UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE EXECUTION OF THE GOVERNMENT OF BARBADOS' 5-YEAR 10,000 HOUSING PROGRAMME

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This Final Graduation Project was approved by the University as partial fulfillment of the requirements to opt for the Master in Project Management (MPM) Degree

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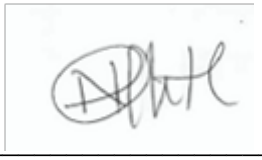

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DEDICATION

This work is dedicated to my family, specifically my parents who support and encourage me to always strive for the best no matter the situation. And to my son, my guiding star, the one who is there asking questions and learning with me every step of the journey.

ACKNOWLEDGMENTS

I would like to extend thanks to everyone who supported me in this endeavour, my son, my family, my friends, my classmates and my work colleagues. I would like to say that the journey was easy, although it was not. However, I believe that it allowed me to grow in the best way possible.

I want to thank my Ministry for allowing me to utilize the 10,000 Housing Programme for my Final Project. I would also like to thank the Dean and the Professors at UCI for their commitment to the programme and to us the students. Your guidance and support have made my goals much more attainable.

ABSTRACT

The objective of this document is to develop a project management plan for execution of the Government of Barbados' 5-Year 10,000 Housing Programme. Given the small size of Barbados (166 square miles) and the scarcity of land; innovative and creative solutions must be developed and implemented to ensure persons have access to affordable and resilient housing solutions.

The final product of this project consists of the Project Management Plan that will help to guide the implementation and execution of the 10,000 Housing programme. This plan consists of the provision of management plans to aid in the various processes inclusive of scope, time, cost, quality, resource, communications, risk, procurement, stakeholder and validation of the project from a regenerative/sustainable perspective. The methodology that is being utilised will be a mixed method research which is a combination of qualitative research and quantitative research methods. In addition, the principles provided by the Project Management Institute will also be utilised.

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ABBREVIATIONS AND ACRONYMS

FGP	Final Graduation Project
GOB	Government of Barbados
HPU	Housing Planning Unit
JVP	Joint Venture Partnerships
L&S	Land and Surveys Department
LU	Legal Unit
MHLM	Ministry of Housing, Lands and Maintenance
NHC	National Housing Corporation
SDGs	Sustainable Development Goals
WBS	Work Breakdown Structure

EXECUTIVE SUMMARY

Barbados is the eastern most island within the Caribbean. Located in the Atlantic Ocean, it measures approximately 166 square miles; with over 270,000 inhabitants. Given its size and the size of its population, it is considered to be land scarce. Given this scarcity the land use policies developed must employ innovative and creative measures to fulfil the Government's mandate.

In 2022 the Barbados Labour Party produced its Manifesto stating that they would "Transform Barbadian Home Ownership by Creating a Housing Revolution". This revolution started with 1,100 home ownership opportunities which were made available through the Hope Programmes, a programme that provided energy efficient and solar powered homes to Barbadians. Now the revolution will continue with the provision of a further 10,000 new homes through the Ministry of Housing, Lands and Maintenance. The aim is to provide resilient and affordable housing, and land and office accommodation solutions to its customers. The Ministry over the years, has embarked on projects that have provided multiple types of housing solutions to the citizens of the country. Observation reveals that in many cases there was no clear structure to the planning and execution of those projects. Given the magnitude and size of this task, the creation of a project plan is vital as it will provide needed guidance and best practices that can ensure the successful execution and completion of the project.

The general objective of the project was to develop a project management plan for the execution of the Government of Barbados' 5-Year 10,000 Housing Programme. The specific objectives were: to assess the 10,000 Housing Programme and identify the project management needs or deficiencies, to create a Project Charter, to develop a scope management plan that will include what it requires to ensure the successful completion of the project, to develop a schedule management plan that will manage the execution of the project, to develop a cost management plan that will define project costs and manage the project costs; to ensure project keeps within defined budget, to develop a quality management plan that ensures the defined standards are met and maintained, to develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion, to develop a communications management plan that ensures all information is communicated to pertinent stakeholders in a timely and efficient manner, to develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks, to develop a procurement management plan that meets the standards of the organization in procuring goods and services, to develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction; and to validate the project from a regenerative/sustainable perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process.

The methodology to be utilised will be mixed method research which is a combination of qualitative research method and quantitative research method. For the development of the Final Graduation Project the sources of information will be gathered from meetings, interviews, focus groups, reports, documents; to name a few.

1 INTRODUCTION

1.1. Background

Barbados is the eastern most island within the Caribbean. Located in the Atlantic Ocean, it measures approximately 166 square miles with over 270,000 inhabitants. Given its size and the size of its population, it is considered to be land scarce. With this scarcity the land use policies developed must employ innovative and creative measures to fulfil the Governments mandate.

The MHLM is responsible for the creation of various policies and programmes to provide resilient and affordable housing, plus land and office accommodation solutions to its customers. As the Ministry responsible for the formulation of policy, it must develop programmes and projects that will see the delivery of housing solutions to thousands of Barbadians within the land constraints, through its executing arm, the National Housing Corporation (NHC). These programmes can be financed by the Government but in some cases, funds are accessed from multiple agencies; inclusive of the Inter-American Development Bank, the World Bank, the Caribbean Development Bank and the Global Environmental Fund; to name a few.

Research conducted by the Government of Barbados (2018) revealed that the NHC had a waiting list of approximately 20,000 persons desirous of some type of Government housing solution. Hence, in 2022, the NHC conducted an exercise to ascertain the actual demand for Government housing, so the true numbers could be seen and therefore the requisite

solutions provided. With this exercise almost completed, the introduction of the 10,0000-housing programme came into effect to deal with this demand.

1.2. Statement of the problem

The Ministry over the years, has embarked on projects to provide housing to the country. Observation reveals that in many cases there was no clear structure to the planning and execution of these projects. As previously stated, the NHC, the executing arm of the Ministry, is trying to meet the demand of approximately 20,000 persons who have applied for various housing solutions over the years, thus the implementation of the 10,000 Housing programme.

The housing plan is to be executed over a five-year period with the main constraints being access to lands and accessing financing for infrastructure. The proposed plan makes provision for 2,065 acres to be available for residential and supporting development. However, given the magnitude of this programme, there is a need for a well-defined structure that will ensure all the processes required are completed within guidelines and on time, and to ensure that all stakeholders know their assigned roles and responsibilities. Thus, ensuring that the project is successfully planned, implemented and executed.

1.3. Purpose

The 10,000 Housing Programme is a Government initiative seeking to improve the living conditions of the citizens of Barbados. Housing and shelter are considered part of the foundation pillars on which improvements to the life outcomes of persons can be built or leveraged. Whether as a starting point for improving personal safety or allowing

access to funding; housing and land ownership are vital components in changing the socio-economic framework of the nation.

The development of a project management plan for the 10,000 Housing Programme for the MHLM is of utmost importance given the immensity and size of this task. The FGP allows for the creation of a project plan that will be beneficial to the Ministry, as it will provide needed guidance for the various processes associated with the plan to: ensure proper project implementation, ensure the adoption and adaptation of any best practices that can be referenced, ensure effective communication, and to finally realise the successful execution and completion of the project.

1.4. General objective

To develop a project management plan for the execution of the Government of Barbados' 5-Year 10,000 Housing Programme.

1.5. Specific objectives

The Specific objectives include:

1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.
2. To create a Project Charter.
3. To develop a scope management plan that will include what is required, to ensure the successful completion of the project.

4. To develop a schedule management plan which will manage the execution of the project.
5. To develop a cost management plan to define project costs and manage the project costs thus ensuring project keeps within defined budget.
6. To develop a quality management plan that ensures the defined standards are met and maintained.
7. To develop a resource management plan identifying required resources, defines the roles, and identifies skills required to ensure successful project completion.
8. To develop a communications management plan allowing for all information to be communicated to pertinent stakeholder/s in a timely and efficient manner.
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.
10. To develop a procurement management plan meeting the standards of the organization for procuring goods and services.
11. To develop a stakeholder management plan identifying all stakeholders within the project and the method of communication and interaction.
12. To validate the project from a regenerative/sustainable perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

The MHLM is responsible for the provision of sustainable and affordable housing solutions and high-quality public-sector accommodation through effective policy formulation, collaborative planning and community participation. The Ministry is responsible for:

- The facilitation of access to adequate, resilient, sustainable and affordable housing;
- The provision of policy direction to improve the efficiency and support of the transformation of the National Housing Corporation;
- The refurbishment of Government Buildings, provision of suitable office accommodation and the maintenance of all Government Properties:
- The facilitation of the provision of legal services and advice on housing and land matters to ensure stakeholders' satisfaction;
- The acquisition and vesting of lands as necessary; and
- The facilitation of the process required to simplify, expedite and provide security in land transactions.

2.1.2 Mission and vision statements

Mission -The mission of the Ministry of Housing, Lands and Maintenance is to enable the provision of sustainable and affordable housing and land solutions; and high-quality public

sector accommodation through effective policy formulation, collaborative planning and community participation.

Vision – The vision of the Ministry of Housing, Lands and Maintenance is to be a regional leader for the provision of land and affordable, quality-accommodation for all to live and work.

2.1.3 Organizational structure

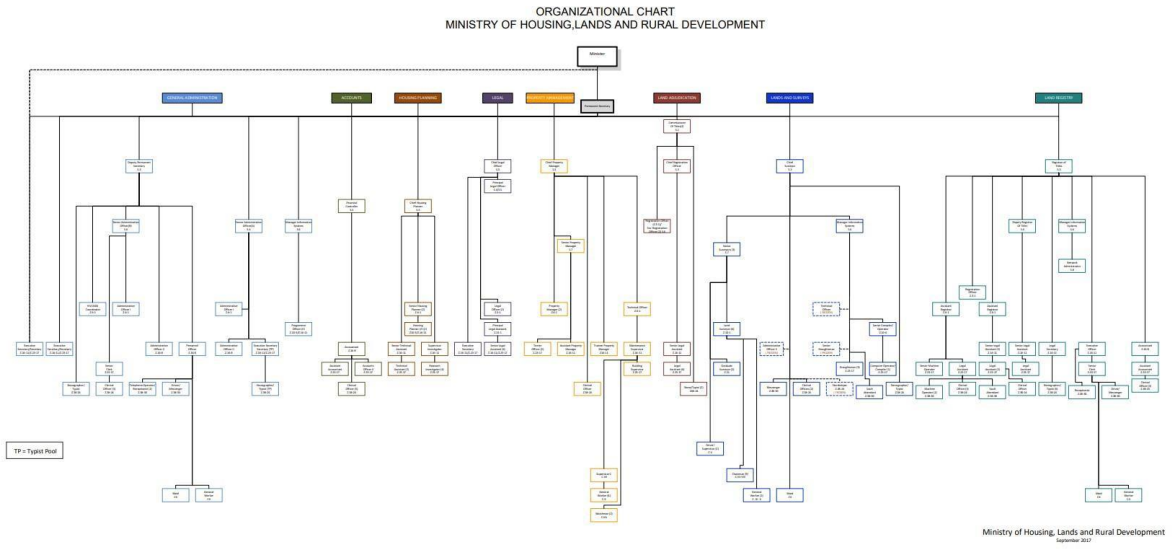
The MHLM is led by the Permanent Secretary who is considered the accounting Officer; he/she is supported by the Deputy Permanent Secretary who is responsible for administrative functions. The Ministry is made up of six (6) sections/units and one (1) executing agency:

- The Administration Section – responsible for administrative functions and the preparation of cabinet papers.
- The Housing Planning Unit – responsible for policy and programme creation, administering and monitoring of the Tenantries Programme, administering and monitoring of relocation projects.
- The Property Management Unit – responsible for the provision of office accommodation, maintenance of all Government properties and the management of Government lands.
- The Legal Unit – provision of legal services on behalf of the MHLM.
- The Land Registry – facilitation of the process required to simplify, expedite and provide security in land transactions.
- The Lands and Surveys Unit – provision of mapping and surveying services.

- The National Housing Corporation – the executing arm of the Ministry, provides housing solutions for sale to the public.

Figure 1

Organizational structure (Source: Government of Barbados)



2.1.4 Products Offered

The Housing Planning Unit (HPU) provides guidance to the public while administering the Tenantries Act, and also provides subsidies to qualified tenants to ensure security of tenure. It also offers assistance through relocation grants to persons affected by land slippage or other such impacts.

Lands and Surveying services are offered to the Government where all lands are mapped and surveyed and records of ownership overlaid.

The Land Registry offers services in recording of land ownership for a fee, transfer of title of land and conveyance services.

The Land Adjudication Unit records the parcellation of land to provide persons with clear title and ownership of lands.

The NHC provides rental housing and housing for sale to the public, usually highly subsidized as they target middle to low-income earners.

The FGP will allow for the guided execution of a project that entails multiple units within the Ministry, allowing for easy flow of information, improved performance of functions and improved project execution.

2.2 Project Management concepts

A project can be defined as a temporary endeavour undertaken to create a unique product, service, or result (PMI, 2017). While Project Management is defined as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements (PMI, 2017). Project Management can be applied in many industries and sectors, as projects may arise for differing purposes and therefore require management and guidance to ensure project objectives are attained.

While the MHLM does undertake many projects in the execution of its mandate, the overall project management process is haphazard and, in some cases, not performed or guided efficiently or effectively. Therefore, the creation of a project management plan will ensure that the project process is performed efficiently, and the projects can be impactful.

2.2.1 Project management principles

Project management is guided by twelve (12) principles which are seen as the rules for the project management process. It is believed that following these twelve principles will allow for the successful completion of a project.

According to the Project Management Institute Inc. (2021) the twelve principles of project management include:

- Stewardship – where persons act responsibly to carry out activities with integrity, care, and trustworthiness while maintaining compliance with internal and external guidelines.
- Team - Project teams are made up of individuals who wield diverse skills, knowledge, and experience, who work together to accomplish the project objective.
- Stakeholders - Engage stakeholders proactively and to the degree needed to contribute to project success and customer satisfaction.
- Value – Continuous evaluation and adjustment of project alignment to business objectives and intended benefits and value.
- Systems Thinking - Recognize, evaluate, and respond to the dynamic circumstances within and surrounding the project in a holistic way to positively affect project performance.
- Leadership - Demonstrate and adapt leadership behaviours to support individual and team needs.
- Tailoring - Design the project development approach based on the context of the project, its objectives, stakeholders, governance, and the environment.

- Quality – Ensure that a specific quality is maintained and that the deliverables being produced meet project objectives and align to the needs, uses, and acceptance requirements set forth by relevant stakeholders.
- Complexity - Continually evaluate and navigate project complexity so that approaches and plans enable the project team to successfully navigate the project life cycle.
- Risk - Continually evaluate exposure to risk, both opportunities and threats, to maximize positive impacts and minimize negative impacts to the project and its outcomes.
- Adaptability and Resiliency - Build adaptability and resiliency into the organization's and project team's approaches to help the project accommodate change, recover from setbacks, and advance the work of the project.
- Change – Engage in the process of change management and prepare those impacted for the adoption and sustainment of new and different behaviours, and processes required for the transition from the current state to the intended future state.

The implementation of the twelve (12) within the Final Graduation Project would ensure that project has a solid foundation and guidance to allow for the project management to be successful.

2.2.2 Project management domains

According to the Project Management Institute Inc. (2021), Project Management or Performance Domains can be defined as a group of related activities that are critical for the

effective delivery of project outcomes. There are eight (8) performance domains which include:

- Stakeholder Performance Domain - This addresses activities and functions associated with stakeholders which may contribute to successful project outcomes. Implementing strategies and actions to promote productive involvement of stakeholders in project decision-making and implementation.
- Team Performance Domain – This addresses activities and functions associated with the people who are responsible for producing project deliverables which realise business outcomes.
- Development Approach and Life Cycle – This addresses activities and functions associated with the development approach, cadence, and life cycle phases of the project.
- Planning Performance Domain – This addresses activities and functions associated with the initial, ongoing, and evolving organization and coordination necessary for delivering project deliverables and outcomes.
- Project Work Performance Domain – This addresses activities and functions associated with establishing project processes, managing physical resources, and fostering a learning environment.
- Delivery Performance Domain - This addresses activities and functions associated with delivering the scope and quality that the project was undertaken to achieve.

- Measure Performance Domain – This addresses activities and functions associated with assessing project performance and taking appropriate actions to maintain acceptable performance.
- Uncertainty Performance Domain – This addresses activities and functions associated with risk and uncertainty.

With the utilization of the project performance domains within the Final Graduation Project there will be needed structure within the project. This structure will ensure that project deliverables are completed on time, ensure that the technical aspects of the project are understood and in turn identify and address any issues that may occur during the project.

2.2.3 Predictive, adaptative and hybrid projects

Approaches to project management can fall into three categories: predictive, adaptative and hybrid projects. With these approaches, projects can be managed based on the characteristics and requirements.

The predictive approach is referred to as traditional or waterfall approach to project management. Predictive Project Management refers to when the scope of work and requirements for the project are clear and justify the detailed upfront planning (Professional Development, n.d.). Some of the key features of this approach are:

- Extensive upfront planning – Detailed plans are created at the beginning approach.
- Sequential phases – project phases are usually completed one after the other.
- Limited Changes – No changes are encouraged after project start.

- Emphasis on Documentation – Comprehensive and detailed documents are created.

The adaptative approach is when the scope of work and requirements for the project are difficult to define, therefore creating a rapidly changing environment (Professional Development, n.d.). This approach is often associated with agile methodologies which is flexible and iterative. Some of the key features of this approach include:

- Iterative development – Here the work is divided into smaller workable processes called iterations or sprints.
- Embracing Change – Change is welcome in this approach.
- Continuous collaboration – Regular stakeholder engagement is encouraged.
- Customer-centric – The customer is at the centre of the process.

The Hybrid Approach is a combination of predictive and adaptative approaches environment (Professional Development, n.d.) This approach is used when the project has elements that can be planned and others that require adaptability. The key features of this approach include:

- Tailored approach – The approach utilised is tailored to the given project.
- Mix of methodologies – A mix of approaches will be used throughout the project.
- Balancing flexibility and control – These projects will have some aspects which are flexible and others which are rigid, the right balance must be found.
- Pragmatic decision-making – Depending on what aspect of the project is being used the right approach is utilised.

For the Final Graduation Project, the utilisation of a hybrid approach may be best, as this would ensure that all aspects of the project are executed. Given that some aspects of the Final project may be seen as predictive, for example the preparation of acquisition papers or the construction of a house, other aspects call for adaptative approach. Therefore, the hybrid approach will bring balance to the project and allow for changes where required.

2.2.4 Project management

As previously stated, Project Management is defined as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements (PMI, 2017). Project Management is usually constrained by the available resources and access to additional resources that may complete a given task.

2.2.5 Project management knowledge areas and processes

Project management knowledge areas can be defined as areas of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools and techniques (Project Management Institute, 2017).

Table 1: Project Management Knowledge Areas (Source: PMI, 2017)

Project Management Knowledge Areas	Explained
Project Integration Management	Focuses on the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities with the Project Management Process Groups.
Project Scope Management	Includes the processes required to ensure the project includes all the work required, and only the work required, to complete the project successfully.

Project Schedule Management	Includes the processes required to manage the timely completion of the project.
Project Cost Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Quality Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Resource Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Communications Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Risk Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Procurement Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.
Project Stakeholder Management	Focuses on coordinating and integrating all project management processes and activities to ensure that the project is executed as a cohesive whole.

While project management process groups are defined as a logical grouping of project management inputs, tools and techniques, and outputs (Project Management Institute, 2017). These process groups include initiating process, planning process, executing process, monitoring and controlling process, and closing process.

Table 2: Project Management Knowledge Areas (Source: PMI, 2017)

Project Management Process Groups	Explained
Initiating Process Group	Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
Planning Process Group	Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
Executing Process Group	Those processes performed to complete the work defined in the project management plan to satisfy the project requirements.
Monitoring and Controlling Process Group	Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
Closing Process Group	Those processes performed to formally complete or close the project, phase, or contract.

2.2.6 Project life cycle

Project life cycle is defined as the series of phases that represent the evolution of a product, from concept through delivery, growth, maturity and to retirement (Project Management Institute, 2017). This provides an illustration of how a project should flow and the various stages or phases, inclusive of the initiation phase, the planning phase, the execution phase, the monitoring and controlling phase and the closing phase.

Figure 2: Project Life Cycle (Source: Project Engineer) Retrieved from https://www.projectengineer.net/guide-to-the-project-life-cycle/.

According to Skusa (2023), every project has a life cycle, and the project life cycle provides a structure for the timeline of each project and is a crucial part of project management best practices.

Figure 3: Project Life Cycle Explained (Source: Filestage) retrieved from https://filestage.io/blog/project-life-cycle/.

