Water Prices and Households' Available Income: Key Indicators for the Assessment of Potential Disproportionate Costs - Illustration from the Artois-Picardie Basin (France)

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Abstract

The WFD's implementation in the Artois-Picardie French basin is carried out by several working groups involving water stakeholders. One of these groups deals with "Economic" and "Pressures & Impacts" assessment. The main objective of this group is to carry out the characterisation and the baseline scenario combining "Economic" and "Pressures & Impacts" information i.e. identify the pressures caused by main uses and provide socio-economic indicators on these uses.

The investigations include a specific analysis of the weight of water services bills on households of the Artois-Picardie. In this basin with 5,000,000 inhabitants, the mean price for a cubic meter of water is 3.28 euros in 2004 (inc. water distribution, collection and treatment of waste waters and environmental taxes) but this price can reach to 5 euros and more in some specific areas of the basin. Unfortunately in some areas of the basin, these high prices can be combined with low mean available (disposable) income per inhabitant (the ratio for artois-picardie basin is 20% lower than the national ratio).

This paper gives a short presentation of the method used for collecting both water prices and indicators on mean available income at the municipality level (2,500 municipalities for the whole Artois-Picardie River Basin). Then it presents the main results from this study and gives the example of the ratio comparing the weight of the water invoice with available income, which exceeds 2%[1] in many municipalities.The last part of the paper draws some conclusions on how, in the context of the implementation of the Water Framework Directive, these results can be used for developing a water pricing policy that will act as an incentive for efficient water use and be sustainable for households.

1. The price of the water services in the Artois-Picardie basin

1.1 Key elements on water services management in France

In France, the public services of water distribution and sewerage (i.e. collection and treatment of waste water) are under the responsibility of each municipality (there are just over 36,000 municipalities in France and 2,448 in the Artois-Picardie River Basin).

Each municipality can choose to run its public water services or delegate through a specific contract to a private company. In each case, the municipality remains responsible of these public services. More than this, a directive from the ministry of finance and budget regarding the accounting rules of water services states that the accounts of these services must be

[1] 2% is generally considered as a guidance value in many documents (e.g. EU commission, OECD, Académie de l'eau).

isolated from the municipality's general budget and balanced, i.e. the incomes from the water bills paid by users must cover the costs of the services – this is the "water pays water principle".

Then the level of water price for a municipality depends on:
- The investments made for the services (and their impact in terms of loan's burden)
- The operating and maintenance costs
- The way the water services are managed (direct or delegate management)
- The water resource context (if the resource is polluted and/or is difficult to access then the cost should be higher than for the municipality which has pure and close water resources)

In theory, each of the 36,000 French municipalities (and 2,448 in the Artois-Picardie River Basin) could have its own specific price for water services. In the reality, it is much less as some municipalities join together (from 2 or 3 up to 100) in order to manage together water services, through dedicated public structure, and set a common price, or at least a common component in the water bill.

1.2 Water price in Artois-Picardie Basin

In 1994, the Artois-Picardie water agency set up a specific survey in order keep an annual record of the water prices (i.e. price paid by households for public water services) in the 2 448 municipalities of the Artois-Picardie basin.

This survey is built around a questionnaire sent to all the municipalities and is aimed collecting the price paid by a household for every $120m^3$ [(2)] consumption of water per year. This price must be developed in order to identify the price in the following components of the water services invoice:
- Water distribution price
- Sewerage price
- Abstraction fee (environmental tax) collected by the Water Agency
- Pollution fee (environmental tax) collected by the Water Agency
- Other taxes and V.A.T.

