UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI).

PROJECT MANAGEMENT PLAN FOR THE CONSTRUCTION OF THE LA CLERY SMART WELLNESS CENTRE IN SAINT LUCIA

LEN HARRY LEONCE

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REVIEWER No.1

_____

Full name must be written
REVIEWER No.2

Len Harry Leonce
STUDENT

DEDICATION

This Final Graduation Project is dedicated to my immediate family and friends and my completion stands as a testament to the unwavering support and encouragement showered upon me throughout this challenging and lengthy academic journey. Their belief in my abilities, endless words of encouragement, comforting presence during difficult moments of doubt have been the driving force behind me finally completing this project.

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ABSTRACT

The objective of this document is to outline and develop a Project Management Plan, for the construction of the La Clery SMART Wellness Centre Project, in alignment with the guidelines set out by the Project Management Institute which will guide the management of construction. Residents of the immediate geographical area have expressed their dissatisfaction with the low quality of health care services provided to them at the current facility. In line with the responsibility of providing adequate healthcare to the general population, the Ministry of Health has realized that there is an urgent need to allocate resources towards the construction of the La Clery SMART Wellness Centre to replace the existing one which has not been able to function effectively. The Ministry has managed the construction of health facilities in the past; however, they have unfortunately not been successful ventures. These projects have resulted in going beyond the allocated budget, going months past the scheduled date of completion and resulting in a project not in line with the initial scope. In this regard, to successfully construct this new centre, it was decided that a complete and detailed Project Management Plan be developed.

The final product of this FGP, will include subsidiary management plans within the Project Management Plan related to the management of the scope, the schedule, costs, quality, communication, resources, risks, procurement, and stakeholders. Lastly, the validation of the FGP in the field of regenerative and sustainable development is included which will assess the impact of this project on regenerative and sustainable development within the environment.

The development of this Project Management Plan was based on the use of qualitative research method of data collection and the guide provided by the Project Management Institute.

INDEX OF CONTENTS

INDEX OF FIGURES

INDEX OF TABLES

ABBREVIATIONS AND ACRONYMS

GPM	Green Project Management
HVAC	Heating, Ventilation and Air Conditioning
PAHO	Pan American Health Organization
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
ROI	Returns on Investment
SLCWC	Smart La Clery Wellness Centre
USD	United States Dollars
WBS	Work Breakdown Structure

EXECUTIVE SUMMARY

The Ministry of Health in Saint Lucia is responsible for providing health services to the general population, managing the healthcare industry, and the building and maintaining of the health infrastructure. It is directly responsible for direct public health service delivery or provision and the promotion, preventive, curative and rehabilitative care, policy formulation, monitoring and evaluation, resource mobilization and regulation of the health service delivery in the country.

The Ministry has been under tremendous pressure to fulfill its mandate by putting the necessary measures in place to be able to provide adequate health care services to the population. In recent times, citizens through various mediums expressed their dissatisfaction with the available health care resources particularly in the densely populated capital of Castries. In line with the responsibility of providing adequate healthcare to the general population, the Ministry through research and analysis identified the La Clery community in the capital to construct the La Clery SMART Wellness Centre to replace the existing one which has not been able to function effectively.

Health infrastructure is one of the essential building blocks of Saint Lucia's health systems approach framework. It is vital that in any health system, health facilities are safe and adequate to support quality service delivery, fit for purpose and strong enough to withstand intensity of natural disasters. The La Clery Wellness Centre did not meet any of these benchmarks and was categorized as a greatly under-utilized facility in a deplorable condition not suitable for individuals seeking the best health service outcomes.

Past initiatives of this scope and magnitude which have been managed by the Ministry of Health have not been successful for various reasons. Primarily, these projects have been unsuccessful due to poor management and lack of proper planning and implementation of plans during different stages of the project. Consequently, these projects resulted in costing more than what was allocated in their budgets, going past the schedule outlined, poor quality of work and stakeholders not being satisfied with the final product. To successfully construct this new centre, it was decided that a complete and detailed Project Management Plan be developed.

The general objective of this was to outline and develop a Project Management Plan for the construction of the La Clery SMART Wellness Centre Project, in alignment with the guidelines set out by the Project Management Institute which will guide the management of construction. The specific objectives were to create a project charter to officially authorize the project and designate the project manager with the responsibility of applying project management principles which will result in the Project Management Plan ; to create a Scope Management Plan which will outline the requirements and expectations of the project, to create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines, to create a Cost

Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget; to create a quality management plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders; to create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates; to develop a Resource Management Plan to effectively assign resources providing proper management of these said resources; to create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks, to develop a procurement plan which will be used to manage the procurement of all services and products needed to successfully complete the project; to create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.

The development of this Project Management Plan was based on the use of qualitative research method of data collection using on forms of primary and secondary information sources; with the main sources being the text "A Guide to the Project Management Body of Knowledge, Sixth and Seventh Editions" and interviews, which formed the basis of gathering information needed to achieve the general and specific objectives needed for the Project Management Plan for the construction of the SMART La Clery Wellness Centre.

The final result of this project is the development of a thorough project charter which will not only serve as authorization for the project but also sere as a reference for stakeholder throughout. The project will also result in a Scope Management Plan, Schedule Management Plan, Cost Management Plan, Quality Management Plan, Resource Management Plan, Communication Management Plan, Risk Management Plan, Procurement Management Plan and a Stakeholder Management Plan being developed detailing the project's alignment with the various project management principles with the use of project tools and techniques. The SMART La Clery Wellness Centre which will serve as the final deliverable of this project will include a resilient and sustainable 4000 square foot structure, costing approximately 3.3 million EC Dollars and will take approximately 240 days to be completed. It is expected that the project manager will become well versed in the aforementioned plans using the principles and content within as a guide so the project can be successful.

