



Is the human right to water sufficiently protected in Spain? Affordability and governance concerns

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ABSTRACT

Most research on water poverty focuses on developing countries. However, research is also needed in developed countries, where water may be too expensive for some households. This paper examines the case of Spain, using data from 16 cities that combined are home to 35% of the Spanish population. We study both national and local systems of regulation and governance. The objective is to determine whether low-income families face a genuine threat of exclusion from water supply. To this end, we analysed whether the Spanish legal framework allows that water supply is cut off for non-payment of the bill. We also did different estimates of the percentage of the family income spent on the water bill, which in some cases can surpass 10%. The estimates account for tariff discounts, as well as assistance programmes available to those who are struggling to pay their water bill. Although there is no problem of affordability for an average Spanish family in general, we conclude that families at risk of poverty face a real threat of exclusion from water services because they are not able to pay for them and the institutional framework does not sufficiently protect them.

1. Introduction

The United Nations recognizes access to water as a human right. This implies access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use (United Nations, 2010). Roughly 3 out of every 10 people in the world, that is, 2.1 billion people, do not have access to clean water (World Health Organization/UNICEF, 2017), although this figure may underestimate the real situation (Guardiola et al., 2010; Grigg, 2018; Martínez-Santos, 2017). The main problems of access to water occur in developing countries (Biswas and Tortajada, 2018). Consequently, most of the research on access to water in terms of coverage and quality has focused on developing countries (for example, Smiley, 2017a, 2017b; Adams et al., 2018).

Nevertheless, problems of access to water can also occur in developed countries (González-Gómez et al., 2020). One might not think so when looking at the statistics provided by World Health Organization/UNICEF (2017), which show that drinking water supply reaches practically every household. However, in these countries, the problem

refers to low-income families who cannot afford to pay their water bills becoming water poor. The sparse research on water poverty in developed countries includes United States (Mack and Wrase, 2017; Teodoro, 2019), England and Wales (Bradshaw and Huby, 2013; Zetland, 2016), Belgium (Vanhille et al., 2018), Portugal (Martins et al., 2016, 2019), Spain (García-Valiñas et al., 2010a; Yoon et al., 2019) and some of the Commonwealth of Independent States (Fankhauser and Tepic, 2007). Lack of information and statistics make water poverty in developed countries an “invisible” problem (Jones and Moulton, 2016) and thus very difficult to solve (Josset et al., 2019).

The problem is exacerbated when families are excluded from the service for not paying their water bill. This can happen in countries where the regulatory framework does not protect vulnerable populations’ access to drinking water.¹ Spain is one of the developed countries in which the institutional protection of the human right to water is an issue of concern. The 2007 economic crisis in the country has had a major impact on all sectors of society; in fact, its effects are still being felt (Guardiola and Guillen-Royo, 2015). Job losses and the

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¹ Some developed countries such as France, Great Britain, Belgium, the Netherlands, and Ireland prohibit cutting off the water supply services as a result of no payment.

consequent loss of income have pushed many families into poverty and social exclusion. In 2017, the AROPE (At Risk of Poverty or social Exclusion) rate stood at 26.6% (INE, 2018a). In this context, around 1.6% of Spanish households cannot afford paying basic services such as water supply, and 7.5% have serious problems paying both the electricity and water supply bills (INE, 2018a; FOESSA, 2019). Information by non-public institutions on percentage of families affected by water supply cut offs is consistent with those of the National Institute of Statistics (INE). According to the Spanish Association of Water Supply and Sanitation (AEAS), water supply cut offs affect 1.82% of households in the country (Asociación Española de Abastecimientos de Agua y Saneamiento (AEAS), 2016a). The Spanish Association of Public Supply and Sanitation Operators (AEOPAS) estimates that there are more than 500,000 non-payment warnings per year that are sent to some 2.75% of families all over the country. Of these, approximately 60% or 300,000 are actually implemented (Babiano and Giménez, 2015).²

This issue forms part of the current Spanish political debate. Although the price of water in Spain is relatively low for a developed country (OECD, 2010; IWA, 2016; Global Water Intelligence, 2017),³ left-wing parties and some community organizations question whether the human right of access to water—an essential good, fundamental for life—is guaranteed in Spain (García-Rubio et al., 2019). In particular, there have been reports of low-income families having their water supply cut off for not paying the bill, which in turn has affected their well-being. Left-wing political parties, with some public support, also call for private companies to be excluded from managing water services; one of their arguments for doing so is that public service is the best way to guarantee access to water supply. This is further explained in the section on water utility ownership.

Motivated by the growing debate, this research studies access to water services from the perspective of water poverty or lack of affordability. We ask whether the combination of the legal and institutional frameworks and pricing policies can lead to families within the poverty line or at risk of poverty being denied access to water for domestic consumption. The study is carried out on a sample of large Spanish cities. The empirical strategy consists of estimating the percentage of the family budget spent on the water bill, on average, and under different assumptions. The analysis takes into account discounts on the water tariff and assistance programmes for low-income families. The hypothesis to be tested is that, although the water bill represents a small percentage of the average family's budget, families at risk of poverty who are unable to pay the water bill, face a real threat of having their water supply cut off.

Following this introduction, the paper is structured as follows. Section 2 presents a brief review of the legal and institutional frameworks related to access to water and water pricing, as determinants of affordability. Section 3 explains the methodology used in this research. Section 4 discusses the results. The last two sections present discussions, recommendations and policy implications, and, conclusions.

