AACL BIOFLUX
Aquaculture, Aquarium, Conservation & Legislation
International Journal of the Bioflux Society

Consumers' perceptions on urban water services and connection to sustainable behavior

Dacinia C. Petrescu

Babes-Bolyai University, Faculty of Business, Cluj-Napoca, Romania. Corresponding author: D. C. Petrescu, crina.petrescu@tbs.ubbcluj.ro

Abstract. The paper presents the results of a survey on urban consumers of tap water and public water services. We discuss seven types of awareness and perceptions an their connexion to sustainable behavior: consumers' awareness of water company (1) name, (2) location and (3) services delivered, their evaluation (4) of the the water-sewerage network state and (5) of its importance, their evaluations (6) of the overall tap water quality and (7) of the importance of water quality. Results of the research show that: water company name is known by two thirds of the subjects; location by one third; supply of drink water is the best known service and raw water treatment is the least known one; the evaluations given to water-sewerage network state and tap water quality are predominantely positive, but there is place for improvements; almost all customers consider these two aspects important and very important, which will make them sensitive to changes.
Key Words: water, water services, water quality, urban, consumers, perception, awareness.

Resumen. El artículo presenta los resultados de una encuesta sobre los consumidores urbanos de agua del grifo y de los servicios pulicos de agua. Se discuten siete tipos de conciencia y percepciones y la relación con el comportamiento sostenible: la conciencia (1) del nombre, (2) de la ubicación de la compañía de aqua y (3) de los servicios prestados por ella, (4) la evaluación del estado de la red de agua y alcantarillado y (5) de su importancia, (6) la evaluacion de la calidad general del agua del grifo y (7) de la importancia de la calidad del agua. Los resultados de la investigación muestran que: el nombre es conocido por dos tercios de los sujetos; la ubicación por un tercio; el suministro de agua potable es el mejor conocido servicio y tratamiento del agua bruta es el menos conocido; las evaluaciones dadas al estado de la red de agua y alcantarillado y a la calidad del agua del grifo son predominantemente positivas, pero hay lugar para mejoramientos; casi todos los consumidores consideran estos dos aspectos importantes o muy importante, lo que los hacen sensibles a los cambios.
Palabras clave: agua, servicios de agua, calidad de aqua, urbano, consumidores, percepción, conciencia.

Rezumat. Lucrarea prezintă rezultatele unui sondaj privind consumatorii urbani de apă de la robinet servicii publice de apă. Prezentăm șapte tipuri de conștientizare și percepții și legătura lor cu un comportament durabil: conștientizarea consumatorilor asupra (1) numelui, (2) localizării și (3) serviciilor prestate de compania de apă, evaluările consumatorilor (4) cu privire la starea rețelei de apă-canalizare și (5) la importanța sa, evaluările lor (6) asupra calității generale a apei de la robinet și (7) asupra importanței calității apei. Rezultatele arată că: numele companiei de apă este cunoscut de către două treimi din subiecți; locația de o treime; cel mai cunoscut serviciu este cel de furnizare de apă potabilă, iar tratarea apei brute este cel mai puțin cunoscut; evaluările acordate stării rețelei de apă-canal și calității apei de la robinet sunt predominant pozitive, dar există loc pentru îmbunătățiri; aproape toți clienții consideră aceste două aspecte importante și foarte importante, ceea ce îi face sensibili la schimbări.
Cuvinte cheie: apă, servicii de apă, calitatea apei, urban, consumatori, percepții, conştientizare.

Introduction. Water supply, water treatment, water quality control and water reuse management play an important role in the development and health of human society, culturally, economically and biologically (Crow & McPike 2009; Stewart et al 2010; Czudar et al 2011; Gor et al 2011; Gyore et al 2011; Joshi et al 2011; Kotroczo et al 2011; Lenhardt et al 2011; Vincze et al 2011).

One of the reasons perceptions are studied is because they are strongly linked to behavior – they can predict or change behavior. Sometimes, perceptions become the reality, replacing the objectively measured facts. Perceptions on water, water services,

water company influence consumer behavior in relation to water, including sustainability degree of behavior (for instance, awareness of water treatment, measured water quality have educational role and can enhace concern for water and health protection). Urban residents have a weeker direct connection to natural environment than rural ones, therefore education and information must replace knowledge they might lack due to the fact most of them do not interact directly day to day with nature and its laws on a large extent (as they would in the country side).

