UWE Bristol University of the West of England

Impact of Sustainability Practices on Project Management Process: The Case of Kuwaiti Project Managers

Supervisor: Dr Krzysztof Dziekonski

Student Name: Hamad Alazemi

Student ID: 23070442

Abstract

Kuwait's project management spans a variety of sectors including construction, oil and gas extraction and processing, and other infrastructure projects that often put the managers to task regarding sustainability. The construction sector in particular is characterised by rapid growth and this necessitates sustainable practice considerations to maximise on the sustainability of the sector. While the commitment to ensuring sustainability can potentially change the way project managers develop and implement strategies, existing literature has not adequately investigated the impact of sustainability practices on projects. This study is based on construction projects in Kuwait. The study investigates sustainable project management practices, the managerial requirements for their effective implementation and how they impact project management in Kuwait construction projects. Using a thematic analysis of qualitative data collected from 15 senior project management staff in Kuwait using semi-structured interviews, the study demonstrates the relationship between sustainable project practices and project management. It is established that: Kuwait construction sector is still in the growth phase of sustainable practice implementation; sustainable practice adoption is hindered by manager's fear of short-term cost implementation; sustainable practices lead to changes in managerial competencies due to a demand for knowledge, organisational effectiveness, social skills and long-term orientation. Future studies should examine the effectiveness of specific sustainable practices used in the construction industry in Kuwait.

Table of Contents

List of figures

List of tables

Chapter One: Introduction

1.1 Background

Construction projects play a crucial role in a country's economic growth. According to Hussin et al. (2013), the construction industry improves people's quality of life through the provision of critical socio-economic infrastructure such as schools, hospitals, residential houses, roads and other enhanced facilities. However, the industry faces numerous challenges that hinder the achievement of the socio-economic benefits. Despite the positive benefits that construction projects have on local communities and the national economy upon completion, Celik et al. (2017) note that they unintentionally generate serious negative effects to the surrounding environment. A typical construction process uses natural resources and different construction equipment that contribute to environmental pollution (Enshassi et al., 2014). Since many project managers focus on the project completion time, cost and quality, there is a general tendency to neglect sustainability considerations. At the same time, there is a growing concern over the impact of the industry activities on societies and the environment, and an interest in sustainability (Enshassi et al., 2014). As a result, traditional project management practices are growing increasingly incapable of producing the expected sustainable outcomes.

Kuwait's project management spans a variety of sectors including construction, oil and gas extraction and processing, and other infrastructure projects that often put the managers to task regarding sustainability (Alshammari et al., 2020). The country is committed to green transformation through energy efficiency initiatives and other carbon emission reduction commitments, as well as reduction in wastes (Alsulaili et al., 2020). According to UNDP (2024), Kuwait's Environmental Governance Initiative aims to provide support towards improving sustainable management of the country's environment and its natural resources through among other measures the efficient and sustainable management of projects. The last two decades have seen an increase in people's awareness of and commitment to sustainability and this has greatly influenced organisational policies and initiatives towards sustainability (Alasfour and Mirzal, 2021). As a result, project managers have continually developed project management strategies that incorporate sustainability as a key pillar, thus appealing to sustainability conscious stakeholders. Nonetheless, Kuwait's construction project environment is characterised by construction project delays, cost overruns, numerous waste generation, resource use

inefficiencies and high carbon emissions (Al-Raqeb et al., 2024). The challenges reveal that the existing construction management practices are deficient and hence incapable of addressing the increasingly important sustainability needs.

1.2 Statement of the problem

Construction industry contributes positively to a country's socio-economic growth. It creates essential socio-economic infrastructure which not only facilitates wealth and revenue generation but also improves people's overall quality of life. However, the nature of construction projects as complex, unique and fragmented predisposes them to challenges such as waste generation, cost overrun, carbon emissions and schedule delays. Hussin et al. (2013) report that nearly 70% of projects in Kuwait experience budget overruns while their costs exceed the initial budgets by 14% of contract costs. To date, these challenges remain much alive and have made significant contribution to project failure across the world (Gurgun et al., 2024; El-Wafa and Mosly, 2024; Al-Raqeb et al., 2024). Traditional construction management practices are by themselves incapable of controlling the contemporary unprecedented challenges in the wake of increasing environmental consciousness. As a result, project management practitioners and professionals are adopting more sustainable practices that improve the overall project sustainability. As Silvius and Schipper (2014) state, the commitment to ensuring sustainability can potentially change the way project managers develop and implement strategies. Therefore, there is need to understand how sustainability practices embedded in project management can affect the project management environment.

1.3 Research aim and objectives

The general aim of this research is to determine how sustainability practices implemented in projects influence the management of these projects. It will explore the existing sustainable practices in Kuwait's project management across different sectors, examine the managerial requirements for effective sustainable project management in projects in Kuwait and propose best practices for the implementation of sustainable practices in project management. Thus, the study will address the following objectives:

1) To explore the existing sustainable management practices currently implemented in construction projects in Kuwait.

2) The determine the managerial requirements for effective sustainable project management in Kuwait's construction projects.

3) To Examine the influence of sustainable practices implementation on construction project management in Kuwait.

4) To propose best practices for the implementation of sustainable practices in project management.

1.4 Research questions

The following research questions are addressed:

i. What are the existing sustainable practices implemented in Kuwait's projects?

ii. What are the managerial requirements for effective sustainable project management in Kuwait's projects?

iii. How does the implementation of sustainability measures influence project management in Kuwait?

1.5 Significance of the study

Construction project management plays a critical role in enhancing the achievement of the social, economic and environmental benefits envisaged in the project initiation (Enshassi et al., 2014). However, contemporary projects are characterised by numerous challenges that limit the achievement of social, economic and environmental sustainability (Zulu et al., 2023). This occurs amidst increasing global sustainability concerns due to heightening climate change challenges and global economic downturns. As a result, project management has evolved, whereby sustainability considerations are being integrated into project management practices (Darko et al., 2017). Sustainable practices are expected to revolutionise the traditional project management practices in order to accommodate new requirements, objectives and standards. The results of this study will enlighten construction project managers and stakeholders on the necessary managerial changes required to accommodate sustainability principles in the project lifecycle. In addition, the findings of the study and the knowledge generated will help to inform policy development at organisational and corporate level in order to better meet existing sustainability goals.

Chapter Two: Literature Review

2.1 Review of the impact of construction projects on the environment

Traditional construction management practices and processes are increasingly becoming unable to control the current unprecedented complexities such as carbon emission (Hussin et al., 2013). As a result, projects continually experience challenges such as time overrun, cost overrun, construction wastes, inefficient resource consumption and environmental degradation. Yet, stakeholders demand a healthy built environment with efficient resource utilisation and adhering to ecological principles. Sustainability in the context of construction projects involve a commitment to economic, environmental and social sustainability in order to respond to the needs of people, the environment and the economy (Hussin et al., 2013). With traditional construction practices, challenges related to cost overrun, schedule delays, waste generation and resource utilisation continue to increase in construction sectors. According to Forsberg and Saukkoriipi (2007), construction practices contribute about 35% of a project's construction cost. Bossink and Brouwers (1996) investigate a Dutch construction project and find that every house constructed generates an average of 6,860kg of waste.

Kaja and Goyal (2023) observe that construction activities result to considerable social impacts to the society, thus negatively affecting social sustainability initiatives. In their study, Kaja and Goyal (2024) find that construction activities lead to air pollution, noise pollution, resource consumption and waste generation According to Alsheyab (2022), construction and demolition activities contribute over 25% of the total wastes generated in the world. Countries such as the UAE, Spain and Brazil contribute the bulk of these wastes as shown in figure 1.

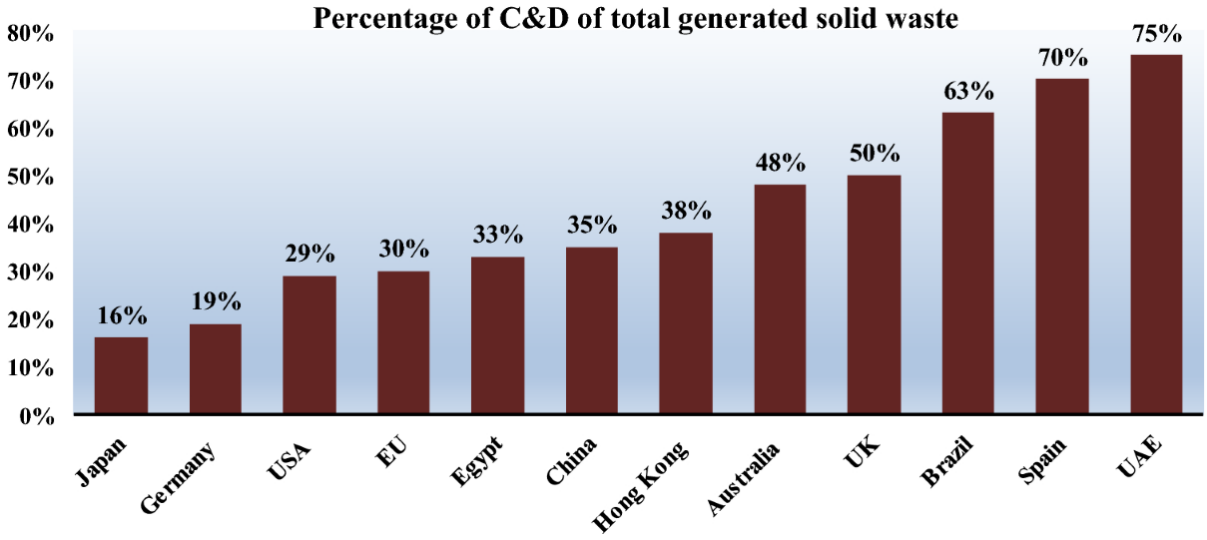


Figure 1: Construction and demolition waste as a percentage of total waste in selected countries

Source: Alsheyab (2022)

In another study, Akintayo et al. (2020) find that construction projects negatively impact the environment in a variety of ways. The largest contributing activities include raw material extraction and on-site activities. The two sets of activities generate large amounts of dust which finds its way into the air causing air pollution. Akintayo et al. (2020) add that dust from waste disposal and construction sites leads to significant air pollution effects. A study by Ibrahim et al. (2022) reveals that construction waste has increased considerably in the Middle East in recent years. The most critical amounts are reported in countries with the lowest population such as Bahrain, Qatar and Kuwait as demonstrated in figure 2. Although most of these studies address the impact of construction practices in the context of waste production, they reveal worrying trends in the construction industry and thus call for sustainable project management practices.

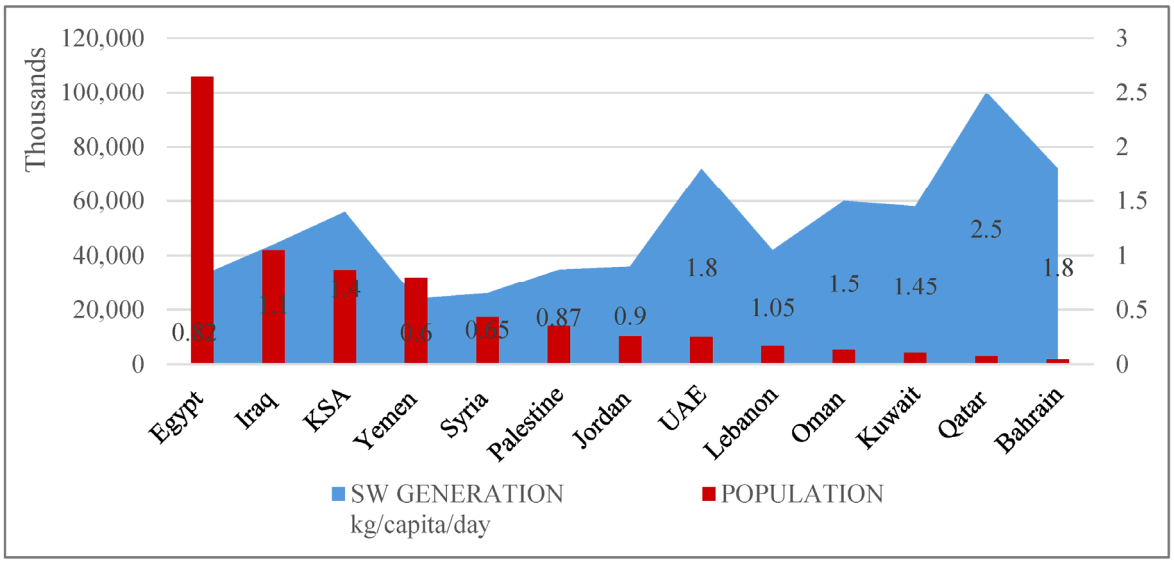


Figure 2: Solid waste generation in Middle Eastern countries

Source: Ibrahim et al. (2022)

In Kuwait, Almusawi et al. (2022) report that construction activities generate nearly 49.5 kg/m^2 for commercial buildings while residential houses produce 35 kg/m^2. Figure 3 below shows that the amount of waste produced has increased significantly as the amount of construction activities increase over the years.

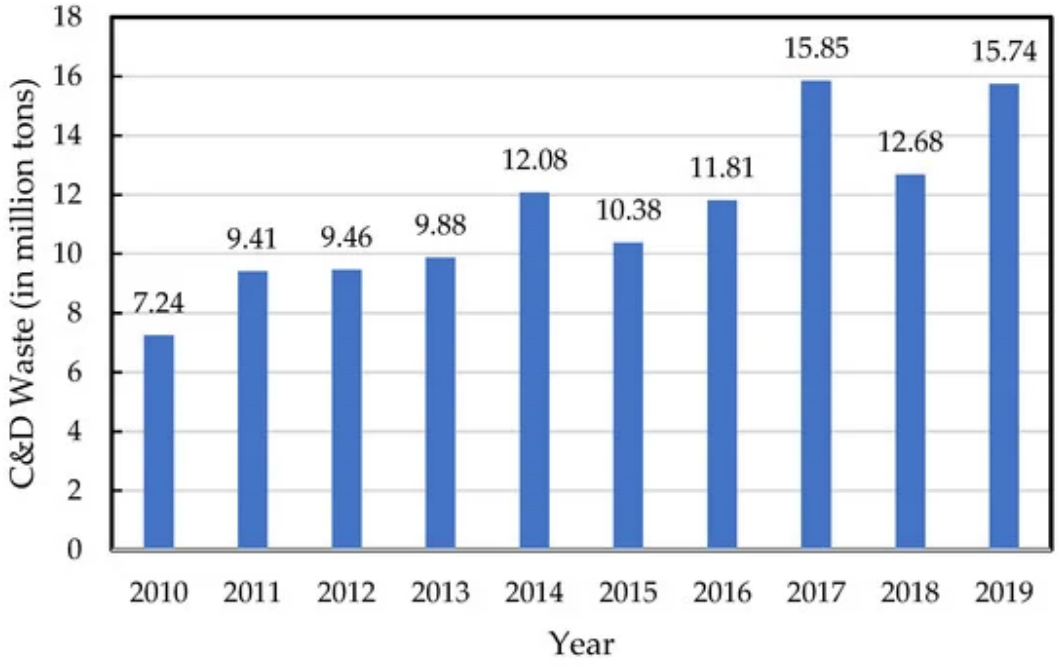


Figure 3: Trends in waste generated in Kuwait construction industry in 2010 to 2019

Source: Almusawi et al. (2022)

A study by Alrasheed et al. (2023) finds substantial delays in construction projects in Kuwait, attributing the delays to factors such as poor construction site management, design quality defects, contractual issues, material supply chain issues and labour shortages. In terms of cost overruns, Koushki et al. (2007) report existence of budget overruns in many private residential projects in Kuwait and attributes the cost increases to factors such as management incompetence, contractor and material-related issues, and financial constraints. In addition, Mishra and Koju (2020) confirm significant cost increases in Kuwait construction projects. Mishra and Koju (2020) note that the total cost of high rise building construction projects increases by an average of 12.58% of the total cost. According to Ismael and Shealy (2018), Kuwait's construction industry is among the greatest contributors to carbon emissions, contributing 53% more than the US despite having lower construction projects. In particular, Kuwait, and the larger MENA region have the lowest sustainable construction practices implementation in the world (Ismael and Shealy, 2018). The cost increases, time overrun, carbon emissions and waste generation affect all three components of sustainability, i.e., environmental, economic and social.

