

# Theory of Planned and Sustainable Waste Management Behaviour

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The theory of planned behaviour evolved from the notion of reasoned action. As stated in the theory of planned behaviour (TPB), a person's behaviour is influenced by their intention to act and their perception of their ability to control their behaviour, whereas their intention to act is influenced by their attitude towards the behaviour, their perception of societal pressures and expectations (subjective norm), and their perception of their ability to control their behaviour. In this theory, individuals will be more willing to perform a behaviour when they have favourable attitudes towards performing the behaviour, perceive greater social pressures and expectations to perform the behaviour, perceive the behaviour to be easy and convenient, and perceive that they have the capacity to perform the behaviour.

Keywords: attitude ; subjective norms ; perceived behavioural control ; waste management behaviour ; behavioural intention ; sustainability ; environmental ; sustainability

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## 1. Theory of Planned Behaviour (TPB)

Ajzen discovered the theory of planned behaviour (TPB) in 1991, which is renowned for being introduced as a typical social psychology framework. Based on the idea of the TPB, a person's intention guides their behaviour, which is then controlled by their attitude, subjective norm, and perceived behavioural control. The theory of planned behaviour describes the overall decision-making process of individual behaviour from the perspectives of information processing and the concept of expected value <sup>[1]</sup>. With the development of the reasoned action theory, the TPB was created. Its fundamental components are attitude, subjective norms, and behavioural control, all of which can be used to anticipate behavioural intents and actions <sup>[2]</sup>.

As reported by <sup>[3]</sup>, the TPB is a strong and effective theory that has been used extensively to explain a variety of personality behaviours, including pro-environmental behaviours like conserving energy, reduction, waste sorting, green purchasing, and low-carbon travel. However, limited study was conducted in investigating SWMB among oil palm mills in Malaysia, through the TPB. Therefore, with this opportunity, this research is believed to fill the current research gap of social science within the industry.

## 2. Sustainable Waste Management Behaviour

The behaviour of sustainable waste management is analysed using the 3R practises, such as "Reduce, Reuse, and Recycle", which is also known as a waste management hierarchy <sup>[4][5]</sup>. Additionally, the hierarchy of waste management is another name for the 3R method. Besides, <sup>[6]</sup> claim that the adoption of 3R practises enabled SWMB strategies to be formed and aligned and to be divided into different categories, with a primary emphasis on the willingness of individuals to carry out waste management. In line with <sup>[7]</sup>, this 3R practise is a very helpful activity that has been demonstrated to be able to impart countless benefits to society in terms of job vacancy availability, income production, and tax revenue. As stated by <sup>[8]</sup>, reuse is the act of switching an item's primary use from one application to another. Recycling is often described as a process that turns waste into new resources, but this approach not only achieves the recycling objective but also generates financial benefits <sup>[9]</sup>. Furthermore, according to the Report on Recycling Information, residents must adopt profitable actions and practise less impactful material consumption in order for their country to maintain its competitiveness in the economy, prosperity contribution, and environmental protection. Nevertheless, using the 3R in SWMB for companies, particularly oil palm plantations, is a wonderful move, and this industry needs additional examination based on their lack of waste management in the field.

The 3R (reduce, reuse, recycle) practise is crucial in measuring waste management behaviour as it serves as the foundation for effectively managing waste and fostering a sustainable society that optimises material cycles and resource utilisation <sup>[9]</sup>. The 3R approach highlights the significance of diminishing trash output, utilising products again, and

recycling resources to mitigate the environmental impact <sup>[10]</sup>. Research has demonstrated that both habits and ideal circumstances have a substantial role in waste recycling behaviour, and additionally, habits have a positive and significant influence on 3R behaviour <sup>[11]</sup>. Therefore, the assessment of 3R behaviour is essential in examining the efficiency of waste management strategies and promoting the effective utilisation of resources.

### **3. Attitude and Sustainable Waste Management Behaviour**

According to <sup>[12]</sup> attitude is a mental state of readiness organised through experience that has a directive or dynamic effect on the people it is associated with. In resonance with <sup>[13]</sup>, attitude is the propensity or tendency to respond in a particular way to an item, circumstance, or value, typically accompanied by deep feeling and emotion. Another way to think of attitude is as the stick that tends to guide the direction of learning and application.