2. Legal and institutional framework in Spain

This section briefly describes the legal and institutional frameworks related to the provision of domestic water services. It provides an idea of how responsibility the provision and regulation of the service is apportioned, especially in regard to pricing and on the possibility of

² It would not be correct to assume that suspension of water supply services is always because people cannot afford to pay the water bill. There can be other reasons. A main limitation to study this topic is that there are no official data on the number of families whose water supply is cut off and the reasons for it.

³ According to the European Federation of National Associations of Water Services (EurEau, 2017), average water supply bills in Spain are for approximately 220 Euros annually, while in 22 other countries in the European Union, water supply bills are for approximately 380 Euros per year.

exclusion from the service for non-payment.

2.1. Do Spanish regulations allow water supply to be cut off for non-payment of the bill?

Although the Spanish government has signed the Declarations of Human Rights, there is no national regulation in Spain regarding the human right of access to water (García-Rubio et al., 2019). Neither the Spanish Constitution nor Legislative Royal Decree January 2001 adopting the revised text of the Water Law (Government of Spain, 2001), supports the right of access to a minimum, essential amount of water.

At the regional level, 10 of the 17 autonomous communities have passed water laws,⁴ only one of which—Law February 2014 on Water Supply and Sanitation of the Autonomous Community of Cantabria—guarantees access to water supply in case of non-payment of the bill (Government of Cantabria, 2014). In such cases, it is stipulated that recipients of basic social income⁵ have a guaranteed minimum water supply of 100 L per person per day. In contrast, in Andalusia, Decree 120/1991 approving the Regulation of Domestic Water Supply, states that failure to pay water bills within the period stipulated by the provider can be cause for disconnecting the water supply (Government of Andalusia, 1991). The other regional laws neither guarantee a minimum access to water supply for families with limited financial means, nor do they explicitly allow cutting off the supply in such cases.

Given the legal vacuum at the national and regional levels—with the exception of Cantabria—local governments normally assume responsibility for regulating access to water supply. In this regard, it is common to have local-level regulations for the provision of water supply services. These local regulations usually include an article explicitly allowing cutting off the water supply in the event of non-payment of the bill.

2.2. Water utility ownership

Under Local Government Regulatory Law 7/1985, municipalities are responsible for the provision of water supply services. However, the responsibility for providing the service to the population does not necessarily imply that the municipality itself must manage the service (Government of Spain, 1985). In accordance with Law July 1985 and Law September 2017 on Public Sector Contracts, water supply services may be outsourced. Local government can decide whether the service should be under the city council or managed by a public company, a private company or a mixed public-private company.

At present, urban water supply services are provided by a private company in 23% of Spanish municipalities, whether through an entirely private company or through a public-private partnership. However, in terms of the population served, private companies represent a 55% share of the industry (González-Gómez et al., 2014). The bigger the municipality, the more likely it is that the water services will be managed by a private company (González-Gómez et al., 2011).

There is currently a debate on the ownership of the management of water services in Spain. This includes left-wing political parties, principally *Podemos* and *Izquierda Unida*; interest groups, such as the Spanish Association of Public Operators of Water Supply and Sanitation (AEOPAS); and non-governmental organizations, such as the *New Water Culture Foundation*, have recently been calling for the remunicipalization

⁴ The regional water laws in Spain can be seen on the website of the Spanish Official Bulletin, <https://www.boe.es/legislacion/codigos/codigo.php?id=139&modo=1¬a=0&tab=2>.

⁵ The Cantabrian Institute of Social Services defines “basic social income” as an economic benefit that is obtained regularly by persons with no economic resources. It represents the right they have for social protection. The objective is that those who suffer social exclusion, or are at the risk of suffering it, can cover their basic needs.

of water services that are currently under private management in many Spanish cities (Ruiz-Villaverde et al., 2015). These groups argue that public management is more likely to protect society's interests, among them the human right of access to water supply (Babiano and Giménez, 2015). Private companies, it is presumed, are more likely to set high prices, and to cut off supply in case of non-payment.

In the programme presented by *Podemos* for the April and November 2019 general elections, the Party discussed that public sector should become responsible, with as much transparency as possible, for all activities related to water management within one term of election. This would mean reversing and stopping private sector involvement on water supply, irrigation, sanitation and wastewater treatment (Podemos, 2019). In the case of AEPAS, the Association provides legal advice to the city governments that are planning to remunicipalize water management-related activities (Ávila et al., 2019).

2.3. Setting water tariffs

In the context described above, it is important to clarify which entities are responsible for approving water tariffs. The remit for water pricing for residential uses is decentralized, and there is no national regulation that establishes specific criteria for tariff systems in each municipality (González-Gómez et al., 2012, 2014). Moreover, there is no nationwide regulatory body or monitoring agency. Therefore, water pricing decisions are mainly made at the local level.⁶

The tariff approval procedure begins with a tariff review proposal prepared by the municipal water utility, whether public or private. Any proposal must be justified by an increase in the costs of the service, the implementation of technical improvements or the extension of the service to new areas of the city (García-Rubio et al., 2015). The tariff review proposal is then sent to the city council, where, after a process of public consultation, it is approved during a plenary session of the city council. The background for the justification to propose a tariff increase dates from early 1980s, when tariffs for water supply were responsibility of the Spanish government. When the autonomous communities were recognized as legal entities, they started developing their own norms to set tariffs. In practice, even though there is a norm on each region, the process is the same in all the cases.

