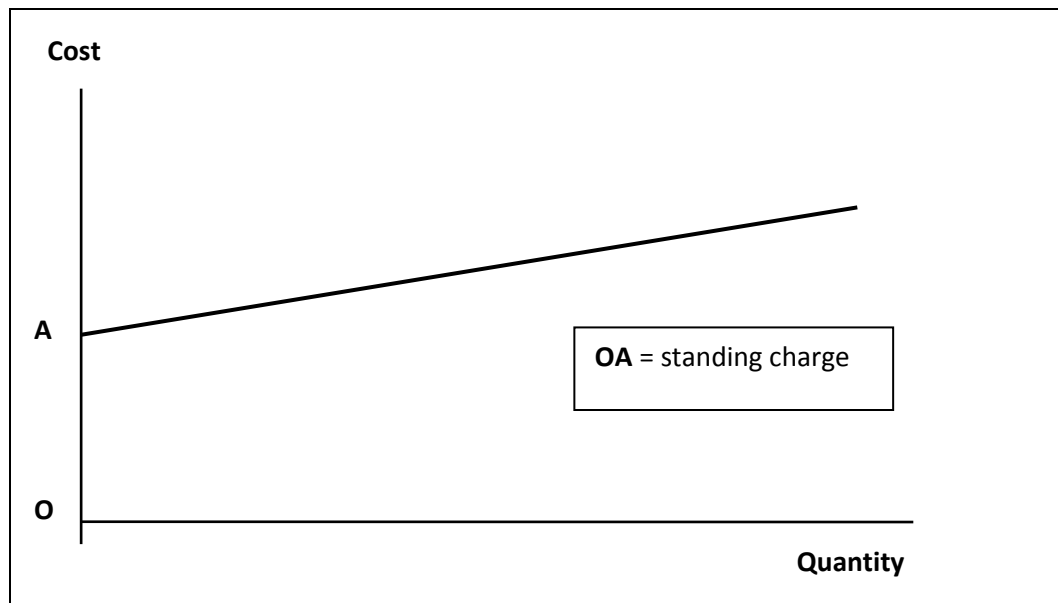
5.1.2 Targeting Vulnerable Groups

Targeting vulnerable groups means identifying those groups that are particularly likely to be subject to water poverty. Hence instead of the broad brush approach whereby all Irish Water customers receive an allowance, irrespective of need or ability or capacity to pay, assistance is provided only to that subset likely to experience water poverty. As with allowance we divide this discussion into three issues: the magnitude; the unit; and the coverage.

Before we consider these issues we discuss the pricing of metered water services where affordability is provided by DSP payments to vulnerable groups. As illustrated in Figure 5.2, the standing charge would remain at OA, but the volumetric charge would commence with the first unit of water measured by the meter, in the absence of an allowance. Note that since there would be no need to fund the allowance from other users, the volumetric charge for water above the standing charge would be lower than that above the allowance in Figure 5.1 – the volumetric charge is measured by the slope of the pricing schedule.

⁶⁰ It is our understanding that Irish Water will have access to the Local Authority register of second homes and hence could exclude these households from the allowance.

Figure 5.2
Pricing Water: Standing Charge, No Allowance and Volumetric Charge



Source: See Text

In terms of the *magnitude*, given the discussion above, assistance should be provided such that the expenditure on water is no more than 3 to 5 per cent of disposable income. This is consistent with the commonly accepted definition of water poverty. An alternative, used as part of WaterSure in England and Wales, is that the water services bill of an eligible household is capped at the average bill of the water company in which the household is located. Such an approach does not sufficiently distinguish between poor families with a large demand for water services and a single poor pensioner, both of which may suffer water affordability problems. The average would be too low for the former and offer no assistance to the latter because it would not reach the average bill threshold.⁶¹

In terms of the unit (*individual or household*) this is based to a considerable degree on household characteristics. The household is treated as a unit which it is assumed to share its joint income to buy essential services such as water and fuel. The operation of this approach can be seen in the discussion in Section 4.2.2 where in order to qualify for the Household Benefits Package a person has to be in receipt of a means tested benefit and either lives alone or with certain excepted persons.⁶² Furthermore, as noted above in the discussion of allowances, there are likely to be economies of scale in the consumption of water at the level of the household which also needs to be taken into account.

In terms of the *coverage* the objective is to identify those groups which suffer from water poverty. These are likely to be divided into two broad classes. First, households with certain socio-economic

⁶¹ And would hence have no incentive to conserve water.

⁶² For details see:

http://www.citizensinformation.ie/en/social_welfare/social_welfare_payments/extra_social_welfare_benefits/household_benefits_package.html. Accessed 6 February 2013.

characteristics that indicate that they are likely to experience water poverty. As discussed in Section 4.3 these include the working poor, lone parents, single person households, unmetered households (i.e. apartments) and households in receipt of the National Fuel Scheme. In order to correctly target the group a means test would need to be applied. Second, are household that contain individual who due to their medical condition experience a high demand for water services. These medical conditions include desquamation, weeping skin disease, incontinence and renal failure requiring dialysis at home.⁶³ Again there would need to be a qualifying means test.

5.2 Ensuring Water affordability

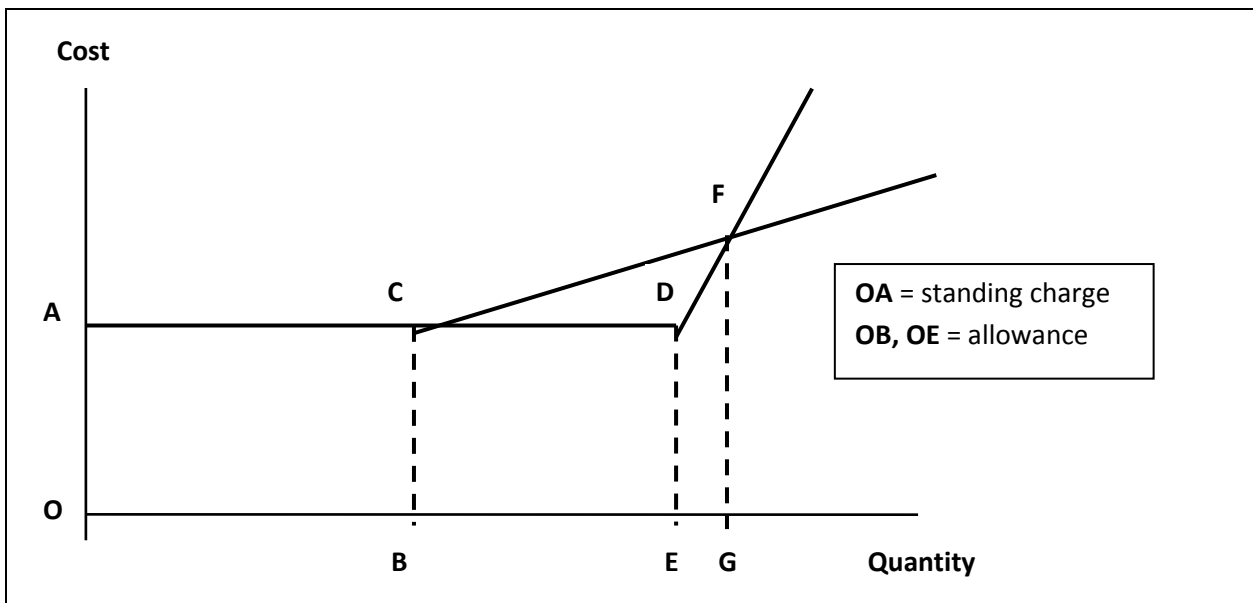
Both allowances and targeting vulnerable groups can, potentially at least, address the problem of water affordability. In the case of allowances the affordability objective is met if the allowance is set such that every household is supplied with its essential requirements of water services, given its size and composition; for targeting vulnerable groups that no household allocates more than 3 or 5 per cent of disposal income on water services. However, allowances are not designed as a water affordability measure since they are universal and hence do not take into account ability or capacity to pay. An allowance addresses the issue somewhat indirectly.

The higher the allowance is set – closer to 391 than 42 litres per household per day in Table 5.1 – the greater the chance that the household will be supplied by an allowance that meets its basic needs. However, the difficulty with the allowance is that it is likely to be poorly targeted: there is not reliable information on the size and composition of households so that it is difficult to estimate the allowance that should be supplied to the household to meet its essential requirements; and, apart from the elimination of second homes from the allowance, households that have the income to purchase the essential requirements receive an allowance at no charge while for some low income households with a high essential demand for water services the allowance may fall short of meeting their essential requirements. A pensioner couple both with good pensions would fall into the former category; an unemployed couple, with four children taking care of an incontinent relative, in the latter.

There is a further problem in using allowances to address the issue of affordability if it is funded through a cross subsidy from high volume to low volume water users. As the allowance increases – as shown in Figure 5.3 from OB to OE – the volumetric charge above the allowance increases – the slope of the pricing schedule above C and D. Households with a demand for water above the allowance OD may, as a result, be pushed into water poverty, measured as 3 to 5 per cent of disposable income. Certainly if household demand for water is above OG in Figure 5.3, the increase in the allowance from OB to OE will increase its total water bill.

⁶³ The full list may be found in paragraph (5) of Statutory Instrument 1999 No. 3441, The Water Industry (Charges) (Vulnerable Groups) Regulations 1999.

Figure 5.3
Pricing Water: Standing Charge, Varying Allowances and Volumetric Charging



Source: See Text

In contrast, if targeting vulnerable groups can be achieved with sufficient precision, then the affordability objective will be satisfied. The discussion in Section 4.3 identified the household types that are most likely to experience water poverty. In each case the challenge is to find a benefit or a combination of benefits that ensures the vulnerable group is targeted appropriately. However, the targeting is still not likely to be perfectly accurate. To compensate a group so that it reaches the 3 or 5 per cent level it is inevitable that the average will be used so that there will be some over and some under compensation. However, to target each household accurately is clearly a complicated and administratively complex task.

In sum, given the current squeeze on resources for both governments and households, addressing the water affordability through a policy of targeting vulnerable groups is likely to be more successful than using allowances.

