Social tariffs for water and waste services in mainland Portugal: an impact analysis
Inês Gonçalves, David Alves and Gisela Robalo

ABSTRACT
Economic affordability and access to water and waste services (WWS) are extensively studied topics in economic literature. However, most papers focus on social rights or the importance of water provision for equity and development. The impact of different regulatory and/or management models, the measurement of affordability and efficient pricing have all deserved the attention of researchers, but few studies assess the actual revenue impact of the existing social support mechanisms. For Portugal, while some preliminary data collection has taken place, a comprehensive review is still lacking. With this paper, the Water and Waste Services Regulation Authority (ERSAR) takes a first step towards filling that gap, by calculating the amount of subsidisation inherent in the adoption of social tariffs in mainland Portugal municipalities. Starting with an account of the current status quo, the article analyses different subsidisation situations, including a hypothetical framework where social tariffs are administered according to ERSAR’s guidelines. Results indicate that, if ERSAR’s Recommendation were fully applied, the number of social tariff beneficiaries could be above current figures, possibly translating into a disproportionate burden on the remaining WWS users through the application of higher bills. In the context of the severe economic crisis that is forcing families into increasing budgetary constraints, the article stresses issues of feasibility, drawing on the policy implications of the adoption of such discounts.

Key words | social tariffs, tariff guidelines, tariff structure, water and waste sector

INTRODUCTION

The water and waste sector in Portugal

In Portugal, water and waste services (WWS) are provided to end-users at the level of the municipality, as it is believed that the subsidiarity principle applies to these services. This means that each municipality operator has a significant degree of discretion regarding its modus operandum, namely in what concerns the tariff setting process. With 357 economically regulated operators serving 278 municipalities in the mainland, this form of organisation ultimately causes the sector to be very heterogeneous (ERSAR 2011). While this diversity is not necessarily unwarranted given differing levels of water stress, population density, or even budget and political priorities, it nevertheless gives rise to several obstacles: (i) it may in many cases not reflect the true cost of providing the service (be it because it is too expensive or too cheap), thereby (ii) creating situations of unaffordable prices as well as situations of lack of cost recovery by the operators, and (iii) possibly misleading end-users.

For illustrative purposes, Table 1 presents a summary of WWS charges, which shows how disparate the tariff landscape is in mainland Portugal.

This situation is aggravated by the fact that tariff structures need not be coherent across municipalities. In fact, tariffs may include both a fixed and a variable (or volumetric) component, be composed only by either of these elements and even, in some cases, be non-existent, which amounts to providing WWS for free, possibly compromising the sustainability of their provision (Martins et al. 2013). Besides this, tariffs can further differ between increasing
also subject to a significant degree of variability, and flat fees, where the price per unit is always the same, regardless of the level of consumption, to name a few.

In charge of regulating this multitude of realities is the Water and Waste Services Regulation Authority (ERSAR). ERSAR is the Portuguese regulatory agency for drinking water supply (DWS), urban wastewater management (UWM) and municipal waste management (MWM), the three WWS considered within the scope of this paper. The existence of a sector-specific regulator for water services is rather common by international standards (Marques et al. 2011). The joint regulation of the waste sector is justified by the fact that, in Portugal, water consumption serves as a proxy for the amount of waste produced by a given household (Simões et al. 2010). ERSAR is also the national authority for drinking water quality control.

Despite ERSAR’s many regulatory attributions, its activity is limited to a light form of benchmarking regulation, commonly referred to as Sunshine Regulation (Marques et al. 2010). This consists of the comparison and public disclosure of performance indicators for the regulated service providers in an attempt to create a virtual form of competition. To be sure, ERSAR does not have coercive powers nor is it empowered to impose fines.