The findings of a study that was carried out by <sup>[14]</sup> indicate that attitude has emerged as the most important component in relation to the classification behaviour of domestic garbage. As reported by <sup>[15]</sup>, another recent study on sustainable waste management practices among Malaysian academicians demonstrated a relationship between attitude and sustainable waste management practices. Individual waste management behaviour is influenced by both rationally grounded altruistic-oriented ideas and attitudes <sup>[16]</sup>. In addition, <sup>[17]</sup> demonstrated that science students' opinions regarding trash management were consistent with this research. Meanwhile, <sup>[18]</sup> emphasise the role that attitude contributes in encouraging waste management practices. Nonetheless, it recognises that the relationship between these two variables is complicated and dependent on external circumstances. An intriguing distinction between attitudes and behaviours in the waste management sector has been found by the performed research.

### **4. Subjective Norms and Sustainable Waste Management Behaviour**

A number of research studies have acknowledged that subjective norms can be associated with various research disciplines, including climate change issues <sup>[19]</sup>, cosmetic product purchasing behaviour <sup>[20]</sup>, and waste segregation-at-source behaviour, despite the fact that there is still a lack of research demonstrating that subjective norms act as predictors for this behaviour. According to numerous studies <sup>[21]</sup>, subjective norms is the strongest predictor, followed by attitude. Indeed, respondents stated that a key factor in influencing their own recycling behaviour is the behaviour of their referents.

Concurrently, <sup>[22]</sup> has noted that when people are open to the societal norm and, more significantly, embrace the norm, recycling behaviours can be changed. This claim is strongly related to the idea of a subjective norm, according to which an individual is persuaded to act in a way that is ideal depending on the endorsement and support of significant social groups <sup>[23]</sup>. On top of that, <sup>[24]</sup>, who found that the behaviour of others will be influenced by their awareness of the recycling actions of others, raised the same concern. However, a different finding was retrieved from <sup>[14]</sup>, where SN was not significant towards waste classification behaviour in Guangzhou, China. A similar result was identified by <sup>[25]</sup> in that no relationship between subjective norms and actual behaviour was recorded amongst farmers.

### **5. Perceived Behavioural Control and Sustainable Waste Management Behaviour**

Correspondingly, <sup>[19]</sup> claimed that no specific research has been conducted in Malaysia that focuses on waste segregation-at-source behaviour by using perceived behavioural control as a predictor. The ongoing challenges in Malaysia's long-term implementation of waste segregation-at-source behaviour still call for a larger and better assessment of the current scenario in order to increase the efficiency and efficacy of this policy. Investigating the impact of perceived behavioural control on the behaviour of Malaysian palm oil mills towards waste management at the source is the goal of this research. Individual belief and perception will have a considerable impact on the responsiveness, cultural values, and efficacy of the municipal solid waste management system. Many people had the opinion that their own actions could not significantly affect a certain issue or activity.

Additionally, a study conducted in a professional setting found that attitudes and subjective norms, along with the perceived behavioural control, showed a positive relationship with higher engagement in waste separation activities <sup>[26]</sup>. There is a positive relationship between both recycling intention and behaviour towards perceived behavioural control <sup>[27]</sup>. The environmental aspect of this problem stems from the belief and perception that personal behaviour execution can reduce pollution. Furthermore, <sup>[28]</sup> determined the probability that a specific behaviour would be portrayed in order to have an influence that could be felt.

## **6. Attitude and Behavioural Intention**

Any change in attitude will result in an alteration in behaviour since attitude affects behaviour <sup>[29]</sup>. In order to satisfy their constantly shifting needs and desires, people frequently acquire, modify, or give up attitudes <sup>[30]</sup>. It is challenging to tell whether people have control over the waste recycling processes because people's behaviours and viewpoints are so unpredictable <sup>[31]</sup>. In order to find the best solutions to the waste generation issue, waste management experts and researchers have reportedly been attempting to study people's attitudes and behaviours. The word "attitude" describes an emotion, either positive or bad, towards other people that affects how one behaves. Several studies had demonstrated that the role of attitude as the main factor in behavioural study no longer consistently exhibits statistical significance. Attitude was found to have a weak relationship with behavioural intention in a study on the behavioural practice of waste separation <sup>[32]</sup>. Plus, the lowest impact on the relationship between attitude and behavioural intention was also found by <sup>[33]</sup>.