5.3 Maintaining the financial sustainability of Irish Water

Financial sustainability requires that Irish Water will be able to rely on a stream of income from its customers charged on a commercial basis to fund its capital and current costs, including a normal rate of return. If the affordability measures are to be funded mainly by the Exchequer, either via a transfer each year to fund the allowances or via DSP through payments to targeted vulnerable groups, then this may threaten Irish Water's financial sustainability.⁶⁴ Payments by the State lower

⁶⁴ If the Exchequer funds allowances then this would be considered as the State funding Irish Water for the purposes of determining whether Irish Water is part of the General Government sector. However, if the Exchequer funded affordability measures via the DSP payments to vulnerable then this would not be considered as State funding for the purposes of determining whether Irish Water is part of the General Government sector. Apparently the latter approach is used with respect to the HBP and National Fuel Scheme

the commercial revenue that Irish Water receives from customers. The greater the affordability measures, other things being equal, the more of Irish Water's revenue that will come from the State. Once the State accounts for more than 50 per cent of the revenue then Irish Water will revert to being part of the General Government sector. Furthermore, the less the reliance on commercial revenues, the more investors are likely to consider Irish Water a risky investment and hence demand a higher interest rate in order to compensate for the greater risk. Water charges as a result will be higher than they otherwise would be.

If the affordability measures are to be paid by Irish Water customers through cross subsidies then although this does not directly affect the financial sustainability of Irish Water there are, nevertheless, likely to be adverse implications.⁶⁵ If the affordability measures are substantial then the volumetric charge will need to be increased considerably in order to fund the affordability measures. Given the inelastic nature of the demand for water services, these higher volumetric charges are likely to result in some households being unable to pay for their water bills or have difficulty paying. Irish Water is thus likely to experience increased bad debts. While it is unlikely that such a dynamic will threaten Irish Water's financial sustainability, it is nevertheless a possibility that would need to be considered carefully in setting the level of the affordability measures.

In sum, care needs to be taken in setting the affordability measures in order to ensure the financial sustainability of Irish Water.

5.4 Promoting Water Conservation

Allowances do little to promote conservation, particularly given the discussion in Section 5.1 and 5.2 about how poorly targeted allowances are likely to be. Allowances are a certain volume of water supplied to a household for which no price is charged, apart from the standing charge. Thus for consumption up to the allowance maximum the customer faces a zero marginal cost. However, once the limit of the allowance is reached then the consumer will face a per unit volumetric charge for consumption in excess of the limit. In Figure 5.1, for example, the household has an allowance of OB. Hence once the standing charge of OA is paid the household incurs a zero marginal cost until OB of water is consumed, with a constant volumetric charge per unit for water services consumed above OB. If the allowance is at the higher end of the range in Table 5.1 more households are likely to consume less than the allowance and hence not be incentivised to conserve water.

Second homes are likely to be occupied only part of the year and hence are likely to consume less than any allowance that might be allocated. Such homes are likely to be occupied in the summer months when demand for water is likely to be high for gardening and other recreational uses. Hence providing an allowance to such second homes is not likely to contribute to conservation, but rather encourage consumption. Furthermore, the evidence suggests that the elasticity of demand is

for BGE and ESB. However, if the DSP payments were to be substantial contribution towards Irish Water's revenue requirements, then it is not unreasonable to expect that this interpretation would be revisited.

⁶⁵ The cross subsidy could take different forms. If there was no allowance then the volumetric charge could be raised for all customers to cover the cost of the targeted policies aimed at vulnerable groups administered through DSP. If there is an allowance then the volumetric charge would be higher than it otherwise be to fund the allowance.

particularly high during the summer months.⁶⁶ This argument, together with that in Section 5.1.2, further strengthens the case for not assigning an allowance to second homes.

In terms of policies to *target vulnerable groups* these are consistent with promoting conservation. Recall that these policies deal with the problem of water affordability through limiting the household expenditure on water services to no more than 3 or 5 per cent of disposable income. Hence given that the pricing regime is as set out in Figure 5.2, these households will face a positive price for the purchase of water services and hence will face an incentive to conserve water.

In sum, policies targeting vulnerable groups are more likely to create incentives to conserve water than allowances.

5.5 Funding Affordability Measures

There are two ways in which the affordability measures can be funded: the Exchequer, in which case the allowance is funded out of taxation as is the case at the moment; and, second, as a charge on the paying customers of Irish Water. Each results in distortions which are discussed in Section 5.5.1. Next attention turns to who is best placed to decide on the nature and extent of the affordability measures (Section 5.5.2). Section 5.5.3 concludes.

5.5.1 Which Distortion: Work/Leisure & Investment or Water Consumption?

The burden of overall taxation has risen considerably in recent times in Ireland due to the necessity to pay off debt and fund automatic stabilisers such as social welfare payments. To increase the burden to fund water affordability measures through higher taxation as a method of funding affordability measures will increase the wedge between pre and post tax returns to labour and other factors of production and so discourage increased employment and economic activity. It could, of course, be argued that once Irish Water needs less funding from the Exchequer that taxes could be reduced. However, this misses the point since the burden of taxation will be higher than it otherwise would be due to the allowance.

In the case of funding the affordability measures through a cross subsidy from households with a high demand for water services to those with a low demand for water services, this distorts water consumption decisions. Figure 5.2 shows the economically efficient pricing regime for water services. However, a cross subsidy with an allowance results in a price that is either too low (i.e. zero for water services consumed up to the free allowance or OB in Figure 5.1) or too high (i.e. the price for water services purchased above the allowance of OB in Figure 5.1). Thus the household decision with respect to purchasing water services is distorted. However, to some degree any distortion is likely to be minimised due to the inelastic nature of the demand for water services.

5.5.2 Setting Allowances/Targeting Vulnerable Groups: Who Is best Placed?

An important issue in considering whether the Exchequer or water customers should pay for the affordability measures concerns who is best placed to determine and fund the affordability measures. Setting affordability measures is essentially a social policy decision. It involves a judgment as to whom to assist in society in meeting their need for water services and the extent of

⁶⁶ On the elasticity see Clark *et al* (1998, Table 2.1, p. 33).

any assistance. Such decisions are political decisions. Hence the issue of addressing fuel poverty, which we discussed in Section IV, should be dealt with by the Department of Social Protection, not by the suppliers of electricity or gas (even when provision was solely by ESB and BGE, respectively, this was not the case), nor by the economic regulator, the CER, which will have oversight of Irish Water.

Economic regulators such as the CER are typically concerned with setting cost reflective regulated prices based on reasonable estimates of the regulatory asset base, rates of return and likely efficiency gains. Such objectives are laid out in statute. These are technical issues that while often requiring judgment, are undertaken by economists, financial analysts, accountants, and industry experts. Economic regulators are not equipped to make decisions about the level of allowances, to whom should they be paid and what is the appropriate form of cross-subsidy, especially where this creates more water poverty. Equally Irish Water is to be charged with acting as a commercial entity and, as with the CER, is not in a position to make distributional judgments. Hence if Irish Water's customer base is to fund the allowance, that requires at the very least, that the State carefully specify, for example, the level of allowance and some guidance on the form of the cross subsidy.

It could, of course, be argued that in the UK that there are so-called social tariffs for water which involve the customers of commercial water companies cross subsidising the recipients of these social tariffs. Furthermore WaterSure is a programme targeted at certain vulnerable groups that is funded by commercial water companies. However, a number of points need to be made concerning these programmes and policies. WaterSure's eligibility conditions are set by legislation which tightly specifies the vulnerable groups receiving assistance. The number of households qualifying for WaterSure is small (31,200 households in 2011),⁶⁷ and the cross-subsidy is low (35 pence per household per year).⁶⁸ In terms of the social tariffs, guidance has been issued by the Department for Environment Food and Rural Affairs (2012) not only in terms of which households might benefit but also in terms of the magnitude of any cross subsidies. In regard to the latter, "[T]he Government's view is that a charge of up to 1.5 per cent of the average annual household water and sewerage bill across England would be a reasonable amount of cross-subsidy to expect non-qualifying households to provide under a company social tariff."⁶⁹

Nevertheless there are at least two reasons for not following the UK example. First, lack of access to water services is a poverty issue, which in terms of income related measures has been to a large extent dealt with through DSP. Fuel poverty, a closely related concern to water poverty, is already dealt with via DSP. Within limited funds and a variety of payment mechanisms, the DSP is arguably best placed to deal with the issue of water poverty. As discussed in Section IV there are elements of eligibility of the HBP that are being paid to households that are not in fuel poverty, which could be

⁶⁷ Defra (2011, p. 10).

⁶⁸ *Ibid*, p. 17.

⁶⁹ Defra (2012, p. 8). It should be noted that Walker (2009, p. 127) stated that there "are strong arguments for government to fund this [affordability] package." Nevertheless, it recommended that the government should consult on who should pay for this package. The Government subsequently in a consultation document on its proposals took the view that it should pay for WaterSure and that water companies should promote social tariffs DEFRA (2011a). However, in the White Paper WaterSure continues to be a cross subsidy (DEFRA, 2011b, p. 63).

redistributed to deal with water poverty. A similar argument applies to child benefit.⁷⁰ Furthermore, poverty issues have a much better chance of being dealt with on a consistent basis if DSP is responsible for water affordability issues.

Second, it is important that the institution making the decision concerning water poverty is also responsible for funding the decision. If the State makes a decision concerning water affordability and it is funded by cross subsidies between different classes of water service customers, it is not clear that the required incentives are there to achieve the optimum allocation of funds to address water poverty.

5.5.3 Conclusion

In sum, on the question of who should fund water affordability measures, the evidence suggests that this should be the Exchequer, in terms of the social policy nature of the decision and the lack of expertise on such issues among not only Irish Water but the economic regulator, the CER. This conclusion is consistent with Sawkins and Dickie (2005, p. p. 227) who comment that more “recently, however, a dominant view has emerged that financial help to poorer members of the community should be delivered via the tax and social security system rather than through a complex arrangement of cross-subsidies for water and sewage.”

5.6 The Administration of Water Affordability Measures

Administrative ease in the design and implementation are important facets of any policy. In the case of water affordability measures this is especially the case since water charges are to be introduced in 2014. Furthermore at that time only a small portion of households will have meters installed which can be used as the basis for charging for water used. Indeed, it will take several years before all households will have their water bills based on metered use.⁷¹ As a result water bills for most domestic water service users will have to be on an averaged basis. Hence any affordability proposals will need to take into account these conditions.

We consider the merits of allowances compared to targeting vulnerable groups with respect to ease of administration (Section 5.6.1), the feasibility of introducing cross subsidies in the near term in the absence of water meters for the vast majority of households (Section 5.6.2) and the method of payment of the affordability measure (Section 5.6.3).