The paper presents the results of a research focused on perceptions of urban consumer of water, urban water services delivered by a regional water company (SC Compania de Apă Someş SA – CASSA) and of other water company related aspects. We implemented a simple random survey, with 384 questionnaires (valid), an error margin of 5% and confidence level of 95%. From the survey perspective, the univers population was composed of all adult domestic users of CASSA services (which inlcudes all the residents of Cluj-Napoca because the whole population of the city is CASSA customer). From geographical point of view, the research included the municipal area of Cluj-Napoca (Cluj-Napoca had 376000 inhabitants, permanent or short and medium term residents, in 2010, when the survey was implemented and was the third biggest city in Romania). We discuss here seven types of awareness and perceptions of tap water and water services urban consumers: consumers' awareness of water company (1) name, (2) location and (3) services delivered, their evaluation of (4) the water-sewerage network state and (5) of its importance, their evaluations of the (6) overall tap water quality and (7) of the importance of tap water quality.

To be or not to be in consumers' mind: awareness of water company and of water services existence. Within the company-consumers relationship, consumers' awareness of company and water services existence is a basic ingredient for creating a sustainable behavior because the two parts depend on each other. Based on this assumption, the first questions of the survey aimed to determine this awareness: *„Who is the water-sewerage services supplier?", „Where is the water-sewerage services supplier located?", „Which are the services delivered by CASSA?"* (Figs 1-2).

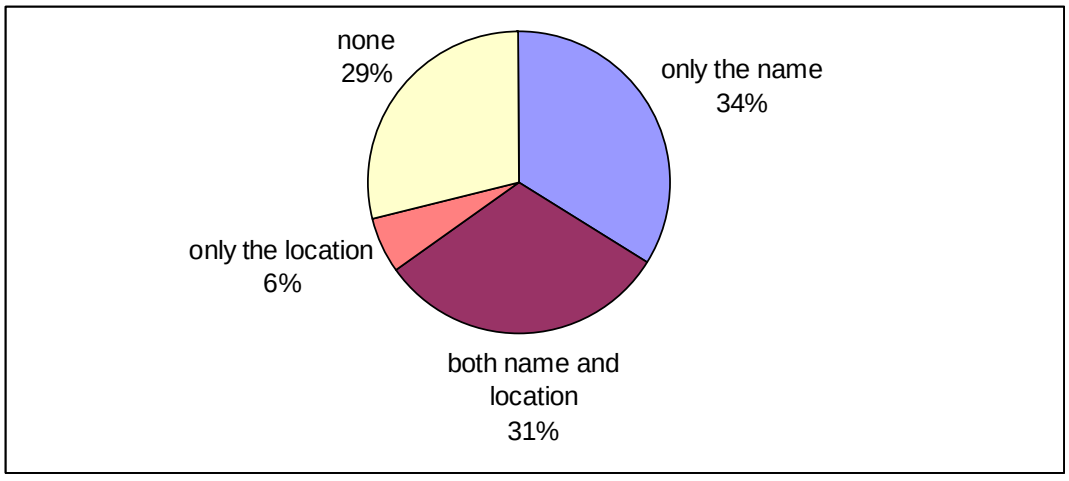


Figure 1: Awareness of water company name and location.
Source: Compania de Apă Someş (2010).

One third of the population knows both the name and location of the water company, while another third doesn't know any of them; 65% know the name, and 37% know the location. Taking into account that only one water company exists in the city and it was founded over 100 years ago, this level of awareness should be higher. The lack of awareness of the name or location does not necessary imply a lack of awareness of the existence of the water company. The latter was only indirectly tested. Probably, most of the 29% inhabitants not knowing name and location are aware that a water company exists in the city and for sure the 6% who recall only the location know the company

exists. The reasons for which the name is not known may be: people recently moved in the city, they live in block and do not receive a monthly invoice with company name and logo, they did not receive mass media messages on the water company (local newspapers, radio, TV station) etc. The reasons for which the location is not known may be: they never had any problems related to water and didn't go to the water company headquarters, they had problems, but they solved by phone, correspondence, intermediary (administrator, friend etc). Another factor that contributed to these figures is that we used an open question for both the name and the location, which generated unaided awareness, which is usually lower that aided awareness.

Awareness on water services is reflected in Figure 2.