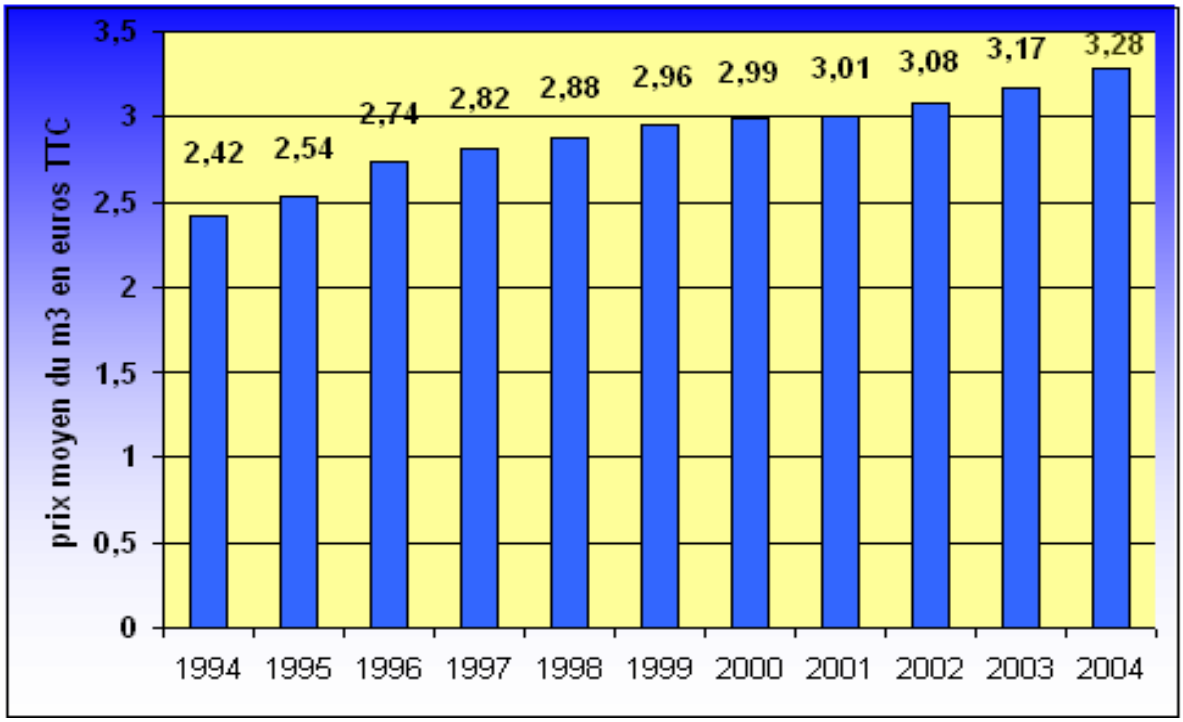
Finally the data collected through this survey allows:
- To know the mean water price for most of the Municipalities of the basin
- To calculate mean water price at Sub-region, region or basin level.

In 2004, the survey covered 95% of the population of the Artois-Picardie Basin (and more than 2,000 municipalities). The data for each municipality are available through a website free of access.

The following figure shows the evolution of mean water price on the Artois-Picardie Basin from 1994 to 2004.

Figure 1: Evolution of mean water price (in euros and for one m^3) in the Artois-Picardie basin from 1994 to 2004 – source: Observatoire du prix et des services de l'eau – Agence de l'eau Artois-Picardie

[2] This value – set by the French National statistics office (INSEE) – is commonly used in most of the surveys on water prices



This figure shows a significant increase of the mean water price up to the rate of inflation during the period. For example in 2003/2004 the rate of inflation was 2% to be compared with the increase of 3.5% of the water price.

The implementation of the Directive on urban waste waters is the main reason (through huge investments in the field of Waste Water treatment Plant and sewerage network) of the evolution of the water price.

As all the municipalities do not launch investments at the same time, the consequence is that there is a wide range of water prices in the Artois-Picardie basin. For example in 2004, the lowest price (inc. all services) was 1.02 euros/m^3 and the highest 6.84 euros.

Then the weight of the water bill for the consumer can be really different from one municipality to another.

2. The assessment of the available income per household

2.1 Method and data source

The main objective of this study was to have the same scale as the water price (i.e. municipality) information on the mean available income per household.

The data from national statistics office (INSEE) were used. The "fiscal income" – calculated by the INSEE for all the municipalities with more than 50 household was collected for 2,129 (on a total of 2,448) municipalities of the Artois-Picardie basin.

Then the mean available income has been calculated from this fiscal income (plus specific social revenues and less specific taxes).

2.2 Results

The mean available income per household is 23 796 euros (per year) in the Artois-Picardie basin, to be compared with 25 563 euros which the mean value for France.

The following table gives the value for all the sub-regions of the Artois-Picardie basin.

Table 1: Mean available income per household in all the sub-region of the Artois-Picardie Basin.