5.6.1 Ease of Administration

At one level if the decision has been taken by Government that there should be an *allowance* of x per litres per day per household, then it should be straightforward enough to provide the allowance as a credit on the household’s water bill. This condition only holds, however, if the x is not related to a variable such as the number and composition of persons in the household or a similar variable, which is difficult to collect and verify, irrespective of whether or not it is the responsibility of Irish Water or the DoECLG. Therefore the basis on which the allowance can be made is restricted to crude approximations set out in Table 5.1.

⁷⁰ For a discussion of the options concerning child benefit, see Advisory Group on Tax and Social Welfare (2012).

⁷¹ Some households, as noted above, will not be metered, such as individual apartments.

If, on the other hand, it is decided instead to address the issue of water poverty through *targeting vulnerable groups*, then once these groups have been selected and the value of the payment determined, then it should be straightforward to deliver the required amounts. This holds, however, only if targeting vulnerable groups uses existing DSP payments and does not require the creation of a new targeted group. That would require additional administration and perhaps means-testing.

5.6.2 Cross subsidies with no metering?

In terms of the funding it is difficult to see in the absence of volumetric charging for the vast majority of households how cross subsidies can be easily introduced much before 2017. One option might be to employ the property value. Households with higher values would be surcharged to fund the allowances. However, the property tax is in the process of being introduced and will no doubt take a number of years to get bedded down to accurately reflect property values. Furthermore, using property linked charges to fund allowances – which in many cases will seem unjust, especially if they include second homes – may not command widespread public acceptance and thus make collection of the property tax more difficult than it otherwise would be. In sum, given the difficulties funding the allowance, initially at least, funding would best and most easily be done via the Exchequer.

5.6.3 How Should the Affordability Measures be Delivered?

An issue arises as to whether or not the allowance should be in cash or via a credit on the household's water bill. If we turn to the method selected by the National Fuel Allowance and the HBP it is to a large extent pragmatic.⁷² In the case of water, unlike gas or electricity, Irish Water will not be able to cut off a household's access to water while the technology to pre-paying water via a meter has not been developed. In any event, with the meter placed outside the house it would be inconvenient for the householder to keep going outside, especially in winter, to feed the meter. Hence we suggest payment be made to Irish Water.⁷³

5.7 Conclusion

The discussion of the two approaches to addressing water affordability, allowances and targeting vulnerable groups, is summarised in Table 5.3. While there are clearly arguments for using either instrument, on balance, targeting vulnerable groups is to be preferred to the use of allowances.

⁷² Under the National Fuel Scheme a household receives a cash payment. Since the household will select a variety of fuels to heat the home from natural and bottled gas, electricity, coal, peat to wood from a variety of providers it would be administratively difficult for DSP to prepay these providers for a recipient. In contrast, it is much easier for DSP to pay the Electricity and Gas Allowance to the recipient's gas or electricity account since up until recently there was only one vertically integrated firm supplying electricity (ESB) and another for gas (BGE).

⁷³ The question of the appropriate metering technology is a subject that is beyond the scope of this report.

Table 5.3

Comparing Two Water Affordability Instruments: Allowances & Targeting Vulnerable Groups.

Criteria	Allowances	Targeting Vulnerable Groups
Ensuring Water Affordability	Poorly targeted. May increase water poverty if allowance funded by cross subsidy through higher charges on high volume users.	If vulnerable groups can be targeted accurately using existing DSP payment(s) will meet the objective or else will be administratively burdensome.
Maintain Financial Sustainability of Irish Water (IW)	If funded through Exchequer need to ensure that does not, at a minimum, jeopardise IW status as a commercial operation; if funded via cross-subsidy that it is sustainable (i.e. not lead to ever growing bad debts/non-payment).	If funded through Exchequer via DSP then unlikely to jeopardise IW status as a commercial operation; ^a if funded via cross-subsidy that it is sustainable (i.e. not lead to ever growing bad debts/non-payment).
Promoting Water Conservation	Does not promote water conservation, particularly for larger allowances.	Promotes conservation since households face marginal prices for all water used.
Funding Irish Water	Exchequer funding distorts work/leisure choice; cross-subsidy distorts water consumption decisions. Setting assistance levels should be by the State (whether via DSP or cross subsidies) since it is a social policy decision	Same as allowances
Administration of Water Affordability	No cross subsidies possible until water meters installed in all households; Exchequer funding of allowances or targeting vulnerable in short term	Same as allowances

a. If the DSP payments were to be substantial contribution towards Irish Water’s revenue requirements, then it is not unreasonable to expect that this interpretation would be subject to reconsideration.

Source: See text.

VI. Group Water Schemes & Non-Metered Households

Attention now switches to two groups of domestic water customers that will not be metered by Irish Water: those on Group Water Schemes (Section 6.1); and apartment buildings that will be metered for their total consumption by Irish Water, as opposed to individual apartments (i.e. households) within an apartment building or complex (Section 6.2). We briefly discuss each group of customers and how an allowance or targeting vulnerable groups might be applied. Section 6.3 concludes.

6.2 Group Water Schemes

Group Water Schemes (GWS) operate as co-operatives under the Industrial & Provident Societies Acts 1893-1978, with individual households as members of the co-operative. According to the model rules for GWS, “[M]embers may be required to pay Water Charges to assist with the operating and maintenance costs of the Society and such other monetary charges as the Board may deem necessary from time to time.”⁷⁴ GWS vary widely in the number of domestic connections varying from as few as two to 1,864, with, based on a recent survey, an average of 187 connections.⁷⁵ According to the 2006 Census, 12 per cent of households belong to a GWS (DoECLG, 2012a, p. 5). GWS typically have an allowance, which varies by GWS.⁷⁶ In terms of pricing there is no standing charge only a volumetric tariff, which is also set by each GWS.⁷⁷ Collection rates are close to 100 per cent (NFGWS, 2012, p. 14).

GWS receive considerable financial assistance from the State.⁷⁸ This reflects a number of factors, including the necessity to improve the quality of drinking water to comply with rising environmental standards and the fact that when domestic water charges were abolished for those households on the public water supply, in interests of fairness and horizontal equity (i.e. treating people in a similar situation the same), financial assistance was provided to those on GWS. Assistance was provided for both capital and operational expenditure up to a certain maximum in terms of the share of the expenditure incurred and per household. The DoECLG (2012b, p. 43) estimates that over the past decade “over €750 m in Exchequer funding has been invested in the [GWS] sector to improve compliance with drinking water standards.”

While GWS do not provide *all* the water consumed by households at no charge, they nevertheless do address affordability issues via, as noted above, allowances. Furthermore, it seems reasonable to assume that the capital and current assistance provided by the State might also be reflected in the absence of a GWS standing charge and perhaps a lower volumetric charge than might otherwise be the case. Finally, within the *Charter of Rights & Responsibilities for Members of Group Water Schemes*, there is provision under Article 8.8, ‘Hardship,’ for flexible payment mechanisms and in exceptional situations a waiver scheme.⁷⁹

⁷⁴ NFGWS (2010, paragraph 5 (e)).

⁷⁵ NFGWS (2012, p. 13 & Appendix 2, pp. 53-60). A connection will typically be a household, but in some cases may be two or more households.

⁷⁶ See footnote 59 for details.

⁷⁷ While the vast majority of GWS’s metered a small number are not. See NFGWS (2012, p. 14).

⁷⁸ For details see NFGWS (2012) and DoECLG (2012b, pp. 46).

⁷⁹ NFGWS (2009).

The issue thus arises if affordability measures are introduced to deal with water poverty in Irish Water, where water charges will be based on the metered quantity and expected to cover the capital and current expenditure of Irish Water, including a normal rate of return, what are the implications for GWS. This depends to a large extent on the future level of financial support by the State for GWS. If this were to remain unchanged, then clearly there would be no need for any additional affordability measures for GWS. However, a more sensible assumption is that State funding of the GWS declines so that customers of GWS are placed in a comparable position to customers of Irish Water. Of course, some continued assistance to GWS might still be merited. For example, GWS have fewer connections per kilometre of network leading to higher fixed and variable costs per connection, while certain long term commitments were entered into by GWS with respect to design, build and operate facilities on the expectation that current financing would remain in place.⁸⁰

If affordability problems are addressed through targeting vulnerable groups by using an existing DSP payment then there is no reason why households that are members of GWS should be treated any differently from households billed by Irish Water for the metered quantity of water consumed. However, difficulties arise with allowances, especially if they are financed through cross subsidies. Cross subsidy *within* a GWS given the differences in the size, composition and income of members of the GWS might be problematic – all members of a given scheme might, for example, be water poor. On the other hand, a cross subsidy *across* all of the GWS would not only be administratively complex, but might take away from the co-operative ethos of GWS leading to lower member involvement and higher levels of bad debts. If, however, the allowance were set by the State at x litres per week per household, then each member of the GWS could be credited with that amount, with the GWS billing the State. In other words, irrespective of whether allowances or targeting vulnerable groups is used to address the affordability problem, it would seem that funding should be from the Exchequer.

6.3 Apartments

Although apartment buildings or complexes are to be supplied by Irish Water, individual apartments within an apartment building or complex will not have their water consumption metered. Only the apartment building or complex will be billed by Irish Water. The question of the allocation the bill by individual apartment is beyond the scope of this report. Presumably some sort of guidance will be provided by the responsible body. Instead, what is within the scope of this report is how the affordability issue should be addressed for households that are located in apartment buildings. Many of the same considerations that were raised in connection with GWS also apply to apartment buildings. Cross subsidies, for example, from high volume water users to low volume water users to fund an allowance is not possible, because unlike GWS, water is not metered by individual apartment. All kinds of anomalies arise if instead average apartment consumption per apartment building were used as the basis for figures for cross subsidies between apartment buildings.⁸¹ Hence

⁸⁰ NFGWS (2012).

⁸¹ An apartment building with low water consumption per apartment could consist of pensioners on a substantial pension, while an apartment building with a high consumption per apartment might consists of low income single parents with several children.

allowances or targeting vulnerable groups should be funded by the Exchequer and distributed as per the discussion in respect of GWS.

6.4 Conclusion

The discussion of the addressing of affordability issues in GWS and apartments suggests that funding of any measures should be through the State rather than via cross subsidies from households with high water usage to those with low water usage. The conclusion in Section 5 for the use of targeting vulnerable groups as opposed to allowances remains unchanged.

VII. Microsimulation Model and Results

To explore how pricing structures for water services might affect consumer welfare and how the resulting negative effects on affordability might be mitigated, we have simulated affordability outcomes for 15 policy scenarios and carried out nine sensitivity tests. Results are discussed for two hypothetical future states of the world: a steady state pricing regime in which metering is in place to the full planned extent; and, a short run transition period pricing regime that assumes some meters have been installed but household water prices are still applied on an unmetered basis. Under current plans, the former regime might represent the period from 2017 onwards and the transition regime could refer to 2014. It is important to discuss both states of the world, because the problems of protecting affordability and the scope for Exchequer funding differ significantly between them.

