

# Consumers' Intention toward Mitigation of Plate Waste Behaviour in Restaurants – Development of Conceptual Model

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## ABSTRACT

**Purpose:** *There have been growing concerns over food security and the problems of food waste on the environment, including resource depletion and greenhouse gas emissions for many years. Although food waste can happen at any point in the food supply chain, the factors that influence consumer intention has been identified as the main contributors to food waste generation. The main purpose of the research is to develop a conceptual model for the study and to investigate the factors that influence consumers' intentions toward reducing food waste behaviour in restaurants based on recognized consumer behaviour theories and an extensive literature review.*

**Design:** *This research work is based on secondary sources which are collected from academic journals, newspapers, case studies, and internet searches. Postulates and the influencing variables to consumers' intention to mitigate food waste in restaurants are developed using the focus group interaction.*

**Findings:** *The study explores the postulates affecting consumers' intention to reduce food waste in restaurants by extensively reviewing empirical theories. Through the development of a conceptual model evaluation, the factors associated with the study were awareness, food quality, environmental concern, attitude, and subjective norms system, which impact consumers' behavioural intention toward food waste mitigation in restaurants.*

**Originality:** *As the conceptual model was being developed, the research study identifies several postulates with the assistance of several models and theories related to consumer behavioural intention and discusses several factors that influence consumer intention in mitigating food waste in restaurants.*

**Paper Type:** *Review of literature for the development of the conceptual framework.*

**Keywords:** Inductive Approach, Theory of Planned Behaviour, Theory of Reasoned Actions, Conceptual Model, Attitude, Environmental Concern, Quality of Food, Awareness, Subjective Norms, Consumer Behaviour, Consumer Intention, Food waste mitigation, ABCD listing.

## 1. INTRODUCTION :

Throughout every stage of the food life cycle, tremendous quantities of food waste have been created in recent decades (Heller, M. C. et al (2003). [1]). In communities, this corresponds to around one-third of the food produced for human consumption, with an estimated 1.3 billion tonnes of food lost or wasted each year in production, processing, and distribution (Ishangulyyev, R. et al (2019). [2]). Food waste is one of the persistent issues that the world is still paying close attention to and seeking better solutions to in the 21st century, where the development of food supplying infrastructures has significantly altered food consumption practises and turned out to be a global problem in food systems (Van der Ploeg, J. D. et al (2020). [3]). Food waste is a big issue in many developing and developed nations. It is a crucial issue that affects the economy, environment and the society. Food waste not only jeopardises local community resilience and threatens global food security, but also damages the environment and drives up food costs, accelerating social inequality (Melikoglu, M. et al (2013). [4]). Methane has a 23-fold more global warming potential than carbon dioxide (CO<sub>2</sub>) (Saidur, R. et al (2011). [5]), therefore global

landfill emissions are comparable to 1 billion tonnes of CO<sub>2</sub> in terms of emissions. While methane gas is produced during the decomposition of food waste, dumping it in landfills contributes to global air pollution (Khan, I. U., et al (2017). [6]). There are economic, social, and environmental issues associated with food waste in the restaurant industry. The amount of food wasted by customers in the food service sector must be kept to a minimum in order to lessen its environmental effect (Heikkila, L. et al (2016). [7]). As a result of people's illogical consumption objectives and behaviours, according to the research, food waste is the loss of food that might have been avoided under the existing conditions. Food appreciation, packing leftovers, and ordering only what is necessary to minimise unnecessary waste were also included in its definition of food waste reduction (Filimonau, V. et al (2022). [8]). Reducing food waste increases food production, relieves pressure on natural resources, and reduces greenhouse gas emissions from the food chain and biodiversity loss resulting from agricultural practices. All of these elements have a close connection to food security. The study highlights how important it is to understand the practices that lead to restaurant food waste (Kanter, D. R. et al (2020). [9]). Food waste reduction may prove to be an ongoing worldwide concern. According to Silvennoinen (Silvennoinen, K. et al (2019). [10]), restaurants account for the majority of food waste since eating out has become prominent and widespread in emerging nations. All parties involved in the food chain, from manufacturing to consumption, are therefore crucial to combating and minimising food waste, notably the end restaurant customer (Katajajuuri, J. M. et al (2014). [11]). Customers view waste as an inevitable by-product of consumption, while manufacturers and retailers encourage customers to buy on impulse by presenting discounts or special offers, which has the effect of influencing their choices and increasing trash (Hecht, A. A. et al (2020). [12]).

The most popular strategy used by researchers to modify consumer behaviour towards understanding its factors (Aktas, E. et al (2018). [13]) has been to develop theoretical frameworks (Rundle-Thiele, S. et al (2019). [14]), to explain the causes of reducing food waste (Stefan, V. et al (2013). [15]). The efficiency of the proposed model is assessed through comparisons with other theoretical models. Understanding the variables that influence how much food consumers waste is, therefore, a top concern and a key component of offering recommendations (Peattie, K. (2010). [16]). Learning about and assessing the patterns of food waste (Papargyropoulou, E. et al (2016). [17]), particularly by consumers who are dining in restaurants, and eventually identifying some of the primary reasons causing these food losses will be a crucial element of strategy (Priefer, C. et al (2016). [18]). Despite this (Hennchen, B. (2019). [19]), it is widely assumed that restaurant consumers are primarily responsible for food waste (Irani, Z. et al (2018). [20]), only few researches have pinpointed specific factors that cause plate waste, and there hasn't been much progress in developing behavioural change tools and ethical standards to reduce plate waste and understand behaviour among consumers (Von Kameke, C. et al (2018). [21]). This study aims to evaluate the influence of attitude, environmental concern, awareness, food quality, and subjective norms on consumer intention to mitigate food waste behaviour in restaurants based on the research background and the proposed conceptual model.

## **2. OBJECTIVES OF THE STUDY :**

- (1) To analyse the growing domain of consumers' intention toward mitigation of food waste behaviour in restaurants by systematically reviewing the empirical studies.
- (2) To define the proposed model framework through focus group discussions.
- (3) To determine the factors that influence consumers' intention toward mitigation of food waste in restaurants.
- (4) To formulate postulates based on focus group discussions and personal observations.
- (5) To develop a conceptual model based on the identified postulates.
- (6) To identify the advantages, benefits, constraints, and disadvantages of the proposed model for consumers' intention to reduce food waste behaviour in restaurants from researchers point of view.
- (7) To provide suggestions to the conceptual model for further research to support the hypotheses.

## **3. STUDY OF CONCEPTUAL MODELS :**

### **3.1 Related works:**

The factors influencing consumer behaviour provide an understanding to give a wiser solution for the management to handle issues effectively since the challenge of food waste has become a huge concern in Indian communities. As shown in Table 1, several writers have contributed to our understanding of

the problem of food waste by exploring how the determinants affecting consumer behaviour can be used to solve the waste problem seen in restaurants. Table 1 shows the contributions of several researchers highlighting the significant outcomes of consumers' intentions toward food waste reduction in restaurants.

**Table 1:** Review of important contributions on Consumers' Intention towards mitigation of food waste behaviour.

S. No.	Area	Contribution	Reference
1.	Consumers' food management behaviour	The findings have demonstrated the effectiveness of utilizing the planned behaviour model in identifying the consumers intention to reduce food waste and manage the consumption of the food. Furthermore, subjective norm, attitude, guilt, perceived behaviour and the intent to mitigate food waste were the motivating factors for the management of food consumption and reducing food wastage. This study demonstrated that, in addition to supporting the planned behavioural model, all the motivating factors have a direct and indirect impact on how people manage their food waste. Future investigations may examine the effects of new determining variables on the Theory of Planned Behaviour model in light of the theories' and experiments' emphasis on the influence of determining factors on behaviour.	Soorani, F & Ahmadvand, M. (2019). [22]
2.	Consumer food waste reduction behaviour: Norm Activation Theory	The Norm Activation Theory was employed as a research framework on consumer behaviour to minimise wastage of food when eating out. The concept incorporated influencing factors such as awareness, self-efficacy, attribution of responsibility, and personal norms. The aim to reduce food waste and other motivational reasons came in second and third, with self-efficacy having the highest impact on the personal norm. Based on the results, several suggestions are encouraged for restaurants to promote consumer behaviour to reduce food waste, such as reducing the size of plates for some meals and presenting data on food consumption.	Wang, J. et al (2022). [23]
3.	Consumer food waste behaviour in restaurants: Theory of Planned Behaviour	The research employs an expanded Theory of Planned Behaviour to understand the antecedents regarding restaurant food waste behaviour by considering two constructs namely, food taste and price consciousness. The objective of decreasing food wastage, as well as perceived behavioural control, were both hypothesized to anticipate the behaviour of food waste. The study examines the major TPB traits and other variables of food waste behaviour of consumer in restaurants that affected consumers' behaviour toward food waste reduction. This research confirms that	Coşkun, A. & Özbük, R. M. Y. (2020). [24]

		the planned behaviour theory is a valuable model for explaining consumer food waste behaviour in restaurants. The TPB hypothesis for food waste behaviour may also be improved further by adding more constructs.	
4.	Antecedents and consequents to take away leftovers after dining at restaurants	The antecedents of customers' intentions to take leftovers home and how they relate to routines for ordering too much food and recycling garbage are analysed using the behavioural reasoning theory (BRT). The theory assesses that moral standards are associated with justifications and attitudes that connect intentions that result in positively correlated with overordering behaviour. While BRT analyses intricate interactions across research models, it is used in this work to explore the suggested correlations.	Talwar, S. et al (2023). [25]
5.	Consumers' intention to reduce food waste: Action-related information trumps system information	The factors influencing young people's intentions to prevent food waste were determined using the Theory of Planned behaviour (TPB). The most crucial variable attitude showed a positive connection to intention construct. Attitudes and intentions appear to be linked regardless of age or gender in minimizing food waste. Segmentation is a suggested approach to the TPB model which can provide intriguing insight and describe the goals of youngsters to reduce food waste. The study recommends that the TPB model may be further developed for the complete population sample and segmented based on its unique features that aim to reduce food waste.	Neubig, C. M. et al (2020). [26]
6.	Restaurant management and food waste reduction: factors affecting attitudes and intentions in restaurants of Spain	The study seeks to comprehend the characteristics impacting restaurant behavioural intentions, such as market orientation, environmental indifference, loyalty, and so on. The study discovers that market orientation influences the aim to reduce food waste. Through the lenses of environmental indifference, market orientation, and neutralization theory, this study seeks to explain the determinants of managerial participation in FW reduction in the commercial food service industry.	Filimonau, V. et al (2022). [27]
7.	Behavioural approach to food waste: an experiment	The authors observe consumers' intentions to reduce food waste as well as actual food waste at a local restaurant offering ready meals. Consumers are exposed to an information campaign during the intervention time in order to prevent the problem of insufficient planning. More frequently than before the promotion, consumers are ready to pay the same price for less food, although the estimated impact on food waste is negligible. The social feelings of guilt and shame are	Jagau, H.L. & Vyrastekova, J. (2017). [28]



