Paying for Water

Equity, Efficiency and Sustainability

TASC

Preface[1]

In order to meet the challenge of providing a clean and secure water supply now and into the future, TASC recommends the introduction of an **equality-proofed** water charges regime based on metering to promote conservation at the household level and to provide increased funding for the sector.

In a previous submission on water charging made by TASC (2012), we argued that charging for good quality water and recognising it as a basic human right are not mutually exclusive. Any such charging regime must be based on the 'polluter pays' principle and the use of flat charges or proxies for water use (e.g. square footage), will not promote conservation and will likely be regressive. TASC's analysis is that the use of a free water allowance or a similar mechanism would neither satisfy the 'polluter pays' principle nor provide equality: such a universal free allowance would be a subsidy for all households regardless of means and circumstances.

Access to good quality, clean and affordable water is a human right. Water and waste water services are also vital for farms and businesses throughout the state. However, the provision of these services is not free, it must be paid for. Currently, water services are financed through a combination of general taxation and rates. Notwithstanding the boost in investment in the last number of years, the water sector has suffered historically from underinvestment. Greater investment in infrastructure will be required over the coming years if Ireland is to have efficient, safe and environmentally sustainable water provision. Achieving greater efficiency, environmental sustainability and increased investment in order to deliver high standards demands a rethink in how we fund our water services.

Therefore TASC recommends the establishment of targeted differentiated water allowances, which would supplement the capacity to pay of low-income and vulnerable households.

Our previous submission discussed the political, economic and environmental context for the establishment of water charges. It also highlighted the need to ensure that links between the local authorities and Irish Water are formalised in any new structure to ensure maximum co-ordination and the application of common standards across the country. The submission also emphasised the need to ensure that any new legislation establishing Irish Water includes a section ensuring that water provision remains in the public sphere. The purpose of this paper is to provide a deeper examination of water charging models and policy tensions.

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Summary

TASC's analysis results in the following proposals:

1. A programme for metering and charging should be introduced by the Government in the next few years.

2. The metering programme should be funded through the capital budget.

3. The Government should not introduce any interim charges (e.g. flat charges) in lieu of metering as this would unfairly affect lower income households.

4. Legislation establishing the new water utility should include a section precluding the privatisation of any part of water provision.

5. TASC's proposals for water charging have been equality-proofed and are in line with the 'polluter pays' principle**.** Water charges should take the following form:
    a. **Increasing block tariffs** metered on a household basis with high marginal rates in the upper blocks.
    b. The tariff structure should include a **recurrent fixed component** in order to ensure long-run financial sustainability of the water utility.
    c. To protect vulnerable households and prevent hardship, the chosen water pricing model should be supplemented by income supports in the form of **differentiated water allowances**. Differentiated water allowances are a more economically and ecologically efficient method of solving the affordability problem than universal free allowances.

Introduction

Clean water is an economic good. It is not costless. Water is heavy and difficult to transport, and the provision of water and waste water services requires the construction, operation, maintenance and improvement of expensive network infrastructure. Such costs must be financed through present or future taxation, through tariffs, or through a combination of both. In Ireland, the provision of water services is mainly funded through general taxation.

TASC supports the logic of the 'polluter pays' principle. As a consequence, TASC supports the decision to fund water services in the future through water charges based on the level of water usage, and paid for by the user. However, access to water is also a human right, and the availability of clean affordable water and waste water services is essential to a decent quality of life. Thus careful consideration of the appropriate structure for domestic water charges is required. It is possible to reconcile equity, efficiency and sustainability goals through a well-designed system of water charges that is supplemented by measures to protect vulnerable low-income households.

TASC proposes a model for domestic water charges that is predicated on the 'polluter pays' principle. We argue against the introduction of a universal free water allowance. Universal water allowances are a highly costly and inefficient means of easing affordability concerns for low-income households. Instead, each unit of water should carry a charge, and this charge should reflect the cost of providing that unit of water. Specifically, TASC is proposing that water charges should be based on water usage (volumetric pricing) and should take the form of increasing block tariffs, metered on a household basis, with high marginal rates in the upper blocks. Under a system of increasing block tariffs, water usage becomes progressively more expensive per unit consumed. In other words, water in the second block is more expensive per unit volume than water in the first block, while water in the third block is more expensive per unit volume than water in the second block, and so on. The purpose of increasing block tariffs is to penalise wasteful use of water, and reduce overall demand for water services, without penalising the use of water for essential day-to-day purposes. Water meters are a necessary prerequisite for any system of water charges based on volumetric pricing.