Sub-region	Mean available income per household (euro)
Aisne	23,499
Nord	24,314
Pas de Calais	23,194
Somme	23,796

3. Comparison of the Water bill and mean available income

3.1 Method and results

With the data of the "Observatoire" of the water agency and the data on income, we have the possibility to calculate the following ratio for each municipality:

$$\frac{\text{Mean Water bill (price paid for 120m3 in a year)}}{\text{Mean available income per household}}$$

The following table gives the results for the sub-regions of the Artois-Picardie river basin:

Table 2: comparison of the mean water invoice with mean available income per household

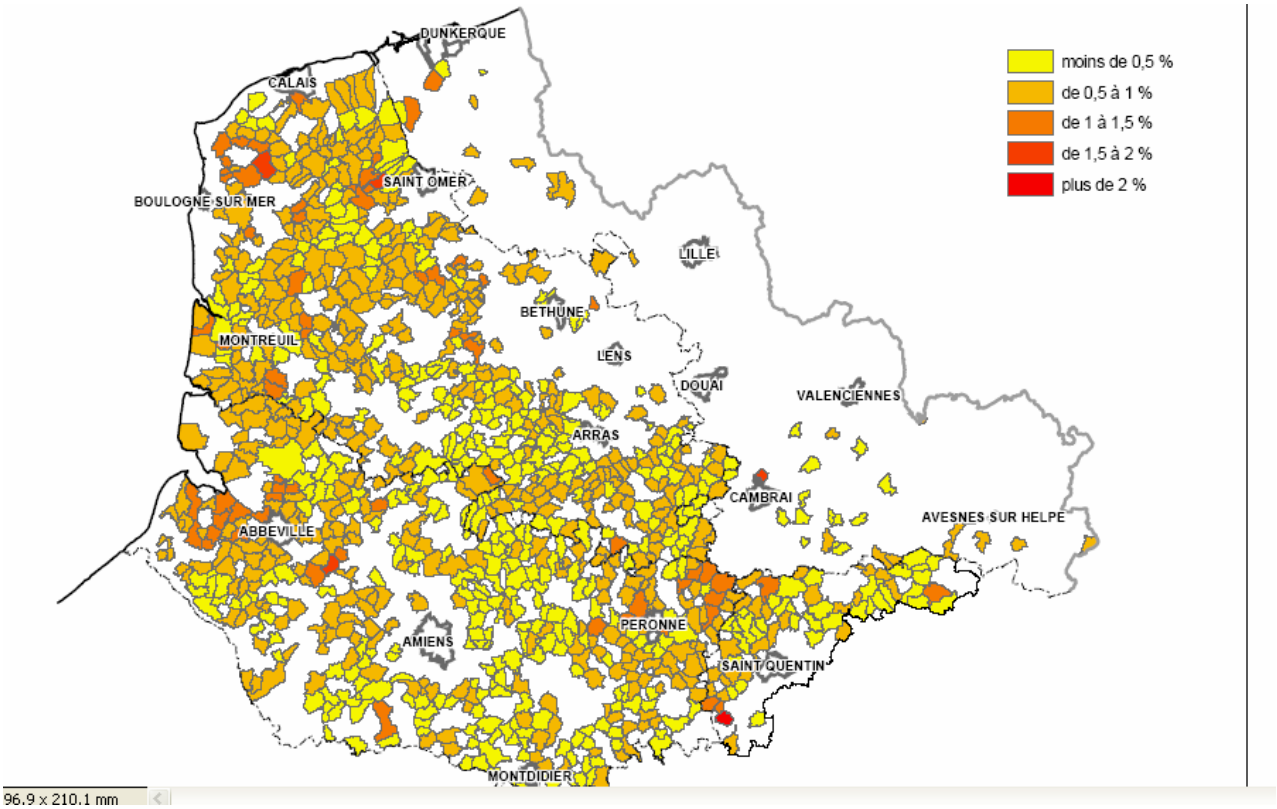
Sub region	Mean available income per household (Euro) (A)	Mean water invoice per household (120m3/year) (B)	B/A
Aisne	23 499	455	1,94%
Nord	24 314	366	1,51%
Pas de Calais	23 194	428	1,85%
Somme	23 796	382	1,61%