Once the tariff review proposal has been approved during a plenary session of the city council, it is sent to the public institution responsible for matters related to treasury and public administration in each autonomous community. In practice, this public institution checks the proposal from the administrative viewpoint. However, it does not carry out a financial analysis of the proposed new prices (García-Rubio et al., 2015).

Lastly, once the competent authority in each autonomous community has given its approval to the city council on the new tariffs, these must be published in the official gazette of the province or the

⁶ The heterogeneity in tariff systems is noticeable in a country with 8124 municipalities. The differences are mainly in the number of blocks in the variable part of the tariffs and in the price of each block (García-Valiñas et al., 2013). However, there are many other differences. For example, in small municipalities, a symbolic fee is paid per year; in the north of Spain, the fixed quota often includes a minimum consumption of water for free; in Sevilla and Málaga, the water tariff is calculated per person, while in the rest of the country the water tariff is calculated per household; in some cities, there is a summer rate that is applied only during this period; bonuses and discounts are different in each municipality, etc. As a result, AEAS itself has requested in public forums the creation of an independent regulator that, among other tasks, harmonizes the norms for both the government and administration of urban water services as well as the tariff structures (Morcillo, 2015). Regulators in other European countries include, for example, OFWAT (Office of Water Services in England and Wales), ERSAR (The Water and Waste Services Regulation Authority in Portugal) and ARERA (The Italian Regulatory Authority for Energy, Networks and Environment).

autonomous community for public information.

3. Objective, data, and method

The objective of this paper is to assess the affordability of the drinking water supply service for domestic users in Spain. We study whether, in the abovementioned legal framework that allows the service to be cut off, water prices may be a genuine cause of exclusion from access to water supply.

3.1. Scope of the study

We studied 16 Spanish cities. They were selected for having more than 100,000 inhabitants and a local regulation that explicitly states that water supply may be cut off in case of non-payment of the water bill. The sample thus comprises large Spanish cities where population is at risk of exclusion from water supply services.

Table 1 list the municipalities includes in the study. All together, the companies managing the water services in these cities serve just over 35% of the entire Spanish population. In seven of the municipalities, the water utility is wholly publicly owned, while in the other municipalities there are different forms of private participation. Table 1 also includes the regulation that allows cutting off the water supply in the event of non-payment. It should be noted that public ownership of the utility is no guarantee that the regulatory framework does not allow cutting off the water supply.

3.2. Empirical strategy

To measure affordability, we estimate the financial effort a typical family has to make to pay the water bill for essential levels of consumption. To that end, we estimate the billing amount under the assumption of a three-person household, with consumption of 100 L of water per day per person, for one month; that is, 9 m³ per month per household.

The household size was chosen because the average household in Spain has 2.5 people (INE, 2018b). The water consumption per person was based on the finding that people need between 50 and 100 L of water per person per day to meet their basic needs (United Nations, 2010). We selected the upper limit to avoid levels of consumption that could indicate social exclusion in a developed country. For example, in Spain, not being able to use a washing machine is an indication that a person is at risk of poverty.

We also made calculations considering a consumption of 12 m³ of water per household/month. In this case, we considered a consumption of 133.33 L/person/day. This is an average of the last two official statistics in Spain in 2014 and 2016, of 132 and 136 L/person/day, respectively (INE, 2018c).

This study makes a number of estimates of the payment a family has to make. The following conditions are considered, depending on the tariff system in place in each municipality: the basic water bill, including all the stages of the integrated water cycle—supply, sanitation and wastewater treatment—as well as related value added tax (VAT). In some cases, the rate for solid waste is also considered. Some municipalities include solid waste in the water bill in order to reduce administrative costs. Consumers cannot choose which services to pay in a water bill: they have to pay for all the ones that are included in the bill. The only aspect users can decide on is on the water meter size on which the fix quota depends. Water bills may include discounts for families below a certain income threshold as well as other types of support available in emergency situations.

To get an approximate idea of the budgetary effort required by families to pay their water bill, three different situations have been considered:

Table 1
Municipalities in the sample and water utility ownership (2019).

City	Population served	Utility	Ownership	Water supply cut off regulation
Madrid	6,250,000	Canal Isabel II	Public	Decree 2922/1975, Regulation for the water distribution service of Canal de Isabel II (BOE n° 272)
Barcelona	3,000,000	Agua de Barcelona	Public-private partnership: 85% Private; 15% Public	Regulation on the metropolitan service of the integrated water cycle, approved in the session of the Metropolitan Council of the Metropolitan Area of Barcelona (BOP n° 222 of November 20, 2012), modified in the session of the Metropolitan Council of the Metropolitan Area of Barcelona (BOP n° 124, of July 01, 2013)
Valencia	790,201	EMIVASA	Public-private partnership: 85% Private; 15% Public	Regulation on the drinking water supply service of the City of Valencia (BOP September 14, 2004)
Sevilla	1,064,032	EMASESA	Public	Regulation on the water supply in Andalusia. Decree 120/91, modified by Decree 327/2012, of 10 July
Zaragoza	661,108	City Council	Public	Municipal ordinance for eco-efficiency and quality in integrated water management
Málaga	569,009	EMASA	Public	Regulation on the water supply in Andalusia. Decree 120/91, modified by Decree 327/2012, of 10 July.
Murcia	445,086	EMUASA	Public-private partnership: 49% Private; 51% Public	Regulation on the municipal drinking water supply service of Murcia (B.O.R.M. n° 247 of October 27, 1986 and B.O.R.M n° 74 of March 30, 1987)
Palma de Mallorca	402,949	EMAYA	Public	Municipal regulation on the water supply service of Palma de Mallorca (BOIB n° 115 of September 24, 2002)

