

ESZTER JUHÁSZ¹

Stop wasting water!

Water consumption in the Students' Halls of Residence at Mátyásföld
of Budapest Business School

Abstract

In international comparison the Carpathian Basin has had abundant freshwater resources for the last thousand years. But does this mean that Hungarians do not have to worry about saving water?

Unfortunately, the climate change caused by global warming will not leave the area unaffected. Therefore, forming a conscious consumer attitude and introducing new water-saving methods and technologies are essential in order to further reduce the water wastage in Hungary and save this precious natural resource for the next generations.

With this intention we have decided to conduct this research about the water consumption and the water wastage among young people, namely students living in the Students' Halls of Residence at Mátyásföld. The objective is to find out how wastage in the students' hall could be reduced by raising the awareness of the residents. Using more water-efficient household appliances and introducing new co-operation systems could be beneficial in this respect. This research also investigates the financial aspects of saving water along with other expenses related to the new household appliances as well.

Key words: natural resources, water consumption, wastage

¹ Budapest Business School Faculty of International Management and Business; e-mail: juhasz.eszter99@gmail.com.
DOI: http://dx.doi.org/10.31570/Prosp_2019_03_4.

Introduction

The sixth Sustainable Development Goal of the United Nations draws global attention to the importance of reducing water waste and increasing water-use efficiency (United Nations n.d.).

Drought has recently been a major issue in Hungary and, according to forecasts, the global climate change will keep affecting the region negatively (Dietrich et al. 2013). Hence, it is important to draw the attention of Hungarians as well to the importance of more sustainable and economical ways of using water.

This research attempts to promote water-use efficiency and sustainable withdrawals in a narrow segment of the population: among residents of the Students' Halls of Residence at Mátyásföld (see below: SHRM).

According to observations the water consumed in the SHRM by residents is more than necessary and water wastage is a problem. Therefore, consumption should be reduced, and water wastage in the SHRM should be minimised. The question is how it could be effectively done. This research attempts to investigate three possible solutions to this problem: (1) raising environmental awareness among students, (2) using washing machines, dishwashers and water taps more economically and (3) washing the laundry in groups.

Research methods and analysis

Data collection methods

The students' hall is located in the 16th district of Budapest and can accommodate 236 students. The SHRM operates on four floors, has thirty showers and thirty push-button water taps, four washing machines and five dishwashers.

By investigating the effectiveness of possible solutions this research exclusively focuses on the following aspects of water consumption: showers, taps and handwashing, washing machines and dishwashers. Usage of toilets, washing the dishes in the sink and washing-ups were not analysed here. The examined water consumption period lasted from 1 September 2018 to 28 February 2019.

Water consumption data of the SHRM in the period examined was collected. Only cold-water consumption data were available for analysis. As a resident of the students' halls I could easily list the number of water taps, showers, washing machines and dishwashers, as well as the types and models of these devices. After a brief research on

the Internet, water consumption data of the above-mentioned household items were collected from user manuals.

Primary data collection consisted of carrying out a survey, completed with our own observations. The residents were individually encouraged to fill in the survey. This method resulted in a response rate of 58%, with an even distribution among different floors. Our own observations included measuring the per minute usage of water taps and showers as well as examining the proper operation of taps in community bathrooms.

Analysis of cold-water consumption data

Cold-water consumption turned out to be uneven in the period examined. It started decreasing in November and hit its lowest point in January. This can be due to the fact that the fall semester ended on 15 December at Budapest Business School, and the next semester began on 11 February for regular students. Financials are not a motivating force to consume less, as the monthly utility fee would be only HUF 519 on average.