The section is divided into four parts. In Section 7.1 the various scenarios are outlined, before the methods and data are detailed in Section 7.2. The steady state simulation results are presented in Section 7.3, the transition period results in Section 7.4. Section 7.5 concludes.

7.1 Scenarios

Fifteen scenarios are modelled, based on three overlapping policy choices:

1. Allocating an allowance of water to each household of 0 litres, 42 litres, 75 litres or 202 litres per day. These scenarios are based on Table 5.1;
2. Providing welfare supports to help avoid water poverty, proxied by the National Fuel Scheme eligibility conditions. We are aware from the analysis on Section 4 that this is not an especially good measure for addressing water poverty, so it is introduced largely for illustrative purposes; and,
3. Funding the allowance and welfare supports by taxpayers or by water consumers through a cross subsidy from households with high water use to household with low water use.

Simulating how a large, representative group of households would fare under each of these scenarios allows us to compare outcomes, providing an indication of how these measures might affect water affordability individually and how they might interact if applied together.

We also include a set of sensitivity tests designed to consider some of the key parameters about which we know little for Ireland:

1. High or low income elasticity for water use (two tests)
2. High or low price elasticity for water use (two tests)
3. Use of the Household Benefits Package eligibility conditions or a hypothetical optimally targeted measure for welfare supports, rather than National Fuel Scheme (four tests).
4. Each extra person in household contributes the same amount to water demand, rather than the baseline assumption that there are economies of scale in water demand within households (one test).

7.2 Methods and Data

In this section, we outline the assumptions, methods and parameters used in these simulations. There are three elements to the modelling: estimating prices for water services, simulating household demand and calculating affordability metrics based on household income and other socioeconomic information.

7.2.1 Pricing Data and Parameters

To provide hypothetical prices for our analysis of affordability, we developed a simple pricing model. All scenarios start from the assumption that domestic users of water services will pay a standing charge and a volumetric tariff. Estimated total operating (opex) and capital (capex) costs of running the public water and sewerage system are divided between domestic and non-domestic users and, within the domestic category, between houses (assumed to be metered) and apartments (unmetered). Cost and customer number assumptions were provided by NewEra in confidence. In the steady state scenario, annual opex is assumed to be €626 million and capex is €594 million. These figures are broadly similar to those assumed in PwC (2011). For the transition period (2014) scenario, projected opex is €692 million and capex is €594 million. The share of total costs assigned to the domestic sector is assumed to be 58.4 per cent, taken from Indecon (2005) and average daily water use is set at 145 litres per person. Values are in 2013 Euros unless otherwise specified.

Capital expenditures are apportioned between the metered and unmetered segments in proportion to dwelling numbers, based on the simplifying assumption that capital investment has mainly to do with the network and that network costs are driven more by the number of connected dwellings than by water volumes. Operating expenditures are apportioned in proportion to the number of persons living in each segment, reflecting an assumption that operating expenditure (opex) relates more to water quantity. We assume that second or holiday homes will pay the relevant standing charge plus two months of the average volumetric charge for a property of their type (metered or unmetered).⁸²

Standing charges are assumed to be set at a rate that will recover 20 per cent of the cost for each segment. We have no direct information on how such charges will be set; this assumption reflects an analysis of UK norms. Our treatment of opex allocation results in a lower standing charge for apartments than for houses, since the average occupancy for apartments is lower and thus less opex is allocated per apartment.

The remainder of the cost is assumed to be covered by a volumetric tariff that is, in some scenarios, offset by Exchequer funding. Volumetric tariffs are set at the average cost per litre required to raise the costs of metered households and at a flat average cost per household in the case of unmetered households. We recognise that in practice unmetered households could be charged some set of de-averaged rates, e.g. related to architectural type, but we did feel that elaborating the model in this way would not make a significant difference to the affordability results.

⁸² There is no reason to believe this allocation fully covers the costs “caused” by such dwellings, but we assume it is not practicable to apply higher standing charges to them than the ones used for occupied dwellings.

In our main set of scenarios, metered customers are assumed to reduce their demand by 10 per cent relative to baseline, whereas unmetered customers face a zero marginal price so do not reduce demand. We also try to take account of the weakened price incentives caused by provision of allowances using a simple approach: we assume customers do not reduce consumption of allowances even when they face a non-zero marginal price for some of their water. Sensitivity tests are conducted assuming reductions of 5 per cent and 20 per cent by metered customers. The pricing model assumes that costs are fixed in the short run, so reductions in water use by the metered segment have the effect of reallocating some cost from these users back to users generally. In the long run, the water system will undoubtedly have scope to reduce cost to the extent that the volume demanded is reduced, but our analysis looks only at the short run.

In scenarios that include an allowance, we apply the relevant allowance to each household apart from second or holiday homes. For example, assuming the average household size is 2.7 persons, an allowance of 42 litres per day will allocate $42 \times 365 \times 2.7$ litres or 41.39 m³ annually per household. The share of cost associated with the allowance is either reallocated to the volumetric tariffs (in user-funded scenarios, which is a cross subsidy from households with a high demand for water to those with a low demand for water) or borne by the Exchequer. In the highest allowance scenario, 202.5 litres per day, some households do not consume their entire allowance. We take this into account in estimating the relevant water charges, and in these scenarios the actual use of allowances is about 3.3 per cent lower than the amount offered.

A similarly simple treatment is applied to scenarios including welfare measures. Here we assume that a €5 per week benefit is paid to each qualifying household. The level of benefit is illustrative rather than a recommendation. The main comparisons shown are for National Fuel Scheme recipients, but two sensitivity tests are discussed later: one focusing on beneficiaries of the Household Benefits Package that are in receipt of the Electricity/Gas Allowance and one for a hypothetical optimally targeted benefit (i.e. where the benefit was paid only to households at risk of water poverty). The latter indicates the theoretical upper bound to the cost-effectiveness of welfare-based measures, but it is unlikely to be fully achieved in practice.

Table 7.1 below shows the scenarios and sensitivity tests we have modelled, together with the resulting prices for the metered and unmetered segments. Scenario details are discussed later.

Table 7.1
Water Affordability Scenarios, Assumed Water Charges, Steady State Scenario

Scenarios	Volumetric charge for metered residences (€ /litre)	Annual standing charge for metered residences (€/HH)	Annual average usage charge for unmetered residences (€/HH)	Annual standing charge for unmetered residences (€/HH)
No allowc, no welfare (Baseline)	0.002683	89.21	398.93	99.73
No allowc, fuel allowc benefit funded by users	0.003081	89.21	458.01	99.73
No allowc, fuel allowc benefit funded by taxp.	0.002683	89.21	398.93	99.73
42l allowc funded by users, no welfare	0.002994	89.21	398.93	99.73
42l allowc funded by taxp., no welfare	0.002653	89.21	352.44	99.73
42l allowc and fuel allowc benefit funded by users	0.003437	89.21	458.01	99.73
42l allowc and fuel allowc benefit funded by taxp.	0.002653	89.21	352.44	99.73
75l allowc funded by users, no welfare	0.003293	89.21	398.93	99.73
75l allowc funded by taxp., no welfare	0.002629	89.21	315.92	99.73
75l allowc and fuel allowc benefit funded by users	0.003781	89.21	458.01	99.73
75l allowc and fuel allowc benefit funded by taxp.	0.002629	89.21	315.92	99.73
202.5l allowc funded by users, no welfare	0.005199	89.21	398.93	99.73
202.5l allowc funded by taxp., no welfare	0.002546	89.21	182.11	99.73
202.5l allowc and fuel allowc benefit funded by users	0.005969	89.21	458.01	99.73
202.5l allowc and fuel allowc benefit funded by taxp.	0.002546	89.21	182.11	99.73
Sensitivity tests				
No allowc, HBP benefit funded by taxp.	0.002683	89.21	398.93	99.73
No allowc, optimal benefit funded by taxp.	0.002683	89.21	398.93	99.73
42l allowc, HBP benefit funded by taxp.	0.002653	89.21	352.44	99.73
42l allowc, optimal benefit funded by taxp.	0.002653	89.21	352.44	99.73
Low price effect (5% vs. 10%)	0.002683	89.21	398.93	99.73
High price effect (20% vs. 10%)	0.002683	89.21	398.93	99.73
Low income elasticity (0.1 vs. 0.2)	0.002683	89.21	398.93	99.73
High income elasticity (0.4 vs. 0.2)	0.002683	89.21	398.93	99.73
Flat demand per person vs. economies of scale	0.002683	89.21	398.93	99.73

Source: ESRI water pricing model

7.2.2 Microsimulation Data and Parameters

A typical microsimulation model includes data on all the key parameters that are under examination. Unfortunately, we have no survey in Ireland that includes data both on household water use and income. We address this problem by using the Survey of Income and Living Conditions (SILC) 2011 Research Microdata File, which includes socioeconomic data on 4,274 households, and calculating hypothetical water use for each household in each scenario, based on the water charges discussed above and the household's characteristics. It is then straightforward to impute each household's annual water services bill and compare this with its disposable income to assess affordability. The dataset also includes a set of grossing-up weights, so we can re-weight our results to ensure they are representative of the Irish population. We are especially grateful to the CSO for permitting us to use the SILC Research Microdata File for this purpose.

A simple demand model is used to predict each household's water use. This model assumes that there are economies of scale in water use within the household and that a low positive income elasticity applies to water services. Other possible drivers of water use such as appliance ownership, gardens, etc. were omitted due to lack of appropriate microdata. Economies of scale parameters are taken from Dresner and Ekins (2004), a study using data for England. They find that second and subsequent adults in a household use 71 per cent as much water as the first adult, while children each use 43 per cent as much as the first adult. We apply these ratios to yield the assumed Irish demand of 145 litres per person, given the distribution of first adults, second and subsequent adults and children in Irish households. This implies that in Ireland, the first adult on average uses 191 litres per day, subsequent adults 137 litres and children 82 litres. A sensitivity test is conducted to see the effects of setting predicted use to 145 litres for all individuals in a household. The income elasticity for water is assumed to be 0.2 based on a brief review of survey articles (e.g. Dalhuisen, et al, 2003; Worthington and Hoffman, 2008). Sensitivity tests on the income elasticity use 0.1 and 0.5.