Water charging models must attempt to reconcile ***four main policy goals***:

1. Affordability and social justice;
2. Financial sustainability of water services as a non-profit utility;
3. Economic efficiency, and
4. Environmental sustainability.

Volumetric pricing enables us to internalise the environmental costs of water services. Attaining an economically efficient outcome requires the price of water (the volumetric rate) to be set equal to the marginal cost of supplying an additional unit of water. However, marginal cost pricing, while economically efficient, will not allow the water utility to attain financial sustainability. The tariff structure should therefore include an additional fixed component in order to ensure the long-run financial sustainability of the utility's economic model. Charges should reflect long-run operating

costs and capital costs. The cost of providing the meters should be borne by central government as part of its capital investment programme.

Incorporating social justice concerns should be central to water pricing policy. A universal free allowance is an expensive, economically inefficient and unsuitable solution because much of the benefits will accrue to wealthier households. A universal free allowance will also reduce the environmental benefits of water charges. The most economically efficient way to protect vulnerable households, and to prevent hardship, is to supplement the capacity to pay of low-income households through direct cash transfers. However, because water is a merit good, direct cash transfers are not a complete solution; that is, we want all households to actually benefit from the use of water, not just to have a theoretical capacity to afford water. Therefore, instead of direct cash transfers, protecting vulnerable households would be best achieved by supplementing the water pricing model with income supports in the form of Differentiated Water Allowances (DWAs) paid for by an intermediary, such as the Department of Social Protection. This would resolve the affordability issue without unduly compromising either economic efficiency or the twin sustainability goals. The cost of the DWAs should be funded through general taxation.

TASC supports the introduction of water metering. However, it will be a number of years before each household is metered. It will be impossible during this interim period to apply volumetric charges to all households and it will be inequitable to apply different pricing models to different households based only on whether the household has been metered. Flat charges should not be introduced during this interim period; they are regressive and will disproportionately impact upon vulnerable low-income households. In addition, a flat annual charge will generate no environmental benefits and may even be counterproductive as consumers will feel they have ‘paid’ for their water and will have no incentive to conserve water.

Water Charging Policy Objectives and Tensions

A water charging model must reconcile multiple policy objectives. These include (1) ensuring water affordability and guaranteeing clean water as a social justice issue; (2) ensuring financial sustainability for the non-profit water utility; (3) ensuring economic efficiency i.e. that water resources are allocated efficiently, and (4) maintaining ecological sustainability and ensuring polluters internalise the costs of their pollution (see Massarutto, 2007).

The Department of Environment, Community and Local Government's Implementation Strategy document for water sector reform (DECLG, 2012) contains a useful initial discussion of financing and funding issues.

An economically efficient allocation of water is one that results in the highest return for a given water resource (Johansson et al. 2000). The basic goal is to ensure water is allocated to its most beneficial use. In welfare economics, the optimal path for development of the industry is where the marginal benefit of the next increment of water supplied equals the marginal cost of supplying that increment. From this perspective, the optimal price which will maximise society's welfare is equal to the marginal cost of production (Bakker, 2001). However, marginal cost pricing tends to neglect equity issues (Mohayidin et al. 2009). In addition, ensuring financial sustainability means the price of a service should be at least be as high as the cost of providing that service. The full cost of water not only includes compensating resource inputs (i.e. operation costs, maintenance costs, and capital costs: the full-supply cost), but also includes economic and environmental externalities, as well as opportunity costs (Massarutto, 2007). Financial sustainability requires that cost recovery does not fall below the full-supply cost. Cost recovery can be attained through tariffs, through taxes, or through borrowings (future taxes). Water service provision is a natural monopoly with high fixed costs and economies of scale. As a result, marginal cost pricing will not recover full costs. The water utility will experience a loss since the marginal cost will always be lower than the average cost (Hung and Chie, 2013).