Table 1. *Cold-water consumption and utility fee paid per resident in the period examined*

Month	Cold water consumed	Number of residents	Monthly consumption/cap	Monthly gross utility fee/capita
September	215 m ³	237	0.907 m ³ /cap	614 HUF
October	195 m ³	236	0.826 m ³ /cap	559 HUF
November	197 m ³	233	0.845 m ³ /cap	572 HUF
December	166 m ³	233	0.712 m ³ /cap	482 HUF
January	135 m ³	227	0.595 m ³ /cap	402 HUF
February	157 m ³	218	0.720 m ³ /cap	487 HUF
Monthly average	177.5 m ³	230.7	0.768 m ³ /cap	519 HUF

Source: own compilation

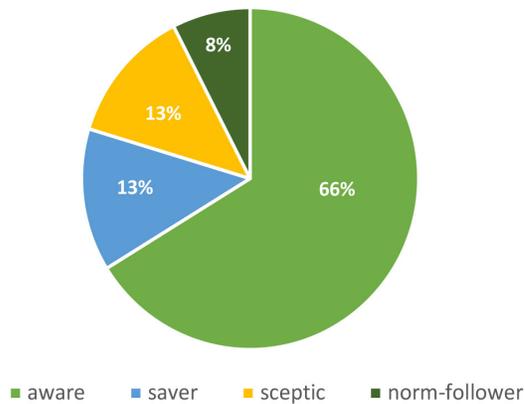
As most students only stay at the hall of residence while they have classes, in general from Monday to Thursday, average cold-water consumption on weekends (17.101l/cap) amounted to only 58.5% of that on weekdays (29.23 l/cap). The 25.53 l/cap average daily consumption can be considered very low, but this is not surprising due to the above-mentioned reason. Furthermore, most residents do not cook for themselves in the dormitory and take their laundry back home to their parents' place in the weekends, which also lowers water consumption.

Questionnaire data analysis

Based on their responses, residents were divided into four groups concerning the level of their water awareness. The four groups are labelled as ‘aware’ (66%), ‘norm-followers’ (7%), ‘savers’ (14%) and ‘sceptic’ (13%). Aware students try to save water because they believe this way they can help the environment, so they have an internal motivation regardless of utility fees or expectations of others. This one is the most efficient group as far as reducing water consumption is concerned. Norm-followers save water because others in their environment expect them to do so, therefore, unlike members of the previous group, they show no signs of strong internal motivation. Almost the same number of residents can be labelled either savers (15%) or sceptic (13%). Savers save water because this way they can save money, but as in the students’ hall everyone pays a fixed monthly fee, they are unlikely to pay more attention to their consumption habits. Almost one quarter of the students (23%) refuse to save water in the students’ hall due to this reason. Sceptic students do not believe that their consumption habits could have an impact on the environment.

Figure 1. *The four groups of SHRM residents concerning water awareness*

Water awareness among students living in the Mátyásföld Dormitory



Source: compilation based on survey data

Based on the results of our questionnaire the following washing-machine habits were outlined. On average residents wash 1.2 dose of laundry a week, 29.3% of them wash zero or less than one dose. Almost one quarter, that is 21.8%, responded that they often

or never fill the washing machines, which is an unexpectedly high ratio. Despite this fact 31.9% of frequent washing-machine users said that they successfully co-operate with others to fill a washing machine. 47% are willing to wash together with others, but most of them only with some of their friends. There is a clear demand for co-operation in washing, especially for dark coloured clothes, although most students would not make the effort to organise a group for washing together.

Capacity utilisation of dishwashers was surprisingly low: only fifteen respondents (11%) said they used it at least once a week. Average usage frequency also remained as low: respondents used the dishwashers only 0.2 times a week. Out of these few users 51.7% never or only rarely filled the dishwasher, which is more than twice as high as for the washing machines. A higher percentage of users (69%) would co-operate with others to fill the washing machines. These findings show that there is a strong demand for co-operation when it comes to washing dishes.

According to previous observations, it has been revealed that the majority (58%) of push-button taps in community bathrooms run without stopping any time. But as the questionnaire shows, most students (76%) wash their hands in their own room, therefore tap-water usage in community bathrooms was not investigated in further details. However, despite this fact it would be advisable either to repair or replace these taps while installing faucet aerators to reduce the per minute water flow to 2 litres per minute.

53% of the students said showers could save the most water. Respondents reported to take a shower for more than 15 minutes (12.7%) and between 10-15 minutes (37.5%). These results based on self-assessment seem to be realistic.