There is an extensively literature on water price elasticity, but most of it is not directly relevant in the Irish case, because here we are not contemplating a small change in price but rather a rise from zero price to the average cost. We therefore assume a simple effect in the model, whereby those switching to metered prices reduce demand by 10 per cent on average or by 5 per cent/20 per cent in sensitivity tests.

The treatment of metered and unmetered households is slightly different between our pricing and microsimulation models. In the microsimulation, we assume that apartment dwellers are not metered and other households are. We understand that some other households will not be metered for technical reasons, but it is not possible to identify these households in SILC. It is also not possible to separately distinguish second homes in our analysis of affordability, so households are assumed to have one property only.

Having estimated water use and the annual bill for each simulated household, we compare the bill to the household's disposable income after tax. Households that have a predicted bill that is over 3 per cent or 5 per cent are flagged as vulnerable to water poverty. The affordability performance of scenarios can be compared using these metrics. In addition, for scenarios that include Exchequer funding, we calculate the implied Exchequer cost in total and the cost per household that is removed from water poverty (relative to the baseline with no allowances or specific welfare measures).

7.2.3 Some Limitations of the Models

The models suffer from a number of limitations, some caused by a lack of data and some by the short time available for the study. Here are three key ones that could be addressed in future research.

- A wider range of possible specific welfare measures should be tested to identify which combination of eligibility conditions would be most cost-effective in addressing water affordability problems. SILC is well suited to this purpose, but we did not have time in the present study to go further.
- A specific approach worth considering when time is available is the new model for measuring and addressing fuel poverty under development in the UK, which seems potentially well suited to the issue of water affordability (Hills, 2012; DECC, 2012). This involves assessing each type of household's water requirement, comparing its resources to the poverty threshold after the "justified" cost is taken into account and crafting a specific welfare measure to address estimated shortfalls.
- Being a static microsimulation model, our model assumes that all households consume the average quantity of water for their given set of characteristics. However, econometric studies of water demand invariably show significant variation across households in water demand due to unobservable characteristics. If these random "residuals" were equally likely to be high as low, this might not be a significant issue. However, most likely, the residuals are skewed to the right, which means our model may understate the risk of a household crossing the thresholds for water poverty. We do not know how important this issue is in practice, but it could be addressed by adding a stochastic component to the model if suitable calibrating data were available in future.

There are also some simplifications that are likely to remain, given the nature of available data. For example:

- It is not straightforward to distinguish whether households in SILC are likely to be water and sewerage customers of Irish Water or if they might be water-only, sewerage-only, or non-customers. We therefore conflate all types of customers by assuming all pay full average cost, but that only costs for connected households (not Group Water Schemes) are included. This is not intended to imply that we think prices should be set this way, it is just a necessary modelling approximation.

7.3 Simulation Results – Steady State

In this section, we analyse affordability implications on various household characteristics and policy dimensions assuming "steady state" pricing. Expenditures discussed in the section are in real 2013 prices and assumptions underlying the water charges relate to 2019 assumptions from NewEra. Tables give the share of households in each category that are predicted to spend more than 3 per cent and 5 per cent of disposable income on water services

7.3.1 Water Affordability and Household Size and Age Dimensions

There is a substantial concentration of water poverty predicted among the smallest households, particularly those containing one person (Table 7.2). For example, 11 per cent of single person households are in water poverty using the 3 per cent threshold; 5.9 per cent using the 5 per cent threshold. This is likely to be because a significant share of the water services bill consists of the fixed or standing charge, even for households who are on metered services. Furthermore, apartment dwellers, which pay a flat rate water charge, make up a disproportionate number of the smallest households.

Table 7.2
Share of Households of Different Sizes Projected to be Water Poor, Baseline Price Scenario with No Extra Welfare Support or Allowances (%), Steady State

Persons in household	3% threshold	5% threshold
One	11.0	5.9
Two	5.5	2.8
Three	3.3	1.2
Four	3.6	1.6
Five	2.3	0.4
Six_plus	5.2	0.2

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

The largest households also have somewhat higher predicted water poverty rates than midsized households, presumably because water demand is assumed to be increasing in household size (and, other things equal, income increases less than water consumption with household size). However, this applies only using the 3 per cent threshold, not the 5 per cent threshold. In the case of large households (i.e. six plus persons) it appears that the water poor spend between 3 and 5 per cent of household income on water, since only 0.2 per cent of such households spend more than 5 per cent of household income on water services, but 5.2 per cent spend more than 3 per cent.

Households with a reference person (i.e. the person in each household who completed the survey) under 25 years of age are also predicted to have a high incidence of water poverty (Table 7.3). This may reflect higher unemployment, lower rates of certain social welfare entitlements and higher incidence of student status and apartment dwelling among this group.

Table 7.3
Share of Households Projected to be Water Poor, with Different Ages of Reference Person, Baseline Price Scenario with No Extra Welfare Support or Allowances (%), Steady State

Age of household reference person	3% threshold	5% threshold
Under 25	29.3	11.1
25 to 49	4.2	2.2
50 to 64	5.0	1.9
65 plus	6.3	3.6

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.3.2 Allowances and Water Affordability

In Section 5.2 the possibility was raised that as the size of the allowance increased that water poverty might increase, since the increase in the volumetric water charge above the maximum would push some households with high water usage into water poverty. In Table 7.4 we examine the effects of increasing the allowance on water poverty rates when the allowance is funded by a cross subsidy from households with a high water consumption to those with a low water consumption (i.e. a self-funded system). The smallest allowance we have modelled (42 litres per household per day) yields *no* decrease in predicted water poverty rates using the 3 per cent threshold, and 0.2 percentage points decrease using a 5 per cent threshold, from 2.7 to 2.5 per cent. Higher allowances do, however, lead to reductions in water poverty using both the 3 and 5 per cent thresholds. Nevertheless, the reductions in water poverty are modest as the allowance increases by a factor of four water poverty, using the 3 per cent threshold, only declines from 5.6 to 4.8 per cent. The increase in the volumetric charge as the allowance increases pushes some households into water poverty mostly offsets the impact of the increased allowance.⁸³

Table 7.4
Effect of Increasing Allowance with User Funding; Share of Households Projected to be Water Poor, Steady State

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)
<i>No allowc, no welfare (Baseline)</i>	5.6	2.7	0
42l allowc funded by users, no welfare	5.6	2.5	0
75l allowc funded by users, no welfare	5.3	2.4	0
202.5l allowc funded by users, no welfare	4.8	2.1	0

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

The interaction of allowances and welfare measures designed to alleviate water poverty is presented in Table 7.5. Households currently eligible for the National Fuel Scheme are assumed to be paid €5 per week extra to assist with their water bills. The welfare measure leads to an initial decline in the incidence of water poverty, but in the case of the 3 per cent threshold there is little decline in water poverty as the allowance is increased from 42 litres per household per day to 202 litres per household per day. The decline is somewhat more marked using the 5 per cent threshold. The problem here is that only a subset of the water poor are eligible for the National Fuel Scheme, and many households near the threshold for water poverty are not eligible for this benefit. As the cost of allowances and funded benefits increases through higher volumetric charges, this offsets to some degree the beneficial effects of the increase in allowances and hence the decline in water poverty is modest as the allowance increases.

⁸³ This is confirmed by a comparison of Table 7.4 with Table 7.6, since in the latter case allowances are funded by the Exchequer.

Table 7.5

Interaction between Welfare Benefit (Based on National Fuel Scheme) and Rising Level of Water Allowance with both Funded by Users, Share of Households Projected to be Water Poor, Steady State

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)
<i>No allowc, no welfare (Baseline)</i>	5.6	2.7	0
No allowc, fuel allowc benefit funded by users	4.9	2.2	0
42l allowc and fuel allowc benefit funded by users	4.8	2.1	0
75l allowc and fuel allowc benefit funded by users	4.7	2.0	0
202.5l allowc and fuel allowc benefit funded by users	4.7	1.6	0

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.3.3 Who Pays: the Exchequer or Water Users?

When the Exchequer (i.e. taxpayer) pays rather than users, increased allowances leads greater to reductions in water poverty. We list the relevant Exchequer cost in Table 7.6, but we do not consider the second-round welfare effects from funding these Exchequer costs out of general taxation. These distortions were discussed in Section 5.5.1. The results show that the level of water poverty falls considerably but that the subsidy is not well targeted at protecting water affordability. Using the 3 per cent threshold shows that increasing the Exchequer funded allowance from 42 litres per household per day to 202 litres per household per day sees a reduction in the number of water poor households from 4.8 per cent to 2.3 per cent. The final column of the table show that the Exchequer cost per household that moves out of the 3 per cent poverty category. The implied cost of addressing affordability problems using allowances is extremely high, because the vast majority of households that will receive Exchequer-funded water allowances are not vulnerable to water poverty at these thresholds.

Table 7.6

Effect of Increasing Allowance with Taxpayer Funding, Share of Households Projected to be Water Poor, Steady State

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer cost / protected household (€)
<i>No allowc, no welfare (Baseline)</i>	5.6	2.7	0	0
42l allowc funded by taxp., no welfare	4.8	2.4	65	4,868
75l allowc funded by taxp., no welfare	4.1	2.2	115	4,506
202.5l allowc funded by taxp., no welfare	2.3	1.6	294	5,485

Note: Exchequer cost refers to the 3 per cent threshold.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

Section 5 concluded that there are significant advantages to funding affordability measures through the social welfare system rather than via a cross subsidy amongst water users. In the next subsection, we show simulations of some existing welfare measures and estimate an upper bound on

how cost-effective such measures could (theoretically) be if the appropriate eligibility rules could be constructed.

7.3.4 Using Social Welfare Benefits to Address Water Affordability

Targeting of the welfare benefit is obviously crucial to achieving a good ratio of effectiveness to cost. Table 7.7 compares the hypothetical benefit related to National Fuel Scheme, discussed earlier, to an alternative measure, also €5 per week, that might be paid to those currently receiving the Electricity/Gas Allowance under the Household Benefits Package. The results suggest the effectiveness in addressing water poverty depends on the choice of the threshold for determining water affordability. If 3 per cent is selected then the HBP is to be preferred, while if the 5 per cent threshold is used the National Fuel Scheme performs better. Although the National Fuel Scheme is a means tested benefit and might thus be expected to perform consistently better, both measures have only a weak correspondence to groups vulnerable to water affordability problems.