The initiation phase is where the project is defined, and the project road map is established. At the end of this phase, you should have documentation depicting the project design. Phase two is the planning phase where the scope and budgeting are decided, how the work will be executed, the proposed timelines, how information will be shared, and the potential risks of the project are defined. Phase three looks at the execution of the project, here we are trying to achieve the project goals, key performance indicators are identified, project is tracked, and product quality is continuously monitored. Phase four looks at monitoring or controlling and this is where product quality is checked, and objectives and key performance indicators are also checked and verified. The final phase is the closing phase where the project is complete, and a check to ensure all project deliverables are complete and a review of the project is carried out.

With my organization the projects that require our input are usually created and initiated within another entity; this practice has caused many problems and there is little or no stakeholder engagement which can lead to a lack of proper input by my organization into the process. This lack of engagement can lead to project delays which can cause budget overruns.

2.2.7 Company strategy, portfolios, programmes and projects

The MHLM as previously stated is responsible for the provision of sustainable and affordable housing solutions and high-quality public-sector accommodation through effective policy formulation, collaborative planning and community participation. Through the HPU of the Ministry; projects are managed and monitored, policies and programmers are created to fulfil the mandate of the Ministry and programmes are administered.

While there is no project office nor written project management plans, multiple units within the Ministry engage in project management practices. The creation of a comprehensive project management plan will not only benefit the study that is being recommended within the Final Graduation Project, but it will also provide guidance and best practices that can be adopted for other projects that are being conducted or that are being planned for the future.

2.3 Other applicable theory/concepts related to the project topic and context

2.3.1 Current situation of the problem or opportunity in study

Currently the MHLM has been tasked with providing over 10,000 housing solutions over a 5-year period. This is no easy task, and it is even more difficult as there are several

moving parts to this project, where no one entity or person can provide a clear and concise idea of how the objectives will be achieved. This study will provide the opportunity of creating a project management that can guide all stakeholders as to the way forward, their respective roles and the proper means of documentation and execution.

2.3.2 Previous research done for the topic in study

There is no documented research within my organization with respect to this topic. While other projects have been executed, no manuals or best practices have been documented that would provide any guidance. It should also be noted that other Ministries may have documentation on differing aspects of projects but there is no collaborative works or research that is readily accessible.

2.3.3 Other theory related to the topic in study

2.3.3.1 Sustainable and Resilient Housing Construction

According to Planradar (2022), sustainable construction is the practice of building or renovating buildings using less energy, water, and materials than typical construction practices and generating less waste. Within this practice the environment can be positively impacted, and the solutions being yielded providing long-term sustainability of our built environment; while resilient housing focuses on ensuring that the structure can withstand multiple types of disasters, both natural and manmade.

These procedures provide benefits such as revamping construction practices and management, boosting social and economic conditions as new and innovative practices are adopted and learnt, improving building resilience and in the long run maintenance costs are reduced compared to other buildings due to the improved energy and water efficiency of sustainable buildings.

2.3.3.2 Environment and Climate Change

Barbados is no stranger to the topic of environment and climate change. Based on its experiences the way forward has been developed through its Roof to Reefs programme. The focus of this programme is to protect the population's private and community roofs from extreme weather events, such as tropical storms. It also seeks to encourage the use of renewable energy sources, rainwater harvesting, and nature-based solutions to reduce runoff into the coastal environment. It also focuses on building resilient housing that will positively impact the country's ecosystem. The impact from the roof of the house to the reefs in the sea is examined. This encompasses many of the SDGs and focuses on holistic approaches to protect and sustain our environment.

Given the importance of the housing and construction sector to the economy of Barbados, the proposed methodology of the project supports the aim of the Roof to Reefs programme and furthers the drive to ensure that the country's environs are not negatively affected.

3 METHODOLOGICAL FRAMEWORK

According to Hassan (2023), methodological framework can be defined as a set of procedures, methods, and tools that guide the research process in a systematic and structured manner. Hassan further states that this outline provides a guide of what can be done in a research project, including the question being researched, the hypothesis, how the data will be collected and analysed and the final interpretation of the results.

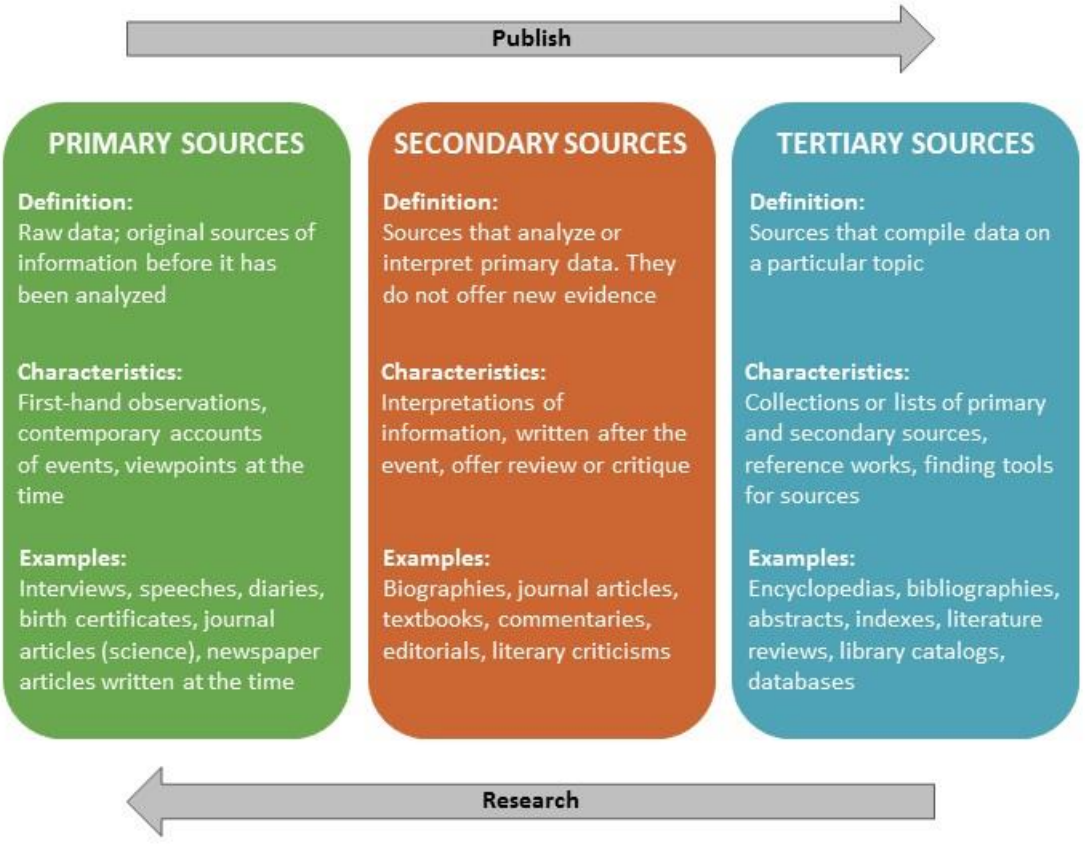
Having a well-defined and detailed methodological framework helps to validate the process and the data collected, plus ensuring the reliability of the research findings. It should be noted that this framework is important as it provides a clear and concise description of the project, it would corroborate that the research is conducted in a systematic and rigorous manner, also aiding to verify the quality of the research; additionally, it can facilitate communication and collaboration.

In order to create a successful framework one should first define the research problem, then select an appropriate research methodology, this is followed by developing the research design and identifying and justifying the data collection methods and data analysis techniques, examine ethical considerations throughout the process and the significance and importance of the research, study all potential limitations and finally refine the framework if any improvements within the process are required.

3.1 Information sources

Information sources can be explained as any place one can gather or source required information. An information source is a source where we get information from and these comprise of documents, humans, institutions as well as mass media like radio and television (Flexiprep.com, 2023). Information sources can be classified into three categories: primary sources, secondary sources and tertiary sources.

Figure 4: Types of Information (Sources: Stony Brook University) retrieved from https://guides.library.stonybrook.edu/wrt380kaplan



3.1.1 Primary sources

A Primary source of information is said to be first-hand accounts of research or an event including original scholarly research results, raw data, testimony, speeches, historic objects or other evidence that provides unique and original information about a person or an event (Libraryguides.uwsp.edu, 2023).

For the development of the Final Graduation Project, the primary sources of information will come from interviews and meeting with both internal and external stakeholders of the project. Please refer to Chart 1 which provides the list of primary sources that will be used for each specific objective.

3.1.2 Secondary sources

A secondary source of information is information created after an event has occurred and is written by someone who did not experience or observe the event first-hand (Libraryguides.uswp.edu, 2023).

For the development of the Final Graduation Project, the secondary sources of information will include Government reports and documentation, the PMBOK® Guide, GPM 2019 and 2023. Please refer to Chart 1 which provides the list of secondary sources that will be used for each specific objective.

Chart 1

Information sources (Source: Author of the study)

Objectives	Information sources	
	Primary	**Secondary**
1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	Interviews with relevant project stakeholders inclusive of the Minister of Housing, Lands and Maintenance, the staff of the HPU, the technical personnel of the Executing Agency, the Lands and Surveys Department team, the Contractors. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
2. To create the project charter.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.

4. To develop a schedule management plan that will manage the execution of the project.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
5. To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
6. To develop a quality management plan that ensures the defined standards are met and maintained.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
8. To develop a communications management plan that allows for that all information is communicated to pertinent stakeholder in a timely and efficient manner.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
9. To develop a risk management plan that will identify all potential risks	Meeting with the MHLM Technical	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.

and the appropriate responses to combat such risks.	Staff, Project Coordinator. Project Documents	
10. To develop a procurement management plan that meets the standards of the organization in procuring goods and services.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.
12. To validate the project from a regenerative/sustainable perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process	Meeting with the MHLM Technical Staff, Project Coordinator. Project Documents	PMBOK Guide 6th and 7th editions, the Internet, PMI website, GPM Global 2019 and 2023 any relevant documentation.

3.2 Research methods

Research methods can be defined as strategies, processes or techniques utilised in the collection of data or evidence for analysis in order to uncover new information or create better understanding of a topic (The University of Newcastle, 2023). It should be noted that they are three methods of research that can be utilized inclusive of qualitative research methods, quantitative research methods and mixed methods research; all of which can be chosen based on the nature of the research, the field or area of research and the objectives that are being fulfilled by conducting the research.

3.2.1 Qualitative Research Method

Qualitative research methods focus on gathering data on real life experiences and looks at behaviours and emotions (The University of Newcastle, 2023). This method would allow the research to have a better understanding of the given event and its impact. This method includes tools such as interviews, focus groups, observation, document analysis and life stories.

3.2.2 Quantitative Research method

Quantitative research methods focus on gathering numerical data that can be analysed through statistical analysis (The University of Newcastle, 2023). This method can reveal patterns or relationships which allow for making of generalisations. This method includes tools such as surveys or questionnaires, observation, document screening and experiments.

3.2.3 Mixed Methods Research

Mixed methods research integrates both qualitative and quantitative research (The University of Newcastle, 2023). It provides a holistic approach which can lead to deeper insights and in some way improved verification of data.

The summary of research methods being considered for the Final Graduation Project for each objective is listed below in Chart 2.

Chart 2

Research methods (Source: Author of study)

Objectives	**Research methods**		
	Qualitative Research Method	Quantitative Research Method	Mixed Methods Research
1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	Information will be obtained from document analysis and interviews.		
2. To create the project charter.	Information will be obtained from interviews with stakeholders and document analysis.		
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.			Data will be collected through stakeholder engagement along with data gathered from similar project to assist in the

			development of the scope management plan.
4. To develop a schedule management plan that will manage the execution of the project.		Analysis of similar projects will be done to provide guidance to create this plan.	
5. To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.		Analysis of similar projects will be done to provide guidance to create this plan.	
6. To develop a quality management plan that ensure the defined standards are met and maintained.			Data will be collected through stakeholder engagement along with data gathered from similar project to assist in the development of the quality management plan.

7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.			Data will be collected through stakeholder engagement along with data gathered from similar project to assist in the development of the resource management plan.
8. To develop a communications management plan that allows for that all information is communicated to pertinent stakeholder in a timely and efficient manner.	Information will be obtained from interviews with stakeholders and document analysis.		
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.		Analysis of similar projects will be done to provide guidance to create this plan.	
10. To develop a procurement management plan that meet the standards of the			Information will be gathered on the

organization in procuring goods and services.			current practices and also from data gathered from similar projects for guidance in creating this plan.
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	Information will be obtained from interviews with stakeholders and document analysis.		
12. To validate the project from a regenerative/sustainability perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process			Data will be collected through stakeholder engagement along with data gathered from similar project to assist in the development of the sustainability management plan.

a. Tools

According to the PMBOK Guide 6th Edition, a tool is defined as “Something tangible, such as a template or software program, used in performing an activity to produce a product or result.

The summary of tools utilized in the Final Graduation Project is below in Chart 3.

Chart 3

Tools (Source PMBOK Guide 6th edition, 2017)

Objectives	Tools
1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	Expert Judgement Interviews Focus Groups Meetings Document Analysis
2. To create the project charter.	Interviews Focus Groups Meetings Document Analysis
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.	Expert Judgement Data Analysis Benchmarking Meetings
4. To develop a schedule management plan that will manage the execution of the project.	Schedule management plan template Expert Judgement Analogous Estimating
5. To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.	Cost management plan template Expert Judgement Analogous Estimating Data Analysis
6. To develop a quality management plan that ensure the defined standards are met and maintained.	Quality management plan template Data analysis Data gathering Inspection Product evaluation Meetings

7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.	Resources management plan template Responsibility Matrix Training Meetings Assessments
8. To develop a communications management plan which allows for that all information is communicated to pertinent stakeholder in a timely and efficient manner.	Communications management plan template Communication matrix Communication methods Communication Technology – presentations, feedback Reporting Meetings
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.	Risk Management plan template Risk Register Expert Judgement Meetings Data Analysis
10. To develop a procurement management plan that meets the standards of the organization in procuring goods and services.	Procurement management plan template Expert Judgement Data Gathering Data Analysis Meetings
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	Stakeholder management plan template Expert Judgement Communication Skills Team Skills Meetings

12. To validate the project from a regenerative/sustainability perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process	P5 Impact Assessment Sustainability Management Plan

a. Assumptions and constraints

An assumption according to the PMBOK 6th edition, can be defined as a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration. Assumptions are made in projects to simplify complex situations or to move forward with planning when all information is not available.

While a constraint can be defined as a limiting factor that affects the execution of a project, program, portfolio, or process (PMI, 2017). Constraints can be internal or external factors that may restrict what can be done, how it can be done and when it can be done. Identification of constraints is important to the project planning and management process.

The assumptions and constraints considered on the Final Graduation Project for each specific objective are below in Chart 4.

Chart 4

Assumptions and constraints (Source: Author of study)

Objectives	Assumptions	Constraints
1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	That all information required will be available when needed.	Limitations of the type of information available and access to the information. Time allotted to completing the task.
2. To create the project charter.	The charter will be created and approved before project document is started.	The time allotted to the creation of the charter is limited.
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.	All information required is available to complete the plan.	Lack of information may negatively impact the plan and the overall project.
4. To develop a schedule management plan that will manage the execution of the project.	All information required is available to complete the plan.	Lack of information may negatively impact the plan and the overall project.
5. To develop a cost management plan that will define project costs and manage the project costs to certify project keeps within defined budget.	All information required is available to	Access to information may be an issue.

Objectives	Assumptions	Constraints
	complete the plan.	
6. To develop a quality management plan that ensures the defined standards are met and maintained.	All information required is available to complete the plan.	Access to information may be an issue.
7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.	All information required is available to complete the plan.	May not have all the required information that will guide the identification of resources.
8. To develop a communications management plan, such that allows for all information is communicated to pertinent stakeholder in a timely and efficient manner.	Access to all relevant stakeholders in order to create the communications plan.	Time allotted may not allow for proper stakeholder engagement.
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.	All information required is available to assist in identifying the various risks and potential benefits is	All risks not identified which may impact the plan and the project negatively.

Objectives	Assumptions	Constraints
	available in order to complete the plan.	
10. To develop a procurement management plan that meets the standards of the organisation in procuring goods and services.	All information required on current practices and proposed practices will be available to complete the plan.	Finding information on best practices on this type of project may pose issues.
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	All stakeholders will be available so relevant information can be gathered in order to complete the plan.	All stakeholders may not be available in the given time frame.
12. To validate the project from a regenerative/sustainability perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process	Will be able to research and gather information to complete the validation process.	Time allotted may not be enough. First time performing this type of validation.

a. Deliverables

According to the PMBOK 6th edition, a deliverable can be defined as any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project.

The summary of deliverables considered in the Final Graduation Project for each specific objective are below in Chart 5.

Chart 5 Deliverables (Source: Author of study)

Objectives	Deliverables
1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	Project Assessment Document
2. To create the project charter.	Project Charter
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.	Scope Management Plan Requirements Management Plan Requirements Document Requirements Traceability Matrix
4. To develop a schedule management plan that will manage the execution of the project.	Schedule management Plan
5. To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.	Cost Management Plan
6. To develop a quality management plan that ensure the defined standards are met and maintained.	Quality Management Plan
7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.	Resource Management Plan

8. To develop a communications management plan that allows for that all information is communicated to pertinent stakeholder in a timely and efficient manner.	Communications Management Plan Communications Matrix
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.	Risk Management Plan Risk Register
10. To develop a procurement management plan which meets the standards of the organization in procuring goods and services.	Procurement Management Plan
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	Stakeholder Management Plan Stakeholder Register
12. To validate the project from a regenerative/sustainability perspective to confirm that regenerative/sustainable measures are identified and incorporated into the process	Sustainability Management Plan P5 Impact Analysis

4. RESULTS

4.1. Project Initiation

4.1.1 Assessment of the 10,000 Housing Programme and identifying the project management needs or deficiencies.

4.1.1.1 SWOT Analysis Explained

In order to ensure that the project is feasible and to identify the required project management methodology, an assessment of the programme must be done. Research shows that utilising SWOT analysis will allow the company to evaluate the 'strengths', 'weaknesses', 'opportunities' and 'threats' involved in an organisation, a plan, a project, a person or a business (Gurl, 2017). It can be a valuable tool in guiding the development of a project management plan.

Utilising this method allows the organisation to focus on internal and external factors that may impact it in both negative and positive ways. Internal factors focus on the strengths and weaknesses of the organisation which can include financial resources, physical resources, human resources, current processes, to name a few. While external factors focus on the opportunities and strengths of the organisation, which may not be in the control of the organisation. These can include market trends, economic trends, funding, demographics and the political environment to name a few.

Figure 5: SWOT Analysis (Sources: Medium) retrieved from https://medium.com/@strategywatch/swot-analysis-and-its-benefits-1a8be68d2021

4.1.1.2 Assessment of the 10,000 Housing Programme

Utilising the quadrants seen in Figure 5: SWOT Analysis, the current initiative of the provision of 10,000 housing solution over a 5-year period; the following internal and external factors were identified.

4.1.1.2.1 Internal Factors

Strengths –

- Government Support – As this initiative is one mandated by Government, it should ensure that processes within the project run smoothly, the project may benefit from access to funding that is offered to Governments and Government policies can offer guidance in the process.
- Impact on Society – This programme will provide access to housing for persons who would not normally be able to afford housing, thus meeting a critical need for the society. It will offer improved and resilient housing solutions with the integration of energy efficient solutions in the process.
- Growth within the economy – It is believed that the construction sector stimulates the economy and therefore given the size of the project, it will lead to employment opportunities, increased spending within the economy and potential economic growth.
- Foster community – the improved housing and building of communities will see the development of comradery among these communities, bringing stability and community engagement and growth.

Weaknesses -

- Infrastructure challenges – The lack of basic infrastructure such as roads, water and electricity; within identified sites that may be considered virgin sites could lead to project delays.

- Regulatory hurdles – although this is a government mandated initiative, rules and regulatory guidelines must still be followed; for example, zoning issues or legal issues; may lead to project delays.
- Issues with quality – Given the time constraints that have been placed on the objective, this may lead to issues with quality in the product which can lead to safety issues in the long run.
- Funding constraints – Although this is a government mandated initiative, partnerships will be developed, and these entities may not have access to the same funding as a government entity. Also, the impact of poor budgeting may lead to delays in deliverables that may hinder the completion of the target.

4.1.1.2.2 External factors

Opportunities

- Innovative Construction – This project proposes to provide resilient and affordable housing solutions and, in some cases, provide energy efficient devices. By adopting new and creative measures, could see reduction in costs and further adoption of additional creative and innovative technologies.
- Partnerships – Within the project, Joint Venture Partnerships (JVPs) have been established and others have been identified in order to enhance the product that is being delivered as this brings new ideas and resources to the project.
- Community Engagement – involving those who will benefit and be impacted by the project will foster a sense on involvement and inclusion and also support from the community.

- Government Incentives – For those private partners, incentives can be offered by Government such as tax waivers; which not only encourages more persons to become partners within the programme but may lead to a reduction in costs of the final product.