These characteristics imply that the regulator does not intervene directly in the tariff setting process, though it may propose best practices. In 2009, ERSAR published Recommendation no. 1/2009, also known as Tariff Recommendation (ERSAR 2009). This ‘soft law’ document intended to constitute a benchmark for defining tariffs and contribute to harmonising pricing schemes, attaining reasonable, clear and affordable prices. The article proposes an assessment of its appropriateness in light of different municipal realities, and identifies opportunities for rectification.

### The concept of social tariffs

A social tariff is hereby broadly defined as a reduced price targeted at domestic users with special needs. An important exception is the case of large household tariffs. Arguably, large household tariffs are also a means of providing social support, but since ERSAR makes a clear distinction between social and large household tariffs in its regulations, the price reductions designed for larger families were not considered in this paper. For benchmarking purposes, other countries such as the UK or France do not have a separate support mechanism for larger families (‘WaterSure’ n.d.; ‘Aide financière pour la distribution de l’eau’ n.d.).

According to the general notion provided in the previous paragraph, social tariff eligibility may depend on multiple criteria, depending on what is understood by ‘special needs’. As such, age, income or employment status are all valid criteria. For the present analysis, municipal criteria were surveyed and reproduced as currently applied by municipalities.

On the other hand, if one wants to follow ERSAR’s Tariff Recommendation thoroughly, eligibility should depend solely on income: ‘(...) drinking water supply, urban wastewater and municipal waste management tariffs should be reduced for household users whose household gross income does not exceed a certain value determined by the operator, and shall not exceed twice the annual value of the minimum monthly wage’ (ERSAR 2009). Taking the Portuguese minimum monthly wage for 2011, of 485€, this criterion implies that eligibility is granted by an annual gross income for tax purposes of 13,580€ or less (2 × 485 × 14 = 13,580€, the 14 months accounting for holiday and Christmas subsidies). In this paper, it is assumed for simplicity that all municipalities choose this upper bound definition. Although plausibly unrealistic, this actually allows for producing as encompassing an analysis as possible.

Besides eligibility, price reductions also need to be defined. While each municipality may set its own rules (which are replicated in the article’s calculations), Recommendation no. 1/2009 suggests that ‘(...) the

### Table 1 | Water and waste monthly charges for a Portuguese household consuming 10 m³/month of water (average household)

<table>
<thead>
<tr>
<th></th>
<th>Drinking water supply</th>
<th>Urban wastewater management</th>
<th>Municipal waste management</th>
<th>Three services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>9.80€</td>
<td>5.69€</td>
<td>3.62€</td>
<td>19.11€</td>
</tr>
<tr>
<td>Maximum</td>
<td>20.38€</td>
<td>20.10€</td>
<td>12.75€</td>
<td>40.52€</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.50€</td>
<td>0.00€</td>
<td>0.00€</td>
<td>2.53€</td>
</tr>
<tr>
<td>Difference</td>
<td>18.88€</td>
<td>20.10€</td>
<td>12.75€</td>
<td>37.99€</td>
</tr>
</tbody>
</table>

Source: ERSAR (2012).
Note: This analysis comprises 258 out of the 278 Portuguese municipalities in mainland.
recommended reduction (…), in the case of water services, must be achieved through the exemption of fixed tariffs and the application of the first block of the variable tariffs to the user’s total consumption, up to a monthly limit of 15 m³ and, in the case of municipal waste management services, through exemption of their fixed tariff (ERSAR 2009).

Scope of analysis

The analysis is developed on a municipal basis, addressing the tariffs in place in 2011. The focus is the social tariffs charged to domestic end-users (excepting large household tariffs) in DWS, UWM and MWM. It is assumed that cross-subsidisation occurs only between domestic users, abstracting from the potential participation of industrial and institutional users in the system. Operators are neutral to the application of social tariffs as cross-subsidisation assures that revenues are kept constant. A further assumption is that the demand for WWS is price-insensitive, in that the quantities consumed are not affected. The universe of service providers includes only those that operate retail service and have submitted their tariff information to ERSAR. Out of the 357 economically regulated operators, 338 fulfilled this requirement (95%). Given that different VAT values are applied to the tariffs, according to the management model of operators, the values hereby discussed in the paper do not include VAT, in line with ERSAR’s practice. Reported results are presented separately for each service for monthly consumption profiles of 5 and 10 m³, as these are closest to actual subsidised use of about 7 m³/month. These profiles are meant to be compatible with ERSAR’s database, where tariff information is kept for monthly consumption profiles of 5, 10 and 15 m³.