Traditional construction practices commonly associated with unsustainable design and activities, focuses on quality, performance and cost objectives. However, sustainable construction seeks to minimise resource depletion, reduce environmental degradation and facilitate the development of healthy built environments (Hussin et al., 2013). Sustainable practice involves integrating sustainable objectives into the design and construction of structures. However, Zulu et al. (2023), note that sustainable construction is pevented by high costs of implementation. Investigating factors promoting or inhibiting sustainable construction project management, Zulu et al. (2023) identify affordability as the strongest barrier. Nevertheless, construction companies are strongly motivated to implement sustainability due to increasing need for energy efficiency, water efficiency, waste reduction and increased indoor environmental quality (Darko et al., 2017; Durdyev et al., 2018). Moreover, with increasing awareness of sustainability across the globe, there is greater support from stakeholders (Zulu et al., 2023).

2.2 Evaluation of existing standards regulating sustainable construction project management

The increase in importance of project management in meeting sustainability goals has led to the development of sustainability focus initiatives such as the Green Project Management (GMP) P5 standard for sustainable project management and the Projects Integrating Sustainability Methods (PRiSM) framework (Silvius and Schipper, 2014). These two initiatives help project managers to seamlessly integrate the UN Sustainable Development Goals (SDGs) into project management. However, the GPM P5 standard is more commonly used by organisations.

2.2.1 Green Project Management (GPM) P5 standard

Green Project Management (2024) describes the Green Project Management (GPM) P5 standard for project management sustainability as the most comprehensive and practical sustainability standard in the modern world since it incorporates the UN SDGs into the current project management landscape. In a context where sustainability has become highly necessary, the GPM P5 standards help organisations embed sustainability practices into project management activities. According to Silvius and Schipper (2014), it incorporates the triple bottom line of prosperity, planet and people and extend its implications by integrating product and process considerations. As a result, the principled approach facilitates the evaluation and optimisation of every aspect of the project lifecycle for sustainability. Additionally, since the standards map their guidelines to the UN SDGs, they help contribute to global efforts for enhancing social responsibility, ethical behaviour and tackling climate change. According to Carboni and Gonzalez (2015), the P5 standards are a practical toolkit which provides crucial insights for project managers to measure, assess and improve their sustainability focus and overall project contribution to sustainability. The standard is meant to ensure that the impact on people is minimised through efficient labour practices, human rights, ethical behaviour, and, societal and customer protection (figure 4). For example, the ‘people’ element provides crucial insights for managers to measure a project’s impact on individuals, society and communities (figure 4). The standards offer a structured approach to sustainability reporting, including Environmental, Social and Governance (ESG) disclosures, thus helping projects to communicate performance with key stakeholders. Addressing the P5 standards ontology, GPM Global (2022) notes that the purpose of P5 is to identify any likely impact of projects on sustainable

development, both negative and positive, that management can use to make informed project decisions. For instance, the GPM P5 Standards view project safety and health as important due to its impact on human capital protection, risk mitigation, reputation and stakeholder confidence, and regulatory compliance (Carboni, 2023). Project managers must ensure that projects comply with relevant safety and health regulations, effectively control hazards, implement worker protection strategies, establish procedures for reporting health incidences and regularly assess risks. The P5 standards align project objectives and practices with organisational goals towards sustainability.

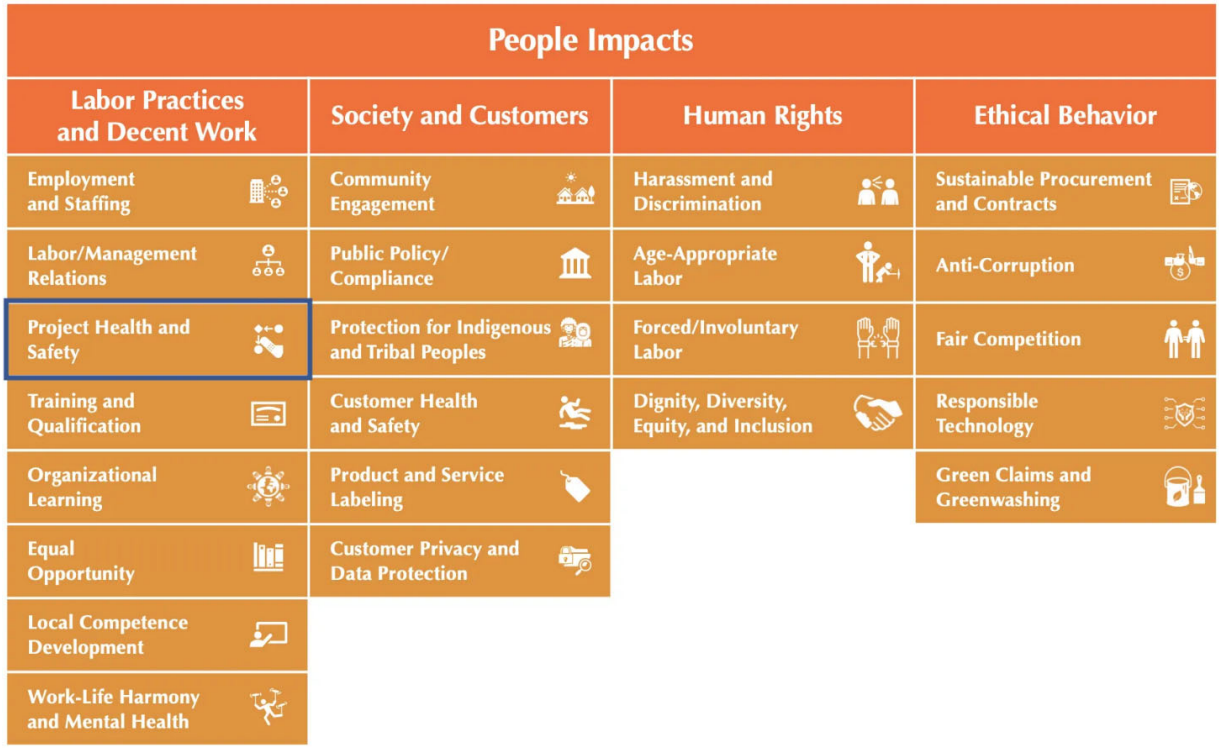


Figure 4: GPM P5 standards: People (social) impacts

Source: Carboni (2023)

Balfour Beatty is one of the largest construction companies in UK. The construction giant uses the P5 standards to monitor and manage their projects' impact on people's health and safety (Carboni, 2023). As a result, the company has developed a strong safety culture whereby it extensively trains and provides requisite resources to its workforce. Consequently, the company has significantly reduced accidents and injuries for its workforce, thus contributing to social

sustainability. The development of GPM P5 standards causes a shift in project management in a variety of ways. The shift from the traditional triple bottom line means that the new standard adds a level of complexity to project management including a necessity for more robust product and process-related action (GPM, 2024). Moreover, the standards enhance the importance of sustainability reporting by organisations and increase environmental consciousness among project stakeholders. While the standard demands alignment of project practices to global sustainability goals, it also exposes the existing skills gaps among project managers who are highly aligned to the conventional project management methods (Carboni et al., 2018). As a result, the standard raises the need for organisations to train and build capacity for their staff as a key project management strategy. According to Global (2019), the addition of product component into the triple bottom line means that project's results must be correctly labelled with regard to disposal, safe use, responsible sourcing and content. In addition, the process element of the GMP P5 standards provides that policies, practices and procedures used in project management change to accommodate and promote maximum productivity levels and ensure minimal process waste generation (Global, 2019).

2.2.2 The PRiSM framework

The Projects Integrating Sustainability Methods (PRiSM) provides a set of principles governing the entire project lifecycle (Andreadakis et al., 2015). The framework was developed by the GPM organisation in 2013 to facilitate the incorporation of sustainability into project management and delivery (Katsarelis and Adamopoulou, 2015). It holds its foundations on the fact that the triple bottom line demonstrated in figure 5 is necessary for a project/organisation's medium-term and long-term survival. As a result, the commitment to and awareness of sustainability helps project managers ensure their projects' operational viability.

Figure 5: The triple bottom line and sustainability

Source: Katsarelis and Adamopoulou (2014)

Essentially, the approach causes project managers to shift their focus from the traditional methods by prioritising environmental, economic and social sustainability goals. According to Katsarelis and Adamopoulou (2014), the approach basically seeks to enhance people's well-being, reduce resource consumption and lower carbon footprint. The approach emphasises practices such as stakeholder engagement in identifying sustainability goals, introducing environmentally-friendly construction practices and design and achieving greater efficiency in resource use. The PRiSM framework borrows significantly from both ISO Standards and organisational standards integrated into the GPM. Figure 6 below demonstrates the network of ISO Standards and organisational standards that underpin the PRiSM framework.

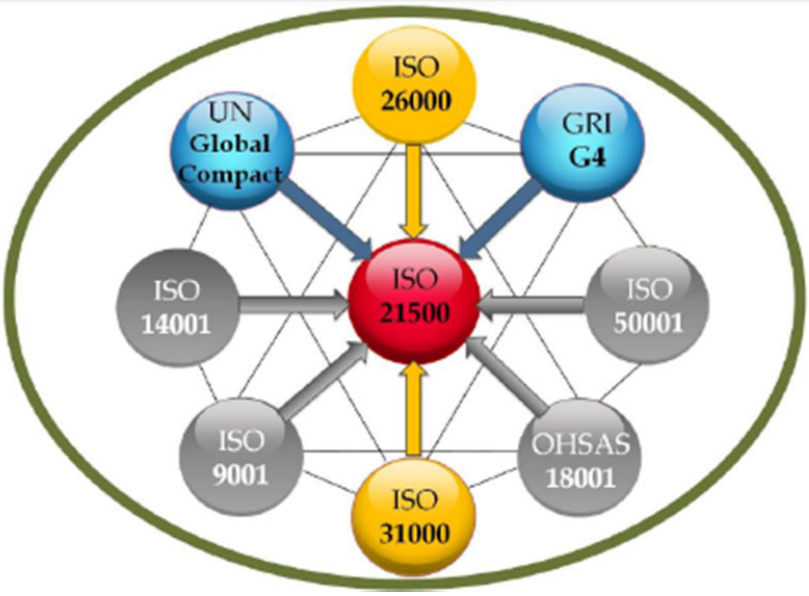


Figure 6: Integration of ISO Standards into the PRiSM approach

Source: Katsarelis and Adamopoulou (2014)

According to Gutiérrez (2014), companies using the PRiSM framework integrate traditional methods with activities borrowed from ISO standards such as ISO-21500 on project management guidance, ISO-26000 on CSR, ISO-14001 on environmental management and ISO-9001 on management of quality. For example, SKANSKA, a construction engineering company in UK, has certified its business units based on ISO-14001 environmental management system

(SKANSKA, 2024). Through the system, the company monitors and ensures effective environmental management of its sites.

2.3 The relationship between project management and sustainability

Abangbila et al. (2020) review the literature on project management and sustainability and establishes that project management plays a crucial role in determining the outcome of sustainability initiatives. The study argues that the project manager's role is not limited to facilitating sustainable, technical solutions. Rather, they play a wider institutional role in helping projects achieve radical change economically, socially and environmentally. Moreover, Abangbila et al. (2020) insist that delivering sustainability requires challenging existing institutionalised practices and suppositions in order to create new organisational models that favour sustainable development. Project management stands at the heart of this transformation. For example, organisational routines, which are highly dependent on the practices and decisions of managers, are critical in delivering the objectives of project management objectives and processes, including sustainability (Silvius, 2015). Essentially, the sustainable social and economic growth in the project context extends beyond technical characteristics to encompass requirements for institutional change (Scott, 2008). Gareis et al. (2013) note that for many years, the sustainability concept has been explored in relation to organisational strategy and management. This has led to the association of organisational performance to the project management and sustainability concepts.

Based on the Project Management Institute (PMI), management and organisational strategies are related wherein organisational strategies drive management (PMI, 2013). Since projects are a means through which organisational strategy is effectively achieved, it can be deduced that project management is critical to the overall organisational objectives. With sustainability becoming a critical organisational objective, project management procedures should be accompanied by practices that are environmentally and socially sustainable. According to Kivila et al. (2017), the current project management approach should integrate sustainability instead of treating the two as separate systems. Incorporating sustainable practices into the management of projects is further emphasised in key project management guidelines such as PMBoK, which considers sustainability part of the project managers' agenda for several reasons (Abangbila et al., 2020). First, sustainable project investments are less susceptible to financial

crisis compared to their non-sustainable counterparts. Secondly, organisations that demonstrate sustainability actions are highly likely to add value than those that show no action. Thirdly, sustainability criteria integration into project organisations' procurement activities improves their proactive efforts in ensuring effective and efficient supply chains. According to Abangbila et al. (2020), the fact that project managers are responsible for key activities needed to produce the intended project deliverables makes their role in sustainability very important.

Initially, the project manager's role was confined in the iron triangle of time, scope and cost (Silvius et al., 2012). However, the evolution of sustainable practices in project management has necessitated the inclusion of sustainability management into the project management role (Abangbila et al., 2020). Project management practices are now designed in a manner that they help organisations achieve efficiency in terms of time, cost and scope and also deliver sustainability achievements. Project management characteristics also play a crucial role in construction project sustainability. According to Sarpin et al. (2021), project management capabilities such as social skills, change management abilities, opportunity detection capacity and decision-making skills contribute to project performance. In this case, the competence of project managers affects project sustainability and success.

The Association of Project Management (APM) reports sustainability as vital in project management due to its potential to improve and facilitate effective project, programs and portfolio management (APM, 2024). Tay et al. (2021) also emphasises the importance of sustainability in project management in managing the triple bottom line. As a result, project managers' sustainability practices are entering established project management practice. However, Chow et al. (2021) report a significant variability in project sustainability practice with efforts to establish adequate sustainability measures facing resistance, misunderstanding and apathy. Chow et al. (2021) observe the new development paradigm in both non-governmental and governmental organisations in which sustainability practices are strongly recommended. The wide promotion of sustainable development in the face of shrinking natural resources means that organisations must adapt their practices to minimise unsustainable resource use. Since majority of projects rely on natural resources and their extracts, sustainability has become significantly important. Economic sustainability is a critical element of project success and sustainability. As such, a project's financial performance is also judged based on the benefits gained in relation to

social and environmental performance, ethics and stakeholder performance (Martens and Carvalho, 2016).

2.4 Existing sustainable practices in project management

Silvius and Schipper (2014a) conduct an impact analysis and literature review of sustainability integration into project management. The study notes that projects are pivotal in realising sustainable business practices, thus a need to incorporate sustainability principles in managing projects. As a result, the study agrees that by incorporating sustainable practices into project management, project management practices and processes are significantly influenced. A structured review of 164 sources reveals three different levels in which sustainability initiatives impact project management practices. First, project management shifts from the traditional scope involving quality, budget and time, to involving the management of social, environmental and economic aspects. Secondly, the integration of sustainability initiatives shifts the project management paradigm from approaches governed by controllability and predictability to a new approach based on opportunity, complexity and flexibility. Lastly, Silvius and Schipper (2014a) note that sustainability considerations change the managers' mindset and approach to project performance. The traditional quest to deliver the requested results is seasoned by an urge for taking responsibility for sustainability.