  Threats

- Political Changes – Changes in government may cause adjustments or delays in the project as new priorities and policies may be introduced.
- Public resistance – Opposition from persons regarding the continued construction close to their communities may be met.
- Environmental Factors – As we live in a region which is prone to disasters such as hurricanes and earthquakes; this may negatively impact the timelines of the project.
- Economic Stability – As a Small Island Developing State, most if not all of the physical resources utilized within the project will be sourced externally. Fluctuations in external economies can negatively affect prices of the inputs required and therefore the overall budget of the project.

4.1.1.3 Synopsis and Recommendations

The SWOT analysis provides guidance on the strengths, weaknesses, opportunities and threats that may occur in the execution of the 10,000 Housing Programme; and it should be seen as the beginning of the process. The analysis can provide guidance in the following areas of the 10,000 Housing Programme when creating the project management plan:

- Project Scope and Objectives can be clearly defined and be more effective.
- Management of Project Risk can be carried efficiently as the analysis helped in identifying potential risks and threats to the project.

- Resource Allocation can be altered as we have identified the strengths and opportunities, where strengths are leveraged, and opportunities exploited and prioritized within the project plan.
- Decision-Making as the SWOT analysis offers insights that can aid in decision-making processes throughout the project lifecycle.
- Strategy Development, where it assists in developing strategies that capitalise on strengths and opportunities while addressing weaknesses and threats. These strategies can be integrated into the project plan to establish a more robust approach.
- Communication and Stakeholder Management, where an understanding of the SWOT factors allows for the creation of better communication strategies, both internally among the project team and externally with stakeholders.

4.2. Project Charter

The project charter is defined as a document issued by the project initiator or sponsor that formally authorises the existence of the project and provides the project manager with authority to apply organisational resources to project activities (PMI, 2017). The charter is considered to be the guiding document that sets the stage for the project, ensuring that there is alignment among stakeholders, providing clarity on objectives and scope, and establishing a framework for decision-making and management throughout the project's lifecycle. The charter holds significant importance and serves multiple purposes throughout the project lifecycle as it provides formal project authorisation, aids in defining project objectives and

scope, the assigning roles and responsibilities, setting constraints and assumptions which is guided by the SWOT analysis and the factors considered in 4.1.1.2.1 and 4.1.1.2.2; it serves as a reference document which also aids in guiding decisions and managing expectations, aids in identification and management of risks; plus, also serving as a reference document.

Project Charter

<table>
<tr><th>DATE</th><th colspan="2">PROJECT NAME</th></tr>
<tr><td>February 2024</td><td colspan="2">Project Management Plan for The Execution Of The Government of Barbados' 5-Year 10,000 Housing Programme</td></tr>
<tr><th>PROJECT LIFE CYCLE</th><td colspan="2">Hybrid</td></tr>
<tr><th>KNOWLEDGE AREA / PROCESS GROUP</th><th colspan="2">APPLICATION AREA (SECTOR / ACTIVITY)</th></tr>
<tr><td>Processes:
Initiation, Planning, Executing, Monitoring and Controlling, Closing

Knowledge areas:
Project Integration Management, Project Scope Management, Project Schedule Management, Project Cost Management, Project Quality Management, Project Resource Management, Project Communication Management, Project Risk Management, Project Stakeholder Management, Regenerative/Sustainable Management</td><td colspan="2">• Housing, Resilient housing, Energy efficiency, Low-income housing</td></tr>
<tr><th>TENTATIVE START DATE</th><th>TENTATIVE COMPLETION DATE</th><th>DURATION (MONTHS)</th></tr>
<tr><td>April 1, 2022</td><td>March 31, 2027</td><td>60</td></tr>
<tr><th colspan="3">PROJECT OBJECTIVES (GENERAL AND SPECIFIC)</th></tr>
</table>

General Objective
To develop a Project Management Plan for the execution of the Government of Barbados 5-Year 10,000 Housing Programme

Specific Objectives

1. To provide affordable and resilient housing solutions to Barbadians
2. To provide energy efficient and innovative measures in the final product and ensure each housing solution meets quality standards and complies with relevant regulations.
3. To provide housing to persons within the low-income bracket and utilise the earnings from the photovoltaic systems to subsidise the housing prices.
4. To deliver 10,000 housing solutions within the next five years, catering to diverse demographic needs and income levels.
5. To contribute to community development by strategically locating housing solutions and incorporating necessary amenities.
6. To incorporate sustainable practices in construction where feasible.

JUSTIFICATION OR PURPOSE OF THE PROJECT (CONTRIBUTION AND EXPECTED RESULTS)

In the 2022 the Barbados Labour Party produced its Manifesto stating they would "Transform Barbadian Home Ownership by Creating a Housing Revolution". This revolution started with 1,100 home ownership opportunities which were made available through the Hope Programme, a programme providing energy efficient and solar powered homes to Barbadians. Now the revolution will continue with the provision of a further 10,000 new homes through the Ministry of Housing, Lands and Maintenance.

The Ministry of Housing, Lands and Maintenance is responsible for the creation of policy and various programmes to provide resilient and affordable housing, plus land and office accommodation solutions to its customers. These programmes can be financed by the Government but in some cases, funds can be accessed from multiple agencies inclusive of the Inter-American

Development Bank, the World Bank, the Caribbean Development Bank, the Global Environmental Fund; to name a few.

The 10,000 Housing Programme is a government initiative that seeks to improve the living conditions of the citizens of Barbados. Housing and shelter are considered part of the foundation pillars on which improvements to the life can be achieved and the outcomes realised by persons can be built on or leveraged; whether as a starting point for improving personal safety or to allow further access to funding; housing and land ownership are seen as vital components in changing the socio-economic framework of a nation.

Under this programme, photovoltaic panels and the monetary returns seen will be utilised to subsidise these properties for persons within the lower income brackets (persons who would not ordinarily qualify for housing solutions due to their income). This programme will see the utilisation of lands identified by the state and lands offered as planning gains being developed for the provision of housing solutions for persons from the low-income bracket to the middle- and higher-income brackets. Under this programme, greater public private partnerships will be encouraged in the provision of these housing solutions.

The creation of a Project management plan will provide the needed guidance, stability, required framework and the continued development and delivery of this programme. This plan would allow the creation of plans for stakeholder communication, risk management plus monitoring and

controlling of all aspects of the programmes to ensure that the final products are delivered in an effective and efficient manner.

DESCRIPTION OF THE PRODUCT OR SERVICE THAT THE PROJECT WILL GENERATE – FINAL DELIVERABLES OF THE PROJECT
The 10,000 Housing Project will provide the following: • 10,000 affordable and resilient housing solutions. • Housing solutions for persons within the lower income brackets; persons who would not ordinarily qualify for housing solutions due to their income. • Energy efficient, environmental and climate friendly solutions. • Utilisation of photovoltaic panels and other energy efficient measures.

ASSUMPTIONS
1. There is buy in and support from all the stakeholders of the project for the provision of the 10,000 Housing Solutions. 2. The required inputs inclusive of survey plans and any additional plans such as Environmental Impact Assessment plans are completed so detailed development plans can be provided for the sites. 3. Properties that have to be acquired have been identified, survey plans provided, and the acquisition process would be completed in a timely manner. 4. The proposed budget will allow for the successful execution of the project.

RESTRICTIONS

1. Lack of access to the required lands will lead to delays in the project.
2. The acquisition process is lengthy and possibly lead to delays in acquiring the land for development.
3. Given the size of the island the issue of providing the required number of solutions may be hindered, if the land identified cannot be developed.
4. Lack of dedicated resources to the project may lead to delays with the project.

PRELIMINARY RISK IDENTIFICATION

1. Given that some lands that have been identified are not owned by Government and now have to be acquired; this process could lead to delays in the project.
2. Costs may increase as the price of land to be acquired is not fixed and the process may also take some time.
3. Due to the lack of dedicated staff this may lead to delays in projects with regards to document preparation, monitoring and reviewing of project deliverables.
4. The engaging of partners to aid in the project may be a risk as some may not be able to handle the magnitude of the final deliverables.

GENERAL RESOURCES AND BUDGET

The amount budgeted to this project which is being executed by the Government of Barbados through the Ministry of Housing, Lands and Maintenance and the National Housing Corporation is approximately US$500 Million. Funds will be supplemented from Grants received from the InterAmerican Development Fund, the Global Environment Facility and the Green Climate Fund.

MILESTONE SCHEDULE

Set the completion date of each second level deliverable as a milestone. Remember that a milestone is a checkpoint that is related to a deliverable (acceptance, signature, presentation, official delivery, approval).

Milestone Name	End Date
Project Initiation	March 5th 2024
Conduct Workshop/Consultation	March 6th 2024
Community Engagement	March 7th 2024
Site visits to identified sites	March 8th 2024
Contracts signed by landowners and contractors	April 6th 2024
Commence construction of houses	April 15th 2024
Conduct Site visits	June 14th 2024
Transferring Project Deliverables	August 30th 2024
Final meetings with Stakeholders	September 2nd 2024

RELEVANT HISTORICAL INFORMATION

The MHLM is responsible for the creation of policy and various programmes to provide resilient and affordable housing, and land and office accommodation solutions to its customers. As

the Ministry responsible for the formulation of policy, it must develop programmes and projects that will see the delivery of housing solutions to thousands of Barbadians, given the land constraints, through its executing arm, the National Housing Corporation (NHC).

The Ministry over the years, has embarked on projects that have provided multiple types of housing solutions to the citizens of the country. Observation revealed that in many cases there was no clear structure to the planning and execution of those projects. Given the magnitude and size of this task the creation of a project plan is vital as it will provide needed guidance and best practices that can ensure the successful execution and completion of the project.

IDENTIFICATION OF INTEREST GROUPS (INVOLVED)

Direct Involved:

1. Government of Barbados
2. JVPs
3. Ministry of Housing, Lands and Maintenance
4. Sponsors/Lending agencies
5. Potential Homeowners
6. Communities
7. Building material suppliers

Indirect stakeholders:

1. Businesses in the area
2. Population
3. Various Ministries and Departments

4. Department of Environment 5. Planning and Development Department	
(PROJECT MANAGER):	**SIGNATURE:**
NAME AND POSITION OF THE PERSON AUTHORIZING (FACILITATOR):	**SIGNATURE:**

4.3. Scope Management Plan

Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully (PMI, 2017). The project scope management processes include key areas such as Plan Scope Management; Collect Requirements; Define Scope; Create WBS; Validate Scope and Control Scope.

This process is considered crucial to the project management process as it provides guidance for the overall project direction. Scope Management allows clear definition of project boundaries; what is to be included and excluded. It allows for the efficient allocation of project resources; material, financial and human; ensuring the project can be executed efficiently and effectively, also it allows for the early of identification of potential risks and therefore the creation of risk management plans. As the project evolves unexpected changes may occur, with the guidance provided by the scope management plan any changes can be managed efficiently. Also with this plan, the roles and responsibilities within the project are assigned which makes it easy to track and maintain control of the project.

Figure 6: Plan Scope Management: Inputs, Tools and Techniques, and Outputs (Sources: ProjectEngineer) Retrieved from https://www.projectengineer.net/project-scope-management-according-to-the-pmbok-2/

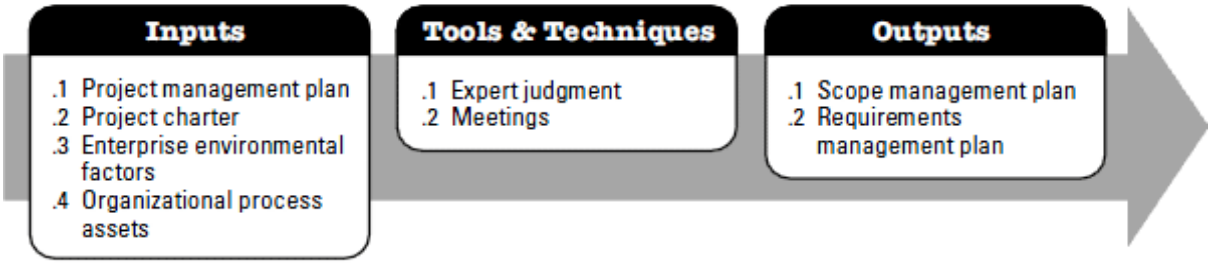


Figure 5-2. Plan Scope Management: Inputs, Tools & Techniques, and Outputs

4.3.1 Roles and Responsibilities

In order for any project to be executed efficiently, the roles and responsibilities of the stakeholders that have been identified should be clearly identified with their assigned tasks or areas of responsibilities clearly laid out. This is important for reporting, monitoring and the overall successful management of the project. This will also certify that no one person is responsible for a large magnitude of tasks which may lead to inefficiencies.

Below is the list of roles and responsibilities for the project.

Chart 6 Roles and Responsibilities (Source: Author of Study)

Stakeholder	Responsible	Description of Role
Project Sponsor	• GOB • International/Private Donors	• Provides all Resources
Responsible Partner	MHLM	• Implementing Agency

		• Involved in the Project from Inception to Completion
Project Director	MHLM	• Approves Scope Management Plan • Reviews and approves change requests
Project Manager	Housing Planning Unit	• In charge of overall project execution and management • Assists in developing, maintaining and managing changes in the scope
Project Team	MHLM, NHC, Lands and Surveys Department, Legal Unit,	• Provides technical and operational support to the project • Provides support to the Project Manager • Executes project tasks

Stakeholders	Government Agencies, International Donor Banks, Potential Homeowners, Citizens of Barbados	• Provide relevant inputs and feedback • May provide requirements for aspects of the project • Recipients of project deliverables
Project Steering Committee	• MHLM • NHC • L&S • LU	• Ensures goals align with the Ministry's goals and vision • Involved in decisions with respect to scope changes and resource allocation • Reviews and approves changes to project scope, schedule and resources • Assists in project evaluation and monitoring

		• Provide technical and expert support
Documentation Team	• MHLM • NHC	• Prepares and maintains all project documentation

4.3.2 Define Scope

Define Scope is the process of developing a detailed description of the project and product (PMI, 2017). The major benefit of defining the scope is that it provides a description of the product, service, or result boundaries and acceptance criteria. This process is performed once or at predefined points in the project.

The current scope of the 10,000 Housing Solutions project is to provide 10,000 resilient housing solutions over a 5-year period to the people of Barbados and to provide persons who fall within the lower income bracket access to the opportunity to own one of these housing solutions with the aim of using the financial returns from photovoltaic panels to subsidise the associated costs of the solutions.

Based on the guidance provided by the PMI and other sources, the Scope Statement for the 10,000 Housing Solutions Programme is:

Project Scope Statement

Project Title: Project Management Plan For The Execution Of The Government of Barbados' 5-Year 10,000 Housing Programme

Project Scope Description:

The 10,000 Housing Programme is a government initiative that seeks to improve the living conditions of the citizens of Barbados. Housing and shelter are considered part of the foundation pillars on which improvements to the life can be achieved and the outcomes realized by persons can be built on or leveraged. Whether, as a starting point for improving personal safety or to allow further access to funding; housing and land ownership are seen as vital components in changing the socio-economic framework of a nation.

The programme will aim to deliver 10,000 housing solutions over a five-year period and will ensure that the housing solutions being provided meets specified quality standards and regulations. There will be accessibility to diverse housing options catering to various income levels and demographic needs. With the incorporation of sustainable and environmentally friendly practices in construction where feasible; costs benefits will be seen be the potential homeowners. This programme will also contribute to community development by strategically locating housing solutions and incorporating necessary amenities.

Under this programme, photovoltaic panels and the monetary returns seen will be utilised to subsidise these properties for persons within the lower income brackets (persons who would not ordinarily qualify for housing solutions due to their income). This programme will see the utilisation of lands identified by the state and lands offered as planning gains being developed for the provision of housing solutions for persons from the low-income

bracket to the middle- and higher-income brackets. Under this programme, greater public private partnerships will be encouraged in the provision of these housing solutions.

Project Deliverables:

- Design and through PPPs and other methods, the Construction of Housing Units 10,000 Housing solutions inclusive of single detached houses, duplexes and multi-house solutions.
- The development of necessary infrastructure in areas where lands have to be acquired and developed.
- The provision of needed amenities and facilities; within the communities to foster harmony within the community.
- Confirming all legal and regulatory requirements are met for each development and for each housing solution being provided.

Project Acceptance:

- Construction of housing units across designated locations within specified regions.
- Development of necessary infrastructure and amenities to support housing communities.
- Adherence to quality standards and compliance with relevant regulations.
- Engagement with local communities and stakeholders for input and support.

Project Exclusions:

- Land acquisition beyond designated areas or predefined limits.
- Infrastructure development beyond what directly supports the housing solutions.
- Additional amenities or facilities beyond what is essential for the communities.

Project Constraints:

- As the Budget will be fixed, the programme will operate within a predefined budget to achieve the set objectives.
- As the timeframe for the project is fixed, the completion of housing solutions within the specified timeframe to meet demand and community needs may hinder the project.

- Regulatory and Environmental Constraints: Adherence to local building codes, zoning regulations, and environmental impact considerations.

Project Assumptions

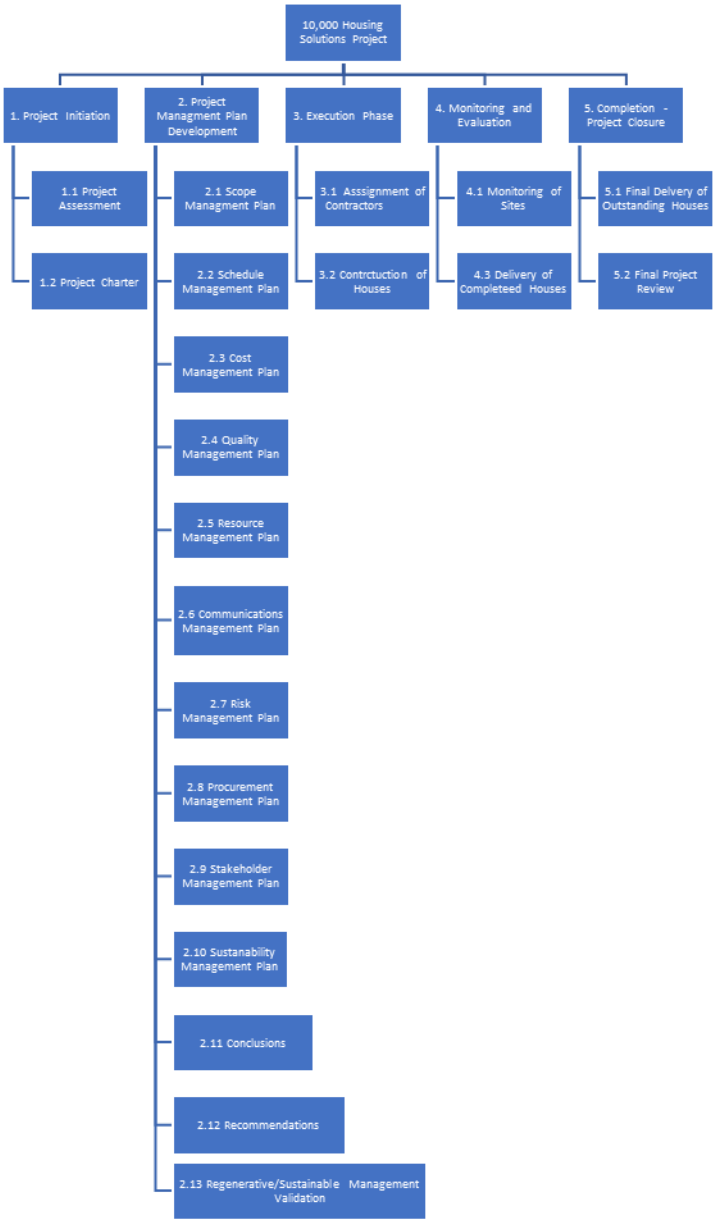
- There is buy in and support from all the stakeholders of the project for the provision of the 10,000 Housing Solutions.
- The all-required inputs inclusive of survey plans and any additional plans such as Environmental Impact Assessment plans are completed, so detailed development plans can be provided for the sites.
- Properties that have to be acquired have been identified, survey plans provided, and the acquisition process would be completed in a timely manner.
- The proposed budget will allow for the successful execution of the project.

4.3.3 Work Breakdown Structure

The Work Breakdown Structure (WBS) involves the process of sub-dividing project deliverables and project work into smaller, more manageable components (PMI, 2017). The WBS provides a framework of what must be delivered and is performed once or at predefined points in the project. Given the complexity of this project, the WBS is a very important aspect of the process, as it will provide a visual representation for the team and all stakeholders to follow. This hierarchical decomposition will depict the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables. The WBS organises and defines the total scope of the project and represents the work specified in the current approved project scope statement.

