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The Determinants of Environmentally Sustainable Project Performance: A Moderated-Moderation Model

by

Maria Bibi

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degree of Masters of Science

in the

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The Determinants of Environmentally Sustainable Project Performance: A Moderated-Moderation Model

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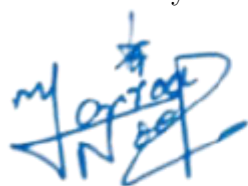
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(Maria Bibi)

Abstract

Food waste has become one of the most significant environmental issues in the world, especially in the wedding event sector. Therefore, improving food waste management is crucial for the environmental sustainability of wedding projects. This study is grounded in the Ability-Motivation-Opportunity theory and examines the impacts of environmental awareness, self-efficacy toward food waste management, and entrepreneurial capacity for food waste management on environmentally sustainable project performance. This study also investigates the moderating effects of food waste reduction intention and perceived government support on the relationship between entrepreneurial capacity and environmentally sustainable project performance and the moderated moderating effect of perceived government support on the relationship between food waste reduction intention, entrepreneurial capacity and environmentally sustainable project performance. This quantitative cross-sectional research approach was founded on the positivist research philosophy. Data were collected from the professionals of wedding-related organizations such as wedding planners, managers, supervisors, and caterers using a structured questionnaire. The study was done using Smart PLS-4 software, and the Partial Least Squares - Structural Equation Modeling technique was employed. The results showed that environmental awareness, self-efficacy for managing food waste and entrepreneurial capacity for managing food waste have positive and significant effects on environmentally sustainable project performance. However, food waste reduction intentions and perceived government support were found to negatively and significantly moderate the relationship between entrepreneurial capacity and environmentally sustainable project performance. Perceived government support also negatively and significantly moderated the moderating effect of food waste reduction intention. The study has practical implications for wedding event management companies, catering service providers, and venue operators, and policymakers to emphasize the importance of sustainability training, development of entrepreneurial capacity, effective food waste management strategies, and balanced institutional support that not only nurtures innovation but also enhances

the environmentally sustainable project performance in Pakistan's wedding event industry.

Keywords: Environmental Awareness; Entrepreneurial Capacity; Self-Efficacy; Food Waste Reduction Intentions; Perceived Government Support; Environmentally Sustainable Project Performance; AMO Theory

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Abbreviations

AMO	Ability-Motivation-Opportunity Theory
EA	Environmental Awareness
EC	Entrepreneurial Capacity
ESPP	Environmentally Sustainable Project Performance
FAO	Food and Agriculture Organization
FWL	Food Waste & Loss
FWM	Food Waste Management
FWRI	Food Waste Reduction Intentions
PGS	Perceived Government Support
SDGs	Sustainable Development Goals
SE	Self-Efficacy
SP	Sustainable Practices

Chapter 1

Introduction

The opening chapter of this research has numerous significant sections that lay the groundwork for the investigation. It comprises the study's background, which provides context and importance for the research topic. The chapter also includes a gap analysis to identify limitations and missing regions in earlier studies. In addition, a problem statement is provided to properly explain the issue under investigation. This chapter also comprises the research questions, objectives, and hypotheses, which determine the general course of the investigation.

The theoretical foundation is also explored, which serves as conceptual and theoretical support for the research. The study's relevance is explained to demonstrate its importance, impact, and possible advantages. Finally, the chapter provides definitions of variables utilized in the study to help readers comprehend and conceptualize the major terminology and variables involved in the research.

1.1 Background

Food waste is a huge worldwide issue that receives great attention from governmental and non-governmental organizations, multiple business sectors, and varied media outlets ([Anjarasoa, 2024](#); [Labib et al., 2023](#)). Furthermore, food waste has both direct and indirect repercussions on society and the environment since it involves the use of resources such as water, energy, and labor across the food supply

chain ([Surbhi and Bose, 2025](#)). Globally, over one billion meals are discarded daily in both impoverished and affluent nations, despite the existence of over 730 million individuals suffering from hunger. Households account for the majority of global food waste, around 60% of the 1 billion tonnes discarded each year. Commercial food systems significantly contribute to waste, with food services responsible for 28% and retail for approximately 12% in 2022, according to the most recent data ([Harvey, 2024](#)).

The Pakistan Environmental Protection Agency estimates that 36 million tonnes of food, which is 40% of total food waste consumption, are squandered each year in the country ([Nisar et al., 2021](#)).

Most notably, this is impacted by cultural norms and ineffective food distribution networks, which cause huge losses before the food reaches the customers ([Mughal, 2018](#)). Food waste is a common issue in the hospitality sector, particularly in hotels, cafeterias, restaurants, and catering services ([Omar et al., 2024](#)).

During the marriage ceremony, a substantial amount of food is squandered. [Farooqi et al. \(2016\)](#) found that individuals waste an average of 475 grams of food during marriages, which is higher than the amount consumed every meal at home. According to his study, Muslim marriage ceremonies waste an estimated 26.81 million tons of food annually. The amount of food lost is equivalent to feeding 92.40 million people for two meals per day. There is competition between social classes in the production of vast quantities and a wide variety of food because some people view food as a social indication of wealth and prestige. Additionally, even asking visitors if they plan to attend a wedding is seen as a covert attempt to keep them away, which makes it challenging to plan meals based on the number of guests. Food must therefore be prepared in excess to serve everyone who arrives at a wedding, leaving some unfinished ([Gikuri, 2021](#)). Therefore, the primary issue is not just the rise in trash volume but also the lack of a sustainable and organized system for handling the garbage produced by such social gatherings. In addition to endangering public health and environmental sustainability, this issue also diminishes the aesthetic and cultural significance of major events if it is not addressed ([Hassan et al., 2025](#)).

Cultural traditions influence our daily existence, particularly our views on food waste. Food loss and waste have emerged as a global issue due to their effects on the environment, health, and economy. Food waste adversely affects the environment and escalates costs in the energy and water sectors.

Food waste generates methane and carbon dioxide emissions, exacerbating global warming. Food waste differs among cultures, irrespective of a nation's development ([Akram and Javed, 2021](#); [Phasha et al., 2020](#)). Leftover food accounts for a quarter of agricultural freshwater use and takes up more than 30% of the world's arable land, or 1.4 billion hectares.

This means that both biodiversity and arable land are under serious stress from food waste. Goal 12.3 of SDG 12 is to promote responsible production and consumption; to cut worldwide food waste in half on a per capita basis ([Wala and Siddiqui, 2025](#)).

Food waste has worsened due to a lack of resources and urgency in management. As demand for natural resources, including water, land, and energy increases, the issue is projected to remain until 2050 ([Sawaya, 2017](#)). Food waste is becoming a global environmental issue, driven by international and national initiatives. Food waste mitigation focuses on addressing linked concerns like food poverty, with solutions led by Sustainable Development Goals (SDGs). In terms of specific goals, SDG 2 seeks to end world hunger, SDG 12 encourages environmentally responsible consumption and production, SDG 13 deals with global warming, and SDG 14 protects marine habitats. The SDGs are a global statement of stakeholder needs that balance social, economic, and environmental growth, indicating the core goal of sustainable development ([Manzoor et al., 2024](#)). The environmental issue necessitates intricate options that incorporate a range of institutional, organizational, social, and technical solutions ([Souza et al., 2023](#)). Reducing food waste can be achieved through straightforward measures such as meal planning, developing shopping lists, making use of leftovers, and ensuring proper food storage. Governments and businesses can take measures to minimize food waste by implementing policies such as establishing food waste reduction targets and promoting the recycling of food waste ([Schrank et al., 2023](#)). Food waste management

practices foster a circular economy and can evolve into a more socially, politically, and environmentally sustainable alternative (Al-Obadi et al., 2022).

Food waste management practices are not a single activity. In this study, these practices are shaped by multidimensional constructs like Environmental Awareness, self-efficacy, and entrepreneurial capacity. Environmental awareness is the ability to comprehend and engage in environmental protection actions that indicate an individual's understanding of environmental challenges.

EA is essential for persuading people to reduce food waste. Furthermore, concern for the environment will raise worries that influence the intention to reduce food waste. Environmental knowledge helps reduce food waste (Purwanto et al., 2023). Several studies have revealed a link between self-efficacy and pro-social behavior. Consumers who believe their food-saving behavior benefits the environment are more likely to reduce food waste. SE increases the likelihood of reducing food waste. People are more likely to adopt habits that they feel will result in positive results (Kim et al., 2016; Tabernero and Hernández, 2011; Wang et al., 2022). Entrepreneurial capacity is more than just launching new enterprises; it is a strategic perspective and capability within organizations that enables them to innovate, adapt, and implement sustainability measures (Tuncer et al., 2024).

Government laws are crucial in adapting digital technology and enhancing the food supply chain to support food waste management activities, to save the environment (Faishal and Suprpto, 2022). According to Sanders et al. (2022), The government's responsibility for implementing environmental legislation may affect individuals' perceptions of its autonomy-support or control, hence influencing their willingness to participate in pro-environmental conduct. Food waste reduction intentions and perceived government support may also play a significant role in moderating the effect of food waste management practices on environmentally sustainable project performance, because Sanders et al. (2022) highlighted that perceptions of governmental support enhance degrees of autonomous motivation regarding a behavior, and diminished levels of a motivation, and furthermore, Ajzen (1991) revealed that behavioral intentions are the most important predictors of behavioral performance.

[Smit \(2019\)](#) reveals that adopting waste-reducing norms and procedures can dramatically reduce waste, supporting the idea that stronger pro-reduction intentions lead to higher performance outcomes in such projects. Reducing food waste is an urgent matter from both an environmental and social standpoint. Since resources have already been set aside to start food waste programs, it would be wise to make sure such programs are successful ([Thorsen et al., 2022](#)).

Given the growing concerns about inefficiency and sustainability in large-scale wedding projects, it is critical to investigate the impact of environmental awareness (EA), self-efficacy (SE), and entrepreneurial capacity (EC) for food waste management on the environmentally sustainable performance of these projects.

In the context of wedding projects, food waste reduction intentions (FWRI) and perceived government support (PGS) can help connect entrepreneurial capacity for food waste management to environmentally sustainable project performance (ESPP), especially in cases where sustainability outcomes are most important.

As a result, FWRI and PGS may strengthen the impact of entrepreneurial capacity on environmental project performance, and also PGS may strengthen the combined effect of FWRI and EC on ESPP.

1.2 Gap Analysis

Despite expanding research on food waste and sustainability, there are still significant gaps in understanding how specific practitioner capacities for food waste management influence environmentally sustainable project performance in project-based settings such as wedding events.

Environmental awareness of food waste has been studied primarily in general consumer and household contexts, where awareness of consequences was found to shape food waste reduction behavior, though largely outside project-based catering settings ([Wang et al., 2022](#)). Similarly, self-efficacy toward food waste management has been extensively investigated at the household level, where individuals' belief in their own capability to manage food effectively was found to reduce food

waste significantly ([Aschemann-Witzel et al., 2020](#)), and among kitchen staff in general restaurant settings, where professional competence in food waste prevention was found to shape self-efficacy and behavioural intentions ([Lu and Ko, 2023](#)). However, self-efficacy in food waste management has not been investigated among practitioners working primarily in large-scale, event-based wedding catering, where the volume and unpredictable nature of guest turnout differ significantly from domestic or routine restaurant operations.

Although prior studies have confirmed the influence of entrepreneurial capabilities on environmental sustainability and organizational performance, the present literature has predominantly explored green entrepreneurial orientation, sustainable entrepreneurship, and environmental innovation in manufacturing, SMEs, and business settings ([Anwar et al., 2024](#); [Marzouk and El Ebrashi, 2024](#); [Yadav et al., 2024](#)). In addition, relatively limited attention has been paid to entrepreneurial capacity as an individual capability that can enable employees and project managers to implement effective food waste management practices and improve environmentally sustainable project performance, especially in project-based service industries. Furthermore, little attention to the boundary conditions under which entrepreneurial capacity is most effective ([Shepherd and Patzelt, 2011](#)). Empirical studies on the moderating role of food waste reduction intention in the association between entrepreneurial capacity and environmentally sustainable project performance are particularly rare.

Employees with high entrepreneurial capacity may have the knowledge and innovative capacity to implement sustainable food waste management practices, but these capabilities are expected to lead to stronger environmental outcomes with higher intention to reduce food waste. Therefore, the present study bridges this gap by investigating the moderating role of food waste reduction intention in the relationship between entrepreneurial capacity and environmentally sustainable project performance.

Moreover, although perceived government support has been extensively recognized as a significant institutional mechanism to foster sustainable environmental practices through environmental regulations, financial incentives, and policy support,

existing studies have primarily focused on its direct effect on environmental performance or sustainable organizational practices (Leal Filho et al., 2022; Mensah et al., 2024). There is a lack of empirical evidence to explore the moderation effect of perceived government support on the relationship between entrepreneurial capacity and environmentally sustainable project performance, especially in project-based industries like the wedding event industry. To address this gap, the present study examines whether supportive governmental policies and institutional assistance can strengthen the positive impact of entrepreneurial capacity on the performance of environmentally sustainable projects.

Finally, research that integrates individual and institutional boundary conditions is still scarce. However, there are very few studies that examine whether perceived government support improves the moderating effect of food waste reduction intention on the relationship between entrepreneurial capacity and environmentally sustainable project performance. empirical attention to this three-way interaction ($PGS \times FWRI \times EC$) is scarce in the literature on food waste management and sustainable project management, especially in wedding event projects. Therefore, this study fills this gap by examining environmental awareness, self-efficacy, and entrepreneurial capacity, each focusing on food waste management as direct predictors of environmentally sustainable project performance, as well as introducing a framework of moderated moderation to offer a more complete understanding of the combined effect of individual intentions and institutional support in strengthening the impact of entrepreneurial capacity on environmentally sustainable project performance, in the context of wedding-event catering projects in Pakistan. The work therefore contributes to both food waste management and project sustainability literature, from an integrated behavioral and institutional viewpoint.

1.3 Problem Statement

Food waste is a big issue in developing nations like Pakistan since it has economic, environmental, and social implications (Ullah, 2021). While sustainability awareness in the hospitality industry has increased due to environmental initiatives and

Corporate Social Responsibility campaigns ([Wang et al., 2025](#)), food waste management practices in weddings are underexplored. According to [Seberini \(2020\)](#), Food waste significantly affects the environment, accounting for millions of tonnes of CO₂ equivalents or greenhouse gas emissions from the food chain. In addition to its environmental consequences and the depletion of finite natural resources like land and water, food waste exerts nutritional, social, and economic effects on communities. According to the International Food Security Assessment by the US Department of Agriculture, 38% of the population of Pakistan would experience food insecurity from 2021 to 2031 ([Abbas et al., 2025](#)).

Based on the Food waste and loss hierarchies articulated by [Ciccullo et al. \(2021\)](#); [Moraes et al. \(2021\)](#), Prevention is the primary and most probable strategy to mitigate FWL, hence achieving the optimal environmental outcome. FWL prevention is a source reduction method that entails minimising waste generation and decreasing food surplus.

Weddings in Pakistan are known for their lavish celebrations and abundant food arrangements, which frequently result in significant amounts of excess food and avoidable waste. Although food waste not only costs event organizers money but also contributes to environmental pollution through increased waste disposal and inefficient use of food, water, and energy resources, sustainable food waste management practices are still not widely implemented in the wedding event industry.

Many event management companies continue to struggle with integrating environmental considerations into project planning and execution, limiting their ability to achieve environmentally sustainable project performance. Achieving environmentally sustainable project performance necessitates more than just technical waste management measures; it also relies on the talents of project staff in charge of planning and executing wedding festivities. Employees with environmental knowledge, confidence in applying food waste management methods, and entrepreneurial skills are more likely to identify long-term solutions, improve resource usage, and reduce food waste throughout project implementation. Furthermore, the success of these capabilities may be determined by employees' motivation to reduce food waste, as well as the degree to which supportive government laws, environmental

regulations, and institutional initiatives promote sustainable practices in the event business.

With growing environmental concerns about food waste and the increasing need for sustainable event management, it is important to understand the variables that contribute to environmentally sustainable project performance in wedding events.