Table 7.7
Comparison of Welfare Measures, Share of Households Projected to be Water Poor, Steady State

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer cost / protected household (€)
Fuel allowance benefit only	4.3	1.8	84	3,846
HBP benefit only	4.0	2.0	98	3,680
Optimally targeted benefit (3% thresh.) only	0.6	0.4	24	294
Fuel allowance benefit only, plus 42l allowance	3.6	1.6	148	4,539
HBP benefit plus 42l allowance	3.4	1.8	163	4,445
Optimally targeted benefit (3% thresh.) plus 42l allowance	0.5	0.4	89	1,065

Note: Exchequer cost refers to the 3 per cent threshold.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

However, neither of these existing benefits is an appealing choice for addressing water affordability. The third and sixth options in the table show the upper bound for cost-effectiveness of a welfare measure, based on paying a €5 per week benefit to only those vulnerable to water poverty at the 3 per cent threshold. If perfect targeting were available, all but 0.6 per cent of the population could be moved over the 3 per cent threshold with only a €24 million expenditure, or less than €300 per protected household.

Of course, it is not possible to design such a perfectly targeted welfare measure. However, the enormous gap in cost effectiveness between this maximum figure and all the other options discussed in this report suggests that there is much to be gained from designing a combination of eligibility criteria that could perform better than allowances or the two welfare options modelled here.

For completeness, Table 7.8 shows that combining Exchequer-funded allowances to welfare measures does not improve on the attributes of either alternative. The cost to the Exchequer increases and cost-effectiveness of the spending falls compared to allowances alone.

Table 7.8

Interaction between Welfare Benefit (based on National Fuel Scheme) and Rising Level of Allowance with both Funded by Taxpayers, Share of Households Projected to be Water Poor, Steady State

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer cost / protected household (€)
<i>No allowc, no welfare (Baseline)</i>	5.6	2.7	0	0
No allowc, fuel allowc benefit funded by taxp.	4.3	2.0	84	3,846
42l allowc and fuel allowc benefit funded by taxp.	3.6	1.8	148	4,539
75l allowc and fuel allowc benefit funded by taxp.	3.2	1.6	198	4,934
202.5l allowc and fuel allowc benefit funded by taxp.	1.7	1.1	377	5,894

Note: Exchequer cost refers to the 3 per cent threshold.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

To give further perspective on the effects of the various scenarios modelled, Table 7.9 shows the predicted water poverty rates for the bottom income quintile, i.e. the poorest fifth of households by disposable income. If there is no intervention to address water poverty then using a 3 per cent threshold, 27.4 per cent of households are water poor. Allowances by themselves and funded by users have only a modest impact on water poverty. For these most vulnerable households, the burden of charges is more evident than for the population as a whole, and the scope for addressing it cost-effectively through targeted welfare measures is apparent.

Table 7.9
Projected Water Poverty Rates for First (Lowest) Disposable Income Quintile (%),
Steady State

Scenarios	3% threshold	5% threshold
No allowc, no welfare (Baseline)	27.4	13.2
No allowc, fuel allowc benefit funded by users	23.0	10.9
No allowc, fuel allowc benefit funded by taxp.	20.8	9.8
42l allowc funded by users, no welfare	27.0	12.6
42l allowc funded by taxp., no welfare	23.5	11.9
42l allowc and fuel allowc benefit funded by users	21.8	10.5
42l allowc and fuel allowc benefit funded by taxp.	17.6	8.7
75l allowc funded by users, no welfare	25.5	12.1
75l allowc funded by taxp., no welfare	20.3	11.0
75l allowc and fuel allowc benefit funded by users	21.3	10.1
75l allowc and fuel allowc benefit funded by taxp.	15.8	8.0
202.5l allowc funded by users, no welfare	21.2	10.3
202.5l allowc funded by taxp., no welfare	11.7	8.1
202.5l allowc and fuel allowc benefit funded by users	17.5	8.2
202.5l allowc and fuel allowc benefit funded by taxp.	8.6	5.3
No allowc, HBP benefit funded by taxp.	19.3	9.8
No allowc, optimally targeted benefit funded by taxp.	3.2	2.2
42l allowc, HBP benefit funded by taxp.	16.4	8.8
42l allowc, optimally targeted benefit funded by taxp.	2.6	2.1

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

An alternative way of examining water poverty amongst the most vulnerable in society is to consider predicted water poverty rates for those household that are considered to be in poverty using a number of indicators of social disadvantage discussed earlier in the report. The result is presented in Table 7.10 for households in basic deprivation, in consistent poverty or is working poor. The results show, not surprisingly, that these households, particularly those in consistent poverty and the working poor, have high levels of water poverty using the 3 per cent threshold. Allowances reduce the incidence of water poverty, but the reductions are similar to the results across all households presented in Table 7.6.

Table 7.10

Share of Household Classified as in Poverty/Deprivation Projected to be in Water Poverty at 3% Threshold across Various Policy Options, Steady State

Household Characteristics	In basic deprivation (%)	In consistent poverty (%)	Working poor (%)
Baseline	8.5	27.8	32.0
42l allowc funded by taxp., no welfare	6.9	22.3	28.1
75l allowc funded by taxp., no welfare	6.0	20.6	21.8
202.5l allowc funded by taxp., no welfare	3.4	12.4	11.5
No allowc, fuel allowc benefit funded by taxp.	5.8	20.6	29.1
42l allowc and fuel allowc benefit funded by taxp.	4.6	16.2	26.7
No allowc, HBP benefit funded by taxp.	6.7	23.8	28.8
42l allowc, HBP benefit funded by taxp.	5.3	18.8	25.6
No allowc, optimally targeted benefit funded by taxp.	0.7	2.6	1.9
42l allowc, optimally targeted benefit funded by taxp.	0.7	2.6	1.5

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.3.5 Financial Sustainability of Irish Water

As noted in Section 3 a binding constraint is that Irish Water should be financially self sustainable. At a minimum this means that at least 50 per cent of the revenue of Irish Water should be derived from commercial sources – i.e. customers. In Table 7.11 we estimate the share of total costs (including the industrial and commercial sectors) accounted for by Exchequer funding for each scenario modelled in this report and the four welfare sensitivity tests. These estimates assume that the only Exchequer funding relates to the domestic sector, so industrial and commercial customers pay for their full economic cost. This shows that all the scenarios would not result in Irish Water receiving less than 50 per cent of its revenues from commercial sources. Benefits, whether funded by the State or not, are excluded from this analysis on the assumption that they will not count against the 50 per cent rule.

Table 7.11
Exchequer Annual Public Subsidy as a Share of the Total Costs of Irish Water, excluding Welfare Benefits, Baseline Price Scenario, Steady State

Scenarios	Exchequer share (%)
No allowc, no welfare (Baseline)	0.0
No allowc, fuel allowc benefit funded by users	0.0
No allowc, fuel allowc benefit funded by taxp.	0.0
42l allowc funded by users, no welfare	0.0
42l allowc funded by taxp., no welfare	5.3
42l allowc and fuel allowc benefit funded by users	0.0
42l allowc and fuel allowc benefit funded by taxp.	5.3
75l allowc funded by users, no welfare	0.0
75l allowc funded by taxp., no welfare	9.4
75l allowc and fuel allowc benefit funded by users	0.0
75l allowc and fuel allowc benefit funded by taxp.	9.4
202.5l allowc funded by users, no welfare	0.0
202.5l allowc funded by taxp., no welfare	24.1
202.5l allowc and fuel allowc benefit funded by users	0.0
202.5l allowc and fuel allowc benefit funded by taxp.	24.1
No allowc, HBP benefit funded by taxp.	0.0
No allowc, optimally targeted benefit funded by taxp.	0.0
42l allowc, HBP benefit funded by taxp.	5.3
42l allowc, optimally targeted benefit funded by taxp.	5.3

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.3.6 Average Household Water Service Bills

The average annual water services bill per household is presented in Table 7.12 for all of the fifteen scenarios set out Table 7.1. The results are presented for metered and unmetered households, where the latter are apartments. In each case the average annual water bill that the household is predicted to receive from Irish Water is presented, together with the bill net of any measures designed to reduce the incidence of water poverty. In the baseline price scenario there is no difference between these two measures of the water services bill, for metered households the average annual bill is €446, for unmetered, €499. As can be readily observed from the table household water bills can vary considerably from this baseline price scenario depending on the affordability measure and how it is funded. If affordability measures are funded by the taxpayer then this reduces water services bills, either directly off the bill received from Irish Water (e.g. in the

case of the taxpayer funding the allowance) or indirectly through payment to the household via a welfare payment. When affordability measures are funded via users in the form of the allowance this tends to affect all households. Finally, because of differences in the characteristics of metered and unmetered households the impact of affordability measures can differ between these two broad categories of households.

Table 7.12

Projected Annual Bills for Metered and Unmetered Customers under Each Scenario, Steady State, (2013 €)

Scenarios	Average annual bill (€)		Average annual bill net of benefits (€)	
	Metered	Unmetered	Metered	Unmetered
No allowc, no welfare (Baseline)	446	499	447	499
No allowc, fuel allowc benefit funded by users	499	558	448	528
No allowc, fuel allowc benefit funded by taxp.	446	499	395	469
42l allowc funded by users, no welfare	446	499	447	499
42l allowc funded by taxp., no welfare	405	452	407	452
42l allowc and fuel allowc benefit funded by users	499	558	448	528
42l allowc and fuel allowc benefit funded by taxp.	405	452	354	423
75l allowc funded by users, no welfare	446	499	448	499
75l allowc funded by taxp., no welfare	374	416	375	416
75l allowc and fuel allowc benefit funded by users	499	558	448	528
75l allowc and fuel allowc benefit funded by taxp.	374	416	323	386
202.5l allowc funded by users, no welfare	446	499	449	499
202.5l allowc funded by taxp., no welfare	264	282	265	282
202.5l allowc and fuel allowc benefit funded by users	499	558	450	528
202.5l allowc and fuel allowc benefit funded by taxp.	264	282	213	252
No allowc, HBP benefit funded by taxp.	446	499	387	452
No allowc, optimally targeted benefit funded by taxp.	446	499	435	435
42l allowc, HBP benefit funded by taxp.	405	452	346	406
42l allowc, optimally targeted benefit funded by taxp.	405	452	397	396

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.3.7 Sensitivity of Results to Key Parameters

Table 7.13 shows the results of some sensitivity tests to key parameters of the water demand model we have used. The predicted level of water poverty does not change greatly due to variations in these parameters. As expected, higher income elasticity leads to lower predicted water poverty

rates because low income people consume less water and incur lower bills *ceteris paribus*. The limited effect of price responsiveness as driven by the way we have modelled costs in the sector; we assume that costs are inflexible in the short run even when a lower quantity of water is demanded. This means that costs saved by households who reduce their water use are reallocated by the model across all households. In the longer term price responses should have more effect.