		connected to consumers' intent to reduce food waste, indicating channels to include in a successful information campaign urging people toward food waste reduction in restaurants.	
8.	An Exploratory Study of Consumer Food Waste Attitudes, Social Norms, Behavioural Intentions, and Restaurant Plate Waste Behaviours in Taiwan	The research explores the relationships between consumer attitudes, norms, intentions, and plate waste behaviours in Taiwan. A causal chain was created, with measurements of all these variables demonstrating a substantial mediation influence in the route of consumer attitudes, behavioural intention, food waste behaviour, and consumer plate waste. This study explains how behavioural intention and food waste behaviour moderate the link between consumer perceptions and plate wastage.	Huang, C. H. & Tseng, H. Y. (2020). [29]
9.	How the Extended Theory of Planned behaviour Can Be Applied in the Research of the Influencing Factors of Food Waste in Restaurants: Learning from Serbian Urban Centers	The expanded theory of planned behaviour was used as a theoretical framework in this research to investigate consumer behaviour around food waste. Primarily, the evidence indicating perceived behavioural control has the highest influence on the desire to avoid food wastage. This inspires managers to educate consumers that they may control the amount of food they order or leave on their plates.	Blesic, I. et al (2021). [30]
10.	To be ethical or to be good? The impact of good providers and moral norms on food waste decisions of two countries.	To understand the causes of family food waste decisions, this study investigates the activation and deactivation of moral norms and proposes the concept of the 'good provider' in an expanded norm-activation model (NAM). Individualistic culture inhibits attempts to prevent food waste, most commonly to provide for the immediate family, which may be a cause that exceeds moral concern about food loss. Singaporeans' food waste intentions are not repressed by 'good provider' criteria, most likely due to a long-term-oriented culture's emphasis on thrift. The paper significantly extends previous research on norms, culture, and sustainable consumption, as well as presenting policy and practical implications for decreasing food waste in different cultural contexts.	Wang, P. et al (2021). [31]
11.	Understanding the antecedents of consumers attitudes toward doggy bags in restaurants: concern about food waste, culture norms and emotions.	The aim of this research is to learn more about how consumers' concerns about food waste, culture, social norms, and emotions influence their views and behaviours toward doggy bags. The findings emphasize a twin paradox of contradicting norms and emotions: personal standards advocate not wasting but prominent societal norms support leaving leftovers; asking for a doggie bag evokes immediate	Sirieux, L. et al (2017). [32]

		humiliation while leaving leftovers generates anticipated regret and guilt. The paper also discusses challenges that must be solved before this social innovation may be adopted.	
12.	Extending Value Belief and Norm Theory with Social Identity for preventing food waste in restaurants.	The goal of the research is to look into the role of value, belief, norm, and identity as risk factors for waste, especially plate leftovers in restaurants. Value-belief norm (VBN) theory and social identity theory were used to achieve this. The findings of the study indicate that attitude toward minimising food waste is mostly predicted by pro-environmental identification. Additionally, it was seen that belief- and norm-oriented components had a stunning impact on pro-environmental value, which was demonstrated to improve in both attitude and intention toward minimising food waste. Pro-environmental values appeared to strengthen environmental standards, which appeared to forecast both attitudes and behavioural intentions toward minimising food waste in a restaurant setting.	Ozekici, Y. K. (2022). [33]

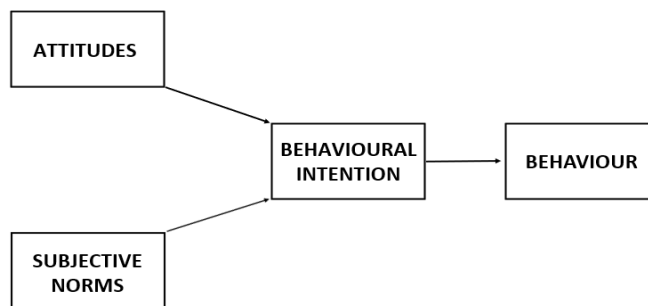
**3.2 Analysis through Model Review and Focus Group Interaction:**

The consumer intention and behaviour concept is explained by a number of theories, and the current study analysed seven models to identify the factors that need to be investigated further. These include the following:

**3.2.1 Theory of Reasoned Action (TRA):**

Martin Fishbein and Icek Ajzen first proposed the theory of reasoned action in 1967 (Ajzen, I. et al (1986). [34]). This hypothesis, which is based on the previously established expectancy value model, is regarded as one of the most significant models for explaining volitional behaviours. One of the attitude theories used to study the connection between behaviour and attitude is the TRA. Several attitude theories suggest that attitudes towards a certain conduct are what often motivates actions (Conner, M. et al (2005). [35]). This hypothesis, like many other theories of attitude, assumes that a purposeful consideration of behavioural beliefs and their long-term effects occurs before the activity. This idea contends that logical cognition precedes any action, in other words, before any conduct occurs (Ajzen, I. et al (1999). [36]). Several factors are carefully considered throughout this process, including the numerous alternatives accessible, the consequences and effects of the decision taken, etc. Eventually, a choice is chosen after this rigorous process. According to this view, behavioural intention serves as the ultimate motivating factor for conduct and determines how people behave (Bagozzi, R. P. (1992). [37]). The motivations underlying the conduct, though it appeared to be one, are several. In a metaphorical sense, action just represents the tip of the iceberg; the main portion of the iceberg, which is the aim, remains hidden under the surface (Tolfo, C. et al (2011). [38]). Several studies show that when there is a strategy in place for how to translate the intention into conduct, the association between intention and behaviour is considerably stronger (Sheeran, P. et al (2016). [39]). For instance, I would plan out and organise the procedure before placing an order if I wanted to prevent wasting food. I would plan my meals in advance, among other things.

The idea of behavioural intention is crucial to this theory since it influences how people behave. According to this hypothesis, a person is more inclined to exert greater effort to carry out a behaviour, which will inevitably lead to the activity's success (Pajares, F. et al (2001). [40]).



**Fig. 1:** Theory of Reasoned Action (1975) (Tsai, M. T. et al (2010). [41])

Belief, attitude, subjective norms, and intention are the four fundamental concepts in the Theory of Reasoned Action (Tsai, M. T. et al (2010). [41]):

- (1) **Belief (B):** Belief is the likelihood that something possesses a particular quality. This phrase is frequently used to describe someone who believes that a certain action or conduct will have consequences.
- (2) **Attitudes toward the behaviour (AB):** The term "attitudes" towards the conduct refers to one's ideas and convictions regarding the nature of the behaviour's consequences. An action is likely to be taken based on whether the attitude and its consequences are favourable or unfavourable. Attitudes are our favourable or negative evaluations of a certain conduct – whether someone believes the behaviour is a good or poor idea, or if it will result in results that they personally value (Asiegbu, I. F. et al (2012). [42]). The key tenet of this approach is that beliefs influence attitudes. The total of the belief strength times the result evaluation for each person's individual beliefs equals their attitudes.
- (3) **Subjective Norms (SN):** Subjective norms are the consequences of the behaviour on society. Subjective norms are a result of a society's normative views and the urge for individuals to comply with each key person in their lives (Rivis, A. et al (2003). [43]). In essence, it deals with social perceptions of various behaviours and whether or not other people would find them tolerable. Social appropriateness is also important to comprehend in order to gauge the likelihood of behaviour (Durlak, J. A. et al (2010). [44]). These significant others may be someone's friends, children, family, or trainer, for example. These individuals each possess the following two psychological values:
  - (a) **Normative Belief (NB):** The degree to which one believes that the other person wants them to do something. Whether or if someone accepts information, they hear about someone from another person, for instance. The significant other of one person may not agree with what they believe, whereas the significant other of another person may believe they do (Gockeritz, S. et al (2010). [45]).
  - (b) **Motivation to comply (MC):** It is the term for a person's desire to follow instructions from their significant other (MC). An individual could, for instance, have a tendency to reject their family's requests (Miniard, P. W. et al (1981). [46]).
- (4) **Behavioural Intention (BI):** The preparedness to carry out a behaviour is referred to as the intention. This explains how likely someone believes they are to carry out a particular conduct. Behavioural intention refers to a person's capacity or ability to intend to engage in a behaviour. It has been demonstrated that the Intentions may predict behaviour. Rather, it is believed that attitudes and behavioural standards play a part in how it functions (De Vries, H. et al (1988). [47]).

The researchers of this theory developed a simple formula, which is:

$$BI = (AB)W_1 + (SN)W_2$$

Where, BI = Behavioural Intention.

AB = One's attitude toward performing the behaviour.

W = Empirically derived weights.

SN = One's subjective norm related to performing the behaviour.

W1 = Denotes the individual's control over his/her attitude.



$W_2$  = Denotes the weightage of attitude exerted upon other persons regarding the situation and context.

### Limitations of TRA Theory:

Although this theory represents a great advance in our comprehension of how attitudes influence behaviour, it has certain limitations that limit its applicability. Several theorists disagree with this theory because they believe it places too much emphasis on a behaviour's intentions. They argue that behaviours are preceded by mechanisms that are not always aware, such as intents and plans (Kremers, S. P. et al (2006). [48]). Under these circumstances, the importance of purpose is irrelevant because certain behaviours are the product of impulsivity and spontaneity. Moreover, the context is not taken into consideration by this hypothesis. So, this concept may only be supported by purposeful and well-planned acts. Further investigation reveals that while this hypothesis may up to a degree accurately anticipate actions, it doesn't go very far.

There are certain limitations on the theory of reasoned action. One of these is a substantial danger of confusion between attitudes and norms. This occurs because norms and attitudes are frequently reframed, respectively (Shin, D. H. (2013). [49]). For instance, a person who believes that their attitude is positive may just be reflecting the opinion of important friends, family, health professionals, and social media influencers.

### 3.2.2 Theory of Planned Behaviour (TPB):

The theory of planned behaviour is an extension of the theory of reasoned action which Fishbein and Ajzen developed in the 1980s, makes assumptions regarding the connection between behaviour and intentions. A psychological theory that connects ideas and conduct is known as the theory of planned behaviour (TPB) (Andrew Smith, R. et al (1999). [50]).

According to the idea, an individual's behavioural intentions are shaped by three fundamental factors: attitude, subjective norms, and perceived behavioural control (Ham, M. et al (2015). [51]). The most proximal predictor of human social behaviour, in turn, is behavioural intention, which is a core principle of TPB. This theory comes to the conclusion that attitudes and beliefs have a big impact on behaviour. It was Ajzen's concept to include perceived behavioural control into TPB (Ajzen, I. (2012). [52]). The TRA does not include perceived behavioural control. TPB has been used in research on the relationships between attitudes, intentions, and behaviours in a variety of human domains. Advertising, public relations, advertising campaigns, healthcare, sport management, and sustainability are just a few examples (Chopra, A. et al (2021). [53]).