1 INTRODUCTION

1.1 Background

The Ministry of Health and Wellness in Saint Lucia is responsible for overseeing the health of the population of the country which currently stands at approximately 170,000 citizens, by providing finances, issuing regulations, developing and enforcing public health policies while providing the necessary infrastructure. Saint Lucia's health system offers primary, secondary, and some level of tertiary care. Primary health care is delivered through a network of 33 health centers, two district hospitals, and one polyclinic. In addition, there are two acute care general hospitals, Victoria Hospital in the north and St. Jude Hospital in the south, and one private hospital that mainly provides secondary care.

The Ministry has been utilizing a health systems approach to addressing healthcare issues in the country which seeks to address weaknesses in the healthcare system, by ensuring that the health system can respond more effectively and efficiently to the needs of the population. Strengthening the health system will provide the Ministry of Health with the tools to assess, design, monitor and sustain an effective and efficient sectorial response to the health needs and health challenges of the population. It has been outlined by the ministry that to meet the health needs and challenges of the population, the most important factor is the need for readily available health services to the public. In light of the above, and after much research, the Ministry of Health has decided to construct a new SMART Wellness Centre in the community of La Clery, Castries. The population over the last few years has grown exponentially and recently, housing developments, schools, churches, businesses have been built also compounded by the migration of citizens for the south of

the island. As a result, there exists a high demand for readily available quality health care. Currently there is a Wellness Centre in the La Clery community however it is not able to perform at optimal capacity as a result of the limited space, outdated infrastructure and the fact that it was first built as a residential building retrofitted to accommodate a health facility. Based on these factors research has shown that individuals in the vicinity would travel to the main hospital or a facility in another district to receive care.

The Pan American Health Organization is the specialized international health agency for the Americas. It works with countries throughout the region, formulating ways to improve and protect people's health. They form technical cooperations with their member countries to fight communicable and noncommunicable diseases and their causes, to strengthen health systems, and to respond to emergencies and disasters.

PAHO is committed to ensuring that all people have access to the health care they need, when they need it, with quality and without fear of falling into poverty. Through its work, PAHO promotes and supports the right of everyone to good health. To advance these goals, PAHO promotes technical cooperation between countries and works in partnership with ministries of health and other government agencies, civil society organizations, other international agencies, universities, social security agencies, community groups, and other partners. PAHO promotes the inclusion of health in all public policies and the engagement of all sectors in efforts to ensure that people live longer, healthier lives, with good health as their most valuable resource. Under the leadership of its 52 member countries and territories, PAHO sets regional health priorities and mobilizes action to address health problems that respect no borders and that, in many cases, jeopardize the sustainability of

> health systems. Saint Lucia has signed on with the Pan American Health Organization (PAHO) in the implementation of the SMART Hospital initiative which focuses on improving hospitals' resilience, strengthening structural and operational aspects and providing green technologies. Energy improvements include solar panels installations, electric storage batteries, and low-consumption electrical systems, which, in addition to reducing energy consumption, reduce health sector carbon footprint in the environment and provide the hospital with energy autonomy, allowing it to continue running during emergencies and disasters. (PAHO, 2017)

PAHO and the Ministry of Health and Wellness in Saint Lucia have collaborated on numerous projects which have proven to enhance the health sector in the country. The construction of the La Clery SMART Wellness Centre in the capital, will form a continuation of this long-standing partnership. The creation of this Project Management Plan will aim to form a guideline for this project increasing the efficiency of construction leading to a successful project.

1.2 Statement of the problem

Although the Ministry of Health has a Corporate Planning Unit within its management structure, the practice of project management ideologies has largely been ignored during the execution of projects. As a result, there are no guiding principles in relation to the various projects which the unit is tasked with spearheading. This lack of formal project management structure has resulted in several inefficiencies in the management of projects at the ministry. This has unfortunately resulted in the projects going beyond budget and time, while not staying within the initial scope outlined. In light of the stakeholders involved in the

construction of the center, and to allow for construction to fall within the scope, time, cost and quality requirements outlined, it is rather important that this Project Management Plan be created to coordinate the tools, techniques and planning activities which will guide management during construction.

1.3 Purpose

The purpose of this Project Management Plan is to ensure that this wellness Centre is built while being guided by the project management knowledge areas and processes according to standards set by the Project Management Institute (PMI). This Project Management Plan will serve as a guide for the implementation of the important project decisions in relation to communication, management processes, execution and overall project control. This Project Management Plan will serve to define the responsibilities, procedures and processes which will result in the construction of the wellness center being completed on time, within budget, within the quality requirements and to the satisfaction of all stakeholders. The Project Management Plan will address the major phases and life cycle of the project and will ensure that the project is managed holistically to allow for adequate planning. It will also serve as a baseline to determine the success of the project.

1.4 General objective

To outline and develop a Project Management Plan, for the construction of the La Clery SMART Wellness Centre Project, in alignment with the guidelines set out by the Project Management Institute which will guide the management of construction.