Silvius and Schipper (2014a) also identify 12 areas of impact of sustainability initiatives on project management practices. These include stakeholder management (identification and involvement), project specifications, project business case (benefits and costs), project success dimensions, project team selection and organisation, project schedule, procurement and materials used, risk management, project reporting and project handover. Similarly, Eskerod and Huemann (2013) report that the integration of sustainability practices impacts on project reporting, stakeholder management and project communication. Eskerod and Huemann (2013) argue that sustainability dimensions such as the need to balance the social, environmental and economic principles increases the number of interested parties in the project. For example, environmental advocacy groups, NGOs and human rights teams are likely to develop interest in the project. While the PMBoK guide initially failed to recognise environmental advocacy groups, NGOs and human rights teams among key stakeholders, the rise of the sustainability consideration has highlighted their importance in projects (Tharp, 2013).

Taylor (2010) and Eskerod and Huemann (2013) support Silvius et al. (2014) that the sustainability principles, integrated into project management, can lead to changes in specifications such as the quality criteria and the project deliverable. For example, including social and environmental aspects may change the project objectives and add a new intended project output, i.e., environmental protection. According to Eskerod and Huemann (2013), projects quality was earlier measured on the basis of impact on three key stakeholders, i.e., the client, the user or the project sponsor. However, with the integration of sustainable practices into project management, Stanitsas et al. (2021) recommend that the quality of project output be measured based on a holistic project view. A holistic project view in this case means the inclusion a broader stakeholder group in quality assessment and covering perspectives such as social, environmental and economic.

Martens and Carvalho (2017) opine that including sustainability practices in project management demands changes in the project justification. The project business case which usually includes information weighing costs and benefits should include non-financial factors such as social and environmental benefit projections. As a report by the Project Management Institute (2013) states, the PMBoK guide only recognises social and ecological benefits as an element of project business case and ignores the potential environmental and social costs. However, the sustainability concept requires that projects address the triple bottom line including economic, social and environmental benefits and costs (Martens and Carvalho, 2017). The implication of the change is that project success in the context of sustainability considerations is assessed on the basis of the entire project life-cycle.

Tharp (2013) studies the role of project management in enhancing global sustainability. The study reports that integrating sustainable initiatives into project management significantly impacts the organisation of the project and the project team management. Essentially, project management considers the social elements of sustainability in recruiting project team members and allocating tasks and responsibilities. Social sustainability aspects that project managers should consider include overtime, distribution of job opportunities, equal opportunity and work-life balance. Similar results are reported by Silvius et al. (2012) and Al-Qassab et al. (2019) who highlight the need for project stakeholders to possess skills and awareness of sustainability initiatives.

One of the most obvious impact areas for integrating sustainability measures into project management is the materials used. Project management is responsible for the determination of materials for the construction exercise, their sourcing and the ratios in which they are acquired and used. As a result, any practice that considers or affects an aspect of material management has an impact on the general project management practice. Based on Akadiri et al. (2013), materials play a crucial role in the overall project sustainability through sourcing, transportation, processing and disposal. Sustainability considerations demand attention to hazardous substance use, energy consumption and pollution in the lifecycle of a material. As a result, sustainability considerations introduce a lifecycle perspective in project management where project planning not only considers the production supply but also the recyclability, reusability and durability (Akadiri et al., 2013). A study by Nazir et al. (2024) adds that besides the materials used, the procurement and supplier selection processes are also should also change to accommodate sustainability considerations. Essentially, project managers need to employ supplier selection strategies that appreciate sustainability efforts of potential suppliers and promote ethical behaviour in procurement.

Silvius et al. (2014) note that in considering sustainability principles, risk identification and management practices are likely to change. Risk is traditionally defined as any uncertain event whose occurrence positively or negatively affects project objectives achievement. However, a sustainability perspective could shift this approach to risk by changing focus from triple constraint objectives to focusing on the project's desired outcomes (Silvius et al., 2014). Moreover, sustainability considerations mean projects look at risks from the perspective of a wider stakeholder objectives as opposed to just sponsor and client objectives. Chawla et al. (2018) add that social and environmental risks become critical areas of focus in risk management in projects.

Sustainable project management requires a high level of transparency and accountability throughout supply chains and also among other stakeholders. According to Barendsen et al. (2021), integrating sustainable practices into project management would call for more proactive and open communication covering not only the economic project aspects but also the long-term and short-term environmental and social impact. Most of the ordinary project management practices demonstrate a generally reactive approach where project managers seek to understand

the communication needs of stakeholders and then provide the needed information (Project Management Institute, 2013). Sustainable project management practices require a more proactive approach which completes the two-way communication cycle. Hwang and Tan (2012a) study sustainable project management for green construction and focused on the impacts, solutions and challenges in the context of Singapore. In the study, Hwang and Tan (2012a) examine the differences between green construction and conventional construction and find that the level of communication involved differs between these practices. Generally, green construction project practices involve a higher level of communication since it is vital to effectively communicate the sustainable objectives and goals to all stakeholders for project success (Hwang and Tan, 2012b).

Other key areas that are influenced by sustainability initiatives are project reporting and organisational learning (Martínez-Martínez et al., 2023 and Silvius and Schipper, 2014a). Traditional progress reports used to follow a systematic structure beginning with scope definition, objective setting, definition of key factors of success, the business case and the description of project deliverables. However, with the inclusion of sustainable principles in project management practices, progress reporting must include social and environmental impact parameters. Sustainability considerations require that projects minimise wastes and optimise efficiency. As a result, project teams should learn new lessons from on efficient resource utilisation, waste management and ethical project management to improve environmental and social sustainability.

In a nutshell, literature demonstrates the impact of sustainability inclusion on the management of projects. The sustainability principles provide an additional perspective on the project management process. Therefore, project management should include a shift in scope from the conventional quality, budget and time management to economic, social and environmental impact management. Management in the context of sustainability impacts requires a holistic approach to project planning, evaluation and reporting. Table 1 below summarises the sustainable construction management practices.

Table 1: Summary of current sustainable construction management practices by authors

Sustainable practice	**Author(s)**
Management of social, environmental and	Silvius and Schipper (2014a); Taylor (2010);

economic aspects	Eskerod and Huemann (2013)
Opportunity, complexity and flexibility-based management approach	Silvius and Schipper (2014a); Akadiri et al. (2013)
Sustainability orientation in management	Silvius and Schipper (2014a)
Recognition of environmental advocacy groups, NGOs and human rights teams	Eskerod and Huemann (2013); Tharp (2013)
Quality measurement based on a holistic view	Stanitsas et al. (2021); Chawla et al. (2018)
Inclusion of non-financial elements in business case	Martens and Carvalho (2017)
Consideration of environmental sustainability human resource	Tharp (2013); Silvius et al. (2012); Al-Qassab et al. (2019)
Sustainable supply chain management	Nazir et al. (2024)
Inclusion of sustainability indicators in progress reports	Martínez-Martínez et al. (2023); Silvius and Schipper (2014a)

Source: Author

2.5 Best practices for sustainable project implementation

Although most practices used to manage construction projects are applicable in sustainable project management, the sustainability aspect introduces new complexities that demand changes in project management practices. Sustainability in project management considers three important aspects, i.e., social impact, environmental protection and economic efficiency (Stanitsas et al., 2021). Project management practices that reduce energy use, minimise waste and associated costs, improve people's health and wellbeing, and minimise pollution are thus essential (Stanitsas et al., 2021). In this case, choices and decisions have to be made systematically in every phase of the project lifecycle.

Orieno et al. (2024) examine the integration of sustainable practices into project management and highlight some of the emerging trends informing sustainable project management. Among other findings, the study highlights a variety of tools that project managers employ to facilitate sustainable project management. These include sustainability balanced scorecards, lifecycle assessments and use of digital technologies. Verdecchia et al. (2022)

support Orieno et al. (2014) by noting that construction and infrastructure projects can benefit from increased efficiencies and effectiveness resulting from innovative technology use.

Silvius (2021) report that despite the need for organisations to employ sustainability principles throughout the project lifecycle, a limited understanding of the role of the PMO in sustainably managing projects is highlighted as a key limitation to the integration of sustainability into the project management process. Johan and Turan (2016) further this discussion by recommending that project managers adopt the Green Project Management (GPM) standards in training their human resources in order to capture the important elements of project sustainability. This means a change in the manner and content with which the PMO conducts project management training. According to Silvius (2021), it is the PMO's responsibility to train project managers and employees on project management and other project works. The most relevant sustainable project management training and certification market offering is based on the GPM standards. However, Malik et al. (2023) critique the GPM standards on the basis of providing generic trainings which despite providing good content for sustainability awareness creation fail to provide some relevant insights required by project managers.

In line with the GPM standards, Mamabolo and Marnewick (2022) recommend changes in the benefits realisation management mainly incorporated in the business case, project implementation and subsequent post-project review. The benefits realisation management is concerned with how project benefits are identified and achieved in the long-run. The conventional benefits realisation management mainly focuses on the financial elements of project outcomes. However, sustainability considerations in project management expands this approach to include non-financial social and environmental aspects. Silvius (2021) notes that integrating sustainability criteria into the project management process means that the benefits realisation will involve the progression of the project's sustainability strategy across the entire project lifecycle. Therefore, measurable metrics should be set from the initial project stages to help measure sustainability impact of projects. According to Jainendrakumar (2008), the role of project management has little to do with managing benefit realisation since projects are less responsible for strategy development as they are for strategy realisation. Nevertheless, the project manager's role should emphasise the development of a suitable sustainability criteria that supports the measurement of benefits (Philbin, 2016).

2.6 Barriers to the adoption of sustainability principles in project management practice

Several hinderances exist that affect the implementation of sustainable construction practices in construction projects. Davies and Davies (2017) examine these barriers in the context of Nigeria building projects and found challenges such as professional issues, high costs, low expertise on creating sustainable designs, low execution capacity, limited sustainable materials, inadequate information and reluctance on the part of project clients. Moreover, Davies and Davies (2017) find that inadequate building regulations, information shortage and stakeholders' ignorance of the potential benefits of sustainability initiatives slow down the adoption and implementation of these designs. Confirming Davies and Davies' (2017) findings, Ametepey et al. (2015) note that building regulations and financial incentives serve as drivers to successful adoption of sustainable practices. As a result, high costs and poor regulatory frameworks can significantly negatively affect sustainability adoption. Affordability issues are often related to the size of the project or project company. Based on Ametepey et al. (2015), smaller construction project companies have more challenges adopting sustainable practices implying that it is more expensive to implement sustainable construction in smaller firms than in bigger firms.

Davies and Davies (2017) highlight divers and barriers to sustainability in construction projects. Based on the study, key barriers include poor policy planning, lack of a comprehensive standard of measuring sustainability, lack of affordable technological solutions, low client demand, poor understanding of the business case, low awareness among clients and building regulations. Another study by Ojo et al. (2014) reiterates that among the greatest barriers to the adoption of sustainable technologies in construction projects are inadequate awareness of the economic, social and environmental benefits, and weak planning policies and regulations. Fitriani and Ajayi (2023) report that poor coordination and cooperation between construction project stakeholders also hinder effective implementation of sustainable practices. The coordination and cooperation barrier raise the need for training of project management staff and effective stakeholder management. Ahmed et al. (2023) study the barriers to and risks in the implementation of sustainable construction practices. Key risks were identified as poor funding, unavailability of expertise and skills, inadequate information and weak regulations and green construction codes.

Zulu et al. (2022) also study both drivers and barriers to adopting and implementing sustainability principles in the context of Zambian construction sector. The study classifies the barriers to implementation of sustainability practices into three, i.e., firm-related and economy factors, industry-related and regulation factors and environmental and health-related factors. Among all the factors identified, regulatory factors and economic factors have the strongest impact on sustainability initiatives adoption. Some of the specific inhibitors were low government initiatives, high-priority economic needs, unclear statutory requirements and weak regulations on construction activities. Like Ahmed et al. (2023), Zulu et al. (2022) observes that sustainable project management is inhibited by low awareness and limited knowledge on sustainability initiatives. However, Zulu et al. (2022) ranks the awareness and knowledge hinderances lower than regulatory and economic factors. This could be explained by the fact that Zulu et al.'s (2022) study is based in a developing country whose regulatory and economic environments are still relatively weak. Nevertheless, while the severity of the obstacles differs between countries, similar risks are found to influence sustainable construction across jurisdictions. In a nutshell, obstacles continue to hinder the implementation of sustainable construction despite its widespread promotion globally.

Another study by Osuizugbo et al. (2020) argues that sustainable construction management is a difficult task which requires enormous effort from the industry's multiple stakeholders. According to Osuizugbo et al. (2020), sustainable construction faces challenges such as low government support, low demand for sustainable construction and lack of awareness of sustainable construction activities. Moreover, the study reports that sustainable construction costs in Nigeria are extremely high. In Ghana, high cost is accompanied by inadequate financial incentives by the government (Wiafe, 2016).

The barriers identified are summarised in table 2.

Table 2: Barriers to implementation of sustainability principles in construction project practice

Barrier	**Author(s)**
High costs	Davies and Davies (2017); Ametepey et al. (2015)
Inadequate expertise and skills	Davies and Davies (2017); Ahmed et al.

	(2023)
Limited sustainable materials	Davies and Davies (2017)
Inadequate information/awareness of benefits	Ojo et al. (2014); Davies and Davies (2017); Zulu et al. (2022)
Project client reluctance	Davies and Davies (2017)
Inadequate building regulations	Ametepey et al. (2015); Davies and Davies (2017); Ahmed et al. (2023); Zulu et al. (2022)
Poor coordination and cooperation between stakeholders	Ajayi (2023)
Limited government support	Zulu et al. (2022)
Low demand from project clients	Osuizugbo et al. (2020); Wiafe (2016)
Low financial incentives	Wiafe (2016)

Source: Author

2.7 Summary of the chapter

The chapter provides a review of literature on practices in project management in the context of sustainability considerations. Sustainability is looked at in the context of social, environmental and economic impact of projects. The Green Project Management (GPM) P5 Standard and the PRiSM framework are the most commonly used approaches for assimilating sustainability principles into the management of projects. The GPM P5 Standard applies the triple bottom line of prosperity, planet and people and extend its implications by integrating product and process considerations. The Projects Integrating Sustainability Methods (PRiSM) sets out principles that govern the entire project lifecycle. The two standards provide a basis upon which sustainability principles can be incorporated into project management. The reviewed literature shows a strong connection between sustainability and project management while highlighting the place of project management in ensuring that projects are sustainable. The project manager's role transcends the obvious implementation of sustainable, technical solutions and includes a wider institutional role in helping projects achieve radical change economically, socially and environmentally. The review of literature reveals that incorporating sustainability

initiatives into project management changes both the managers' mindset and the project management scope. Sustainability initiatives impact project management practices such as stakeholder management (identification and involvement), project specifications, project business case (benefits and costs), project success dimensions, project team organisation and selection, procurement and materials sourced, risk management, project schedule, project reporting and project handover. Existing literature highlights managerial requirements for sustainable management of projects in the context of skills and competencies. These competencies are categorised into technical, behavioural (personal), conceptual and context specific (organisational and industry specific). However, the literature on managerial requirements is limited to competency-based factors, thus the need to examine this area in a broader context. Literature recommends the adoption of sustainable technological solutions, the review of the roles of project managers in project implementation and alignment of benefit realisation management to the sustainable project management standards. However, existing literature does not explicitly examine the necessary practice change in order to optimise on the sustainability considerations in project management. Besides, there is need for current research to focus on project management sustainability in the context of Kuwait construction projects which has not been explored in literature. The literature also reveals various challenges that prevent efforts to implement sustainable construction despite its widespread promotion globally. This necessitates additional attention and focus for current research on the implementation of sustainable project management practices.