People's activities are primarily motivated by a cognitive process in which they weigh their views about the behaviour and the consequence (Bandura, A. (1978). [54]). They are far more likely to engage in the behaviour if they have a good attitude on it and believe that it will result in favourable consequences. Two factors that determine intents were postulated by TRA. TPB (Han, H. et al (2010). [55]), however, takes a step further and adds yet another significant variable (Perugini, M. et al (2001). [56]), which strengthens and increases the validity and reliability of the theory (Graham-Rowe, E. et al (2015). [57]). The third TPB factor is perceived behavioural control, which relates to how much control a person has over a behaviour. With this inclusion, the theory has become more comprehensive, more relevant, and better at making predictions, especially in the field of health research (Ajzen, I. (2020). [58]).

The following mathematical function can be used to express behavioural intention in the theory of planned behaviour:

$$BI = w_A A + w_{SN} SN + w_{PBC} PBC$$

The three variables, which are related to their basic assumptions:

$$A \propto \sum_{i=1}^n b_i e_i$$

$$SN \propto \sum_{i=1}^n n_i m_i$$

$$PBC \propto \sum_{i=1}^n c_i p_i$$

Where, BI = Behavioural intention

A = Attitude toward behaviour

B = the strength of each belief concerning an outcome or attribute

E = the evaluation of the outcome or attribute

SN = Subjective norm

N = strength of each normative belief of each referent

M = the motivation to comply with the referent

PBC = Perceived Behavioural Control

C = the strength of each control belief

P = the perceived power of the control factor

w = empirically derived weight/coefficient

Perceived behavioural control can be combined with intention to predict behaviour to the extent that it accurately reflects real behavioural control.

$$B = w_{BI} BI + w_{PBC} PBC$$

Where, B = Behaviour

BI = Behavioural intention

PBC = Perceived Behavioural Control

C = the strength of each control belief

P = the perceived power of the control factor

w = empirically derived weight/coefficient

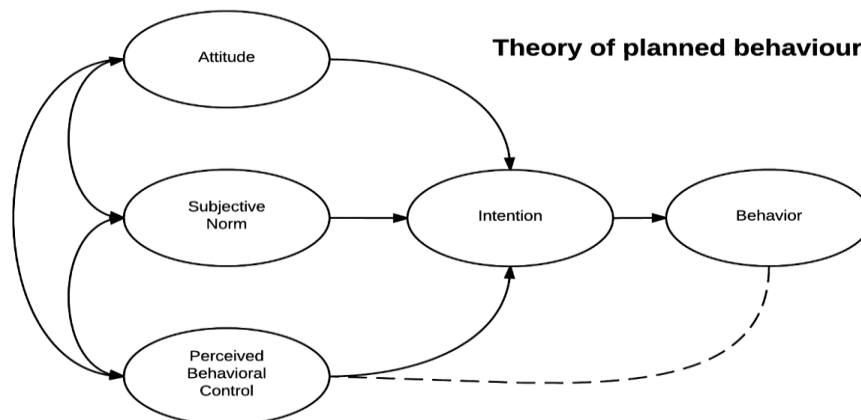


Fig. 2: Theory of Planned Behaviour (TPB) (Andrew Smith, R. et al (1999). [50])

### Limitations of TPB Theory:

Several researchers have lately criticised the idea for ignoring the individual's requirements before to participating in a particular activity, needs that would affect conduct regardless of expressed attitudes. For instance, a person could be enthusiastic about eating burgers but decide not to order one because she is not hungry. Another possibility is that a person who has a negative view of drinking and has no plans to drink yet partakes in it out of a desire to fit in with the group.

Another drawback is that TPB does not take into account how emotions affect a person's intention-setting and decision-making mechanisms. Moreover, studies generally make up the majority of the TPB research. It would be useful to get further data from randomised tests. Several experimental research question the idea that attitudes, social norms, and perceived behavioural control all influence intentions and behaviour. As an example, participants to decide whether they would sign a petition to support a certain environmental group. As soon as this goal emerged, attitudes, social mores, and perceptions of behavioural control changed. The likelihood of participants reporting favourable sentiments about this

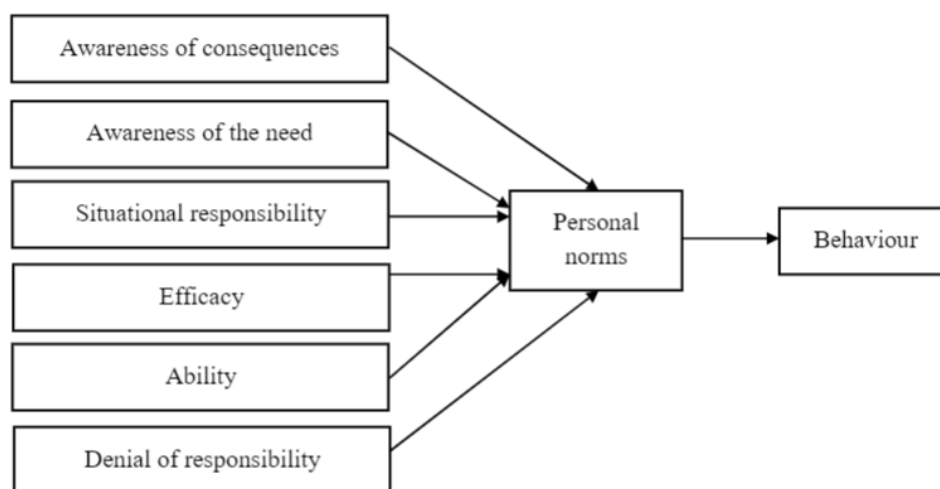
organisation increased, as did their propensity to believe that other members of their social group had similar opinions. These results suggest that there may be a reciprocal relationship between the three essential variables of attitudes, social norms, and perceived behavioural control and intents.

**3.2.3 Norm Activation Theory (NAT):**

In order to explain how activators, personal norms, and behaviour are related, created the Norm-activation Theory (NAT) (Harland, P. et al (2007). [59]). NAT was first used to explain pro-environmental conduct, but it was later expanded to cover all altruistic pro-social behaviour (Zhou, H. et al (2019). [60]). In order to anticipate pro-social behaviour, the NAM offers three different sorts of antecedents (i.e., awareness of consequences, ascription of responsibility, and personal norm) (Han, H. et al (2016). [61]). According to this idea, an individual's knowledge of potential negative effects and admission of responsibility for not taking environmental action are the first steps in the norm activation process. People act in accordance with their own standards of behaviour due to the expected pride and remorse (Schapke, N. et al (2014). [62]). The investigation supported the idea that pride and guilt have a self-regulatory role, and that these emotions act as a mediator between personal norms and behaviour. Although in the combined NAM-TPB model, expected emotions impacted behaviour via behavioural intentions, these correlations persisted after the Theory of Planned Behaviour was incorporated into the NAM (Onwezen, M. C. et al (2013). [63]). It is also frequently used to explain moral decision-making in general, including pro-environmental behaviour (Li, Q. C. et al (2019). [64]). The core tenet of NAT (Antes, H. (2020). [65]), is that pro-social conduct is affected by the activation of individually held moral norms (Liebe, U. (2010). [66]). The term "personal norms" refers to a process in which people establish self-expectations for pro-social conduct. Personal norms are emotions of moral responsibility or duty to act pro-socially, and they have a significant impact on behaviour, according to NAT (Han, H. et al (2017). [67]).

The person first recognises an issue with the environment and makes a connection between it and his or her own conduct during a norm activation. At this stage, consideration is also given to how one's own actions may have contributed to the issue (consequences of action). Moreover, the individual and societal costs of action are tightly related (not necessarily of judicial nature). At the evaluation phase, a person compares their perception of the environmental issue, appraisal of their behavioural options based on their assessment of their capacity to influence others, and motivation. Personal and societal standards, as well as peer expectations ("significant others"), comprise the latter (Lindenberg, S. et al (2007). [68]). A choice is made for a certain conduct after the person weighs possibilities within this cost-benefit analysis. More consideration must be given to each person's maturational processes and level of moral development. When compared to adults, who exhibit a complex set of social and environmental norms, young adolescents, for instance, may be more reliant on specific viewpoints held by members of their peer group (Hansson, S. O. (2007). [69]).

The activation of personal standards, however, is insufficient for pro-social conduct since it is possible to neutralise them by downplaying the effects of one's actions on others or by downplaying the obligation to act (Esfandiar, K. et al (2019). [70]).



**Fig. 3:** Norm Activation Theory (1977) (Harland, P. et al (2007). [59])

Four situational elements (awareness of need, situational accountability, effectiveness, and capacity) and two personality characteristic activators make up the norm activation process (awareness of consequences and denial of responsibility) (Andic, D. et al (2017). [71]). Many pro-environmental activities, which may be divided into two groups of behaviours, can be explained using norm-activation theory (Gifford, R. et al (2014). [72]). The first category includes actions like buying environmentally friendly gasoline, conserving household energy (Lehman, P. K. et al (2004). [73]), or recycling, while the second category includes actions that support environmental protection (McKenzie-Mohr, D. et al (1995). [74]), like signing a petition for better environmental protection regulations or being willing to pay higher taxes for environmental protection (Handfield, R. et al (2002). [75]).

### 3.2.4 Behavioural Reasoning Theory (BRT):

The wide behavioural reasoning theory may be applied to understand the motivations driving human conduct (Westaby, J. D. (2005). [76]). This theory contends that global motives, including attitudes, subjective norms, perceived control, and reasons, as well as intents, all explain action, while beliefs and values also influence reasons (Armitage, C. J. (1999). [77]). Reasons also become stronger once behaviour is executed, often through post-decision dissonance and rationalization processes (Cohen, J. B. et al (1970). [78]).

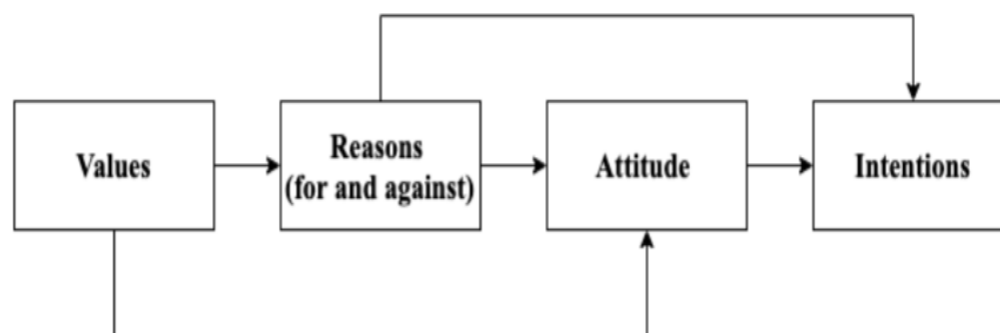


Fig. 4: Behavioural Reasoning Theory (BRT) (Westaby, J. D. (2005). [76])

#### Assumptions of Behavioural Reasoning Theory:

- (1) According to the idea, reasons have an effect on individuals' overall intentions and motives because they enable people to defend and explain their acts, hence, for instance, enhancing and defending their sense of self-worth. Moreover, by offering individuals causal justifications for their own conduct, other people's behaviour, and causal links in their environment, reasons can "assist individuals make sense of their reality."
- (2) Individuals frequently look for behavioural possibilities in their memories that are supported by the most compelling arguments. Decisions and intents may be carried out more confidently after those possibilities have been established.
- (3) Not all values and beliefs end up guiding your actions.
- (4) In some circumstances, incentives can act independently of one another to influence overall intentions. Context-specific factors are therefore believed to be significant proximal drivers of human behaviour in a variety of circumstances.
- (5) These explanations may also reflect the many objectives someone may be pursuing through their actions.
- (6) To explain motives and conduct, reasons alone are insufficient. Global motives of individuals, such as attitudes, norms, and perceived control, can also have independent impacts that cannot be explained by explanations. In light of this, it is possible that there are additional motivations at play that the individual is unaware of when they publicly state the reasons why they behaved in a certain way.
- (7) Automated processing may miss some explanations (such as stimulus-response or implicit/subconscious elements).
- (8) Successful interventions can have a significant impact on people's intentions and behaviours by successfully addressing both their general motives and particular causes.
- (9) Individuals frequently defend their actions after the fact, which helps strengthen and maintain behavioural commitment.