Hence, the current study explores the role of environmental awareness, self-efficacy in food waste management, and entrepreneurial capacity in environmentally sustainable project performance.

Moreover, the study examines the moderating roles of food waste reduction intention and perceived government support and their interaction effect to gain a better understanding of the conditions under which entrepreneurial capacity contributes more effectively to environmentally sustainable project performance.

The findings are expected to be useful to event management practitioners and policymakers who aim to promote sustainable food waste management and improve the environmental sustainability of Pakistan's wedding industry.

1.4 Research Questions

The following are the Research Questions:

Q1: Do environmental awareness, self-efficacy, and entrepreneurial capacity have an impact on environmentally sustainable project performance?

Q2: Do food waste reduction intentions moderate the relationship between entrepreneurial capacity and environmentally sustainable project performance?

Q3: Do perceived government support moderate the relationship between entrepreneurial capacity and environmentally sustainable project performance?

Q4: Does perceived government support moderate the combined effect of food waste reduction intentions and entrepreneurial capacity on environmentally sustainable project performance?

1.5 Research Objectives

The following are the Research Objectives:

- i. To examine the effect of environmental awareness, self-efficacy, and entrepreneurial capacity on environmentally sustainable project performance.
- ii. To examine the moderating role of food waste reduction intention in the relationship between entrepreneurial capacity and environmentally sustainable project performance.
- iii. To examine the moderating role of perceived government support in the relationship between entrepreneurial capacity and environmentally sustainable project performance.
- iv. To examine the moderating role of perceived government support on food waste reduction intention in the relationship between entrepreneurial capacity and environmentally sustainable project performance.

1.6 Research Hypotheses

H1a: Environmental awareness has a significant positive effect on environmentally sustainable project performance.

H1b: Entrepreneurial capacity has a significant positive effect on environmentally sustainable project performance.

H1c: Self-efficacy has a significant positive effect on environmentally sustainable project performance.

H2: Food waste reduction intention significantly moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance (Such that the relationship is strengthened when FWRI is high).

H3: Perceived government support significantly moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance (Such that the relationship is strengthened when PGS is high).

H4: Perceived government support significantly moderates the combined effect of food waste reduction intention and entrepreneurial capacity on environmentally sustainable project performance (Such as when perceived government support is high, food waste reduction intentions will also be high, then the impact of entrepreneurial capacity will be high on environmentally sustainable project performance).

1.7 Theoretical Foundation

Considering the distinct importance of the variables, food waste management practices, food waste reduction intention, perceived government support, and environmentally sustainable project performance, the research may be elucidated through various overarching frameworks, including Theory of planned behavior ([Ajzen, 1991](#)), Institutional theory ([DiMaggio and Powell, 1983](#)), Resource based view theory ([Wernerfelt, 1984](#)), and Project management theory ([Koskela and Howell, 2002](#)) and Ability, Motivation, Opportunity (AMO) theory ([Appelbaum, 2000](#)). This study utilizes the Ability-Motivation-Opportunity theory of work performance, first proposed by [Blumberg and Pringle \(1982\)](#), and based on the older expectancy-based performance model of [Vroom \(1964\)](#). According to the theory, performance is determined by the individual's ability (knowledge, skills, and competencies), motivation (willingness and desire to mobilize effort to a task), and opportunity (external, situational environment supplied to them) ([Sibian and Ispas, 2021](#)). Although the AMO framework was originally designed for human resource management, it has since been widely used to explain employee behavior, organizational performance, innovation, sustainability, and environmental management. The current study applies this theoretical perspective to wedding event projects, where employees' food waste management skills are predicted to increase environmental project performance. The AMO theory is one of the most applicable theories to explain how individual and organizational performance is created, especially in the areas of human resource management, sustainability, and pro-environmental behavior research ([Bos-Nehles et al., 2023](#)).

It has been used to explain sustainable business performance through green human resource practices in the context of emerging-economy manufacturing ([Rahman and Saba, 2025](#)), to study environmental performance in the hotel industry ([Kim, 2022](#)), and to explain the moderating effect of organizational citizenship behavior for the environment on green training and organizational sustainable performance in the service industry ([Yadav and Mathew, 2023](#)).

The AMO theory has already been effectively implemented in Pakistan to explain pro-environmental conduct in the hotel sector, with each part of the AMO framework found to contribute meaningfully to improving employees' green behaviour and environmental performance ([Iftikar et al., 2022](#)). This established and developing record of AMO theory in contexts of sustainability and environmental performance, including inside Pakistan itself, makes it a well-established and relevant theoretical lens for the present investigation.

[Zulkepli et al. \(2024\)](#) mapped out the literature on TPB-pro-environmental behavior and found four main themes. These themes confirm that environmental education, environmental concern, awareness, and knowledge are the variables most frequently included in extended TPB models in sustainability research.

Additionally, they found that TPB will be the most applied theory in sustainability performance research from 2023 to 2024. ([Wang et al., 2021](#)) also used TPB to demonstrate a systematic intention-behavior gap in contexts involving mandatory waste management. Their empirical investigation focused on the gap between environmental intention and pro-environmental behavior in relation to China's waste sorting policy.

1.8 Research Significance

1.8.1 Theoretical Significance

This study makes several important contributions to the existing body of knowledge. First, it advances measurement and conceptual theory within sustainability

and food waste research by independently conceptualizing environmental awareness, self-efficacy, and entrepreneurial capacity as distinct ability-based predictors of environmentally sustainable project performance, rather than treating them as sub-dimensions of a single composite construct. This disaggregated approach allows the relative contribution of each capacity to be independently assessed, addressing a limitation noted in prior sustainability research that has often collapsed related capacities into broader, less specific constructs. Second, this research extends the Ability-Motivation-Opportunity theory of work performance beyond its traditional human resource management origins by applying it to explain environmentally sustainable performance in a culturally specific, event-based service context. By considering food waste reduction intention as the motivation component and perceived government support as the opportunity component, this study situates individual psychological commitment alongside macro-level institutional context within a single, integrated performance model that has been identified as a valuable direction for advancing sustainability research grounded in capacity- and motivation-based theories.

Finally, by testing a three-way interaction term (perceived government $\times$ food waste reduction intention $\times$ entrepreneurial capacity), this study empirically examines how the capacity-performance relationship shifts across differing combinations of individual commitment and institutional support. This form of higher-order, moderated-moderation analysis remains comparatively underutilized within food waste and sustainability research (Hayes, 2013), and its application here represents a methodological and theoretical advance for the field.

1.8.2 Practicle Significance

The results of this study will provide evidence-based insights about which practitioner capacities will be most strongly associated with improved sustainability performance, directly applicable to Pakistani wedding event organizers and catering service providers. This study will offer useful advice for creating focused operational strategies, employee training programs, and capacity-building initiatives by independently ranking the importance of environmental awareness, self-efficacy,

and entrepreneurial capacity. This will enable catering companies to prioritize the particular capacities that will result in the highest sustainability returns.

1.8.3 Social and Environmental Significance

More generally, the research helps Pakistan meet its sustainable development goals, especially SDG 12 (Responsible Production and Consumption) and SDG 13 (Climate Action), which are part of the UN's larger framework for long-term environmental and social sustainability. Research like this helps with the creation of sustainability standards and practices that are suitable for many cultures by providing evidence-based information on how to handle food waste in a consumer sector that has a significant influence. In a nation where almost 36.9% of the population is still food poor, cutting down on wedding food waste has obvious societal consequences for redistribution of food and food security (World Food Programme, 2023).

1.9 Definitions of Variables

Definitions of all variables are illustrated below;

1.9.1 Independent Variable: Environmental Awareness of FWM

Environmental awareness is described as an appraisal of, or behavior toward, evidence, an individual's disposition, or any other posture that affects the natural environment ([Ahmed et al., 2021](#)).

1.9.2 Independent Variable: Self-efficacy toward FWM

Self-efficacy delineates the degree to which an individual perceives their ability to organise and implement courses of action ([Filimonau et al., 2024](#)).

1.9.3 Independent Variable: Entrepreneurial Capacity of FWM

Entrepreneurial Capacity refers to the capacity to evaluate the economic potential of new technologies and develop methods to convert it into tangible economic value ([Wilkinson and Hindle, 2006](#)).

1.9.4 Moderator Variable: Food Waste Reduction Intentions

According to [Ajzen \(1991\)](#), Food waste reduction intention refers to the self-reported commitment or resolve of customers to diminish the quantity of food they waste ([Chun T'ing et al., 2021a](#)).

1.9.5 Moderator variable: Perceived Government Support

[Umar \(2020\)](#) describe government support as the government's efforts to enhance individuals' and enterprises' knowledge, capacities, and confidence, resulting in desired performance or goals.

1.9.6 Dependent Variable: Environmentally Sustainable Project Performance

Environmentally sustainable project performance involves reducing environmental impact, utilizing resources efficiently, and implementing effective environmental management practices to ensure project outcomes are sustainable ([Marfu et al., 2025](#)).

Chapter 2

Literature Review

This chapter includes a detailed overview of the existing research on the study's key variables. The chapter opens with a description of the underlying theory, which serves as the theoretical foundation for the research framework. Furthermore, the chapter critically evaluates past theoretical and empirical investigations on each variable and their correlations.

The literature is thoroughly reviewed to gain a comprehensive grasp of the research challenge and identify existing research gaps. Based on the evaluated literature, the chapter also provides thorough evidence for the proposed research hypotheses as well as an explanation of the theoretical reason for each study hypothesis.

2.1 Underpinning Theory Theory of Planned Behaviors

The study is based on Ability-Motivation-Opportunity Theory ([Blumberg and Pringle, 1982](#)), which is based on an earlier expectancy-based framework for work motivation and performance ([Vroom, 1964](#)). According to the theory, individual performance is the product of three factors: an individual's ability to do a task, motivation to devote effort toward it, and the opportunity afforded by their surroundings to actually exercise that ability. AMO theory has since become a popular framework for explaining performance in human resource management,

entrepreneurship, and sustainability studies ([Bos-Nehles et al., 2023](#)). AMO theory defines ability as the physiological and cognitive capabilities that allow an individual to perform a task effectively, including an individual's knowledge, skills, competencies, and proficiencies, which are commonly referred to as KSA's (Knowledge, Skills, and Abilities) in the literature ([Benítez-Núñez et al., 2024](#)). Motivation is described as a person's motivation and desire to devote effort to a task, reflecting the internal drive that decides whether an individual chooses to use their talent at all ([Lin et al., 2025](#)).

Opportunity is defined as the external, contextual, and situational conditions that enable or limit an individual's ability to exercise it effectively, such as institutional support, resource availability, or facilitating organizational and policy conditions ([Hao et al., 2025](#)), and Performance is the outcome that AMO theory explains.

It is the degree to which an individual, project or organization has successfully achieved the targeted task or strategic results. In the context of sustainability-oriented research, performance has been further conceptualized as organizational or project-level sustainability performance, which reflects the incorporation of financial and non-financial, environmentally responsible outcomes into the overall performance measurement ([Nureen and Nuță, 2024](#)).

In line with the conception of ability in the AMO theory as knowledge, skills, and competencies of an individual, this study conceptualizes three of its variables as Ability-based constructs. According to research showing that people with higher environmental awareness are considerably more likely to participate in eco-conscious and green entrepreneurial activities, environmental awareness is conceptualized as an Ability-based construct that captures the knowledge component of the KSA framework. This suggests that awareness serves as a type of applied knowledge-based capability. Self-efficacy is seen as an ability-based construct that characterizes a person's confidence in their ability to plan and carry out the necessary actions to reach desired goals ([Bandura, 1997](#)). Entrepreneurial self-efficacy is an important, skill-based predictor of firm performance across a wide variety of industries ([Miao et al., 2017](#)). Entrepreneurial capacity is seen as an Ability-based construct, defined as the capacity of individuals to identify, evaluate, and

exploit opportunities, separate from entrepreneurial performance itself, and situated within the entrepreneurship literature as a distinct applied-skill dimension of capability (Hindle, 2007). Environmentally sustainable project performance is conceptualised as the performance outcome of this study model and is consistent with the sustainability-performance conceptualisation of Turan et al. (2008), and reflects the extent to which wedding catering practitioners achieve environmentally responsible, resource-efficient outcomes at the project level.

Food waste reduction intention is conceptualized as the motivation component of the AMO framework, reflecting the willingness and degree of commitment a practitioner holds towards enacting food waste reduction, consistent with the conceptual treatment of intention strength in the behavioral literature (Rebar et al., 2019). Perceived government support is theorized as the opportunity component of the AMO framework, which captures the external, institutional, and regulatory context that enables or constrains the execution of practitioners' potential. This approach aligns with previous studies that view government support as an external, resource-based enabler that affects the degree to which firm-level capability is converted into performance outcomes (Nor et al., 2023).

2.2 Research Hypotheses

2.2.1 Environmental Awareness, Self-Efficacy, Entrepreneurial Capacity and Environmentally Sustainable Project Performance

The emphasis on sustainability around the world has had a big impact on a lot of industries, including event management. Events often generate large rubbish, producing environmental and social concerns (Surbhi and Bose, 2025). Ghani et al. (2025a) found that poor waste management procedures in developing nations cause economic losses and inefficient resource consumption. Recognizing the complexity of successful food waste management is crucial for addressing the problems of sustainability projects. Environmental awareness of food waste management involves

understanding the environmental impact of food waste and implementing strategies to reduce food loss and promote sustainable resource use. Environmentally conscious employees and project managers recognize the negative impact of food waste on the environment, including greenhouse gas emissions, natural resource depletion, and landfill disposal.

As a result, people are more likely to engage in environmentally responsible behaviors, enhancing the sustainability of organizational projects and operations (Chidi et al., 2022; Zhou et al., 2022). A strong understanding of the environment, based on extensive research, is needed. It reflects an individual's perspective on the environment and their level of concern, leading to the adoption of green innovation.

It also predicts environmentally conscious behaviors, such as recycling and green innovation. Environmentally conscious consumers prioritize ethical and socially responsible products (Polas et al., 2023; Yafi et al., 2021). Furthermore, Yang et al. (2021) have posited that environmental awareness catalyses pro-environmental behaviour. Several studies have identified substantial evidence of its considerable influence on such behaviour (Akhtar et al., 2022; Si et al., 2022; Xie and Lu, 2022).

Environmentally sustainable project performance is meeting goals without harming the environment and increasing ecological results. Resource use, pollution reduction, habitat protection, and long-term ecological balance are considered in project decision-making and performance evaluation. Sustainable project performance is measured by cost, time, and environmental goals met in conjunction with other goals (Phung et al., 2025; Siddiqui and Salleh, 2024).

According to Ghani et al. (2025b), one of the most powerful drivers of sustainable food waste management is environmental awareness, which shapes employees' understanding of environmental issues and encourages environmentally responsible decision-making. The likelihood of employees supporting waste reduction efforts, efficient resource use, recycling practices, and food redistribution schemes is increased when they have an understanding of the environmental repercussions that are associated with food waste. These environmentally conscious actions significantly reduce waste generation while improving organizational sustainability outcomes. suggests that awareness helps people identify environmentally harmful

practices and adopt preventive waste management strategies. Environmentally aware employees comply with sustainability initiatives, reduce environmental impacts, and manage food resources more efficiently, improving sustainable project outcomes ([Alonso-Muñoz et al., 2022](#); [Joensuu et al., 2022](#)).

Environmental awareness motivates food service and hospitality workers to reduce food waste during procurement, storage, preparation, serving, and disposal. Environmentally conscious employees are more likely to sort food waste, manage inventory, track food consumption, and support recycling and composting. These eco-friendly practises reduce operational waste and improve project sustainability ([Ozanne et al., 2022](#)). As per [Antwi Afari et al. \(2025\)](#), Sustainable project planning and management practices considerably improve project outcomes in terms of efficiency, environmental performance, and stakeholder impacts ([Xie et al., 2024](#)).

