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Catalysing sustainable development through water conservation: Insights from Malaysia

Raja Adzrin Raja Ahmad[1*]
Nurul Huda Md Yatim[2]
Syamsul Samsudin[3]
Nurul Azlin Azmi[4]

[1,4]Faculty of Accountancy, Universiti Teknologi MARA Cawangan Johor, Jalan Universiti Off, KM 12 Jalan Muar, 85000 Segamat, Johor, Malaysia.
[1]Email: adzrin75@uitm.edu.my
[4]Email: nurul516@uitm.edu.my
[2]Information Science, College of Computing, Informatics and Media, Universiti Teknologi MARA Cawangan Johor, Jalan Universiti Off, KM 12 Jalan Muar, 85000 Segamat, Johor, Malaysia.
[2]Email: nurul082@uitm.edu.my
[3]Faculty of Business Management, Universiti Teknologi MARA Cawangan, Jalan Universiti Off, KM 12 Jalan Muar, 85000 Segamat, Johor, Malaysia.
[3]Email: syam681@uitm.edu.my

Abstract

This study aims to investigate the attitudinal predictors (attitude, subjective norms, and perceived behavioural control) of consumers' water conservation intentions. The average daily water usage among consumers in Malaysia is 201 litres higher than the recommended 165 litres by the United Nations. Furthermore, based on the National Water Resource Study (2000-2050), water consumption is expected to rise by 103% by 2050. The water issues require decisive action to ensure sufficient clean water resources for future generations. Thus, educating consumers regarding water saving is of paramount importance in ensuring sufficient water resources and achieving SDGs. Data were collected via 320 questionnaires, and Partial Least Squares (PLS) analysis was employed to test the hypotheses. The findings indicate a positively significant association between attitudinal predictors and Water Conservation Intention among Malaysian consumers. Interestingly, income level exhibits a clear negative and significant relationship with Water Conservation Intention. This implies that income level does not influence consumer's attitudes. The findings in this paper contribute to the essential component of holistic and integrated governance frameworks aimed at achieving sustainable and inclusive development for water management in Malaysia. This study contributes to the scarce yet crucial body of evidence regarding water-conservation efforts to ensure sustainable water management practices.

1. Introduction

Severe depletion of the environment results from human actions such as excessive consumption of natural resources resulting from rapid economic development cause severe depletion of the environment (Chuah & Lu, 2022). This degradation has resulted in global warming, ozone depletion, and contamination of water, air, and land, all due to careless consumption. Water supply scarcity is exacerbated by increased population, economic growth, and a decrease in freshwater availability. Malaysia's water scarcity is due to inadequate water management and growing demand (Saad & Harun, 2017). The concern with regard to water must be prioritised to ensure its sustainability and accessibility.

The United Nations issued a daily water consumption recommendation of 165 litres per person. Consumers in Malaysia use an average of 201 litres of water daily, equivalent to 134 of the 1.5 litre bottles. According to data from the National Water Services Commission/Suruhanjaya Perkhidmatan Air Negara (NWSC/SPAN), Malaysia's average daily water use is 27% higher than the United Nations' standard for water usage per capita per day. SPAN is a governing organization that oversees the technical and economic aspects of water supply and sewerage services in Peninsular Malaysia, as well as the Federal Territories of Putrajaya and Labuan. According to Malek and Nor (2013) and Rahman (2021) Malaysia's water services issues must be addressed immediately to ensure its economic viability and long-lasting supply of water. Without immediate action, water scarcity and the depletion of freshwater resources will become inevitable.

The water issues in Malaysia are closely connected to the sustainability initiatives of the United Nations, particularly several SDGs related to clean water, sanitation facilities, environmental sustainability, and overall development. Climate change, including changes in rainfall patterns, increased droughts, and extreme weather events, threatens Malaysia's water security. Climate change emerges as the paramount concern, casting a shadow over achieving sustainable development due to its adverse impact. The environmental issues are caused by human activities that continue exploiting resources and causing an alteration of the ecosystem (United Nations, 2015).

The 2030 Agenda adopted by all the United Nations member countries acts as a global move to integrate and embrace sustainable development. Urgent action is required to promote the conservation and responsible use of natural resources. Collaborative effort and global partnership would facilitate the exchange of best practices for advancing collective well-being and prosperity. According to Tremblay, Fortier, Boucher, Riffon, and Villeneuve (2020) the five primary themes of the 2030 Agenda can be summarised into 5Ps: people, planet, prosperity, peace, and partnerships. Goals 6, 12, 13, 14, and 15 of the SDG address the world's current concerns. These goals are critical because they remind people to always protect the environment. The goals under the planet theme guide people's future responses to the climate crisis.