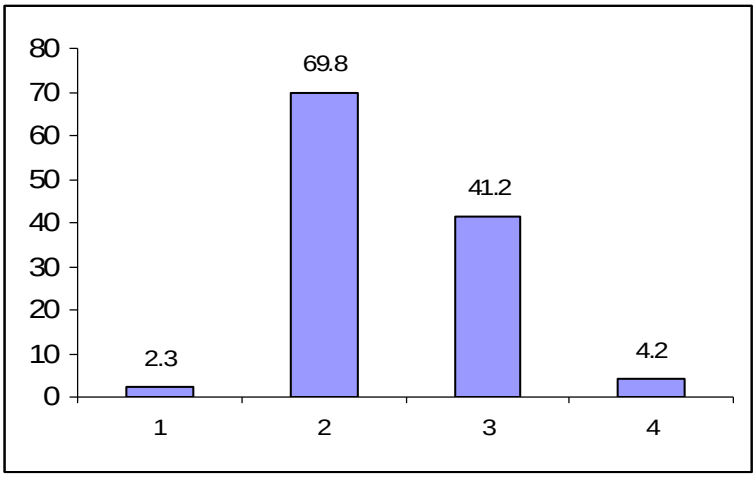


Figure 1. Awareness on the services delivered by the water company.
Source: Compania de Apă Someş (2010). Legend: 1 – it treats the raw water, 2 – it transports/delivers the drink water, 3 – it collects the waste waters, 4 – it treats the waste waters.

The highest awareness is on supply of drink water (70% of the subjects are aware of it). Taking into account that there is only one water company in the city, it delivers water to all the inhabitants and it exists for a long time (it was founded in 1892), the availability of the information on the existence of such service is maxim. Under these circumstances, the 70% percentage can be considered unsatisfactory.

Not more than 41% of the sample easily recalls the water company collects the waste water. This indicates for more than half (69% of the subjects) either a possible lack of knowledge on the destination of wastewater, in general, or a poor information on this service of CASSA. This misconception is the most damaging as the water company complies with the water law, including European Water Directive – which establishes a legal framework for the protection and management of water resources throughout the EU; water law is the law that does or might affect water resources and, in the European Union, water legislation is one of the first sectors that was covered by environmental policy and it comprises more than 25 water-related directives and decisions (Petrescu-Mag & Petrescu 2010).

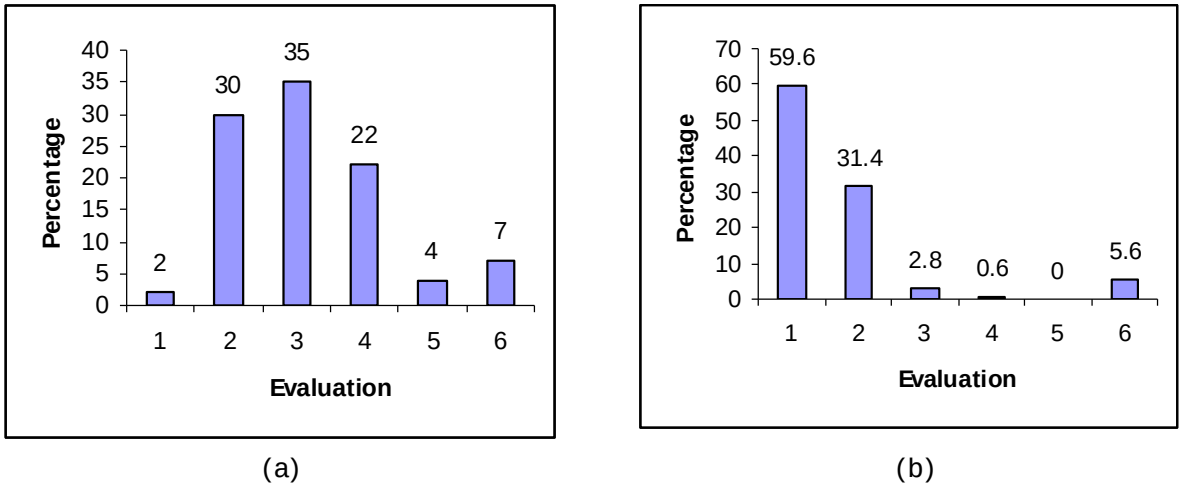
The low percentage of customers (4.2%) aware of wastewater treatment service strengthens the previously mentioned ideas. The danger of such unsustainable attitude is increased by the continuously raising human pressure on water through consumption and pollution (worldwide and locally) – only 2.8% of the total water on Earth is fresh water and most of it (82%) is frozen in polar ice caps, icebergs and glaciers and point source and non-point source pollution become more and more severe (Viman et al 2010).

The raw water purification collects the weakest percentage (2.3%). The motivations may be: a lack of knowledge of the fact that the raw water is treated by the company in order to become drinkable or a difficulty in recalling this service due to a

poor to medium concern for the tap water quality, which does not place it as the top-of-the-mind service or close to it.