In support of this, [Cheng et al. \(2024\)](#) reveal that sustainable project performance refers to the effectiveness of all components and stakeholders throughout the project's life cycle. Environmental performance pertains to minimizing ecological harm and preserving resources. The Ability–Motivation–Opportunity theory explains the positive relationship between environmental awareness and environmentally sustainable project performance. The AMO framework states that employees perform better when they have the ability, motivation, and opportunities to perform desired behaviors ([Appelbaum, 2000](#)). Environmental awareness gives employees the information and cognitive skills to identify environmental challenges and execute sustainable food waste management procedures. [Ghani et al. \(2025b\)](#) and [Soma et al. \(2021\)](#) used the MOA/AMO framework to manage food waste and show that awareness improves food waste reduction and promotes ecologically responsible behaviours that improve sustainability. Employees with increased environmental awareness should contribute more to environmentally sustainable project execution. Consistent with this framework, it is hypothesized that:

H1a: Environmental awareness is positively associated with environmentally sustainable project performance.

Entrepreneurial capacity, which denotes the capability of business leaders to recognise, assess, and leverage sustainable opportunities, is a crucial factor influencing

sustainable food waste management practices. Robust entrepreneurial capability empowers organisations to develop sustainably, incorporate circular processes, and maintain competitive advantage. Empirical research demonstrates that a robust entrepreneurial orientation bolsters SMEs' dedication to sustainable and environmentally friendly practices in emerging markets ([Akomea et al., 2022](#)). [Watto et al. \(2025\)](#) revealed that entrepreneurial capacity enhances green supply-chain management and dynamic capacities, consequently boosting sustainable performance. In Malaysia and Nigeria, entrepreneurial skills and capabilities were demonstrated to foster green entrepreneurial behaviour and enhance eco-innovation among SMEs ([Hassan Gorondutse et al., 2020](#); [Idrees et al., 2024](#)).

In alignment with this, ([Alshebami et al., 2023](#)) discovered that knowledge sharing and entrepreneurial capability together enhance green entrepreneurial intentions, hence promoting SMEs' implementation of environmentally friendly practices ([Bapoo et al., 2022](#)).

Entrepreneurially capable managers do not traditionally look at waste disposal but are constantly seeking opportunities to reconfigure operational processes, introduce green innovations, and build partnerships that facilitate sustainable food waste management. Such skills enhance the project's environmentally sustainable performance by decreasing environmental impacts, enhancing resource efficiency, and producing long-term environmental value. Recent studies have consistently shown that entrepreneurial capabilities and green entrepreneurial orientation have a positive effect on environmental and sustainable performance due to their promotion of innovation, environmental responsibility, and proactive sustainability initiatives ([Anwar et al., 2024](#); [Marzouk and El Ebrashi, 2024](#); [Yadav et al., 2024](#)).

Food waste management, when approached as a flexible organizational capability, has been shown to generate both environmental and business value, especially for resource-constrained SMEs ([Lee et al., 2026](#)). Firms with strong innovation-driven entrepreneurial capacity in foodservice have been found to improve their sustainability performance through operational innovation. Entrepreneurs' ability to embrace creative sustainability-driven business models has also been shown to generate new revenue streams while achieving environmental goals ([Franceschelli et al.,](#)

2018). Entrepreneurial capacity is especially crucial in wedding event projects because project managers usually face issues such as excessive food preparation, imprecise demand forecasts, inefficient resource allocation, and surplus food disposal. Managers with stronger entrepreneurial skills are better able to see these challenges as opportunities for innovation by implementing sustainable procurement practices, digital demand forecasting, food donation partnerships, recycling programs, and circular waste management strategies. These novel ideas decrease wasteful food waste while enhancing environmental performance throughout the project's lifecycle.

Furthermore, entrepreneurial capability improves an organization's ability to incorporate sustainability into strategic decision-making, allowing for continual improvement in environmental practices and boosting environmentally sustainable project performance.

The Ability-Motivation-Opportunity theory, which asserts that employees perform better when they have the essential abilities to attain organizational goals, is another theory that can be used to explain this link (Appelbaum, 2000). AMO theory holds that significantly predicts performance outcomes. Entrepreneurial capacity is a valuable skill because it provides project personnel with the knowledge, creativity, opportunity recognition skills, and problem-solving abilities needed to implement innovative food waste management practices. As a result, persons with stronger entrepreneurial capability are better equipped to introduce sustainable solutions that increase the environmental sustainability of projects (Anwar et al., 2024; Marzouk and El Ebrashi, 2024). Consistent with this framework, it is hypothesized that:

H1b: Entrepreneurial Capacity is positively associated with environmentally sustainable project performance.

Self-efficacy in FWM refers to an individual's belief and confidence in their ability to conduct a sequence of actions targeted at effectively decreasing food waste and addressing current environmental challenges (Wang et al., 2022). Shahbaz et al. (2024) indicates that self-efficacy can forecast future environmentally responsible business actions; hence, entrepreneurs and businesses must advocate

for sustainability in light of global environmental challenges. An individual with eco-friendly entrepreneurial self-efficacy is confident in their ability to establish sustainable enterprises. Entrepreneurs with high self-efficacy are more likely to investigate new factors that help the firm and uncover new prospects for adapting their organisations through learning and adaptability. Both strengths support green entrepreneurial ventures ([Sanchez-Garcia et al., 2024](#)). Individuals with stronger self-efficacy are more likely to undertake long-term actions, persevere in the face of operational challenges, and implement novel ideas to reduce food waste and improve environmental performance. As a result, self-efficacy is increasingly recognized as an important psychological capability that promotes sustainable behavior and environmental performance in a variety of organizational contexts ([Wallnoefer and Riefler, 2022](#); [Ding, 2022a](#)).

Previous research has repeatedly shown that people with higher levels of self-efficacy are more likely to engage in pro-environmental activities because they believe their actions will have a significant impact. A thorough review of environmental sustainability concepts identified self-efficacy as one of the most influential psychological determinants of environmentally responsible behavior, emphasizing that confidence in one's environmental abilities motivates people to participate in sustainability initiatives and maintain long-term environmental commitment. Similarly, data from behaviour-change interventions show that increasing self-efficacy considerably enhances the adoption of pro-environmental actions in a variety of settings ([Rau et al., 2022](#)).

The link between self-efficacy and environmental performance has also been demonstrated in organizational contexts. According to studies in the hotel industry, individuals with higher levels of green self-efficacy actively engage in ecologically responsible workplace behaviours, which improves organizational environmental performance.

Employees who are confident in implementing green practices take more initiative in preserving resources, eliminating waste, and supporting environmental management programs. These data suggest that self-efficacy affects not just individual behaviour but also overall organizational sustainability outcomes ([Nisar et al.,](#)

2024). This relation is also consistent with AMO theory; based on the theoretical justifications and empirical evidence shown above, it is argued that employees' self-efficacy in food waste management improves their ability to adopt sustainable food waste management techniques, resulting in better environmental project performance. Therefore, the following hypothesis is proposed:

H1c: Self-Efficacy is positively associated with environmentally sustainable project performance.

2.2.2 Food Waste Reduction Intentions as a Moderator

Food waste reduction intentions describe an individual's willingness and commitment to engage in actions that decrease food waste generation within organizational and operational contexts (Chawla et al., 2022). Individuals contemplate the consequences of their actions, formulate a decision, and subsequently execute that decision to get their desired outcome. Consequently, behaviors arise from a particular goal (Aydin and Aydin, 2022). Food waste reduction Intention is critical for achieving environmental sustainability and maintaining long-term organizational competitiveness. The idea of behavioural intention, which was developed in the field of social psychology, has been seen as the conative part of attitude, defining how people are driven to respond to challenging circumstances (Michael et al., 2016). According to Soomro et al. (2024), Organizational environmental practices play a crucial role in attaining long-term business success and improving corporate sustainability. However, the effectiveness of these practices largely depends on the individual's behavioral intentions towards reducing food waste.

A growing corpus of research demonstrates that ability transfers into performance when combined with commitment or intention strength. Commitment has been observed to modify the intention-behavior relationship, with persons with high commitment showing a considerably higher correlation (Neneh and Dzomonda, 2024). Entrepreneurial commitment has been found to act as a vital boundary mechanism, bridging the gap between entrepreneurial intention and conduct (Mei et al., 2022). Goal intention strength has also been shown to significantly

moderate the relationship between implementation intentions and subsequent entrepreneurial action (van Gelderen et al., 2018). Trait self-control has also been shown to positively moderate the intention-action relationship in entrepreneurship (van Gelderen et al., 2015). Whereas action planning has been shown to positively moderate the relationship between entrepreneurial goal intentions and new venture creation (Gielnik et al., 2012). In addition to this, Harrigan et al. (2017) indicate that sustainable practices aim to balance economic, environmental, and social welfare growth. SPs may significantly improve a company's sustainability and performance. Effective waste management strategies increase resource allocation efficiency, lower input costs, and preserve output quality (Bulhões et al., 2023; Guo et al., 2019). The Ability-Motivation-Opportunity (AMO) Theory (Appelbaum, 2000), provides additional support for the hypothesized moderating link. According to the hypothesis, employee performance is defined by their skill, motivation, and opportunities to fulfill assigned tasks efficiently. In the current study, entrepreneurial capacity refers to employees' skill, whereas food waste reduction intention refers to the motivating drive that pushes employees to apply their entrepreneurial knowledge and innovative capabilities to decrease food waste. Employees with entrepreneurial abilities are more likely to improve environmental project performance if they are also motivated to reduce food waste. As a result, according to the AMO framework, reducing food waste is expected to boost the positive impact of entrepreneurial ability on environmental project performance. Thus, the current study hypothesizes that;

H2: Food waste reduction intentions moderate the relationship between entrepreneurial capacity and environmentally sustainable project performance. (Such as when food waste reduction intentions are high, the impact of entrepreneurial capacity will be high on environmentally sustainable project performance).

2.2.3 Perceived Government Support as a Moderator

Government support has been recognized as a vital external factor that promotes the adoption of sustainable behaviors at both individual and organizational levels.

Incentives, regulatory frameworks, and public policies create an enabling environment that promotes the effectiveness of sustainability activities, eliminating barriers and aligning stakeholder intents with broader sustainability goals (Barbosa, 2024). The relationship between organizational competence and performance is significantly moderated and enabled by government support. The sustainable competitive performance of SMEs is greatly improved by government support, especially when public assistance makes up for resource limitations (Nor et al., 2023). Social capital has been demonstrated to interact with company resources and government support as a substantial mediator of firm performance (Shamsuddin, 2014).

Government support's ability to improve company performance in global markets has been demonstrated to be significantly influenced by institutional context (Jalali, 2025). Additionally, business performance results about compliance with environmental regulations are considerably moderated by government support (Joo and Suh, 2017).

Research has shown that government support is a major moderating factor. When government support is high, the link between entrepreneurial sustainability practices and performance outcomes is stronger (Erfanian et al., 2024).

This moderating impact implies that perceived governmental backing enhances the probability that the entrepreneurial capacity of food waste management measures yields quantifiable environmental sustainability benefits. The government's support increases the conversion of actions into results by serving as a boundary requirement. Perceptions of environmental policy and government incentives, according to studies, mitigate the impact of environmentally conscious actions on sustainability results (Liu et al., 2024; Xu et al., 2025). PGS is described theoretically as the opportunity component of AMO theory (Blumberg and Pringle, 1982), which is characterized as external, contextual forces that either facilitate or impede task performance outside of an individual's direct control. Opportunity serves as a boundary condition that moderates the impact of Ability on performance, according to AMO literature (Bos-Nehles et al., 2023). Thus, the following hypothesis is put forth:

H3: Perceived government support moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance. (Such as when perceived government support is high, the impact of entrepreneurial capacity will be high on environmentally sustainable project performance).

2.2.4 Perceived Government Support as a Higher-Order Moderator

Due to growing environmental problems and the depletion of resources, environmental sustainability has become a major issue for governments and businesses in recent years. In this regard, perceived government support boosts citizens' environmental self-identity, hence increasing the acceptability of pro-environmental policies and actions (Persada et al., 2015). When people believe that the government is actively working to help the environment, they are more inclined to do their part to protect it. This suggests that government assistance may really work as an incentive and facilitator of behavior, rather than just being a policy consideration in the background (Mohanty et al., 2021). Also, (Nadlifatin et al., 2015) reveal that the government's support is fundamentally significant for all human activities. The government grants facilities and permits for building and development activities to mitigate adverse impacts on physical, biological, social, cultural, economic, and other elements significantly affecting living organisms. Consequently, the government plays a role in facilitating or obstructing economic activities to mitigate the adverse effects that may influence the environment and society. Government support is a critical determinant of individuals' intentions to engage in environmental impact assessments.

(Wang et al., 2021) reveals that perceived policy effectiveness significantly enhances residents' attitudes, implementation intentions, and pro-environmental behavior, indicating that when individuals regard government policies as effective, their propensity to undertake pro-environmental actions increases. In accordance with extended TPB, the government's support increases the conversion of actions

into results by providing a contextual facilitator. Perceived government support attenuates the impact of practices on long-term performance, according to empirical research. For instance, research has shown that partnerships' impact on long-term performance is amplified when the government is involved. Motivational governance also acts as a moderator between trust and long-term safety practices (Hou et al., 2025; Yue et al., 2022; Zou et al., 2025).

As a result, Perceived government support is a promising theoretical contender for the role of higher-order moderator in this investigation. To be more precise, there may be a moderating influence of food waste reduction intentions on the link between food waste management practices and environmentally sustainable project performance. This effect may be even larger when perceived government support is high. In this situation, the government support does more than just affect things; it amplifies the impact of pre-existing objectives and makes it more likely that they will lead to long-term consequences (Liu et al., 2024; Srivastava et al., 2023). Hence, PGS may be seen as an enhancer that reinforces the intention-capacity-performance cycle in the context of food waste management. Thus, we hypothesize;

H4: Perceived government support strengthens the combined effect of food waste reduction intentions and entrepreneurial capacity on environmentally sustainable project performance (Such as when perceived government support is high, food waste reduction intentions will also be high, then the impact of entrepreneurial capacity will be high on environmentally sustainable project performance).

2.3 Conceptual Framework

The research framework reflects the relationship between variables: Environmental Awareness, self-Efficacy, and entrepreneurial capacity as independent variables, environmentally sustainable project performance as the dependent variable, Food waste reduction intentions, and perceived government support as moderators.

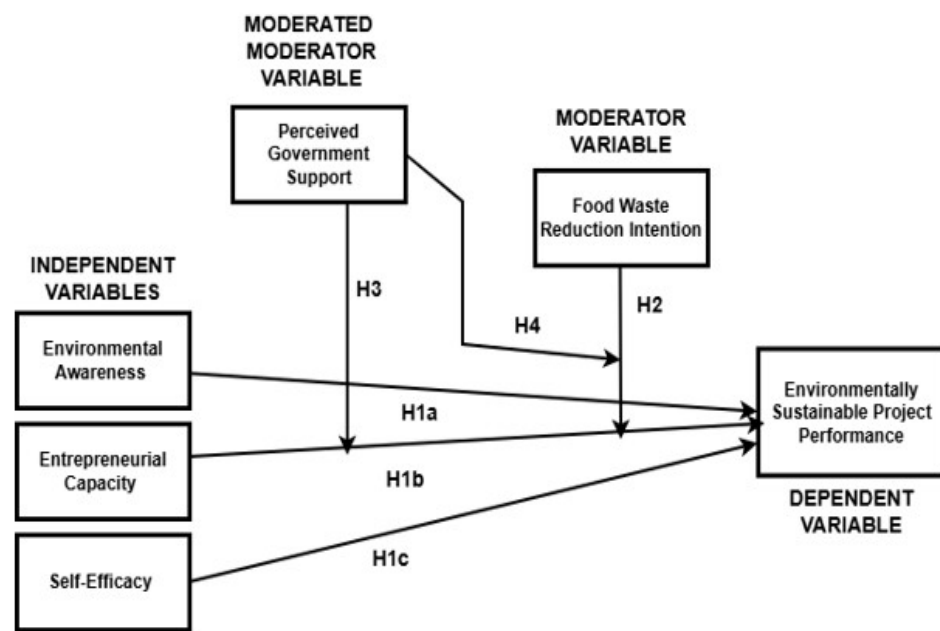


FIGURE 2.1: Conceptual Framework

Chapter 3

Research Methodology

Every single process that was utilized for the purpose of collecting data, providing answers to research questions, and achieving research objectives is detailed in this chapter.