Utilising the project scope statement and expert judgement as inputs the following WBS was developed:

Chart 7 Work Breakdown Structure (Source: Author of Study)



To corroborate that all the components within the WBS are understood; a WBS dictionary will be developed. The table below provides guidance for the WBS packages within the project.

Chart 8 WBS Dictionary (Source: Author of Study)

Project Title: Project Management Plan for the execution of the Government of Barbados' 5-Year 10,000 Housing Programme

Date Prepared:

WBS Code	Description of Work	Assumptions and Constraints	Required Resources	Deliverables
1	**SITE SELECTION**			
1.1	Identify site	• Team members will be available • Sufficient lands can be identified	• Laptop • Internet	Proposed Sites
1.2	Site Visit	• Sites are accessible • Sites identified are available	• Vehicles • Cell phones • Drones	Site Verification
1.3	Conduct feasibility study	• Technical Personnel are available • Time allotted is sufficient	• Laptop • Internet • Phone • Email	Site Approval
1.4	Conceptual Plan	• Technical Personnel are available • Time allotted is sufficient	• Laptop • Internet • AutoCad	Proposed Development Plan for site
1.5	Outline Plan	• Technical Personnel are available • Time allotted is sufficient	• Laptop • Internet • AutoCad	Plan for Development of site
1.6	Chief Land Surveyor to prepare description survey /location plan	• Technical Personnel are available • Time allotted is sufficient	• Laptop • Internet • Drones	Description of lands to be identified and surveyors plan of land

1.7	Prepare cabinet paper/acquisition	• Assume all available survey plans are available • Administrative staff are available	• Laptop • Email	Cabinet Paper to start acquisition process
1.8	Resolution paper acquisition	• Administrative staff are available • Legal input is received	• Laptop • Email	Acquistion in progress
1.9	Vesting document	• Legal Unit has all available information • Administrative Staff available	• Laptop • Email	Land acquired and transferred to relevant agency

4.3.4 Validate Scope

Validate scope: validation is the process of formalizing acceptance of the completed project deliverables (PMI, 2017). This process is beneficial because it allows for impartiality in the process and then increases the probability of the final product, service, or result acceptance by validating each deliverable. This process is performed periodically throughout the project as needed.

Scope validation allows for the defining of the methodologies, responsibilities, criteria, and processes to ensure that the delivery of the 10,000 housing solutions meet the predefined scope and stakeholder expectations. To ensure the project deliverables are met, the project team should ensure that the criteria with regards to quality standards, compliance and stakeholder requirements are understood and met; the various validation methodologies

are clear; what type of inspections and evaluation methods will be utilised and how often; the roles and responsibilities of the team members in the process; the outcomes of the various processes; what corrective actions may be required. When this is done the Project Manager will review the validation report and approve any necessary changes or completions of the deliverable; therefore, changes can be made on given requirements and feedback is gathered throughout this process.

4.3.5 Scope Control

Control Scope is the process of monitoring the status of the project and product scope and managing changes to the scope baseline (PMI, 2017). This process is performed throughout the project and is beneficial as it allows for the scope baseline to be maintained throughout the project.

During this process the project team will manage and control the project to ensure that the project stays on track, any changes that may be required should be identified and formally documented; the effect of the change evaluated and officially submitted by the Project Manager to the Project Steering Committee for review and approval. Once approval is granted, the team implements any changes and this is communicated to the relevant stakeholders. Throughout the process scope verification is continuous to ensure that there is alignment between the scope and the deliverables; performance of the various PPPs and other stakeholders is monitored, and any issues are dealt with in a predefined manner. The project team should also ensure that all aspects of the process is clearly documented and reported

upon; this will allow for the review by the team and the stakeholders as lessons learned can be noted and improvements can be made throughout the process.

4.4 Schedule management plan

The Schedule management plan will provide the roadmap for the provision of the 10,000 Housing solutions which will certify that the project is completed within the required deadline. According to PMI (2017), the Project Schedule Management the processes include:

- Plan Schedule Management—The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
- Define Activities—The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
- Sequence Activities—The process of identifying and documenting relationships among the project activities.
- Estimate Activity Durations—The process of estimating the number of work periods needed to complete individual activities with the estimated resources.
- Develop Schedule—The process of analysing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model for project execution and monitoring and controlling.

- Control Schedule—The process of monitoring the status of the project to update the project schedule and manage changes to the schedule baseline.

4.4.1 Schedule Development and Management

During a committee meeting, the Project Steering committee in conjunction with the project team and various stakeholders discussed the various activities that will be required to properly execute and complete the project. Given the complexity of this project it is important that all activities are identified, and the sequence of these activities clearly documented once a consensus is reached. The duration of each activity should also be identified as this will aid in the creation of the project schedule. It should also be noted that the constraints and assumptions that were identified in the Project Charter and the Scope Management plan should be utilised in guiding the assignments of tasks and the allocation of all resources. Chart 8 provides a depiction of the agreed upon tasks and the associated duration.

Chart 9 Sequence of Activities (Source: Author of Study)

WBS Code	Description of Work	Duration	Start	Finish
1.0	Develop Project Management Plan	77 days	Mon 10/16/23	Tue 1/30/24
2.0	Planning Phase	200 days	Tue 1/30/24	Mon 11/4/24
2.1	Site Selection and Acquisition	16 days	Tue 1/30/24	Tue 2/20/24
2.1.1	Identify site	1 day	Tue 1/30/24	Tue 1/30/24
2.1.2	Site Visit	2 days	Tue 1/30/24	Wed 1/31/24
2.1.3	Conduct feasibility study	90 days	Wed 1/31/24	Tue 6/4/24

2.1.4	Conceptual Plan	5 days	Wed 1/31/24	Tue 2/6/24
2.1.5	Chief Land Surveyor to prepare description survey /location plan	14 days	Wed 1/31/24	Mon 2/19/24
2.1.6	Outline Plan	2 days	Tue 2/20/24	Wed 2/21/24
2.1.7	Acquisition Process	90 days	Mon 2/19/24	Fri 6/21/24
2.1.7.1	Prepare cabinet paper/acquisition	21 days	Tue 2/20/24	Tue 3/19/24
2.1.7.2	Resolution paper acquisition	30 days	Wed 3/20/24	Tue 4/30/24
2.1.7.3	Vesting document	30 days	Wed 5/1/24	Tue 6/11/24
2.1.7.4	Land Vested in relevant entity	12 days	Wed 6/12/24	Thu 6/27/24
2.2	Planning & Design Process Services	90 days	Fri 6/21/24	Thu 10/24/24
2.2.1	Prepare TOPO	14 days	Fri 6/21/24	Wed 7/10/24
2.2.2	Site visit	1 day	Fri 6/21/24	Fri 6/21/24
2.2.3	Determine site use (Product Mix)	5 days	Thu 7/11/24	Wed 7/17/24
2.2.4	Prepare first sketch site layout	5 days	Tue 7/16/24	Mon 7/22/24
2.2.5	Meeting with selected JV Partner	10 days	Mon 7/22/24	Fri 8/2/24
2.2.6	Finalise site development plan	10 days	Fri 8/2/24	Thu 8/15/24
2.2.7	Prepare road profiles	0 days		
2.2.8	EIA Study (if necessary)	5 days	Thu 8/15/24	Wed 8/21/24
2.2.9	Schedule preapplication consultation meeting	10 days	Wed 8/21/24	Tue 9/3/24
2.2.10	Submit development proposal to Planning & Development office, MPWWR, EPD	5 days	Tue 9/3/24	Mon 9/9/24
2.2.11	Prepare and submit reticulation plans – BWA, BL&P, NPC (after planning consent)	5 days	Mon 9/9/24	Fri 9/13/24
2.2.12	Receive planning consent and approval	10 days	Fri 9/13/24	Thu 9/26/24

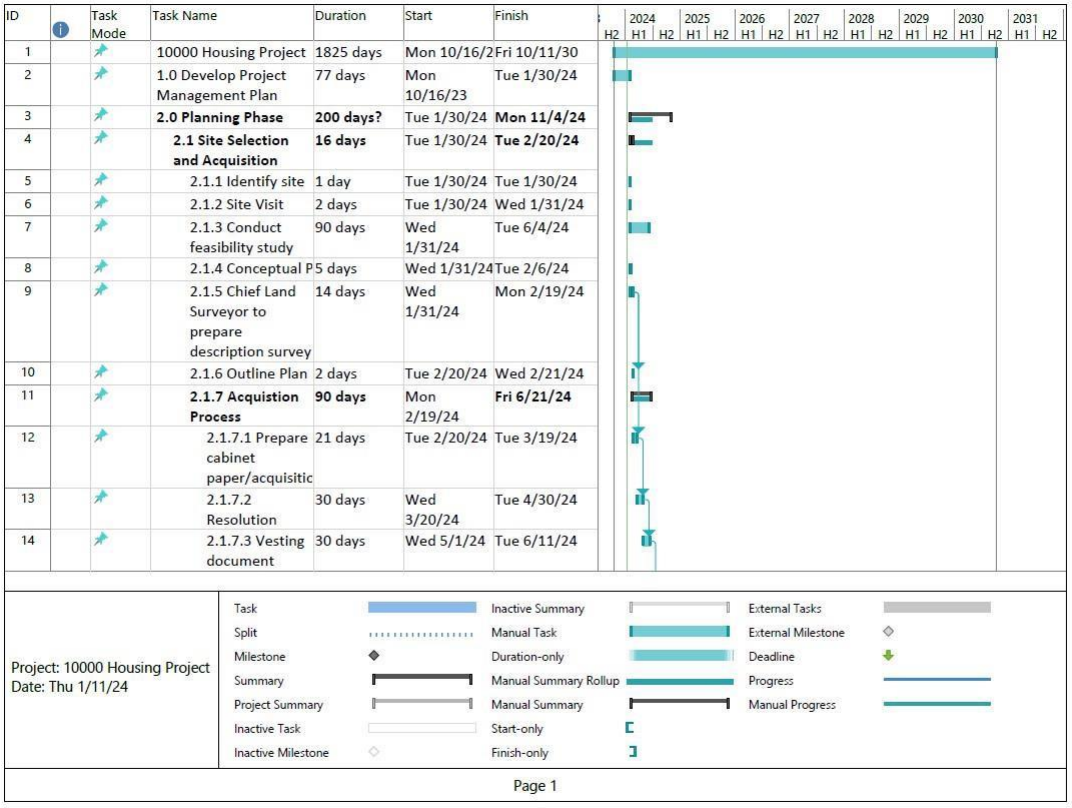
2.2.13	Prepare site infrastructural design	2 days	Thu 9/26/24	Fri 9/27/24
2.2.14	Forward Permission from the Planning and Development Department to the Legal Department	1 day	Fri 9/27/24	Fri 9/27/24
2.2.15	Forward approved drawings to JV partner	10 days	Fri 9/27/24	Thu 10/10/24
2.2.16	Prepare site management plan	5 days	Thu 10/10/24	Wed 10/16/24
2.2.17	Request Quotes from Utilities	5 days	Thu 10/10/24	Wed 10/16/24
2.2.18	Request payment for utilities	7 days	Wed 10/16/24	Thu 10/24/24
2.2.19	Request certificates of compliance	84 days	Thu 10/24/24	Tue 2/18/25
		10 days	Thu 10/24/24	Wed 11/6/24
2.3	TECHNICAL SERVICES	10 days	Wed 11/6/24	Tue 11/19/24
2.3.1	Consult with planning & Surveying	10 days	Tue 11/19/24	Mon 12/2/24
2.3.2	Prepare engineering designs proposals	5 days	Tue 11/19/24	Mon 11/25/24
2.3.3	Prepare detailed Bill of Quantity	10 days	Mon 12/2/24	Fri 12/13/24
2.3.4	Prepare costing	0 days	Fri 12/13/24	Fri 12/13/24
2.3.5	Prepare tender document	21 days	Fri 12/13/24	Fri 1/10/25
2.3.6	Submit to CPO (if necessary)	5 days	Fri 1/10/25	Thu 1/16/25
2.3.7	Review and evaluate submitted tenders	10 days	Thu 1/16/25	Wed 1/29/25
2.3.8	Make recommendation to tenders committee/CPO	10 days	Wed 1/29/25	Tue 2/11/25
2.3.9	Evaluation Report to CPO	10 days	Wed 1/29/25	Tue 2/11/25
2.3.10	Obtain Board Approval	6 days	Tue 2/11/25	Tue 2/18/25
2.3.11	Monitor and follow-up with utilities	1000 days	Wed 2/19/25	Tue 12/19/28
2.3.12	Monitor and report on project execution and progress	50 days	Wed 2/19/25	Tue 4/29/25
3.	Execution Phase	5 days	Wed 2/19/25	Tue 2/25/25

3.1	Legal	10 days	Tue 2/25/25	Mon 3/10/25
3.1.1	Record vesting document at the Land Registry	15 days	Mon 3/10/25	Fri 3/28/25
3.1.2	Conduct judgment searches on the proposed JV partner	5 days	Fri 3/28/25	Thu 4/3/25
3.1.3	Consult with JV partner and negotiate the terms and conditions of the agreement with the proposed joint venture partner	5 days	Thu 4/3/25	Wed 4/9/25
3.1.4	Prepare Memorandum of Understanding/Agreement	5 days	Wed 4/9/25	Tue 4/15/25
3.1.5	Prepare all Contracts	11 days	Tue 4/15/25	Tue 4/29/25
3.1.6	Completion of conveyances	1000 days	Tue 2/25/25	Mon 12/25/28
3.1.7	Forward monies from sales to the Accounts Department	5 days	Tue 2/25/25	Mon 3/3/25
3.2	JVP	5 days	Tue 2/25/25	Mon 3/3/25
3.2.1	Submit letter of interest	2 days	Mon 3/3/25	Tue 3/4/25
3.2.2	Submit background information on company for review - corporate doc, Financials, capacity statement, profile of work completed (Conduct due diligence)	5 days	Tue 3/4/25	Mon 3/10/25
3.2.3	Site visit with Corporation	5 days	Mon 3/10/25	Fri 3/14/25
3.2.4	Submit formal project proposal	5 days	Mon 3/10/25	Fri 3/14/25
3.2.5	Review MOU documents	5 days	Fri 3/14/25	Thu 3/20/25
3.2.6	Sign off on MOU/Agreement	2 days	Thu 3/20/25	Fri 3/21/25
3.2.7	Submit project plan	2 days	Thu 3/20/25	Fri 3/21/25
3.2.8	Sign off on contract and other legal requirements	982 days	Fri 3/21/25	Mon 12/25/28
3.2.9	Break Ground & Commence project	470 days	Mon 12/25/28	Fri 10/11/30

3.2.10	Submit Fortnightly reports	100 days	Mon 12/25/28	Fri 5/11/29
3.3	Customer Services	50 days	Tue 12/26/28	Mon 3/5/29
3.3.1	Advertise project via website	50 days	Wed 1/10/29	Tue 3/20/29
3.3.2	Accept applications	50 days	Thu 2/1/29	Wed 4/11/29
3.3.3	Select and approve applicants (10% disabled, 50% civil servants)	50 days	Thu 2/1/29	Wed 4/11/29
3.3.4	Liaise with People Empowerment and Elder Affairs	388 days	Wed 4/11/29	Fri 10/4/30
3.3.5	Liaise with finance institutions (re mortgage certificates, commitment letters)	1825 days	Mon 10/16/23	Fri 10/11/30
3.3.6	Liaise with Legal department for commencement and completion of sales	6 days	Fri 10/4/30	Fri 10/11/30
3.3.7	Accounts – Monitor funds	6 days	Fri 10/4/30	Fri 10/11/30
4	Project Closure	6 days	Fri 10/4/30	Fri 10/11/30
4.1	Project Review Meeting	6 days	Fri 10/4/30	Fri 10/11/30
4.2	Lessons Learnt	6 days	Fri 10/4/30	Fri 10/11/30

Utilising Microsoft Project as the software to produce the acquired information will provide a graphical representation (a Gant Chart) of the agreed upon schedule. This chart also allows the team to see the tasks that are dependent and the possible critical path for the project. The critical path provides an idea of the possible minimum timeline for the given project.

Chart 10 Gantt Chart - Timeline and Tracking Chart (Sources: Author of Project)



ID	Task Mode	Task Name	Duration	Start	Finish
1		10000 Housing Project	1825 days	Mon 10/16/2	Fri 10/11/30
2		1.0 Develop Project Management Plan	77 days	Mon 10/16/23	Tue 1/30/24
3		**2.0 Planning Phase**	**200 days?**	Tue 1/30/24	**Mon 11/4/24**
4		**2.1 Site Selection and Acquisition**	**16 days**	Tue 1/30/24	**Tue 2/20/24**
5		2.1.1 Identify site	1 day	Tue 1/30/24	Tue 1/30/24
6		2.1.2 Site Visit	2 days	Tue 1/30/24	Wed 1/31/24
7		2.1.3 Conduct feasibility study	90 days	Wed 1/31/24	Tue 6/4/24
8		2.1.4 Conceptual P	5 days	Wed 1/31/24	Tue 2/6/24
9		2.1.5 Chief Land Surveyor to prepare description survey	14 days	Wed 1/31/24	Mon 2/19/24
10		2.1.6 Outline Plan	2 days	Tue 2/20/24	Wed 2/21/24
11		**2.1.7 Acquistion Process**	**90 days**	Mon 2/19/24	**Fri 6/21/24**
12		2.1.7.1 Prepare cabinet paper/acquisitic	21 days	Tue 2/20/24	Tue 3/19/24
13		2.1.7.2 Resolution	30 days	Wed 3/20/24	Tue 4/30/24
14		2.1.7.3 Vesting document	30 days	Wed 5/1/24	Tue 6/11/24

4.4.2 Schedule Control and Changes

The Schedule is monitored and updated by the Project Manager. This is done on a weekly basis, after the weekly meetings with the Project Steering committee. Schedule control is another important process as it will allow the Project Manager to monitor the status of the project activities, to update project progress and manage and report on any changes that may occur to the schedule baseline to achieve the overall project objective. Weekly or monthly meetings with the Project Manager and the project team will allow any issues that have occurred or may occur to be reported and the possible solutions be identified. Based on this, the Project Manager can report to the Steering Committee the issues and any possible changes that can be implemented to guarantee project completion, and written approval can be given.

4.5 Cost management plan

As a Small Island Developing State (SID), Barbados like many other Caribbean countries is highly dependent on the import market for obtaining the majority of their resources. Given this high dependence on external sources, resources that will be required for this project must be sourced externally, therefore the estimated cost plus proposed budget and management of funds is very important because without the appropriate funding the project cannot be executed. Project Cost Management looks at the overall budget associated with the project. The processes involved include planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget (PMI,2017). The Project Cost Management processes are:

- Plan Cost Management—The process of defining how the project costs will be estimated, budgeted, managed, monitored, and controlled.
- Estimate Costs—The process of developing an approximation of the monetary resources needed to complete project work.
- Determine Budget—The process of aggregating the estimated costs of individual activities or work packages to establish an authorised cost baseline.
- Control Costs—The process of monitoring the status of the project to update the project costs and manage changes to the cost baseline.

4.5.1 Estimate Cost

As mentioned previously, the provision of the 10,000 housing solutions is a very complex endeavour and contains many moving parts. On delving deeper into the programme, the associated cost to the GOB comes with the acquisition of land, the provision of infrastructural services and the commissioning of any studies if required in the planning and/execution phase. It should be noted that over 1,000 acres of land must be

acquired for the provision of the houses, but this will be done via a programme, through planning gains and through the acquisition process. The cost estimates derived will come from expert judgement, best practices that have been noted from similar ventures and from discussions held with the Project Steering Committee, the Project Manager and various stakeholders.

Chart 11 Cost Estimates (Source: Author of Study)

WBS	Description of Work	Duration	Associated Cost US$
Project Initiation	Develop Project Management Plan	77 days	$500.00
Planning	Acquisition Process	90 days	$165,000,000.00
	EIA Study (if necessary)	5 days	$550,000.00
	Payment for utilities	7 days	$50,000.00
Execution	Infrastructural Works	174 days	$105,000,000.00
	Monitor and report on project execution and progress	50 days	$100,000.00
	Record vesting document at the Land Registry	15 days	$50,000.00
Closing	Project review	5 days	$3,000.00
Vat 17.5%			$47,381,862.50
Total			$318,135,362.50

4.5.2 Determine Budget

Utilising the cost estimates, the budget for the project can be determined taking into consideration any unforeseen costs through the contingency reserve and the management reserve. For this programme the proposed budget is US$454,933,568.38.

Chart 12 Budget (Source: Author of Study)

Item	Associated Cost US$
Estimated Cost	$318,135,362.50
Contingency Reserve (30%)	$95,440,608.75
Total (Cost Baseline)	$413,575,971.25
Management Reserve (10%)	$41,357,597.13
Total	$454,933,568.38

4.5.3 Control Cost

The Control cost process is very important to the programme as any increases could lead to rises in price of the final products which may be detrimental to persons who fall into the main target group of the project, i.e. persons whose finances fall into the lower income bracket. Therefore, the programmes need to be closely monitored by the Project Manager and the project team to ensure any fluctuations in costs are documented in the correct format and reported on the appropriate forms, so informed decisions can be made as to any adjustments and changes that have to be taken.

