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**EQUITABLE AND SUSTAINABLE WASH SERVICES:
FUTURE CHALLENGES IN A RAPIDLY CHANGING WORLD**

**Assessing the water consumption behaviour
at University of Johannesburg**

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South Africa

REFERENCE NO. 3159

Abstract

The study investigated the water consumption behaviour of staffs and students at University of Johannesburg, South Africa. A questionnaire was developed and distributed to the staffs and students. The considered different water uses include: drinking, dish washing, shower or bath, toilets, urinals, brushing teeth, hand washing and laundry. The analysis result indicated the water consumed by resident students are more than the maximum average litres consumed in the city of Johannesburg (305 l/c/d) and almost twice the world's average (185 l/c/d). Almost about 75% of the water consumption is for showering or bathing purposes. Female students bath or shower more frequently and take longer time compared to males. Moreover, female students consumed more water compared to the male students. Similarly, female staff also consumed more water compared to male staff members. In general, students consumed more water than staff members. Students bath more frequently and take longer time than staff members. The higher water consumption by students (younger) than staff (older) could be due to their behaviour and attitude towards the value of water. There is a need to create awareness among students about the value and uses of water when they come to campus.

Introduction

The increasing demands for water due to various factors (industrialization, urbanization, agriculture, climate change and population growth) has led to the shortage of the existing water resources (Jethoo & Poonia, 2011; Basua, *et al.*, 2017). Water allocation is one of the significant issues in South Africa. The increase of demand for portable water services by the communities in South Africa created a need for more adequate and precise methods of water consumption estimation. University of Johannesburg (UJ) has more than 50 000 student population, of which over 3000 are students coming from different countries around the world (University of Johannesburg report, 2017). Johannesburg municipality where UJ is situated is experiencing a high water consumption (305 l/c/d) above the world average (185 l/c/d) (Afrika Check, 2018). There is a need to study the water consumption behaviour of the people at UJ.

Methodology

This study presents the water consumption behaviour of staffs and students at UJ. A questionnaire related to water use behaviour was developed and distributed to the staffs and students in different faculties and campuses. The considered different water uses include: drinking, dish washing, shower or bath, toilets, urinals, brushing teeth, hand washing and laundry. Due to COVID-19 pandemic, the questionnaire was conducted online in the form of a quiz or rather a google form questionnaire. The google form questionnaire was distributed amongst the UJ residences through the help of residence committee members. Water demand/usage differs based on age (Knox & Cutts, 2010) and gender. Thus, the obtained data was further analysed in the form of gender and age. Average water demands (daily, monthly and annual) were calculated using the recommendations in redbook for South Africa (CSIR, 1999).

Results, discussion, conclusion and recommendation

Analysis of the questionnaire indicated 127 respondents, of which 104 respondents (68.3% female and 31.7% male) were resident students and the remaining 23 (73.9% female and 26.1% male) were the staff members. Most of the respondent staff members (87%) were working from home at the time of questionnaire due to COVID-19 pandemic.

The analysis result indicated the water consumed by resident students (406 l/c/d) are more than the maximum average litres consumed in the city of Johannesburg (305 l/c/d) and almost twice the world's average (185 l/c/d) (Afrika Check, 2018). However, the water consumption by UJ residents was observed to be less than the maximum water consumed in Cape-Town during the 17.0 °C (576 l/c/d) (Viljoen, 2015). The water consumed by resident students on showers and laundry alone was 2 337 litres per week, which was almost twice the litres consumed by Arizona State University (ASU) with the recorded data of 1 363 per person per week (Knox & Cutts, 2010).

Almost about 75% of the water consumption is for showering or bathing purposes. About 60% of the staff respondents indicated that they watered their gardens twice a day, with the daily water use in the range of 5 to 10 litres. Majority of the students prefer bottled water than tap water. About 76% of the female students preferred bottling water. Most of the respondents (>53%) did not like the taste of tap water.

Female students bath or shower more frequently and take longer time compared to males. Moreover, female students consumed more water compared to the male students. Similarly, female staff also consumed more water compared to male staff members. In general, students consumed more water than staff members. Students bath more frequently and take longer time than staff members. The higher water consumption by students (younger) than staff (older) could be due to their behaviour and attitude towards the value of water. There is a need to create awareness among students about the value and uses of water when they come to campus.

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Keywords

Attitude, gender, individual behaviour, water consumption.

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