In the part titled "Methodology," which also contains estimations, ethical considerations, and all of the methods of data collection (both population and sample methodologies), the research design is discussed.

3.1 Context

The wedding industry includes a range of service-focused businesses, such as event management companies, catering companies, wedding venues, and marquees.

Every wedding event can be considered as a temporary project requiring the coordination of numerous resources such as food, decorations, and manpower. Wedding events' project-based nature necessitates increased environmental awareness of food waste, stronger self-efficacy in food waste management, and increased entrepreneurial capacity to implement sustainable food waste management practices, all of which improve environmentally sustainable project performance.

3.2 Research Design

The research design is defined as the researcher's planned methodology for discovering and gathering data, along with the procedures implemented to obtain the necessary answers. The study design determines how participants will be selected, how variables will be included and manipulated, how data will be collected and analyzed, and how unnecessary variability will be managed to address the underlying research problem in an effective manner ([Dannels, 2018](#)).

3.3 Research Philosophy Positivism

This study is based on a positivist approach, which assumes that reality can be observed and measured through facts, evidence, and systematic analysis ([Habib, 2021](#); [Rafiq et al., 2022](#)). It investigates how self-efficacy, environmental awareness, and entrepreneurial capacity influence the environmentally sustainable performance of the wedding project, with FWRI and PGS moderating this relationship between entrepreneurial capacity and environmentally sustainable project performance. The study uses a structured quantitative research approach to provide evidence-based insights into how such practices can improve the effectiveness of wedding food waste reduction efforts.

3.4 Population and Sample

Participants in this study included wedding planners, wedding hall managers, catering managers, food service managers, supervisors of Marriage halls, event management companies, catering companies, and Marquees of Pakistan. These participants were directly engaged in the planning, execution, and oversight of food-related operations within wedding projects. Because of their roles, they were the most suitable respondents to provide information on these practices, FWRI, PGS, and the overall outcome of such initiatives. Data collection was conducted with the respondents from Islamabad, Rawalpindi, and Chakwal. These three

cities were specifically selected as they are a dense and interconnected hub of commercial activity related to weddings in the Punjab and Islamabad Capital Territory area, with a high concentration of registered marriage halls, marquees, catering companies, and event management companies.

Chakwal, being a growing semi-urban centre in the same commercial corridor allowed the sample to also capture perspectives from smaller-scale and semi-urban wedding service providers. The twin metropolitan cities of Islamabad and Rawalpindi host a large volume of wedding events throughout the year and provided ready access to a diverse range of established catering and event management businesses.

This mix of urban and semi-urban locations boosts the sample's variety and external validity with respect to the larger wedding catering industry in Pakistan, and is logistically feasible for data collection within the scope and resources of the study.

This strategy enables the sample to reflect the actual professionals engaged in food waste management activities in wedding events, allowing a comprehensive analysis of the interrelationships between environmental awareness of food waste management, self-efficacy toward food waste management, entrepreneurial capacity, food waste reduction intention, perceived government support and environmentally sustainable project performance. Since it was not practical to get information from each person involved in the wedding industry, a carefully selected sample was employed to obtain useful insights from the industry.

3.5 Time Horizon

This study used a cross-sectional survey design, which is an observational study that examines data from a population at a single point in time ([Wang and Cheng, 2020](#)). This method works well for analysing the connections between variables like environmental awareness, self-efficacy, entrepreneurial capacity, food waste reduction intentions, perceived government support, and environmentally sustainable project performance.

3.6 Ethical Issues

When doing a study, research ethics were of the utmost importance. Before data collection, the following significant measures were taken to handle ethical concerns.

1. Ethics approval (Ref: CUST/FMSS/REC/2026-4) was obtained from the CUST University Ethics Approval Committee after deliberately submitting the committee-provided checklist, questionnaire, and participants' consent form.
2. Each participant was asked to provide "informed consent."
3. Research instrument, ethics committee checklist, ethics approval letter, and consent form are attached as Appendix.

3.7 Unit of Analysis

[Hossan et al. \(2023\)](#) define the 'unit of analysis' as the entity concerning which information is collected, hence providing the assessment or evaluation. Individuals, enterprises, institutions, countries, collectives, or even civilisations may constitute the foundation for an analysis. The unit of analysis in this study is managerial employees working in the wedding industry of Pakistan.

3.8 Population Sampling

The population denotes a substantial group exhibiting analogous characteristics within a defined context. This group provides researchers with a fundamental understanding of the demographic or institutional context they intend to examine ([Willie, 2024](#)). Nevertheless, the majority of research incorporates sampling, as sampling is the selection of a group of individual members of a population, where the sample represents a subset of the target population ([Stratton, 2023](#)). When determining a sample, a crucial factor is the sample frame, which comprises the group from which participants are drawn; selecting an adequate sample frame is essential to ensure that the research topic is addressed and that it accurately represents the complete community ([Shah, 2023](#)). Sampling influences

scientific rigour and, in several instances, the perceived significance and practical implications of research, so establishing a crucial connection between knowledge construction, research methodologies, and research effect (Cash et al., 2022). The G*Power software calculates the sample size for the study based on the number of predictors, the desired effect size, and the chance of error (Khatik et al., 2021). In this study, G*Power 3.1.9.7 was used to calculate the required sample size. The minimum sample size is 92 individuals with power of 0.80, medium effect size ($f^2 = 0.15$), and a significance threshold of 0.05. Figure 3.1 shows the G*Power of the minimum sample size and the obtained sample size:

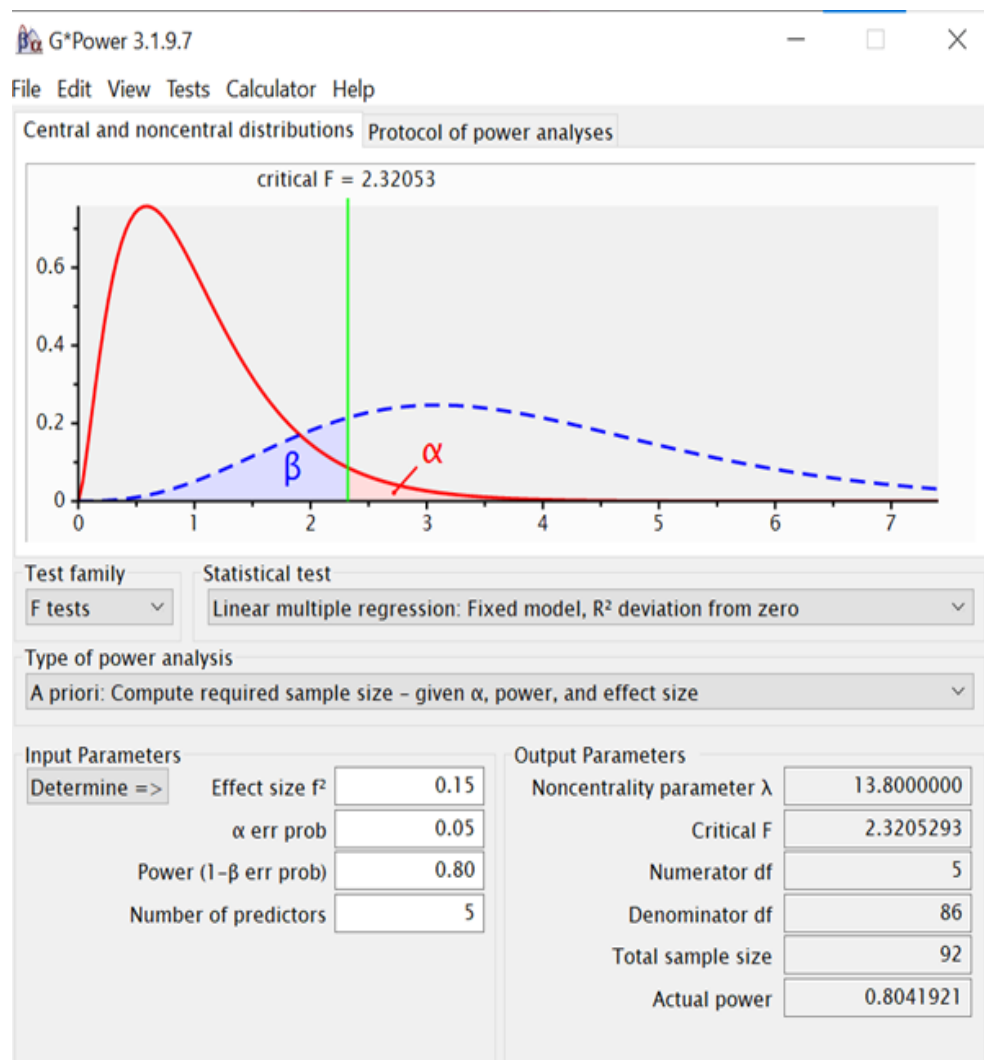


FIGURE 3.1: G* Power (Power=0.80)

To further demonstrate the number of participants, Figure 3.2 illustrates the number of participants needed based on G* Power analysis; at 95% power, 138, though

92 respondents were needed to reach a minimum power of 80%.

Nonetheless, more than 800 people have been contacted for the survey to ensure the most genuine findings because an adequate sample size was considered crucial for moderation and moderated-moderation models because these types of models estimate interaction terms, which are more vulnerable to measurement error and need more statistical power compared to simple direct-effect models (Cham et al., 2017).

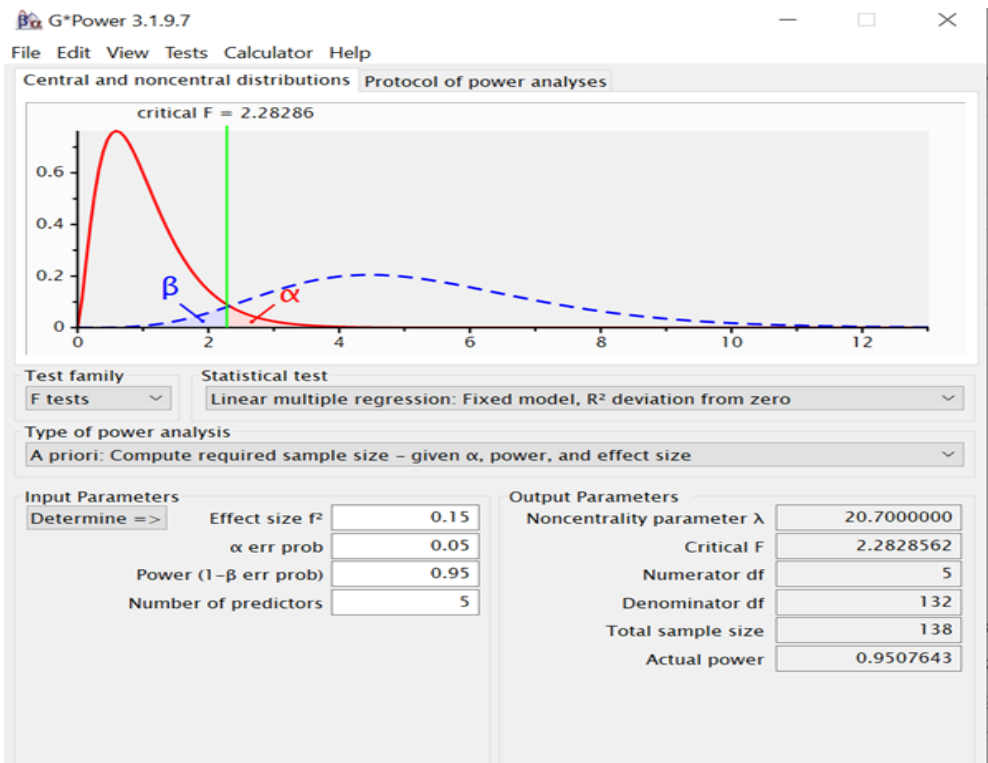


FIGURE 3.2: G* Power (power=0.95)

3.9 Sample and Sample Technique

The sample is a representation of the entire population for the study and clarifies the two different methodologies: probability and non-probability (Chakraborty, 2024). The non-probability method is used to collect information from well-represented segments of the population. This study employed a convenience sampling technique to gather data, as a convenience sample is derived from a readily accessible source (Emerson, 2015).

Furthermore, the use of convenience sampling in this study is justified by the absence of a formal and easily available sampling frame or registry of wedding planners, catering managers and marquee operators in Pakistan, which makes probability-based sampling techniques impossible for this population (Etikan, 2016).

Convenience sampling is a well-established and methodologically accepted approach to access populations that cannot be exhaustively enumerated, and it is frequently used in behavioral and management research under similar practical constraints, in the absence of a sampling frame (Golzar et al., 2022; Majeed et al., 2026).

This sampling method allowed us to obtain relevant information on how environmental awareness, self-efficacy, and entrepreneurial capacity improve the wedding's environmentally sustainable performance and to investigate the moderating roles of food waste reduction intentions and perceived government support.

3.10 Data Collection

A structured questionnaire was used to gather data from participants about their opinions on environmental awareness, self-efficacy towards FWM, entrepreneurial capacity, environmentally sustainable project performance, and the moderating effect of food waste reduction intentions and perceived government support. The study was cross-sectional because data were gathered at a single point in time.

Quantitative assessments of different factors were made possible by the closed-ended questions of the questionnaire by using a 5-point Likert scale. The questionnaire was administered through a Google Form for the participants' proper facilitation and accessibility.

3.11 Sample Characteristics

The questionnaire was distributed to 850 respondents for the survey, but received responses were 725 resulting in a response rate of 85.29%. Among the received

responses, 14 questionnaires were incomplete and therefore excluded from the study. Consequently, 711 responses were used for further analysis. The demographics used in the surveys included gender, age, education level, business type, work experience, designation, and food waste generated per wedding (in kgs). The characteristics of the respondents from whose data were obtained are shown in the following tables.

3.11.1 Gender

Gender was included in the demographic portion of the questionnaire since it is an essential trait for characterizing the makeup of respondents and making the study results easier to understand. Gender is a socially and societally contextual factor that researchers must take into account. The effects of psychosocial covariates on research variables, such as a person's gender identification, might vary according to the society in which the study takes place (Slade et al., 2021). The proportion of male respondents exceeded that of female respondents, since the majority of the professionals involved in wedding projects are male. The gender makeup of the population is shown in Table 3.1. It shows that there were only 14.2% female participants, whereas 85.8% male participants.

TABLE 3.1: Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	610	85.8	85.8	85.8
Female	101	14.2	14.2	100.0
Total	711	100.0	100.0	

3.11.2 Age

Another important demographic variable is age, although some respondents are reluctant to provide this information. To ease respondents' minds, we utilized many age ranges instead of asking for their exact age. Table 3.2 shows the sample composition by age categories: 33.3% of respondents were between the ages of 18 and 30, 34.9% were between the ages of 31 and 40, 23.6% were between the

ages of 41 and 50, and 8.2% were older than 50. According to the analysis, many respondents were between 31 and 40 years old.

TABLE 3.2: Age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-30 years	237	33.3	33.3	33.3
31-40 years	248	34.9	34.9	68.2
41-50 years	168	23.6	23.6	91.8
Above 50 years	58	8.2	8.2	100.0
Total	711	100.0	100.0	

3.11.3 Education Level

Like age and gender, education level is an important demographic feature because it determines employees' opportunities to enhance their knowledge, skills, and practices, which, in turn, make them more competitive on a global scale. In order for a nation to prosper, education is vital. In order to gather education information, the questionnaire made reference to four different degree categories. Table 3.3 indicates that 26.2% of the respondents held a Matric/Intermediate, 43.5% a Bachelor's degree, 20.3% a Master's degree, and 10.1% a Diploma. More people are earning bachelor's degrees.

TABLE 3.3: Education level

Education	Frequency	Percent	Valid Percent	Cumulative Percent
Matric/Intermediate	186	26.2	26.2	26.2
Bachelor	309	43.5	43.5	69.6
Master	144	20.3	20.3	89.9
Diploma	72	10.1	10.1	100.0
Total	711	100.0	100.0	

3.11.4 Business Type

We looked at the type of business to figure out how the people who answered the questions were involved in wedding projects. To do this, several sorts of business categories were used to get information from the respondents. Table 3.4 indicates that 25.6% of the respondents were involved with Event management companies, 31.2% with marriage halls, 19.0% with Catering Companies, and 24.2% with marquees. Most of the respondents were associated with the marriage hall business.