Chapter Three: Methodology

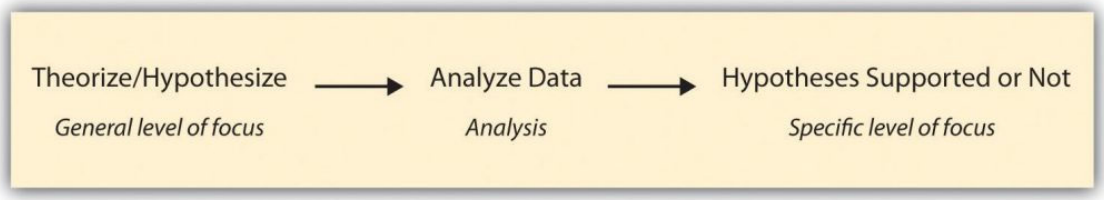
3.1 Research paradigm

A research paradigm is a belief about the manner in which data about a phenomenon should be collected, analysed and used to generate useful results. As a science, research transforms these beliefs into things that are known. According to Gavrilov (2020), there are predominantly two research paradigms; positivist and interpretivist. The positivist philosophy believes that reality is objective and can only be described through an investigation that does not interfere with the phenomena under study. The paradigm follows a hypothetico-deductive lens

where it begins with a theory, builds hypothesis, designs experiments by operationalising variables and conducts empirical analysis (Park et al., 2022). While positivism is hailed for its tendency to allow generalisation of research outcomes, this characteristic is heavily criticised by (Jaja et al., 2022). According to Jaja et al. (2022), assuming generalisability objects the nature of human beings as having the right to freely make decisions and account for their actions. Humans are free to take decisions and be accountable for their actions. In the same way, individuals can interpret the same information in different ways. Interpretivism believes in a subjective interpretation of reality. The philosophy advocates for the study of phenomena in its natural setting, and any interpretations of reality are part of the scientific knowledge being pursued by the researcher. The main advantage of the interpretivist paradigm is that it allows the researcher to deeply understand the phenomena under study in their specific contexts rather than generalising their understanding to the entire population (Pham, 2018). In addition, the paradigm allows the researcher the opportunity to probe the research participants for additional information that can otherwise not be observed. The current study follows an interpretivism paradigm in which in-depth insights will be sought to form the basis of the study. The study is interested in the thoughts, perceptions, views and perspectives of Kuwaiti construction project managers. However, the interpretivist philosophy bears one major limitation that the study findings cannot be generalised to the population (Pham, 2018).

3.2 Research approach

Deductive and inductive approaches are the most commonly used in research. The deductive approach begins with an outline of a compelling theory whose implications are tested using data (Burney and Saleem, 2008). The research in this case moves from a general level to more specific outcomes. It is mostly associated with hypothesis testing as the researcher looks at past literature, studies existing theories related to the study phenomena and develops hypothesis from the theories. This means that the researcher starts by identifying a compelling social theory and then uses the results of data analysis to test its implications as shown in figure 7 (DeCarlo, 2018). However, the deductive approach's correctness depends on whether the initial premise established through inductive research is correct.



Deductive approach

Source: DeCarlo (2018)

On the other hand, inductive approaches begin by collecting data on the phenomenon of interest before keenly analysing it by looking for patterns and developing theory to explain the them as shown in the figure below (DeCarlo, 2018). As such, the researcher starts with a set of observations and moves from the particular experiences to generating explanations on them.

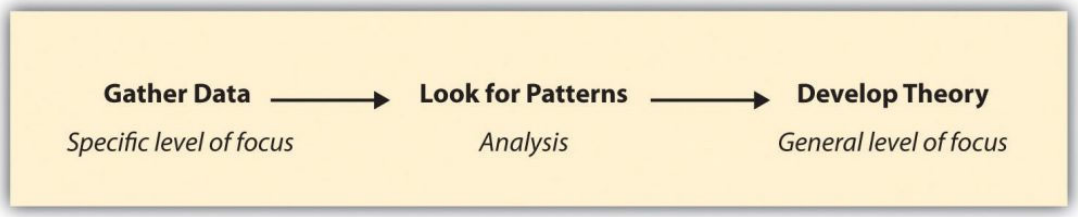


Figure 7: Inductive approach to research

Source: DeCarlo (2018)

The set of observations are obtained from the participants' perspective and since the researcher is also part of the study, they make additional observations during the data collection process (Ferguson et al., 2011). The approach is suitable for qualitative investigations since it leads to generation of rich and detailed data while allowing flexibility in changing research situations. However, the approach does not favour hypothesis testing (DeCarlo, 2018). Moreover, since generalisation of results requires very large sample sizes, the findings from this approach cannot be generalised.

The current study is based on an inductive approach commonly associated with qualitative research. The choice of an inductive approach is based on the fact that this research seeks to gather information about construction project managers' experiences of

sustainability practices and project management. Besides, as opposed to testing existing theories, the researcher's intention is to develop one by developing new ideas from observations in participants' perspective. Again, the research is not focused on testing or obtaining causal relationships but rather seeks to identify preliminary relationships through empirical generalisations. The fact that this study does not concern numerical data also qualifies its inductive approach.

3.3 Research strategy

This study uses a case study research strategy. Case studies focus on an in-depth investigation of either a single case or a limited number of cases (Priola, 2016). The researcher seeks information from different sources using methods such as document analysis, interviews, surveys and observations. The strength of a case study lies in its ability to allow the researcher to conduct a multifaceted examination of a subject. According to Yin (2009), case studies provide an opportunity to investigate phenomena in its real life. Moreover, case studies allow for a detailed study of the targeted unit of analysis in depth and within its natural setting. The natural setting within which the researcher conducts investigation is cause for alarm. Priya (2021) argues that when limiting oneself to the natural setting, the researcher does not have an opportunity to manage the effect of extraneous variables likely to affect the results. Furthermore, there is no leeway to generalise the findings of a case study. Nonetheless, a case study will help the researcher investigate sustainability and project management in construction industry from a smaller number of participants but in greater details than using a large number of research participants.

3.4 Methodological choice

Research methods can be qualitative, quantitative or mixed. Qualitative methods are commonly used to understand people's experiences and perspectives regarding a particular phenomenon (Rumi, 1995). The method is mostly used in exploratory investigations where the researcher seeks to generate knowledge from data collected in fieldwork. The focus here is to conduct the research in a natural setting where, in effect, the researcher is a vital data collection instrument (Creswell, 2005). The aim is to understand a particular group of people and inform local police, e.g., in an organisation or sector. In line with the interpretivist paradigm, qualitative

research studies subjects in their natural setting and seeks to obtain insiders' perspectives, views and meanings. Quantitative methods study subject behaviour under controlled conditions while isolating causal effects of single variables (Rumi, 1995). Unlike the qualitative method, quantitative methods are considered confirmatory and uses quantitative data obtained from precise measurements. Quantitative methods are preferred when the researcher intends to establish cause-effect relationships, determine the size of the effect or the strength of the relationships (Rana et al., 2021). Although this method is associated with result generalisability, it is criticised for only taking snapshots of phenomena without a more in-depth focus (Rahman, 2020). The differences between qualitative and quantitative methods are given below.

Table 3: Differences between qualitative and quantitative methods

Element	Qualitative	Quantitative
Role of researcher	Researcher is an instrument for data collection	Research is independent from researcher
Research intent	To develop theories	To test theories and hypotheses
Purpose of literature	To justify the purpose of the study	To identify the purpose of study
Type of data collected	Often open-ended responses to give greater details	Often pointed closed-ended responses. Tests specific variables
Data collection	Data are obtained from a few participants whose words or images are recorded	Often from larger groups of participants by administering testing instruments
Data analysis	Patterns and themes are obtained from text or images	Statistical data analysis using descriptive and inferential statistics

Mixed methods combine both qualitative and quantitative features. In mixed methods, the researcher views each individual method as insufficient to represent the research construct. Although both qualitative and quantitative methods are used separately, their results are used to complement each other.

Based on the interpretivism philosophical assumption, the current study follows a qualitative research methodology. The researcher is an integral part of the research process and collects data from project managers in their natural setting. The choice is justified by the need to collect in-depth data about a narrow field and from a small number of participants. It is in the interest of the researcher to gather the project managers' words and analyse them by focusing on the managers' meanings and perspectives. The qualitative method will elicit deeper insights into project managers' experience of sustainability integration into project management.

3.5 Research sample

This study uses a small sample of 14 senior project management in Kuwait. To ensure the depth of data gathered and the relevance of responses by the fifteen respondents, the participants were selected purposively based on years of experience in project management and the position in the project. Although sample size for qualitative studies has not been clearly described in existing literature, small samples are preferred since they provide the researcher with an opportunity to collect large amounts of detailed data (Crouch and McKenzie, 2006). Small samples facilitate close association between the researcher and the interviewees, thus providing an opportunity to probe for further information. The purpose of the purposive sampling is to ensure that only participants who are most likely to provide the information needed are selected. According to Palinkas et al. (2015), purposive sampling is commonly used in qualitative studies to identify and select information-rich cases. The current study targeted senior construction management staff because they are especially experienced and knowledgeable about the project management and sustainability practices. Table 1 presents a list of the 15 interviewees who participated in this research.

Table 4: List of participants

Participant	**Role**	**Department/organisation**	**Years in current position**
Participant 1	Engineer	Ministry of Electricity, Water and Renewable Energy	5 years

Participant 2	Engineer	Public Authority For Housing Welfare	1 year
Participant 3	Project manager	Airport construction project	17 years
Participant 4	Project development management supervisor	Municipal Projects – Kuwait Municipality	9 years
Participant 5	Project manager and Supervising Engineer	School building project	9 years
Participant 6	Deputy of project Engineer	Road construction and maintenance projects	8 years
Participant 7	CEO	Dar Salem Engineering Consultants Company	10 years
Participant 8	Project manager	Dar Al Hadiah Engineering Consultant	25 years
Participant 9	Project Coordination	Kuwait Integrated Petroleum Industries Company (KIPIC)	7 years
Participant 10	Project manager	Ministry of Health	2 years
Participant 11	Construction engineer	Kuwait Oil Company	8 years
Participant 12	Director of Construction Supervision	Pace architecture engineering	20 years
Participant 13	Project manager	Gulf Consult	10 years
Participant 14	Project manager	Mohamoud Al-Rashed Engineering Consultant	4 years
Participant 15	Technical manager	Taibah Engineering Consultants	20 years

3.6 Data collection

Several data collection methods can be used to gather data in qualitative research. These include observation, qualitative questionnaires and interviews. According to Mwita (2024), the choice of an appropriate data collection method can be made based on factors such as time, type of data, sample size, study scope and the goal of the research. While methods such as questionnaires are favourable for large sample studies, small sample qualitative studies can effectively use interviews, focus groups and observation. This study uses semi-structured interviews to collect data. Semi-structured interviews are favourable for exploring participants' beliefs, feelings and thoughts (Melissa and Lisa, 2019). The overall purpose is to collect data and information from participants who have beliefs, perceptions, attitudes and personal experiences. Semi-structured interviews were successfully used by Opoku and Ahmed (2014), Opoku and Fortune (2011) and Athapaththu and Karunasena (2018) to study sustainable construction management in different countries.

3.7 Data analysis

The qualitative data collected is pre-recorded in transcripts which are analysed using thematic analysis. Thematic analysis is commonly used in the analysis of qualitative data where researchers closely examine the data and come up with ideas, topics and patterns that draw meaning from the raw data (Braun and Clarke, 2012). By reading through the text, initial codes relevant to the research questions are obtained, which are used to produce patterns and themes relevant to the research. The identified themes are then analysed to provide relevant research findings which are also compared with literature for stronger implications. The results are structured in a way that each theme is addressed in turn and relevant implications based on the different research questions are drawn.

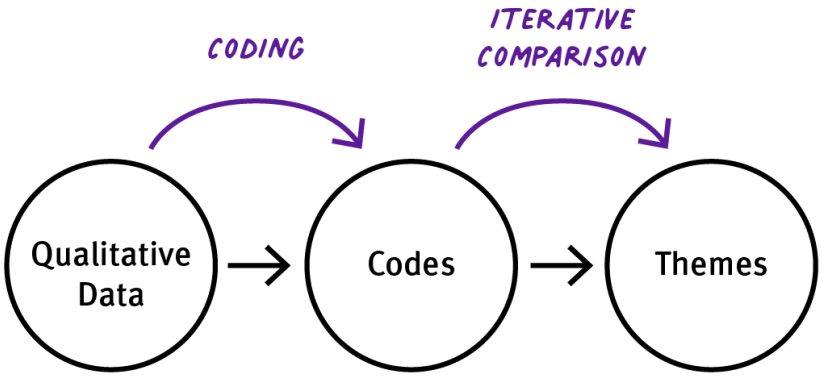


Figure 8: Thematic analysis process

Source: Rosala (2022)

3.8 Ethical consideration

Primary data collection from human participants involves considerable ethical issues. According to Artal and Rubenfeld (2017), the researcher must clearly communicate the intent of the research to the participants. For this reason, participants in this research were provided with detailed information about the aims of the research and what is required of the participants in order to facilitate informed decision regarding participation. Besides, the participants' confidentiality is of critical concern. This means that the researcher must assure the participants that their privacy and confidentiality is observed including in handling the data collected. This research did not collect any personally identifiable information such as names and contacts of the participants. Besides, data was safeguarded by ensuring that no third parties have access to it without the participant's consent. Informed consent was sought so that participants would have the freedom to choose whether to take part or not.

Chapter Four: Results of Data Analysis

4.1 Introduction

The data collection exercise yielded 15 interview transcripts whose data was subjected to a thematic analysis process. Five key themes were generated from the data based on emerging patterns and their respective codes (figure 9). This chapter presents the results of the thematic

data analysis process. The chapter highlights the themes and describes them based on their relevance to the research questions and in relation to existing literature.

4.2 Policy and regulation

4.2.1 Policies

Policies regulate industry practices and ensure that sustainable practices are normalised in organisations (Okwandu et al., 2024). They make sustainable practices to be the norm rather than an exception and also ensure strict implementation regardless of perceived drawbacks associated with such practices. The data collected in this study demonstrates a vital role of policies in supporting the implementation of sustainable construction. Being a managerial function entrusted upon top managers in an organisation, policy formulation represents an important shift from the ordinary regulatory role of construction project managers to the formulation and implementation of the new policies. Interviewees highlighted policies and regulations implemented to govern the energy extraction and use such as through the Leadership in Energy and environmental Design (LEED) which was found to be adopted among the majority of the interviewees. For example, participants 2 and 3 mentioned the use of LEED in all stages of design, construction and operation particularly in public buildings. In addition to LEED, construction projects in Kuwait must acquire approvals from regulatory bodies such as the Environment Public Authority before engaging in any major construction works. The requirement for approvals typically means that certain regulations must be adhered to and that the project company must demonstrate ability to meet set out quality standards. Participant 8 reported that they had adopted policies governing construction practices towards reducing waste, conserving water and minimising carbon footprint.

> *LEED is considered in design and construction of all public buildings (participant 2)*
>
> *a key environmental consideration integrated into all phases of the project—design, construction, and operation—is the LEED (Leadership in Energy and Environmental Design) certification (participant 3).*
>
> *We've adopted policies aimed at waste reduction, water conservation, and carbon footprint minimization (participant 1).*

4.2.2 Certification

Certification is a suitable way of ensuring that organisations have actually committed to meet certain standards and requirements set out by governments and regulators (UCEM, 2024). Construction projects in Kuwait have demonstrated their commitment to sustainability through acquiring certifications from authorised bodies in the country. Participant 3 stats that the project company's certification guarantees sustainability across all aspects of construction projects by demanding that projects follow certain measures and actions recommended. In addition, participant 4 indicates that the Environment Public Authority certifies an Environmental and Social Impact Assessment for construction project companies. Municipalities also adopt GSAS sustainability certifications that further inform project practices during construction, operation, design and licensing. Participant 4 further noted that the certifications have had considerable positive social, environmental and media impacts.