METHODS

Data sources

Data were collected from four sources: ERSAR, the National Statistics Institute (INE), the Portuguese Tax Authority (TA) and the service operators.

ERSAR’s tariff library stores general domestic user tariffs calculated by providers for each municipality and service. The database does not include social tariffs, but it does indicate whether the municipality offers social discounts. This information was the starting point for the no-social-tariff scenario, described below. The social tariffs proposed by ERSAR had to be computed, by adapting the general user charges stored in ERSAR’s tariff library to the recommendation’s text.

ERSAR also provided data from the 2011 Quality of Service Assessment, which were used to obtain a proxy for the total number of users for each service. These data were complemented with INE’s 2011 Census data.

The TA made available data on the number of tax forms and total gross declared taxable incomes per municipality, in 5000€ brackets, which, combined with micro data from the 2011 Household Budgetary Survey (HBS), helped estimate the number of potential social tariff beneficiaries according to ERSAR’s Recommendation. Since the HBS is representative only at a regional level (NUTSII), it was necessary to make a homogeneity assumption for the municipalities within a given NUTSII (there are five NUTSII in mainland Portugal: Norte, Centro, Lisboa, Alentejo and Algarve).

Finally, some of the data on the actual municipal social discounts were obtained through a survey that also collected information regarding the actual number of social users and social consumption profiles. However, some answers had to be discarded, as operators failed to discriminate between social and large household tariffs or to clarify the social tariff structure in place.

Tariff scenarios and social tariff beneficiaries

To quantify the impact of the application of social tariffs and assess the amount of subsidisation in each municipality, three distinct tariff scenarios were set.

The first scenario corresponds to the absence of social tariffs and was obtained directly through ERSAR’s tariff database where general user tariffs are stored; the second scenario considers the social tariffs currently applied by municipalities; and finally the third consists of a synthetic scenario where social tariffs are applied according to ERSAR’s Recommendation.

In addition to the tariff scenarios, two groups of users were considered: current beneficiaries and potential beneficiaries. The former are the number of social users reported
by municipalities, while the latter are all those that would be eligible according to ERSAR’s Recommendation.

The number of potential social tariff beneficiaries was estimated as:

\[
p_{\text{benef}} = (x_{1j} + x_{2j} + (fhbs_j \times x_{3j})) \times h_{is}, \quad 1 \leq i \leq 278, \quad 1 \leq j \leq 5, \quad s \in \{DWS, \ UWM, \ MWM\}
\]

where \(p_{\text{benef}}\) stands for potential beneficiaries in the municipality \(i\), \(x_1, x_2, x_3\) stand for the percentages of households with total gross income for tax purposes in the first three TA income brackets of \([0, 5,000\, \text{€}],[5,000, 10,000\, \text{€}]\) and \([10,000, 15,000\, \text{€}]\), \(fhbs_j\) is the fraction of households within the \([10,000, 15,000\, \text{€}]\) bracket whose gross income does not exceed 13,580 €/year according to INE’s 2011 HBS, and \(h_{is}\) is the number of households with effective service per municipality, i.e. the total number of domestic clients in each municipality. The subscript \(j\) stands for the NUTSII region to which municipality \(i\) belongs, while \(s\) represents the services DWS, UWM and MWM.

Output measures

The output measures are as follows.