Full supply costs = Capital costs + operation and maintenance costs + debt servicing costs (1)

Full cost = Full supply costs + economic and environmental externalities + admin and governance costs (2)

Environmental sustainability means ecological preservation and the minimisation of waste. Demand side solutions include measures such as encouraging water saving through usage-based pricing. Supply side solutions include infrastructure improvements, technology upgrades, and improved network maintenance. Affordability issues are often considered by comparison of the water bill to the user's capacity to pay. For low-income groups the key consideration is not the average tariff over the population but the size of the tariff which is paid by low-income households. While there is no commonly agreed rule, the absolute level of affordability is often measured as a percentage of

disposable income. In most OECD countries the average water and wastewater bills as share of income of the lowest decile of the population is less than 2.5 per cent.

There are often tensions between different policy objectives, such as between ecological sustainability and distributional goals. Certain trade-offs are inevitable. In order to best reconcile these policy objectives, most OECD countries have adopted a combination of the following elements in their tariff structures:

A. connection charges;
B. fixed charges;
C. volumetric charges;
D. block charges; and
E. minimum charges (see Rogers et al. 2002).

A study of household demand and the welfare implications of water pricing in Cyprus found that price can be an effective tool for residential water demand management (Pashardes et al. 2000). Charging according to the quantity of water used will motivate consumers to conserve water by reducing demand or by switching to more efficient appliances. A general reduction in prices (e.g. from subsidies) lessens economic and environmental signals, and leads to overconsumption. Most though not all OECD countries use a two-part tariff structure with both fixed and variable elements (Rogers et al. 2002). The fixed element protects the supplier from demand fluctuations, reduces financial risk, and provides a stable revenue base. The variable element encourages conservation and is based on consumption levels.

Water pricing mechanisms (such as marginal cost pricing) can often have negative distributional consequences. Utilities can use tariff structures such as increasing block tariffs, or mechanisms such as water credits, to provide affordable water to low-income households. Increasing Block Tariffs (IBTs) are progressive to the extent the tariff structure provides a minimum necessary amount of water at a reduced price, which is then paid for by higher prices beyond this minimum. However, to prevent negative distributional outcomes it is often necessary to subsidise water provision, or to adopt different pricing mechanisms for different income levels (Dinar et al, 1997; Mohayidin et al. 2009).

Charging in other countries

Water tariffs, or charges, are a normal fact of life almost everywhere in the OECD. Ireland is a notable exception in this regard. Clean water is expensive to produce and to transport, and ultimately must be paid for through general or hypothecated taxation, or through tariffs. Denmark had the most expensive water service of twenty two OECD countries in 2007/2008 at €4.89 per m^3 (€63.35 per month) while Portugal had the cheapest at €0.90 per m^3 (€13.50 per month). Table 1 shows the average household bills across different water service providers in Great Britain for 2011/2012. The average bill is €37 per month (€444 per year) and ranges from an average of just

over €30 per month in Severn Trent (the Midlands) to an average of just over €50 per month in the South West of England.

Table 1: Average water and sewerage household bills in Great Britain*

Water and sewerage company	Average household bill for 2011/12	Forecasted average household bill for 2013/14
South West	€608	€587/€646**
Wessex	€504	€562
Dŵr Cymru	€484	€511
Anglian	€468	€511
Southern	€467	€528
United Utilities	€442	€478
Yorkshire	€399	€433
Northumbrian (North East)	€395	€422
Scottish Water	€381	€393
Thames	€375	€416
Severn Trent	€366	€394

Companies in table to match those used by Wallace (2011)
Source: Wallace (2011), Ofwat (2013), Scottish Water (2013); Converted from Sterling; Figures are based on an exchange rate of 1 Euro equals 0.85 British Pound Sterling;
Median annual bill 2011/12 = €442; Median annual bill 2013/14 = €478
**Customers of South West Water will receive a £50 subsidy, bringing the forecasted average bill from €646 to €587

In February 2013, Ofwat, the Water Services Regulation Authority for England and Wales, forecast an increase in household water and sewerage bills of 3.5%, or about £13 (Ofwat, 2013). This increase takes into account a rate of inflation of 3% and will lead to an average bill (industry weighted) of £388 in 2012/14, or €456 (Ofwat, 2013).

However, as can be seen from the table 1 above, these figures include sewerage services. If we look at average household bills excluding sewerage provision, the bills are quite a bit reduced.