Water is an indispensable resource critical to human growth and ecological sustainability. Its significance is paramount (Vörösmarty et al., 2018). Its significance is paramount (Vörösmarty et al., 2018). It aligns with the objective of SDG 6, which focuses on the multifaceted approaches towards sustainable water conservation measures and equitable access to water for all consumers across the globe.

SDG 6 initiative is centred on ensuring the accessibility and enduring stewardship of water and sustainable sanitation for everyone. In addition, this goal also ensures universal access to safe and affordable drinking water and sanitation for all citizens. It recognises the critical importance of access to clean water and sanitation in promoting health, guaranteeing food security, decreasing poverty, and advancing overall human well-being (Ahmad & Buniamin, 2021). SDG 6 is about improving the overall quality of life. It contributes to better health, dignity, economic opportunities, and a cleaner environment (Ortigara, Kay, & Uhlenbrook, 2018).

The goals aim to address the global challenges of water scarcity, water quality, sanitation, and hygiene (Fehri, Khlifi, & Vanclooster, 2019; Sadoff, Borgomeo, & Uhlenbrook, 2020). We will achieve eight goals by 2030, which include increasing water use efficiency and ensuring freshwater supplies (Ortigara et al., 2018). Hence, Goal 6 serves as a framework to guide their efforts and policies towards achieving sustainable water management, universal access to water and sanitation, and improved water quality and ecosystem conservation (McDonald, Marois, & Spronk, 2024). By working towards the targets of this goal, nations and organisations aim to create a more equitable and sustainable future for all.

Without the support and engagement of each consumer and every citizen, it becomes more challenging to implement policies and initiatives related to water and sanitation. Consumers play a significant role in promoting initiatives that promote clean water and sanitation. In addition, the absence or lack of supportive attitudes can hinder investments in water and sanitation infrastructure and directly increase countries' expenditures. This, in turn, can impede progress towards these related goals. To enhance awareness and education, it is imperative to establish a policy. It is necessary to implement education expansion plans with policies aimed at enhancing the quality of education and increasing the accessibility of secondary and higher education institutions.

Malaysia is one of the nations that has vowed to achieve this objective and has taken the initiative to adopt SDG strategies by introducing the Green Technology Master Plan Malaysia (GTMP) in 2017 (Abidin, 2018). GTMP encompasses four important pillars: energy, environment, economy, and social. This is in tandem with the SDGs, including Goal 6, which focuses on sustainable water management. In addition, it is also in line

with Goal 12, which promotes sustainable consumption, and Goal 13, which focuses on actions to combat climate change. The United Nations (2015) states that more efficient water use is required to achieve SDG 6 and its related objectives.

According to the National Water Resource Study (2000-2050), Malaysia's water consumption will rise by 103% by 2050. In the long run, the excessive water usage among consumers cannot continue since more water extraction and the construction of additional facilities like dams and treatment plants are required. Therefore, Anang, Padli, Rashid, Alipiah, and Musa (2019) suggest that the focus should shift from improving water supply management to enhancing water usage management among consumers to prepare for this eventuality.

Accordingly, educating consumers regarding clean water and sanitation is of paramount importance. They also need to actively support initiatives aligned with SDG 6. Every unit in society, including the government, civil society organisations and consumers, must work together to foster a culture of sustainability and prioritise investments in water and sanitation infrastructure that benefit all citizens, especially those in underserved communities (Hakimdavar et al., 2020).

The paper addresses the contextual gap in consumer behaviour regarding water-saving initiatives. Consumers' behaviour towards water-saving practices can be examined in multiple contexts, including domestic use, industrial activities, and agricultural consumption. Based on Air (2021) the water demand in Malaysia is roughly 53% for domestic and industrial use and 47% for agricultural use. This highlights the fact that domestic use accounts for the majority of water usage. Further, according to the National Water Resource Study, Malaysia's water consumption is projected to rise by 103% by 2050.

Notably, domestic water consumption behaviour is the main emphasis in this study due to its important ties to various facets of daily routines. Hence, understanding domestic consumer behaviour can provide insights into effective water conservation and sustainability strategies. Therefore, this paper intends to answer the following research questions from TPB perspective: What is the relationship between attitudinal predictors (attitudes, subjective norms, and perceived behavioural control) and consumer's water conservation intentions?