The number of ‘current social tariff beneficiaries’, obtained directly from survey answers. For ‘potential beneficiaries’, the computation follows Equation (1) in the previous section. The ‘percentage of social tariff beneficiaries’ is calculated as the ratio between social tariff beneficiaries and the total number of users in the municipality.

The ‘value of the subsidy’ is calculated as the revenue reduction stemming from social discounts, which is nevertheless counterbalanced by revenue increases from non-beneficiary users, ‘bill accrual for non-beneficiaries’.

Results are presented for three subsidisation situations, corresponding to different combinations of tariff scenarios and user groups:

(a) Current tariffs and current beneficiaries: the comparison between the revenue obtained if no social tariffs were applied and the actual situation (only for the municipalities currently offering social tariffs).
(b) Recommended tariffs and current beneficiaries: the current number of social tariff beneficiaries is kept constant but the amount of subsidy is calculated as if price reductions were applied as recommended by ERSAR (only for the municipalities currently offering social tariffs).
(c) Recommended tariffs, potential beneficiaries and all operators: this hypothetical situation builds a scenario where the social tariffs recommended by ERSAR are adopted in all mainland Portugal municipalities, both in terms of eligibility criteria and the price reduction mechanism.

RESULTS AND DISCUSSION

According to ERSAR’s tariff library and the survey to municipal providers, social tariffs are quite common in mainland Portugal, with nearly half of the municipalities having some kind of social mechanism to support vulnerable households. Table 2 provides a summary of the number of municipalities currently applying social tariffs in mainland Portugal. Note that, due to the data constraints previously outlined, the number of municipalities included in the article for computation purposes is below the total number of municipalities that claim to offer reduced prices and the numbers vary from service to service.

The current social tariff eligibility criteria applied by municipalities are quite diverse, but more than 90% of the municipalities surveyed do follow some sort of income criteria (Figure 1). At the same time, municipalities envisage adjustments for household size, with income thresholds defined in average terms. This is something ERSAR could learn from, in order to make its recommended criterion

| Table 2 | Mainland municipalities with social tariffs |
|-----------------|-----------------|-----------------|-----------------|
| **Drinking water supply** | **Urban wastewater management** | **Municipal waste management** |
| Municipalities offering social tariffs | 134 | 107 | 99 |
| Percentage | 48.2% | 38.5% | 35.6% |
| Municipalities offering social tariffs included in the analysis | 101 | 77 | 68 |
| Percentage | 75.4% | 72.0% | 68.7% |

*As a percentage of municipalities offering social tariffs.*
fairer. Indeed, the Recommendation does not take into account the number of people in each household. This is worth revising, as water consumption depends not only on income but also on the number of people using the service (Smets 2012).

Current tariffs and current beneficiaries

Table 3 shows the results for the first subsidisation situation.

There are currently more people benefitting from social tariffs in DWS when compared with the other two services. On average, per municipality, there are around 250 households currently benefitting from a social tariff, which can be considered a relatively low figure, given that they represent less than 4% of the total number of users of WWS. However, inter-municipal tariff dispersion implies that such a percentage can in some cases reach 30%, so that caution is warranted in interpreting these results.

Table 3 also presents the results for the higher consumption profile of 10 m$^3$. The differences between 5 and 10 m$^3$ are mainly explained by the fact that, for 5 m$^3$, social tariff reductions essentially involve the exemption from fixed tariffs, as in most municipalities the 1st consumption block extends until 5 m$^3$. This means that the additional discount for 10 m$^3$ is mostly due to lower volumetric charges.

Table 4 shows that the total subsidy volume for the three services is nearly 140,000€ per month for a monthly consumption of 5 m$^3$ and more than 150,000€ per month for 10 m$^3$. This translates into an annual value ranging from For a low consumption profile (5 m$^3$), the amount of revenue lost by operators due to the application of a social tariff represents on average, per month, around 690€ in DWS, 555€ in UWM and 385€ in MWM. Yet, in the most extreme case, the subsidisation amount can rise to 8,000€/month. This implies a per capita subsidy ranging from 1.47€ to 2.18€ per month, depending on the service considered. If the assumption is made that this amount of subsidy requires an increase in regular tariffs in order to assure the same level of cost recovery, that would entail an accrual on charges per non-beneﬁciary household of an average of 0.06€ per month. These values are still quite low compared with the total WWS bill. Still, in the most extreme case, the accrual can be significant.