3.2 Analysis

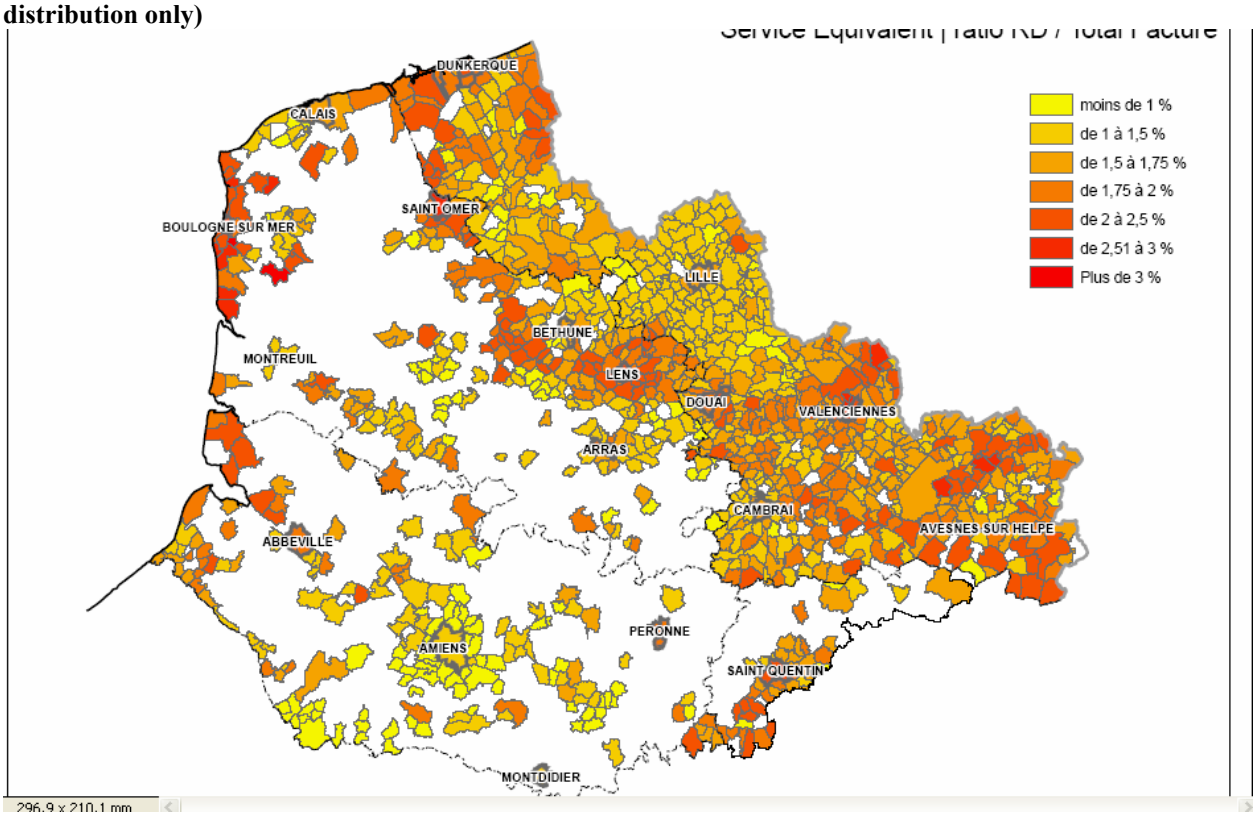
The value for the sub-region can be considered as pretty high as the literature (EU commission, Académie de l'eau) states that 2%-3% can be considered as a guidance value (up to 3%, the water invoice is considered as a burden to heavy for the income of the household).

Then it is much more interesting to look at this ratio at municipality level. The next two maps present the ratio for municipalities with all water services (water and sewerage – map 1) and the municipalities with only water distribution service (individual sewerage is directly financed and managed by households).

MAPS 1: Mean water bill / Mean available income (municipalities with water services including water distribution & sewerage



MAPS 2: Mean water bill / Mean available income (municipalities with water services including water distribution only)



In several municipalities with water services including water distribution and sewerage, the ratio can be up to 3%. And we must note that the ratio is based on the mean income which means that for the poorest part of the population (i.e. the 10% of the population with the lowest revenue), the burden of the water bill is the highest.

4. Conclusions

This survey conducted on the Artois-Picardie river basin gives the following insights:

- In a context of increasing price of water, the weight of the water bill (i.e. bill paid by household for public water services) must be considered as an issue.
- An analysis of this weight can be done at a quiet low scale (for example at municipality level).
- This low scale is very important because the analysis of this ratio at higher scale can give the impression that the situation is ok.

The issue of the use of this ratio as a potential element of the analysis that could be required for the disproportionate costs justification is an open discussion to develop. A way to improve the quality of this ratio should be to integrate the real value of the consumption at least per region as the value of 120 m^3 per year and per household hides huge differences from one region to another.

As the Artois-Picardie River basin is involved in the Scheldt International river district, this approach should be also extended to all the region/river basin of the district (i.e. Flemish region, a part of the Walloon region, Brussels and the Zeeland region).