Table 2: Average water only household bills for 2013/14 in England and Wales

Company	Water only company	Average Water Bill 2013/14
Wessex		€293
South West *		€270
Northumbrian (Essex & Suffolk)		€260
Thames		€244
Cholderton	*	€240
Affinity Water (Southeast region)	*	€239
South East	*	€236
Anglian		€228
United Utilities		€227
Bristol	*	€225
Sutton & East Surrey	*	€219
Dŵr Cymru		€213
Severn Trent		€208
Affinity Water (Central region)	*	€205
Affinity Water (East region)	*	€201
Yorkshire		€196
Northumbrian (North East)		€193
Southern		€186
Sembcorp Bournemouth	*	€181
Dee Valley	*	€176
South Staffordshire	*	€169
Cambridge	*	€153
Portsmouth	*	€113
Industry average (weighted)		**€219**

Source: Ofwat (2013); Converted from Sterling; Figures are based on an exchange rate of 1 Euro equals 0.85 British Pound Sterling;
Median annual water only bill 2013/14 = €213
*Customers of South West Water will receive a £50 subsidy for their combined water and sewerage bill, this table does not include the subsidy.

When average household bills for water alone are considered, the average industry weighted figure comes to €219.

Using the British figures to illustrate what Irish water charging might look like, an annual bill of €219 averaged over 1.4 million households would yield €306.6 million of revenue annually from domestic water charges. The range of regional averages for water only household bills in Great Britain would yield between €158.2 million and €410.2 million if applied to Ireland.

If we apply the British figures for combined water and sewerage services, an annual bill of €456 averaged over 1.4 million households would yield €638.4 million of revenue annually from domestic water charges. The corresponding range of regional averages for household bills in Great Britain would yield between €551.6 million and €821.8 million.

Fitz Gerald and Morgenroth (2012) estimate that the Irish water utility would require total revenue streams of €1 billion a year. The company sector currently pays €230 million a year and Fitz Gerald and Morgenroth (2012) envisage €350 million in revenue could be sourced from company charges. The remainder of €650 million that would therefore need to be sought from domestic water charges would be very much in line with combined domestic water and sewerage charging rates in Great Britain, but water charges alone fall short of the target.

The Government has committed to raising €500 million in 2015 through domestic water charging (IMF, 2012). This would necessitate an average water bill of €357 per annum.

There is large variation across OECD countries in the financial burden that water and wastewater charges place on the lowest income decile. This is shown in Table 3. Water and wastewater bills for the lowest income decile range from 10.3 per cent in Turkey to 0.8 per cent in Iceland. The average for the OECD is 2.3 per cent, which equates to €209 per annum for the lowest income decile in Ireland in 2010 (based on an average income for this decile of €9,094, according to the CSO's 2010 Survey of Income and Living Conditions).

Table 3: Average water and wastewater bills as share of income of the lowest decile of the population

Country	%	Country	%	Country	%
Turkey	10.3	Belgium	2.4	Greece	1.4
Poland	9.0	France	2.2	Switzerland	1.4
Slovakia	5.3	USA	2.2	Canada	1.3
Hungary	4.8	UK	2.1	Norway	1.2
Czech Rep.	3.9	Australia	2.1	Korea	1.1
Germany	3.5	Spain	2.0	Italy	1.1
New Zealand	3.3	Austria	1.7	Netherlands	1.1
Mexico	3.1	Luxembourg	1.6	Sweden	1.1
Denmark	3.0	Finland	1.6	Iceland	0.8
Portugal	2.7	Japan	1.5		

Source: OECD (2009); OECD median = 2.1%; OECD mean = 2.3%;

Basic Water Charging Model

TASC supports the use of volumetric charges in a metered environment. The volumetric charge is equal to the volumetric rate per m^3 (cubic metre) set by the regulator multiplied by the volume of water consumed. There is a strong case for using Increasing Block Tariffs (IBTs). Under the IBT system the volumetric rate per m^3 is increased above certain defined thresholds. Best practice suggests the volumetric charge should be supplemented by a recurrent fixed charge to ensure the water utility can reconcile sufficient levels of investment over the long-term with financial sustainability. The basic tariff structure is shown as:

Increasing block tariff (volumetric charge) + recurrent fixed charge ***(3)***

Where:
Average volumetric charge is a function of the short-run marginal cost
Recurrent fixed charge is a function of recurrent fixed costs including investment