1.5 Specific objectives

1. To create a project charter to officially authorize the project and designate the project manager with the responsibility of applying project management principles which will result in the Project Management Plan.
2. To create a Scope Management Plan which will outline the requirements and expectations of the project.
3. To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.
4. To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.
5. To create a Quality Management Plan which will ensure that the project meets all necessary quality requirements thus satisfying the requirements of all stakeholders.
6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.
7. To develop a Resource Management Plan to effectively assign resources providing proper management of these resources.

8. To develop a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks.
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project.
10. To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

The Ministry of Health in Saint Lucia is responsible for providing public health services, managing the healthcare industry, and the building and maintaining of the health infrastructure. It is directly responsible for direct public health service delivery or provision and the promotion, preventive, curative and rehabilitative care, policy formulation, monitoring and evaluation, resource mobilization and regulation of the health service delivery in the country. In line with the responsibility of providing adequate healthcare to the general population, the ministry has identified that due to public demand and lack of health facilities in the capital, it is necessary that a new wellness center be built. The La Clery community on the outskirts of the city center has been identified as the location of the new SMART wellness center. The ministry has in the past spearheaded projects on this scale; however, it is hoped that with this Project Management Plan as a guide it will be built within cost, time, schedule and quality requirements unlike others it has led.

2.1.2 Mission and Vision Statements

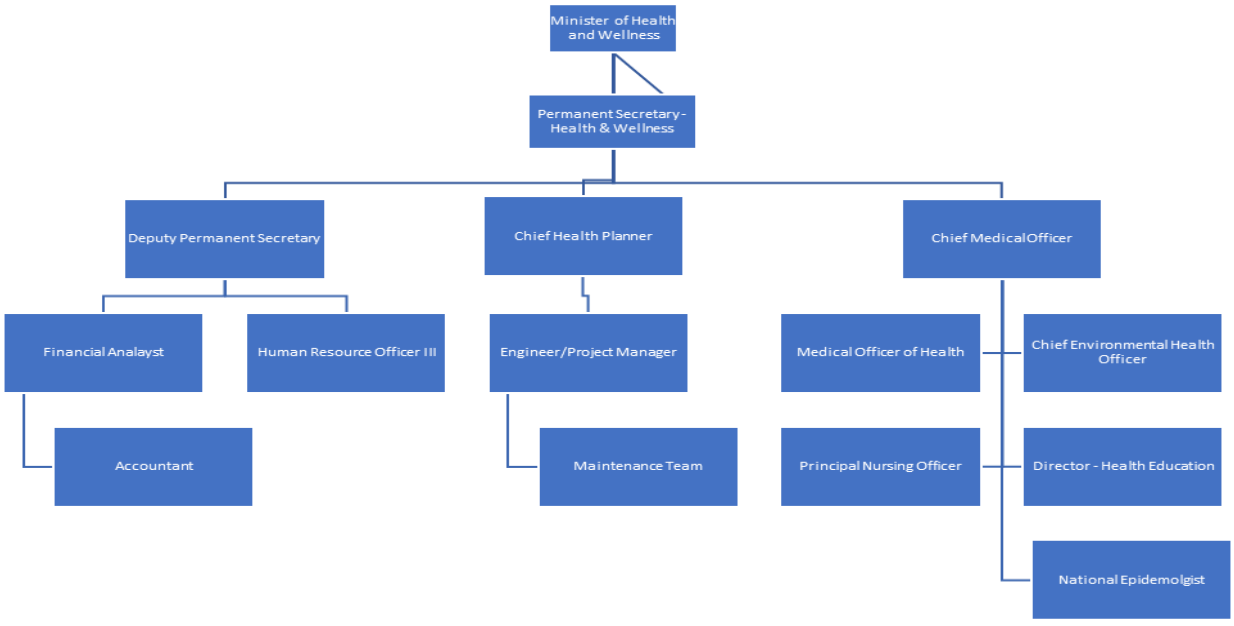
The ministry's mission statement is, "To provide quality care to individuals, families and communities regardless of race, religion, socio economic status or political affiliation. To provide leadership and direction in the creation of an environment in which empowered institutions can be created, guided and nurtured for the provision of holistic health and services to the entire population." This vision can directly correlates to this planned project.

It is being built to improve the quality of health care for the public, creating an environment where citizens can receive an acceptable level of healthcare.

The vision of the Ministry of Health is to have the healthiest population possible through the provision of needed health facilities, health education and awareness which will serve as preventative measures. They envisage a health system that is client-centered and aims to guarantee access to quality health care for every person in the population at affordable costs. It is one which seeks to provide information and to educate the populace, to facilitate individuals taking responsibility for their own health, making informed decisions and adopting healthy lifestyle habits.

2.1.3 Organizational structure

Figure 1: *Organizational Structure*



Note. Organizational Structure of the Ministry of Health, Wellness & Elderly Affairs, Len Leonce 2023.

The organizational structure at the Ministry of Health and Wellness is consistent with what exists at other ministries within the public service. Each unit is headed by a Head of Department who is charged with executing the mandate of the unit and reporting to a senior head which includes the Chief Medical Officer, Chief Health Planner and the Deputy Permanent Secretary. The ministry is headed by the Minister of Health and Wellness who is charged with outlining the policy of the ministry while the Permanent Secretary is charged with leading the team of Heads of Departments in executing the given policy. Within this structure, the Chief Health Planner supervises the Engineer and Project Manager in overseeing the management of all the Ministry's projects including this one. Any services and products needed during the project management process are overseen by these two officers while the Financial Analyst handles the procurement process.