Table 7.13
Sensitivity Tests on Projected Water Poverty Rates (%)

Scenario	3% threshold	5% threshold
<i>Baseline</i>	5.6	2.7
Low price effect (5% reduction from metering rather than 10%)	5.7	2.6
High price effect (20% reduction from metering rather than 10%)	5.5	2.6
Low income elast. (0.1 rather than 0.2)	5.9	2.8
High income elast (0.4 rather than 0.2)	4.3	2.2
Flat demand per person (rather than lower for children and subsequent adults than for first adult)	5.4	2.6

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.4 Simulation Results – Transition Period

Up to this point, we have focused on a steady-state metering and pricing regime. However, it will take several years for water meters and metering support systems to be put in place. During this time, any water charges must necessarily be largely flat-rate in nature, although some differentiation of averages by property type etc. might be practicable. We understand that the government does not intend that Irish Water should immediately achieve full recovery of its domestic costs through charges. This implies that there will be a transition period during which water charges will rise and metering will be rolled out, leading at some point to the steady state regime analysed above. In our view, a transition period is essential for protecting affordability. In this section, we illustrate how significant affordability problems might be in 2014 if full costs were recovered from users immediately.

We use the same models as in the previous section, but now assume that no household is charged per litre tariffs. All households are charged the same, irrespective of their characteristics. Broadly speaking the household water service bills are estimated as total Irish Water capital and current expenditure divided by the number of households. Since in 2014 this predicted expenditure is a little higher than in the steady state from 2019 onwards, water service bills are somewhat higher than if this exercise were conducted using 2019 steady state expenditure.

7.4.1 Water Affordability and Household Characteristics

In the transition period if water charges reflect Irish Water’s full costs combined with a flat charge per household, then many households are projected to be in water poverty. The pattern is similar to the steady state (Table 4.4) but the magnitude of water poverty is much greater. Indeed, affordability difficulties will be widespread for many groups, in particular persons for single person households, lone parent households, at least one person over 70, in consistent poverty and working poor (Table 7.14). In the case of households consisting of an adult over 65 with no children, over

two-thirds are projected to be in water poverty using the 3 per cent threshold, but only 7.6 using the 5 per cent threshold. Indeed, the difference in the incidence of water poverty using the 3 and 5 per cent thresholds, suggests that many households in the transition period are projected to spend between 3 and 5 per cent of their income on water.

Table 7.14
Projected Incidence of Water Poverty in Transition Period, By Household Characteristics, Baseline Price Scenario with No Extra Welfare Support or Allowances (%), Transition Period

	3% threshold	5% threshold
One_adult_65_plus_no_child	67.3	7.6
One_adult_under_65_no_child	45.2	14.4
Two_adults_at_least_1_65_plus_no_child	7.0	3.6
Two_adults_at_least_1_under_65_no_child	8.4	2.8
Three_plus_adults_no_child	3.3	2.6
One_adult_1_plus_children	27.9	5.5
Two adults & 1 to 2 children	4.6	0.7
Two adults & 3 or more children	0.8	0.0
Other_HHs_with_children	3.1	0.7
At least one household member over 70	34.2	5.3
At least one person with a long term illness or disability	29.0	5.4
In basic deprivation	24.6	5.3
In consistent poverty	54.0	19.2
Working poor	44.5	24.8
Reporting arrears in utility bills	19.4	5.7
Unmetered households (apartment dwellers)	17.2	3.9
In receipt of Fuel Allowance	41.9	5.6
In receipt of Household benefits package	37.5	4.9
All Households	17.2	3.9

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

The pattern in Table 7.14 is heavily influenced by the distribution of household sizes. Very small households, particularly those with one person, pay the same charge as larger households despite having significantly lower predicted water usage. Table 7.15 below illustrates this effect, which will be much more severe in the transition period than in steady state pricing regime where most households pay only for the water they use - see Table 7.2 for a comparison.

Table 7.15
Share of Households of Different Sizes Classified as Water Poor in Transition Period, Baseline Price Scenario with No Extra Welfare Support or Allowances (%), Transition Period

Persons in household	3% threshold	5% threshold
One	56.0	10.7
Two	11.7	3.3
Three	4.5	1.7
Four	3.7	1.6
Five	1.5	0.4
Six_plus	0.8	0.0

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

In terms of the age of the reference person in a household, as with the steady state – see Table 7.3, households where this person was under 25 years of age are predicted to experience high level of water poverty – 31.6 per cent using the 3 per cent threshold. However, in contrast to the steady state, Table 7.16 shows that those 65 and over are also likely to experience considerable water poverty using the 3 per cent threshold – 36.4 per cent. However, most of this appears to be water poor households that spend more than 3 per cent but less than 5 per cent of their income on water. In other words, the depth of water poverty for those households where the reference person is 65 or older is not as large as it might first appear.

Table 7.16
Share of Households Projected to be Water Poor, with Different Ages of Reference Person, Baseline Price Scenario with No Extra Welfare Support or Allowances (%), Transition Period

Age of household reference person	3% threshold	5% threshold
Under 25	31.6	11.9
25 to 49	8.1	3.0
50 to 64	16.3	3.4
65 plus	36.4	5.4

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.4.2 Water Affordability and Funding Sources

Allowances funded by water users are inoperative in this scenario: they will have no effect on affordability if no one is on metered tariffs, as illustrated in Table 7.17.

Table 7.17
Allowances Funded by Users, Transition Period

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)
<i>No allowc, no welfare (Baseline)</i>	17.2	3.9	0
42l allowc funded by users, no welfare	17.2	3.9	0
75l allowc funded by users, no welfare	17.2	3.9	0
202.5l allowc funded by users, no welfare	17.2	3.9	0

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

However, allowances funded by the Exchequer can still act to reduce affordability problems in a flat rate pricing system; indeed they are equivalent to making a cash reduction to the bill of each household. Table 7.18 shows this effect, including the cost per household and the implied share of Exchequer funding in the total costs of Irish Water that would arise from these levels of allowances. This can be substantial rising to 25 per cent with the largest allowance modelled in the table.

Table 7.18
Allowances Funded by the Exchequer, Transition Period

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer Cost of Protected Household	Subsidy share (%)
<i>No allowc, no welfare (Baseline)</i>	17.2	3.9	0	0	0
42l allowc funded by taxp., no welfare	14.8	3.5	60	1,529	5
75l allowc funded by taxp., no welfare	11.7	3.3	107	1,185	9
202.5l allowc funded by taxp., no welfare	3.7	2.6	280	1,272	23

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.4.3 Using Social Welfare Benefits to Address Water Affordability

Tables 7.20 to 7.23 reproduce for the transition period Tables 7.7 to 7.10 for the steady state, with respect to the use of welfare benefits to address the issue of water affordability. In both sets of tables households are given an extra €5 per week if they are recipient of certain welfare benefits (i.e. the National Fuel Scheme or the Electricity/Gas Allowance under the HBP). The conclusions drawn earlier concerning the steady state are reproduced with respect to the transition period.

Table 7.20
Comparison of Welfare Measures, Share of Households Classified as Water Poor, Transition Period

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer cost / protected household (€)
Fuel allowance benefit only	9.8	3.1	84	699
HBP benefit only	9.5	3.3	98	778
Optimally targeted benefit (3% thresh.) only	3.2	2.3	24	104
Fuel allowance benefit only, plus 42l allowance	8.8	3.0	143	1,048
HBP benefit plus 42l allowance	8.4	2.9	158	1,104
Optimally targeted benefit (3% thresh.) plus 42l allowance	2.8	2.0	84	356

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

Nevertheless, despite broadly similar findings concerning the efficacy of the use of different welfare strategies to resolve the issue of water affordability a couple of differences should be noted. First, in the transition period, for reasons set out above, the incidence of water poverty is greater using the 3 or 5 per cent threshold. Second, and connected to this result, the Exchequer cost of protecting a household in water poverty declines in the transition period compared to the steady state. In both cases the welfare benefit is €5 per week per household for those in receipt of either the NBP or the National Fuel Scheme, but in the transition period because more households are in water poverty the Exchequer cost of protecting a household is lower. In other words, compared to the steady state fewer households receive water affordability payments that are not in water poverty.

For completeness Tables 7.21 to 7.23 report results for the other analysis presented in Section 7.3.

Table 7.21

Interaction between Welfare Benefit (based on National Fuel Scheme) and Rising Level of Universal Allowance with both Funded by Taxpayers, Share of Households Projected to be Water Poor, Transition Period

Scenario	3% threshold (% in water poverty)	5% threshold (% in water poverty)	Exchequer cost (€m)	Exchequer cost / protected household (€)
<i>No allowc, no welfare (Baseline)</i>	17.2	3.9	0	0
No allowc, fuel allowc benefit funded by taxp.	9.8	3.5	84	699
42l allowc and fuel allowc benefit funded by taxp.	8.8	3.1	143	1,048
75l allowc and fuel allowc benefit funded by taxp.	8.1	3.0	191	1,281
202.5l allowc and fuel allowc benefit funded by taxp.	2.9	2.1	363	1,550

Note: Exchequer cost refers to the 3 per cent threshold.

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

Table 7.22

Projected Water Poverty Rates for First (Lowest) Disposable Income Quintile, Transition Period (%)

Scenarios	3% threshold	5% threshold
No allowc, no welfare (Baseline)	85.8	19.5
No allowc, fuel allowc benefit funded by users	59.4	24.6
No allowc, fuel allowc benefit funded by taxp.	49.1	17.4
42l allowc funded by users, no welfare	85.8	19.5
42l allowc funded by taxp., no welfare	73.8	17.4
42l allowc and fuel allowc benefit funded by users	59.4	24.6
42l allowc and fuel allowc benefit funded by taxp.	44.1	15.3
75l allowc funded by users, no welfare	85.8	19.5
75l allowc funded by taxp., no welfare	58.2	16.7
75l allowc and fuel allowc benefit funded by users	59.4	24.6
75l allowc and fuel allowc benefit funded by taxp.	40.3	14.9
202.5l allowc funded by users, no welfare	85.8	19.5
202.5l allowc funded by taxp., no welfare	18.6	12.7
202.5l allowc and fuel allowc benefit funded by users	59.4	24.6
202.5l allowc and fuel allowc benefit funded by taxp.	14.3	10.3
No allowc, HBP benefit funded by taxp.	47.3	16.5
No allowc, optimal benefit funded by taxp.	15.7	11.5
42l allowc, HBP benefit funded by taxp.	42.1	14.3
42l allowc, optimal benefit funded by taxp.	13.8	10.0

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

Table 7.23

Share of Household Classified as in Poverty/Deprivation Projected to be in Water Poverty at 3% Threshold across Various Policy Options, Transition Period.