Figure 1 | Eligibility criteria in municipalities currently applying social tariffs.

Table 3 | Average subsidisation for actual tariffs and actual beneﬁciaries

<table>
<thead>
<tr>
<th></th>
<th>Drinking water supply (101 municipalities)</th>
<th>Urban wastewater management (77 municipalities)</th>
<th>Municipal waste management (68 municipalities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficiaries No.</td>
<td>255</td>
<td>256</td>
<td>234</td>
</tr>
<tr>
<td>Percentage$^a$</td>
<td>2.83%</td>
<td>3.55%</td>
<td>2.30%</td>
</tr>
<tr>
<td>Monthly consumption profile</td>
<td>5 m$^3$</td>
<td>10 m$^3$</td>
<td>5 m$^3$</td>
</tr>
<tr>
<td>Subsidy volume</td>
<td>687.74€</td>
<td>760.62€</td>
<td>555.33€</td>
</tr>
<tr>
<td></td>
<td>8,087.70€</td>
<td>10,679.20€</td>
<td>7,083.65€</td>
</tr>
<tr>
<td>Subsidy per beneficiary</td>
<td>2.18€</td>
<td>2.80€</td>
<td>1.86€</td>
</tr>
<tr>
<td></td>
<td>6.75€</td>
<td>8.02€</td>
<td>5.91€</td>
</tr>
<tr>
<td>Bill accrual per non-beneficiary</td>
<td>0.06€</td>
<td>0.07€</td>
<td>0.06€</td>
</tr>
<tr>
<td></td>
<td>0.76€</td>
<td>1.21€</td>
<td>0.67€</td>
</tr>
<tr>
<td>Percentage bill accrual per non-beneficiary</td>
<td>1.60%</td>
<td>0.94%</td>
<td>2.30%</td>
</tr>
<tr>
<td></td>
<td>15.14%</td>
<td>13.61%</td>
<td>1.45%</td>
</tr>
</tbody>
</table>

$^a$The percentage presented is the average of the value for each municipality. Maximum values are presented in italic.
1.7 to 1.8 M€, depending on the level of consumption considered (5 m$^3$/10 m$^3$).

**Recommended tariffs and current beneficiaries**

The second situation involves taking the price reductions proposed in ERSAR’s Tariff Recommendation and applying them to those users currently benefiting from social tariffs. Thus, it isolates the price effect of the Recommendation and allows for assessing how different municipal and recommended social discounts are. The results are reported in Table 5.

On average, this situation entails higher levels of subsidisation when compared with the current status quo (current tariffs and current beneficiaries; see the previous subsection), indicating that the price reductions suggested by ERSAR are more generous than those currently applied by municipalities.

For 5 m$^3$, the monthly subsidy volume would be about 750 € for DWS, 550 € for UWM and 520 € for MWM. If the higher consumption volume of 10 m$^3$ is considered, the monthly subsidisation values would increase to 1,200 €, 730 € and 540 €, respectively. As in the previous situation, the figures vary a lot from one municipality to another, with social support being as expensive as 7,400 € for 5 m$^3$ and 12,000 € for 10 m$^3$ in the DWS service.

For a 10 m$^3$ consumption, the per capita subsidy could reach 6.6 € if the household benefits from social tariffs in the three services (2.72 € + 1.97 € + 1.88 €). For a 10 m$^3$ consumption, the total subsidy per household is around 9 € per month. Note that per capita subsidies do not change radically when compared with the previous situation (Table 3).