First, a person's attitude determines their water conservation attitude (Chaudhary et al., 2017). Specifically, consumers with positive attitudes are motivated to adopt efficient water use habits and have stronger intentions to engage in water-saving behaviour. This has been agreed upon by Han, Lee, and Kim (2018) who asserted that consumer attitude shapes efficient water use habits. People's beliefs, perceptions, and values about water and the environment can influence their willingness to engage in water-saving actions (Randolph & Troy, 2008).

Second, subjective norms can influence an individual's perception of whether their peers and influential individuals would approve or disapprove of a particular behaviour. Subjective norms refer to social networks' expectations or pressures on consumers that dictate if the behaviour is appropriate (Latip & Sharkawi, 2021). In water conservation, subjective norms substantially impact a consumer's preference to engage in water-saving behaviours. Social norms and peer influence could shape consumers' attitudes toward water conservation intention. Thus, the consumer will act similarly if they conserve water as a social expectation or observe others engaging in water-saving behaviours (Ahmmadi, Rahimian, & Movahed, 2021).

Third, perceived behavioural control influences an individual's belief in their ability to perform a specific behaviour related to water consumption (Kilic & Dervisoglu, 2013). When consumers possess the necessary knowledge about water-saving techniques, strategies, and best practices and express confidence in their capacity to implement them effectively, it strengthens their sense of control and willingness to conserve water (Cooper, 2017).

The remainder of this article is organised into 3 sections. Section 2 explains the literature on Malaysian water management issues and the theory used as a foundation of this paper. Section 3 expands on the research methodology employed in this study. Finally, Section 4 presents the findings. This is followed by the implications, limitations, and avenues for future research.

2. Literature Review

2.1. Sustainable Development Goals (SDGs)

The UN SDG highlighted the key global agenda that has become the pressing challenge in this world. Among these goals is SDG 6, which focuses on water and sanitation. This goal aims to ensure everybody can access sufficient and clean water. Achieving this goal necessitates a paradigm shift in how society views and consumes water (Sadoff et al., 2020). Sustainable water consumption behaviour, characterised by responsible usage, conservation, and equitable access, is pivotal in realising SDG 6.

SDG 6 aims to provide sufficient and clean water resources by increasing people's awareness of water consumption usage for future generations (Mustafa, Jamil, Zhang, & Girmay, 2022). Introducing SDG 6 can act as a catalyst for awareness and education regarding water conservation. Promoting the importance of clean water and sanitation, this goal instils a sense of responsibility among individuals and communities. Educated communities are more likely to adopt water-efficient practices. The practices include fixing water leaks, purchasing and using water-saving appliances, and embracing rainwater harvesting techniques. Thus, introducing SDG 6 could contribute significantly to the overall achievement of the SDG framework.

By 2030, there is a global commitment to significantly enhance water-use efficiency in various industries and sectors. This is to ensure the sustainable extraction and supply of freshwater worldwide. This endeavour aims to tackle the issue of water scarcity effectively and substantially decrease the number of consumers experiencing its adverse effects (Harlin & Kjellén, 2015).

2.2. Water Management in Malaysia

Managing water resources in Malaysia involves a multi-level governance structure, including federal and state authorities. At the federal level, the Ministry of Energy and Natural Resources/Kementerian Tenaga dan Sumber Asli (KeTSA) is responsible for formulating policies, setting national standards, and coordinating water resource management efforts across the country. KeTSA plays a significant role in developing strategies and plans to ensure sustainable water management practices (Ministry of Energy and Natural Resources, 2023). Meanwhile, at the state level, each state in Malaysia has its own State Water Authority or Water Supply Department, which is responsible for managing water resources within their respective territories. These state agencies oversee water abstraction, treatment, distribution, and regulatory enforcement.

The legislative frameworks governing water management in Malaysia are under the National Water Services Commission Act 2006 (Act 654). The National Water Services Commission (SPAN), the regulatory body, governs this act. SPAN's responsibilities in water management include licensing, tariff regulation, and ensuring quality water services. This act and systematic body hierarchy are intended to ensure sufficient clean water resources for the future.