2.1.4 Products Offered

The Ministry of Health and Wellness serves as the designated public service department whose role is to ensure that the general population has access to adequate and affordable health care services. As a result, it has implemented measures to provide free and highly discounted health services to the public. These include primary and secondary health care, family planning services, dental services, health education, pharmaceutical services and environmental health services. In order to provide the aforementioned, the Ministry is

charged with the responsibility of formulating the necessary policy and building the necessary infrastructure.

2.2 Project Management Concepts

2.2.1 Project Management Principles

The Project Management Body of Knowledge Seventh Edition (PMI, 2021) outlines twelve Project Management Principles to guide the study and practice of project management by professionals. Principles for a profession serve as foundational guidelines for strategy, decision making, and problem solving. Professional standards and methodologies are often based on principles. The principles of project management are not prescriptive in nature. They are intended to guide the behavior of people involved in projects (PMI, 2021, pp. 21-24).These principles should be used as a guide during the course of a project and should be applied by the project managers based on a number of determining factors such as the type of organization and its culture, the type of project, stakeholders involved and the individuals who make up the project team. These principles include stewardship, team, stakeholders, value, systems thinking, leadership, tailoring, quality, complexity, risk, adaptability and resiliency, and change. The aforementioned are illustrated in the figure below.

Figure 2

Project Management Principles

Note: From "The PMBOK Guide® – Seventh Edition Summary," by Giovanny Guillen, 2021. Copyright 2021 by author. Permission not sought.

At the Ministry of Health, most of the elements of these principles are already preached and encouraged among staff. By outlining them during the course of this project, it is expected that the likelihood of the project being a success to be greater. It is expected that all officers who form part of the project team show a high level of stewardship towards the task at hand, showing care and attention to details and guidelines. It is also expected that team members take pride in being part of the project team, noting that together they can achieve more with a higher level of efficiency than one individual. The construction of this wellness center will

also take into great account the needs of all stakeholders while staying true to the values and mission of the Ministry.

Leadership will also be a critical factor as it is expected that the project manager within the Ministry is able to motivate and lead in a style which will ensure that the project is a success. As a result of the complex nature of this project, the project team at the Ministry will need to possess the ability to adapt and be resilient while enabling change to achieve project goals. During construction, the team will also have to ensure that it follows existing standards and codes ensuring that the facility which is built is of the highest quality.

2.2.2 Project Management Domains

(PMI, 2021) describes a project performance domain as a group of related activities that are critical for the effective delivery of project outcomes. They are interactive, interrelated, and interdependent areas of focus that work in unison to achieve desired project outcomes (PMI, 2021).These project domains include: Team, Planning, Delivery, Stakeholders, Development Approach and Life Cycle, Uncertainty, Measurement and Project Work and are illustrated in the figure below.

Figure 3 :

Project Management Domains

Note: From "A Guide to the Project Management Body of Knowledge, Seventh Edition" by PMI, 2021. Copyright 2021 by Project Management Institute. Permission not sought.

It is expected that the Project Team at the Ministry of Health will perform an analysis of these domains and whether they have been considered during previous projects. Based on this assessment, the gaps in relation to the practice of these domains will now be taken into consideration during the FGP and the production of the various management plans, thus leading to a successful project.

2.2.3 Predictive, Adaptative and Hybrid Projects

A Development Approach is the format used to produce and develop the product, service, or result during the project life cycle. Three commonly used approaches during the project life cycle are: Predictive, Hybrid, and Adaptive which are often viewed as a spectrum, from

the Predictive Approach on one end of the spectrum, to the Adaptive on the other end with the Hybrid fitting in the middle of the spectrum. (PMI, 2021)

A Predictive Approach is best used when the project and requirements can be well-defined, collected, and evaluated at the start of the project. The scope, schedule, cost, resource needs, and risks can be well defined in the early phases of the project life cycle. This approach allows the Project Team to reduce the level of uncertainty early in the project and do most of the planning at the initial stage of the project (PMI, 2021). Adaptive Approaches are best utilized when project requirements are subject to a high level of uncertainty and ambiguity and likely to change throughout the project. A project goal is outlined at the start of the project, and the initial known requirements are usually changed based on stakeholder engagement and feedback or an unexpected event (PMI, 2021) A Hybrid Development Approach is a combination of Adaptive and Predictive Approaches where elements from both concepts are used. This development approach is useful when there is uncertainty or risk around the requirements (PMI, 2021). During the course of this project, the Project Team envisions that proper initial planning will be done. This will include revising and utilizing the health facility building code regulation, and extensive stakeholder engagement will take place before the construction of the facility. This process will therefore require the Predictive Approach. There is also little flexibility as the project will be performed on a tight schedule and limited budget so it is expected that there is little deviation from initial plans.