On average, the increase in non-beneficiary tariffs to guarantee the financing of social consumption (given the assumption of constant operator revenues) is not very severe. For 5 m$^3$, the accrual is only of about 0.15 € for the three services, but bear in mind that these values are subject to significant variability. Indeed, in the most extreme case, the percentage increase per non-beneficiary can get to 32% when compared with current charges.

Turning to the global volume of subsidisation (Table 6), the figures are now around 150,000 € for 5 m$^3$ and 210,000 € for 10 m$^3$.

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Total subsidisation volumes for actual tariffs and actual beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking water supply</td>
<td>Urban wastewater management</td>
</tr>
<tr>
<td>5 m$^3$</td>
<td>10 m$^3$</td>
</tr>
<tr>
<td>69 461.60 €</td>
<td>76 832.98 €</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Average subsidisation for recommended tariffs and actual beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficiaries</td>
<td>No.</td>
</tr>
<tr>
<td>Monthly consumption profile</td>
<td>5 m$^3$</td>
</tr>
<tr>
<td>Subsidy volume</td>
<td>742.11 €</td>
</tr>
<tr>
<td>Subsidy per beneficiary</td>
<td>2.72 €</td>
</tr>
<tr>
<td>Bill accrual per non-beneficiary</td>
<td>0.06 €</td>
</tr>
<tr>
<td>Percentage bill accrual per non-beneficiary</td>
<td>1.35%</td>
</tr>
</tbody>
</table>

$^a$The percentage presented is the average of the value for each municipality. Maximum values are presented in italic.
Recommended tariffs, potential beneficiaries and all operators

The last subsidisation situation measures the impact of the full application (both in terms of price discounts and eligibility) of Recommendation no. 1/2009 in all 278 mainland Portugal municipalities. This hypothetical framework allows for a critical assessment of the proposed tariffs and draws attention to important policy implications.

In this setting, the average number of beneficiaries (households earning less than twice the annual value of the minimum monthly wage, i.e. less than 13,580€ gross/year) represents almost 60% of the total number of domestic clients for each service. Such a high percentage immediately signals that the (upper limit) eligibility criterion used is way too encompassing, serving merely as an academic hypothesis. Still, this upper bound situation remains useful for testing the robustness of ERSAR’s Tariff Recommendation.

As shown in Table 7, the amount of subsidy corresponding to the full adoption of ERSAR’s social tariffs would be on average, per municipality and per month, about 27,000€ in DWS, nearly 13,000€ in UWM and 18,000€ in MWM, for a monthly consumption of 5 m³. For this consumption volume, some municipalities with lower average household income would have to subsidise more than 0.5M€ per month just for DWS social consumption. Realistically, these values imply that lower income thresholds would have to be adopted in those municipalities, in an attempt to strike the difficult balance between sustainable provision and equity in WWS access.

Despite the fact that the subsidy per beneficiary does not change significantly compared with the two previous analyses, the larger number of potential beneficiaries places a huge burden on the remaining domestic users. In fact, the assumption of constant operator revenues implies a substantial increase in the monthly charges of non-beneficiary clients. In some cases, the charges would have to increase more than four times to finance social consumption. Even in average terms, tariffs for non-beneficiaries in the MWM service would have to double in order to pay for the subsidy needed (5 m³).

The total subsidisation volume for this hypothetical scenario is presented in Table 8, with more than 15M€...
behalf of the sustainable 
proposed price cuts could also possibly be warranted on 
previous subsection), suggesting that some adjustment to the 
price reduction mechanism was already more generous than 
ation of a speci 
focus 
would be very dif 
contracts. In a context where public bud-
guts are highly constrained, such a level of subsidisation 
would be very difficult to achieve even if one admits the cre-
at of a specific fund.