4.6. Quality management plan

Project Quality Management includes the processes for incorporating the organisation's quality policy regarding planning, managing, and controlling project and product quality requirements in order to meet stakeholders' objectives. Project Quality Management also supports continuous process improvement activities as undertaken on behalf of the performing organization. The Project Quality Management processes are:

- Plan Quality Management—The process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements and/or standards.

- Manage Quality—The process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.
- Control Quality—The process of monitoring and recording the results of executing the quality management activities to assess performance and ensure the project outputs are complete, correct, and meet customer expectations.

The provision of 10,000 affordable, resilient and energy efficient housing solutions is the final deliverable of this project and guaranteeing the quality of these deliverables is very important. Housing is seen as a necessity and also as an extremely important asset which aids in improving the lives of the beneficiaries and their families. Therefore, the quality of the process, the resources utilized and the practices throughout the project must be maintained and monitored.

4.6.1 Plan Quality Management

This process is managed by the Project Manager and planned with the Steering Committee, the Project Manager and various stakeholders; through brainstorming, expert judgement and approved documentation. Within Barbados, all plans for development and construction of houses or commercial properties must be approved by the Planning and Development Department; an application is made with all of the requisite drawings and development plans, these plans must meet the required standards and minimum requirements of the department for approval to be granted. These requirements include:

- the maximum size of structure given the size of the lot,
- the minimum size of rooms,
- number of persons that should be in each room; and
- based on the size of the house, if water tanks are required,

to name a few. Therefore, there are standards for the quality of the proposed deliverables

already in place which are external to the MHLM and the NHC. But within these organizations there are also Technical Sections that monitor the various projects to ensure the quality of the final deliverable, this will be within the Project team. Monitoring reports will be submitted, and any issues reported with possible recommendations. The Project Manager will provide these reports along with recommendations to the Project Steering Committee so a decision can be made to the way forward.

4.6.2 Manage Quality Management

Managing the quality of the programme ensures that we have means of guaranteeing quality throughout the lifecycle. It must consider the various standards and requirements of the Planning and Development Department and create activities that will ensure these requirements are met. The following measures can be adopted and implemented:

- Quality Inspections which are currently performed can be adapted including a greater number of inspections at different project stages.
- Compliance Checks, which can be done externally and by the project team to ensure adherence to local regulations, codes, and safety standards.
- Quality Audits should be performed. Currently the Planning and Development Department do quality audits at various sites. Internally, detailed plans for periodic audits to ensure compliance with quality standards should be created.

4.6.3 Control Quality Management

Under this process monitoring the quality of the process and recording the findings is important and will ensure that the quality requirements are met. The required procedures for control will show how any deviations from quality standards will be identified and addressed. The corrective actions required can be established for addressing and correcting quality issues, and the verification process that would allow during the monitoring, the ability to

verify and validate the quality of the deliverables. While the project team will report on the issues the Project Manager will present the report and recommendations to the Project Steering Committee.

4.7 Resource management plan

Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project. These processes help ensure that the right resources will be available to the project manager and project team at the right time and place. The Project Resource Management processes are:

- Plan Resource Management—The process of defining how to estimate, acquire, manage, and utilize physical and team resources.
- Estimate Activity Resources—The process of estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.
- Acquire Resources—The process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work.
- Develop Team—The process of improving competencies, team member interaction, and the overall team environment to enhance project performance.
- Manage Team—The process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimise project performance.
- Control Resources—The process of ensuring that the physical resources assigned and allocated to the project are available as planned, as well as monitoring the planned versus actual use of resources, and performing corrective action as necessary.

4.7.1 Roles and Responsibilities

Each role that has been identified is important to the success of the overall objective: the provision of 10,000 housing solutions. If there is no collaboration or communication between the various roles, the project may experience setbacks leading to cost overruns. The Project Sponsor should ensure that the programmes objectives and goals align with the GOB and MHLM's strategic objectives and ensure that the necessary support for successful execution is secured. The Responsible Partner should enhance the programme through effective collaboration and specialised and focused contributions. Having a skilled and experienced Project Manager is crucial as they play a central role in coordinating various elements, ensuring efficiency, and delivering a high-quality outcome that meets the needs of stakeholders and the community. With a diverse and skilled project team, inclusive of engineers, financial analysts, legal advisors, and environmental specialists; the project team can work collaboratively to ensure the success of the programme. Also, given that this project will bring many entities both private and governmental and communities, understanding your stakeholders is of utmost importance. The Project Steering Committee will provide leadership, strategic oversight, and informed decision-making throughout the project lifecycle. Their skills and expertise contribute to the effective governance and direction of the initiative. While the documentation team plays a vital role in maintaining an accurate and organized record of project information, facilitating effective communication, and supporting various project activities.

Chart 13 Responsibilities and Required Skills (Source: Author of Study)

Stakeholder	Responsibilities	Required Skills
Project Sponsor	• Strategic Oversight • Resource Allocation • Stakeholder Engagement • Risk Management • Decision-Making • Financial Oversight • Advocacy and Support • Quality Assurance • Reporting and Communication • Governance and Compliance	• Leadership • Strategic Thinking • Communication Skills • Financial Management • Stakeholder Management • Decision-Making • Risk Management • Advocacy • Quality Assurance • Governance and Compliance
Responsible Partner	• Project Alignment • Resource Contribution • Collaborative Planning • Specialized Expertise	• Collaboration • Specialized Knowledge • Effective Communication • Problem-Solving

	• Stakeholder Engagement • Risk Mitigation • Data and Information Sharing • Regulatory Compliance • Reporting	• Adaptability • Stakeholder Management: • Risk Management • Regulatory Understanding • Reporting and Documentation
Project Director	• Project Leadership • Strategic Planning • Team Management • Stakeholder Engagement • Financial Management • Risk Management • Quality Assurance • Schedule Management • Reporting and Documentation • Government Interaction and	• Leadership: • Strategic Thinking • Communication Skills • Financial Insight • Stakeholder Management • Risk Management • Quality Assurance • Schedule Management • Government Relations • Decision-Making

Project Manager	• Project Planning: • Stakeholder Management • Team Leadership • Budget and Financial Management • Risk Management • Quality Assurance • Schedule Management • Procurement and Vendor Management • Regulatory Compliance • Reporting and Documentation	• Leadership and Team Management • Communication skills • Strategic Thinking • Financial Management Skills • Problem-Solving • Risk Management • Technical Knowledge • Adaptability • Negotiation Skills • Knowledge of Regulatory Compliance
Project Team	• Architectural Design Oversight: • Collaboration with Stakeholders: • Quality Assurance:	• Collaboration • Communication • Problem-Solving • Adaptability • Technical Proficiency • Architectural design

	• Ensure Sustainability Integration • Site Management • Quality Control • Budget Management Stakeholder Communication • Community Outreach • Conflict Resolution	• Building codes and standards • Collaboration • Quality assurance • Sustainable design principles • Construction management • Project scheduling • Safety regulations compliance • Budget management • Problem-solving • Communication and interpersonal skills • Community engagement • Conflict resolution • Event planning • Cultural sensitivity
Stakeholders	• Regulatory Compliance • Resource Allocation	• Communication • Negotiation

	• Community Engagement • Risk Mitigation • Examine Return on Investment (ROI) • Quality of Life • Information Dissemination • Community Liaison • Conflict Resolution	• Problem-Solving • Adaptability • Cultural Sensitivity • Knowledge of regulatory frameworks • Urban planning expertise • Project approval processes • Community Financial Support • Risk Mitigation • Financial Support: • Communication and advocacy • Community organizing • Active listening • Conflict resolution • Project management • Collaboration and leadership

		• Construction management • Quality control • Budgeting and financial management • Safety regulations compliance • Community engagement • Cultural sensitivity
Project Steering Committee	• Strategic Direction • Decision-Making • Resource Allocation • Risk Oversight • Stakeholder Engagement • Budget Approval • Progress Monitoring • Regulatory Compliance • Issue Resolution	• Leadership: • Financial Insight • Stakeholder Management • Collaboration • Skills • Problem-Solving • Adaptability
Documentation Team	• Document Creation • Version Control	• Technical Writing • Attention to Detail

	• Record Keeping • Quality Assurance • Communication Support • Training Materials • Change Management Documentation • Archiving • Collaboration	• Communication • Quality Assurance • Adaptability • Time Management • Archiving Knowledge • Change Management • User-Friendly Documentation: • Problem-Solving

4.7.2 Task Assignment

This programme will require huge collaboration between various entities and their human resources and in some cases resources that are already assigned to other tasks. Essentially clear guidance is needed, as to which resource is assigned to each task, so an effective time management plan can be created. Using the RACI matrix will assist in providing the needed guidance and any changes that may be required will be monitored and evaluated by the Project Manager, with guidance from the Project Steering Committees.

Chart 14 RACI Matrix (Source: Author of Study)

Milestone Name	Project Sponsor	Project Steering Committee	Project Director	Project Manager	Project Team	JVPs and Contractors	Stakeholders	Technical Team	Document Team
Develop Project Plan	I	A, C	A	R	A, I	I	I	C, I	C
Obtain Regulatory Approvals	R	A	A	R	C	I	C	C	I
Allocate Project Resources	A	I	A	A	C, I	I	R	I	I
Develop Construction Plans	R	C	I	R	C, I	R	I	A	I
Oversee On-Site Construction	C	I	A	C	A, C	R	I	I	I
Create and Update Project Documents	R	I	A	R	A, C	I	I	I	A
Engage with Local Community	I	C	I	I	A	I	I	I	I
Monitor Project Progress	R	A	A	R	A, C	I	I	I	I
Budget Approval	I	A	A	I	C, I	I	R	I	I
Risk Management	R	A	A	R	C, I	I	I	I	I
Quality Control	R	A	I	R	C, I	R	I	A	I
Stakeholder Communication	R	A	A	R	A, C	I	I	C	C

4.8 Communications management plan

Project Communications Management, according to PMI, includes the processes necessary to ensure that the information needs of the project and its stakeholders are met

through development of artifacts and implementation of activities designed to achieve effective information exchange. Project Communications Management consists of two parts. The first part is developing a strategy to ensure communication is effective for stakeholders. The second part is carrying out the activities necessary to implement the communication strategy. The Project Communications Management processes are:

- Plan Communications Management—The process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project.
- Manage Communications—The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring, and the ultimate disposition of project information.
- Monitor Communications—The process of ensuring the information needs of the project and its stakeholders are met.

4.8.1 Communication Methods

The Communications matrix provides a breakdown as to how each stakeholder will be communicated with, what information will be shared, the frequency and the responsible party. This matrix should be seen as a starting point and can be adapted based on the given needs and dynamics of the 10,000 Housing Programme. This matrix should be regularly reviewed by the Project Manager and the project team in conjunction with the project steering

committee; thus making certain that communication remains effective throughout the project.

Chart 15 Communication Matrix (Source: Author of Study)

Stakeholder Group	Information Shared	Communication Methods	Frequency	Responsible Party	Additional Notes
Steering Committee	Project progress, major decisions, budget updates	Meetings, Reports, Emails	Monthly / As Needed	Project Manager	Key decision-makers and strategists
Project Manager	Overall project updates, risks, issues, milestones	Meetings, Reports, Emails, Dashboards	Weekly	Project Team	Central point of contact for project-related information
Project Team	Task assignments, progress updates, issues	Meetings, Emails, Collaboration Tools	Daily / As Needed	Project Manager	Collaborative team responsible for various project aspects
Documentation Team	Document creation, updates, quality assurance	Meetings, Emails, Document Management System	As Needed	Project Manager	Responsible for maintaining accurate

					project documentation
JVPs and Contractors	Construction progress, challenges, resource needs	Meetings, Site Visits, Reports	Weekly	Project Manager	Coordinates on-site construction activities
Project Management Team	Community feedback, concerns, project updates	Meetings, Community Events, Reports	Bi-weekly / As Needed	Project Manager, Communication Team	Ensures community involvement and addresses concerns
Stakeholders (Local Community)	Project updates, community events, opportunities for input	Meetings, Newsletters, Community Workshops	Monthly / As Needed	Community Engagement Specialist	Engaged in decision-making and project updates
Stakeholders (Government Authorities)	Regulatory updates, project compliance	Meetings, Official Communications	Monthly / As Needed	Project Manager, Government Liaison	Ensures compliance with local regulations and standards

Stakeholders (Investors, Financial Institutions)	Financial updates, return on investment	Reports, Meetings, Financial Statements	Monthly	Project Manager, Finance Team	Provides funding and requires regular financial updates
Stakeholders (NGOs)	Social and environmental impact assessments	Meetings, Reports, Environmental Studies	As Needed	Project Manager, Environmental Team	Collaborates on social and environmental aspects of the

4.9 Risk management plan

PMI states that Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. The identification of project risks is important as it can assist in planning adaptive measures for risks or planning measures to embrace and any opportunities. The objectives of project risk management are to increase the probability and/or impact of positive risks and to decrease the probability and/or impact of negative risks, in order to optimise the chances of project success. The Project Risk Management processes are:

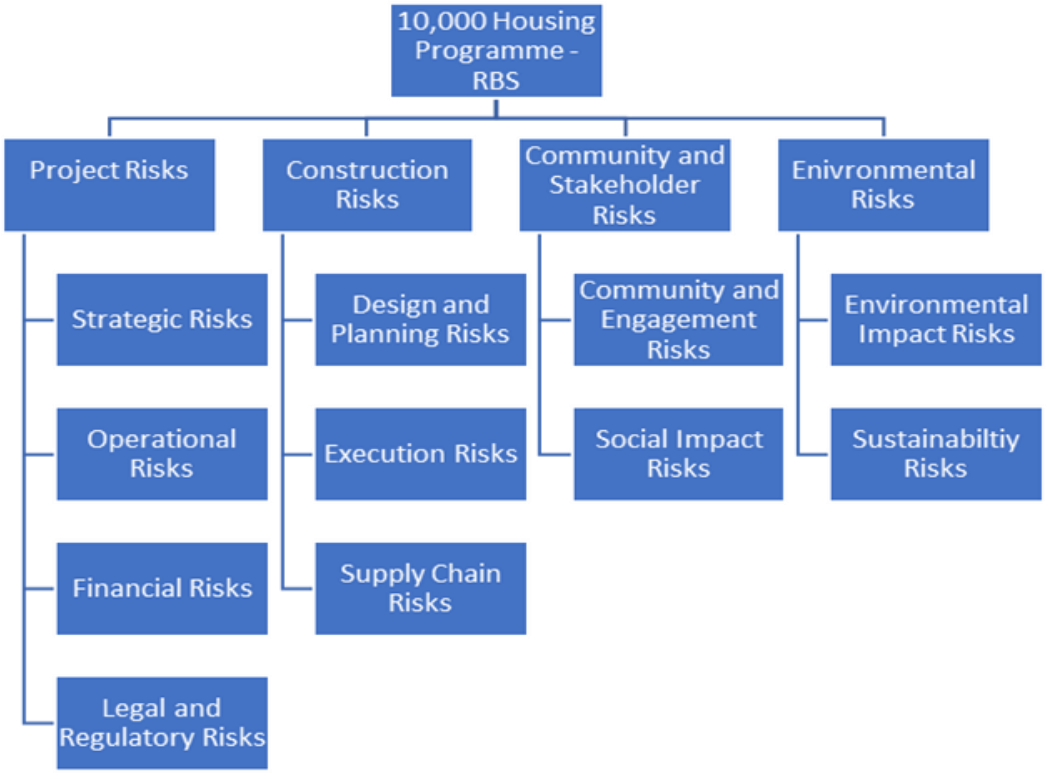
- Plan Risk Management—The process of defining how to conduct risk management activities for a project.
- Identify Risks—The process of identifying individual project risks as well as sources of overall project risk and documenting their characteristics.
- Perform Qualitative Risk Analysis—The process of prioritising individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics.
- Perform Quantitative Risk Analysis—The process of numerically analysing the combined effect of identified individual project risks and other sources of uncertainty on overall project objectives.
- Plan Risk Responses—The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.
- Implement Risk Responses—The process of implementing agreed-upon risk response plans.
- Monitor Risks—The process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analysing new risks, and evaluating risk process effectiveness throughout the project.

4.9.1 Risk Identification

As previously stated, potential risk should be identified in the planning stages so adaptive strategies can be developed for risk mitigation and management, combating any

negative impact that may occur. In examining the 10,000 Housing Programme the following risks were identified and categorised based on meetings held with stakeholders, expert judgement and from historical information from previous projects, locally, regionally and internationally. Identifying the potential risk helps in understanding the various dimensions of risk. Of course, actual risks may vary, and therefore the risks should be customized based on the specific context and characteristics of the housing programme. Regular updates and reviews of the information is essential throughout the project lifecycle.

Chart 16 Risk Breakdown Structure (Source: Author of Study)



4.9.2 Risk Prioritisation and Analysis

After potential risks are identified, a qualitative risk analysis will be performed which will allow the analysis of the likelihood of impact of these risks and the severity of the impact. Below the various risk have been assessed and the probability, impact and risk level have been given a rating of high, medium or low. Low risk may not significantly impact the project, medium risk could have noticeable impacts on the project; and high risk has the potential to severely disrupt or even halt the project if not addressed.

Chart 17 Risk Matrix (Source: Author of Study)

Risk	Probability (Likelihood)	Impact	Risk Level
Funding Shortfall	**High**	**High**	**High**
Economic Downturn	**Medium**	**High**	**High**
Delays in regulatory approvals	**Medium**	**High**	**Medium**
Labour Shortage	**Medium**	**Medium**	**Medium**
Material cost escalation	**Medium**	**Medium**	**Medium**
Changes in Government Policy	**Medium**	**High**	**Medium**
Natural Disasters	**Medium**	**High**	**Medium**
Community Resistance	**Medium**	**Medium**	**Medium**
Land acquisition delays	**Medium**	**High**	**Medium**
Design Flaws	**Low**	**High**	**Medium**

Utilising a probability and impact matrix this information can also be represented graphically. Within the matrix, probability and impact is given a rating on a scale from 1 to 3; 1 represents low, 2 represents medium and 3 represents high. The overall risk level is determined by the intersection of the probability and impact ratings.

Chart 18 Probability Impact Matrix (Source: Author of Study)

IMPACT

PROBABILITY	Low	Medium	High
High			1
Medium		3	4
Low		1	1

4.9.3 Risk Management

With the identification and prioritisation of the potential risk, the focus must be on the management of the risk, the monitoring of the risk and the possible responses to alleviate the outcomes of the risk. Chart 16, which is the Risk Response Matrix, provides guidance on the possible responses to the risks that have been identified in chart 15.

Chart 19 Risk Response Matrix (Source: Author of Study)

Type of Risk	Risk Breakdown	Response
1.1 Strategic Risk	1.1.1 Changes in Government Policies 1.1.2 Economic Downturn 1.1.3 Funding Shortages	• Establish contingency plans for potential changes in government policies that would ensure the continuation of the

		programme even if at a smaller scale. • Monitor economic indicators and diversify funding sources, such as grant programmes from International and regional financial entities.
1.2 Operational Risks	1.2.1 Project Delays 1.2.2 Resource Constraints 1.2.3 Technology Failures	• Implement detailed and robust project management practices to minimize delays, ensuring alternative plans can be implemented to prevent the delays. • Continuously monitor and adjust resource allocation based on project needs.
1.3 Financial Risks	1.3.1 Cost Overruns 1.3.2 Funding Withdrawal 1.3.3 Fluctuating Material Costs	• Regularly review and update the project budge; this will ensure the timely

		identification of any anomalies and adaptive plans can be implemented. • Establish financial controls to manage costs effectively.
1.4 Legal and Regulatory Risks	1.4.1 Changes in Building Codes 1.4.2 Regulatory Approvals Delay 1.4.3 Legal Disputes	• Stay informed about changes in building codes and regulations, through constant communication with the relevant stakeholders. • Collaborate closely with legal advisors to address potential legal disputes promptly.
2.1 Design and Planning Risks	2.1.1 Design Changes 2.1.2 Inadequate Planning 2.1.3 Poor Scope Definition	• Conduct thorough design reviews before implementation. Implement change

		management processes to control design changes.
2.2 Execution Risks	2.2.1 Construction Accidents 2.2.2 Labor Shortages 2.2.3 Contractor Performance Issues	• Prioritize safety protocols to minimize construction accidents. • Regularly assess and address labour shortages proactively to ensure the smooth running of the project.
2.3 Supply Chain Risks	2.3.1 Material Shortages 2.3.2 Supplier Bankruptcy 2.3.3 Transportation Delays	• Given that the project is dependent on external sources, the diversification of suppliers is recommended. Also maintain strong relationships with the suppliers. • Implement inventory management practices like keeping a minimum

		supply of certain items to mitigate material shortages.
3.1 Community Engagement Risks	3.1.1 Community Resistance 3.1.2 Miscommunication 3.1.3 Insufficient Stakeholder Involvement	• Establish a robust community engagement plan that ensures continuous communication and engagement. • Address concerns transparently and involve stakeholders in decision-making, invite persons in the communities to have representation on any committees.
3.2 Social Impact Risks	3.2.1 Displacement Issues 3.2.2 Cultural Sensitivity Concerns 3.2.3 Inadequate Social Programmes	• Implement social programmes to support affected communities, include all relevant social agencies.