TABLE 3.4: Business Type

Business Type	Frequency	Percent Valid	Percent Cumulative
Event management	182	25.6	25.6
Marriage Halls	222	31.2	56.8
Catering Company	135	19.0	75.8
Marquee	172	24.2	100.0
Total	711	100.0	100.0

3.11.5 Work Experience

As a significant component of demography, work experience enhances individual abilities and creativity. We utilized four different ranges to collect data on the respondents' experiences of the wedding projects. Table 3.5 shows that the percentages of respondents have worked on the wedding projects for less than 3 years: 22.4%, 32.8% with 3-5 years of experience, 28.4% with 6-10 years, and 16.5% for more than 10 years. This suggests that many responders have 3-5 years of experience working on wedding projects.

TABLE 3.5: Work Experience

Work Experience	Frequency	Percent Valid	Percent Cumulative	Percent
Less than 3 years	159	22.4	22.4	22.4
3-5 years	233	32.8	32.8	55.1
6-10 years	202	28.4	28.4	83.5
>10 years	117	16.5	16.5	100.0
Total	711	100.0	100.0	

3.11.6 Designation

Examining the respondents' designation helped shed light on their day-to-day work and the specific responsibilities they played in relation to the wedding. The following table 3.6 reveals the role of respondents that 19.5% worked as wedding planners, 22.2% as managers of wedding halls, 16.3% as food service managers, 18.4% as catering managers, and 23.5% as supervisors. The majority of respondents identified supervisors as their primary role in the survey.

TABLE 3.6: Designation

Designation	Frequency	Percent Valid	Percent Cumulative	Percent
Wedding planner	139	19.5	19.5	19.5
Catering manager	131	18.4	18.4	38.0
Wedding hall manager	158	22.2	22.2	60.2
Supervisors	167	23.5	23.5	83.7
Food service managers	116	16.3	16.3	100.0
Total	711	100.0	100.0	

3.11.7 Food Waste Generated Per Wedding in Kgs

This demographic variable was included to assess the extent of food waste produced at wedding events, relying on respondents' professional expertise and experience. The respondents were asked to indicate the approximate level of food waste at wedding events. Four categories were used for this purpose: low, medium, high, and extreme. Table 3.7 shows that only 17.9% of the food waste at weddings is low, but a large part, 64.4%, is medium. In addition, 14.1% represents high levels of food waste, whereas 3.7% indicates extreme levels.

The data shows that food waste at weddings is most often at a medium level. This means that, on average, the amount of food waste produced at each event is between 6 and 20 kg.

TABLE 3.7: Food waste generated per wedding (in Kgs)

Food waste generated per wedding (in Kgs)	FrequencyPercentValid PercentCumulative Percent			
Low (<5 Kg)	127	17.9	17.9	17.9
Medium (6 to 20 Kg)	458	64.4	64.4	82.3
High (21-35 Kg)	100	14.1	14.1	96.3
Extreme (>35 Kg)	26	3.7	3.7	100.0
Total	711	100.0	100.0	

3.12 Research Instruments

Pakistan mandates the study of English as a subject from the very first grade forward. Consequently, the survey instrument referenced in Table 3.8 was crafted

in English. Also included in the English language set are guidelines for the university level. The bulk of responders should have had no trouble understanding the questionnaire because they were college graduates. A closed-ended questionnaire was used to evaluate all aspects. To measure all of the variables, we used a Likert scale that goes from 1 (strongly disagree) to 5 (strongly agree).

The study's objectives dictated the split of the questionnaire in half. Half of the survey was devoted to questions on the respondent's demographics, such as their gender, age, education level, business type, work experience, designation, and food waste generated per wedding (in kgs).

The second part of the thesis discussed environmental awareness, self-efficacy, and entrepreneurial capacity as independent variables, the environmentally sustainable project performance as the dependent variable, food waste reduction intentions, and perceived government support as the moderating variables.

3.12.1 Environmental Awareness

[Awallia and Famiola \(2021a\)](#) adapted a 5-item scale to Measure Environmental Awareness. Sample items included the 5, with Cronbach's alpha reliability for environmental awareness was recorded at 0.824.

3.12.2 Self-Efficacy towards FWM

The 9-item scale used by [Ding \(2022b\)](#) to measure self-efficacy towards Food waste Management, having Cronbach's alpha reliability of 0.883.

3.12.3 Entrepreneurial Capacity

4- Item scale adopted by [Awallia and Famiola \(2021a\)](#) to Assess Entrepreneurial Capacity. Cronbach's alpha was recorded at 0.762.

3.12.4 Food Waste Reduction Intentions

[Chun T'ing et al. \(2021a\)](#) adapted the 5-Item scale to evaluate food waste reduction Intention as a moderator variable, with Cronbach's alpha reliability recorded at 0.842.

3.12.5 Perceived Government Support

A 3-item scale used by [Mensah et al. \(2024\)](#) for measuring perceived government support as a moderator variable, having a Cronbach's alpha reliability of 0.701.

3.12.6 Environmentally Sustainable Project Performance

A 5-item scale was used by [Marfu et al. \(2025\)](#) to measure environmentally sustainable project performance as the dependent variable. Sample items are 5, with Cronbach's alpha reliability for environmentally sustainable project performance, which was recorded at 0.817.

TABLE 3.8: Research Instrument

Variable	Items	Sources
SE	9	Ding (2022a)
EA	5	Awallia and Famiola (2021a)
EC	4	Awallia and Famiola (2021b)
FWRI	5	Chun T'ing et al. (2021b)
PGS	3	Mensah et al. (2024)
ESPP	5	Marfu et al. (2025)

(Note: Scales are attached in Appendix A)

3.12.7 Timeline of Study

Eight months have been utilized for comprehensive research and data collection, leading to the completion of the research report. The timeline is attached to Table 3.9 below.

TABLE 3.9: Study Timeline

Tasks	Duration	Timeline
Preliminary Research	1 month	September 2025
Preparation of Research Proposal	3 months	Oct-December 2025
Defense- Research Proposal	-	29, January 2026
Ethical Approval	-	Feb 2026
Data Collection	2 & a half months	Feb- April 2026
Preparation of Final Report	1 month	April-May 2026

Chapter 4

Data Analysis and Results

In this Chapter, section 4.1 discusses the data filtering technique. The results of the data analysis, as revealed by the assessment of the measurement and structural models, are detailed in section 4.2. Section 4.3 concludes by summarizing the results of all the tested hypotheses.

4.1 Data Screening

Data screening is the process of preparing data for additional statistical analysis by cleaning and normalizing it, since any mistake might affect data reliability ([Anwar et al., 2020](#)). Data screening is an important procedure that uses several methods to help the researcher find any possible mistakes or missing data that might violate the basic principles of applying multivariate data analysis methodologies. Consequently, preliminary data screening finds multicollinearity and outliers; to make it reliable, usable, and trustworthy, it needs cleaning procedures ([Haji-Othman et al., 2024](#); [Sukri and Yusoff, 2021](#)).

4.1.1 Data Cleaning

Data cleaning, a critical step in data analysis and management, is finding and repairing "dirty data" to improve overall data quality. This method identifies and

corrects mistakes and data inconsistencies before statistical analysis, minimizing their influence on research outcomes. Data cleaning includes identifying abnormalities, detecting mistakes, and implementing suitable remedial steps ([Sharifnia et al., 2026](#)). The data utilized for the analysis may be inconsistent, noisy, or incomplete if proper cleaning is not performed ([Hosseinzadeh et al., 2023](#)).

4.1.2 Missing Values and Outliers

One of the problems that impacts data quality is the presence of outliers and missing values. Eliminating outliers and missing values may reduce the generalizability of the results and induce bias into parameter estimates. Data analysis that fails to account for missing values may lead to data loss, which in turn reduces statistical power and increases standard errors.

The data may be imputed using a number of different statistical approaches. Datasets that have outliers or missing values must be corrected before analysis can be conducted. Data that isn't fit for statistical inference might be the consequence of careless editing, and assumptions can easily be violated in statistical analysis ([Agustini et al., 2024](#)).

There are three forms of missing values: Missing Completely at Random (MCAR), Missing at Random (MAR), and Missing Not at Random (MNAR). To reduce bias in the analysis, each kind needs to be handled in a distinct way. Finding missing values frequently means looking at how the data was collected and applying statistical tests to figure out what kind of missingness it is ([Kwak and Kim, 2017](#)).

Since deleting 5% or 10% of the data does not lead to bias in the data, it is acceptable to exclude the cases with missing values from the data. Another option is to use the series mean, the median of adjacent points, linear interpolation, linear trend of points, or the mean of nearby points to replace (impute) missing values in the program ([Rashid and Waheed, 2021](#)). I got 725 filled questionnaires using Google Forms. Out of these, there were 14 questionnaires that had missing values. The percentage of missing data was 1.93%, which is less than the 5% criterion specified in the literature. Because of this, these cases were not included in the

dataset. After cleaning the data, the current study kept 711 valid questionnaires for more statistical analysis. Also, there were no outliers in the dataset for this investigation.

4.2 Results

The utilization of partial least squares structural equation modeling (PLS-SEM) to examine intricate interrelationships among latent variables and their indicators (Sarstedt and Liu, 2024). PLS-SEM is useful for looking at complicated models, especially when higher-order constructs are involved, because it can work with both reflecting and formative measurement methods (Hair and Alamer, 2022; Memon et al., 2021). PLS-SEM using Smart PLS 4 version has been performed in two steps: the first step is measurement model evaluation, followed by structural model evaluation (Islam, 2023). The measurement model shows how unobserved (latent) variables are related to their observable indicators. It is used to see how well the indicators represent the underlying constructs (Christ et al., 2014). The structural model delineates and evaluates the proposed links among latent variables, generally using path analysis (Fan et al., 2016). Before starting the first phase, the data that had been collected was checked for common method bias by using the Harman single factor test, because the Harman single factor test is a simple way to find Common Method bias by seeing if one factor can explain a large part of the variance (Memon et al., 2023), also One-way ANOVA test performed for the investigation of group differences.

4.2.1 Harman's Single Factor Test

To assess the potential threat of common method bias in the collected data, Harman's single-factor test was performed using IBM SPSS. All questionnaire items were subjected to exploratory factor analysis, and the results revealed that the first unrotated factor accounted for 41.747% of the total variance, as presented in Table 4.1. Since this value is well below the recommended cutoff of 50% (Fuller et al.,

2016), it can be concluded that common method bias does not pose a significant problem in this study.

The findings demonstrate that the data are suitable for subsequent analysis, as the measures exhibit satisfactory reliability and distinct constructs are clearly identifiable within each measurement scale.

TABLE 4.1: Harman's single factor test

Test	First factor variance	Threshold	Result
Harman's single factor test	41.747%	<50%	No common Method Bias

4.2.2 Covariates

To determine how different demographic factors affected the primary research variables, this study used IBM SPSS to conduct a One-Way ANOVA. The goal of this analysis was to find out if different groups of respondents had different approaches to food waste management, goals for reducing food waste, levels of support they felt from the government, and how well ecologically sustainable projects fared. Gender, age, education level, Business Type, Work Experience, Designation and Food waste generated per wedding (in Kgs) were the demographic factors assessed. None of the demographic factors were found to be statistically significant predictors of the research constructs, according to the results shown in Table 4.2. There are no significant variations across the major categories for gender ($F = 2.703$, $p = 0.101$), age ($F = 2.387$, $p = 0.068$), education level ($F = 0.092$, $p = 0.965$), business type ($F = 0.622$, $p = 0.601$), work experience ($F = 1.938$, $p = 0.122$), Designation ($F = 1.187$, $p = 0.315$), food waste generated per wedding (in Kgs) ($F = 0.503$, $p = 0.680$). Demographic characteristics are not regarded as control variables in this study since they do not systematically affect the judgments of respondents.

TABLE 4.2: Covariates

Covariate	Mean square	F value	P value
Gender	1.186	2.703	0.101
Age	1.043	2.387	0.068
Education level	0.041	0.092	0.965
Business Type	0.274	0.622	0.601
Work Experience	0.849	1.938	0.122
Designation	0.521	1.187	0.315
Food waste generated per wedding (in Kgs)	0.222	0.503	0.680

4.2.3 Measurement Model Assessment

The reliability and validity of the scale items for all variables have been tested using construct reliability and construct validity. To find out how reliable the construct was, we looked at variables like composite reliability (CR) and Cronbach alpha (CA). Analysis of outer loadings and average variance extracted (AVE) allowed for the measurement of construct validity. The amount of variation that latent variables or constructs are able to extract from their indicators is shown by the average variance extracted. We looked at the outer loadings of each variable to see how reliable it was.

4.2.3.1 Convergent Validity and Construct Reliability

Convergent validity is the degree to which the notion aligns to elucidate the variance of its indicators. The average variance extracted (AVE) for all indicators on each construct is the measure used to determine a concept's convergent validity (Hair et al., 2021). The table shows that the Cronbach Alpha readings are all higher than 0.7, and the AVE values are all higher than the minimum permitted level of 0.5 (Cheng et al., 2024). This Table 4.3 shows that the items of

the variables were gradually coming to represent their corresponding underlying concepts.

TABLE 4.3: Construct Reliability and Convergent Validity

Constructs	CA	CR (rho-a)	CR (rho-c)	AVE
EA	0.824	0.827	0.877	0.588
EC	0.762	0.768	0.848	0.584
SE	0.883	0.883	0.907	0.55
FWRI	0.842	0.843	0.888	0.614
PGS	0.701	0.702	0.834	0.626
ESPP	0.817	0.817	0.872	0.578

4.2.3.2 Outer Loadings

Outer loading measures how effectively an indicator reflects its hidden variable, with higher values indicating a greater representation of the construct ([Iskandar et al., 2024](#)). Values of 0.70 or higher for the outer loading are acceptable since they show that the construct explains a large part of the indicator's variation. Items with loadings below 0.40 are usually eliminated, although values between 0.40 and 0.70 may be kept if they add to content validity ([Pereira et al., 2024](#)). Table 4.5 shows convergent validity.

TABLE 4.4: Outer Loadings

Variables	Item	OL	Variables	Item	OL
EA	EA1	0.804	FWRI	FWRI1	0.773
	EA2	0.805		FWRI2	0.766
	EA3	0.733		FWRI3	0.808
	EA4	0.757		FWRI4	0.794
	EA5	0.728		FWRI5	0.775
EC	EC1	0.762	PGS	PGS1	0.790
	EC2	0.773		PGS2	0.805

Table 4.4 continued from previous page

Variables	Item	OL	Variables	Item	OL
SE	EC3	0.795		PGS3	0.779
	EC4	0.724	ESPP	ESPP1	0.755
	SE1	0.743		ESPP2	0.747
	SE2	0.764		ESPP3	0.759
	SE3	0.741		ESPP4	0.762
	SE4	0.717		ESPP5	0.778
	SE5	0.750			
	SE6	0.755			
	SE7	0.730			
	SE8	0.732			
	SE9	0.743			

4.2.3.3 Discriminant Validity

The discriminant validity analysis was conducted to evaluate the extent to which the tested constructs diverged from alternative constructs.

TABLE 4.5: Discriminant Validity through Fornell-Larcker Criterion

Constructs	EA	EC	ESPP	FWRI	PGS	SE
EA	0.766					
EC	0.672	0.764				
ESPP	0.729	0.676	0.760			
FWRI	0.628	0.575	0.725	0.783		
PGS	0.531	0.553	0.627	0.546	0.791	
SE	0.745	0.672	0.714	0.628	0.519	0.742

This analysis can find out how closely one construct is related to another and how many items may stand for one construct (Kamis et al., 2020). Several studies have suggested different techniques to check for discriminant validity, such as the

Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (Cho and Rönkkö, 2022), were used in this study to measure discriminant validity.

The Fornell-Larcker criterion is mostly used to make sure that the AVE and inter-construct correlations show that the constructs in a model are different from each other (Hilkenmeier et al., 2020). Table 4.6 below illustrates discriminant validity through the Fornell-Larcker Criterion.