Provided metering is done on an individual basis (single household) rather than on a communal basis (multiple household) the ecological sustainability of this tariff structure appears to be high and should encourage water savings. The inclusion of the fixed charge enables investments in upgrades to improve water quality and availability and to reduce leakages. It is important however that the marginal rates in the upper blocks are sufficiently high enough to encourage conservation. This tariff structure is in accordance with economic efficiency and financial sustainability provided the average volumetric charge is equal to the short-run marginal cost of water provision and provided the recurrent fixed charges are equal to average recurrent fixed costs. As argued by Dinar et al (1997) efficient water pricing mechanisms almost invariably have negative redistributional implications. These negative effects can be eliminated by incorporating differentiated income supplements, such as differentiated water allowances or direct cash transfers, to support low income and other defined groups.

Protecting Low-Income Households

Service charges, like consumption taxes, are generally regressive. Care must be taken that low income households and those with particular needs are protected. There are a number of policy options that can be availed of to reduce the burden of water charges on low-income households. Table 4 outlines common policy options adopted by thirty different countries according to the OECD's 2006 publication on water experiences in the OECD. Income supports were used by every country, while fourteen out of thirty OECD countries forbade disconnection of water supply. Substantial subsidies for water and sanitation supply, reduced prices for certain groups, progressive water tariffs, and reduced VAT on water, were all commonly used by OECD countries as measures to increase affordability. TASC proposes that water services should be charged at the zero rate of VAT.

Table 4: Affordability measures for domestic users in the OECD

Measure taken	No. of countries
Income support for low-income households	30
No disconnection of water supply of low-income households with arrears for water	14
Subsidies for water supply and/or sanitation over 30% of total service cost	13
Progressive water tariff in general use	13
Social water tariff (reduced price for certain groups of users)	12
VAT on water below normal rate	11
Unmetered (cheap flat rate tariff)	9
Targeted assistance i.e. grants or forgiveness of arrears for low-income households	8
No fixed fee (only proportional fee)	6
Reduced waste water tax or other water charges for low-income groups	3
Provision of a first block at zero price for low-income households or all households	2

Out of 30 OECD countries
Source: OECD (2006), Table 6

Water is an economic good and in principle there is no compelling rationale for water to be treated differently to other essential goods such as food, shelter and energy. The problem of water affordability and equity can be considered in two ways. We can treat the problem as being that water is too expensive, or we can treat the problem as being that certain people do not have enough resources (TASC, 2012). There are therefore two broad strategies that can be used to resolve the affordability and equity problem.

The first strategy is to reduce the price of water. The alternative strategy is to supplement the incomes of those on low income. The more efficient way to resolve the affordability problem from an economic efficiency perspective is to allow the price to be set as normal, but to then supplement the capacity to pay of those with low disposable incomes. This strategy avoids price distortions and directly addresses the distributional issue. The alternative strategy of reducing the price of water via a universal free allowance, universal subsidy, or some similar mechanism will lessen the degree of water conservation and will also lessen the allocative efficiency of water use. A universal free allowance would contravene the 'polluter pays' principle and would be a poorly targeted and wasteful method of solving the affordability problem. Low-income and other households with special needs can be better protected, and less expensively, by supplementing their income.

While an income supplement will require funding from general taxation, the proposed policy of a universal free water allowance could require even greater State funding depending on the generosity of the allowance. Universal free allowances represent bad value as measures to help those on low income because, to provide a small subsidy to low-income households, the Government will have to subsidise water for all households regardless of means and circumstances.

Any universal free allowance would have to be subsidised either through higher charges on use above the universal free allowance or through general taxation. Higher charges above the universal free allowance would also be suboptimal from the perspective of economic efficiency. In addition, unless the universal free allowance is differentiated by household it will disadvantage larger households relative to single person households, and will also disadvantage those with greater water requirements. The Commission on Taxation (2009), argued against the introduction of a free water quota in its report in 2009. It argued that a relatively generous quota would not encourage conservation and a low quota per household member posed significant administrative difficulties. (Commission on Taxation, 2009) The universal free allowance is clearly an inefficient social policy and one that will lead to over-consumption of water with negative environmental consequences. There are a number of superior alternatives to the universal free allowance. From the perspective of both economic equality and economic efficiency it is preferable to charge the full cost of water, including the cost of environmental externalities, and to then provide lower income households with some form of income supplement, in order to avert hardship.