		• Conduct impact assessments and adjust plans accordingly.
4.1 Environmental Impact Risks	4.1.1 Soil Contamination 4.1.2 Habitat Disruption 4.1.3 Water and Air Pollution	• Implement environmentally friendly construction practices and utilize environmentally friendly materials. • Monitor and manage potential environmental impacts closely.
4.2 Sustainability Risks	4.2.1 Non-Compliance with Green Building Standards 4.2.2 Inefficient Energy Usage 4.2.3 Lack of Recycling Programmes	• Ensure compliance with green building standards. • Implement energy-efficient practices and recycling programs.

The identification, prioritisation and possible response to the risk is not the end of this process; continuous monitoring by the Project Manager and the project team is required. It is important that all stakeholders know that the management of risk is an ongoing process, and risks that may not have been identified can occur. Therefore, regular and continuous risk assessments must be performed, identified response plans must be updated; and proactive

adjustments based on changing project conditions will all contribute to the overall success of the 10,000 Housing Programme.

4.10 Procurement management plan

Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team (PMI, 2017). This plan includes the management and control processes required to develop and administer agreements such as contracts, purchase orders, memoranda of agreements or internal service level agreements. The personnel authorised to procure the goods and/or services required for the project may be members of the project team, management, or part of the organisation's purchasing department if applicable.

4.10.1 Plan Procurement Management

This is the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers. In Barbados, a new procurement act was passed and amended in 2023 called the Public Procurement (Amendment) Act, 2023. The objects and reasons of the bill were to "amend the Public Procurement Act, 2021 (Act 2021-30) to clarify the circumstances in which certain procurement arrangements entered into by Barbados will prevail over the Act, make it clear that procurement proceedings may be conducted electronically and simplify the process for registration of suppliers". The object and reasons of the original act was to regulate public procurement and in particular promote integrity, fairness, transparency, value for money and efficiency in public procurement".

The rules and practices mentioned within this new Act must be incorporated into the procurement practices of the programme. In addition, to attain resources for the project, persons or companies must be registered within the system, while for external sources justification and pricing must be provided.

4.10.2 Conduct Procurements

The process consists of obtaining seller responses, selecting a seller, and awarding a contract. Within in the different phases of the project, procurement of resources will be required. Under the 10,000 Housing Programme, it has been stated that the majority of the resources required will be attained from external, and in many cases regional and international sources. The Steering Committee in conjunction with the Project Manager will ensure that all required documents are prepared inclusive of Terms of Reference and Tender documents; this would allow interested companies or persons to indicate their interest in writing, to providing these services along with costings as to the provision of the service. Utilizing the guidelines within the procurement act, the various submissions will be evaluated to see if they meet the agreed requirements and then the decision on the best selection for the given deliverable will be made. The Legal Unit will utilise contracts in the purchase of land been identified for the use within the programme project and in the awarding of contracts for JVPs. This will be of utmost importance to the programme.

4.10.3 Control Procurements

The process of managing procurement relationships, monitoring contract performance, making changes and corrections as appropriate, and closing out contracts.

Customize this Procurement Management Plan to align with the specific requirements, constraints, and objectives of the project. Regularly review and update the plan as the project progresses to ensure effective procurement activities and alignment with project goals.

4.11 Stakeholder management plan

According to the Project Management Institute (2007), Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could influence or be impacted by the project, to analyse stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. The processes support the work of the project team to analyse stakeholder expectations, assess the degree to which they impact or are affected by the project, and develop strategies to effectively engage stakeholders in support of project decisions plus the planning and execution of the work of the project. The Project Stakeholder Management processes include identify stakeholders, plan stakeholder engagement, manage stakeholder engagement and monitor stakeholder engagement.

4.11.1 Identify Stakeholders

Identify Stakeholders is a process that involves the identification of project stakeholders regularly and analysing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success. This process is an important aspect of the project and is done by the Project Manager in conjunction with the Project Steering Committee; this information is gathered based on experience and knowledge of similar projects. Within the Project Charter the potential

stakeholder was identified and grouped as direct and indirect. Stakeholders can impact the project in various ways, using the stakeholder's matrix, stakeholders that were identified and then classified based on their impact and influence. This matrix will be monitored and updated throughout the project; documentation is maintained by the project team.

Chart 20 Stakeholder Matrix (Source: Author of Study)

Stakeholder	**Interest**	**Influence**
GOB	High	High
MHLM	High	High
Project Sponsors	High	High
Project Investors	High	High
JVPs	High	High
Construction Companies	Medium	High
Planning and Development Department	High	High
Communities	High	Medium
Potential Homeowners	High	Medium
Various Ministries and Department	Low	Low
Suppliers	High	Medium
General Public	Low	Low

4.11.2 Plan Stakeholder Management

Plan Stakeholder Engagement is a process of developing approaches to involve project stakeholders based on their needs, expectation, interests, and potential impact on the project. Based on the stakeholder matrix in chart 18, which shows the level of interest and influence of each identified stakeholder, the engagement strategies and channels of communication can be determined and implemented. The Project Manager and the project team must ensure that the agreed upon strategies are not only implemented and utilized but also documented throughout the project; they must ensure that relationships are developed and maintained with all stakeholders no matter their power and influence.

Chart 21 Stakeholder Communication Plan (Source: Author of Study)

Stakeholder	**Frequency**	**Type of Communication**
GOB	Bi-Weekly	Project Reports, Official Correspondence
MHLM	Weekly	Project Reports, Meetings
Project Sponsors	Bi-Weekly	Project Reports, Meetings
Project Investors	As required	Project Reports, Meetings
JVPs	Bi-Weekly	Status Reports, Official Correspondence
Construction Companies	As required	Official Correspondence, Meetings
Planning and Development	Bi-Weekly	Official Correspondence, Meetings

Department		
Communities	As required	Town Hall Meetings, Media Releases
Potential Homeowners	As required	Town Hall Meetings, Media Releases, Internet
Various Ministries and Department	As required	Official Correspondence
Suppliers	As required	Official Correspondence, Meetings
General Public	As required	Town Hall Meetings, Media Releases

4.11.3 Manage Stakeholder Engagement

Manage Stakeholder Engagement—The process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder engagement involvement.

4.11.4 Monitor Stakeholder Engagement

Monitor Stakeholder Engagement process looks at the monitoring project stakeholder relationships and tailoring strategies for engaging stakeholders through the modification of engagement strategies and plans. As the project progresses, the method or even frequency of communication with varying stakeholders may increase or decrease, this is where the Project Manager and the project team manage the interactions. These interactions will allow the

identification of the needs of the various stakeholders so they can be met through the project. The continuous monitoring of the stakeholder engagement allows the Project Manager and the project teams to make any necessary adjustments to the stakeholder management plan to the benefit of the project.

4.12 Sustainability Management Plan

In order to assess the impact of the project on the society and environment and to also create the Sustainability Management Plan, the P5 Impact (P5IA) analysis will be utilized. The P5IA aids in defining and prioritizing sustainability impacts, these influences will improve the project's expected benefits while increasing positive effects and reducing negative consequences to society, the environment, and the project's value (GPM Global, 2023). Within this analysis the risk or benefits that may impact a project are examined and this will allow the project team to be able to develop ways of eliminating potential risks or enhancing potential benefits. In this analysis focus is placed on People, Planet, and Prosperity and the influence the project would have on these. This information is then integrated into the Sustainability Management Plan (SMP).

When thinking of sustainability, the focus should be on meeting the needs of the present without compromising the ability of future generations to meet their own needs. The Government of Barbados already embraces sustainable practices through the Roof to Reefs Programme. This plan will support the Roof to Reefs Programme by implementing a structured framework for setting and achieving sustainability goals, reducing environmental impact, and improving social and economic performance throughout the project, thus serving as a road-map and guiding light for the MHLM to integrate sustainability into their operations, reduce their environmental footprint, enhance social responsibility, and contribute positively to economic performance, demonstrating their commitment to responsible business practices.

4.12.1 Purpose

The purpose of the plan is to help ensure that we (MHLM and the NHC) manage this project in a sustainable way. It provides a framework for Project Sustainability by describing our approach, our roles and responsibilities, our budgeting, and our reporting practices. This Sustainability Management Plan (SMP) will help support our commitment to economic growth, environmental protection, and social accountability.

4.12.2 Approach

Planning for sustainability management will be done by completing this document.

- Define the vision, mission, and values of the organization.
- Create a sustainability committee or green team.
- Benchmark and assess the current sustainability performance of the company.
- Engage employees.
- Engage stakeholders.
- Set clear goals and targets to guide the process.
- Create a Communication Plan - Establish and communicate new policies and practices.
- Create feedback loop with regards to the implementation of the plan.
- Continuous Monitoring and Evaluation, track project progress and measure project results
- Analyse your results and compare goals and benchmarks.

Identifying sustainability impacts will include:

- A block of time during the Discovery Phase of the PRiSM Project Lifecycle for team members to work together to complete the P5™ Impact Assessment (P5IA) included in below.

- Time will be reserved during the first team meeting of each month to focus on reviewing sustainability impacts.
- Key performance indicators (KPIs; see below) for relevant topics from P5 will be documented.
- Monitoring the construction process during the project to identify the possible sustainability impacts.
- Research on the impact on the community and the region due to the provision of resilient and affordable housing during the project

Responding to sustainability impacts will include:

- Implementing responses to all items with a high positive or negative impact score.
- Avoidance of unacceptable impacts.
- Updating the Project Sustainability Management Plan throughout the project.
- Inclusion of “sustainability impact updates” as an agenda item for each team meeting.
- Integrating sustainability risk and opportunity management with overall project risk and opportunity management.
- Research local and regional companies that can provide sustainable solutions that can be incorporated into the project as this will benefit the local and regional economy.
- Keep abreast of new and innovative technologies that can be utilized within the project.

4.12.3 Roles and Responsibilities

The Project Manager- Ms. Nicole Griffith shall:

- Monitor and report on sustainability performance against established targets and

KPIs.

- Identify and address any sustainability-related risks or issues that may arise during the project.
- Incorporate the resources and time required to execute the Sustainability Management Plan in the project budget and schedule.
- Allocate resources and ensure budgetary considerations for sustainable practices.
- Develop, distribute, and implement this Sustainability Management Plan.
- Develop and update the P5 Impact Analysis (P5IA) with the support of the Project Team and include it in the project plan.
- Coordinate with the Project Team to implement responses identified in the P5IA.
- Update the lessons learned database at the end of each project phase.
- Provide a report to the function or office that is responsible for sustainability reporting.
- Organize training sessions to educate the team about sustainable practices, processes, and goals.
- Confirm that the sustainability initiatives adhere to predefined quality standards.
- Identify potential risks associated with sustainability initiatives, assess their impact, and develop mitigation strategies to address them.
- Coordinate communication between different project stakeholders regarding sustainability goals and progress.

The Project Team shall:

- Identify sustainability impacts and describe them in the prescribed formats.
- Assess the impact of sustainability-related actions on project success criteria.
- Perform the impact response actions assigned.
- Verify that the sustainability actions are consistent with ethical standards and

organizational values, addressing any ethical concerns that may arise.

- Inform internal and external stakeholders about the project's actions and their effects.

- Develop and implement community engagement strategies to involve residents in the housing programme.
- Monitor social impacts and work to address any social issues or concerns raised by stakeholders.

Sustainability Impact Owner responsibilities include:

- Develop and/or update the assigned risk response strategy.
- Monitor the risk assigned and inform the PM of any changes to probability or impact.
- Monitor the risk trigger and risk cues and inform the PM as appropriate.
- Explore opportunities to incorporate cutting-edge approaches to sustainability within the organization.
- Define key performance indicators (KPIs) and metrics to measure the effectiveness of sustainability initiatives. Regularly track and evaluate progress against these metrics and adjust strategies as needed.

- Develop and maintain the sustainability management plan, including goals, strategies, and action plans.
- Conduct sustainability assessments and audits to identify opportunities for improvement.
- Coordinate with various project teams to integrate sustainable practices into design, construction, and operations.
- Provide training and guidance to project team members on sustainability principles and practices.

- Monitor and track progress towards sustainability goals, and report on performance to project stakeholders.

4.12.4 Budget

The budget for this project will include the following items related to project sustainability management:

Chart 22 Sustainability Management Plan Budget (Source: Author of Study)

Sustainability-related budget items	Description	Estimated cost (in USD)
Educational campaign on the benefits of the resilient and affordable solutions.	The campaign aims to raise awareness, educate, and encourage individuals to adopt more environmentally responsible behaviours and choices in their daily lives. It will run throughout the life cycle of the project.	$ 25,000
Environmental Sustainability	Implementing the appropriate measures to ensure that energy efficient measures, water conservation measures and	$3,350,000

	the biodiversity preservation is maintained.	
Social Sustainability	In the upcoming stages of the project, ensure continuous community engagement and outreach, introduce financial programmes to assist persons and families and include green spaces within the communities.	$2,850,000
Periodic external audits will be conducted.	Quarterly external audits will be done for the project. This will ensure unbiased and accurate information is produced and this can be distributed to the stakeholders.	$250,000
Engagement of suppliers	Ensure that all relevant information is available with regards to possible suppliers and the sustainable products they offer. Establish relationships throughout the supply chain network, to ensure greater efficiency, agility, and competitiveness in its industry.	$ 100,000
Economic Sustainability	Develop initiatives that encourage engagement of local business, transfer of knowledge on sustainable	$2,300,000

	building practices to local contractors. Create a find that allows persons the ability to convert current structures to environmentally friendly solution.	
Total Cost		**$8,875,000**

4.12.5 Key Performance Indicators

The following Key Performance Indicators (KPIs) align with the MHLMs sustainability goals and targets providing a comprehensive assessment of its environmental, social and economic performance.

Chart 22 KPIs for Sustainability Management Plan (Source: Author of Study)

P5 Domain	Lens	Category	Element	Key Performance Indicator	Metric
People	Lifespan	Society and Customers	Community Engagement	Percentage of housing Units with available to low-income households	Number of Housing Units with rental or mortgage costs below a low-income families or persons
	Lifespan	Labor Practices and Decent Work	Employment and Staffing	Skill Development and Training	Number of programmes created or offered to employees for acquiring any required skills.
	Lifespan	Society and Customers	Community Engagement	Community Participation	Number of community

P5 Domain	Lens	Category	Element	Key Performance Indicator	Metric
					meetings or other interactions and the level of participation by community in various interactions
	Lifespan	Ethical Behaviour	Green Claims and Green Washing	Green and environmentally friendly products	Track the number of Green and environmentally friendly products used
Planet	Effectiveness	Energy	Renewable and Clean Energy Return	Energy Efficiency	Proportion of renewable energy generated
	Servicing	Transport	Local Procurement	Supplier Engagement	Number of local suppliers engaged and percentage of materials supplied locally for project.
	Lifespan	Energy	Energy Consumption	Reduction in Energy Consumption	Monitor onsite energy use, look for reduction in usage
	Lifespan	Land, Air and Water	Energy Consumption	Water Usage	Monitor water usage and quality
Prosperity	Lifespan	Market and Economic Stimulation	Local Economic Impact	Local Jobs Created	Number of New Jobs generated directly and indirectly by the housing programme
	Lifespan	Project Feasibility	Social Return on Investment	Sustainable Measures Implemented	Benefits gained from sustainable measures implement compared to overall

P5 Domain	Lens	Category	Element	Key Performance Indicator	Metric
					investment
	Servicing	Project Feasibility	Social Return on Investment	Value Added to Community/Society	Look at the social impact of the project to the community and focus on the overall well-being of the families and the

4.12.6 Potential Impact on Sustainability of Scope Exclusions

The following are potential impacts of scope exclusion in the Housing Project.

- Resource Depletion- By excluding sustainability measures such as energy-efficient design or green building materials may lead to increased resource consumption and depletion.

- Environmental Degradation- Failure to address environmental impacts such as habitat destruction or pollution could harm ecosystems and compromise long-term environmental sustainability.

- Climate Change- Ignoring climate change mitigation strategies may result in higher greenhouse gas emissions and exacerbate climate-related risks for both current and future residents.

- Continuous Improvement and Innovation- The Housing project might miss opportunities to stay at the forefront of resilient and sustainable housing developments if continuous improvement and innovation efforts are excluded from the project. Embracing ongoing improvements and innovations is a major effort to enhance the sustainability and viability of the project over time.

- Equity Issues- Scope exclusions that neglect social equity considerations may result in unequal access to housing resources and amenities, exacerbating social disparities within communities.
- Community Health- Failure to prioritize health and safety measures could lead to adverse health outcomes for residents, especially vulnerable populations.
- Community Engagement- Excluding community engagement initiatives may result in a lack of trust and participation among stakeholders, hindering the development of inclusive and resilient communities.
- Long-Term Costs- Scope exclusions that prioritize short-term cost savings over long-term sustainability may lead to higher operational costs and financial burdens for residents in the future.
- Lost Opportunities- Failure to invest in sustainable economic development initiatives could result in missed opportunities for job creation, local economic growth, and community prosperity.
- Market Competitiveness- Neglecting sustainability considerations may affect the market competitiveness of the housing programme, as homebuyers increasingly prioritize sustainability features and certifications.
- Legal and Regulatory Compliance- Non-compliance with sustainability regulations and standards could result in legal challenges, fines, and delays, jeopardizing the overall success of the programme.
- Resilience to Shocks- Ignoring sustainability considerations may reduce the programme's resilience to external shocks such as economic downturns, natural disasters, or environmental crises.

4.12.7 Reviews and Reporting

The Project Team in conjunction with the Steering Committee will hold bi-weekly meetings for the purpose of discussing and making decisions on project sustainability. The initial sustainability management actions shall occur during the development of the initial project plan. A full review and update of the P5 Impact Analysis will occur at the beginning of each subsequent phase of the project.

The following forms will be used for documenting risk management activities-

- P5 Impact Analysis
- Risk Management Plan
- Risk Assessment Matrix
- Risk Register
- Lesson Learned Register
- Project Status Reports
- Environmental Impact Assessment

5 CONCLUSIONS

The provision of 10,000 housing solutions is an ambitious venture that is being undertaken by the Government of Barbados. This project is multifaceted and depends on many integral parts and therefore requires meticulous planning, proactive management of the schedule; cost; quality, resource, communication, risk and procurement processes; and robust coordination among various stakeholders. Utilising the teachings with the PMBOK Guide 6th Edition, this project management plan was created. This plan serves as a comprehensive roadmap, outlining strategies to ensure the successful delivery of housing solutions within specified timelines and budgets.

The following conclusions should be noted with respect to the twelve (12) specific objectives that were identified:

1. In order to assess the 10,000 Housing Programme and identify the project management needs or deficiencies, a swot analysis was carried out. This analysis identified the strengths, weaknesses, opportunities and threats that could occur during the execution of the project; and therefore, provided should provide guidance as to the best approach the project team should adopt.
2. The Project Charter was created utilizing a template to gather information on important aspects of the project such as the general and specific objectives, description of the project, purpose of the project, assumptions and constraints, identifying the stakeholders, project milestones and the budget. The project charter will serve as the foundational document that guides the planning, execution, and control of the 10,000 housing programme. It will provide a common understanding of the project's purpose and parameters, helping to minimize misunderstandings and maximize the likelihood of success.
3. The scope management plan will play a crucial role in ensuring the success of the programme by providing clarity, control, and alignment throughout the project lifecycle. Within this plan the roles and responsibilities of the stakeholders were explained, and the WBS as well as the WBS dictionary were created.

4. The schedule management plan plays a crucial role in ensuring that the 10,000 housing programme is completed on time and within budget. By defining timelines, sequencing activities, allocating resources, and managing risks, the plan helps the project team to optimize project performance and therefore increase the likelihood of success.