### 3.2.5 Value-Belief-Norms Theory (VBN):

Stern (2000) developed what is known as the Value-Beliefs-Norm Theory (VBN Theory). A development of the norm-activation theory is shown by this model. This value-belief-norm theory was first intended to explain altruistic conduct, but it has been specifically expanded to pro-environmental behaviour (Stern, P. C. (2000). [79]). In accordance with earlier theories such as value theory, norm-activation theory, and the new ecological paradigm. The research reports that personal norm is a crucial factor in bridging the value action gap as a moral duty and activating the actual behaviour in which human value orientation is adopted (Samarasinghe, R. (2012). [80]).

And values are divided into three constructs:

- (1) egoistic orientation, which is concerned with eradicating pain and harm from oneself;
- (2) altruistic orientation, which is concerned with social orientation; and
- (3) biospheric orientation, which is concerned with eradicating suffering and harm in the non-human world.

Personal norms, or an internalised sense of responsibility to act in a particular way, might influence an individual's choice about doing pro-environmental acts for those behaviours that are not heavily limited by contextual pressures (Hynes, N. et al (2016). [81]). Norms are brought into play when someone feels that breaking them would have a negative impact on the things they value and that, if they did so, they would be mostly responsible for the results. Environmental ideas have roots in personal values, such as altruistic and egoistic ideals (Svensson, G. et al (2008). [82]).

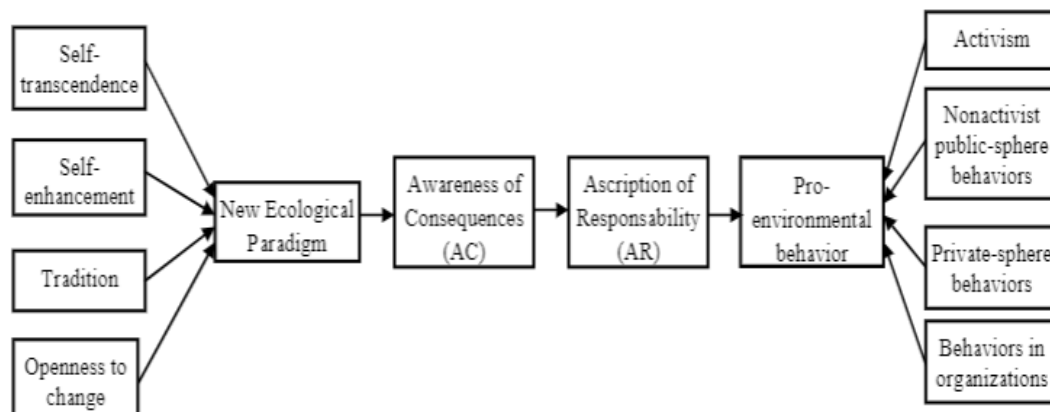


Fig. 5: Value-Belief-Norms Theory (VBN) (Stern, P. C. (2000). [79])

### 3.2.6 Social Influence Theory (SIT):

Social influence is the process through which people modify their conduct in response to societal pressures. It manifests in a variety of ways and may be observed in leadership, persuasion, sales, marketing, socialisation, peer pressure, compliance, and conformity (Hu, X. et al (2019) [83]). Social influence often originates from a particular order, request, or action, but people also change their attitudes and actions in reaction to what they believe others may do or think. Harvard psychologist Herbert Kelman distinguished three major categories of social impact in 1958 (Kelman, H. C. (1958). [84].)

- (1) Compliance: Compliance occurs when someone pretends to agree with others while keeping their disagreeing thoughts concealed.
- (2) Identification: When individuals are affected by someone they like and respect, such as a renowned celebrity, this is referred to as identification.
- (3) Internalisation: When an idea or practice is internalised, individuals publicly and privately concur and embrace it.

The relative significance of the expected impact, the relative strength of the influencing agent, and the prepotency of the induced response may all be used to illustrate each of the three processes. These factors are fundamentally distinct for each activity, though. Because of this, each process generates a unique collection of antecedent conditions, and each process also generates a unique set of subsequent conditions (Kelman, H. C. (1961). [85]). The impact of social influence on the adoption and use of information systems (IS) has been thoroughly researched since social influence may affect a person's



attitudes, beliefs, and behaviours (Hsu, C. L. et al (2004). [86]). However, it is argued that the early thinking on the adoption and usage of IS focused on the perspective of social normative compliance (Harrison, D. A. et al (1997). [87]), and ignored the identification and internalisation processes of social influence (Venkatesh, V. et al (2000). [88]). The argument portrays the operationalization of social influence that stresses compliance most frequently is the subjective norm (Li, C. Y. (2013). [89]), which is the dominant conceptualization of social influence. Many behavioural theories, like the theory of planned behaviour (TPB) and the theory of reasoned action (TRA) (Singh, N. et al (2020). [90]), hypothesise subjective norm (Chou, C. H. et al (2015). [91]). Other researchers make an effort to bring the perspectives of all three social influence processes (Turner, J. C. et al (1986). [92]), to provide an integrated impact of them because they recognise that only one aspect of social influence, compliance (Lu, J. et al (2005). [93]), may not accurately predict the relationship between the system users' beliefs and behaviours and IS use (Abrams, D. et al (1990). [94]).

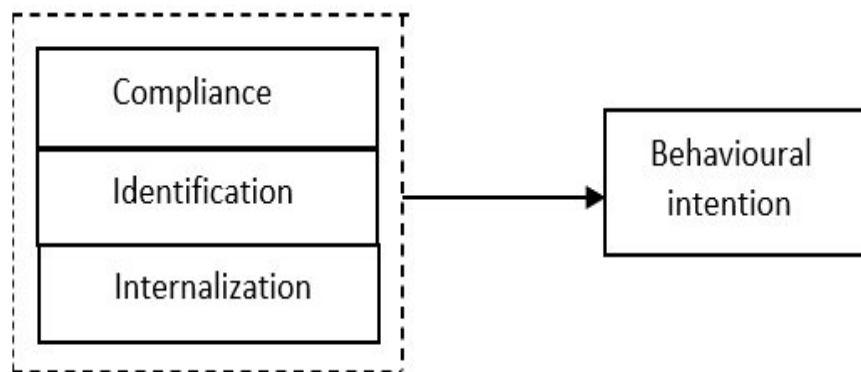


Fig. 6: Social Influence Theory (SIT) (Turner, J. C. et al (1986). [92])

Morton Deutsch and Harold Gerard identified two psychological requirements that push people to live up to others' expectations. They include our want to be likeable and our desire to be correct (informational social influence) (normative social influence). Informational influence, also known as social proof, is the tendency to take another person's word for something as proof that it is true. When people are uncertain, either because inputs are inherently ambiguous or because there is social conflict (Guimond, S. (1997). [96]), informational influence comes into play. Normative influence is the tendency to live up to other people's high standards. According to Kelman's typology (Kelman, H. C. (2006). [95]), informational influence leads to private acceptance whereas normative impact results in public obedience (Bafandeh Zendeh, A. et al (2017). [97]).

### 3.2.7 Miniard and Cohen Model (1983):

According to the Miniard and Cohen (1983) paradigm, one's personal views should be the only thing that informational impact manifests, and normative ideas about action should be unconnected (Hallahan, K. (1999). [98]). They argue that the views of others frequently serve as a significant source of information about one's surroundings, drawing on prior social psychology research. The trustworthiness of the information's source determines whether it will be accepted, and actions taken in response to this information are not reliant on how obvious or well-known they are to the referent (Mutz, D. C. (1992). [99]). On the other hand, the normative properties of MCM are limited to the normative power of a referent. The desire to get a reward or avoid a penalty from referents to whom the conduct would be known or visible is directly connected to an individual's normatively motivated behaviours. The model distinguishes these two impacts theoretically and experimentally. Fundamentally, MCM was created to depict the distinct impacts of normative and personal influence for elucidating intention and predicting BI. The following are the main equations in MCM (Eames, M. et al (2010). [100]).

$$\text{Behaviour} \sim \text{BI}(w_1) \quad \text{----- (1)}$$

$$\text{BI} = \text{IPCPE}(w_1) + \text{NPCNE}(w_2) \quad \text{----- (2)}$$

Both IPCPE and NPCNE are global assessments of conduct that are purely based on personal or normative considerations. The same rules apply in Miniard and Cohen (MCM) and the Theory of Reasoned Action (TORA) for behaviour, Behavioural Intention (BI), and wis. A high degree of validity for BI prediction has been demonstrated using MCM tests. It was really demonstrated that MCM

predicted both BI and TORA (Netemeyer, R. G. et al (1992). [101]). Moreover, studies have shown that MCM can detect the relative importance of personal and normative characteristics in the context of BI explanation (Bearden, W. O. et al (1990). [102]). These findings validate the diagnostic and prescriptive abilities of MCM. The analysis of the three models that came before it implies that TORA and MCM should have equivalent validity for BI prediction. Hence, for BI prediction, the explained variance estimates for TORA and MCM should be about identical. It is anticipated that TOPB would explain more variance in BI than TORA or MCM for the same behavioural domain since the addition of Perceived Behavioural Control (PBC) should improve predictive capacity (Sheeran, P. et al (2003). [103]). The previous review implies that MCM will more properly reflect the different impacts of its components than will TORA or TOPB in terms of successfully separating them. Hence, compared to the Aact-SN correlation of TORA and TOPB, the IPCPE-NPCNE correlation of MCM should be much smaller.