Nevertheless, a study conducted by <sup>[34]</sup> revealed that attitude has a greater impact on behavioural intention than other factors. Moreover, a scientific inquiry about the disparity between intention and behaviour has provided insight into the influence of attitude intensity on behavioural intention. As claimed by <sup>[35]</sup>, this research indicates that attitude has a crucial role in shaping both intention and subsequent behaviour. A further in-depth examination is required considering the many inconsistencies in discoveries and facts from existing research.

## **7. Subjective Norms and Behavioural Intention**

Since subjective norms concentrate on expectations that a person has about how others evaluate their behaviour, the opinions of coworkers relate to waste management activities in the firm <sup>[31]</sup>. According to <sup>[36]</sup>, there is a moderately substantial correlation between subjective expectations and sustainable development. According to numerous studies, behavioural intentions are greatly influenced by subjective norms, which they perceive to be reinforced by social groups or other organisations that they are a part of <sup>[37]</sup>. The current investigation, conducted by <sup>[16]</sup> was designed to examine the relationship between subjective norms, attitudes, and perceived behavioural control in relation to behavioural intention to conduct waste management among university students in China. This research's findings suggest that there was an association between subjective norms and behavioural intention. Furthermore, a study conducted by <sup>[38]</sup> investigated the factors influencing residents' waste separation intention in Hanoi, Vietnam. This research utilised the theory of planned behaviour as its theoretical framework and employed a combination of social surveys and semi-structured interviews. The present study examines the determinants that impact the behavioural intention of Hanoi people to engage in waste separation activities and it was determined that there is a positive relationship between attitude and subjective norms, and the intention of residents to separate garbage. However, <sup>[39]</sup> found that despite having a considerable impact on intention, subjective norms have a clear positive influence on behaviour, but there is a negligible relationship between subjective norms and behavioural intention.

## **8. Perceived Behavioural Control and Behavioural Intention**

A small number of scientific studies have suggested that perceptions of behavioural control have a significant influence on behaviour. On the other hand, it has been found that when it comes to reducing waste at work, an individual's behaviour is solely determined by their perception of their ability to regulate their behaviour <sup>[40]</sup>. Behavioural interventions in waste reduction require a sense of labour empowerment. When it comes to implementing connected empirical plans and maintaining environmental sustainability, businesses must also endeavour to provide their employees with a sense of authority and flexibility <sup>[41][42]</sup>. According to <sup>[43][44]</sup>, the main psychological components are those that may motivate and stimulate action as well as ease of conduct and behaviour control. In the study executed by <sup>[27]</sup>, it was found that there was a positive relationship between the perceived behavioural control and the perception towards one's ability to influence both behaviour and intention towards recycling. On the other hand, <sup>[45]</sup> found that perceived behavioural control had the greatest impact on families' intentions to adhere to solid waste management practises.

## **9. Behavioural Intention and Sustainable Waste Management Behaviour**

A study implemented by <sup>[46]</sup> suggests that the hypothesis takes into account the beneficial influence of intention on behaviour in relation to reducing food waste. By adopting the TPB, citizens' behavioural intentions are reported, and behaviour affects how people practice a behaviour of recycling and waste management behaviour as in the larger context. The finding from <sup>[47]</sup> revealed empirical proof of the significant influence where behavioural intention has a significant effect on waste separation behaviour. Based on the results of the structural equation modelling analysis conducted by <sup>[48]</sup>, the main determinants impacting behavioural intention were found to be moral commitments, perceived policy efficacy,

and perceived behavioural control. This research's results indicate that behavioural intention is the main factor influencing waste separation behaviour. Meanwhile, a study conducted by [49] has highlighted the significance of intention as a primary factor influencing behaviour. The research provided evidence for the considerable influence of behavioural intention on waste separation activity.

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