2.2.4 Project Management

“Project management is the application of knowledge, skills, tools and techniques to project activities to meet the project requirements. Project management is accomplished through

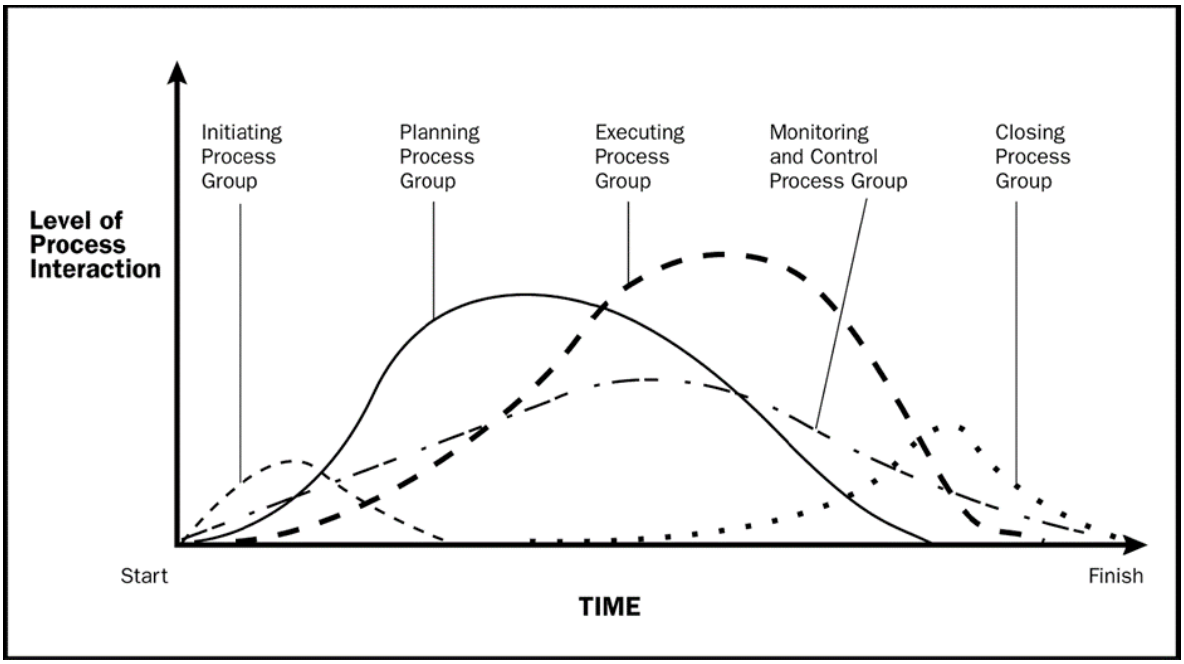
the appropriate application and integration of the project management processes identified for the project and enables organization to execute projects effectively and efficiently" (PMI, 2017, p. 10). Due to the lack of proper use of project management tools and techniques being put into practice at the ministry, it is envisaged that the production of this Project Management Plan will guide the construction of the wellness center through the integration of the various processes. Proper implementation of this Project Management Plan will aim to avoid the issues the ministry has faced in the past when it comes to executing projects such as missed deadlines, cost overruns, poor quality, rework and unsatisfied stakeholders.

2.2.5 Project Management Knowledge Areas and Processes

"Project management processes can be organized into logical groupings of project management inputs, tools and techniques, and outputs that are tailored to meet the needs of the organization, stakeholders, and the project. The Process Groups interact within each phase of a project life cycle. It is possible that all these processes could occur within a single phase. Processes may be iterated within a phase or life cycle" (PMI, 2021, p. 170). The five process groups areas are: initiating, planning, executing, monitoring & controlling and closing (PMI, 2021).

Figure 4 :

Interaction of Project Management Process Groups



Note: From "A Guide to the Project Management Body of Knowledge - Sixth Edition" by PMI, 2017. Copyright 2017 by Project Management Institute. Permission not sought.

Project Initiating: This phase includes the initial work necessary to create and authorize the project through the project charter. The project charter's purpose is to incorporate the project and authorize the Project Manager. It is developed by the performing organization and contains whatever information is necessary to perform this function but can also include information such as the scope statement, budget allocation and project stakeholders.

Project Planning Phase: During this phase a Project Management Plan is developed comprehensively of individual plans for – cost, scope, duration, quality, communication,

risk and resources. Some of the important activities that mark this phase are -making the WBS, development of schedule, milestone charts, GANTT charts, estimating and reserving resources, planning dates and modes of communication with stakeholders based on milestones, deadlines and important deliveries. A plan for managing identified and unidentified risks is determined as this may affect aspects of a project later.

Project Execution: In this phase the bulk of the project work takes place. The Project Manager directs and manages project work, and the Project Team carries it out. The project deliverables are produced and delivered to the project sponsor or end user. The two key project management documents during this phase are the project status updates and stakeholder communication.

Monitoring and Controlling: This phase will occur concurrently and parallel to the project execution phase. The Project Manager must perform enough monitoring and control to ensure that the project's deliverables are produced on time, on budget, and to the required level of quality. If the monitoring of the project results in changes to the Project Management Plan, the change control procedures outlined within the plan are implemented.

Project Closure Phase: During this phase the project is formally closed. It includes a series of important tasks such as delivering the product, relieving resources, reward and recognition to the team members and formal termination of contractors in case they were employed on the project.

The Project Management Plan for the construction of the SMART La Clery Wellness Centre will serve as a guideline to the Project Manager during construction in relation to the management of the process groups. It will aim to adequately illustrate the different processes and how they are to be managed for the project to be a success. To develop the Project Management Plan for the construction of the Wellness Center, there will be concentration on the processes of initiating and planning. The Ministry of Health during previous projects has not followed the formal structure listed above, consequently it is hoped that this Project Management Plan will bring a new dimension to how the ministry executes this and future projects.

A knowledge area is identified as, “an identified area of project management defined by its knowledge requirement and described in terms of its component processes, inputs, outputs, tools and techniques” (PMI, 2017, p. 23) . They are listed below:

1. Project Integration Management which includes the processes and activities to identify, define, combining, unify and coordinate the various processes and project management activities within the various process groups (PMI, 2017).