#### **4. ANALYSIS OF PREVIOUS THEORIES AND FOCUS GROUP INTERACTION :**

##### **4.1 Analysis of Previous Theories:**

The consumers intention and behaviour in relation to the phenomenon of food waste is affected by several factors in all the previous concepts developed. The analysis of the effective variables suited for the study was taken into consideration for the development of the further conceptual model. Furthermore, in this study, it was investigated that the main factors taken from different theories for the development of conceptual model were able to explain the intention to reduce consumer food waste. The postulates considered were strongly relied from the Theory of Reasoned Action (TRA). Several constructs from the theoretical concepts that appeared to be significant in understanding consumers' intentions and behaviour were identified. Overall, the analyses revealed that the TRA theory explained the consumer's intention to reduce food waste behaviour in restaurants quite effectively.

##### **(1) Consumer Behavioural Intention in relation to Attitudes:**

Attitude is a complete assessment of an individual's positive or negative cognition about a certain behaviour. It has been demonstrated that when an individual has a good attitude and the others around him or her agree with his or her behaviour, the individual is more motivated and feels more strongly encouraged to act. Negative attitudes and conflicts, on the other hand, will lead to a decreased intention and motivation to act. The extent to which an individual has a favourable or unfavourable appraisal of the behaviour is referred to as attitude. According to the previous literatures, negative attitudes about food waste, such as feeling awful or guilty about wasting food, have an important effect on consumer intention to not waste food.

##### **(2) Consumer Behavioural Intention in relation to Subjective Norms:**

Subjective norms have been shown to play a substantial impact in determining attitudes towards waste management. Subjective norms are the effects of one's surroundings on one's behaviour. Individuals should aspire to waste less food if other members of their personal networks disapprove of their food wasting behaviours.

##### **(3) Consumer Behavioural Intention in Relation to Environmental Concern:**

Pollution and a lack of natural resources have given birth to the formation of a distinct segment of consumers who are environmentally conscious. People who have a high level of environmental and social consciousness in relation to food waste are more likely to engage in this behaviour. According to the detailed investigation made in the previous studies, the larger the amount of worry about the food waste issue, the greater the intention to minimise waste at any level.

##### **(4) Consumer Behavioural Intention in relation to Awareness:**

Consumer intentions to reduce food waste are influenced by consumers' awareness of the amount and type of food they waste, as well as the economic and environmental ramifications. Consumers who are more aware of the negative impact of waste are more inclined to decrease food waste.

##### **4.2 Outcome of Earlier Models:**

Consumers' intentions to minimise food waste are impacted by their understanding of the amount and type of food they waste, as well as the economic and environmental consequences. Consumers who are more aware of the harmful effects of waste are far more inclined to reduce food waste. As per the

previous conceptual models, the consumers' intentions to reduce food waste are driven by consumers' attitudes, subjective norms, environmental concern and awareness of the negative impact of wasting food on the environment, society and economy. All earlier models did not prioritise food quality and didn't deem it a crucial component. The current study, on the other hand, focuses on food quality issues by considering all the sub variables such as menu, pricing, food flavour, appearance, portion size etc., as these factors also affect consumers' behavioural intention towards food waste in restaurants. As a result, improvements to the present model are much required, as well as the construction of a new conceptual model shall be considered.

#### **4.3 Focus Group Interaction and its Outcome:**

Focus group discussion method was used to better understand the theoretical concepts utilised by social and behavioural researchers that are relevant to the present research. This technique was primarily used to identify suitable consumer behaviour theories that may be used to the research pertaining to consumers' intentions towards plate waste reduction in restaurants and to construct a conceptual model. This approach involves one-on-one interviews with ten research specialists who were chosen because they have particular traits related to the topic of the focus group. Qualitative data was obtained, and it was determined that the Theory of Reasoned Action (TRA) can be beneficial in the development of a conceptual model since it has a significant impact or influence on behavioural intention.

#### **5. DEVELOPMENT OF CONCEPTUAL MODEL BASED ON RESEARCH ISSUE :**

By analyzing several consumer intention models and focus group discussions, the following postulates are created:

- P<sub>01</sub>: Consumers Intention is dependent on Attitude.
- P<sub>02</sub>: Consumers Intention is dependent on Environmental Concern.
- P<sub>03</sub>: Consumers Intention is dependent on Awareness.
- P<sub>04</sub>: Consumers Intention is dependent on Quality of Food.
- P<sub>05</sub>: Consumers Intention is dependent on Subjective Norms.
- P<sub>06</sub>: Consumers Intention is dependent on Mitigation of Plate Waste Behaviour.
- P<sub>07</sub>: Mitigation of Plate Waste Behaviour is dependent on Attitude.
- P<sub>08</sub>: Mitigation of Plate Waste Behaviour is dependent on Environmental Concern.
- P<sub>09</sub>: Mitigation of Plate Waste Behaviour is dependent on Awareness.
- P<sub>10</sub>: Mitigation of Plate Waste Behaviour is dependent on Quality of Food.
- P<sub>11</sub>: Mitigation of Plate Waste Behaviour is dependent on Subjective Norms.
- P<sub>12</sub>: Consumer Intention mediates the relationship between Attitude and Mitigation of Plate Waste Behaviour.
- P<sub>13</sub>: Consumers Intention mediates the relationship between Environmental Concern and Mitigation of Plate Waste Behaviour.
- P<sub>14</sub>: Consumers Intention mediates the relationship Awareness and Mitigation of Plate Waste Behaviour.
- P<sub>15</sub>: Consumers Intention mediates the relationship Quality of Food and Mitigation of Plate Waste Behaviour.
- P<sub>16</sub>: Consumers Intention mediates the relationship Subjective Norms and Mitigation of Plate Waste Behaviour.

The following are the various aspects influencing the proposed conceptual framework:

The conceptual model that is suggested, based on the study's postulates, is shown in Figure 7.

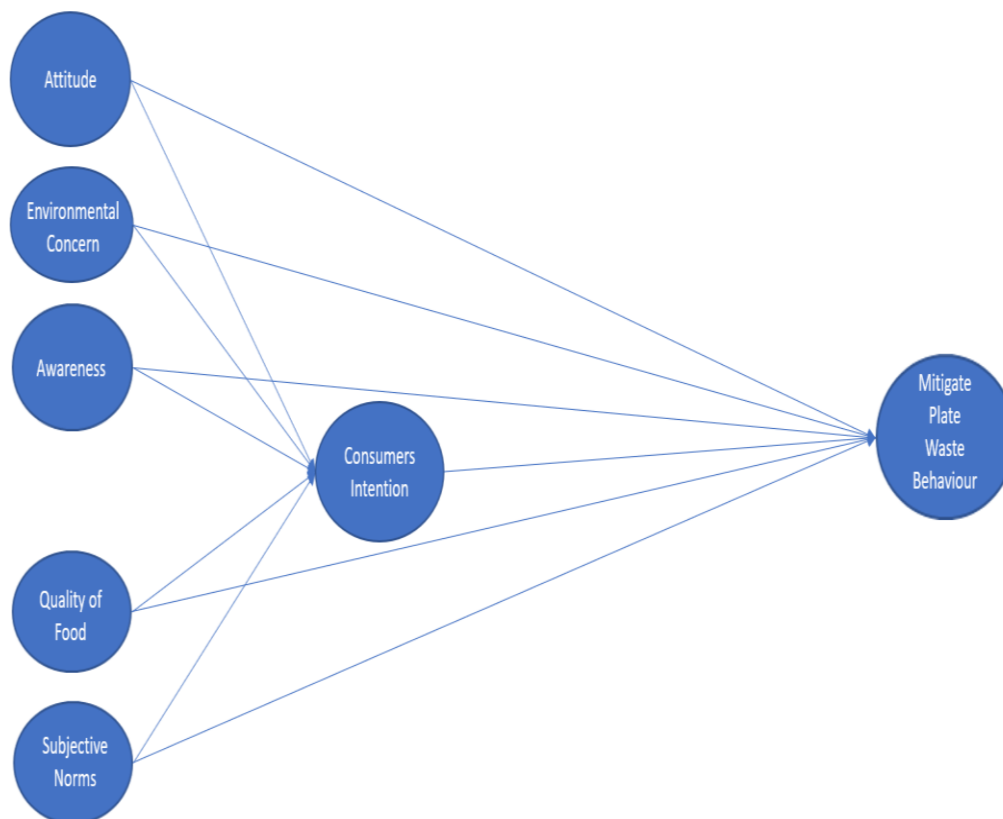


Fig. 7: Proposed Conceptual Model

Source: Author

### 5.1 Attitude:

Attitude is defined by Schiffman, et al. (2010), “in a consumer behaviour background, attitude is a learned predisposition to behave in a consistently favourable or unfavourable way with respect to a given object” (Frederick, D. P. et al (2022). [104]). It was suggested that attitudes could be learned and may affect consumers' purchase decisions while emphasizing particular marketing or consumption principles (Zhang, K. Z. et al (2014). [105]). They emerge as direct contact with the product, information learned from others, the internet, advertisements, etc (Stephen, A. (2015). [106]). The quality of attitude is dependable, constant, and consistent with the behaviour they portray (Kedah, Z. (2015). [107]). A purchase determines consumer attitudes (Bilgihan, A. et al (2016) [108]), towards purchasing things (Jarvenpaa, S. L. et al (1996). [109]), “preferences, demography, lifestyle, and perceptions of value” (Bourlakis, M. et al. (2008) [110]), (Grunert, K. G. et al (2005). [111]). According to Attiq (Attiq, S. et al (2021). [112]), there are affective qualities that can influence behaviour and form attitudes but are less well-known (Farah, M. F. et al (2022). [113]). However, there is evidence to support the role of emotional components in influencing consumers' intentions to minimise food waste (Byrne, G. et al (2016). [114]). One of the researches distinguishes between positive and negative emotions when looking at how attitudes and intentions of consumers towards food waste are influenced (Freeman, B. et al (2014). [115]), it is considered as rare (Park, E. et al (2014). [116]). In one of the studies, will and attitude were both considered to influence behaviour in different ways. Based on this statement, the researchers have investigated whether or not intentions to reduce food waste will have an impact on behaviour, as well as how the important component of attitude in minimising food waste will result in actions that have the goal of reducing food waste. Therefore, the following hypotheses are proposed.