The real level of awareness of water services is probably higher than the one obtained in this survey because we used an open question, meaning we measured unaided awareness (additional information from the research indicate that total awareness on the four services, aided and unaided, is higher than the levels discussed previously). Studies also support this idea, as they demonstrate that recognition is an easier task than recalling (Hauser 2011; Hellebusch 2006).

Consumers awards: the best, the worst water services. The combination of consumers' valuation of water services various characteristics and their importance create a complex picture of that characteristic in consumers' mind. To create it, the first request and question were: „*Reward the following aspects related to CASSA's activity: the state of the water-sewerage network*" and „*How important do you think that are the following aspects related to CASSA's activity: the state of the water-sewerage network?".*



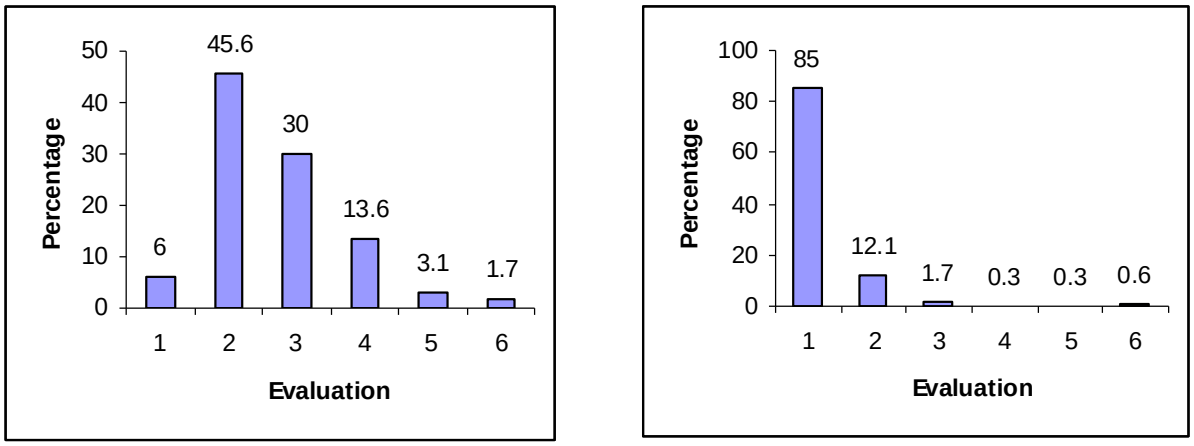
(a) (b)

Figure 2. State of the water-sewerage network: evaluation of (a) performance and (b) importance. Source: Compania de Apă Someş (2010). Legend: (a) 1 – very good, 2 – good, 3 – average, 4 – bad, 5 – very bad, 6 – I don't know; (b) 1 – very important, 2 – important, 3 – average, 4 – low importance, 5 – not at all important, 6 – I don't know.

Evaluations of water-sewerage network state are almost evenly distributed (approximately one third for each main category: positive, medium and negative) – a relatively good situation. The importance of the network is concentrated in one direction, being considered high by majority of respondents (91%) – a highly positive situation because indicates concern for this characteristic and this concern is the basis for creating and enhancing sustainable behavior. Combined, the two sets of evaluations indicate need for improvement (in order to increase the share of positive evaluation for the state of water-sewerage network), because dissatisfaction arise when a service is considered important and its quality is perceived as medium to low. Because objective network technical state is good, improvements should focus on perceptions.

The second request and question in this section were: *„Reward the following aspects related to CASSA's activity: tap water quality"* and *„How important do you think that are the following aspects related to CASSA's activity: tap water quality?".* More than half of the subjects give a positive evaluation to overall water quality, one third see it as average, 17% have a bad opinion on it and 2% can't make an evaluation. On one hand, this situation cand be considered good because, in a high competition with bottled drink water, with consumers more and more informed and demanding, 52% satisfied and 30% medium satisfied customers is a strong point. On the other hand, taking into account that the objective tap water quality delivered by the water company – indicated by official analysis repots – is high and complies with all legal standards (Roşu et al 2008;

Compania de Apă Someş 2012), the positive evaluations should be higher. Almost all customers consider water quality very important and important (97%) and the other evaluations are negligible. This indicates a strong concern for water quality, which is, again, an importat premise to create and improve sustainable behavior towards water: consumption, protection, savings, recycling etc. High importance may imply high expectations and if the evaluation of the product doesn't meet them, dissatisfaction will appear, with negative consequences for the company and customers.