Household Characteristics	In basic deprivation (%)	In consistent poverty (%)	Working poor (%)
Baseline	24.6	54.0	44.5
42l allowc funded by taxp., no welfare	21.4	50.2	36.4
75l allowc funded by taxp., no welfare	17.9	45.0	33.7
202.5l allowc funded by taxp., no welfare	5.1	18.4	24.2
No allowc, fuel allowc benefit funded by taxp.	14.6	42.0	42.4
42l allowc and fuel allowc benefit funded by taxp.	13.3	38.9	35.0
No allowc, HBP benefit funded by taxp.	17.0	48.3	42.1
42l allowc, HBP benefit funded by taxp.	15.2	44.7	36.1
No allowc, optimal benefit funded by taxp.	3.8	13.8	20.7
42l allowc, optimal benefit funded by taxp.	3.2	11.7	20.2

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.4.4 Water Charges in the Transition Period

The projected water bills of Irish Water in the transition period are presented in Table 7.24 under the 15 scenarios detailed in Table 7.1. Since all households receive the same bill there is no distinction between unmetered and metered households, as was made in the discussion of the steady state (Table 7.12). The average household bill from Irish Water where there are no welfare measures, the baseline price scenario, is about €507 per household per annum. Since there is no mechanism to charge households to fund an allowance based on household consumption, several of the scenarios replicate the baseline price scenario. As with the steady state water bills under the same 15 scenarios there is a substantial variation in the average household water bill. If, for example, the Exchequer were to fund an allowance of 202 litres per household per day, this would reduced the average household water bill to about €302 per household per year.

Table 7.24
Projected Annual Bills for Metered and Unmetered Customers under Each Scenario, Transition Period (2013 €)

Scenarios	Average annual bill – Unmetered(€)	Average annual bill net of benefits – Unmetered (€)
No allowc, no welfare (Baseline)	507	507
No allowc, fuel allowc benefit funded by users	568	517
No allowc, fuel allowc benefit funded by taxp.	507	456
42l allowc funded by users, no welfare	507	507
42l allowc funded by taxp., no welfare	463	463
42l allowc and fuel allowc benefit funded by users	568	517
42l allowc and fuel allowc benefit funded by taxp.	463	412
75l allowc funded by users, no welfare	507	507
75l allowc funded by taxp., no welfare	428	428
75l allowc and fuel allowc benefit funded by users	568	517
75l allowc and fuel allowc benefit funded by taxp.	428	377
202.5l allowc funded by users, no welfare	507	507
202.5l allowc funded by taxp., no welfare	302	302
202.5l allowc and fuel allowc benefit funded by users	568	517
202.5l allowc and fuel allowc benefit funded by taxp.	302	251
No allowc, HBP benefit funded by taxp.	507	447
No allowc, optimal benefit funded by taxp.	507	462
42l allowc, HBP benefit funded by taxp.	463	403
42l allowc, optimal benefit funded by taxp.	463	425

Source: Simulation using Research Micro Data File, CSO Survey of Income and Living Conditions, 2011.

7.4 Conclusion

In the section of the report we have predicted, given the characteristics of a household and evidence from elsewhere as to how these characteristics determine demand for water services, affordability outcomes for 15 different policy scenarios outlined in Table 7.1. In all of these scenarios the costs of Irish Water, as set out by NewEra, are covered. The scenarios include the provision of allowances and various welfare measures to address the affordability problem. A baseline pricing scenario is also included in which there are no affordability measures in place. In some instances the Exchequer or taxpayer funds the affordability measure out of general revenues, in others the measures are self funded by users – high water services users pay higher prices in order to cross subsidise households with lower water services usage. Two states of the world are modelled: a steady state pricing regime in which metering is in place to the full planned extent; and, a short run transition period pricing regime that assumes all households receive the same a fixed annual water services bill.

Water affordability is a problem that needs to be addressed in both the steady state and, in particular, in the transition period. Certain households are much more likely to suffer from problems of water affordability than others. This suggests that broad brush policies that cover all households, such as allowances, are unlikely to be effective at addressing the water affordability problem because many households that are not experiencing water affordability issues will receive unnecessary assistance.

The households that are particularly likely to experience water poverty are sensitive to some degree to whether a 3 per cent or a 5 per cent threshold is used. To summarise using the 5 per cent threshold, the following households that are projected to experience water poverty problems in the steady state: single person households; lone parent families; households with at least one member over 70; households with one person with long term illness or disability; in consistent poverty; working poor households; reporting arrears in utility bills; unmetered households (apartment dwellers); and, in receipt of National Fuel Scheme (Table 4.4). Much the same households also experience water poverty during the transition period (Table 7.14).

Paying recipients of the HBP or the National Fuel Scheme an extra €5 per week to address the water affordability problem does not resolve the issue. These two benefit payments were selected because they are aimed at addressing affordability problems in relation heating and energy, which are basic household needs provided by utility type arrangements that share important common characteristics with Irish Water. The lack of success in using these two benefits suggests further work needs to be conducted to identify a better method of targeting those households experiencing water poverty. Indeed, arguably water affordability should be addressed as part of a broader social welfare policy concerned with the provision of basic needs in vulnerable households.

VIII. Conclusion

In this section we address the issues raised in the terms of reference set out in Section II of the report. In considering the policy implications of our analysis we are conscious of the economic and budgetary context. As noted in Section IV the level of payment under the HBP and the National Fuel Scheme has declined with the onset of the recession and the imposition of austerity budgets. Hence measures to address the issue of water affordability have to be carefully crafted.

Allowances as a method of addressing the issue of water services affordability problems are a crude and blunt instrument. Permitting all households to have their first 42 or 75 or 202 litres at zero additional cost to the standing charge results in many households that not water poor – devoting more than 3 or 5 per cent of disposal income to water services – being given an allowance. Furthermore, the data to refine allowances to take into account household composition and size are not currently available. It would be far better to use the welfare system to target households with water service affordability problems.

There are further problems with allowances. If funded via a cross subsidy then households with a high demand for water services pay a higher price to subsidise those with a low demand for water services. As the allowance is increased – made more generous – then the extent of the cross subsidy increases; high water user households pay increased volumetric charges. This means that some households with high water demand - perhaps because they are a lone parent with a large family - are pushed into water poverty since they have no alternative but to buy essential quantities of water services. Hence the decline in water affordability problems is modest as the allowance is increased.

As allowances increase there are further problems and complications. First, allowances tend not to encourage water conservation, an important objective of EU environmental legislation. Consumption of water below the allowance is at a zero price. As the allowance becomes more generous, the upper limit may not be reached and/or the household feels that since it has paid the standing charge it should consume water up to the limit of the allowance.

A second problem concerns the financial sustainability of Irish Water. As the allowance increases the volumetric charge will also increase. Given the inelastic nature of the demand for water, increasing numbers of households are likely to experience difficulty paying water service bills. Arrears and bad debts will increase. Irish Water will have the unenviable task of collection from such households or see their financial situation worsen. Meanwhile households that could pay for their water services receive generous allowances and apart from the standing charge pay little or no volumetric charges.

In the case of Group Water Schemes it is difficult to see how a self-funded – i.e. cross subsidy from households with a high demand for water services to those with a low demand for water - allowance would function. It could, of course, be conducted on a Scheme by Schemes basis or more problematically across all Schemes. However, GWS differ considerably in size with some as small as two households and others close to 2,000 households. Furthermore setting a one size fits all allowance would threaten to undermine the cohesiveness of GWS and accompanying low level of bad debts.

This does not mean, however, that allowances cannot play an important transitory role in the creation of Irish Water as a self sustaining financial operation. Often when there are policy changes to the status quo transitional arrangements are put in place. For example, under successive post-World War II international trade liberalisation agreements, tariff reductions were phased in over a number of years and temporary measures used to assist adversely affected sectors. Hence, allowances could be seen as a temporary measure as domestic consumers move from the current situation, where in essence the allowance is set at 100 per cent of consumption, to customers paying in full for the services provided by Irish Water, in which case the allowance is set at zero. As noted above the DoECLG (2012b, p. 7) envisage a Transition Phase between 2014-2017, before a Steady State is achieved after 2017. This suggests four year period over which the allowance could be phased out. Essentially allowances under this scenario would consist of cash rebates on water service bills which would gradually diminish as Irish Water become self funding.⁸⁴

In any event if allowances are to be introduced on a permanent basis then they should be at a low level – e.g. 42 litres per household per day – with no allowance for second homes. These dwellings are owned overwhelmingly by the more affluent members of society and granting such households an allowance as part of an affordability scheme seems inappropriate.

Of course, allowances could be funded from the Exchequer. However, the same arguments concerning the use of a blunt and crude method of meeting the affordability problem are still relevant. Furthermore the evidence demonstrates that a carefully targeted programme aimed just at those households that are water poor would not be burdensome on the Exchequer. If households that were water poor using the 3 per cent threshold in the steady state could be targeted perfectly, the cost of a €5 per week benefit would be about €24 million or €294 per household in water poverty. In contrast, paying the same benefit to those currently in receipt of the Electricity/Gas Allowance as part of the Household Benefits Package would cost the Exchequer €98 million or €3,680 per household protected from water poverty. The corresponding figures for a €5 per week increase for those on the National Fuel Scheme would be €84 million and €3,846, respectively.⁸⁵ These latter two programmes are very badly targeted at those households experiencing water poverty.

The analysis suggests a targeted programme aimed at those in water poverty is a sensible option in a time of austerity. The report has identified certain groups of households that are likely to be the focus of such a targeted programme. These include small sized households (i.e. one person), apartment dwellers, younger persons, the working poor and single parent families. However, we have not, due to time constraints, been able to craft a set of existing benefits that could capture these households efficiently. Once these groups have been identified it makes no difference whether the household is a customer of a GWS or Irish Water, provided of course, customers of GWS and Irish Water are treated equitably with respect to recovery of costs through water service charges.

⁸⁴ We are not making any assumption as to how Irish Water is funded during the transition period, except that one way or the other the State will continue to fund the difference between Irish Water's costs and its revenues.

⁸⁵ Similar results are found in the transition period, but since more households are in water poverty the cost per household protected from water poverty is smaller.

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