Hypothesis 1: There is a significant relationship between Consumer Attitude and Consumer Intention

### 5.2 Environmental Concern:

Resource wastage gravely endangers humanity. The goal of permanently changing people's environmentally detrimental behaviour has not yet been totally successful. This makes it essential to

comprehend the mechanisms driving people's pro-environmental behaviour (Coelho, F. et al (2017). [117]). People's attitudes, intentions, and behaviours towards the environment all indicate environmental concern. According to studies by Eilam and Trop (2012) and others, environmental concern has been directly linked to pro-environmental attitudes and behavioural intentions. It's still not apparent how to explain the rise of environmental concern and how it affects consumer behaviour, despite the fact that research on environmental concern as a factor in consumer purchasing behaviour began in the early 1970s (Eilam, E. et al (2012). [118]). Environmental concerns have been demonstrated to influence intentions to behave responsibly as well as ecologically responsible behaviours. By taking into account both general information and methods that increase the possibility of resolving ecological problems were empirically shown a positive correlation between environmental concern and behavioural intentions. On the other hand, Vicente-Molina et al. (2013) discovered that concern for the environment was a strong predictor of pro-environmental intentions and behaviours (Wu, J. et al (2019). [119]). Moreover, it was noted that a correlation between people's aspirations to minimise waste and their understanding of environmental effects. Food loss is also commonly caused by a lack of understanding or inadequate management of production and transportation circumstances, according to academics (Visschers, V. H. et al (2016). [120]). Environmental knowledge, on the other hand, was discovered by Vicente-Molina et al. (2013) [121] to be a strong predictor of pro-environmental intents and behaviours. Environmental concern and intention have a positive association that has been established in consumer behaviour. The presented evidence that consumer propensity (Klabi, F. et al (2023). [122]), to make green buying behaviour (Ishak, I. et al (2023). [123]), factors were considerably and positively impacted by environmental consciousness. Also, other researchers examined the relationship between the aim to prevent food waste and environmental care (Zheng, G. W. et al (2020). [124]). In order to change their food waste behaviours, consumers are looking for understanding of the social, economic, and environmental influences as well as their links to recycling and waste. Despite the fact that consumers may be morally conscious of the consequences on the environment, (Ramayah, T. et al (2010). [125]), hypothesise that this lack of duty may be the cause of the inconsistent behaviour (Patel, J. et al (2017). [126]). Consumers' concerns about the environment may grow as their understanding grows (Palmieri, N. et al (2022). [127]). On the other hand, lack of environmental understanding (Buttlar, B. et al (2017). [128]), may prevent pro-environmental behaviour (Irwin, K. (2013). [129]), increasing the likelihood of making poor or ineffective judgements (Fu, L. et al (2017). [130]). Yet, it has been discovered that people proclaim such intentions more frequently than they perform in accordance with their claimed intentions, implying that the reasons for environmental concern differ from the reasons for environmentally friendly behaviour (Mostafa, M. M. (2007). [131]). Both psychographic (knowledge, attitudes, values, kind of motivation, prior behaviour) (Mehmetoglu, M. (2010). [132]), and socio-demographic (gender, age, education, political views) variables (Akehurst, G. et al (2012). [133]) have been found to reflect this on an individual level (Sharma, K. et al (2013). [134]). National cultures have been shown to have an impact on people's behaviour and attitudes regarding the environment. It may be predicted that has been proposed based on the following hypothesis:

Hypothesis 02: There is a significant relationship between Environmental concern and Consumer Intention.

Hypothesis 08: There is significant relationship between Environmental concern and Behaviour.

Hypothesis 13: Consumer Intention mediates the relationship between Environmental concern and Behaviour.

### 5.3 Awareness:

Understanding the potential consequences of one's actions is referred to as awareness (Carper, B. A. (1978). [135]). Being aware of the repercussions of a situation prompts a personal moral duty and subsequent good behaviour (Corsini, F. et al (2018). [136]). To be generalizable in the domain of food, awareness regarding food waste reduction has, however, provided mixed results in the context of pro-environmental behaviours (Attiq, S. et al (2021). [137]). Also, it was discovered that awareness (Afroz, R. et al (2020). [138]), of food waste mitigation (Attiq, S. et al (2021). [139]), was favourably related to behavioural goals (Mumtaz, S. et al (2022). [140]). Many gases that are harmful to the environment are being produced by food waste globally (Bajzelj, B. et al (2014). [141]). Over 1.5 gigatons of CO<sub>2</sub>



equivalent are emitted annually as a result of food loss in terms of greenhouse gas (GHG) emissions. Moreover, a number of other gases from food waste, including nitrogen N<sub>2</sub>, nitrous oxide N<sub>2</sub>O, nitrogen dioxide NO<sub>2</sub>, and ammonia NH<sub>3</sub>, are formed (Vitousek, P. M. et al (1997). [142]). At this point, socially responsible consumerism is only getting started (Richards, C. et al (2016). [143]). It is progressive, collectively accountable, and raising consumer awareness of environmental deterioration (Johnston, J. (2008). [144]). Also, consumers are becoming more well-informed and aware of environmental problems (Codron, J. M. et al (2006). [145]). An individual's understanding of the negative effects of their pro-social behaviour is known as awareness of effect (Iorio, R. et al (2017). [146]). Reduced food waste is a sort of eco-friendly behaviour with several advantageous socio-economic and environmental effects. Hence, consumer awareness of the repercussions of food waste relates to their understanding of the limitations associated with not preserving. According to research, personal norm can be directly impacted by knowledge of outcome (Chinea Montesdeoca, C. et al (2022). [147]). When someone feels responsible for the consequences of not acting in an environmentally friendly manner, they are said to be attributing responsibility (Bamberg, S. et al (2007). [148]). One of the research projects discovered a negative association between awareness of consequences and pro-environmental behaviour, although other researchers have demonstrated an indirect influence on recycling intentions. These contradicting findings offer a rationale for examining knowledge of consequences as a predictor of aspirations to reduce food waste. According to the research, reducing food waste can be accomplished by increasing public awareness of its negative effects (Principato, L. et al (2015). [149]). Campaigns to raise awareness, may also make consumers more aware to food waste and motivate them to adopt better food management techniques. Also, empirical findings have shown that consumers who are more aware of food security issues and the negative effects that food waste has on the environment and the economy would take measures that reduce food waste (Billore, S. et al (2021). [150]). Consumer awareness refers to how aware consumers are of their rights and their responsibilities in the economy while making judgements about what to consume. In specifically, consumer awareness is a multifaceted concept that includes market awareness, product selection, general consumer understanding (Mylan, J. et al (2016). [151]). Consumer awareness of environmental issues is rising as environmental information is becoming more widely available. An ethical consumer is one who is concerned about matters such as the environment, human rights, animal welfare, and working conditions in developing nations (Rasool, S. et al (2021). [152]). According to Royne (Royne, M. B. et al (2011). [153]), consumer concern for waste, the biosphere, wildlife, popular concerns, public health, energy, and environmental technology are elements that influence consumers' thoughts about making an environmentally friendly product decision. The authors found that consumers are prepared to pay extra for an ecologically friendly product (Wong, V. et al (1996). [154]), if they place a high priority on waste reduction (Gilg, A. et al (2005). [155]). Environmental, social, and economic consumer awareness towards sustainable consumption behaviour were the three key variables that were studied (Haron, S. A. et al (2005). [156]). Scholars have not, however, examined consumer awareness as a multidimensional construct for customer engagement in studies on socially responsible plate food consumption (Marbach, J. et al (2016). [157]). Instead, consumer awareness has been studied as a single variable (Haque, A. et al (2022). [158]), with studies on hunger awareness (Zahra, S. et al (2022). [159]) Sustainable, environmental awareness, economic awareness, awareness of landfills (Aschemann-Witzel, J. et al (2018). [160]). The degree of consumer awareness of environmental degradation is how environmental concerns are defined (Fraj-Andres, E. et al (2023). [161]). One of the main causes of environmental degradation is food waste. When consumers think about food waste's detrimental consequences (Khan, S. J. et al (2021). [162]), such as the major environmental and societal issues it generates, they develop ideas for what they can do to mitigate those consequences, which promotes the establishment of food-saving personal norms (Dhir, A. et al (2021). [163]). The general population is accountable for reducing food waste, and everyone is responsible for the harmful effects of food waste (Chen, H. S. et al (2018). [164]). That is, when individuals think they are responsible (Bortoleto, A. P. et al (2012). [165]), they are more inclined to take part in waste reduction behaviour (Cheema, S. et al (2020). [166]). To sum up, the following hypotheses are proposed:

Hypothesis 03: There is a significant relationship between Awareness and Consumer Intention

Hypothesis 09: There is a significant relationship between Awareness and Behaviour

Hypothesis 14: Consumer Intention mediates the relationship between Awareness and Behaviour

#### 5.4 Quality of Food :

Food quality is an important factor in meeting the demands and expectations of consumers (Savov, A. V. et al (2009). [167]). The restaurant business is heavily reliant on the quality of the food. To meet consumer needs, food quality is crucial. At a full-service restaurant, the single most crucial factor influencing client contentment and desire to complete food is food quality (Saad Andaleeb, S. et al (2006). [168]). As a fundamental element of the restaurant experience, food quality is emphasized. The most significant aspect in choosing a restaurant is the food, and consumer contentment is strongly correlated with food quality (Ha, J. et al (2010). [169]). Consumer evaluations of restaurants are based on the quality of the food, which has an impact on loyalty (Ha, J. et al (2010). [170]). Price of the food, flavour or taste, temperature, its appearance, colour, portion size, and menu diversity are all aspects of food quality. There are numerous food mechanisms that can be used to assess food-related qualities (Floros, J. D. et al (2010). [171]). According to some researchers, the quality of food items served is a key factor (Gaman, P. M. et al (1996). [172]), in determining whether or not customers have a satisfying experience (Jones, P. et al (2001). [173]). This quality is determined by the food's texture, taste, appearance, ripeness level, shape, colour, portion, aroma, and temperature (West, B. B. et al (2006). [174]). Food quality is a crucial requirement, according to Peri (Peri, C. (2006). [175]), to satisfy guests' needs. A wide range of food assessment factors are examined in earlier research because of how crucial food quality is to the food service sector. Researchers' definitions of food quality frequently include considerations for menu items, presentation, nutritional value, timeliness, flavour and temperature (Ajunanie, J. M. (2018). [176]). The warmth of the food is also clearly a visceral aspect of food quality. Moreover, it affects how food scent develops and thus influences other organoleptic qualities including smell, taste, and sight (Auvray, M. et al (2008). [177]). As a result, according to Kahkonen (Kahkonen, P. et al (1995). [178]), it is one of the essential components of arousing desire during a meal. According to a research study, there are seven factors that can be used to assess the quality of food, including the food's taste—whether it is salty, spicy, sweet, bitter, or sour—standard portion size, the food's texture—whether it is liquid or solid, dry or soft, colour, and temperature (Suher, J. et al (2021). [179]). Overall, their findings imply that consumers are savvy enough to recognise the veracity of health claims and that nutritional knowledge significantly affects consumers' purchasing decisions (Bond, C. A. et al (2008). [180]). The findings lead us to be fairly supportive of the positive relationship between restaurant healthy food quality and diners' intent to return. However, not all of the healthy food quality attributes proposed in this study have been subject to the investigation pertaining to repurchase intention (Namkung, Y. et al (2007). [181]). The investigated study reveals the distinct effects of six food quality components (presentation, variety, healthy alternatives, flavour, freshness, and temperature) on behavioural intention after discovering the beneficial benefit of food quality on customers' behavioural intention. They discovered that, after taste and presentation, healthy alternatives were the third crucial predictor of behavioural intention. Eight influencing variables for food choice among 18- to 30-year-old females were discovered by Mahony and Hall (O'Mahony, B. et al (2007). [182]): physical attractiveness, time, marketing, price, quality and flavour, culture, environment, and fillingness of food. Additionally, a study provides insight into the significance of healthy food quality attributes, particularly nutritional information. The cuisine is therefore the most important factor in having the ideal dining experience (Fungai, M. (2017). [183]).