> *This certification guarantees sustainability and covers all aspects of the project, from material selection and optimization of natural light usage to thermal insulation efficiency and green energy generation. Therefore, the certification encompasses numerous measures and actions (participant 2).*
>
> *…the Municipality has adopted the GSAS sustainability certification during the construction, operation, design, and licensing phases.*
>
> *Adoption of certifications for environmental sustainability, which have had positive environmental, social, and media impacts (participant 4).*

4.3 Sustainable practices

4.3.1 Environmental practices

Projects in Kuwait demonstrated commitment to ensuring environmental sustainability through several practices. Interviewees hinted to waste management practices, energy conservation and other resource conservation. These practices are implemented to ensure efficient and clean use of available resources while minimising the impact of construction activities on the environment. Interviewee 1 noted that since most construction activities involved excavation and hence generate waste, the company requires contractors to relocate the landfill to specific areas designated by the government. All interviewees cited measures meant to

promote efficiency in resource use and manage wastes. For example, interviewee 6 stated that the company had adopted recycling of sewage into usable water, and reuse of iron, wood and plastic materials. Similarly, interviewee 3 highlighted the adoption of energy-efficient technologies alongside eco-friendly materials. Solar energy is a common energy-efficient technology used by construction companies in Kuwait as demonstrated by interviewees 1, 6 and 2. Apart from the energy efficient technologies, emerging modern construction methods have enhanced environmental sustainability efforts in Kuwait construction companies. Exploitation of green areas, efficient lighting, chillers, precast methods and BOT methods.

> *Yes, we do some environmental consideration from using sewage water we recycling it into water (participant 7).*
>
> *This includes the use of energy-efficient technologies and eco-friendly materials, which reduce operational costs over time (participant 1).*
>
> *Yes, current practices like using solar panels, green areas, precast method, chillers, sensors for lightning and includes wide spaces for natural light through skylights (participant 5).*

4.3.2 Social practices

Social practices are dominated by health and safety measures implemented by construction companies to minimise hazards that can potentially cause injury and diseases. The interviewees indicated that projects come up with measures to protect workers on site and also the community around project sites. Interviewee 6 highlighted self-protective measures to protect workers from injuries due to falling materials and debris. Personal protective equipment such as high visibility clothing, gloves, safety glasses and hard hats enhance social sustainability by protecting workers and community members directly or indirectly involved in construction projects. Fall protection mechanisms are also put in place to protect workers from falling into excavated grounds. International health and safety standards such as the Occupational Safety and Health Administration (OSHA), training programs and regular audits were a common conduct by project companies to enhance worker protection and overall social wellbeing of the community. Apart from health and safety measures to protect workers and community, construction projects take extra measures to ensure protection of community members' welfare. Participant 8 reported

that their project manages noise and air quality while reducing disruptions due to construction activities. The social welfare of workers and project stakeholders is further enhanced through training programs and emergency response planning where project companies provide fire drills and evacuation procedures. These measures strongly contribute to the social well-being of key stakeholders facilitating quick action whenever a potential threat arises.

> *Whenever we have a project, the contractor must establish a steel boundary wall around the site to protect the people working in the project so that they do not fall because we have a lot of excavations in the project (participant 1).*

> *we have taken all necessary measures to comply with safety requirements in construction work, such as wearing hats to protect the head and work clothes, wearing glasses to protect the eyes, and preparing an ambulance box containing some of the necessary medicines for emergencies (participant 7).*

> *Adopted international health and safety standards, including regular safety audits, training programs, and strict adherence to OSHA (Occupational Safety and Health Administration) guidelines… (participant 9).*

> *Additionally, we have fostered a culture of local workforce development by prioritizing training and skills transfer (participant 3).*

4.4 Benefits

Sustainable practices in the construction industry yields a number of benefits for the project company and its key stakeholders. In terms of sustainability, interviewees state that sustainable practices produce important efficiencies which reduce the overall project impact on the environment. Companies achieve these efficiencies by exploiting energy-efficient systems, waste reduction and resource optimisation. As a result, by implementing sustainable practices, construction practices satisfy stakeholders who have increasingly become aware and conscious of environmental sustainability. One of the biggest challenges faced by construction industry players is a high rate of cost and time overruns (Gómez-Cabrera et al., 2024). The problem is particularly critical in Kuwait where projects register project delays of up to 80% with significant budget increases (Alrasheed et al., 2023). Interviewees noted that implementing sustainable practices provides resource efficiencies which amount to economic sustainability. For example,

participants 2, 3, 5, 7, 8, 10, 11,13 and 14 note that enhancing resource efficiency leads to significant cost savings by optimising material use and reducing waste.

> *…it enhances resource efficiency by reducing waste and optimizing the use of materials, which can lead to significant cost savings (participant 3).*
>
> *It has many benefits; first using the natural sources will lower the cost for the materials used and the maintenance in the long-term (participant 5).*
>
> *Sustainable practices often lead to greater efficiency, which can reduce overall project costs. For example, energy-efficient systems, waste reduction, and resource optimization help cut down on expenses over time (participant 9).*

Interviewees alluded to the beneficial impact of sustainable practices on the society through their contribution to the quality of life. The construction of green buildings enhances the quality of life by ensuring that the inhabitant's living conditions are suitable and the environment they live in is clean. Minimising water wastage, reducing the use of non-renewable energy and the overall energy consumption, and minimising waste ensures high quality indoor and outdoor environment for residents. Participant 2 mentioned that in particular, green building practices contribute to improved lifestyle through sustainability benefits such as energy and water efficiency and waste minimisation. In addition, implementing sustainability practices fosters relationships between the public and private sector, which interviewee 5 say produces positive effects on the cost, time and quality of projects delivered in the country.

> *Green buildings conserve natural resources and improve lifestyle to ensure sustainability as the benefit of the green buildings includes water and energy efficiency, reduced wastes, high quality indoor environment and improved living conditions (participant 2).*
>
> *Overall, integrating sustainability into project management not only supports environmental goals but also drives long-term economic and social benefits (participant 3).*
>
> *Also, it demonstrates a commitment to responsible development, which can increase stakeholder trust and satisfaction, including clients, investors, and local communities (participant 9).*

...applying sustainability practice will give the good impact of the government sector which will allow the privet sector to work more with us and it's all will affect positively the quality, cost and time (participant 5).

4.5 Challenges in implementing sustainable practices

Despite the numerous benefits of implementing sustainable practices in the construction industry, interviewees highlight several disbenefits and challenges that hinder effective implementation. The most conspicuous disbenefit related to the cost implication of implementing sustainability measures. Benefits are usually reaped in the long-run while in the short-run, construction organisations have to cope with the burden of additional cost of projects. This means that while sustainability measures are critical to construction projects, they must be viewed as long-term investments for the future. One participant (participant 4) noted that while the sustainable practices are beneficial, challenges ensue when it comes to acquiring sustainable materials for the construction works. Sustainable construction activities in Kuwait require sustainable resources such as recycling technologies, modern building technologies, solar panels and other energy generation equipment, etc. Their availability and accessibility are limited by cost constraints, thus making adoption of sustainable practices difficult. In participant 8's view, sustainability practice integration into construction projects presents challenges balancing sustainability goals with the increasing cost burdens. As a result, projects implementing such practices often end up in delays. Nonetheless, participant 8 notes that this imbalance can be mitigated through early-stage planning and effective communication between stakeholders, a view reiterated by participant 9 who proposed the integration of sustainability practices into project planning right from the initial stage in the project life cycle. Introducing sustainable practices in the later stages of project implementation often results in higher costs and logistical complications.

When examined in the short term, they may appear as additional costs, but their long-term benefits outweigh these initial expenses (participant 3).

We have to believe in the importance of sustainability project even if it's sometimes cost more but we will benefit much more for the future (participant 5).

I faced challenges balancing cost constraints with sustainability goals, leading to occasional project delays. These experiences underscored the importance of early-stage planning and transparent communication with stakeholders about the benefits of sustainable practices (participant 8).

Trying to introduce sustainability measures late in a project often results in higher costs, logistical complications, and missed opportunities for impact (participant 11).

The observed challenges, however, act as learning opportunities for project management particularly for those who cherish learning from past experience. For example, participant 2 reported that the challenges faced during implementation of sustainable practices led to development of problem-solving skills which would be helpful in future project management practice.

Sure there will be some failures but I think that they are all healthy because it helps me to do it the right way next time, and also it gives me some skills in solving any failure or problem may accrue in the future (participant 2).

4.6 Changes in managerial competencies

4.6.1 Knowledge and organisational effectiveness

The sub-theme of knowledge and organisational effectiveness describes the need for more knowledge among project management staff with regard to construction project sustainability. Interviewees noted that implementation of sustainable practices demand special technical knowledge about the additional requirements for a successful change from conventional methods to sustainable methods. For example, participant 1 said that electrical engineers require to know and understand the electrical and chemical aspects of sustainable buildings in order to minimise challenges in implementation. Interviewee 4 reiterated that in the context of sustainable practice implementation, project managers require familiarity with various project experiences as well as flexibility. This new knowledge is crucial in enhancing their ability to prepare instructions for both workers and users. Interviewees reported the need for them to sharpen managerial competencies such as task organisation, communication, social interaction and responsibility allocation as prerequisites to achieving sustainability objectives. In this case, sustainable project management success relies heavily on effective communication,

social skills and strategic planning skills. This implies that the managerial competencies required for the conventional project management are inadequate to handle the complexities introduced by sustainable measures. Thus, while the managerial competencies are required for the management of conventional projects, sustainable projects demand that stakeholders upscale these competencies to better manage the complex demands of sustainable practice.

> *The project management must have good communication skills and technical knowledge about the work (participant 9).*

> *For us as civil engineers, we have to know and understand how to read the electrical and chemical aspects of the structure in order to avoid contradictions (participant 11).*

> *My experience in this field has led me to conclude that significant achievements can often be attributed to 'minor' managerial competencies, such as effective task organization, assignment and follow-up, personal communication, and social interaction skills (participant 3).*

4.6.2 Personal experience

Experience involves the encounters and events faced in the course of project management mediated by the length of time spent working on the projects. Interviewees highlighted the importance of experience in project management to effectively implementing sustainable practices in construction projects. Participant 13 noted that some of the failures made in the sustainable project practice implementation was due to limited experience in project management. Moreover, since sustainable practice varied from one company to another, experience could help individuals make correct judgment calls with regard to best practices in their organisations. Through experience, project staff discover sustainable practices adaptable to their specific project environment and those that are not. For example, participant 14 stated that while international standards on sustainable construction were beneficial, some did not necessarily apply to specific local environments. The encounter with such disparities demonstrates the importance of experience in project management issues in adapting sustainability practices to existing regulation.

> *Yes, I would attribute some failures to some specific managerial competencies such as experience (participant 12).*

A suitable practice in one country may not always be feasible in another country (participant 12).

That international standards do not necessarily apply to local requirements (participant 13).

4.6.3 Social skills and personal attributes

Social skills are acquired traits which help individuals to interact and exchange ideas with one another at work. Social skills are important project management skills which complement technical expertise to produce an all-rounded project manager. Project management staff require social and interpersonal skills in effectively lading teams and communicating with project stakeholders (Lathifah et al., 2024). On top of social skills, managers' personal attributes are considered predictors of project management success as they determine the ability of the project management staff to maximise available opportunities for project success (Valencia, 2007). Interviewees highlighted negotiation skills which have enabled project managers to acquire the required resources to aid in sustainable practice implementation. In addition to negotiation skills, participant 4 attributed sustainable practices implementation to honesty and transparency among project staff. Interviewees also noted the importance of adaptability and continuous monitoring in successful implementation of sustainable practices. Moreover, effective communication and collaboration skills were identified as important social skills in sustainable practice implementation. The need for consistent and proactive assessment and evaluation of project progress and suppliers demonstrates a requirement for analytical and evaluation skills in sustainable project managers. These skills are particularly important due to the need for consistent change and adaptability in the project lifecycle in order to achieve resource efficiency and cost objectives.

Projects have not been delayed due to skills in negotiation, honesty and transparency (participant 4).

Effective communication and collaboration skills are also critical in driving sustainable practices (participant 8).

I have learned that sustainable practices require adaptability and continuous monitoring. Success in sustainability often hinges on early integration into project plans and fostering engagement among all team members (participant 8).

I am more proactive about assessing materials and evaluating suppliers, seeking options that align with environmental goals as part of routine project setup (participant 15).

4.6.4 Long-term orientation

Sustainability and long-term orientation are related in that long-term oriented organisations seek to sustain their economic, environmental and social gains through activities such as ESG and CSR. The long-term orientation often reflects in the organisation's strategic actions in form of strategies and commitments as Rosecká et al. (2024) note. The subtheme of long-term orientation emerged in the context of organisations implementing sustainability practices demonstrating a long-term focus in both their strategic direction and staff attitude. Thus, sustainability practices influence construction project management staff to align their mindsets with longer-term goals as opposed to short-term gains. Sustainability practices emphasise looking into the future and thus considering consequences of today's actions not only for the moment but also for the long-run (Cantele et al., 2024). Interviewees stated that implementing sustainable practices has often demanded a view of the company in terms of future benefits of sustainability practices. For example, participant 5 noted that the company's sustainability orientation and us of sustainable natural resources is meant to ensure that the it avoids problems in future should something go wrong with buildings. This implies that even as the management formulates current strategies, there is foresight into the future life of the project. Participant 3 also highlights the need for companies implementing sustainable practices to have foresight into potential changes in future demand for houses and amenities. Participant 8 mentioned that sustainable practices demand a more holistic approach to project planning in order to ensure that today's planning considers the future output.

Yes, sustainable practices have led me to approach project planning more holistically, with a long-term perspective that prioritizes durability and energy efficiency (participant 14).

One of the primary strategies is investing in sustainable infrastructure, ensuring that the project not only meets current needs but also adapts to future demands (participant 13).