The Heterotrait-Monotrait (HTMT) ratio of correlation is another way to check for discriminant validity. It is suggested that this method’s improved performance, demonstrated by a Monte Carlo simulation analysis, reveals that HTMT can get greater specificity and sensitivity rates (97% to 99%). HTMT readings that are close to 1 show that there is no discriminant validity (Ab Hamid et al., 2017).

TABLE 4.6: Discriminant Validity through HTMT

Construct	EA	EC	ESPP	FWRI	PGS	SE
EA						
EC	0.844					
ESPP	0.888	0.851				
FWRI	0.754	0.715	0.873			
PGS	0.699	0.751	0.827	0.709		
SE	0.874	0.814	0.839	0.727	0.659	

HTMT evaluates the ratio of correlations between constructs to correlations within constructs (Henseler et al., 2015). To be deemed acceptable, the HTMT ratio should fall below 0.85 or 0.90. Discriminant validity is either degraded or non-existent when the HTMT ratio surpasses the threshold (Munawar, 2023). Since, Food waste management practices is a formative construct, so, in this table FWMP values are not visible. Table 4.7 below illustrates all constructs achieved discriminant validity as the values are below than 0.90 as per HTMT criterion. This assures that the reliability of measurement model and all constructs are empirically different and worthy of further structural investigation.

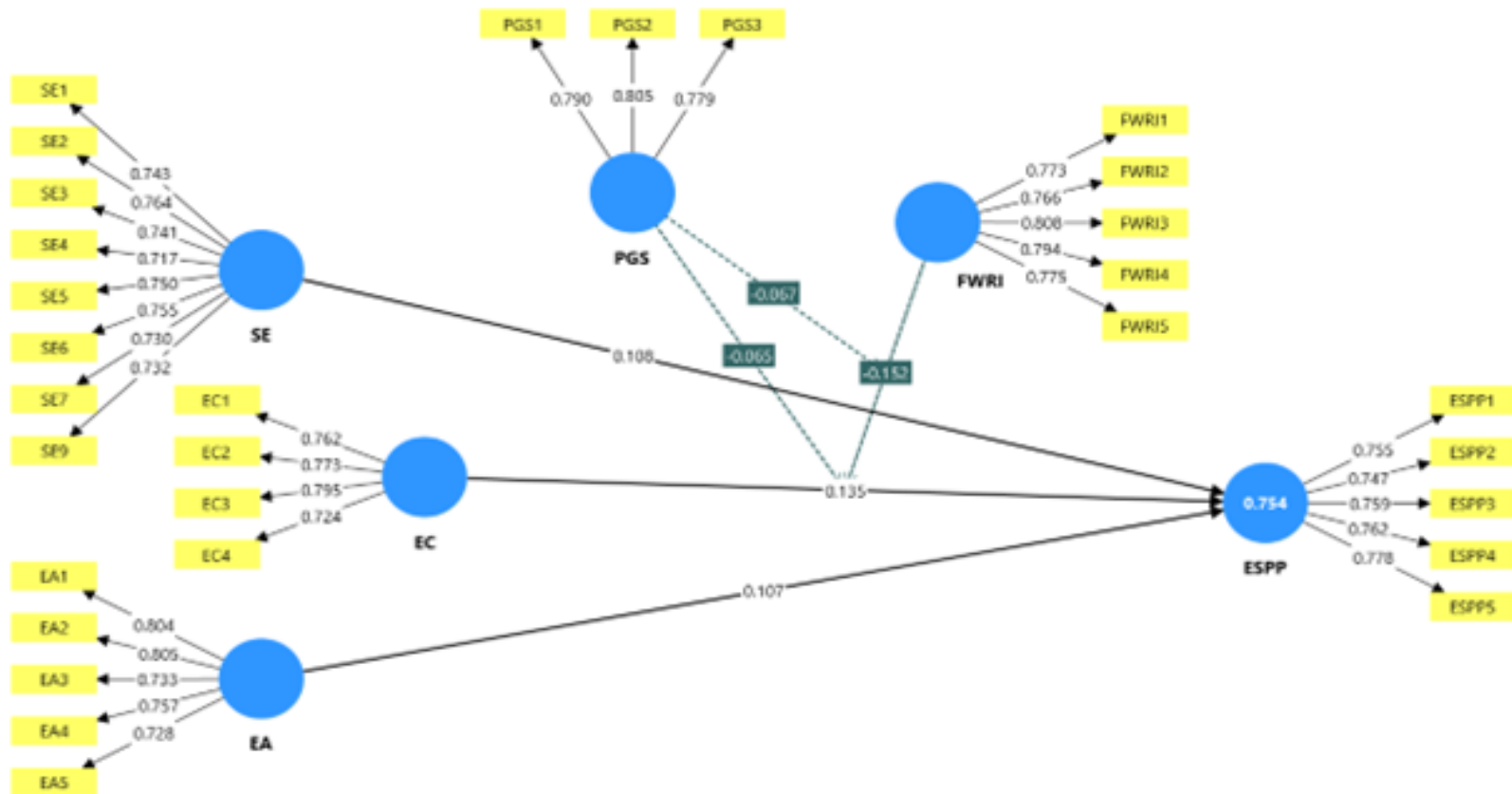


FIGURE 4.1: Measurement Model Analysis

4.2.4 Structural Model Assessment

Structural model evaluation looks at how the model's latent constructs are related to each other and how well the model can predict and explain things. The analysis focuses on path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) to assess the strength and importance of postulated correlations (Hair et al., 2021). The second step of PLS-SEM was performed to investigate the inner model in accordance with established standards, aiming to investigate the moderating effect of food waste reduction intentions and perceived government control, as well as three-way interaction (moderated- moderation effect) of PGS-FWRI on relationship between EC and ESPP.

4.2.4.1 Coefficient of Determination and Predictive Usefulness

Using the R^2 and Q^2 predict coefficients, we evaluated the structural model's ability to explain and forecast. Environmentally Sustainable Project Performance is explained by behavioral intention, perceived government support, and environmental awareness, self-efficacy and entrepreneurial capacity; these five variables account for 75.4% of the variation in ESPP, as seen in Table 4.7, R^2 value of 0.754. As to (Hair et al., 2022), a significant R^2 value is 0.75 or above, whereas moderate and weak levels are 0.50 and 0.25, respectively. As a result, the resulting R^2 value proves that the suggested model is quite effective at explaining the data. Very near to the initial R^2 value is the corrected R^2 value of 0.750. The model is not overfitted and maintains its robustness after accounting for the number of predictors, as indicated by the smallest difference of 0.004. The model's out-of-sample predictive relevance was assessed using PLS predict alongside its explanatory power. With ESPP, the Q -predict value is 0.727. The model is predictively relevant if the Q^2 -predict value is more than zero, and it is highly predictively relevant if the value is more than 0.50, according to (Shmueli et al., 2019). Therefore, the model's good predictive power for ESPP in new data settings is confirmed by the Q^2 -predict score of 0.727. Statistically and pragmatically, the results show that the structural model may accurately forecast the long-term success of Pakistan's wedding sector.

TABLE 4.7: Coefficient of Determination

Construct	R-square	R-square adjusted	Q2predict
ESPP	0.754	0.750	0.727

4.2.4.2 Direct Relationship Analysis

A bootstrapping approach with default subsamples of 5000 two tale was used to check the significance and t-values for the path coefficient. The findings at table 4.8 show that there is a direct and positive relationship between environmental awareness and environmentally sustainable project performance ($\beta = 0.107$, $t = 2.739$, $p < 0.05$), entrepreneurial capacity and environmentally sustainable project performance ($\beta = 0.135$, $t = 4.465$, $p < 0.05$), and self efficacy and environmentally sustainable project performance ($\beta = 0.108$, $t = 2.978$, $p < 0.05$). Assuming all other variables remain the same, a path coefficient of 0.107 indicates that, for every one-unit improvement in environmental awareness, there is a 0.107 unit increase in environmentally sustainable project performance, a path coefficient of 0.135 indicates that, for every one-unit improvement in entrepreneurial capacity, there is a 0.135 unit increase in environmentally sustainable project performance and a path coefficient of 0.108 indicates that, for every one-unit improvement in self efficacy, there is a 0.108 unit increase in environmentally sustainable project performance. The fact that there is no zero in the 95% confidence range [0.039, 0.191], [0.078, 0.196], [0.039, 0.181] adds credence to the stability and importance of these connections.

4.2.4.3 Moderation Analysis

The moderating influence of food waste reduction intentions on the link between entrepreneurial capacity and environmentally sustainable project performance, the moderating effect of perceived government support on the link between entrepreneurial capacity and environmentally sustainable project performance and also the moderating influence of perceived government support on the food waste

TABLE 4.8: Direct Relationship

Hyp.	Hyp. Relationship	β	M	STDEV	t value	f2 value	P values	2.5% LLCI	97.5% ULCI	Remarks
Direct Effect										
H1a	EA->ESPP	0.107	0.110	0.039	2.739	0.014	0.006	0.039	0.191	Supported
H1b	EC->ESPP	0.135	0.137	0.030	4.465	0.031	0.000	0.078	0.196	Supported
H1c	SE->ESPP	0.108	0.107	0.036	2.978	0.016	0.003	0.039	0.181	Supported

TABLE 4.9: Moderation Analysis

Hyp.	Hyp. Relationship	β	M	STDEV	t value	f2 value	P values	2.5% LLCI	97.5% ULCI	Remarks
Moderation Effect										
H2	FWRI x EC->ESPP	-0.152	-0.148	0.022	6.913	0.100	0.000	-0.192	-0.107	Statistically Significant
H3	PGS x EC ->ESPP	-0.065	-0.066	0.032	2.070	0.014	0.039	-0.134	-0.010	Statistically Significant
H4	PGS x FWRI x EC ->ESPP	-0.067	-0.065	0.017	3.955	0.083	0.000	-0.096	-0.028	Statistically Significant

reduction intentions on the link between entrepreneurial capacity and environmentally sustainable project performance was analysed using bootstrapping method, analogous to the examination of direct correlations.

Table 4.9 presents the findings, indicating that the interaction terms of food waste reduction intentions exert a negative and significant impact between the relationship of entrepreneurial capacity on environmentally sustainable project performance ($\beta = -0.152$, $t = 6.913$, $p < 0.05$).

This suggest that a high moderating effect of food waste reduction intentions suppress the relationship between entrepreneurial capacity and environmentally sustainable project performance. Following this, perceived government support moderation effect between entrepreneurial capacity and environmentally sustainable project performance is negative and significant ($\beta = -0.065$, $t = 2.070$, $p < 0.05$), also three-way interaction of PGS x FWRI x EC is negative and significant ($\beta = -0.067$, $t = 3.955$, $p < 0.05$), Thereby, H2, H3, H4 is not supported but statistically significant.

In order to acquire a better understanding of the moderating influence, Figure 4.2 displays the slope analysis of food waste reduction intention on the link between entrepreneurial capacity and environmentally sustainable project performance. In comparison to the blue and green lines, it is evident that the red line, which represents FWRI at -1 SD, has the steepest positive slope. It exhibits the highest increase as entrepreneurial capacity increases, while beginning at the lowest level of ESPP. FWRI at the mean level is represented by the blue line, which likewise has a positive but somewhat moderate slope. The green line, which represents FWRI at +1 SD, on the other hand, is nearly flat with a small downward trend, suggesting that when food waste reduction intention is strong, the positive impact of entrepreneurial capacity on environmentally sustainable project performance becomes significantly weaker. Overall, the results indicate that there is a positive correlation between the performance of environmentally sustainable projects and entrepreneurial capacity, which is strongest when food waste reduction intentions is low and progressively declines as it rises. This pattern supports the negative moderating effect of food waste reduction intention, showing that the relationship

between entrepreneurial capacity and the effectiveness of environmentally sustainable projects is weaker at higher FWRI levels.

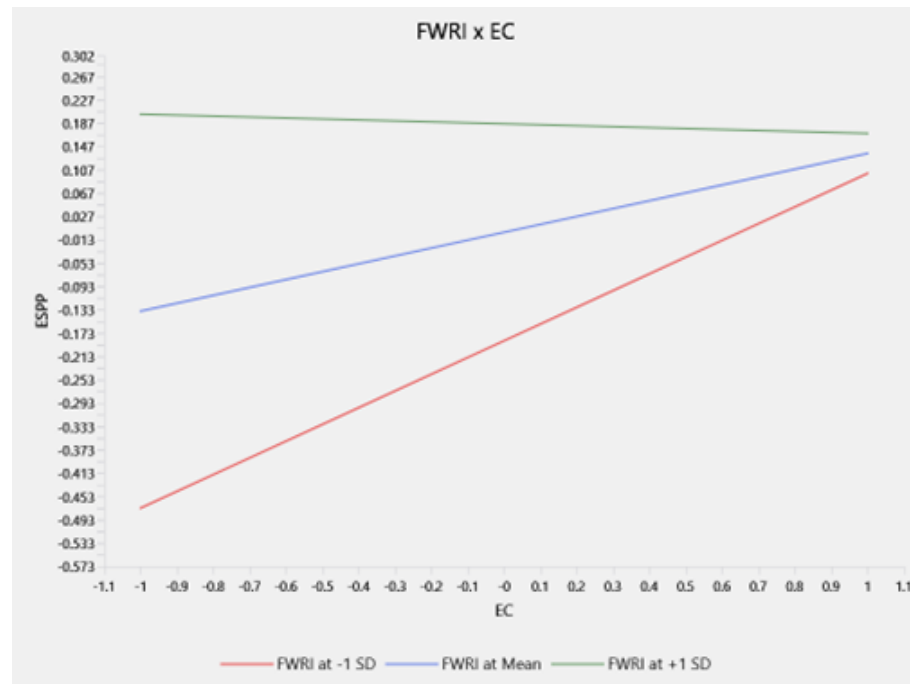


FIGURE 4.2: Moderation Analysis

Refer to the slope analysis depicted in Figure 4.3 for a more comprehensive insight into the attributes of the moderating impact. The red line, denoting perceived government support at -1 SD, exhibits the most pronounced slope relative to the blue and green lines. PGS at -1 SD initiates from the minimum level yet demonstrates the most pronounced upward trajectory as entrepreneurial capability escalates. The trajectories of all three lines exhibit an upward trend, signifying a favorable correlation between entrepreneurial capability and environmentally sustainable project performance. Nonetheless, as PGS escalates, the gradient increasingly diminishes. This indicates that diminished perceived government support correlates with a more robust connection between entrepreneurial capacity and environmentally sustainable project performance; conversely, increased perceived government support corresponds to a weakened relationship between entrepreneurial capacity and environmentally sustainable project performance. This pattern validates the adverse moderating influence of perceived government assistance, indicating

that increased dependence on external governmental support may diminish organizations' internal accountability and proactive engagement of entrepreneurial capacities, consequently undermining its impact on environmentally sustainable project performance.