Differentiated Water Allowances

Income supplements could come in the form of differentiated water allowances or direct cash transfers. Under a system of Differentiated Water Allowances (DWAs), a designated Government Department would directly contribute to the water bill for each household up to a value equivalent to that household's DWA, albeit a contribution no greater than the exact cost of the household's water bill. Each household's DWA would be calculated based on the characteristics of the household, for example, the household's disposable income, the number of people in the household and any special need for water (e.g. certain forms of disability). For the majority of households the DWA would be set at zero.

Water is a merit good because there is a public interest in ensuring, for public health purposes, that each household uses a certain minimum amount of water (e.g. hand-washing). The DWA model would help ensure that those on lower incomes would not decrease their water consumption below a level which is necessary to maintain public health.

Direct cash transfers would be more expensive for the exchequer than the DWA model, but would have the advantage of providing the recipient household with greater choice over their household expenditure. Direct cash transfers would be more economically efficient than DWAs but would not deal with public health concerns as effectively as would DWAs. This is because the social health benefits of water usage exceed the private benefits of water usage, and therefore the willingness to pay for water services is below the socially optimal level (Hall and Lobina, 2010); in other words, there is a risk that people affected by poverty will use direct cash transfers for other essential items, and reduce their use of water below the optimum level for their health and public health generally.

A variation on the DWA model is the cross-subsidisation model. The cross subsidisation model is similar to the DWA model with the important exception that higher income households would

receive a negative water allowance, i.e. an additional charge, and this additional charge would offset the positive water allowances allocated to lower income households. The cross subsidisation model is likely to be difficult to implement administratively and politically and leads to over-consumption by subsidised consumers and under-consumption by subsidising consumers (Hung and Chie, 2013). The different water charging models are compared in Table 5.

Table 5: Comparison of Water Charging Models

Model	Admin. complexity	Subsidises	Size of subsidy	Cost borne by	Socio-environment benefits	Cost to exchequer
Universal Free Allowance	Low	All	Fixed	General taxation	Low	3 (Highest)
Direct Cash Transfer	Medium - low	Lower income households	Variable	General taxation	High (but public health risks)	2
Differentiated Water Allowances	Medium - high	Lower income households	Variable	General taxation	Medium	1
Cross Subsidisation	High	Lower income households	Variable (sometimes negative)	Higher income users	Medium to High	0 (Lowest)

Differentiated income supplements should not be confused with a universal free allowance which is an inefficient way of solving the affordability problem. The income supplement can be funded through cross subsidisation by higher income groups or can be funded by direct State payments. Cross-subsidisation is likely to be more progressive than funding from general taxation. However there are likely to be major administrative complexities associated with developing a cross-subsidisation model. For this reason TASC recommends that income supplements in the form of household-differentiated water allowances (DWA) be adopted and that they be funded from general taxation. Income supplements in the form of DWAs would be less expensive that direct cash transfers and would be less administratively burdensome that a cross subsidisation model. Households could be automatically assessed as part of the process of meter installation with subsequent assessments occurring at defined intervals and automatically triggered upon a change in occupancy. Most households would receive a DWA set at zero.

TASC's proposed equality-proofed tariff structure, which attempts to reconcile the four key policy goals discussed earlier, is shown as:

Volumetric charges using increasing block tariffs + recurrent fixed charge - differentiated income supplements to low income and other defined groups ***(4)***

The exact size of the water allowance (or other income supplement) for each household should vary depending on the characteristics and circumstances of the household. Examples of relevant characteristics include household income and household size. The average water and wastewater bill as share of disposable income of the lowest income decile of the population is 1.1 per cent in Sweden, the Netherlands, and Italy. This equates to around €100 per annum in the Irish context. If we take the average water only bill in the UK (€219 per annum), a €100 yearly average payment for the lowest income decile would need a 54 per cent subsidy if applied in Ireland. However, if we take the UK water and sewerage average bill of €456 a 78 per cent subsidy of the water bill would be needed. The projected average annual bill of €357 (see page 10) in 2015 would require a subsidy of 72 per cent for the lowest income decile. This would represent an average DWA for this group of over €250. The size of the household's water allowance should decrease gradually as income increases.