Table 1 (continued)

City	Population served	Utility	Ownership	Water supply cut off regulation
Las Palmas de Gran Canaria	378,998	EMALSA	Public-private partnership: 66% Private; 34% Public	Regulation on the municipal water supply service of Las Palmas de Gran Canaria
Bilbao	975,000	Consortio de Aguas de Bilbao	Public	Regulatory ordinance on the provision of the water supply service by Consorcio de Aguas Bilbao Bizkaia (Bilbao Bizkaia Water Consortium)
Alicante	535,586	Agua de Alicante	Public-private partnership: 50% Private; 50% Public	Regulation on the provision of water supply and sanitation services in Alicante (Official Gazette of the Province of Alicante, n° 90, of April 21, 1987)
Cádiz	118,919	Municipal company Agua de Cádiz	Public	Regulation on the water supply in Andalusia. Decree 120/91, modified by Decree 327/2012.
Huelva	145,468	Agua de Huelva	Public-private partnership: 49% Private; 51% Public	Regulation on the water supply in Andalusia. Decree 120/91, modified by Decree 327/2012.
Tarragona	145,000	Municipal company Agua de Tarragona	Public-private partnership: 49% Private; 51% Public	Regulation on the drinking water supply service of the municipality of Tarragona (BOP n° 132 of June 07, 1996)
Lleida	138,144	Aigües de Lleida	Private	Regulation on the water service of the municipality of Lleida
Granada	502,335	EMASAGRA	Public-private partnership: 49% Private; 51% Public	Regulation on the water supply in Andalusia. Decree 120/91, modified by Decree 327/2012.

Source: Compiled by the authors from data published by the utilities themselves and the regulations on water supply services in each city.

1. The household's income is equal to the average salary for the city in question.
2. The household has a single income equivalent to the national minimum wage. The national minimum wage is reviewed annually by the Spanish government and is set at the same level nationwide.
3. The family has a single income of 430 Euros. This is the amount that Spanish households can receive under different aid programmes: Family Assistance Subsidy, Extraordinary Subsidy for Unemployment, and Active Insertion Income Programme. Any of these

programmes can be considered as a standard assistance for families in different situations of vulnerability who cannot benefit of unemployment benefits.

3.3. Data

The information on tariffs and tariff discounts was obtained from the official gazettes of the relevant provinces and autonomous communities. In addition, a search was conducted of the webpages of city councils and water utility companies to obtain information on the support provided to families suffering of water poverty.

The data on income were obtained from the following sources. The average income in each city was taken from the Urban Indicators published by the Spanish National Institute of Statistics (INE, 2019). The national minimum wage set for 2019 was approved by Royal Decree 1462/2018 (Government of Spain, 2018). Finally, we also used the information provided on the website of the Ministry of Labour, Migrations and Social Security for families whose employment benefits have expired.⁷

4. Results

First, the billing amount for consumption of 9 m³ of water per month was estimated. As an indicator of the budgetary effort a family has to make to pay the water bill, the billing amount was set in relation to three different levels of family income: average salary, national minimum wage, and income of 430 Euros, amount that is similar to the one vulnerable families receive (Table 2). We also estimated billing for consumption of 12 m³ per home. This is assuming families' water consumption is similar to the national average.⁸

It is important to note that, even at minimum levels of consumption, water tariffs differ by area. Comparing the extremes, water is most affordable in Zaragoza, where the price of the minimum essential level of water (100 lcpd) is €16.04, while the equivalent price in Sevilla is €41.46. Previous studies in Spain have already shown the differences in the price of water by city (Martínez-Espiñeira et al., 2009, 2012). Our research shows that there are also differences in the affordability of water supply services at minimum consumption levels.

The price of water supply in Spain is low in relative terms (OECD, 2015). On average, access to water to meet basic needs represents a relatively small budgetary effort for a typical family in Spain (Asociación Española de Abastecimientos de Agua y Saneamiento (AEAS), 2016a). However, there are differences in the percentage of the family budget allocated to the water bill in the three household income scenarios. For an average household, the water bill rarely exceeds 1.5% of the family income in only two cities: Sevilla and Murcia. However, in households with below-average incomes, the water bill may exceed the affordability threshold of 3% (Howard and Bartram, 2003; United Nations, 2006). For households with a single income equivalent to the national minimum wage, the water bill would represent more than 3% of that income in four cities of the sample: Sevilla, Barcelona, Murcia and Palma de Mallorca. In four other cities—Cádiz, Huelva, Granada and Valencia—it is close to the 3% threshold. Calculations considering consumption of 12 m³ per household indicate a more difficult situation for households to

access water supply in all the municipalities, mainly in cases where all family members are unemployed and when the only income is 430 Euros from aid programmes.