(a) (b)

Figure 3. Water quality: evaluation of (a) performance and (b) importance. Source: Compania de Apă Someş (2010). Legend: (a) 1 – very good, 2 – good, 3 – average, 4 – bad, 5 – very bad, 6 – I don't know; (b) 1 – very important, 2 – important, 3 – average, 4 – low importance, 5 – not at all important, 6 – I don't know.

Efforts for improving the water quality perception should be made for at least two reasons: to adjust company image closer to its real - better – one, to help customers have a more correct understanding of water quality and, thus, have the oppotunity to use a high quality resource, save money, correct altering factors (like the state of their own water network).

Conclusions. The evaluations given to water-sewerage network state and water quality are predominantely positive, but there is place for improvements. Almost all customers consider these two aspects important and very important, which will make them sensitive to any changes.

Acknowledgements. The results of the research presented in this paper belong to a broader study developed within ISPA measure ISPA 2000/RO/16/P/PE/008 Rehabilitation and Modernization of the Water and Sewerage Infrastructure for the Area of Cluj, by SC Compania de Apă Someş SA (Romania) and its Project Implementation Unit.

References

Compania de Apă Someş, 2010 [Report of the Research Project Survey on the Customers of SC Compania de Apă Someş SA: Opinions, Experiences, Awareness]. [In Romanian]

Compania de Apă Someş, 2012 Buletin de analiza a apei [Bulletin of Water Analyses]. [In Romanian]

Crow B., McPike J., 2009 How the drudgery of getting water shapes women's lives in low-income urban communities. Gender, Technology and Development 13:43-68.

Czudar A., Gyulai I., Kereszturi P., Csatari I., Serra-Paka S., Lakatos G., 2011 Removal of organic materials and plant nutrients in a constructed wetland for petrochemical wastewater treatment. Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(1):109-114.

Gor D., Gyulai I., Deak C., Lakatos G., 2011 Macroinvertebrate communities in mine-water affected streams of Tisza valley. Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(1):115-118.
Györe K., Józsa V., Wilhelm S., 2011 Monitoring of the fish community in the Hungarian reach of River Tisza in 2009. Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(4):793-801.
Hauser J., 2011 A marketing science perspective on recognition-based heuristics (and the fast-and-frugal paradigm). Judgment and Decision Making 6(5):396–408.
Hellebusch S. J., 2006 By the Numbers: Total unaided awareness? Quirk's Marketing Research Review 20(4):26-28.
Joshi D., Fawcett B., Mannan F., 2011 Health, hygiene and appropriate sanitation: experiences and perceptions of the urban poor. Environment and Urbanization 23:91-111.
Kotroczo Z., Janos I., Vincze G., Horcsik Z. T., Halasz J. L., 2011 Comparative water qualities studies on artificial water flows in Nyírség region (Hungary). Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(4):839-846.
Lenhardt M., Gacic Z., Vukovic-Gacic B., Poleksic V., Visnjic-Jeftic Z., Kolarevic S., Jaric I., 2011 Ecological status of serbian rivers based on an ichthyological assessment. Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(4):855-860.
Petrescu-Mag R., M., Petrescu D. C., 2010 Legal and economic key points regarding sustainable use of water resources. AACL Bioflux 3(1):17-21.
Roşu C., Vlaic A., Boita S., 2008 [Apa minerala, apa plata sau apa de izvor?]. Environment & Progress 12:421-426. [In Romanian]
Stewart R. A., Willis R., Giurco D., Panuwatwanich K., Capati G., 2010 Web-based knowledge management system: linking smart metering to the future of urban water planning. Australian Planner 47(2):66-74.
Viman O., Oroian I., Fleşeriu A., 2010 Types of water pollution: point source and non-point source. AACL Bioflux 3(5):393-397.
Vincze G., Janos I., Horcsic Z. T., Kotroczo Z., Szabo S., 2011 Water quality assessments on a natural wetland (Igrice-marsh) on the basis of chemical parameters and macroinvertebrate taxa. Studia Universitatis "Vasile Goldiş" Seria Ştiinţele Vieţii 21(4):901-905.

Received: 20 November 2012. Accepted: 27 November 2012. Published online: 01 January 2013.
Author:
Dacinia Crina Petrescu, Faculty of Business, Babeş-Bolyai University, Horea Street, no 7, 400174, Cluj-Napoca, Romania, European Union, e-mail: crina.petrescu@tbs.ubbcluj.ro

How to cite this article:
Petrescu D. C., 2013 Consumers' perceptions on urban water services and connection to sustainable behavior. AACL Bioflux 6(2):105-110.