Beyond the main issue of eligibility, recall that ERSAR’s 
price reduction mechanism was already more generous than 
the discounts applied currently by the municipalities (see the 
previous subsection), suggesting that some adjustment to the 
proposed price cuts could also possibly be warranted on behalf of the sustainable financing of social tariffs.

CONCLUSIONS AND NEXT STEPS

This article paves the way to a deeper assessment of the function-
ing of social support mechanisms in the Portuguese 
water and waste sector. As a first attempt at quantifying the 
amounts of cross-subsidisation from ‘general’ to ‘low-income’ 
households implied by the application of ERSAR’s Recom-
mandation no. 1/2009, it leaves important practical ques-
tions unaddressed. The most important is the homo-
genous eligibility criterion used, when the recommendation 
allows each operator to set a different limit. This could be 
refined, e.g. by using municipal purchasing power indexes 
and revising the estimation of potential users accordingly. 
This would mean that a different income threshold for each 
municipality would have to be defined.

It is important to note that the article abstracted from potential take-up problems, in that (i) on the one hand, it is possible that there are currently less people benefiting from 
social discounts in WWS than those that actually fit the 
requirements, and (ii) on the other hand, even if 60% of house-
holds were eligible, it is likely that a smaller percentage would indeed apply for the reduced tariffs (Hernanz et al. 2004). As 
such, the article’s findings are not necessarily as radical as 
they might seem. Furthermore, since the universe of WWS cli-
ents is more encompassing than just domestic users, it is 
reasonable to think that, in reality, the increase in non-benefi-
ciary tariffs could be shared with other types of users.

Another caveat that will hopefully be coped with in the 
future has to do with the cost-side of WWS provision as well 
as the total revenues of each operator. An approach taking 
these costs into account would be better prepared to discuss 
the appropriateness of the current prices.

In addition, it would be important to evaluate the com-
bined effect of ERSAR’s tariff Recommendation with other 
recommendations, especially those aimed at decreasing 
the current tariff heterogeneity, such as Recommendation 
no. 2/2010 (ERSAR 2010).

Nevertheless, this project remains an important doorway 
for studying WWS social support policies in Portugal, stressing 
relevant policy formulation issues. In a nutshell, this paper: (i) 
emphasises feasibility issues in the setting of income eligibility 
thresholds, since it is not reasonable to provide assistance to 
the majority of users; (ii) gives some suggestions for amending 
Recommendation no. 1/2009, in particular regarding house-
hold size adjustments; (iii) draws attention to WWS tariff 
dispersion, which remains one of the most worrying features 
of these services in mainland Portugal.

REFERENCES

Aide financière pour la distribution de l’eau (n.d.) In: Service-Public.
fr: Le site officiel de l’administration française. Retrieved from: 
http://vosdroits.service-public.fr/particuliers/F1557.xhtml.
ERSAR 2009 ERSAR Recommendation no. 1/2009, Tariff formation 
for end-users of drinking water supply, urban wastewater and 
municipal waste management services (‘tariff guidelines’).
ERSAR 2010 ERSAR Recommendation no. 02/2010, Calculation 
criteria for the formation of tariffs applicable to end-users of 
drinking water supply, urban wastewater and municipal 
Waste management services.

Table 8 | Total subsidisation volume for recommended tariffs, potential beneficiaries (all municipalities)

<table>
<thead>
<tr>
<th>Drinking water supply</th>
<th>Urban wastewater management</th>
<th>Municipal waste management</th>
<th>Three services</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 m³</td>
<td>10 m³</td>
<td>5 m³</td>
<td>10 m³</td>
</tr>
<tr>
<td>7,535,115.35€</td>
<td>11,813,984.69€</td>
<td>3,581,877.43€</td>
<td>4,911,190.71€</td>
</tr>
<tr>
<td>15,711,147.54€</td>
<td>11,813,984.69€</td>
<td>3,581,877.43€</td>
<td>4,911,190.71€</td>
</tr>
</tbody>
</table>

€/month needed to subsidise social consumption if a 5 m³ 
consumption profile is considered and more than 20M€ 
for a monthly consumption of 10 m³. These figures are 
again excessively high, further supporting the adoption of 
a revised eligibility criterion. In a context where public bud-
guts are highly constrained, such a level of subsidisation 
would be very difficult to achieve even if one admits the cre-
at of a specific fund.