Due to the high rate of unemployment in the country, the government was forced to provide additional aid for unemployed population who was no longer entitled to standard unemployment benefits. In all cities in the sample, families whose members are all unemployed and who depend on aid programmes face a problem of affordability. For example, in Sevilla, Barcelona, Palma de Mallorca and Murcia, the water bill in such cases represents more than 9% of the family income.

From the beginning of the 21st century, but most notably following the 2007 economic crisis, water utilities and city councils in many Spanish municipalities have jointly approved systems of tariff discounts and reductions. Factors taken into account include the number of family members, whether all family members are unemployed, on income levels, and on retirement status. In Table 3, the amount of the water bill has been re-estimated taking into account tariff discounts approved by local governments when families fall below a certain level of income. Table A1 (supplementary material) explains the requirements that must be met to obtain a discount and how the discount is applied.

Differences can also be seen in the measures approved by local governments to facilitate access to water for low-income households. For example, not all service areas offer discounts based on income. Moreover, there are differences in the criteria for eligibility, as well as in how to access these assistance programmes. A standard requirement is that all members of the household should be unemployed or that they do not exceed a certain level of income. In some municipalities, however, assistance programmes are also open to families who do not exceed a certain income threshold even if some members are employed. The most commonly used references to set the threshold are the IPREM—Public Indicator of Multiple Effect Income (Government of Spain, 2017)—and the national minimum wage (Government of Spain, 2018).

In six of the cities studied (Valencia, Alicante, Sevilla, Malaga, Cádiz and Las Palmas de Gran Canaria), there are no income-based discounts of any type, though in all of these cities the water bill for families benefitting from a family aid programme exceeds 3% of their income, the threshold indicating problems of affordability. In fact, in five of these cities it exceeds 5%. The situation for families on the national minimum wage is less pressing in these municipalities. Indeed, after the minimum salary increase in 2018, only the invoices in Sevilla represent more than 3% of a family monthly budget. In addition, as shown in the third column of Table A1, in those cities where discounts are available, there are differences in the level of assistance offered. While in Huelva and Tarragona the discounted bill for low income families represents no more than a 30% of the total bill, in Murcia and Granada it is around 85%.

Furthermore, a common element to all the discounts is that, where available, they only apply to the first consumption block, which usually covers the equivalent of 9 m³ of water per month. That is, the discounts are applied for levels of around 100 lcpd. Some municipalities also discount service charges. We should point out that to benefit from the discounts, contract holders cannot be in arrears on the payment of any past bills.

In no case are the income-based discounts granted for an indeterminate period; they are generally limited to one year, although with the possibility of renewal if the specific situation persists and the appropriate documentation is presented. Likewise, discounts are only granted for main residences, without exception.

As with the water tariff discounts and reductions, in many municipalities (some of which are included in this study) water utilities and city councils have jointly approved Social Funds for families who cannot afford to pay their water bill. The processing of applications and granting of aid is carried out in close collaboration with the social services of these municipalities.

Table A2 (supplementary material) details the assistance programmes, apart from the tariff discounts, which are available in the municipalities that compose the sample of this study. There are notable

⁷ The website of the Public Employment System, Government of Spain, provides information on the subsidies available for people whose unemployment benefits have expired: <https://www.sepe.es/HomeSepe/Personas/distributiv-a-prestaciones.html>.

⁸ Assumptions are based on an average-size family of three persons and water consumption of 9 m³/person/day. Nevertheless, there are more factors that influence whether families can pay for the water bills. These include: number of persons who actually live in the house, how many of them are employed and receive a salary, total family income, how efficiently people use the water available, and the meter size, among others.

Table 2
Monthly billing amount for consumption of 9 m³ and 12 m³ of water (2019).

	Bill (Euros) 9 m ³	As a percentage of income			Bill (Euros) 12 m ³	As a percentage of income		
		Average salary	National minimum wage	Aid programmes		Average salary	National minimum wage	Aid programmes
Madrid	20.04	0.60	1.91	4.66	22.43	0.67	2.14	5.21
Barcelona ^a	39.19	1.24	3.73	9.11	57.51	1.81	5.48	13.36
Valencia ^a	29.14	1.12	2.78	6.77	40.47	1.55	3.85	9.40
Sevilla ^a	41.46	1.65	3.95	9.64	56.89	2.27	5.42	13.22
Zaragoza ^a	16.04	0.59	1.53	3.73	19.78	0.73	1.88	4.60
Málaga	19.47	0.86	1.85	4.52	27.44	1.22	2.61	6.38
Murcia ^a	40.52	1.61	3.86	9.42	47.03	1.87	4.48	10.93
Palma de Mallorca ^a	40.77	1.46	3.88	9.48	47.65	1.70	4.54	11.08
Las Palmas de Gran Canaria	24.23	0.95	2.31	5.63	31.98	1.26	3.04	7.73
Bilbao	16.44	0.55	1.57	3.82	21.02	0.71	2.00	4.89
Alicante	23.16	1.01	2.21	5.38	30.71	1.34	2.92	7.14
Cádiz ^a	31.19	1.22	2.97	7.25	40.72	1.60	3.88	9.46
Huelva ^a	30.74	1.38	2.93	7.14	38.95	1.75	3.71	9.05
Tarragona	17.52	0.63	1.67	4.07	31.88	1.14	3.04	7.41
Lleida	19.77	0.77	1.88	4.59	34.57	1.35	3.29	8.03
Granada ^a	30.81	1.25	2.93	7.16	38.69	1.57	3.68	8.99

^a In these cities, water and solid waste services are included in the same bill.