Based on the record, Malaysia has a total water resource of about 580 billion cubic meters per year, 97% of which comes from surface water and 3% from groundwater (Department of Irrigation and Drainage Malaysia, 2023). Furthermore, 10.7 billion out of 17.3 billion cubic meters of water supplies are for domestics. In terms of water quality, in 2019, Malaysia ranked 90th out of 180 countries with good-quality water, with a score of 53.1 out of 100 (Wendling, Emerson, de Sherbinin, & Esty, 2020). Based on the National Water Services Commission (2023) water tariff in Malaysia varies depending on the state and volume of water consumed, with an average tariff of RM0.57 per cubic meter.

Good water quality and low tariffs in Malaysia lead to over-consumption of water among the people. Based on the SPAN, Malaysia recorded the highest water consumption per capita at about 210 Liters per day, higher than the recommended global average of 165 Liters per day. Furthermore, the issue of water consumption in Malaysia escalated when the Nation Water Service Commission reported a 35% non-revenue water loss from 2017 to 2022, surpassing the World Bank (25%) due to leakage and theft.

The statistics above showcase that water management in Malaysia is a challenging and crucial issue that needs to be addressed. Malaysia's urbanisation and rising population have led to water management and consumption scarcity. As a result, consumers awareness of water consumption is critical, and there is a need for continued efforts to ensure sustainable water management in Malaysia.

2.3. Theory of Planned Behaviour (TPB)

Historically, the origin of TPB is an extension of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). However, TRA only predicts human behaviour based on attitude and subjective norms (Fishbein & Ajzen, 1975). However, attitude and subjective norm predictors were insufficient to predict human behaviour and voluntary control assumptions. Ajzen (1991) later developed and introduced the TPB. This theory was used extensively in social, psychological, and behavioural science to describe and predict human behaviour (Ajzen, 1991).

The TPB model was extensively used based on the premise of individuals. These theories were used to predict individual logic and decisions based on the available information or resources that influence their behaviour (Sia & Jose, 2019). Apart from that, research on TPB can also be found in predicting human behaviour and intention (Gancar, Fenitra, Masmira, Sedera, & Abbas, 2023) sustainable marketing among managers (Ferdous, 2010) and energy and water consumption (Marzouk & Mahrous, 2020; Wang, Zhang, & Li, 2014; Wells, Taheri, Gregory-Smith, & Manika, 2016). Therefore, this study uses TPB to predict attitudinal predictors regarding water intention behaviour among Malaysian consumers.

2.4. Hypotheses Development

2.4.1. Water Consumption Intention

The central point of the TPB framework is to predict human intention, which refers to the degree of human control over their behaviour. TPB posits that behavioural intention is based on; (1) attitude, (2) subjective norm, and (3) perceived behavioural control. Mahdavi (2021) used TPB to explain farmers' intentions towards water policy options. Mahdavi (2021) found that attitudes, subjective norms, and perceived behavioural control positively and significantly affect the farmer's intention. Similarly, Guo et al. (2021) discovered that these same factors significantly affect the intention to purchase bottled water in China.

According to Russell and Knoeri (2020) attitudes, norms, and habits are key factors in determining people's intention to conserve water, with habits being the important predictors of water conservation intentions. Some consumers may have a higher intention to consume water due to recognising the importance and benefits of water. Others may have a lower intention due to a lack of awareness. Based on findings by

Mahdavi (2021); Guo et al. (2021) and Russell and Knoeri (2020) it is demonstrated that TBP variables (attitude, subjective norm, and perceived behavioural control) could be the best indicator in investigating the relationship on water consumption intention among the Malaysian citizens.

2.4.2. Water Consumption Attitude

Individual attitudes assess decisions that could shape their choices and actions before decision-making. Attitude entails considering the outcomes of a person's behaviour. The TPB explains that individual attitudes will affect their behaviour and predominantly influence sustainability (Piramanayagam, Sen, & Seal, 2023). An individual positive attitude would bring a positive result to the behavioural intention (Maziriri, Nyagadza, Chuchu, & Mazuruse, 2023). Specifically, Maziriri et al. (2023) found that consumer attitudes significantly influence environmentally friendly household appliance purchase intentions. In addition, Hongyun, Duan, Zhang, Su, and Wu (2022) discovered that attitude and information publicity are the most important antecedents of water-saving intention. Then, followed by the individual's subjective norms and perceived behavioural control in the water-saving intention.