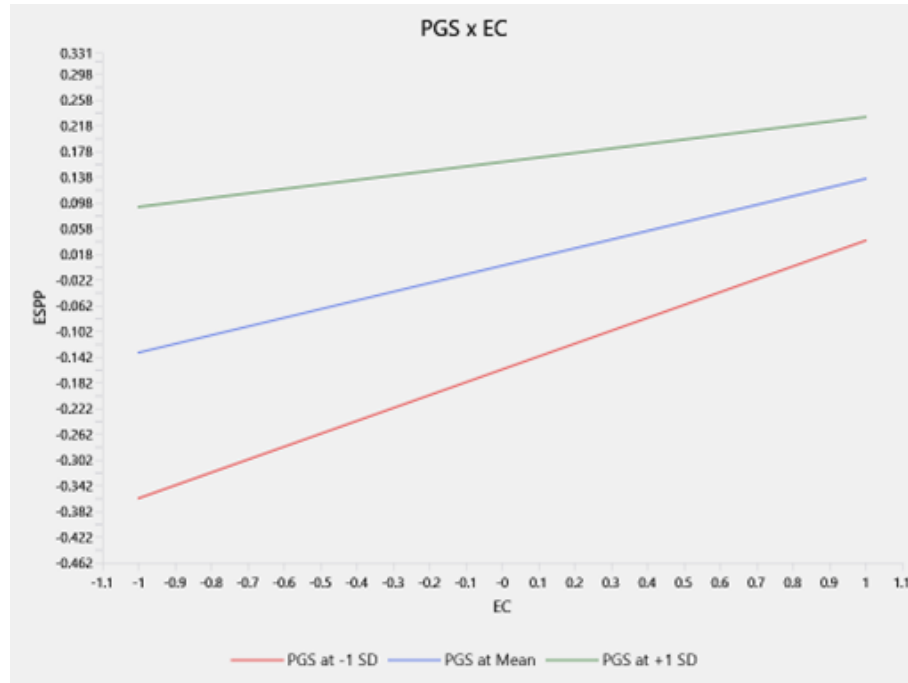


FIGURE 4.3: Moderation Analysis

Surprisingly, the three-way interaction results show that the strongest relationship between entrepreneurial capacity and environmentally sustainable project performance occurs when food waste reduction intention is low, regardless of perceived government support. The biggest positive benefits are observed when FWRI is at -1 SD, with effect sizes consistently high across all levels of PGS ($\beta = 0.285$ at low PGS, $\beta = 0.287$ at mean PGS, and $\beta = 0.289$ at high PGS). When FWRI is at +1 SD, the link weakens significantly. The effect of high FWRI is highest when PGS is low ($\beta = 0.116$), decreases to negligible at mean PGS ($\beta = -0.016$), and becomes negative when both FWRI and PGS are high ($\beta = -0.149$). These findings imply that high food waste reduction intentions, especially when combined with substantial perceived government support, reduce the favorable contribution of entrepreneurial capacity to environmentally sustainable project performance. At the mean level of FWRI, the effect diminishes with increasing PGS, from $\beta =$

0.200 at low PGS to $\beta = 0.135$ at mean PGS and $\beta = 0.070$ at high PGS. Overall, the findings show that entrepreneurial capacity has the greatest impact on environmentally sustainable project performance when food waste reduction intention is low, whereas increasing perceived government support weakens this relationship at moderate and high levels of FWRI. This pattern supports the existence of a negative three-way moderating effect, implying that the simultaneous presence of high food waste reduction intention and high perceived government support may result in motivational and institutional crowding-out, reducing the effectiveness of entrepreneurial capacity in improving environmental project performance. Table 4.10 shows the conditional direct effects of the three-way interaction.

TABLE 4.10: Conditional Direct Effect of PGS on FWRI between EC and ESPP

	EC ->ESPP
FWRI at +1 SD and PGS at +1 SD	-0.149
FWRI at +1 SD and PGS at -1 SD	0.116
FWRI at +1 SD and PGS at Mean	-0.016
FWRI at -1 SD and PGS at +1 SD	0.289
FWRI at -1 SD and PGS at -1 SD	0.285
FWRI at -1 SD and PGS at Mean	0.287
FWRI at Mean and PGS at +1 SD	0.070
FWRI at Mean and PGS at -1 SD	0.200
FWRI at Mean and PGS at Mean	0.135

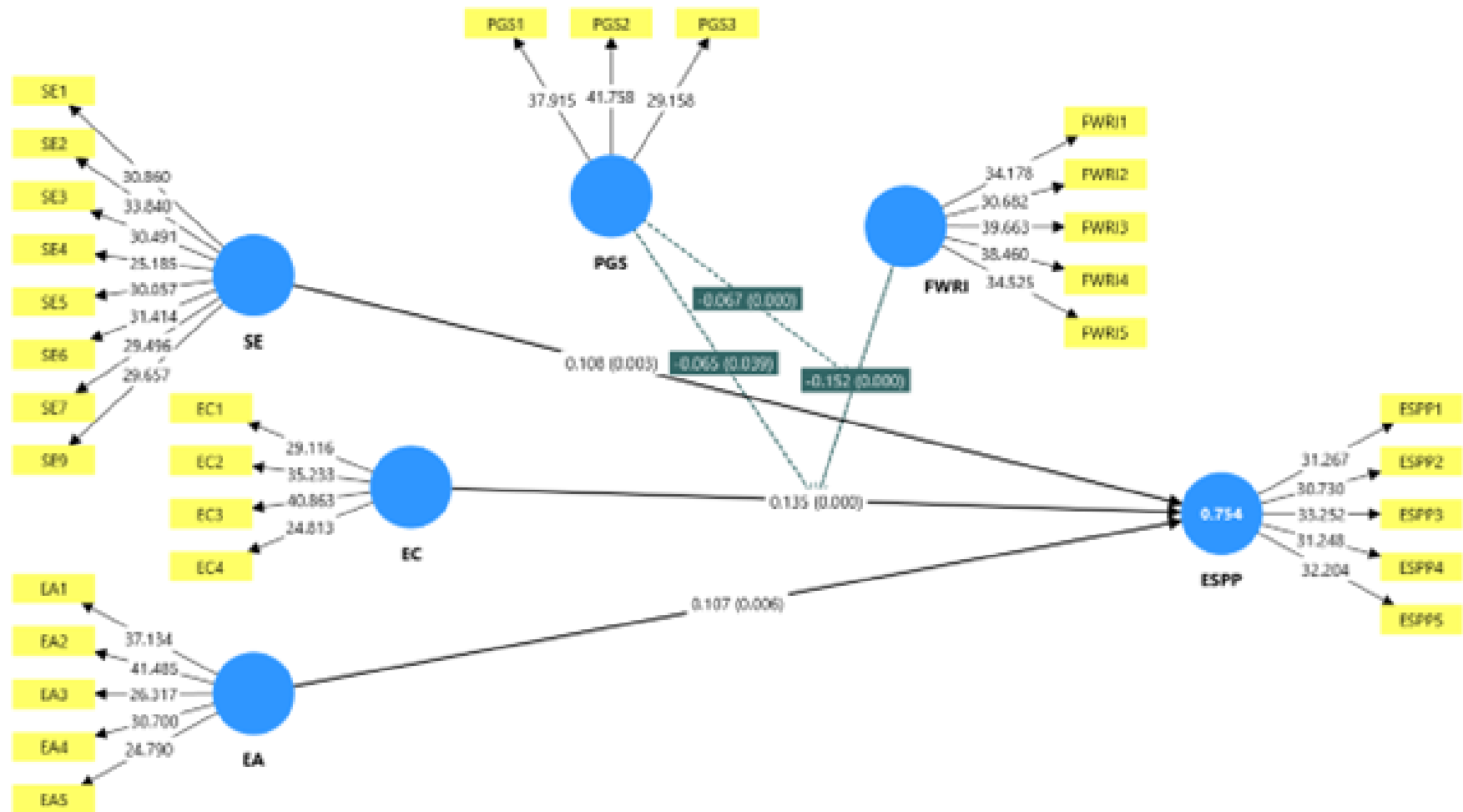


FIGURE 4.4: Structural Model Analysis

4.3 Hypothesis Result Summary

TABLE 4.11: Hypothesis Result Summary

Hyp.	Statement	Result	Decision
H1a	Environmental Awareness has a significant positive effect on environmentally sustainable project performance.	Supported	
H1b	Entrepreneurial Capacity has a significant positive effect on environmentally sustainable project performance.	Supported	
H1c	Self-Efficacy has a significant positive effect on environmentally sustainable project performance.	Supported	
H2	Food waste reduction intention significantly moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance (Such that the relationship is strengthened when FWRI is high).	Not Supported	
H3	Perceived government support significantly moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance (Such that the relationship is strengthened when PGS is high).	Not Supported	
H4	H4: Perceived government support significantly moderates the combined effect of food waste reduction intention and entrepreneurial capacity on environmentally sustainable project performance (Such as when perceived government support is high, food waste reduction intentions will also be high, then the impact of entrepreneurial capacity will be high on environmentally sustainable project performance).	Not Supported	

Chapter 5

Discussion and Conclusion

5.1 Introduction

This chapter discusses research hypotheses, implications, limitations and future research directions, and the study's overall conclusion. Section 5.2 delves deeply into each hypothesis, evaluating the findings in light of past theoretical and empirical research. The section describes how the study's findings support the predicted correlations between the variables and add to the current body of knowledge.

Section 5.3 explores the study's theoretical and practical implications. It emphasizes the research's addition to the current literature and discusses its practical implications for wedding industry practitioners, policymakers, and stakeholders. Furthermore, Section 5.4 discusses the study's limitations and makes recommendations for future researchers to investigate further areas of food waste management practices and environmentally sustainable project performance.

Finally, Section 5.5 gives the study's general conclusion, summarizing the important findings and research contributions.

5.2 Hypotheses Discussion

5.2.1 H1a: Environmental Awareness is Positively Associated with Environmentally Sustainable Project Performance

The findings confirm that environmental awareness has a considerable beneficial impact on environmentally sustainable project performance ($\beta = 0.107$, $t = 2.739$, $p < 0.05$), supporting that environmental awareness of food waste management enhances the environmentally sustainable performance of wedding projects.

This finding is consistent with a large body of recent literature confirming that practitioners' increased environmental awareness provides the cognitive and motivational foundation required for translating sustainability-oriented knowledge into measurable performance outcomes ([Pratiwi et al., 2025](#)).

Employee and practitioner environmental awareness has also been demonstrated to significantly and positively influence organizational sustainability performance, with awareness serving as a prelude to ecologically responsible operational decisions ([Neruja and Arulrajah, 2021](#)).

This finding is also consistent with previous research indicating that environmental awareness, when combined with green innovation, strongly influences climate-conscious performance outcomes across corporate contexts ([Hussain et al., 2025](#)).

The positive and significant nature of this relationship supports the theoretical positioning of environmental awareness as the ability component within AMO theory ([Blumberg and Pringle, 1982](#)), implying that motivated practitioners are more likely to consistently translate awareness into environmentally sustainable practice outcomes in the wedding industry.

5.2.2 H1b: Entrepreneurial Capacity is Positively Associated with Environmentally Sustainable Project Performance

The results confirm that entrepreneurial capacity has a strong beneficial effect on environmentally sustainable project performance in wedding events, which supports H1b ($\beta = 0.135$, $t = 4.465$, $p < 0.05$).

This finding is consistent with recent research indicating that entrepreneurial and innovation-driven capabilities in the foodservice sector improve sustainability performance through better resource allocation, operational redesign, and waste-reduction innovation (Lee et al., 2026).

Firms and practitioners with strong entrepreneurial capacity have also been found to convert novel, opportunity-oriented business practices into measurable environmental and business value, particularly in resource-constrained small and medium enterprises (Martin-Rios, 2025).

Otoo et al. (2025) discovered that inventory management strategies such as frequent stock audits and FIFO (First-in-First-out) systems dramatically minimize food waste in budget hotels, demonstrating that organized practices have measurable environmental advantages.

In support of this, (Batool et al., 2024) underscore that Greenhouse gas emissions and other environmental burdens may be reduced via the adoption of sustainable management technology and food waste recycling programs, which improves environmental sustainability. The findings show that entrepreneurial capacity of food waste management has a significant beneficial impact on environmentally sustainable project performance in Pakistan's wedding industry. This research validates entrepreneurial capacity's theoretical position as an applied ability component within AMO theory (Blumberg and Pringle, 1982), demonstrating that practitioners' ability to identify and act on waste-reduction possibilities directly improves long-term project performance.

5.2.3 H1c: Self-Efficacy is Positively Associated with Environmentally Sustainable Project Performance

The findings confirm that self-efficacy has a significant positive effect on environmentally sustainable project performance, which supports H1c ($\beta = 0.108$, $t = 2.978$, $p < 0.05$).

This is consistent with literature; recent research confirms that self-efficacy is a reliable predictor of performance in both organizational and entrepreneurial settings ([Malenković and Slavec Gomezel, 2025](#)).

Practitioners who believe strongly in their own ability to carry out sustainability-related tasks have been found to more effectively implement and sustain environmentally responsible practices, confirming a significant positive relationship between self-efficacy and firm-level performance outcomes ([Miao et al., 2017](#)).

The findings are in line with the hospitality research in Pakistan that has shown that green self-efficacy improves employees' pro-environmental behavior and environmental performance in hospitality organizations. Employees who are comfortable with green practices are more likely to engage in environmental initiatives, conserve resources, and use sustainable operational practices. Such activities ultimately contribute to greater organizational environmental performance and underscore the relevance of self-efficacy as a crucial competence for sustainability ([Iftikar et al., 2022](#)). Furthermore, ([Nejadsadeghi et al., 2026](#)) concluded that greater self-efficacy in food management techniques motivates individuals to make better environmental decisions and directly adds to sustainable waste management outcomes. These findings lend support to the contention that self-efficacy not only affects intentions to behave, but also yields measurable environmental benefits through effective resource management. This finding reinforces self-efficacy's theoretical role as an ability component within AMO theory ([Blumberg and Pringle, 1982](#)), indicating that practitioners' confidence in their ability to carry out food waste management tasks directly and positively influences the sustainability outcomes achieved.

5.2.4 H2: Food Waste Reduction Intentions Moderate the Relationship between Entrepreneurial Capacity and Environmentally Sustainable Project Performance

The second hypothesis has not been supported, with results indicating that a strong food waste reduction intention negatively moderates the relationship between entrepreneurial capacity and environmentally sustainable project performance ($\beta = -0.152$, $t = 6.913$, $p < 0.05$). This means that when wedding industry entrepreneurs' aspirations to reduce food waste rise, the favorable effect of entrepreneurial capacity of food waste management on environmentally sustainable project performance lessens rather than strengthens. Although this result contradicts the strengthening effect that was initially postulated, it is neither unusual nor devoid of theoretical and empirical precedent in recent literature. Elevated self-belief and behavioral confidence can, beyond a certain point, produce overconfidence effects that significantly and negatively affect subsequent performance, as people recalibrate their effort downward once they perceive their intention or capability as already sufficient (Moore and Chang, 2009). Increased behavioral experience and intention strength have been shown to improve predictive validity only to a certain extent, after which they are linked to weaker rather than stronger translation into consistent behavioral outcomes, according to a parallel logic found in the intention-behavior literature (Sheeran et al., 2014). The translation of organizational capability into responsible environmental performance outcomes has also been found to be considerably weakened rather than strengthened by management overconfidence, a construct conceptually adjacent to strong behavioral intention (Bai and Meng, 2022).

Barone et al. (2019) said, despite consumers' best intentions, they may be unable to reduce food waste due to competing priorities, such as caring for loved ones, worrying about potential health problems, and trying to eat healthily. These objectives may cause people to buy more food than they need, which in turn increases food waste. Another study reveals that while personal norms prompted by a sense of duty might impact intentions to decrease food waste at all-you-can-eat restaurants,

other motivating factors could make it such that intentions do not always materialize into decreased waste (Obuobi et al., 2023). Strong declared commitment to waste reduction replaces, rather than strengthens, the disciplined operational execution of entrepreneurial capacity. This pattern is consistent with findings that strong intention does not reliably or linearly translate into proportionally stronger behavioral outcomes (Stefan et al., 2013). This is a plausible explanation for this negative moderating effect. Practitioners with very high food waste reduction intention may display a form of behavioral complacency or self-licensing. In line with the general finding that intention strength interacts non-linearly and occasionally inversely with capability-performance relationships, it is also plausible that practitioners with high FWRI rely more heavily on their perceived commitment as a signal of adequacy, thereby reducing the marginal attention or resource investment allocated toward fully operationalizing their entrepreneurial capacity.

These dynamics are particularly evident in the Pakistani wedding industry. Wedding professionals who have strong intents to reduce waste may encounter conflicting agendas that take precedence over their environmental commitments, such as social status signalling, cultural expectations of hospitality, and client demands for lavish feasts.

Strong intentions can lead to moral licensing, which reduces execution diligence under high-pressure situations by leading professionals to believe that their motivational commitment alone guarantees achievement. Despite declared intentions, over-preparation habits continue, especially during periods of high time restrictions. Intentions do not transfer into disciplined behavior in the absence of defined execution methods, such as standardized checklists and real-time waste tracking. This pattern demonstrates how high intentions impair the practices-performance link and sustainability outcomes in project-based wedding situations by replacing rather than enhancing rigorous practice execution. The negative effect discovered in this study contrasts with the mostly favorable assumptions in previous studies. This contradiction indicates a theoretical gap and implies that more empirical investigations are needed to better understand the situations under which this variable may negatively influence ecologically sustainable behavior and performance.