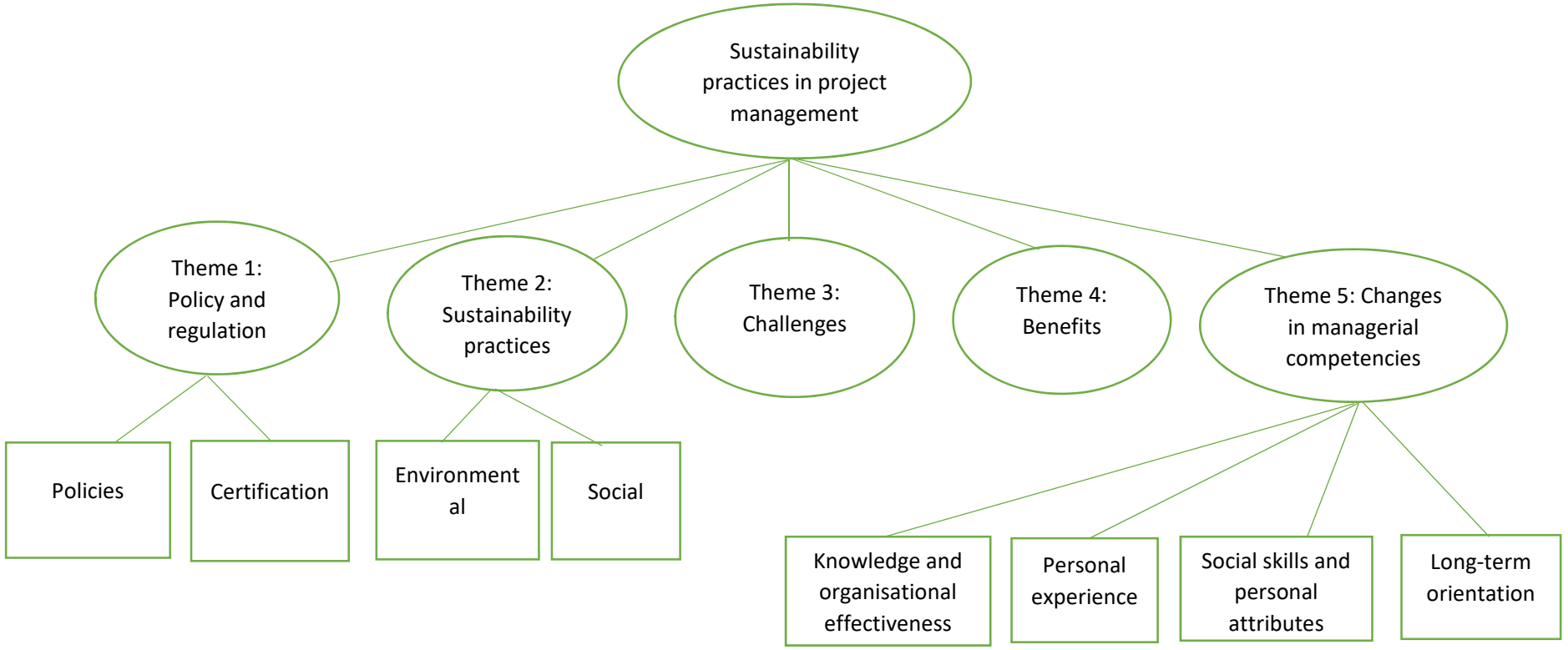


Figure 9: Thematic map

Chapter Five: Discussion of Findings

The contribution of sustainable practice implementation on policy and regulatory development is clear from literature. The need for these practices has led to the development of global and national regulations to guide construction projects in effectively implementing sustainable practices. For example, the demand for sustainability in the construction industry led to the development and adoption of the GPM P5 standards (Green Project Management, 2024) which provide a practical and comprehensive sustainability guideline for today's industries. The growing policies and regulations help organisations to embed sustainability practices into the project management practice. The relationship between sustainability practices in the construction industry and policy development is confirmed by this study's analysis of data where both international policies and local certifications have grown in importance and adoption among Kuwait's construction companies. In light of Silvius and Schipper (2014), construction companies in Kuwait have consistently integrated product and processes into their sustainability considerations by adhering to policies and certifications created to govern the two elements. In particular, the LEED framework is widely used in Kuwait's construction sector to govern energy extraction and use in both manufacturing and building use. One of the reasons why Kuwait strongly advocates for LEED is because despite significantly contributing to environmental greenhouse gas emissions, the country faces considerable challenges related to both resource scarcity (Ismael and Shealy, 2019). Nonetheless, Ismael and Shealy (2019) note that Kuwait suffers a general lack of reliable ratings which are specifically tailored to the country's geography and climate. This implies that even LEED ratings are not sufficient to measure and ensure energy efficiency in the country's construction industry. Nonetheless, construction companies in Kuwait are required to obtain certain certification before venturing into construction industry. The country's environmental sustainability consideration has forced construction companies to seek certification from bodies such as the Environment Public Authority and municipalities which follow GSAS certifications for construction, operation, design and licensing.

Sustainability practices in the construction industry take various forms. These practices lie under three key aspects, i.e., social impact, environmental protection and economic efficiency (Stanitsas et al., 2021). Although environmental aspects are more dominant, practices towards

environmental protection such as energy use efficiency and waste minimisation contribute to health and well-being of individuals. The findings of this study demonstrate a widespread adoption of waste management and energy conservation practices as among the most common sustainability practices in Kuwait's construction industry. Construction companies in Kuwait recognise the impact that construction activities such as excavation has on landfill and the relevance of addressing energy efficiency issues in building and construction. Most importantly, this study reveals the efforts by Kuwaiti construction industry players to ensure clean energy and energy efficiency in both the construction phase and building use. According to Tam et al. (2007), the construction industry uses approximately half of all natural resource materials and generates significant amounts of waste to landfill. Tam et al.'s (2007) study confirms the concerns of stakeholders in construction companies in Kuwait regarding waste management for sustainability. Nonetheless, while recycling is commonly used as the most important way of minimising construction waste, the current study observes minimal attempts to recycle wastes. Instead, the government has designated certain areas as landfills for depositing construction waste.

Construction companies in Kuwait have adopted the use of personal protective equipment to protect workers from injury and fatalities during construction. This is consistent with the observation by IAS (2024), which describes PPE certification used in Kuwait to ensure that certain PPE regulations and standards are followed. This implies that while PPE application in itself has immense benefits for construction workers, they also require regulation to ensure they deliver the most protection to users. Despite the awareness of the importance of health and safety measures in Kuwait's construction industry, Kartam et al. (2000) note that contractors, owners and government fail to actively pursue ways of maximising safety goal achievement. Consistent with Kartam et al. (2000), this study finds that only a few participants noted health and safety measures in their organisations. Rather, Kuwait construction industry is characterised by lack of comprehensive legislation and regulation related to risks, poor accident reporting and record keeping and labour disorganisation which complicate the achievement of social goals (Kartam et al., 2000). Therefore, workers' social welfare is generally neglected and this has resulted in low social sustainability.

The study establishes a variety of benefits through efficiencies which reduce the overall impact of construction activities on the environment. Construction practices negatively impact the environment through, among other factors, unsustainable energy generation and use, waste production and unsustainable resource utilisation (Tay et al., 2021). However, sustainable practices such as use of renewable energy, recycling of waste and efficient resource use provides an opportunity for projects to minimise their negative impact on the environment. Kuwait construction companies have adopted energy-efficient systems such as solar energy technologies, resource optimisation and waste reduction which are critical in minimising environmental damage. Both Verdecchia et al. (2022) support Orieno et al. (2014) agree that energy efficiency in construction projects is achieved through innovative technology use. However, in Kuwait, only the solar energy technology is adopted. Kuwait's construction industry still faces opportunities in other green-building innovations such as green insulation and water efficient technologies. Waste management in Kuwait is partially achieved using recycling and partially through landfilling. Although recycling is a commonly used practice in reducing wastes in construction projects (Wimalasena et al., 2010), this study demonstrates minimal use of recycling in Kuwait construction companies.

Besides environmental benefits, sustainable construction practices have proven instrumental in achieving economic sustainability of both construction companies and building users. According to Gómez-Cabrera et al. (2024), high rate of cost and time overrun are among the biggest challenges facing the construction industry. Resource efficiencies achieved through sustainable practice implementation minimise the overall cost of construction projects, thus amounting to economic sustainability. The contribution of sustainable construction practices to economic sustainability is further emphasised by the Oxford Business Group (2024), which views the resultant quality products as reducing both production and operational costs. In addition to the environmental and economic benefits, this research find that sustainable construction practices yield social advantages by guaranteeing health for users and a better quality of life. These findings support those of Assylbekov et al. (2021) who argue that sustainable practices improve the well-being of society and improves quality of life, satisfies human needs and alleviates poverty.

Nonetheless, this study stablishes that construction managers require additional knowledge into the challenges and disbenefits of implementing sustainable practices in order to make informed decisions. Consistent with Davies and Davies (2017), Ametepey et al. (2015) and Osuizugbo et al. (2020), this study finds that the high cost of sustainability practices and technologies hinders their adoption and implementation in construction companies. For example, the costly sustainable construction materials and technological equipment can be difficult to access for most companies, especially smaller firms (Ametepey et al., 2015). However, this study establishes that the challenges facing the sustainable practice implementation can provide a reliable means for project managers to acquire or develop decision-making and project management skills.

The most obvious and direct impact of sustainable practices on project management relates to changes in managerial competencies and such as knowledge, organisational effectiveness, personal attributes, skills and perceptions. Essentially, the implementation of sustainable construction practices demands specific abilities and competencies not necessarily employed in conventional project management. Implementation of sustainable practices involves a change from the conventional practices and since stakeholders may demonstrate resistance to change, project managers require better organisational skills and the ability to communicate the change in a manner that satisfies stakeholders. This is consistent with Malek and Yazdanifard (2012) who identify communication as a critical lever in change management, thus supporting the need for improved communication skills to effectively transition to sustainable construction. Based on Abangbila et al. (2020), project manager's role is not limited to facilitating sustainable, technical solutions. Rather, they play a wider institutional role in helping projects achieve radical change economically, socially and environmentally. Moreover, Abangbila et al. (2020) insist that delivering sustainability requires challenging existing institutionalised practices and suppositions in order to create new organisational models that favour sustainable development. Given this relationship between project management and change due to sustainability, change managers require specialised communication, coordination and organisational skills to successfully navigate the change. Most importantly, sustainable practices in construction projects introduce a long-term orientation in project managers. Ordinarily, project managers consider the short-term benefits which result from conventional project management practices. This study finds that sustainable project managers must look beyond the short-term outcomes of projects. Sustainable

practices often introduce extra project costs which make projects generally costlier in the short-run. However, the long-term social, environmental and economic benefits resulting from sustainable practices interventions can justify the short-term cost implications. Thus, staff attitudes and management commitments should align with long-term organisational goals and present strategies should be based on a foresight into future project outcomes.

Chapter Six: Conclusion and recommendations

6.1 Conclusion

Sustainable construction management practices are increasingly becoming common among construction project management teams. As environmental sustainability consciousness increases and regulatory authorities establish more stringent policies, organisations need to build on opportunities for implementing sustainable practices. Project managers play a crucial role in developing and implementing sustainable practices towards achieving resource efficiencies, cost savings, environmental impact reduction and social sustainability. Given the critical role of managers in sustainability practice implementation, the question of whether project management is influenced by sustainable practice implementation is highly relevant in the contemporary construction project environment. Kuwait's rapidly growing construction industry coupled with a considerable impact of construction activities on the environment, economy and people's welfare necessitates the adoption of sustainable practices in construction projects. Although the country has made effort to promote, regulate and implement sustainable policies, sustainable construction projects are a developing practice. Further, it was found that while the social, environmental and economic benefits of sustainable construction are mainly long-term, the application of these practices often has immediate negative implications. Project organisations' commitment to develop and implement these practices is hindered by the high cost of acquiring sustainable technologies and a narrow view of long-term benefits of sustainable practices. Thus, implementing sustainable practices in Kuwait's construction projects demands that managers change their mindsets and instead of focusing on short-term project outcomes, they should focus on long-term benefits. In addition, sustainable project management implementation requires that managers upgrade their skills and competences to better challenge existing institutionalised practices and beliefs and thus create better sustainable management models.

6.2 Recommendations

- The adoption and implementation of sustainable practices in Kuwait is still low. The construction industry requires to implement more strategies and action while encouraging management teams to adopt such practices. The companies should diversify and exploit more sustainable technologies in order to better achieve sustainability objectives.
- The new project management skills, competencies and attributes required to better implement sustainable project practices can be developed through training and capacity building of the staff responsible for strategy implementation. As a result, project companies in Kuwait should offer training to their staff to sharpen their skills and competencies, and change their approach towards sustainable project management.
- This research establishes that Kuwait projects' adoption of sustainable practices is still low. In addition, while recycling has commonly been used to address waste management issues in construction industry, construction companies in Kuwait have opted for alternative methods of handling wastes such as landfilling. Future studies should examine the effectiveness of waste management practices used in the construction industry in Kuwait. Future research should also examine the effectiveness of other specific sustainable practices used by construction companies in Kuwait.

Bibliography

Abangbila, L., An, X., Fomude, A. H. and Lamptey, N. O., (2020). Integrating sustainability in project management: A case study of anhui ligong real estate co. ltd., anhui. *Open Journal of Business and Management*, *8*(5), pp.2113-2132.

Ahmed, A. M., Sayed, W., Asran, A. and Nosier, I., (2023). Identifying barriers to the implementation and development of sustainable construction. *International Journal of Construction Management*, *23*(8), pp.1277-1288.

Akadiri, P. O., Olomolaiye, P. O. and Chinyio, E. A., (2013). Multi-criteria evaluation model for the selection of sustainable materials for building projects. *Automation in construction*, *30*, pp.113-125.

Akintayo, F. O., Oyebade, O. N., Songca, S. P., Adebisi, N. O., Oluwafemi, O. S. and Fadipe, O. O., (2020). Assessment of the impacts of building construction activities on the environment. *Nigerian Journal of Technology*, *39*(2), pp.325-331.

Almusawi, M. B. H., Karim, A. T. B. A. and Ethaib, S., (2022). Evaluation of construction and demolition waste management in Kuwait. *Recycling*, *7*(6), pp.88-102.

Al-Qassab, H., Paucar-Caceres, A., Wright, G. and Pagano, R., (2019). Sustainability and green project management skills: An exploratory study in the construction industry in Dubai. *Social Responsibility and Sustainability: How Businesses and Organizations Can Operate in a Sustainable and Socially Responsible Way*, pp.223-239.

Al-Raqeb, H., Ghaffar, S. H., Haitherali, H. and Gopakumar, A., (2024). Overcoming Barriers to Implementing Building Information Modelling in Kuwait's Ministry of Public Works: A Framework for Sustainable Construction. *Buildings*, *14*(1), pp.130-143.

Alrasheed, K., Soliman, E. and Albader, H. (2023). Systematic review of construction project delays in Kuwait. *Journal of Engineering Research*, *11*(4), pp.347-355.

Alrasheed, K., Soliman, E., & Al-Bader, H. (2023). Systematic Review of Construction Project Delays in Kuwait. *Journal of Engineering Research*. 11(2), pp.1-9.

Alsheyab, M. A. T., (2022). Recycling of construction and demolition waste and its impact on climate change and sustainable development. *International Journal of Environmental Science and Technology*, *19*(3), pp.2129-2138.

Ametepey, O., Aigbavboa, C. and Ansah, K., (2015). Barriers to successful implementation of sustainable construction in the Ghanaian construction industry. *Procedia Manufacturing*, *3*, pp.1682-1689.

Andreadakis, A., Katsarelis, T., Adamopoulou, I. and Psarra, M., (2015). Infusing the PRiSM™ sustainability framework into the IPMA project excellence model. *Department of Water Resources and Environmental Engineering, School of Civil Engineering, National Technical University of Athens*, Heroon Polytechneiou 9, 15780 Athens, Greece

APM. (2024). What is sustainability in project management? Available at https://www.apm.org.uk/resources/what-is-project-management/what-is-sustainability-in-project-management/. [Accessed: 25th September, 2024].

Artal, R. and Rubenfeld, S., (2017). Ethical issues in research. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *43*, pp.107-114.

Assylbekov, D., Nadeem, A., Hossain, M. A., Akhanova, G. and Khalfan, M. (2021). Factors influencing green building development in Kazakhstan. *Buildings*, *11*(12), pp.634-643.

Athapaththu, K. I. and Karunasena, G. (2018). Framework for sustainable construction practices in Sri Lanka. *Built Environment Project and Asset Management*, *8*(1), pp.51-63.

Barendsen, W., Muß, A. C. and Silvius, G., (2021). Exploring team members' perceptions of internal sustainability communication in sustainable project management. *Project leadership and society*, *2*, pp.100-115.

Bossink, B. A. G. and Brouwers, H. J. H., (1996). Construction waste: quantification and source evaluation. *Journal of construction engineering and management*, *122*(1), pp.55-60.

Braun, V. and Clarke, V., (2012). *Thematic analysis*. American Psychological Association.

Burney, A. and Saleem, H. (2008). Inductive and deductive research approach. *Department of Computer Science, University of Karachi, Pakistan*, *22*.

Cantele, S., Valcozzena, S. and Campedelli, B. (2024). How do firm social practices produce social impacts? Investigating the role of social and long-term orientation. *Journal of Cleaner Production*, *434*, pp.140-152.

Carboni, I and Gonzalez, M. (2015). The GPM® P5™ Standard for Sustainability in Project Management. GPM Global.

Carboni, J. (2023). Breaking down the P5 Standard for Sustainability in Project Management: Project Health and Safety. GPM. Available at https://blog.greenprojectmanagement.org/index.php/2023/08/07/breaking-p5-standard-sustainability-project-management-project-health-safety/. [Accessed: 14th July, 2024].