Then, Kristin, Stepenuck, and Panikkar (2021) found that attitude has a positive effect on the water conservation intentions among consumers. A positive attitude implies that a consumer evaluates water consumption practices positively. Hoxha and Hoxha (2022) found that attitudes become an important antecedent of water conservation intentions in Pristina, Kosovo. In the United States, Gibson, Lamm, Lamm, and Holt (2023) also discovered that consumer attitudes affect water-saving intentions. They may perceive responsible water usage as important, beneficial, and aligned with their values. The favourable influences their intention to engage in water-saving behaviours because they believe that they are desirable and worthwhile. In this study, we predict that the water consumption attitude may influence the water consumption intention.

H₁: Water consumption attitude has a positive effect on water intention among Malaysian Consumers.

2.4.3. Subjective Norm

Subjective norm refers to an individual's perception of whether their peers and influential individuals would approve or disapprove of a particular behaviour. Normative beliefs play a crucial role in shaping subjective norms, which are essentially the perceived expectations of others with regard to our conduct (Osman et al., 2019). The TPB can explain this relationship as this theory predicts human behavioural intention and behaviour. TPB speculates that individual subjective norms can influence individual intention and behaviour. In the context of water consumption, Lili, Ying, Qiuhui, and Mengxi (2021) assert that adopting desalinated water is significantly influenced by social norms, attitudes, and control. According to the study, when people expect water conservation, social networks can effectively reinforce water-saving practices.

A study by Gibson et al. (2023) discovered a significant effect of subjective norms on the intention of water-saving behaviours in the United States. Meanwhile, in the environmental context, according to Borusiak, Szymkowiak, Pierański, and Szalonka (2021) the subjective norm was observed to have a significant positive impact on eco-friendly behaviour. Prior research findings demonstrate that the subjective norm component of the TPB substantially influences the intention to consume water in Malaysia.

H₂: Subjective norms have a positive effect on water intention among Malaysian Consumers.

2.4.4. Perceived Behavioural Control

Perceived behavioural control is an individual's belief in their ability to perform a specific behaviour related to water consumption. It predicts human perception and ability to control their water consumption intentions. The study suggests that more control over water consumption leads to a greater willingness to reduce it.

Besides that, perceived behavioural control can influence sustainable consumption behaviour (Piramanayagam et al., 2023). The consumer's behaviour might be changed based on the possible challenges, obstacles, and opportunities (Borusiak et al., 2021). Water supply is one of the available resources for all people in the world. Therefore, using water resources is crucial because of the availability of resources and their accessibility to the people. Perhaps, overuse of water among citizens will become the main issue that will be addressed to avoid the loss of clean water in the future.

Empirical evidence suggests that perceived behavioural control is pivotal in determining water consumption intention, including consumer's perceived behavioural control on the use of bottled water consumption intention (Borusiak et al., 2021) water consumption patterns (Ang & Mansor, 2021) and water consumption drivers (Enshassi, Elzebdeh, & Mohamed, 2017). Furthermore, Shahangian, Tabesh, Yazdanpanah, Zobeidi, and Raoof (2022) found that an individual's intention to consume water is influenced by their perceived behaviour and self-efficacy. The level of self-efficacy and perceived behaviour significantly impact their willingness to engage in responsible water consumption practices. Individuals with the necessary knowledge, skills, and control to conserve water are more likely to adopt and sustain water-saving practices.

By aligning with TPB, individuals can take vital steps towards achieving optimal water conservation. This approach empowers people to control their water consumption habits and make a meaningful impact on the planet. With effective planning and a commitment to change, anyone can ensure a sustainable water future

for themselves and future generations. Thus, in this study, we predict that perceived behavioural control among the users is important because the consumer's behaviour may influence water management.

H_3: *Perceived behavioural control positively affects water intention among Malaysian Consumers.*