5.2.5 H3: Perceived Government Support Moderates the Relationship between Entrepreneurial Capacity and Environmentally Sustainable Project Performance

Moderation analysis reveals perceived government support negatively moderates the relation between entrepreneurial capacity and environmentally sustainable project performance ($\beta = -0.065$, $t = 2.070$, $p < 0.05$). These results are consistent with the motivational crowding-out theory ([Frey and Jegen, 2000a](#)), which holds that when people believe that other actors will manage outcomes, internal drive may be undermined by external institutional support. The centre of causation is shifted from internal to external-by-external controls, making involvement instrumental rather than integrative, according to self-determination theory ([Deci and Ryan, 2013](#)). Similarly, [Zhang et al. \(2026\)](#) found that when people see strong performance from the government, it's like they permit themselves to be less sustainable. This phenomenon is called vicarious moral balancing. Positive government accomplishments, according to their research, give people enough moral credit to cut back on their own green initiatives, such as buying less eco-friendly items and recycling less. Professionals in Pakistan's wedding sector who believe they have substantial government support may lessen their internal responsibility, believing that institutional assistance guarantees success without necessitating strict personal execution.

[McCarthy \(2024\)](#) argues that people tend to reduce their environmental effort after doing or perceiving pro-environmental actions. This phenomenon is both robust and context-generalizable. Their research indicated that individuals put in far less effort to improve sustainability performance when they thought their responsibilities were already being taken care of by other systems. Government policies may not always be in line with consumer behavior or market reality, which might result in unproductive consequences. Inadequate infrastructure for food contributions or increased food waste owing to liability worries are two examples of unintended effects that might arise from regulations that fail to take into account the practical difficulties experienced by stakeholders ([Fan et al., 2022](#)). Tighter

rules may result in higher food costs, which might be unpopular politically and costly for consumers. However, if these restrictions are well-crafted and have strict reduction goals, public support for them can be sustained ([Ariyani and Ririh, 2020](#)).

These dynamics are particularly evident in Pakistan's wedding sector. Because they believe that institutional support guarantees success without needing strict personal execution, wedding professionals who perceive substantial government support frequently diminish their internal accountability. This change in the focus of causality from internal to external leads to instrumental rather than integrative involvement, in which actions are carried out superficially to meet expectations rather than to produce real sustainability results. Furthermore, unforeseen effects that increase rather than minimize waste might result from government rules that are out of step with market reality, such as insufficient infrastructure for food donations or liability worries. While well-crafted programs with stringent reduction objectives may maintain popular support, tighter rules, if badly constructed, might increase food costs and spark political backlash. However, even well-meaning government support may replace rather than enhance disciplined entrepreneurial capacity waste management practices in the absence of workable execution protocols and internal capability development, weakening the practices-performance relationship and jeopardizing environmental sustainability in wedding contexts.

5.2.6 H4: Perceived Government Support Strengthens the Combined Effect of Food Waste Reduction Intentions and Entrepreneurial Capacity on Environmentally Sustainable Project Performance

The results of this study confirm a significant negative three-way interaction effect ($\beta = -0.067$, $t = 3.955$, $p < 0.05$). This research indicates that when both perceived government support and food waste reduction intentions are high concurrently, then the favorable influence of entrepreneurial capacity on environmentally

sustainable project performance is most dramatically inhibited, demonstrating a compounded synergistic suppression dynamic. This is the most conceptually innovative conclusion of the study and advances the knowledge of higher-order moderation effects in food waste management studies. In the literature on global food waste policy, researchers have found that compounded suppression occurs when there is a misalignment between individual intentions and practical behavioral enablers like enforcement capacity, social opportunity structures, and organizational resource availability (Shen et al., 2023). This means that when individual intentions and institutional support are high, but not aligned with practical behavioral enablers, the intention-behavior gap widens, amplifying the suppression of food waste management policies' ability to promote environmental sustainability and policy improvements.

This surprising discovery casts doubt on the long-held belief in the Theory of Planned Behavior that intentions and perceived behavioral control work hand in hand to translate actions into their desired outcomes. The intention-behavior link is moderated by Hagger et al. (2022) found that this association becomes stronger as PBC values increase. They found a lot of variation in this impact when they meta-analysed 39 studies on health behavior, which means that contextual circumstances change the PBC-intention dynamic a lot. This study goes a step further by showing that in project-based hospitality settings, high PBC (via perceived government support) can actually flip the intention-behavior link on its head, instead of just enhancing it. Motivated crowding-out theory, put out by Frey and Jegen (2000b), provides the theoretical groundwork for this dilemma. According to their theory, when people see outside interventions as dictating rather than helping, it weakens their ability to make their own decisions and moves the focus of power away from themselves. This control transfer may occur in Pakistan's wedding business for professionals who believe the government is strongly behind them, making their own goals of reducing waste in practice useless.

A methodological approach to investigating this three-way interaction is based on work by (Dawson and Richter, 2006), who established the slope difference test to probe three-way interactions in moderated multiple regression. Their method

provides the analytical groundwork for determining the negative second-level moderation identified in this study by allowing the interpretation of complicated interactions in which the moderating influence of one variable is itself moderated by another. Professionals working in high intention-high support conditions believe that their combined internal and external resources will ensure success without requiring rigorous execution monitoring, which is exacerbated by the non-repetitive and high-pressure nature of wedding events. The surprising negative effect seen in the moderated moderation study might be attributed to the complexities inherent in three-way interaction effects. The simultaneous interaction of many factors might result in conditional effects that differ between contexts and responder situations.

5.3 Implications

5.3.1 Theoretical Implications

The current research has high theoretical value to the literature of food waste management and environmentally sustainable project performance. Firstly, this study extends the application of the Ability-Motivation-Opportunity theory by demonstrating that employees' environmental awareness, self-efficacy in food waste management, and entrepreneurial capacity all have a positive impact on environmentally sustainable project performance in Pakistan's wedding industry. The wedding event projects are associated with the large-scale catering operations, buffet services, unpredictable guest attendance, and significant food waste output. Thus, the talents of staff are crucial for achieving sustainability objectives. The results support the capability dimension of AMO theory by demonstrating that employees with higher environmental awareness, self-efficacy, and entrepreneurial capabilities are better able to implement sustainable food waste management practices and thus improve the environmental performance of wedding event projects. Therefore, this work contributes to the application of AMO Theory for sustainable project management within the context of wedding events.

In addition, the study adds to the literature by investigating the boundary circumstances that influence the relationship between entrepreneurial capacity and environmentally sustainable project performance in wedding event projects. Contrary to theoretical predictions, food waste reduction intention, perceived government support, and their three-way interaction all had substantial negative moderating effects. These findings suggest that within the dynamic and time-sensitive nature of wedding projects, stronger food waste reduction intentions and greater perceived government support may not always enhance the effectiveness of entrepreneurial capacity. Excessive legal requirements, operational constraints, or a greater emphasis on compliance may limit employees' ability to deploy creative food waste management solutions throughout project execution. Therefore, the study shows the complexity of sustainability practices within wedding event projects and invites future researchers to further analyze contextual factors impacting these interactions.

5.3.2 Practical Implications

This study's findings have significant practical consequences for wedding event management businesses, catering service suppliers, venue operators, and the Pakistani government. The significant positive effects of environmental awareness, self-efficacy, and entrepreneurial capacity suggest that wedding event organizers should invest in environmental awareness programs, employee training, and entrepreneurial skill development to improve their employees' ability to manage food waste effectively. Event planners, catering managers, and project teams should be encouraged to use innovative food waste management techniques such as accurate guest forecasting, menu optimization, portion control, food donation programs, and environmentally friendly waste disposal methods. Such initiatives can improve the environmental sustainability of wedding event projects while lowering food waste and operational costs.

The findings also suggest that managers and policymakers should carefully design food waste reduction initiatives and government support programs tailored specifically to the wedding event industry. Because food waste reduction intention

and perceived government backing had negative moderating effects, firms should avoid depending entirely on employee intentions or regulatory backing to enhance sustainability results. Instead, government authorities should provide practical implementation guidance, technical training, financial incentives, and increased collaboration with wedding event firms to help rather than hinder entrepreneurial decision-making. Similarly, wedding event firms should strike a balance between sustainability aims and operational flexibility, allowing project teams to employ new food waste management strategies while successfully delivering ecologically sustainable wedding projects.

5.4 Limitations and Future Research Directions

There are several limitations of the current study that provide directions for future investigation. First, the study was limited to the wedding event business of Pakistan exclusively; hence, the findings may not apply to other hospitality and project-based industries. Since food waste creation and sustainability practices differ in different event settings, future research should evaluate the proposed model in hotels, restaurants, corporate events, festivals, and other hospitality enterprises, and in different cultural and geographical contexts. Second, the study employed a cross-sectional research design that limits the potential to establish causal linkages and detect changes in food waste management practices over time. Future research is proposed to adopt a longitudinal design to better understand the influence of employees' capabilities on the environmentally sustainable project performance at different stages of the wedding event projects.

Furthermore, the present study was focused on environmental knowledge, self-efficacy, entrepreneurial capacity, food waste reduction intention, and perceived government support. Future researchers can include other variables such as green organizational culture, sustainability leadership, environmental innovation, digital technologies for food waste monitoring, stakeholder collaboration, or organizational learning to gain a more comprehensive understanding of environmentally

sustainable project performance in wedding event projects. Finally, since the moderating effects of food waste reduction intention, perceived government support, and their three-way interaction were negative, future research should explore other organizational, institutional, and cultural factors that could explain these surprising results, and whether similar relationships exist in other event management and hospitality contexts.

5.5 Conclusion

This study examined the impact of environmental awareness, self-efficacy towards food waste management, and entrepreneurial capacity on environmentally sustainable projects' performance in Pakistan's wedding event business. It also examined the moderating effect of food waste reduction reduction, perceived government support, and their three-way interaction. The findings confirmed the importance of employees' environmental awareness, self-efficacy and entrepreneurial capacity in improving the environmental sustainability of wedding event projects via suitable measures for food waste management. The negative moderating effects of the reduction intention, perceived government support, and the interaction of both, however, suggest that individual intentions and institutional support do not always enhance entrepreneurial capability in the complex operational environment of wedding events. The study expands the scope of the Ability–Motivation–Opportunity theory in the wedding event industry and offers useful theoretical, managerial, and policy implications for the improvement of sustainable food waste management and environmentally sustainable project performance in the wedding event industry of Pakistan.

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Appendix-A Questionnaire

CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Management Sciences

Dear Respondent,

I am a student of the graduate programme in Project Management at Capital University of Science and Technology. I am conducting an academic research study for my Master's thesis on "The Determinants of Environmentally Sustainable Project Performance: A Moderated-Moderation Model" This survey is part of an academic research study conducted for a Master's thesis in Project Management. It will take approximately 5–7 minutes to complete. The purpose of this questionnaire is to examine how the food waste management practices can improve the environmentally sustainable performance of wedding projects. It also seeks to examine the role of food waste reduction intentions and perceived government control for the contribution of sustainable performance. Your responses will be kept strictly confidential and will be used only for research purposes. There are no right or wrong answers; please respond honestly based on your experience. For additional questions, send an email to marianoor9871@gmail.com. Thank you so much for taking the time to complete this survey. Thank you in advance for your help and support.

Regards,

Maria Bibi

Demographic Information

Please tick (✓) the relevant box.

TABLE 5.1: Demographic and Business Characteristics

Gender	
Male	Female
Age	
18–30 years	41–50 years
31–40 years	More than 50 years
Education Level	
Matric/Intermediate	Master
Bachelor	Diploma
Business Type	
Event Management Company	Catering Company
Marriage Halls	Marquee
Work Experience	
Less than 3 years	6–10 years
3–5 years	More than 10 years
Designation	
Wedding Planner	Catering Manager
Wedding Hall Manager	Supervisors
Food Service Managers	
Food Waste Generated per Wedding (in kg)	
Low (< 5 kg)	High (21–35 kg)
Medium (6–20 kg)	Extreme (> 35 kg)

Keeping in view Please indicate the extent of your agreement or disagreement by selecting the appropriate option:

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 =
Strongly Agree

Environmental Awareness						
Sr No.		1	2	3	4	5
1	I feel that food waste at wedding events is an important environmental issue.					
2	I feel proper food waste management at wedding events is necessary to protect the environment.					
3	I feel I have a personal responsibility to reduce food waste at wedding events.					
4	To protect the environment, I try to minimize food waste by managing food consumption efficiently at wedding events.					
5	I believe everyone should take part in activities that help reduce food waste at wedding events					
Self - Efficacy						
Sr No.		1	2	3	4	5
1	I know how to take appropriate precautions to prevent food waste in wedding events.					
2	When food waste occurs during wedding events, I will find effective ways to manage it.					
3	When I hear about food waste issues in wedding events, I usually have several possible ways to address them.					
4	I know how to manage new or unfamiliar types of food waste that arise during wedding events.					
5	I can identify ways to handle food waste related to wedding events in everyday situations.					
6	I am capable of handling food waste problems at wedding events if I make sufficient effort.					
7	I believe I can manage unexpected food waste problems during wedding events.					
8	Regardless of the situation, I am confident in my ability to handle food waste issues at wedding events.					

9	I do not worry much about difficulties caused by food waste in wedding events because I trust my ability to cope with them.					
Entrepreneurial Capacity						
Sr No.		1	2	3	4	5
1	I can see a business opportunity related to food waste management practices in wedding events.					
2	I have the knowledge and skills needed to develop a business idea related to food waste management at a wedding event.					
3	I can effectively communicate and build networks with people involved in food waste management at wedding events.					
4	I receive support and resources that I need to run a business in the field of food waste management at wedding events.					

Food Waste Reduction Intention						
Sr No.		1	2	3	4	5
1	I am willing to go out of my way to reduce food wastage in wedding events.					
2	My personal goal is to reduce as much food wastage as possible in wedding events.					
3	I will make every effort to produce very little food waste at wedding events.					
4	I have seriously considered using all the leftover food from wedding events.					
5	I have a firm intention to reduce food wastage at wedding events in the future.					

Perceived Government Support						
Sr No.		1	2	3	4	5
1	I feel I have the choice to use the food waste management strategies provided by the government for weddings.					

2	The government gives me the freedom to make my own decisions regarding food waste management at weddings.					
3	I feel I have the choice to participate in the food waste management initiatives established by the government for weddings.					

Environmentally Sustainable Project Performance						
Sr No.		1	2	3	4	5
1	The wedding project reduced its environmental impact.					
2	Resources were used efficiently during the wedding project.					
3	The wedding project complied with environmental regulations and standards.					
4	Sustainability goals were integrated into the wedding project objectives.					
5	The wedding project contributed to long-term environmental conservation.					

Appendix-B Ethical Approval



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Ref: CUST/FMSS REC/2026-4

Date: 6th April, 2026

RESEARCH ETHICS COMMITTEE CERTIFICATE OF REVIEW AND SUPPORT

This is to certify that Project titled: *"Impact of Food waste Management Practices on Environmentally sustainable Project Performance: Moderated-moderation Model"* submitted by MS scholar *Maria Bibi*, and supervised by: *Dr. Syed Arsalan Haider* reviewed by the Research Ethics Committee of Faculty of Management and Social Science, meets the requirements of the American Psychological Association's Ethical guidelines for Human Research and is **REVIEWED** and **APPROVED** by Research Ethics Committee of Faculty of Management and Social Sciences.

It is the Scholar's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Scholar is required to notify the Research Ethics Committee in case of any amendment in the project, specifically:

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any)
- Serious adverse effects on participants and the actions taken to address those effects
- Any other unforeseen events or unexpected developments that merit notification
- The inability of the Principal Investigator to continue in that role, or any other change in research personnel involved in the project
- A delay of more than 12 months in the commencement of the project
- Termination or closure of the project.


Dr. Zameer Khan

Convener, Research Ethics Committee
Faculty of Management and Social Sciences
Capital University of Science and Technology
Islamabad