**Menu:** One of the crucial factors that have to be taken into consideration while assessing menu performances is the quantity of plate waste. The framing of the menu that consumers see is one important factor that influences both food ordering and subsequent consumption and thus food waste (Chandon, P. et al (2012). [184]). A restaurant menu's variety of options, for instance, may influence the size of the food order and subsequent consumption, resulting in food waste (Block, L. G. et al (2016). [185]). In one such research, consumer behaviour in these kinds of environments is investigated using well-established psychological and behavioural economics theories (Foxall, G. R. (2001). [186]). The experimental methodology enables consumers to account for confounding variables such as social eating, environmental cues, menu aesthetics (colour, letter font, pictures, etc.), as well as food prices that may have interfered with the empirical evaluation of the impact of menu design on food choice and food waste in real settings. Plate waste, according to some experts, can be a crucial factor in determining how effective a menu is (Von Massow, M. et al (2015). [187]). The improvement of consumer experience and the quality of food service may both be facilitated by reducing on plate waste. According

to American Wasteland: How America Throws Away Almost Half of Its Food, restaurant and food service patrons often leave around 17% of the food on their plates, which gives a chance to impact food waste avoidance through service manner and menu design (and What We Can Do About It) (Blomberg, L. (2011). [188]).

By planning their menus with the prevention of food waste in mind, food service businesses may increase their bottom lines by reducing the amount of ingredients they use and repurposing some of the meals they would otherwise trash (Parizeau, K. et al (2015). [189]). Therefore, if the food items are offered in a variety of plate servings and flavour profiles, as well as the need for the food items listed on the menu to be customised, and in the end, satisfy each customer's taste preferences and enable them to make the appropriate decisions on their order thus preventing food waste because of the options available on the customised menu (Campbell-Smith, G. (1970). [190]).

**Price:** The cost of a good or service is its price. The ability of affordability of the consumer and the competitive pricing in relation to other items are two aspects that affect how people perceive prices (Kortmann, S. (2016). [191]). When quality and price fit expectations, consumers believe the value of food to be appropriate. Food consumption and waste reduction are directly impacted by food pricing. Those that are price concerned allegedly waste less food (Oh, H. (1999). [192]). One's notion of behavioural control and behavioural intention to prevent food waste are both highly influenced by price consciousness (Aschemann-Witzel, J. et al (2015). [193]). When in restaurants, when it comes to price (Kim, M. J. et al (2020). [194]), it depends on what the consumer pays for the quality (Bordalo, P. et al (2013). [195]). Price plays an important role as it is connected to the quality of food the consumer purchases (Hjelmar, U. (2011). [196]). Especially when a consumer pays high price for the food which he or she orders, and if the food is worth his expectations, he will complete it or may repeatedly make another order (Butz Jr, H. E. et al (1996). [197]). Hence with this behaviour he will not waste food and the consumer is willing to pay money for the food as he may have a thought or perspective if the price is more definitely the quality of food will be good (Evans, D. (2012). [198]). Food waste has positive income elasticity, and price consciousness is somewhat related to consumers' consumption decisions regarding whether or how much food to waste (Yiridoe, E. K. et al (2005). [199]). Only after understanding the reasons behind this behaviour changes can be made. Many people believe that restaurants who provide discounts and multi-purchase promotions like the well-known "buy one, get one free" encourage consumers to buy more than they need. Restaurants are criticised for these marketing strategies because, while they could persuade consumers to spend more than they anticipated, they might also persuade them to spend more than they actually need, which is likely to lead to waste (Ferrara, J. (2013). [200]).

**Flavour/ Taste:** The total impression of the taste, smell, and texture of the meal after it has been eaten or consumed is referred to as flavour (Noble, A. C. (1996). [201]). When it comes to eating, flavour is the most crucial component (Mestres, M. et al (2005). [202]). A restaurant setting must provide cuisine that results in enjoyment and satisfactions with regard to all the steps involved in creating a meal to be served (Buettner, A. et al (2002). [203]). A throng will form if the cuisine is good. The way food tastes is related to how much food is wasted. If food tastes poor, it will be rejected by the customer, resulting in food waste (Engström, R. et al (2004). [204]). The ability to fully consume food depends on its taste and flavour as well as its freshness. Hence, if the flavour of the food is excellent (Wansink, B. (2018). [205]), the consumer will be willing to pay the price and make repeat purchases. Also, studies have revealed that when the food has a wonderful flavour, consumers finish their meals and seldom have any leftovers on their plates (Liu, T. et al (2022). [206]).

**Appearance/ presentation:** Food quality and enjoyment are influenced by colour and other aesthetic factors, especially by the customer. For practically every meal, customers have subjective requirements for the acceptable range and desired optimum (Ozkul, E. et al (2020). [207]). Food can occasionally have unfavourable changes in texture, flavour, or odour along with colour changes. The consumer identifies off-colour development in overaged cheese, beer, meat, and fish as a sign of poor flavour quality where it allows to waste food and also reduces consumer acceptance (Steinkraus, K. H. (1994). [208]). The development or alteration of colour is intimately related to fruit and vegetable maturity. Customers anticipate particular dishes to have specific colours and appealing appearance, therefore deviating from such expectations may result in resentment. In order to excite and fulfil customers' needs for taste and match their appetites, appearance and presentation play a crucial part. If it meets the

standards, food waste will be mitigated and there won't be any plate waste that restaurants must take into account (McAdams, B. et al (2019). [209]).

**Portion size:** Portion control is the process used to specify the amount to be used in making and serving a food. The uniformity of food's flavour, quality, and amount is another benefit of standard servings, which ultimately leads to consumer pleasure. Managing portions becomes essential for any restaurant's profitability since it has a significant influence on food costs (Ericson, M. H. (1960). [210]). According to studies both portion size and reported levels of waste have grown in comparison to prior years. In the year of 2012, 41% of respondents according to their survey the food waste that was left on plate the quantity was too huge which resulted in leftovers; now, that number is 48% (Condrasky, M. et al (2007). [211]). In an effort to lessen this, the research made by Wrap had identified ways in which food services like restaurants may assist patrons in making informed decisions while dining out by raising awareness of portion size and providing information on the menu. Along with portion size there are also items alongside which can be an unnecessary addition in the platter which can make the consumer waste it if he doesn't like to consume it (Verghese, K. et al (2015). [212]). For this customised choice of proportion must be given as well as a choice to choose the items whether needed or not (Cohen, D. A. et al (2014). [213]). This is significant because accurate information on side dishes would be helpful to 53% of customers and would be used to assist 51% establish better portion amounts. Although most plate waste when dining out is still considerable, there are methods that restaurants and their consumers may mitigate this (Benton, D. (2015). [214]). The fact that customers' concerns about food waste are intertwined with their perceptions of value for money makes this a significant difficulty. Yet, many customers want more options for portion size or a greater awareness of what is contained in their meal, and there are some easy modifications and practises that businesses can implement to guarantee that we are feeding people rather than bins (Glanz, K. et al (2007). [215]). The hypothesis regarding the relationship between restaurant food quality and consumers' intention to mitigate plate waste behaviour in restaurants is outlined below.

Hypothesis 04: There is significant relationship between Quality of Food and Consumer Intention.

Hypothesis 10: There is significant relationship between Quality of Food and Behaviour.

Hypothesis 15: Consumer Intention mediates the relationship between Quality of Food and Behaviour.

### 5.5 Subjective Norms :

Subjective norms, which are accepted ideas about appropriate behaviour, influence the intention to act in a certain way (Bhattacharjee, A. (2000). [216]). The expectations and impressions of an individual are influenced by past experiences, feedback, and suggestions from friends, family, and many sources, including authorities, consumer organizations, the media, and the government (De Franca Doria, M. (2010). [217]). In light of this, the idea Subjective norms, or "the felt societal pressure to engage in the behaviour". Normative norm with regard to many social references, which together create an overall subjective standard. Subjective norms are related to the help provided by social groupings like family and friends. SN is a collectively recognized social force that results from normative beliefs about various social referents. In their definition of Freeman, and Gladwell refer to the perceived social pressure to engage in or abstain from food waste (Flowers, E. P. et al (2016). [218]). In other words, they refer to the actions that are deemed acceptable or unacceptable in a certain circumstance (Rhodes, R. E. et al (2003). [219]); for example, if food waste is frowned upon by significant others (Kashif, M. et al (2018). [220]), people should make an effort to reduce their food waste. In theory, subjective norms are conceptually distinct from attitudes towards behaviour, albeit they may occasionally overlap (Abrams, D. et al (1998). [221]). It was pointed out that there are numerous factors, both internal and external, that can hinder (or facilitate) the performance of particular behaviour (Srivastava, M. et al (2020). [222]), including the degree to which people have the necessary information (Zolait, A. H. S. (2014). [223]), emotions, personal skills and competencies, availability of social support and coercion (Maes, S. et al (2005). [224]), and the absence or presence of external constraint (Rivis, A. et al (2003). [225]). As both patterns are concerned with other people's expectations about an individual's conduct (i.e., perception of what other people think one should do), the injunctive norm is conceptually comparable to the subjective norm found in the TPB, according to the social influence research (White, K. M. et al (2009). [226]). The standards of being a good provider, which include providing a variety of wholesome and delectable meals for family members and visitors, are among the other subjective norms at the home level (Delaney, M. et al (2011). [227]). Despite the fact that it results in food waste,



this custom is crucial for customers. In light of this, eight items were used to gauge the subjective norm, including qualities of a good provider and others' engagement and approval of the behaviour (Jribi, S. et al (2020). [228]). Nevertheless, subjective Norms is not connected to the desire to reduce food waste (Kim, J. et al (2022). [229]). Conflicting findings on the relationship between SN and Intention have been reported by this earlier research. The relationship between SN and BI is astounding. Almost everyone they came into contact with supported waste reduction in the home. Subjective Norms has a positive effect on behavioural intentions to control fruit and vegetable waste. It is also a significant predictor of intentions to reduce food waste. According to several researches, social group affects one's attitude and perspective (Ryu, K. et al (2006). [230]). Although many customers feel more influenced by social groups, such as friends and family (Chambers, S. et al (2008). [231]), when purchasing food (Spence, A. et al (2006). [232]), the overall impact of subjective norms on food purchases shouldn't be avoided (Withall, J. et al (2009). [233]). Hence, the following hypotheses are put forth:

Hypothesis 05: There is significant relationship between Subjective Norms and Consumer Intention.

Hypothesis 11: There is significant relationship between Subjective Norms and Behaviour.

Hypothesis 16: Consumer Intention mediates the relationship between Subjective Norms and Behaviour.