2.5. Theoretical Model

Our study is grounded in the Theory of Planned Behaviour (TPB) to explore how individual attitudes, subjective norms, and perceived behavioural control interrelate with water consumption behaviour among Malaysian citizens. Figure 1 illustrates the study's theoretical framework for explaining the relationship between attitudinal predictors and water consumption intention.
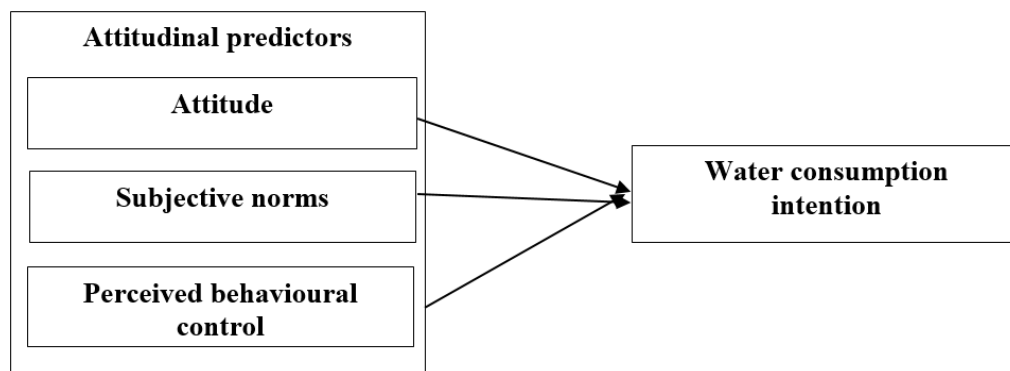

Figure 1. Theoretical framework.

3. Materials and Methodology

We employed SmartPLS version 4.0.9.6 as the statistical analysis instrument to examine the relationship between methods of water conservation and sustainable development components. This included the creation of a 4-point Likert scale questionnaire.

3.1. Construct Development

In the survey, the respondent profiles are presented in Part A, while the survey questionnaire that assesses perceived behavioural control (PBC), water conservation attitude (WCA), and subjective norm (SN) in relation to water conservation intention (WCI) in Malaysia is comprised of Part B. The questionnaire for the survey consists of Sections I–IV (Table 1).

Table 1. Construct development.

Variables	Authors	Title	No of items
Water conservation intention	Taufique and Vaithianathan (2018)	A fresh look at understanding green consumer behaviour among young urban Indian consumers through the lens of TPB.	8
Water conservation attitude	Aydin, Deniz, and Kiraz (2017)	Water use attitudes and behaviours of high-education students who do receive and do not receive environmental health training	7
Subjective norms	Taufique and Vaithianathan (2018)	A fresh look at understanding green consumer behaviour among young urban Indian consumers through the lens of TPB.	6
Perceived behavioural control	Aydin et al. (2017)	Water use attitudes and behaviours of high-education students who do receive and do not receive environmental health training	8
Total			29

This research uses a quantitative method to examine the relationship between water conservation practices and sustainable development in Malaysia. Two types of sources have been used to compile the data: main and secondary. We gathered primary data sources in Malaysia, such as government reports, academic

articles, pertinent literature, surveys, and questionnaires. Surveys have been developed to learn more about people's thoughts, attitudes, and actions about sustainable development and water conservation.

3.2. Sample

This research used convenience sampling. The sample size was 320 responses, which satisfies the SMARTPLS software's minimum sample size requirement of 50. We consider respondent convenience when selecting the sample. This method is consistent with which also used convenience sampling. According to Acharya, Prakash, Saxena, and Nigam (2013) respondents are frequently chosen due to their timely and strategic presence at the appropriate location. The benefits include their frequent use, low cost, and the elimination of the need to count every member of the population individually. As for this study, the total responses were 320. We selected the respondents based on the following criteria:

- Pay electricity (bill).
- Owned/Rented House (personal)
- At least 18 years old.

As anticipated, those participating in web surveys demonstrate the highest level of knowledge. Additionally, they are more inclined to be familiar with and aware of actions that may be taken to promote water conservation. According to Prokopy, Molloy, Thompson, and Emmert (2010) respondents in the convenience surveys exhibited more awareness regarding water quality compared to participants in the random surveys.