Source: Compiled by the authors based on information collected from the utilities, municipalities, official gazettes of the provinces and autonomous communities, and the Ministry of Labour and Social Security.

Table 3
Monthly billing amount for consumption of 9 m³, after discounts due to low family incomes (2019).

	Bill (Euros) 9 m ³	As a percentage of income		
		Average salary	National minimum wage	Aid programmes
Madrid	12.58	0.38	1.20	2.92
Barcelona ^a	18.86	0.59	1.80	4.38
Valencia ^a	29.14	1.12	2.78	6.77
Sevilla ^a	41.46	1.65	3.95	9.64
Zaragoza ^a	7.31	0.27	0.70	1.70
Málaga	19.47	0.86	1.85	4.52
Murcia ^a	5.50	0.22	0.52	1.28
Palma de Mallorca ^a	19.30	0.69	1.84	4.49
Las Palmas de Gran Canaria	24.23	0.95	2.31	5.63
Bilbao	10.88	0.37	1.04	2.53
Alicante	23.16	1.01	2.21	5.38
Cádiz ^a	30.19	1.22	2.88	7.02
Huelva ^a	23.33	1.05	2.22	5.42
Tarragona	12.63	0.45	1.20	2.94
Lleida	19.77	0.77	1.88	4.59
Granada ^a	4.46	0.18	0.42	1.04

^a In these cities, water and solid waste services are included in the same bill.

Source: Compiled by the authors based on information collected from the utilities, municipalities, official gazettes of the provinces and autonomous communities, and the Ministry of Labour and Social Security.

differences in the allocation of this assistance, both in the scope of the assistance and in the associated administrative procedure. Assistance is limited, either in amount or in time, meaning that families cannot be beneficiaries of social protection indefinitely.

In all cases where assistance programmes are offered, applicants must provide a report from municipal social services certifying that the household in question is in a situation of special vulnerability. The only city where municipal social services are not referred to as an intermediary is Alicante, where the relief organization *Cáritas* acts as the intermediary.

Differences can be seen in the measures approved at the local level to help families who face problems paying their water bill. In four municipalities (Lleida, Granada, Bilbao and Palma de Mallorca) cutting off the water supply is prohibited when the families in question are

beneficiaries of assistance programmes (see Table A2). This represents a partial amendment to the regulations in those cities, which allow the water supply to be cut off in case of non-payment. In other cases, if families are beneficiaries of an assistance programme, it means their bills are paid from an Emergency Social Fund created for that purpose with public funds (Tarragona, Cádiz, Huelva). In other cases, the utility pays for the bills (Palma de Mallorca).

There are important differences between the municipalities that have decided to create a progressive assistance plan, where the measures to be adopted depend directly on the degree of social risk of the family in question (Alicante and Zaragoza), and others, where the cities have decided to create a flat-rate social tariff of €5 per water supply bill (Murcia). Finally, some municipalities, rather than guaranteeing families “free” access to water supply—at least up to the essential minimum recognized by WHO, of up to 100 lcpd—have decided to facilitate systems for paying off overdue debts in instalments, whether systematically (Madrid, Bilbao) or on a case-by-case basis (Malaga).

5. Discussions, recommendations and policy implications

Water poverty is typically assessed using aggregate information at the country level. One indicator that is commonly used is the percentage of the population with access to water supply. The main sources for this information are the World Health Organization and the United Nations, which provide annual data at the global level (*World Health Organization/UNICEF, 2017*). Another approach is to estimate the financial efforts that individuals or households make to pay the water bill. In this case, a widely used indicator is the ratio between the billing amount for the minimum essential level of water consumption and the average income in the country (*OECD, 2003*). Assessing water poverty through macro-indicators leads to the conclusion that this problem is restricted to developing countries, such as those in Africa, Asia and Latin America. However, this approach conceals another reality. Although at the macro level the problem of access to water supply occurs primarily in developing countries, within any country, access to water supply can differ substantially among regions, cities, and user types (*García-Valiñas et al., 2010b*).

In Spain there is no nation-wide regulations that guarantee access to water supply, and the Spanish Constitution does not specifically recognize this right. At best, the Constitution could be interpreted as implicitly including access to water through other rights, such as the right to adequate housing (Article 47) or the right to health (Article 43).

However, as access to water supply does not fall within the category of fundamental rights, the population does not enjoy special protection under the Spanish legal system.

Furthermore, the law governing water at the national level, Royal Legislative Decree 1/2001, of 20 July, adopting the Revised Text of the Water Law (TRLA), does not explicitly make this relation to human rights. It does mention the need for water tariffs to be set at a price that is considered affordable, but it does not specify what should be considered as affordable. Based on the notion that the water bill should not represent more than 3% of the family budget, Tables 1 and 2 and A1 show that, at least for a typical family with an average income, the principle of affordability is met. However, it can be a serious problem for families with below-average incomes. Therefore, although the price of water is low in relative terms, in a country with such a high unemployment rate (which has a strong structural component), the macro-data may conceal a problem of affordability.