Carboni, J., Duncan, W., Gonzalez, M., Milsom, P. and Young, M., (2018). *Sustainable project management: The GPM reference guide*. Novi, MI, USA: GPM Global.

Çelik, T., Kamali, S. and Arayici, Y., (2017). Social cost in construction projects. *Environmental impact assessment review*, *64*, pp.77-86.

Chawla, V., Chanda, A., Angra, S. and Chawla, G., (2018). The sustainable project management: A review and future possibilities. *Journal of Project Management*, *3*(3), pp.157-170.

Chow, T. C., Zailani, S., Rahman, M. K., Qiannan, Z., Bhuiyan, M. A. and Patwary, A. K. (2021). Impact of sustainable project management on project plan and project success of the manufacturing firm: Structural model assessment. *Plos one*, *16*(11), pp.259-268.

Crouch, M. and McKenzie, H. (2006). The logic of small samples in interview-based qualitative research. *Social science information*, *45*(4), pp.483-499.

Darko, A., Chan, A. P. C., Gyamfi, S., Olanipekun, A. O., He, B. J. and Yu, Y., (2017). Driving forces for green building technologies adoption in the construction industry: Ghanaian perspective. *Building and Environment*, *125*, pp.206-215.

Davies, O. O. A. and Davies, I. E. E., (2017). Barriers to implementation of sustainable construction techniques. *MAYFEB Journal of Environmental Science*, *2*, pp.1-9.

DeCarlo, M. (2018). *Scientific inquiry in social work*. Open Social Work Education.

Durdyev, S., Zavadskas, E. K., Thurnell, D., Banaitis, A. and Ihtiyar, A., (2018). Sustainable construction industry in Cambodia: Awareness, drivers and barriers. *Sustainability*, *10*(2), pp.392-399.

El-Wafa, M. M. A. and Mosly, I., (2024). Comprehensive investigation into contractors' challenges leading to project delays in Rabigh, Saudi Arabia. *World Journal of Advanced Engineering Technology and Sciences*, *11*(2), pp.608-623.

Enshassi, A., Kochendoerfer, B. and Rizq, E., (2014). An evaluation of environmental impacts of construction projects. *Revista ingeniería de construcción*, *29*(3), pp.234-254.

Eskerod, P. and Huemann, M., (2013). Sustainable development and project stakeholder management: What standards say. *International Journal of Managing Projects in Business*, *6*(1), pp.36-50.

Ferguson, K. M., Kim, M. A. and McCoy, S. (2011). Enhancing empowerment and leadership among homeless youth in agency and community settings: A grounded theory approach. *Child and Adolescent Social Work Journal*, *28*, pp.1-22.

Fitriani, H. and Ajayi, S., (2023). Barriers to sustainable practices in the Indonesian construction industry. *Journal of Environmental Planning and Management*, *66*(10), pp.2028-2050.

Forsberg, A. and Saukkoriipi, L., (2007). Measurement of waste and productivity in relation to lean thinking. In *Annual Conference of the International Group for Lean Construction: 18/07/2007-20/07/2007* (pp. 67-76). Michigan State University Press.

Gavrilov, D. (2020). Positivism-from weaknesses to new openings. *Revista Universitară de Sociologie*, *16*(1), pp.151-166.

Global, G. (2015). The GPM® P5™ Standard for Sustainability in Project Management. Available at https://pm.hse.ru/mirror/pubs/share/562398480.pdf. [Accessed: 23rd June, 2024].

Gómez-Cabrera, A., Gutierrez-Bucheli, L. and Muñoz, S. (2024). Causes of time and cost overruns in construction projects: a scoping review. *International Journal of Construction Management*, *24*(10), pp.1107-1125.

GPM Global, (2022). The GPM P5™ Standard for Sustainability in Project Management. Available at https://greenprojectmanagement.org/images/PDF/P5/The%20GPM%20P5%20Standard%20for%20Sustainability%20in%20Project%20Management%20v2.0.pdf. [Accessed: 29th May, 2024].

GPM, (2024). The Global Standard for Sustainable Project Management Version 3.0. Available at https://greenprojectmanagement.org/gpm-standards/the-p5-standard-for-sustainability-in-project-management. [Accessed: 23rd June, 2024].

Green Project Management, (2024). The Global Standard for Sustainable Project Management Version 3.0. Available at https://greenprojectmanagement.org/gpm-standards/the-p5-standard-for-sustainability-in-project-management. [Accessed: 29th May, 2023].

Gurgun, A. P., Koc, K. and Kunkcu, H., (2024). Exploring the adoption of technology against delays in construction projects. *Engineering, Construction and Architectural Management*, *31*(3), pp.1222-1253.

Gutiérrez, M. (2014). Applying PRiSM methodology in the Canadian construction sector. *PM World J*, *3*, PP.1-10.

Hawang, B. and Tan, J. S., (2012b). Sustainable project management for green construction: challenges, impact and solutions. CIOB World Construction Conference 2012. Available at https://www.researchgate.net/publication/262804796_Sustainable_Project_Management_for_Green_Construction_Challenges_Impact_and_Solutions. [Accessed: 1st June, 2024].

Hussin, J. M., Rahman, I. A. and Memon, A. H., (2013). The way forward in sustainable construction: issues and challenges. *International Journal of Advances in Applied Sciences*, *2*(1), pp.15-24.

Hwang, B. G. and Tan, J. S., (2012a). Green building project management: obstacles and solutions for sustainable development. *Sustainable development*, *20*(5), pp.335-349.

IAS (2024). PPE certification. Available at https://iasiso-gulf.com/KW/ppe-certification-in-kuwait/#:~:text=It%20includes%20PPE%20products%20such,%2C%20chemical%20protective%20clothing%2C%20etc. [Accessed: 23rd November, 2024].

Ibrahim, O., Al-Kindi, G., Qureshi, M. U. and Maghawry, S. A. (2022). Challenges and construction applications of solid waste management in Middle East Arab countries. *Processes*, *10*(11), pp.2289-2297.

Ismael, D. and Shealy, T. (2019). Industry perceptions of sustainable design and construction practices in Kuwait. *Journal of Green Building*, *14*(4), pp.169-193.

Ismael, D. and Shealy, T., (2018). Sustainable construction risk perceptions in the Kuwaiti construction industry. *Sustainability*, *10*(6), pp.1854-1867.

Jainendrakumar, T., (2008). The project/program management office (PMO). *PM World Today*, *10*(1), pp.1-10.

Jaja, I. R., Idoniboye, O. and Amadi, C. C. (2022). A Critique of the Positivist Paradigm in Human Sciences. *International Journal of Research and Innovation in Social Science*, *6*(3), pp.224-229.

Johan, K. and Turan, F. M., (2016). Industrial training approach using GPM P5 Standard for Sustainability in Project Management: a framework for sustainability competencies in the 21st century. In *IOP Conference Series: Materials Science and Engineering* (Vol. 160, No. 1, p. 012075). IOP Publishing.

Kaja, N. and Goyal, S., (2023). Impact of Construction Activities on Environment. *Resource*, *10(1)*, pp.17-24.

Kartam, N. A., Flood, I. and Koushki, P. (2000). Construction safety in Kuwait: issues, procedures, problems, and recommendations. *Safety science*, *36*(3), pp.163-184.

Katsarelis, T. and Adamopoulou, I., (2014). Evolving Project Management: The PRiSM™ Framework–Projects Integrating Sustainable Methods. 5th ENEPROT Conference. Available at *https://www. researchgate. net/publication/279961681_Evolving_Project_Management_T he_PRiSM_Framework_-*

_Projects_Integrating_Sustainable_Methods/citation/download*. [Accessed: 29th May, 2024].

Lathifah, A., Fadhilah, J. and Fitroh, F. (2024). The Importance of Interpersonal Skills for Project Manager: Systematic Literature Review. *Jurnal Manajemen Teknologi*, 23(2), pp.155-167

Malek, R. and Yazdanifard, R. (2012). Communication as a crucial lever in change management. *International Journal of Research in Management & Technology*, *2*(1), pp.52-57.

Malik, M., Ali, M., Latan, H. and Chiappetta Jabbour, C. J., (2023). Green project management practices, green knowledge acquisition and sustainable competitive advantage: empirical evidence. *Journal of Knowledge Management*, *27*(9), pp.2350-2375.

Mamabolo, M. and Marnewick, C., (2022). Benefits realisation management: Responsibilities and challenges. *South African Journal of Information Management*, *24*(1), pp.1-9.

Martens, M. L. and Carvalho, M. M. (2016). The challenge of introducing sustainability into project management function: multiple-case studies. *Journal of Cleaner Production*, *117*, pp.29-40.

Martens, M. L. and Carvalho, M. M., (2017). Key factors of sustainability in project management context: A survey exploring the project managers' perspective. *International journal of project management*, *35*(6), pp.1084-1102.

Martínez-Martínez, A., Cegarra-Navarro, J. G. and Garcia-Perez, A., (2023). Sustainability knowledge management and organisational learning in tourism: Current approaches and areas for future development. *Journal of Sustainable Tourism*, *31*(4), pp.895-907.

Melissa, D. and Lisa, M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. *Chinese General Practice*, *22*(23), pp.2786.

Mishra, K., & Koju, L. (2020). Cost Performance Assessment of High Rise Hospital Building Construction Project. *East African Scholars Journal of Economics, Business and Management*. 3(9), pp.43-51.

Mwita, K. (2022). Factors to consider when choosing data collection methods. *International Journal of Research in Business and Social Science (2147-4478)*, *11*(5), pp.532-538.

Nazir, S., Zhaolei, L., Mehmood, S. and Nazir, Z., (2024). Impact of green supply chain management practices on the environmental performance of manufacturing firms considering institutional pressure as a moderator. *Sustainability*, *16*(6), pp.2278-2287.

Ojo, E., Mbowa, C. and Akinlabi, E. T., (2014). Barriers in implementing green supply chain management in construction industry. *Proceedings of the 2014 International Conference on Industrial Engineering and Operations Management Bali*, Indonesia.

Okwandu, A. C., Esho, A. O. O., Iluyomade, T. D. and Olatunde, T. M. (2024). The role of policy and regulation in promoting green buildings. *World Journal of Advanced Research and Reviews*, *22*(1), pp.139-150.

Opoku, A. and Ahmed, V. (2014). Embracing sustainability practices in UK construction organizations: Challenges facing intra-organizational leadership. *Built Environment Project and Asset Management*, *4*(1), pp.90-107.

Opoku, A. and Fortune, C. (2011). The implementation of sustainable practices through leadership in construction organizations. *Management*, *1145*, pp.1154-1165.

Orieno, O. H., Ndubuisi, N. L., Eyo-Udo, N. L., Ilojianya, V. I. and Biu, P. W., (2024). Sustainability in project management: A comprehensive review. *World Journal of Advanced Research and Reviews*, *21*(1), pp.656-677.

Osuizugbo, I. C., Oyeyipo, O., Lahanmi, A., Morakinyo, A. and Olaniyi, O. (2020). Barriers to the adoption of sustainable construction. *European Journal of Sustainable Development*, *9*(2), pp.150-150.

Oxford Business Group. (2024). Kuwait's infrastructure projects drive construction and long-term diversification. Available at https://oxfordbusinessgroup.com/reports/kuwait/2024-report/construction-real-estate/in-demand-large-scale-infrastructure-projects-drive-growth-and-contribute-to-long-term-economic-diversification-agenda-overview/#:~:text. [Accessed: 23rd November, 2024].

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. and Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, *42*, pp.533-544.

Park, Y. S., Konge, L. and Artino Jr, A. R. (2020). The positivism paradigm of research. *Academic medicine*, *95*(5), pp.690-694.

Pham, L. T. M. (2018). Qualitative approach to research a review of advantages and disadvantages of three paradigms: Positivism, interpretivism and critical inquiry. *University of Adelaide*.

Philbin, S. P., (2016). Exploring the project management office (PMO)–Role, structure and processes. In *Proceedings of the International Annual Conference of the American Society for Engineering Management.* (pp. 1-11).

Priola, C. (2016). *Understanding different research perspectives*. The Open University.

Priya, A. (2021). Case study methodology of qualitative research: Key attributes and navigating the conundrums in its application. *Sociological Bulletin*, *70*(1), pp.94-110.

Project Management Institute (2013). *A Guide to Project Management Body of Knowledge (PMBOK® Guide),* Fifth edition. Newtown Square, PA USA: Project Management Institute.

Rahman, M. S. (2020). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language “testing and assessment” research: A literature review. *Journal of Education and Learning*, 6(1) pp.102-112.

Rana, J., Gutierrez, P. L. and Oldroyd, J. C. (2021). Quantitative Methods. *Global Encyclopedia of Public Administration, Public Policy, and Governance*, pp.1-6.

Rosala, M. (2022). How to Analyze Qualitative Data from UX Research: Thematic Analysis. Available at https://www.nngroup.com/articles/thematic-analysis/. [Accessed: 14th July, 2024].

Rosecká, N., Machek, O., Stasa, M. and Kubíček, A. (2024). Long-term orientation and corporate social responsibility in small and medium-sized enterprises: the role of strategy formation mode. *Social Responsibility Journal*, *20*(4), pp.825-842.

Rumi, J. (1995). *The essential Rumi, trans & ed*. SAGE publications.

Silvius, A. J. and Schipper, R. P., (2014a). Sustainability in project management: A literature review and impact analysis. *Social business*, *4*(1), pp.63-96.

Silvius, G., (2021). The role of the project management office in sustainable project management. *Procedia Computer Science, 181*, pp.1066-1076.

Silvius, G., Schipper, R. and Nedeski, S., (2014). Consideration of sustainability in projects and project management: An empirical study. In *Sustainable Practices: Concepts, Methodologies, Tools, and Applications* (pp. 903-924). IGI Global.

Silvius, G., SChIPPER, R. O. N. and Planko, J., (2012). *Sustainability in project management*. Gower Publishing, Ltd.

SKANSKA (2024). Safeguarding the environment. Available at https://group.skanska.com/sustainability/responsibility/safeguard-the-environment/#:~:text=Our%20business%20units%20are%20certified,in%20our%20restricted%20substance%20standard. [Accessed: 15th July, 2024].

Stanitsas, M., Kirytopoulos, K. and Leopoulos, V., (2021). Integrating sustainability indicators into project management: The case of construction industry. *Journal of Cleaner Production*, *279*, pp.123-134.

Tam, V. W., Shen, L. Y., Fung, I. W. and Wang, J. Y. (2007). Controlling construction waste by implementing governmental ordinances in Hong Kong. *Construction Innovation*, *7*(2), pp.149-166.

Tay, S. I., Alipal, J. and Lee, T. C. (2021). Industry 4.0: Current practice and challenges in Malaysian manufacturing firms. *Technology in Society*, *67*, pp.101-117.

Taylor, T., (2010). Sustainability Interventions - for Managers of Projects and Programmes. Centre for Education in the Built Environment, Salford: The Higher Education Academy.

Tharp, J., (2012). Project management and global sustainability. Marsailles, France: Project Management Institute.

Tharp, J., (2013). Sustainability in project management: Practical applications. In *Sustainability Integration for Effective Project Management* (pp. 182-193). IGI Global.

UCEM (2024). Understanding green building certifications: why should you get one? University College of state Management. Available https://www.ucem.ac.uk/whats-happening/articles/green-building-certification/#:~:text. [Accessed: 18th November, 2024].

Valencia, V. V. (2007). A project manager's personal attributes as predictors for success (MSc). *Air Force Institute of Technology, Circleville, OH*.

Verdecchia, R., Lago, P. and De Vries, C., (2022). The future of sustainable digital infrastructures: A landscape of solutions, adoption factors, impediments, open problems, and scenarios. *Sustainable Computing: Informatics and Systems*, *35*, pp.100-117.