Beyond the main issue of eligibility, recall that ERSAR’s 
price reduction mechanism was already more generous than 
the discounts applied currently by the municipalities (see the 
previous subsection), suggesting that some adjustment to the 
proposed price cuts could also possibly be warranted on behalf of the sustainable financing of social tariffs.

CONCLUSIONS AND NEXT STEPS

This article paves the way to a deeper assessment of the function-
ing of social support mechanisms in the Portuguese 
water and waste sector. As a first attempt at quantifying the 
amounts of cross-subsidisation from ‘general’ to ‘low-income’ 
households implied by the application of ERSAR’s Recom-
mandation no. 1/2009, it leaves important practical ques-
tions unaddressed. The most important is the homo-
genous eligibility criterion used, when the recommendation 
allows each operator to set a different limit. This could be 
refined, e.g. by using municipal purchasing power indexes 
and revising the estimation of potential users accordingly. 
This would mean that a different income threshold for each 
municipality would have to be defined.

It is important to note that the article abstracted from potential take-up problems, in that (i) on the one hand, it is possible that there are currently less people benefiting from 
social discounts in WWS than those that actually fit the 
requirements, and (ii) on the other hand, even if 60% of house-
holds were eligible, it is likely that a smaller percentage would indeed apply for the reduced tariffs (Hernanz et al. 2004). As 
such, the article’s findings are not necessarily as radical as 
they might seem. Furthermore, since the universe of WWS cli-
ents is more encompassing than just domestic users, it is 
reasonable to think that, in reality, the increase in non-benefi-
ciary tariffs could be shared with other types of users.

Another caveat that will hopefully be coped with in the 
future has to do with the cost-side of WWS provision as well 
as the total revenues of each operator. An approach taking 
these costs into account would be better prepared to discuss 
the appropriateness of the current prices.

In addition, it would be important to evaluate the com-
bined effect of ERSAR’s tariff Recommendation with other 
recommendations, especially those aimed at decreasing 
the current tariff heterogeneity, such as Recommendation 
no. 2/2010 (ERSAR 2010).

Nevertheless, this project remains an important doorway 
for studying WWS social support policies in Portugal, stressing 
relevant policy formulation issues. In a nutshell, this paper: (i) 
emphasises feasibility issues in the setting of income eligibility 
thresholds, since it is not reasonable to provide assistance to 
the majority of users; (ii) gives some suggestions for amending 
Recommendation no. 1/2009, in particular regarding house-
hold size adjustments; (iii) draws attention to WWS tariff 
dispersion, which remains one of the most worrying features 
of these services in mainland Portugal.

REFERENCES

Aide financière pour la distribution de l’eau (n.d.) In: Service-Public.
fr: Le site officiel de l’administration française. Retrieved from: 
http://vosdroits.service-public.fr/particuliers/F1557.xhtml.
ERSAR 2009 ERSAR Recommendation no. 1/2009, Tariff formation 
for end-users of drinking water supply, urban wastewater and 
municipal waste management services (‘tariff guidelines’).
ERSAR 2010 ERSAR Recommendation no. 02/2010, Calculation 
criteria for the formation of tariffs applicable to end-users of 
drinking water supply, urban wastewater and municipal 
Waste management services.
Marques, R. C. 2011 A Regulação dos Serviços de Abastecimento de Água e de Saneamento de Águas Residuais: Uma Perspectiva Internacional. ERSAR, CESUR, Portugal.

First received 14 August 2013; accepted in revised form 8 January 2014. Available online 23 January 2014