2. Project Scope Management which included the process required to ensure the project includes all the work required to complete the project successfully (PMI, 2017).

3. Project Schedule Management which includes the processes required to manage the timely completion of all tasks within the project (PMI, 2017).

4. Project Cost Management Which includes the processes involved in planning, estimating, budgeting, financing, funding, managing and controlling costs so the project can be completed within the approved budget (PMI, 2017).

5. Project Quality Management which includes the processes for incorporating the organization's quality policy regarding planning, managing, and controlling project and product quality requirements in order to meet stakeholders' expectations (PMI, 2017).

6. Project Resource Management which includes the processes to identify, acquire and manage the resources needed for the successful completion of the project (PMI, 2017).

7. Project Communication Management which includes the processes required to ensure timely and appropriate planning, collection, creation, storage, distribution of project information (PMI, 2017).

8. Project Risk Management includes the processes of conducting risk management planning, identification, analysis, risk response and monitoring of risk on the project (PMI, 2017).

9. Project Procurement Management includes the processes necessary to purchase or acquire products or services from outside the project team (PMI, 2017)

10. Project Stakeholder Management includes the processes required to identify the people, groups or organizations that could impact or be impacted by the project, to analyze their expectations and their impact on the project to develop strategies for effectively engaging them (PMI, 2017).

The Ministry of Health in the past has not adhered to or implemented a structure to follow and monitor all ten knowledge areas along with all the process groups as instructed by PMI standards. The Project Management Plan will aim to bring this new structure in place to allow for the objectives listed in the project charter to be achieved directly leading to the construction of the Wellness Center within outlined requirements.

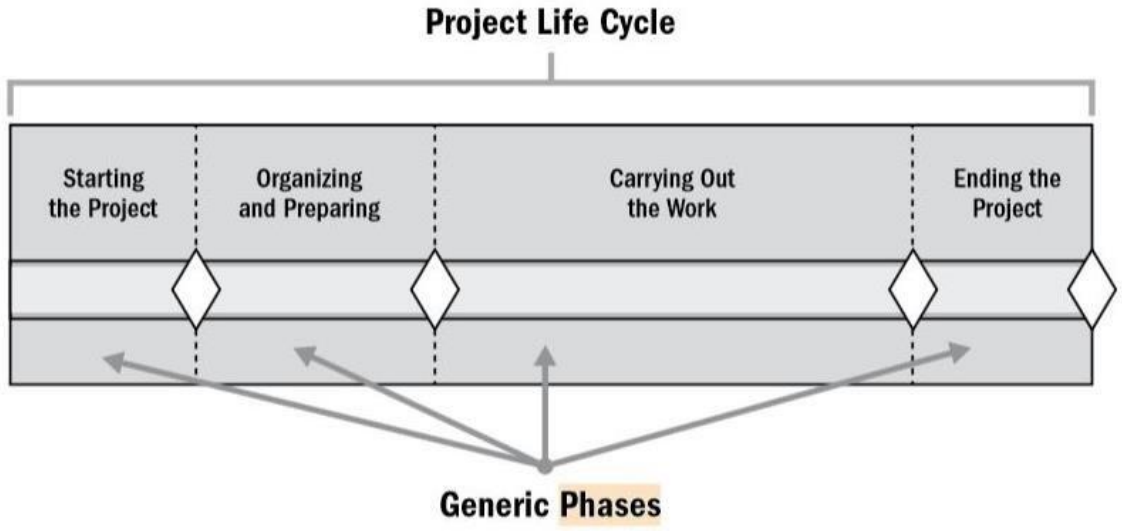
2.2.6 Project Life Cycle

A project's life cycle can be defined as the phases of a project from inception to the completion or end of the project. The type and number of project phases in a project life cycle depend upon many variables and factors, for example the Development Approach of

the project (PMI, 2021) The following figure illustrates a project's life cycle with generic phases.

Figure 5

Project Life Cycle



Note: From "A Guide to the Project Management Body of Knowledge - Sixth Edition" by PMI, 2017. Copyright 2017 by Project Management Institute. Permission not sought.

2.2.7 Company strategy, portfolios, programs and projects

Project can be described as "a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a beginning and an end to the project work or a phase of the project work. Projects can stand alone or be part of a program or portfolio" (PMI, 2021, p. 4) . A Portfolio is defined as, "projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives" (PMI, 2021, p. 4).Programs can be described as, "related projects, subsidiary programs, and

program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually" (PMI, 2021, p. 4).One of the many strategic goals of the Ministry of Health is to provide proper maintenance and enhancement of its infrastructure which forms part of its mandate and portfolio. The construction of this SMART La Clery Wellness Centre is therefore seen as a vital project within the many programs led by the Ministry.

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

Health infrastructure is one of the essential building blocks of any country's health systems approach framework. It is important that health facilities are safe to support service delivery, fit for purpose and resilient to withstand intensity of disasters due to climate change. Health facilities should be resilient enough to continue providing services during and immediately following a disaster.

Ensuring the resilience of Health Infrastructure against natural disasters or acute events is of paramount importance to ensure continued and safe provision of essential health services. Currently, the existing La Clery Wellness Centre does not meet any of these benchmarks. It is greatly under-utilized as the facility is in a deplorable condition not suitable for public use and for individuals seeking medical services. With the growing population in the Castries North region where the facility is currently located, there is an increased demand for health services.