Wiafe, F. (2016). *Factors affecting the implementation of sustainable construction in Ghana: the architect's perspective* (Doctoral dissertation).

Wimalasena, B. A. D. S., Madanayake, H. L. S. P., Weerasinghe, I. P. T. R., Ruwanpura, J. Y. and Hettiaratchi, J. P. A. (2010). Recycling as a construction waste management technique. In *Proceedings of the Institution of Civil Engineers-Waste and Resource Management* (Vol. 163, No. 2, pp. 49-58). Thomas Telford Ltd.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). Sage Publications.

Zulu, S. L., Zulu, E., Chabala, M. and Chunda, N., (2023). Drivers and barriers to sustainability practices in the Zambian Construction Industry. *International Journal of Construction Management*, *23*(12), pp.2116-2125.

Appendices

Appendix 1: Ethics form

Background Information

1. You should discuss your Ethics Checklist with your supervisor BEFORE submission.
2. Please attached this Checklist as an Annex to your Project Proposal and Dissertation with any other supporting documentation (e.g. template Consent Forms).
3. Later in the module, once you have finalised your methodological approach, your supervisor is required to upload the final ethics to the University's Online Ethics Review System. Please note - this can only be accessed by a member of staff.
4. Once uploaded, the system will create a unique Ethics Reference Number. You must referred to this in your Dissertation
5. Further research ethics guidance is available at:
    a. http://www1.uwe.ac.uk/research/researchethics
    b. https://www.uwe.ac.uk/research/policies-and-standards/research-ethics/applying-for-ethical-approval
6. Templates for Participant Information Sheets, Consent Forms, Data Management Plans can be found here: https://www.uwe.ac.uk/research/policies-and-standards/research-ethics/policies-procedures-and-guidance

Project Details:

Supervisor Name	Dr Krzysztof Dziekonski
Proposed Project Title	Impact of Sustainability Practices on Project Management Process: The Case of Kuwaiti Project Managers
Level of Study	PGT
Module Code	UBLLY7-60-M
Module Name	Dissertation
Module Leader	Dr Deborah Adkins

Student Details:

Student Number	23070442
Student Name	Hamad Alazemi
Student Email	Hamad3.Alazemi@live.uwe.ac.uk

Human Participant Questions

Please complete this section honestly and in detail

	Questions	Reply	Please explain in detail
1	Are Human Participants involved?	Yes	The study will collect data from project managers from different projects in Kuwait
If your reply is 'Yes' then please complete Questions 2-13 below			
2	Will participants be clearly asked to give consent to take part in the research and informed about how data collected in the research will be used?	Yes	Participants will be provided with details of what the study is about and what will be required of them upon choosing to take part. A consent form will be provided for them to sign as confirmation of decision to participate.
3	If they choose, can a participant withdraw at any time (prior to a point of "no return" in the use of their data)? Are they told this?	Yes	The participants can withdraw from the study any time before the data analysis exercise is over without explaining the withdrawal. They can withdraw all the data they have provided up to this point. This will be clearly indicated in the information sheet issued alongside the consent form.
4	Are measures in place to provide confidentiality for participants and ensure secure management and disposal of data collected from them?	Yes	Data that can personally identify the participants, e.g., names, emails and contacts will not be collected. The data collected will only be used for academic purposes in this study and will not be shared with parties other than the University of the West of England supervisors without the consent of the participants. Data collected will be stored in password protected computers for a maximum period of 10 years after which it will be disposed and the files deleted.
Does the proposed research fall into any of the following categories?			
	Questions	**Reply**	**Please explain in detail**
5	Does the research involve potentially vulnerable groups – e.g. children and young people* or people with a learning disability or cognitive impairment, those who lack decision making capacity or people in a dependent or unequal relationship? (*Applicable to UWE Education Department students only - except for educational research in classroom settings where safeguarding arrangements are already in place, and where appropriate parent and pupil consent for the proposed UWE research activity is also in place)	No	
6	Research involving NHS or independent hospital patients, social care (including	No	

	care/nursing homes) service users or prisoners?		
7	Research involving deception or which is conducted without participants' full and informed consent at the time the study is carried out, for example studies using data from social media.	No	
8	Research involving the collection of data, or access to data/ records, involving personal or sensitive confidential information, including genetic or other biological information concerning identifiable individual or Special Category Data under the Data Protection Act, or linkage of datasets with the result that individuals can be identified.	No	
9	Research which would or might induce psychological stress, anxiety or humiliation, or cause more than minimal pain or distress to either participants or researchers.	No	
10	Research involving intrusive interventions or data collection methods, e.g. the administration of substances, taking of biological samples, vigorous physical exercise or techniques such as hypnotism. This includes where participants are persuaded to reveal information they would not otherwise disclose in the course of their everyday lives or within public forums.	No	
11	Research involving visual/vocal methods, where participants or other individuals may be identifiable in the visual images used or generated.	No	
12	Research which may involve data sharing of confidential information beyond the initial consent given, e.g. where the research topic or data gathering involve a risk of information being disclosed that would require researchers to breach confidentiality conditions agreed with participants.	No	
13	Research on, or which may elicit information about, sensitive topics, including but not limited to sex and sexuality, security sensitive information including extreme beliefs or views, experiences of abuse or harm, religious beliefs, drug use, criminal activity, ethnicity/racism.	No	

Minimal Risk: If **Q1 is answered 'No'**, then no ethics approval is needed. **Low Risk:** If **Q1 is answered 'Yes' and Q2-4 are answered 'Yes' and Q5-13 are answered 'No'**, then no approval is needed from the *Faculty Research Ethics Committee* (FREC). Approval can be provided by your supervisor but they must see and approve • your Participant Information Sheet and Consent Forms • your research instrument (e.g. survey, interview schedule) • your measures for secure data management. **High Risk:** If **any of Q5-13 are answered 'Yes'**, please discuss with your supervisor ways to reduce the risk to enable it to proceed as low risk. If this is not possible, please complete a full FREC application with your supervisor			

Other Questions

Please complete this section honestly and in detail

Does the proposed research fall into any of the following categories?			
	Questions	**Reply**	**Please explain in detail**
1	Research involving human tissue, including body parts blood, and cells. Human tissue research and teaching activities at UWE Bristol are governed by the Human Tissue Sub-Committee, please contact: researchgovernance@uwe.ac.uk	No	
2	Research using administrative data not in the public domain, secure data or security-sensitive data.	No	
3	Research where data collection is undertaken or shared outside the UK, or where personal data will cross National boundaries.	Yes	This study will be conducted in Kuwait in which data will be collected in Kuwait construction projects. As such, data will cross Kuwaiti national boundaries.
4	Research involving animals (including invertebrates) or animal by-products. *All research and teaching activity undertaken by UWE staff or students that **involves or impacts upon animals or utilises ABPs** must be approved by the UWE Animal Welfare and Ethics Sub-Committee (AWESC), prior to the activities for which review is necessary before commencing. Please contact*: researchgovernance@uwe.ac.uk	No	
5	Research which might have a negative environmental impact.	No	
6	Research involving politically and/or culturally sensitive funding sources or partners.	No	
7	Research involving financial inducements (other than reasonable expenses and compensation for	No	

	time).		
If **any** of the answers above are 'Yes', please discuss with the supervisor ways to reduce the risk to enable it to proceed as low risk. If this is not possible, please complete a full FREC application with your supervisor			

Appendix 2: Risk assessment

Project Details:

Module name	Dissertation
Module code	UBLLY7-60-M
Module leader	Dr Deborah Adkins
Project Supervisor	**Dr Krzysztof Dziekonski**
Proposed project title	**Impact of sustainability practices on project management process: The case of Kuwaiti Project Managers**
Proposed submission date	**09/01/2025**

Applicant Details:

Name of Student	Hamad Alazemi
Student Number	23070442
Student's email address	Hamad3.Alazemi@live.uwe.ac.uk

RISK ASSESSMENT FOR STUDENT ACTIVITIES
(Project Work, Dissertation Research and Off-Campus Visits etc.)

As part of a programme of work, students are often asked to undertake activities which could, in certain circumstances, be risky if not carried out safely and with forethought. For example, project work may involve visiting areas away from the University. Dissertation or project work may involve the use of equipment or work in external environments such as coastal areas liable to flooding or it may involve lone work in urban areas.

The University needs to know that you have carefully considered the risks you may be running in undertaking these activities. Therefore, you are asked to answer the questions below seriously and thoroughly. The College will not approve your undertaking these activities as part of University work unless you have completed the form, and it has been signed by the relevant module leader or your dissertation tutor and Head of Department.

Please keep up to date with advice from the University on Covid-19. The guidance is changing regularly and you should ensure that you take step to minimise all risk for you and your participants. https://www.uwe.ac.uk/news/coronavirus

Note: The activities covered by this Risk Assessment are quite separate from field trip and study visits organised by the School.

You and your Visit/Work/Activity:	
Nature of activity proposed	The researcher will conduct interviews on the study participants.
Description of tasks	The researcher will meet the participant in person in a designated location and time, and ask them a series of questions while recording the responses. The participa will answer open questions on sustainability and proje management.
Location(s) of activity	Interviews will be conducted at the participants' place work.
Date/s of activity	Yet to be determined
Reporting arrangements. Who knows what you are doing? Who has been informed where you will be working and when you will be expected back?	The research activity is in the full knowledge of my supervisor from the University and the Ethics commit
Who else will be present?	The researcher will be doing the interviews alone
How will you travel to the location?	I do not have to travel.
Lone work. What do you think are the potential risks?	There are no major potential risks. However, there is risk that exposure of the interviewee's participation could raise concerns with workmates should they lear of the activity.
Please give your mobile no. What other emergency communication arrangements have been made?	**********
If relevant, where will you be staying overnight during the visit?	I will be in my country, Kuwait
Description of the tasks you will be undertaking.	Interviews with project managers to obtain data on sustainability practices and their influence on project management practices. Interviews will take approximately 40 minutes each
Medical:	
Availability of medical care and emergency services. If the visit is outside UK, what	There is no need for any medical and emergency services.

provisions have you made for health care?	
Do you have any concern for the physical and mental well being of yourself or any other members of your group?	No
Have you made all reasonable provision to deal with any medical condition you have that may influence your ability to carry out the activity? If there are no medical issues, please indicate this and write N/A(Not applicable).	N/A
Physical:	
Are there any potential hazards in the visit or the tasks you will be doing? If so what have you done to minimise these risks?	No
Will you be exposing yourself to extreme climate condition? If so, what precautions are you taking?	No
Will the nature of your task or location expose you to any potentially aggressive behaviour from others? If so what precautions have you taken?	No
Comments by Module Leader/Dissertation Tutor/Supervisor: Signature and date:	
Comments by Head of Department or nominee (if required) Signature and date:	

Appendix 3: Sample interview transcript

1. Which project management role do you hold in your project organisation?

Currently I held a Project manager and Supervising Engineer in School building Project.

2. For how long have you held this role in your project management profession?

   I have served as a Supervising Engineer for 6 years and as a PM for 3 years.

3. In how many projects have you been involved specifically at the managerial level?

   I have been involved in projects for 4 years.

4. How many projects is your company currently implementing?

As a Government Sector, we are involved in many projects that serve ministry of education, like schools, colleges, institutes and everything related to education. Ministry of education is involved in designing, implementation, supervising and maintenance. So there are around over 100 contracts and around 4-5 implementing project in these 5 past years.

4. Are there any specific environmental considerations you have integrated into your project management strategies in your years as a construction project manager?

   yes

If yes, what are they?

There are many environmental considerations we integrated in our current Project (two school buildings) such as:

- Using solar panels as a power source.

- Having large scale of the school land as a landscape (green area)

- Using sensors system for the lights for power saving.

- Using materials and technique in cladding like (precast system) which will reduce the heat absorb into the building which will save the power for air conditioning.

5. What actions have you taken in your project to protect against or minimise the effects on people and social lives?

The same goals to have a sustainable and environmental friendly project are the leading actions we took for the project. The green areas will provide healthier space for the employments and the kids. Also, we followed all the health and safety instructions and being approved by all the organisation in charge in government sector.

6. What are some of the practices implemented to support long-term economic growth in your project organisation?

   Building schools one of the projects that depends to be used in long terms, one of the things we proudly choose to use is the Precast cladding.

   This support sustainability because of the features it has, by having a high level of isolation and heat resistance, which is helping the building cooling system to work longer without needing for the maintenance more often.

   The building is also supported by cooling system which is (chillers) that is depends on absorbing heat from water that is passed through its system is designed and serve more than what the building needs. So, these some of the practices will increase the life of the building.

7. Do you think the current practices are an improvement of traditional practices? Are there *certain practices you implemented in the last three years?*

   Yes, current practices like using solar panels, green areas, precast method, chillers, sensors for lightning and includes wide spaces for natural light through skylights.

   These are an improvement to have effective sustainable project.

If yes, did you design them in response to sustainability concerns?

Yes, the designing department took sustainability in consideration.

8. Describe some of the personal achievements you have made in terms of sustainable project management? Would you attribute them to particular managerial competencies?

   Personally, I have been more consider by applying and supervising every terms include serving the sustainability in the project. Applying penalty on the contractors who's not committed to the terms. This grow the supervision I have to manage the projects.

9. What about some failures you have made as a person? Would you attribute them to your specific managerial competencies?

I think as long as I spare the work from personal life and do the job professionally, any failures would be just a lesson to learn from.

10. What have you learnt about sustainable practice implementation in projects through the successes and failures you have encountered in your experience in project management?

Sustainability is the goal of every project in this sector or in life. We are affecting the global with our practice, so it's better be a good practice. Based on this idea, I learnt to do the best effort to harness every source and every term in my hand to serve this idea, which improved my planning and decision-making.

12. What characteristics and qualifications does a project manager require to have to effectively implement sustainable practices in construction projects?

Good vision, believes in the importance of sustainability, decision maker and group player.

13. What environmental policies have you adopted in your project management practice and how have they influenced project plans and activities?

Applying all the terms and conditions required in design and follow up by timeline which made it easy to finish on time.

14. Have you yourself noticed any changes in personal behaviour or project management approach which you would attribute to sustainable practice implementation?

Having a bigger vision about the importance of the sustainability for the global.

15. What are the benefits of implementing sustainable practices in your project management practice?

It has many benefits; first using the natural sources will lower the cost for the materials used and the maintenance in the long-term. Second, having different sources will avoid problems in future if something stopped in one of the systems. Third, applying sustainability practice will give the good impact of the government sector which will allow the privet sector to work more with us and it's all will effect positively the quality, cost and time.

16. Are there any disbenefits that you have encountered?

We have to believe in the importance of sustainability project even if it's sometimes cost more but we will benefit much more for the future.

Appendix 4: Sample signed consent form

Consent Form

Impact of Sustainability Practices on Project Management Process: The Case of Kuwaiti

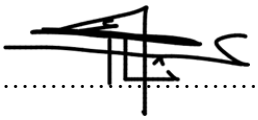
Project Managers

This consent form will have been given to you with the Participant Information Sheet. Please ensure that you have read and understood the information contained in the Participant Information Sheet and asked any questions before you sign this form. If you have any questions please contact a member of the research team, whose details are set out on the Participant Information Sheet

If you are happy to take part in the interview, please sign and date the form. You will be given a copy to keep for your records.

- I have read and understood the information in the Participant Information Sheet which I have been given to read before asked to sign this form;
- I have read and understood the Data Protection Privacy Notice that has been provided to me
- I have been given the opportunity to ask questions about the study;
- I have had my questions answered satisfactorily by the research team;
- I agree that anonymised quotes may be used in the final Report of this study;
- I understand that my participation is voluntary and that I am free to withdraw at any time until the data has been anonymised, without giving a reason; • I agree to take part in the research

Name: …Ahmad Almulla……

Signature……  Date……8 Nov 2024