The regulations on local taxation, as well as court judgments, especially those at the level of the Supreme Court, allow water supply to be cut off for non-payment of the water bill. This situation occurs when municipalities outsource water supply services to a private company, a mixed public-private company, or a public company (for example, a municipal company). This means that just over 75% of the Spanish population who live in cities where services are outsourced, could have their water supply cut off (Asociación Española de Abastecimientos de Agua y Saneamiento (AEAS), 2016a). This includes practically all large and medium-size municipalities in Spain. Therefore, in situations where people are at risk of poverty and exclusion, there is a high degree of arbitrariness at the local level about the decision to cut off the water supply when families cannot afford to pay the bill.

As discussed earlier, in recent years, a number of initiatives by community organizations have risen up against private management of urban water services. Particularly notable in Spain is the Social Pact for Water (Fundación Nueva Cultura del Agua, 2015). Various NGOs, unions, political parties and related entities have expressed their support to public, integrated and participatory management of the urban water cycle. One of their key arguments is that, since the United Nations recognizes access to water as a human right, water management should not be subject to the laws of the market and private companies (Fundación Nueva Cultura del Agua, 2015).⁹ They also call for tariff policies based on social equity, which would mean, according to the Social Pact for Water, guaranteeing a supply of between 60 and 100 lpcd, along with a commitment not to cut off the supply in cases of justified non-payment (Babiano and Giménez, 2015). However, we should stress that public management does not guarantee access to water in Spain either. In fact, in this research, we have shown cases of municipalities under public management in which the local regulation allows the water supply to be cut off for non-payment, even if this is justified.

Local initiatives have emerged in response to the lack of national regulations. Cities such as Córdoba, Puerto Real and Gijón have already drawn up regulations to guarantee access to water supply. For example, the city council of Puerto Real resolved on October 1, 2015: "Provisional measures shall be articulated in order to immediately halt electricity and water supply cuts for those families who demonstrate their unemployed status or social exclusion, with the aim that no such cut in supply shall occur in our municipality."

Regarding controversies on provision of water supply in urban areas when management is under public or private utilities and how this affects price of water, earlier studies that consider 9m³ of water/month/household, have not found a direct relationship (e.g. García-Valfñas

et al., 2013). Considering these parameters (9 m³ of water/month/household), only in four cities (Sevilla, Palma de Mallorca, Barcelona and Murcia) water bills represent more than 3% of family income. In Sevilla and Palma de Mallorca, water utilities are public, while they are private in the cases of Barcelona and Murcia. This means that in Spain, water bills represent more than 3% of family income only in three cities (Sevilla, Palma de Mallorca, Cádiz) when water utilities are public, and eight when they are private (Barcelona, Valencia, Murcia, Palmas de Gran Canaria, Huelva, Tarragona, Lleida, Granada).

AEAS adds some nuance to the ongoing debate on safeguarding the right of access to water for low-income families. It has been emphasized that suspension of water supply services does not normally involve cases of non-payment by low-income families (Asociación Española de Abastecimientos de Agua y Saneamiento (AEAS), 2016b). The association argues that suspension of services help to ensure payment of bills in the following situations: companies with domestic contracts for water supply that shut down permanently and do not cancel the contract with the utility; rental agreements that are not renewed and leave, the premises without paying water bills; change of contract holders without notifying utilities; second homes or empty homes for which a contract has been signed but payments are no longer made; and fraud.

According to Asociación Española de Abastecimientos de Agua y Saneamiento (AEAS) (2016a), suspension of services normally go into effect after two warnings by the management company. They estimate that the suspensions affect 1.82% of domestic users; 1.31% are reconnected after paying the outstanding amounts, and 0.02% are reconnected thanks to the support of social assistance mechanisms.

In any case, in the framework described above, decisions that can result in water poverty are of local nature and involve local governments and local companies that manage water supply services. Decisions that affect affordability concern the tariffs applied in the specific municipalities; tariff discounts and reductions, some of which may depend on the income of the individuals or the families; subsidy assistance programmes in case of non-payment of the water bill; regulations that lay out the obligations and rights of both the water utilities and the users, and which may include situations in which the companies can cut off the water supply; and political decisions on how suspension of services resulting from non-payment are implemented.

As discussed earlier, in terms of the amount of the water bill as a proportion of an average Spanish family's income, we can say that water services all over the country comply with the principle of affordability. However, for families in a situation of social exclusion, the guarantee of access to minimum essential levels of water is more the result of agreements between local governments and water utilities than compliance with a higher-level law aimed at protecting the human right of access to water.

With respect to situations of extreme poverty, the Spanish legal framework is not in line with Resolution 64/292 of the General Assembly of the United Nations (2010). Families in extreme poverty face a real threat of having their water supply cut off. Neither the Spanish Constitution nor the Water Law (Government of Spain, 2001) guarantee access to minimum essential levels of water. The only families that are protected in this sense are those living in the Community of Cantabria and in municipalities where, at the initiative of local government, access to a minimum essential level of water is guaranteed by local ordinances.

Based on our findings, we recommend that the Spanish government starts a dialogue with all stakeholders on whether it would be possible to draw up national regulations to universally guarantee the right to a minimum amount of water, whether this can be paid or not. If access to health care and basic education is universal in Spain, it is important to discuss what measures would need to be taken so that the Spanish government guarantees access to a minimum essential level of water for the entire population.