### 5.6 Consumers' Intention :

Intention is the primary element affecting a person's conduct. When doing a certain activity, an individual may feel pressure from others, which is referred to as intention (Boyd, N. G. et al (1994). [234]). According to Kharat et al. (2017), consumer behavioural intention refers to a person's choice and desire to engage in or refrain from engaging in food management behaviour in the future. It also indicates how ready a person is to minimise food waste. Attitudes relate to positive or negative evaluations of food waste behaviour in this article on forecasting intentions to reduce food waste (Secondi, L. et al (2015). [251]). When a person receives social pressure while wasting food, he or she is more likely to decrease food waste. A person's intention to reduce food waste improves if they think they have some influence over the factors leading to it (Aschemann-Witzel, J. et al (2015). [193]). The psychology field's theory of reasoned action (TRA) is continued by the theory of planned behaviour (TPB). The TBP was specifically created to describe social behaviour (Hsu, C. H. et al (2012). [235]). This study examines customer reactions to restaurant consumers' food waste behaviour using the emotion, behaviour, and cognition model of attitudes. According to TPB, antecedents' actions may provide light on any consumer social behaviours and behavioural intentions (Troise, C. et al (2021). [236]). The consumer's purpose to act is used to understand their action. The degree to which a person has a good or negative opinion or appraisal of the conduct in issue is, in this view, the attitude towards the behaviour (Folkes, V. S. (1988). [237]). The intention behind an act will lead to behaviour, and behavioural intention is a powerful predictor of behaviour. Previous research has shown that intention is a good determinant to predict an individual's conduct. Blackwell et al. claim that behavioural intentions are determined by attitudes, which indicate what individuals like and hate (Agarwal, R. et al (1999). [238]). Generally speaking, people are prepared to do what they like and reject what they detest. So, it seems sense to infer that both internal and external influences, such as norms and attitudes, have an impact on behaviour (Thogersen, J. (2006). [239]). It is well acknowledged that emotion and cognition serve as the foundation for constructing consumer attitudes and determining the range of consumer reactions. The willingness of a person to decrease food waste is referred to as Behavioural Intention in regard to food waste. Food waste issues in industrialised nations are primarily caused by consumer behaviour. In developing nations, consumer behaviour is the main cause of food waste. Consumer attitudes and behavioural intentions have been demonstrated to influence consumer behaviour in terms of food waste (Salins, M. et al (2022). [240]). For example, attitudes and intentions about food waste prevention have a stronger impact on behaviour related to food waste. The attitudes and behavioural intentions to prevent food waste may also be used to forecast food waste behaviour. The behaviour related to food waste is influenced by purpose. The Theory of Planned Behaviour contends that intention predicts behaviour, as was previously stated. There is, however, a clear intention-behaviour gap in this area, according to a large body of research. The intentional process, which is the desire and intention to act, is what drives behaviour. The impact of the intention to minimise plate waste behaviour is the subject of the study's final hypothesis. The hypothesis might be used to clarify customers' intentions to reduce plate waste as given below:



Hypothesis 06: There is significant relationship between Consumer Intention and mitigate Plate Waste Behaviour

### 5.7 Mitigating plate waste behaviour :

Consumer behaviour is impacted by ethical principles that take into account factors like health, quality, trust, and environmental welfare (Honkanen, P. et al (2006). [241]). The willingness of a person to decrease food waste is referred to as Behavioural Intention in regard to food waste (Fami, H. S. et al (2019). [242]). The greatest way to anticipate and alter human behaviour is to take into account dispositions that directly relate to the desired behaviour, such as self-efficacy beliefs and intentions (Schwarzer, R. (2008). [243]). Additionally, perceptions of behavioural control account for a significant amount of variation in actual behaviour, and attitudes and subjective standards might be thought of as necessary in order to conduct behaviours of various sorts (Parker, D. et al (1995). [244]). Food waste at the point of consumption is the consequence of subjective consumer variables and is the result of a mix of numerous factors, such as the individual qualities of customers, area culture, and economic situations (Farr-Wharton, G. et al (2014). [245]). The aim to decrease food waste was discovered to be a significant conjecture of the quantity of food wasted in their study done in Switzerland using mail survey to establish the reason, cause, and obstacles to food waste. Behaviour among humans is complicated and hard to precisely anticipate (Carino, S. et al (2020). [246]). Food waste may occur for a variety of unidentified reasons (Adel, A. M. et al (2022). [247]), according to academic research, which emphasises the need for suitable theoretical frameworks to identify the causes of such complex human behaviour (Chan, E. S. et al (2020). [248]). In residential families, different kinds of restaurants, and public eateries, diverse consuming behaviours and drivers are also linked to food waste. A popular theoretical framework for assessing behavioural intentions in the context of food waste is the theory of planned behaviour (TPB) (Ng, P. Y. et al (2021). [249]). To encourage sustainable food consumption around the world, it is crucial to investigate and conduct a scientific analysis of the factors that influence this behaviour. Consumers may not have a significant motivation to prevent food waste if food expenditures make up a tiny portion of overall household spending, which may be connected to the opportunity cost of the food. Food waste is income elastic, with income increase raising residents' food waste considerably. Studies on food waste in the restaurant business take context into account. For example, research on food waste habits of diners in Lhasa revealed how the trip status had a substantial impact on waste behaviour. Other factors, such as plate size and information interventions, can also influence the quantity of waste. Consumer psychological variables are also starting to get more attention. When consumers eat food, subjective norms, resource-environmental awareness, perceived behavioural control, and various other psychosocial variables might influence food waste behavioural intentions and consequently food waste behaviour. A study of the conditions for consumer involvement in decreasing food waste in restaurants in Poland, for instance, incorporated public environmental knowledge as an influencing factor. Financial incentives may not be the best way to reduce food waste; instead, there should be clear legislation, policies, and initiatives. It is necessary to do a thorough analysis of the causes of consumer food waste in order to design these policies and laws, as well as to adopt a focused strategy to change consumer behaviour (Goonan, S. et al (2014). [250]). Therefore, the key indicator of the amount of food wasted is Behavioural Intention to decrease food waste.

### 6. ABCD LISTING FRAMEWORK FOR THE CONCEPTUAL MODEL :

The ABCD analysis framework, developed by Aithal (Aithal, P. S. (2016). [252]), is an effective tool to understand the organization's behaviour, structure, and patterns for assessing the implications of changes. Following the qualitative investigation with the framework, the advantages, benefits, constraints, and disadvantages of each discovered determinant problem may be listed, presenting the ABCD listing technique (Aithal, P. S. et al (2016). [253]). The ABCD listing may therefore serve as a requirement for ABCD analysis. The ABCD listings of consumer intent to reduce food waste in restaurants are as follows in Table 2 (Salins, M. et al (2022). [254]).

Table 2: ABCD Listing for Proposed Conceptual Model

ADVANTAGES	BENEFITS
<ul style="list-style-type: none"> <li>• Food waste reduction at restaurants protects the environment and minimises the cost of disposal.</li> <li>• It has the potential to reduce the carbon footprint and landfill methane emissions.</li> <li>• People may lower their influence on the environment's carbon footprint by taking part in initiatives or drives to eliminate food waste.</li> <li>• Consumers' attitudes are improved by food waste quotations or posters, which encourage them to prevent food waste and have a positive outlook towards their goal of reducing food waste while dining out.</li> <li>• Environmental and health considerations have taken on more significance as consumers' understanding of food safety has grown, helping to motivate them to order the right quantity and reduce food waste.</li> </ul>	<ul style="list-style-type: none"> <li>• Restaurants should reconsider how to customise meal orders to reduce food waste by giving customers a choice of portion sizes.</li> <li>• Meal planning ahead of time and avoiding impulse purchases may help customers waste less food and spend less money.</li> <li>• In order to combat poverty, decrease food waste, and assist communities in adapting to a changing global climate, sustainable food systems must be implemented.</li> <li>• Doggy bags are distributed to customers so they may take their leftovers home and continue to enjoy their meals, saving businesses money on garbage disposal.</li> <li>• Food waste may be avoided and reduced at the consumer and producer levels through educational efforts and food waste initiatives. Hunger, poverty, and environmental harm are thereby decreased, which is good for both society and the environment.</li> </ul>
CONSTRAINTS	DISADVANTAGES
<ul style="list-style-type: none"> <li>• Initiatives to reduce food waste are not well known, and few restaurants take them into account.</li> <li>• Food waste is a result of poor eating habits that are connected to lifestyle, upbringing, and ignorance, which in turn leads to increased levels of food waste behaviour.</li> <li>• Restaurant sustainability problems are not sufficiently managed due to a lack of training and expertise.</li> <li>• Due to health code restrictions that prevent leftover food from being given or otherwise used legally, buffets waste food more than other types of meals do.</li> <li>• Food waste can result from improper food preparation techniques, improper ingredient storage procedures, and kitchen staff members' failure to utilise food scraps and garbage.</li> </ul>	<ul style="list-style-type: none"> <li>• Poor quality or too big portions might cause consumers to waste food.</li> <li>• Poor community cooperation around food waste is caused by insufficient infrastructure for handling disposal of food waste.</li> <li>• Lack of public understanding and awareness of food waste reduction.</li> <li>• The carbon footprint might go up if recycling procedures are ineffective and garbage is not managed properly.</li> <li>• Lack of expertise in customer service requirements on food waste reduction methods.</li> </ul>

### 7. ARGUMENTS TO APPROVE THE PROPOSED CONCEPTUAL MODEL USING EMPIRICAL METHOD AS FURTHER STUDY :

A conceptual model was developed with the objective of examining the influence of various variables on consumer intentions to reduce their food waste behaviour in restaurants. Using a non-probability purposive sampling technique, a systematic questionnaire will be developed from 385 respondents who dine at restaurants in the State of Karnataka in order to demonstrate the conceptual model. A five-point Likert scale (1–5) that goes from strongly disagree to strongly agree will be used in the study. SMARTPLS 3.0 software will be used to execute the data analysis.

## 8. CONCLUSION :

By reviewing consumer behavioural models and conducting a thorough analysis of research papers, the analysis emphasised consumer intentions and behaviours towards reducing plate waste in restaurants. In order to investigate customer intentions and behaviour, this research has proposed a conceptual model. This conceptual model can help identify the appropriate variables suitable for the purpose of the research. The key elements of the proposed model include consumer attitudes, awareness, environmental concerns, food quality, subjective norms, consumer intention, and food waste behaviours. The impact of consumer food waste behaviours may be shown using all of these causal chains of affecting elements. Adopting face-to-face interviews and questionnaires as a method of comprehension can give more useful information to restaurant management. Overall, by combining theoretical frameworks to explain the relevance of consumer attitudes, awareness, environmental concerns, food quality, subjective norms, consumer intention, and food waste behaviours, this study developed an empirical infrastructure that illustrates the process of consumer food waste behaviours in restaurants. The present research highlights that restaurant consumer intentions and food waste behaviour operate as a mediator in the interaction between all exogenous latent variables and mitigation of plate waste behaviours, validating the components of the conceptual model.

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