Saint Lucia has signed on with the Pan American Health Organization (PAHO) in the implementation of the SMART Hospital. The Smart Hospital initiative focuses on improving hospitals' resilience, strengthening structural and operational aspects and providing green technologies. Energy improvements include solar panels installations, electric storage batteries, and low-consumption electrical systems, which, in addition to reducing energy consumption, reduce health sector carbon footprint in the environment and provide the hospital with energy autonomy, allowing it to continue running during emergencies and disasters (PAHO, n.d.) It is also very important that the SMART concept be integrated into construction of the new facility to become more resilient to disasters as according to data provided, US$ 5,642,257 was spent on 7 health care facilities in Saint Lucia to recover from Hurricane Tomas in 2010. (PAHO, 2017).

The SMART Hospital concept also uses a variety of instruments, including the Hospital Safety Index, to help ensure that new or existing health facilities are disaster-resilient; a Baseline Assessment Tool is used to collect reliable information on the building's performance and operations and how it measures up against current code, regulatory requirements and zoning regulations and a Green Checklist (**Appendix 6**) that outlines feasible areas in which to introduce more environmentally sustainable measures. Therefore, for a facility to be ranked SMART, it must obtain a standard of A70, i.e., an ‘A’ score for safety and 70% or higher for greenness (PAHO, 2017).Upon completion of this facility, it is expected that residents will benefit from a spacious, appropriate, safe and sustainable facility.

2.3.2 Previous research done for the topic in study.

The Pan American Health Organization has conducted research in the past on the SMART concepts, firstly spearheading such projects throughout the Americas leading to many safe, green and disaster/climate change resilient health facilities. These countries include Grenada, Jamaica, Belize, St. Lucia, St. Vincent and the Grenadines, Jamaica and Guyana. However, unlike this project where there will be full construction of the SMART La Clery Wellness Centre, PAHO's work has been limited to evaluating, designing, performing SMART interventions and retrofitting to include the concept. During this FGP these concepts will be included particularly in the production of the Project Management Plan, particularly within the Scope Management Plan, Procurement Management Plan and Stakeholder Management Plan.

2.3.3 Other theory related to the topic in study

Construction Project Management could be defined as the direction, regulation, and supervision of a project from early development to completion (LetsBuild, 2023). The ultimate goal of Construction Project Management is the full satisfaction of the client's demands for a viable project both in terms of functionality and budget. There is a wide range of construction project types, such as commercial, residential, industrial and heavy civil.(LetsBuild, 2023)

During the construction of the SMART La Clery Wellness Centre, many concepts of Construction Project Management will be integrated as it closely aligns with the topic at hand. The Project Manager of this project will have to mirror the role of a Construction Project Manager as the responsibilities are quite similar.

3 METHODOLOGICAL FRAMEWORK

3.1 Information Sources

An information source is a person, thing, or place from which information comes, arises, or is obtained. Information sources can be known as either primary or secondary sources. (Thanuskodi, 2020)

3.1.1 Primary sources

Primary sources provide a first-hand account of an event or time period and are considered to be authoritative. They represent original thinking, reports on discoveries or events, or they can share new information. Often these sources are created at the time the events occurred, but they can also include sources that are created later. They are usually the first formal appearance of original research (Sydney, 2023). Primary sources of information may include films, recordings, surveys, eye witness reports, speeches, data from the internet and legal documents (Sydney, 2023). To complete this Project Management Plan for this FGP, various forms of primary sources of information will be used. These include information derived from interviews, from projects of a similar nature, from existing ministry documents and input from a cross section of stakeholders.

3.1.2 Secondary sources

Secondary sources offer an analysis, interpretation or a restatement of primary sources and are considered to be persuasive. They often involve generalization, synthesis, interpretation, commentary or evaluation in an attempt to convince the reader of the creator's argument. They often attempt to describe, review, critique or explain primary sources (Sydney, 2023). These sources of information can include books, journal articles, speeches, reviews and

research reports (Sydney, 2023). Secondary sources of information which will be used for this Project Management Plan will include information from the internet, PMBOK guides produced by PMI and textbooks in the field of Project Management and Construction Management.

Table 1.

Primary and Secondary Information Sources

Objectives	**Information sources**	
	Primary	**Secondary**
1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the Project Management Plan.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects.	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes
2.To create a Scope Management Plan which will outline the requirements and expectations of the project	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library
3. To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library

Objectives	Information sources	
	Primary	**Secondary**
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library
5. To create a Quality Management Plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library ▪ Standards from ISO Library
6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these said resources.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library

Objectives	Information sources	
	Primary	**Secondary**
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.	▪ Interview with Project Manager and civil engineer. ▪ Documents from similar projects	▪ The PMBOK Guide 7th Edition ▪ The PMBOK Guide 6th Edition ▪ Web Research ▪ Textbooks ▪ Course Notes ▪ Articles from the PMI Library

Note. Primary and Secondary Sources of Information, Len Leonce 2023.

3.2 Research Methods

Research methods refers to the tools that one uses to do research. These can either be qualitative or quantitative or mixed (Pretoria, 2023) .Quantitative methods examine numerical data and often require the use of statistical tools to analyze data collected. This allows for the measurement of variables and relationships between them can then be established. This type of data can be represented using graphs and tables. Qualitative data is non-numerical and focuses on establishing patterns. Mixed methods are composed of both qualitative and quantitative research method (Pretoria, 2023).