As discussed above, there is no commonly agreed rule on what constitutes water affordability, but it is generally understood to mean the users capacity to pay. That is the share of net income used to pay the bill. However, measuring water affordability is difficult and complex. Any measure or indicator chosen will "inevitably reflect a judgement about the relationship between water . . . and other household needs. So, for individual customers, how difficult they find it to pay their water and sewerage bills will depend on a range of factors – including demands on their household income." (Ofwat, 2011: 8) An independent advisory group was established by Ofwat to examine suitable approaches and developed an indicator based on the percentage of income (after housing costs) that was spent on water and sewerage services. The group settled on indicative thresholds of above 3% of household income spent on water bills. In most OECD countries the average water and wastewater bills as share of income of the lowest decile of the population is less than 2.5 per cent

The Department of Social Protection should be given responsibility for setting the thresholds for water affordability and for assessing the needs of households based on these thresholds and corresponding levels of DWAs.

Annex: Financing over the Interim Period

TASC supports the introduction of water metering. For equity reasons, efficiency reasons, and environmental reasons, metering and volumetric charging form an appropriate basis for water charging and should be preferred to fixed charges wherever it is feasible to install meters. A universal metering programme is the correct approach and is preferable to the approach of metering selected classes of property and is also superior to the opt-in approach. During the 1990s in England and Wales (when metering was incomplete) some consumers with metered supplies were paying significantly more per unit volume than consumers with non-metered supplies (Bakker, 2001). However, an interim period characterised by regressive and inefficient flat charges offers little advantage and should be avoided. An economically efficient allocation of water is not attainable with flat rate charges. Metering will produce an economically more efficient outcome than a flat rate charge and is consistent with the 'polluter pays' principle.

It will be around three years before all households can be metered. Nevertheless, the alternative of a simple flat rate water charge as an interim measure would be deeply regressive and would provide no incentive to use less water. A flat rate water charge would in fact encourage an increase in water use, as householders will feel they have 'paid' for the water and are therefore entitled to use it as they see fit. Financing of water and waste water services through general taxation is more progressive than a flat rate charge. A flat rate charge will disproportionately impact on low-income groups. Water charges should not be introduced until such time as all households, where it is feasible to do so, are installed with water meters.

Government should also resist the introduction of other non-volumetric charging bases. The Department for Environment, Food and Rural Affairs, UK (DEFRA) established an *Independent Review of Charging for Households and Sewerage Services*, which compared the different charging bases against eight defined fairness principles. As can be seen in Table 6 (on page 17), only volumetric charging, which depends on meters, satisfies the fairness test.

Publicpolicy.ie also examined the possible use of proxies as interim measures in lieu of metering (De Buitléir, 2013). It focused on three possible measures, temporary surcharge on property tax liabilities, an increase in the rate of VAT on electricity or an increase in carbon tax. Similar to the findings of the Walker report, De Buitléir argues that property valuations are a poor proxy for water consumption. He finds that electricity consumption is "a reasonable proxy for water consumption" but if VAT on electricity is moved to the standard rate than it cannot be moved back due to EU rules (De Buitléir, 2013: 2). Finally, he examines the possibility of raising carbon tax but argues that it is also a poor proxy for water consumption. Thus, volumetric charging through use of meters is the only fair way of charging for water use. Interim measures such as flat rates or use of proxies should not be introduced.

Table 6: Comparison of charging bases against fairness principles

Principle	Flat rate	Volume	Rateable Value (similar to property tax band)	Household Occupancy	Bedrooms	Property Type
Water efficiency incentive	No	Yes	No	No	No	No
Cost-related	No	It can be	No	No	No	No
Polluter pays	No	Yes	No	Partly	No	No
Affordable	No	No	No	No	No	No
Fair to companies	Yes	Yes	Yes	Yes	Yes	Yes
Simple and transparent	Yes	Yes	No	Yes	No	No
Administratively feasible	Yes	Yes	Yes	No	Yes	Yes
Intergenerational equity	n/a	n/a	n/a	n/a	n/a	n/a

Source: Walker, A, (2009)

The meters themselves should be paid for by central government as part of the capital budget. The alternative is a regressive flat rate charge. The debt servicing costs from the investment in water meters should not be borne by the utility itself. Instead the cost of the water meters should be considered an equity investment by the Irish people.

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