In our opinion, one aspect that would come out in the discussions will be lack of political will. Water as a human right has never been a proposal taken into account by the political parties that have been in the

⁹ Movements against private sector participation are mainly ideological. However, they also indicate lack of trust to both the private and the public sectors. In the case of the private sector, the reasons have been discussed before. In the case of the public sector, lack of trust is due to its questionable performance regarding overall regulation and public management roles.

government since 1997 - Partido Socialista Obrero Español and Partido Popular-, the year in which the first general elections took place in Spain. At least, there are two reasons that would explain the absence of political will. In the first place, the small number of persons affected by lack of water supply in the whole of the Spanish population if this is cut off - something for which there are no official figures, as neither the public administration nor the management units of the municipal water service seem to be interested in publishing related data. Second, the lack of social pressure, due most probably, to the low educational level and the lack of organization of the affected population.

If the universal right to water was incorporated into the Spanish legislation, it would be necessary to address very relevant issues that are not discussed in this study because, as important as they are, they go beyond our objectives. First, under what conditions families that are not able to pay their water bill should be supported? This would require a decision on the amount of water consumed that should be subsidized. Second, establish criteria to decide who would benefit of aid programmes and what would be the per capita income threshold that should be guaranteed. Both would ensure that the right of access to water is recognized. In the context of water scarcity, innovative solutions that consider specific conditions of low-income families would also be necessary (Pinto and Marques, 2017). For policy- and decision-making purposes, it would be essential that all interested parties (including low-income families) would express their views through participatory processes. This is the case in Australia, for example, where water tariffs are discussed in meetings that are open to the public (Pinto et al., 2018).

A very important issue that also needs to be discussed is how to finance access to water supply for low-income families who are not able to pay their water supply bill. There are two alternatives that could be considered: increase the price of water supply to users who can pay for it or increase taxes to population in general. Considering the current situations of water stress and low prices of water supply in Spain, it would also be worth considering increasing the progressivity of tariffs. An increase in the price of higher consumption blocks, would allow utilities to obtain financial resources to guarantee access to water to low-income families and, at the same time, promote a more efficient use of water.

Lastly, we would like to mention several areas of knowledge on which more research is necessary. First, accurate and reliable information is needed on suspension of water supply services for domestic users, including the reasons why families at risk of poverty are affected and how, or if, families themselves could improve this situation. For instance, there may be families with very limited access to the usual sources of information on tariff discounts and assistance programmes, or those who choose not to apply for assistance for whatever reason. Another topic of study is whether complex regulations and procedures adopted by governments and water utilities are, at least in part, involuntary causes of suspension of water supply services for low-income families. In some cases, it may be that tariff systems and assistance programmes are difficult for some users to understand and that they do not receive enough help from municipal social services.

Essentially, there should be an understanding of the reasons for suspension of water supply services, one of which would be the fact that low-income families are not always able to pay for their water supply bill. In the absence of official statistics, reliable information is needed to inform the ongoing debate in Spain, driven by left-wing parties, which questions whether access to a minimum essential level of water should be guaranteed for all families. Having this type of information would also allow a more rational debate on whether public or private management best protects interests of the society.

6. Conclusions

As we show in this paper, water poverty is found not only in developing countries but also in developed ones. In the later cases, it has to do with affordability. It occurs in families that struggle to pay their water bill and where the regulatory framework allows their water supply to be

cut off if not paid. Countries that do not have a regulatory framework to guarantee access to water for low-income families, risk generating social exclusion in relation to water supply services. The Spanish case is an example of how poverty can be associated with difficulty in paying the water bill and suspension of water supply services.

In Spain, the lack of a legal framework at the national level guaranteeing essential levels of access to water supply means that responsibility is passed down to the local level. The price of water, discounts people may receive, and whether the management company may decide to cut-off supply due to non-payment, varies from one city to another. This makes access to water supply more difficult for some people simply because it depends on the regulation of the city where they live.

We have discussed at length whether the management of the water utilities alone have an impact on water affordability all over the world. This is a very relevant question for which, unfortunately, there are no straight-forward answers (González-Gómez y García-Rubio, 2018). Some studies indicate that private water utilities affect negatively access to water supply compared to public utilities, while others have found just the reverse. In France, for example, studies indicate that low-income families have been negatively affected when the management of water has been privatized (Reynaud, 2010). This has been the contrary, however, in some cases in Portugal and Brazil. In Portugal, affordability problems have been identified when water supply services are directly provided by town councils (Martins et al., 2016). In Brazil, the number of households connected to the water network has increased when participation has been private (de Oliveira, 2008). In the case of Spain, water prices have been found to be lower for essential consumption levels when the management of water has been under local governments, as they are considered as basic good (García-Valiñas et al., 2010a). More research is needed.

Finally, the Human Right to Water and Sanitation, recognized as such by the United Nations General Assembly in 2010, states that this right "entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses". Due to societal pressure, governments and water utilities, be they public or private, are being forced to acknowledge the fundamental role of water as a basic good, a human right, and not as a commodity. Institutional, legal, governance, and management changes are necessary to achieve the goal of providing clean water at affordable prices for all. As complex as it may be, it is also possible. In the 21st century, with so much progress in every socio-economic sector, it is time for clean water provision to stop being a challenge, one that affects quality of life of billions of people, and become a reality.

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Appendix A. Supplementary data

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