5. The cost management plan plays a crucial role in ensuring the financial success of the 10,000 housing programme by establishing budgets, controlling costs, managing risks, and ensuring compliance with financial requirements. By effectively managing costs, the plan will aid the project team in optimizing project outcomes and deliver value to stakeholders.
6. In creating the quality management plan the Project Manager in conjunction with the Steering Committee and various stakeholders; were engaged through brainstorming, expert judgement, and approved documentation; to gather the necessary inputs. This plan is critical and will ensure that the programme delivers housing units of the highest quality, meeting the needs and expectations of stakeholders while optimizing resources and mitigating risks.
7. In developing the resource management plan the responsibilities and required skills of each stakeholder were identified. Based on this information, a RACI matrix was developed using a template, to guide all stakeholders. This plan will help to support project success and achieve desired outcomes within the constraints of time, budget, and scope by identifying, allocating, and managing resources strategically.
8. The communications management plan should ensure that information flows effectively throughout the 10,000 housing programme. To inform the communications management plan, the communications matrix was developed to provide the project team a visual of the breakdown as to how each stakeholder will be communicated with, what information will be shared, the frequency and the responsible party. The matrix should be seen as a starting point and adapted based on the given needs and dynamics of the 10,000 Housing Programme. This plan should encourage and foster stakeholder engagement, manage expectations, and ultimately contribute to the success of the project.

9. To address the potential risk that the programme may encounter, the risk management plan was created. Within the plan, potential risks were identified and prioritised and a risk response matrix was created. The identification, prioritisation and possible response to the risk is important for the project team but it is not the end of the process; continuous monitoring by the Project Manager and the project team is required. This plan will enhance the resilience and success of the 10,000 housing programme by proactively identifying, assessing, and mitigating potential risks that could impact project outcomes.
10. The procurement management plan is important to the programme as it will guide the procurement of the inputs that to ensure the provision of resilient and affordable solutions to person. In procuring these inputs, the project team must understand the new procurement act and how it can be utilized to benefit the programme while meeting the required standards of the organization. This plan, once followed, will ensure the process of acquiring resources is done efficiently, effectively, and in accordance with procurement rules and the project requirements and objectives.
11. To develop a stakeholder management plan, the stakeholder's matrix and the stakeholder's communication plan were developed. This matrix allowed for the identification and classification of the stakeholders based on their impact and influence. The Stakeholders communication plan shows the engagement strategies and channels of communication that based on the identified stakeholders within the project. The project team should encourage and foster positive relationships with stakeholders, addressing their needs and concerns, and promote their active involvement in project planning and implementation.
12. Utilising the P5 Impact analysis the 10,000 Housing programme was validated from a regenerative/sustainable perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process. One Output was the

sustainability management plan which looked at the programme examining the purpose, the roles and responsibilities of the stakeholders, the proposed budget and the key performance indicators.

6 RECOMMENDATIONS

Shelter is considered one of the basic needs that should be afforded to persons and therefore should be a priority by many. The United Nations Sustainable Goal number 11 states at target 11.1: “By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”. Therefore, in the provision of the 10,000 Housing Solutions it is recommended that the GOB and its executing agencies ensure the following:

1. Based on the SWOT analysis, the Project team should continuously assess the 10,000 Housing Programme as the strengths, weaknesses, opportunities and threats may change or new ones may arise.
2. Project Charter - The Project Manager should utilise the approved Project Charter to guide the process and implement tasks in a timely manner to ensure the successful completion of the programme.
3. Scope Management Plan- The Project Manager and team should review the document and ensure that this plan takes into consideration all required works and allocated resources to the project in order to avoid scope creep and other project risks.
4. Schedule Management Plan- The agreed project schedule should be made available to all stakeholders and project team members. Agreement as to the timelines should be signed off by all team members in order to facilitate the project being completed on time and allow for timely project implementation.
5. Cost Management Plan- As this programme will be financed by Government and possible through Regional and International Funding agencies, it is important that the

programme budget is monitored to ensure the programme is completed within the approved budget.

6. Quality Management Plan- Quality is very important within the 10,000 Housing Programme as the objective is to provide resilient housing, therefore this aspect of the programme needs to be monitored closely. A team needs to be assigned to the various construction sites to ensure all agreed standards and requirements are being followed by the JVP and contractors. To ensure uniformity and fairness, a general quality assurance checklist needs to be developed and agreed upon.
7. Resource Management Plan- Given that complexity of the programme, this plan should be disseminated to all stakeholders so they will be aware of their roles and responsibilities. Throughout the programme any changes that may be required should be monitored and evaluated by the Project Manager, with guidance from the Project Steering Committees.
8. Communication Management Plan- This plan should be maintained to ensure that at all the relevant stakeholders are kept abreast of project progress and other relevant details to avoid misconceptions. The communications matrix should be reviewed regularly by the Project Manager and the project team in conjunction with the project steering committee. This would ensure that all communication remains active throughout the project.
9. Risk Management Plan- The Project Manager and the project team should continuously monitor of all potential risks and benefits that can occur and adapt accordingly to ensure the timely conclusion of the project or to ensure that any adjustments necessary can be made.
10. Procurement Management Plan- The Project manager should certify agreed upon procurement strategies are followed and are taken into consideration. As a country which imports the majority of the inputs required for the programme; that market

changes can either harm or be beneficial to the project so costs-saving opportunities should be explored.

11. Stakeholder Management Plan- Continuous stakeholder engagement should be a priority throughout the project; this will foster strong collaboration and gain buy-in that is needed to ensure the project is successful. The project team should encourage and foster positive relationships with stakeholders, addressing their needs and concerns, and promote their active involvement in project planning and implementation. The stakeholder matrix should be continuously monitored and updated throughout the Project, and all documentation maintained by the project team.
12. Sustainable/Regenerative Validation - The solutions being delivered within the programme take into consideration resilient, sustainable and regenerative practices. Therefore, the Project Manager and the project team practices should ensure that this plan is utilised from project inception and that all agreed upon practices are incorporated into the project where required.

7 VALIDATION OF THE FGP IN THE FIELD OF REGENERATIVE AND SUSTAINABLE DEVELOPMENT

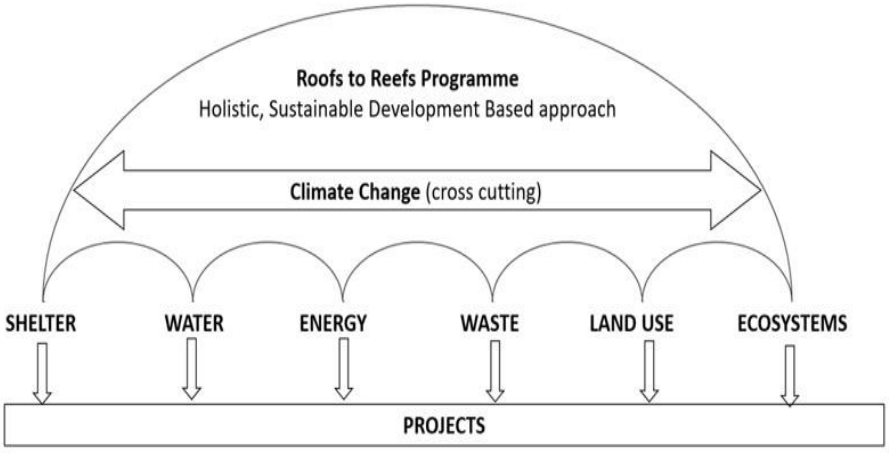
Sustainable development is defined as development that meets the needs of the present, without compromising the ability of future generations to meet their own needs (Sustainable Development Commission, n.d.). While regenerative development is the use of resources to improve society's well-being in a way that builds the capacity of the support systems needed for future growth (Gabel, 2015). It should be noted that one suggests we maintain certain practices and systems, while the other encourages looking at the current systems and applying measures to the restoration of these systems and improving productivity.

Barbados has been very vocal about its support of sustainability and in turn regenerative development through words and actions, both regionally and internationally. The Prime Minister of Barbados, the Right Honourable Mia Amor Mottley, in her role as Co-Chair of the SDG Advocates stated, "Let us seize the moment to move forward, together, to ensure the full implementation of the 2030 Agenda for Sustainable Development by the end of the Decade of Action and Delivery on the Sustainable Development Goals" (UN-Nations, 2022). The achieving of these goals should create a society that values the people, social interactions and the environment.

Figure 8: The Sustainable Development Goals (Sources: United Nations) Retrieved from https://www.un.org/sustainabledevelopment/news/communications-material/

The creation of the Roof to Reefs Programme in 2021 has the aim of protecting the population's private and community roofs from extreme weather events, such as tropical storms. It also seeks to encourage the use of renewable energy sources, rainwater harvesting, and nature-based solutions to reduce run-off into the coastal environment. It also focuses on building resilient housing that will positively impact the country's ecosystem in a positive way. The impact from the roof of the house to the reefs in the sea are examined. This encompasses many of the SDGs and focuses on holistic approach to protecting and sustaining our environment.

Figure 9: Roof to Reefs Programme (Sources: Government of Barbados)



The FGP examines a programme that already encompasses some aspects of sustainability, at least on the surface, so there is a need to delve deeper to see what other aspects of sustainability and regenerative development can be included to ensure the project does not have deleterious consequences for the people or the environment.

7.1 P5 Analysis and the Sustainability Management Plan

A P5 Impact Analysis (P5IA) is used to define and prioritize sustainability impacts to improve the project's expected benefits and to increase positive effects and reduce negative impacts to society, the environment, and the project's value (GPM Global, 2023). This analysis examines the risk or benefits that may affect a project and allows the project team to develop ways of eliminating potential risk or enhancing potential benefits. In this analysis

focus is placed on People, Planet, and Prosperity and the influences the project would have on these. This information is then integrated into the Sustainability Management Plan (SMP).

According to Chhabra (2022), a Sustainability Management Plan (SMP) combines the concept of sustainability with management. The primary aim of sustainability is to meet the needs of the current generation in a way that does not compromise the potential of the future generations. This plan provides a structured framework for setting and achieving sustainability goals, reducing environmental impact, and improving social and economic performance. It also serves as a roadmap for organizations to integrate sustainability into their operations, reduce their environmental footprint, enhance social responsibility, and contribute positively to economic performance, demonstrating their commitment to responsible business practices. The Organization can see long-term benefits in terms of cost savings, reputation enhancement, and resilience to environmental and social challenges.

7.2 Potential Benefits of the integrating Sustainability and regenerative practices

Potential benefits can be seen if these practices are incorporated in an organization's strategy, including:

- Economic Benefits in the form of cost savings that can reduction in cost of inputs which can impact profits. Also, firms are more adaptable and can be sustained.
- Innovation and Creativity can be seen through research and development which can see the creation of new technologies.
- Reduction in Negative Environmental Impacts can be seen as the carbon footprint decreases, greenhouse gas emissions are reduced, as is pollution.

- Restoration of the Environment due to the regenerative practices being employed.
- Community and social benefits may also be seen in the form of job creation, educational opportunities, more community engagement and shared regenerative and sustainable practices that can improve the community life.
- Brand improvement may occur as the organization will attract customers of like thinking and it will also bring competitive advantage that may make the brand stand out and encourage investment.
- Encourages long-term sustainability as the regenerative practices being employed does not deplete resources but ensures that future generations will have access to the same resources.

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APPENDICES

Appendix 1: FGP Charter

CHARTER OF THE PROPOSED
FINAL GRADUATION PROJECT (FGP)

1. Student name

Nicole Angelia Natalie Griffith

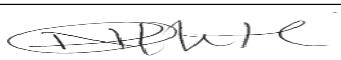
2. FGP name

Project Management Plan for The Execution Of The Government Of Barbados 5-Year 10,000 Housing Programme

3. Application Area (Sector or activity)

Housing

4. Student signature



5. Name of the Graduation Seminar facilitator

Carlos Brenes Mena

6. Signature of the facilitator

7. Date of charter approval

8. Project start and finish date

October 9, 2023	January 8, 2023

9. Research question

How do we plan the successful management of the execution of the 10,000-housing solutions programme?

10. Research hypothesis

It is possible to create a viable management plan to ensure the delivery of 10,000 resilient and eco-friendly housing solutions to persons who fall within the lower income bracket?

11. General objective

To develop a project management plan for the execution of the Government of Barbados 5-Year 10,000 Housing Programme

12. Specific objectives

1. To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.
2. To create the project charter.
3. To develop a scope management plan that will include what is required to ensure the successful completion of the project.
4. To develop a schedule management plan that will manage the execution of the project.
5. To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.
6. To develop a quality management plan that ensure the defined standards are met and maintained.
7. To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful project completion.
8. To develop a communications management plan that allows for that all information is communicated to pertinent stakeholder in a timely and efficient manner.
9. To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.
10. To develop a procurement management plan that meet the standards of the organization in procuring goods and services.
11. To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.

12. To validate the project from a regenerative/sustainability perspective to ensure that regenerative/sustainable measures are identified and incorporated into the process.

13. FGP purpose or justification

In the 2022 the Barbados Labour Party produced its Manifesto stated that they would "Transform Barbadian Home Ownership by Creating a Housing Revolution". This revolution started with 1100 home ownership opportunities which were made available through the Hope Programmes, a programme that provided energy efficient and solar powered homes to Barbadians. Now the revolution will continue with the provision of a further 10,000 new homes through the Ministry of Housing, Lands and Maintenance.

The Ministry of Housing, Lands and Maintenance is responsible for the creation of policy and various programmes to provide resilient and affordable housing, and land and office accommodation solutions to its customers. These programmes can be financed by the Government but in some cases, funds can be accessed from multiple agencies inclusive of the Inter-American Development Bank, the World Bank, the Caribbean Development Bank, the Global Environmental Fund; to name a few.

Given the magnitude and size of this task the creation of a project plan is vital as it will provide needed guidance and best practices that can ensure the successful execution and completion of the project.

14. Work Breakdown Structure (WBS). In table form, describing the main deliverable as well as secondary, products or services to be created by the FGP.

Final Graduation Project
1. Graduation Seminar
1.2 Graduation Seminar Approval
1.1 FGP Deliverables
1.1.1 Week 1
1.1.1.1 Charter Items 1-10
1.1.1.2 Preliminary Bibliographical Research
1.1.2 Week 2
1.1.2.1 Charter Items 11-12
1.1.2.2 WBS
1.1.2.3 Self-Assessment
1.1.3 Week 3
1.1.3.1 Corrections
1.1.3.2 Charter Items 13-19
1.1.4 Week 4
1.1.4.1 Corrections

1.1.4.2 Chapter II - Theoretical Framework
1.1.4.3 Charter Item 20
1.1.1.4 Self-Assessment 2
1.1.5 Week 5
1.1.5.2 Corrections
1.1.5.2 Chapter III - Methodological Framework
1.1.5.3 Charter Item 21
1.1.6 Week 6
1.1.6.2 Chapter I - Introduction
1.1.6.1 Corrections
1.1.6.3 Chapter VII - Project Validation in The Regenerative And Sustainable Design
1.1.6.4 Charter Item 22
1.1.6.5 FGP Schedule
1.1.7 Week 7
1.1.7.1 Corrections
1.1.7.2 Executive Summary
1.1.7.3 Abstract
1.1.7.4 Bibliographical References
1.1.7.5 Indexes
1.1.7.6 Signed FGP Charter
2. Tutoring Process
2.1 Tutor
2.1.1 Tutor Assignment
2.1.2 Communication
2.2 Adjustments of Previous Chapters (If Needed)
2.3 Chapter IV. Development (Results)
2.3.1 Project Assessment
2.3.2 Scope Management Plan
2.3.3 Schedule Management Plan
2.3.4 Cost Management Plan
2.3.5 Resource Management Plan
2.3.6 Communications Management Plan
2.3.7 Risk Management Plan
2.3.8 Procurement Management Plan
2.3.9 Stakeholder Management Plan
2.4 Chapter V Conclusions
2.5 Chapter VI Recommendations
3. Reading By Reviewers
3.1 Reviewers Assignment Requests
3.1.1 Assignment Of Two Reviewers
3.1.2 Communication
3.1.3 FGP Submission To Reviewers

- 3.2 Reviewers Work
  - 3.2.1 Reviewer 1
  - 3.2.2 FGP Reading
  - 3.2.3 Reader 1 Report
- 3.3 Reviewer 2
  - 3.3.1 FGP Reading
  - 3.3.2 Reader 2 Report

4. Adjustments
   - 4.1 Report For Reviewers
   - 4.2 FGP Update
   - 4.3 Second Review By Reviewers
5. Presentation To Board Of Examiners
   - 5.1 Final Review By Board
   - 5.2 FGP Grade Report

15. FGP budget

The budget is US$500.00 inclusive of software licenses, printing and preparation of document.

16. FGP planning and development assumptions

1. It is assumed that all information that will be needed for the project will be always accessible and available.
2. It is assumed that the Ministry of Housing, Lands and Maintenance will provide the necessary support; that is approvals and access to information, to ensure project is completed.
3. It is assumed that the student understands the FGP requirements.
4. It is assumed that the student will adhere to all agreed timelines.
5. It is assumed that relevant stakeholders will be available to provide necessary guidance and information.

17. FGP constraints

1. The time allotted for the final graduation project is short.
2. Human Resources allotted for the project are limited, as there is only one Project Manager.
3. Financial resources allotted for the project are also limited.

18. FGP development risks

1. Delayed feedback from supervisors may lead to delays in submission of deliverables.
2. Student may have unforeseen issues which lead to delay in submission of deliverables.
3. Delays in access to required materials may lead to delays in project deliverables.
4. Penalties may occur if deliverables are not done on time or to the requirements.

19. FGP main milestones

Milestones are related to deliverables on the second level (deliverables) and third level (control accounts) of the WBS of section 14 of this Charter. At the same time the deliverables are related to the specific objectives (in the case of the FGP please include the times for the tutorship reviews as well as for the readership).

Deliverable	**Finish estimated date**
1.1.1 Deliverable 1	September 4, 2023
1.1.2 Deliverable 2	September 11, 2023
1.1.3 Deliverable 3	September 18, 2023
1.1.4 Deliverable 4	September 25, 2023
1.1.5 Deliverable 5	October 2, 2023
1.1.6 Deliverable 6	October 9, 2023
1.2 Graduation Seminar	October 23, 2023
20. Tutoring Process	January 30, 2024
2.1 Tutor	October 26, 2023
2.2 Adjustments of Previous Chapters (If needed)	November 2, 2023
2.3 Chapter IV. Development (Results)	January 16, 2024
2.4 Chapter V. Conclusions	January 23, 2024
2.5 Recommendations	January 30, 2024
21. Reading by Reviewers	February 20, 2024
3.1 Reviewers Assignment	February 6, 2024
3.2 Reviewers Work	February 20, 2024
22. Adjustments	March 19, 2024
4.1 Report from Reviewers	March 4, 2024
4.2 FGP Update	March 5, 2024
4.3 Second Review by Reviewers	March 19, 2024
23. Presentation to the Board of Examiners	March 26, 2024
5.1 Final Review by Board	March 21, 2024
5.2 FGP Grade Report	March 26, 2024

24. Theoretical framework

24.1. Estate of the "matter"

The Ministry of Housing, Lands and Maintenance is the responsible for provision of housing solutions to the people of Barbados through the National Housing Corporation. This mandate has been fulfilled through the creation of policy and programmes for the provision of these housing solutions. While many solutions have been provided over the years a project of this magnitude has never been attempted. Therefore, there are no real guidelines or best practices that can be followed to ensure that the project is executed successfully.

The creation of a project management plan to guide the project process would ensure that all the required processes are documented and followed; and confirm the project is implemented and provides the required deliverables.

24.2. Basic conceptual framework

List of the basic concepts to be included in the document.

Project management, community development, national development, sustainable project management, circular economy, stakeholder engagement, economic development, regenerative development, social housing, public private partnerships, public and private investment.

25. Methodological framework

Objective	**Name of deliverable**	**Information sources**	**Research method**	**Tools**	**Restrictions**
To assess the 10,000 Housing Programme and identify the project management needs or deficiencies.	Project Assessment Document	Primary: Interviews Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI	Qualitative: Written information analysis	Expert Judgement Interviews Focus Groups Meetings Document Analysis	Limitations of the type of information available and access to the information. Time allotted to

		website any relevant documentation.			completing the task.
To create the project charter.	Project Charter	Primary: Meetings Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Qualitative: Written information analysis.	Interviews Focus Groups Meetings Document Analysis	The time allotted to the creation of the charter is limited.
To develop a scope management plan that will include w h a t is required to ensure the successful completion of the project.	Scope Management Plan Requirements Management Plan Requirements Document Requirements Traceability Matrix	Primary: Meetings Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Mixed Research Method: Written information analysis and Analytical Methods.	Expert Judgement Data Analysis Benchmarking Meetings	Lack of information may negatively impact the plan and the overall project.
To develop a schedule management plan that will manage the execution of the project.	Schedule management Plan	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the	Quantitativ e e: Analytical Methods	Schedule management plan template Expert Judgement Analogous Estimating	Lack of information may negatively impact the plan and the overall project.