Limitations of this research

As only cold-water consumption data were available for analysis, our results are necessarily limited in scope. Cold water consumption only includes the usage of washing machines and dishwashers, but excludes the most important practice, namely shower usage. The fact that only 58% of the residents filled in the questionnaire further reduces the generalisability of our findings.

Results and discussion

Water consumption in Hungary compared to SHRM residents

Average daily water consumption in Hungary amounts to 95.1 litres per capita which totals up to 34.7 m³ a year (Hungarian Water Utility Association 2017). In Budapest, average daily water consumption reaches as high as 150-160 litres per person, while in small villages it ranges between 50 and 70 litres (Dietrich et al. 2013). Annual public-utility water consumption per capita decreased by 10% between 2000 and 2015 (2015: 34.1 m³) due to higher utility fees (KSH, 2017). The utility price reduction programme of the government since 2013 didn't influence this trend. According to experts, no significant long-term changes in the demand for drinking water can be expected in the future.

Compared to the findings in the students' hall, it can be assumed that total water consumption (cold and hot water combined) falls between the range typical of small villages and is far below the 150-160 litres per capita average in Budapest. These results can be explained by the same reasons we found in relation to cold-water consumption.

Propositions

Firstly, raising environmental awareness among students turned out to be an important and relevant solution; however, it is the hardest to accomplish. Although most often students do not pay attention to the length of their showers, observers believe that up to 14 litres of water could be saved by reducing shower time by just one minute. Our recommendation is to raise residents' awareness through campaigns on environmental issues such as droughts in Hungary.

Secondly, as to washing machines, students should also be informed about water-saving functions. By combining the Eco function with the time-saving function, a washing machine considerably reduces energy consumption as well as water consumption by up to 26 litres without extending the cycle. Our advice would be to hang posters in the laundry to inform students about this function. Furthermore, by purchasing new washing machines, estimated yearly water consumption could be further reduced by 2,608 litres. It should also be considered to establish a charging system for the laundry, as it is usual in a students' hall in Germany, Frankfurt am Main, from which the writer also has experience. That means residents can buy a chipcard, with the help of which they pay for each washing. This idea should be investigated further; however, it probably would increase awareness significantly.

Thirdly, it is not necessary to buy new dishwashers as they are rarely used by the residents. Machines on the second and fourth floors consume 18 litres, while the more modern ones on the ground floor and on the first and third floors consume only 10 litres per cycle. Students should be encouraged to use the more modern devices, even though both models consume far less water than using running tap water would.

Lastly, we found that doing the laundry and washing the dishes in groups is an option for the students; however, they are reluctant to make efforts to co-operate. As most students do not want to wash with other residents whom they do not know, connection building should be promoted instead of organising opportunities to collect the laundry. These students could be brought closer to each other through the establishment of a “WashTogether” group on social media. As far as dishwashers are concerned, the few students who use them should be encouraged to co-operate as well as to use water-saving devices on the first and third floors.

We can conclude that raising students’ awareness about the threatening consequences of global warming and the coming water shortage is of utmost importance. Hanging posters about the Eco mode, encouraging students to use the water-saving dishwashers located on the first and the third floors, promoting quicker showers would also be important, not to mention the importance of bringing residents together on social media who use the washing machines and the dishwashers and are willing to co-operate in order to save water.

References

- Dietrich, B. – Gayer, J. – Greczer, G. – Kovacs, R. (2013). *The Hungarian Water and Sanitation Industry in the 21st century*. Budapest: Hungarian Investment and Trade Agency.
- Hungarian Water Utility Association (2017). MaVíz. http://www.maviz.org/tajekoztato_adat_atlagfogyasztasrol (accessed 30.03.2019).
- KSH (2017). Központi Statisztikai Hivatal. http://www.ksh.hu/sajtoszoba_kozlemenyek_tajekoztatok_2017_03_22 (accessed 28.03.2019).
- United Nations (n. d.). Sustainable Development Goals. <https://www.un.org/sustainabledevelopment/water-and-sanitation/> (accessed 30.03.2019).