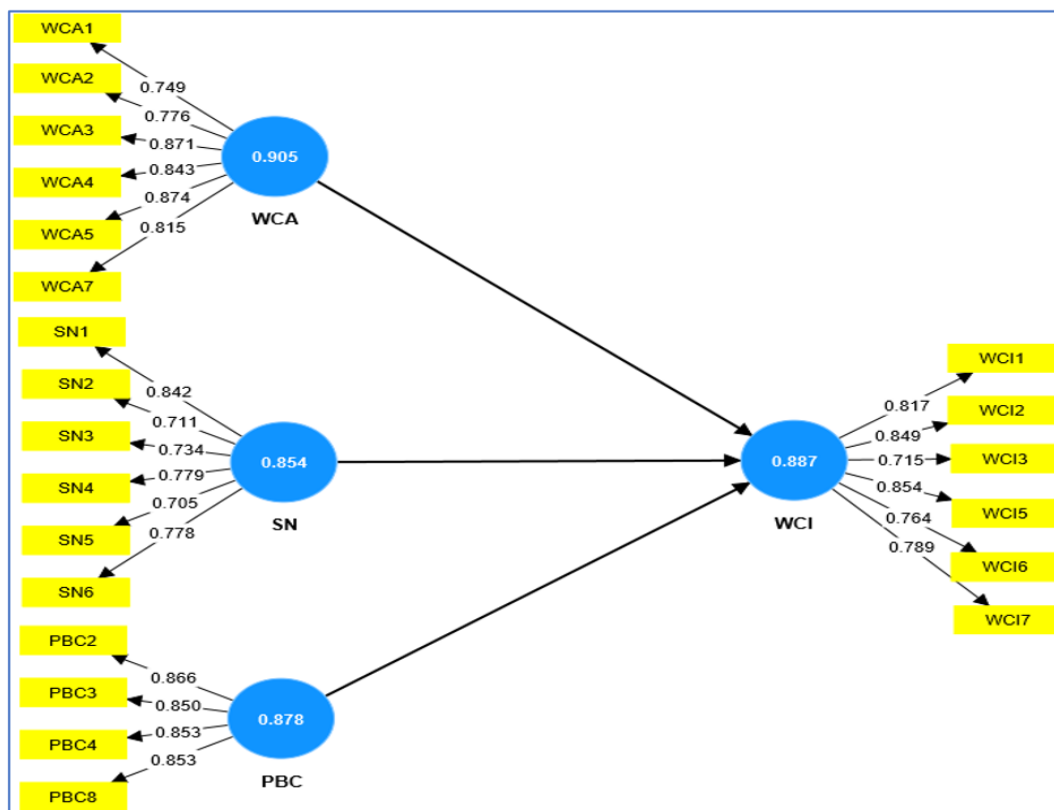Figure 2 illustrates the assessment of convergent validity.

Figure 2. Convergent validity.

4. Results and Discussion

We will access the measurement model using two types of validity: discriminant validity and convergent validity. If a measurement tool positively correlates with other instruments that evaluate the same underlying construct, it is considered to have convergent validity. It is common practice for researchers to assess the average variance extracted (AVE) to confirm convergent validity (Hair Jr, Babin, & Krey, 2017). The researchers checked the measures' discriminant validity using the Fornell and Larcker (1981) criterion, which looks at the correlations between constructs and the square root of the average variance found for each construct. It appeared that the measures had discriminant validity since the values on the diagonals of the matrix were higher than the values in their matching rows and columns.

The findings led to the exclusion of seven items due to their low loadings. The elements in question are WCI4, WCI8, WCA6, PBC1, PBC5, PBC6, and PBC7. However, the results indicate the scales exhibit strong convergent validity, as all items demonstrate values above 0.5 and 0.7 for AVE and CR, respectively. The

study conducted by Hair Jr et al. (2017) established convergent validity by ensuring that the loadings were at least 0.70, the AVE for each construct was at least 0.50, and the CR was at least 0.70. The results suggest that the goal of water conservation has had an impact on the elements of Water Conservation Attitude, Subjective Norm, and Perceived Behavioural Control.

One interesting finding can be found from this study: the negative loading obtained from one factor (Water Conservation Attitude with 7 items) had items with negative and positive factor loading (6 items had positive loading, and one had negative loading, specifically WCA7, which is usually uninteresting.). This item asked the respondents to save water when taking bath. It shows that people have an attitude of not saving water, which does not play any role in explaining the water conservation attitude, thus having no impact on the attitude.

The idea of TPB is specifically used in this study to investigate if the desire to conserve water has an impact on water consumption behaviour in achieving SDG. A questionnaire survey was used to measure the people's intention to conserve water. As the outcomes imply a direct link between attitudinal factors and the intention of water conservation. The results are linked with the previous study that applied the same theoretical model as a reference frame (Ahmmadi et al., 2021; Chaudhary et al., 2017; Cooper, 2017).

Promoting positive attitudes towards water conservation can be done through education, awareness campaigns, and the emphasis on the personal and environmental benefits of water conservation. Attitude has a significant impact on intentions to conserve water. It is a measure of belief in water conservation, the benefits of using less water, and the impacts on the environment. When one has a positive attitude towards water-saving strategies such as shorter showers, fixing leakage quickly, and using water-efficient equipment, they are more likely to use less water.