		Internet, PMI website any relevant documentation.			
To develop a cost management plan that will define project costs and manage the project costs to ensure project keeps within defined budget.	Cost Management Plan	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Quantitative: Analytical Methods	Cost management plan template Expert Judgement Analogous Estimating Data Analysis	Access to information may be an issue.
To develop a quality management plan that ensures the defined standards are met and maintained.	Quality Management Plan	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Mixed Research Method: Written information analysis and Analytical Methods.	Quality management plan template Data analysis Data gathering Inspection Product evaluation Meetings	Access to information may be an issue.
To develop a resource management plan that identifies required resources, defines the roles, and identifies skills required to ensure successful	Resource Management Plan	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Mixed Research Method: Written information analysis and Analytical Methods.	Resources management plan template Responsibilit y Matrix Training Meetings Assessments	May not have all the required information that will guide the identification of resources.

project completion.					
To develop a communications management plan which will ensure that all information is communicated to pertinent stakeholder in a timely and efficient manner.	Communications Management Plan Communications Matrix	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Qualitative: Written information analysis.	Communications management plan template Communication matrix Communication methods Communication Technology – presentations, feedback Reporting Meetings	Time allotted may not allow for proper stakeholder engagement.
To develop a risk management plan that will identify all potential risks and the appropriate responses to combat such risks.	Risk Management Plan Risk Register	Primary: Meetings Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Quantitative e: Analytical Methods	Risk Management plan template Risk Register Expert Judgement Meetings Data Analysis	All risks not identified which may impact the plan and the project negatively.
To develop a procurement management plan that meets the standards of the organization in procuring goods and services.	Procurement Management Plan	Primary: Meetings Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any	Mixed Research Method: Written information analysis and Analytical Methods.	Procurement management plan template Expert Judgement Data Gathering Data Analysis Meetings	Finding information on best practices on this type of project may pose issues.

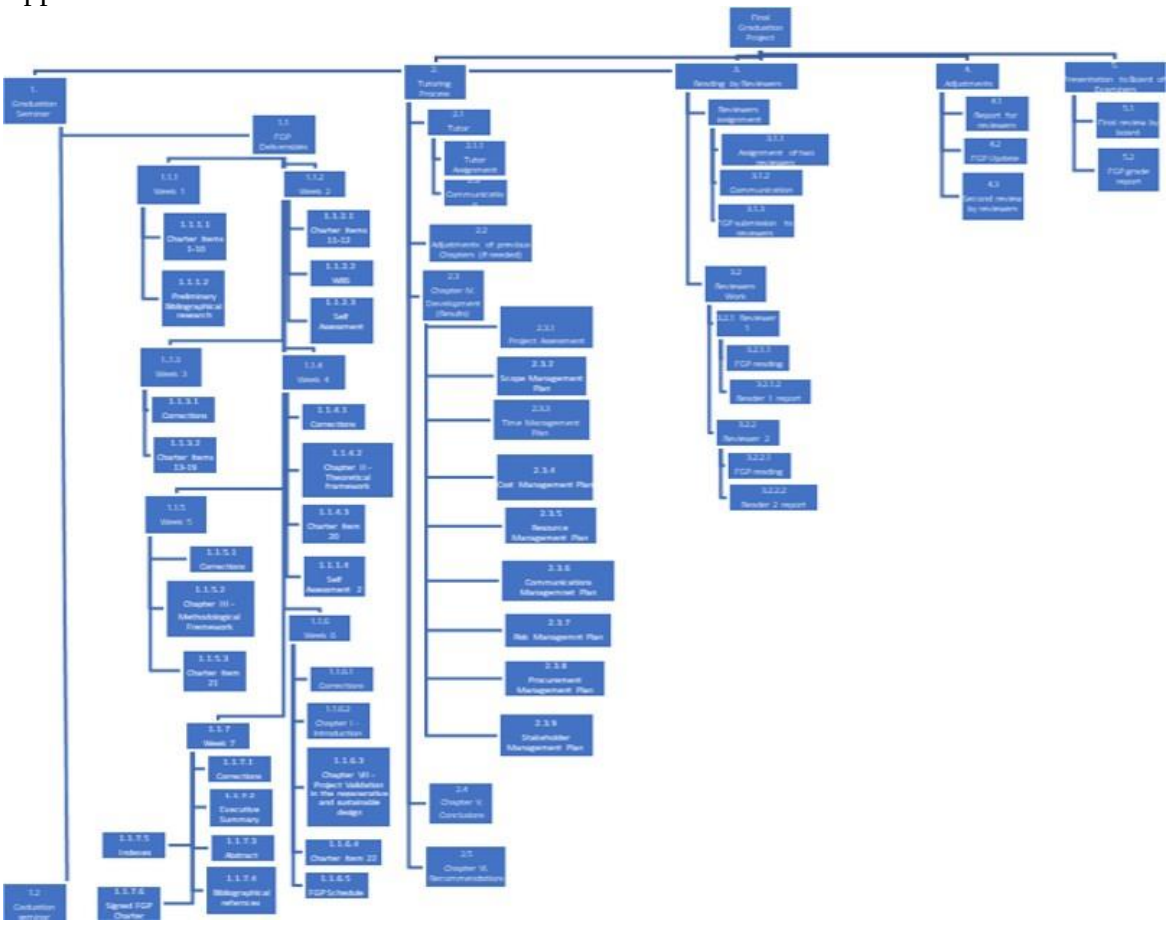
		relevant documentation.			
To develop a stakeholder management plan that identifies all stakeholders within the project and the method of communication and interaction.	Stakeholder Management Plan Stakeholder Register	Primary: Meetings Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Qualitative: Written information analysis.	Stakeholder management plan template Expert Judgement Communication Skills Team Skills Meetings	All stakeholders may not be available in the given time frame.
To validate the project from a regenerative/sustainability perspective to verify that regenerative/sustainable measures are identified and incorporated into the process	Sustainability Management Plan P5 Impact Analysis	Primary: Meeting Project Documents Secondary: PMBOK Guide 6th and 7th editions, the Internet, PMI website any relevant documentation.	Mixed Research Method: Written information analysis and Analytical Methods.	P5 Impact Assessment Sustainability Management Plan	Time allotted may not be enough. First time performing this type of validation.

26. Validation of the work in the field of the regenerative and sustainable development.

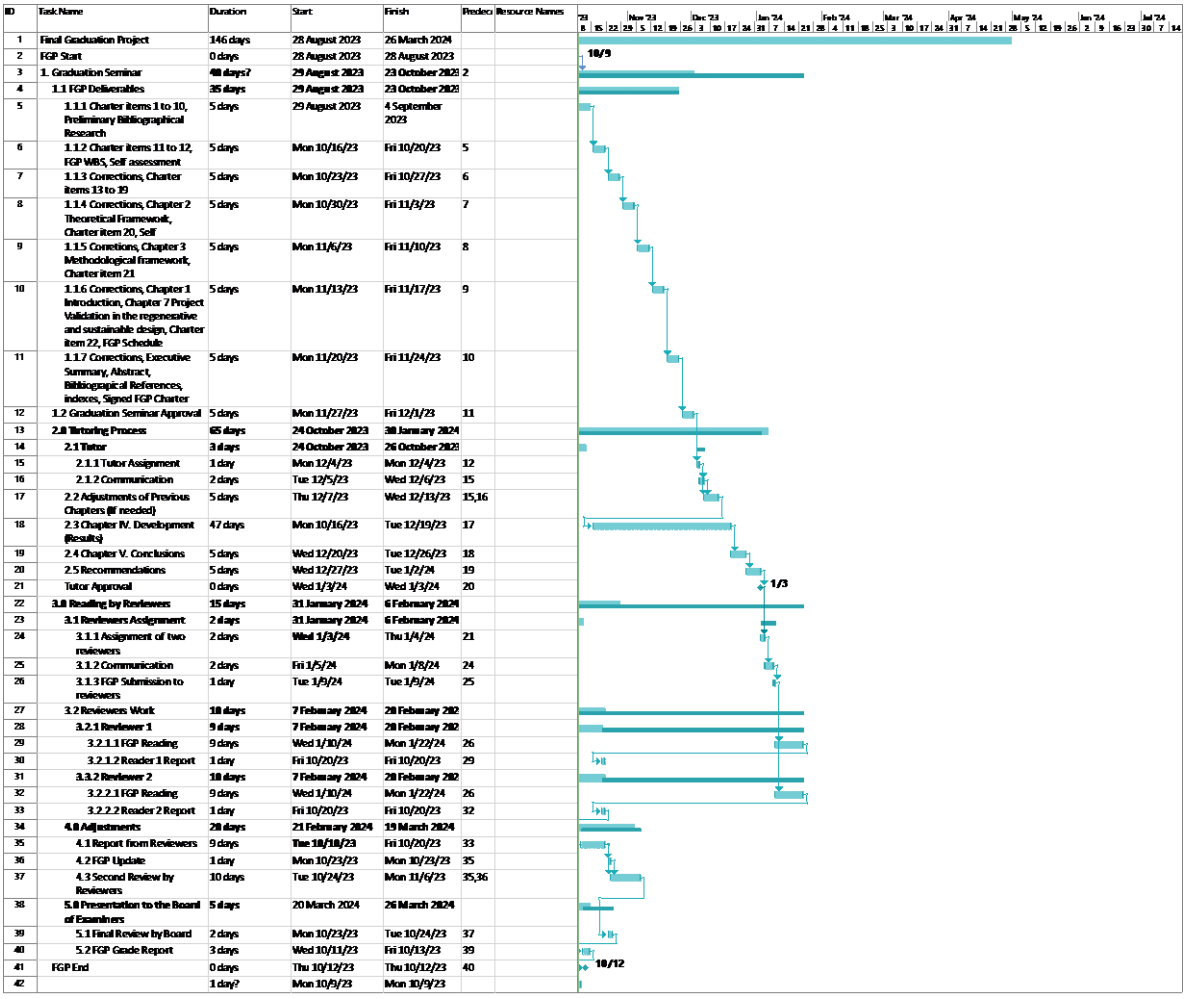
The Final Graduation Project entails the development of a project management plan for the execution of the Government of Barbados 5-Year 10,000 Housing Programme. Within the FGP, the project will be examined from a regenerative and sustainable development perspective which will guided by utilizing the P5 analysis. The P5 analysis will examine the impact of the project through environmental, economic and social lenses; this analysis will lead to the creation of the Sustainability Management Plan which can be utilized within the project.

It should be noted that within the programme there are already some regenerative and sustainable aspects. With the development of the Sustainability Management Plan, this will not only guarantee that guidance is given on the utilization of methods and practices that will encourage regenerative practices in procurement, but also in the construction of the houses and methods in the production of deliverables.

Appendix 2: FGP WBS



Appendix 3: FGP Schedule



ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	Final Graduation Project	146 days	28 August 2023	26 March 2024		
2	FGP Start	0 days	28 August 2023	28 August 2023		
3	1. Graduation Seminar	48 days?	29 August 2023	23 October 2023	2	
4	1.1 FGP Deliverables	35 days	29 August 2023	23 October 2023		
5	1.1.1 Charter items 1 to 10, Preliminary Bibliographical Research	5 days	29 August 2023	4 September 2023		
6	1.1.2 Charter items 11 to 12, FGP WBS, Self assessment	5 days	Mon 10/16/23	Fri 10/20/23	5	
7	1.1.3 Corrections, Charter items 13 to 19	5 days	Mon 10/23/23	Fri 10/27/23	6	
8	1.1.4 Corrections, Chapter 2 Theoretical Framework, Charter item 20, Self	5 days	Mon 10/30/23	Fri 11/3/23	7	
9	1.1.5 Corrections, Chapter 3 Methodological framework, Charter item 21	5 days	Mon 11/6/23	Fri 11/10/23	8	
10	1.1.6 Corrections, Chapter 1 Introduction, Chapter 7 Project Validation in the regenerative and sustainable design, Charter item 22, FGP Schedule	5 days	Mon 11/13/23	Fri 11/17/23	9	
11	1.1.7 Corrections, Executive Summary, Abstract, Bibliographical References, indexes, Signed FGP Charter	5 days	Mon 11/20/23	Fri 11/24/23	10	
12	1.2 Graduation Seminar Approval	5 days	Mon 11/27/23	Fri 12/1/23	11	
13	2.0 Tutoring Process	65 days	24 October 2023	30 January 2024		
14	2.1 Tutor	3 days	24 October 2023	26 October 2023		
15	2.1.1 Tutor Assignment	1 day	Mon 12/4/23	Mon 12/4/23	12	
16	2.1.2 Communication	2 days	Tue 12/5/23	Wed 12/6/23	15	
17	2.2 Adjustments of Previous Chapters (if needed)	5 days	Thu 12/7/23	Wed 12/13/23	15,16	
18	2.3 Chapter IV. Development (Results)	47 days	Mon 10/16/23	Tue 12/19/23	17	
19	2.4 Chapter V. Conclusions	5 days	Wed 12/20/23	Tue 12/26/23	18	
20	2.5 Recommendations	5 days	Wed 12/27/23	Tue 1/2/24	19	
21	Tutor Approval	0 days	Wed 1/3/24	Wed 1/3/24	20	
22	3.0 Reading by Reviewers	15 days	31 January 2024	6 February 2024		
23	3.1 Reviewers Assignment	2 days	31 January 2024	6 February 2024		
24	3.1.1 Assignment of two reviewers	2 days	Wed 1/3/24	Thu 1/4/24	21	
25	3.1.2 Communication	2 days	Fri 1/5/24	Mon 1/8/24	24	
26	3.1.3 FGP Submission to reviewers	1 day	Tue 1/9/24	Tue 1/9/24	25	
27	3.2 Reviewers Work	18 days	7 February 2024	28 February 202		
28	3.2.1 Reviewer 1	9 days	7 February 2024	28 February 202		
29	3.2.1.1 FGP Reading	9 days	Wed 1/10/24	Mon 1/22/24	26	
30	3.2.1.2 Reader 1 Report	1 day	Fri 10/20/23	Fri 10/20/23	29	
31	3.3.2 Reviewer 2	18 days	7 February 2024	28 February 202		
32	3.2.2.1 FGP Reading	9 days	Wed 1/10/24	Mon 1/22/24	26	
33	3.2.2.2 Reader 2 Report	1 day	Fri 10/20/23	Fri 10/20/23	32	
34	4.0 Adjustments	28 days	21 February 2024	19 March 2024		
35	4.1 Report from Reviewers	9 days	Tue 10/10/23	Fri 10/20/23	33	
36	4.2 FGP Update	1 day	Mon 10/23/23	Mon 10/23/23	35	
37	4.3 Second Review by Reviewers	10 days	Tue 10/24/23	Mon 11/6/23	35,36	
38	5.0 Presentation to the Board of Examiners	5 days	20 March 2024	26 March 2024		
39	5.1 Final Review by Board	2 days	Mon 10/23/23	Tue 10/24/23	37	
40	5.2 FGP Grade Report	3 days	Wed 10/11/23	Fri 10/13/23	39	
41	FGP End	0 days	Thu 10/12/23	Thu 10/12/23	40	
42		1 day?	Mon 10/9/23	Mon 10/9/23		

Appendix 4: Preliminary bibliographical research

Barbados Labour Party (2020). Barbados Labour Party Manifesto 2022 – Stay the Course

This document will provide guidance as to the emergence of the programme and its purpose.

Carboni et al. (2018). Sustainable Project Management : The GPM Reference Guide – Second Edition.

To provide guidance in using sustainable management practices.

Chhabra, Atin. (2022, June 27). An Introduction to Sustainability Management: Objective, Principles, Advantages. Blogs.se.com. https://blog.se.com/sustainability/2022/06/27/an-introduction-to-sustainability-management-objective-principles-advantages/

To provide information on sustainable development.

Flexiprep (2023, June 13). Overview of Information Services – Introduction and Definition of Information. Flexrprep.com. https://www.flexiprep.com/NIOS-Notes/Senior-Secondary/Library-Science/NIOS-Library-Science-Unit-5-Overview-of-Information-Sources-Part-1.html

To provide information of the types of information sources.

Gabel, M (2015). Regenerative Development: Going Beyond Sustainability. Retrieved from

https://www.kosmosjournal.org/article/regenerative-development-going-beyond-sustainability/#:~:text=Regenerative%20development%20is%20the%20use,development%20is%20to%20sustainable%20development

Government of Barbados. (2017). Barbados Physical Development Plan Amendment - Towards a Green, Prosperous and Resilient Nation.

This document provides detailed proposed development for the country of Barbados. It shows areas that are considered green, agricultural lands plus lands that can be developed to name a few.

Government of Barbados (2023). Ministry of Housing, Lands and Maintenance – Draft Commitment for Results 2023-2024

This document provides information on the mission and vision of the Ministry and the functions of the various sections and units within the Ministry.

Government of Barbados (2020). Throne Speech 2020.

This document will provide guidance on the direction that the government is taking with regards to the housing programme for the nation.

Government of Barbados. (2021). Roof to Reefs – National Resilience Plan.

This document focuses on building resilient housing that will positively impact the country's ecosystem in a positive way. The impact from the roof of the house to the reefs in the sea are examined.

Government of Barbados. (2022). 20,000 Housing Matrix – Detailed Breakdown of the Sites Identified.

This document provides detailed background information into the proposed sites for the housing developments, the number and types of solutions and the proposed types of arrangement for e.g. joint venture, private contractor etc.

Government of Barbados. (2022). 20,000 Housing Matrix Synopsis.

This document provides a synopsis of the project with background information, the aim of the project and the proposed yearly breakdown.

GPM Global (2019), The GPM P5 Standard for Sustainability in Project Management, Version 2.0. GPM Global.

To assist in assessing the sustainability standards of the project.

GPM Global (2023), The GPM P5 Standard for Sustainability in Project Management, Version 3.0. GPM Global.

To assist in assessing the sustainability standards of the project.

Hassan, Muhammad. (2023, September 8). Methodological Framework – Types, Examples and Guide. Research Method.com. https://researchmethod.net/methodological-framework/#:~:text=Definition%3A,analyzing%20data%2C%20and%20drawing%20conclusions.

To provide guidance as to what a Methodological framework is.

Kloppenborg et al. (2002). Contemporary Project Management: Plan-Driven and Agile Approaches. United States: Cengage Learning.

To assist in providing a guidance in the project management process with the use of expert examples, successful practices and up to date research.

Libraries (2023, March 20). Primary, Secondary, and Tertiary Sources of Information in Sciences: Types of Information Sources. Libraryguides.uwsp.edu. https://libraryguides.uwsp.edu/InformationSourcesInTheSciences

To assist in providing guidance as to what sources of information are.

Usmani, Fahad (2022, September 16). Assumptions and Constraints in Project Management. PM Study Circle. https://pmstudycircle.com/assumptions-and-constraints-in-project-management/

This document provided guidance about assumptions and constraints.

Project Management Institute (2021). 12 Principles of Project Management. PMI.org.

chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.pmi.org/-/media/pmi/documents/public/pdf/pmbok-standards/12-project-management-principles.pdf?rev=03749f118ff84aca97a64af1d49bb1ac

This document provides guidance regarding the principles of project management.

Project Management Institute. (2021). A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) - Seventh Edition, Project Management Institute, Inc., 2021.

This document will provide guidance into the project management process.

Project Management Institute. (2017). A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) - Sixth Edition, Project Management Institute, Inc., 2017.

This document will provide guidance into the project management process.

Project Management Institute. (n.d.) Project Performance Domains. PMI.org. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.pmi.org/-/media/pmi/documents/public/pdf/pmbok-standards/pmbok-project-performance-domains.pdf?v=ffd77553-1316-424f-83d1-83c95469ce2c

This document will provide guidance into the project performance domains.

Skusa, Muriel. (2023, April 3). How to improve the project life cycle – your ultimate guide to success. Filestage.io. https://filestage.io/blog/project-life-cycle/ To provide

information on the project life cycle.

The Sustainable Development Agenda. (n.d.). Retrieved from https://www.un.org/sustainabledevelopment/development-agenda-retired/#:~:text=%E2%97%8F,future%20for%20people%20and%20planet.

To provide information on sustainable development and the various Sustainable Development Goals.

The University of Newcastle Library Guides (2023, March 14). Research Methods: What are research methods? Libguides.newcastle.edu.au https://libguides.newcastle.edu.au/researchmethods#:~:text=Research%20methods%20are%20the%20strategies,better%20understanding%20of%20a%20topic.

Appendix 5: Other relevant information

February 28, 2024

Academic Advisor
Masters Degree in Project Management (MPM)
Universidad para la Cooperacion Internacional (UCI)

Dear Academic Advisor,

Re: Thorough Review and Proofreading of Final Graduation Project submitted by Nicole Angelia Natalie Griffith in partial fulfillment of the requirements for the Masters in Project Management (MPM) Degree

I hereby confirm that Nicole Angelia Natalie Griffith has made all the corrections to the Final Graduation Project document as I have advised. In my opinion, the document now meets the literacy and linguistic standards expected of a student for a degree at the Masters level.

Larry A. Craig, B.A. (Hons)
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CREATING VALUE FOR IDEAS