The development of effective communication strategies and interventions requires a proper understanding of subjective norms related to water conservation intentions. Subjective norms may be understood as an individual's internalized understanding of what is regarded as appropriate socially and what behaviour their close friends are likely to expect from them regarding a specific action. In the case of domestic water consumption, subjective norms can depend on many factors, including friends', family's, and neighbour's perspectives and attitudes towards water-saving behaviours (Tian & Chen, 2022). If individuals perceive that others important to them support and value water conservation, it strengthens their intention to adopt water-saving practices.

The encouragement of water-saving behaviours and the contribution to collective water conservation efforts can be facilitated through the promotion of positive subjective norms, social support, and role models. When individuals see their actions to be consistent with their positive attitude toward water conservation, it strengthens their intention to be involved in water-saving behaviours constantly. Consistency between attitudes and behaviour is important for water conservation intentions. Understanding the impact of perceived behavioural control on water conservation intention is critical for developing effective water conservation strategies. We can achieve sustainable water management by removing problems, providing help and resources, and inspiring people to believe in their own abilities to save water.

TPB can provide a person's intention to perform water-saving actions in their households by explaining their attitudes, subjective norms, and perceived behavioural control. We can use this information to develop tailored approaches and interventions aimed at enhancing water conservation in people's home. There are so many activities and educational campaigns that can be conducted that focus on raising the awareness about the environmental impact of water wastage and water conservation within the community, and providing information and resources to improve individuals perceived behavioural control.

Even if the TPB is a very good framework to interpret intentions and subsequent behaviours, other factors, including habits, external constraints, situations, etc., might affect actual behaviour. Therefore, a comprehensive approach that combines the TPB with other behavioural theories and strategies may be necessary to effectively promote sustainable water consumption practices at the domestic level.

5. Conclusion

5.1. Findings

The TPB posits that an individual's behaviour is shaped by their personal cognition and decisions, which are impacted by the information, knowledge, and resources available. Using TPB as the underpinning theory, this study examines whether attitudinal predictors affect water conservation intentions among Malaysian consumers in achieving the Sustainable Development Goal (SDG). Our study was motivated by the high daily water consumption worldwide. According to the SPAN, Malaysians use a normal of 201 litres of water daily, comparable to 134 of the 1.5 litres bottles. This issue significantly affects the economy, people, and planet.

The results of our study indicate a clear and meaningful correlation between attitudinal predictors and Water Conservation Intentions. This indicates that those attitudinal predictors among Malaysian citizens can increase consumers' intention to consume water. Our study is also in line with Kristin et al. (2021) and Hoxha and Hoxha (2022) who found that attitude is related to intention. Moreover, Borusiak et al. (2021) discovered a positive association between subjective norms and intention. Perceived behavioural control correlates positively with consumption intention, according to Borusiak et al. (2021); Ang and Mansor (2021) and

Enshassi et al. (2017). It showed that attitude, subjective norm, and perceived behavioural control have a substantial impact on water consumption intentions, which is in line with the TPB. In the meantime, income level does not influence consumer's attitudes.

5.2. Contributions

Our findings contribute to the three aspects. First, our study contributes to developing the questionnaire instruments for the water consumption study. The development of the instruments specifically suits the Malaysian scenarios, and it is based on the empirical studies in which water consumption intention, subjective norm (Taufique & Vaithianathan, 2018) attitude, and perceived behavioural control (Aydin et al., 2017). Secondly, this study contributes significantly to achieving SDG 6 by guaranteeing universal access to water and sanitation, and by managing these services in an environmentally sustainable manner. Water conservation contributes to SDG 6 by protecting and preserving water resources. Reducing water wastage, promoting efficient water use, and promoting sustainable water practices contribute to SDG 6's objective of safeguarding water resources for present and future generations. Third, our findings provide useful insights into the essential component of holistic and integrated governance frameworks aimed at achieving sustainable and inclusive development for water management.

5.3. Limitation

The results should be interpreted cautiously, as this study only examines the direct relationship between attitudinal predictors and water conservation intention. However, this study does not consider the other factors and fully considers the TPB's elements, including water consumption behaviour.

5.4. Future Research

Future studies could also consider consumer intention as the mediating variable and the moderating influence of socio-demographic variables, including age and gender. The mediating and moderating variables could influence the relationship between attitudinal predictors and consumption behaviour.

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