3.2.1 Qualitative Research

Qualitative research involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research (Bhandari, 2023)

Table 2.

Qualitative Research Methods

Objectives	Research Method
	Qualitative Research Method
1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the project management plan.	The information needed to create the charter will be received by interviewing the project leader and also using the PMBOK Guide 6th and 7th Editions. Through this method all the necessary information will be obtained which will then allow for the authorization of the project.
2.To create a Scope Management Plan which will outline the requirements and expectations of the project	Based on information received in relation to the expectations and requirements of the project through interviews with the project leader and stakeholders and also through web research, the Scope Management Plan will be developed.
3. To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, a schedule plan can be developed where activities will be sequenced, and their duration estimated.
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, an accurate cost plan/budget which can be used for the duration of the project can be developed.

Objectives	Research Method
	Qualitative Research Method
objectives are met within the outlined budget.	
5. To create a Quality Management Plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders.	It is expected that through interviews with stakeholders and project leader who will have expertise in the field of construction and quality management in construction, a standardized quality plan can be developed which will ensure that the final product meets the required quality standards.
6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	It is expected that through interviews with stakeholders and the project leader who will have expertise in the field of construction, a Communication Plan can be developed so that proper methods and channels of communication will exist.
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these said resources.	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, the necessary information needed to create a Resource Plan will be gathered.
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, the necessary information required to formulate a Risk Plan will be gathered.
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project	It is expected that through interviews with stakeholders which will include but not limited to the procurement specialist and project leader who will have expertise in the field of procurement in construction, necessary information required to formulate a Procurement Plan will be gathered.
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder	It is expected that through interviews with stakeholders and project leader the necessary information required to formulate a Stakeholder Management Plan will be gathered.

Objectives	Research Method
	Qualitative Research Method
relationships, their level of interest and their influence and impact on the project.	

Note. Qualitative Research Methods, Len Leonce 2023.

3.3 Tools

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. (PMI, 2017) . A number of tools will be used within this Project Management Plan as illustrated in Table 3 below.

Table 3

Project Tools

Objectives	Tools
1.To create a project charter to officially authorize the project and designate the project manager with the responsibility of applying project management principles which will result in the Project Management plan.	Project Charter Template Microsoft Word
2.To create a Scope Management Plan which will outline the requirements and expectations of the project.	Work Breakdown Structure Template Requirement Traceability Matrix Template Work Breakdown Structure Dictionary template. Microsoft Word, Critical Tools and Excel Scope Management Plan template
3.To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.	Schedule Management Plan template Microsoft Project Gantt Chart
4. To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.	Cost Management Plan Template Microsoft Excel
5. To create a Quality Management Plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders.	Quality Management Plan Template Microsoft Word and Excel Checklists
6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	Communication Management Plan template Microsoft Word Communications Matrix Flow of communication diagram
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these said resources.	Resource Management Plan Template Responsibility Management software Resource Breakdown Structure Responsibility assignment matrix

Objectives	Tools
	Microsoft Word and Excel
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks.	Risk Management Plan Template Risk Breakdown structure Probability and Impact Matrix Microsoft Word Risk Register
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project.	Procurement Management Plan Template Contract template Seller list
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.	Stakeholder Management plan template Stakeholder register Stakeholder engagement assessment matrix Power-Interest chart

Note. Project Tools, Source: Len Leonce 2023.

3.4 Assumptions and Constraints

An assumption is what you believe to be true. These are expected events or circumstances during your project's life cycle. You make assumptions based on your experience or the information available at hand. Assumptions may not end up being true. They can sometimes be false and may negatively affect your project, adding risk to it. Project constraints are limitations, like the budget, schedule, or resources imposed on the project. Assumptions and constraints play a vital role in the planning process as the foundation of your Project Management Plan (Usmani, 2022).

Table 4.

Assumptions and Constraints

Objectives	**Assumptions**	**Constraints**
1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the Project Management Plan.	The charter will be created within the necessary guidelines and with enough time that the project schedule is not affected.	The time allocated to produce the charter for authorizing the project is limited.
2.To create a Scope Management Plan which will outline the requirements and expectations of the project	Stakeholders will be able to outline **all** the requirements and expectations of the project.	During construction the scope of the project may change for several reasons.
3.To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.	The schedule planned out within the time management plan will be accurate resulting in the project meeting all deadlines.	Due to varying factors the schedule of the project may need changing.
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.	The cost management plan produced will be able to guide and keep the project within budget.	The project will be working with a limited budget that it must stay within.
5. To create a Quality Management Plan which will ensure that the project meets all the necessary quality	The Quality Management Plan will ensure	The quality of the project may be compromised due to

Objectives	Assumptions	Constraints
requirements thus satisfying the requirements of all stakeholders.	that the project meets all standards and requirements initially set out.	factors beyond the control of the project team.
6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	This Communication Management plan will allow for the project team and stakeholders to communicate effectively once the necessary communication resources are available	The availability of the necessary resources needed for proper communication may not be as reliable. Also, individuals may not be willing to cooperate as needed to allow for the needed level of communication.
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these said resources.	The Resource Management Plan will allow for proper assignment of all resources.	The necessary resources may not be available and if acquired may go beyond the budget allocation.
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks	The Risk Management Plan will identify all risks and will put measures in place to deal with these risks.	It is common that risks may occur during the life cycle of the project which the team would not have foreseen.
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project	The Procurement Plan will identify all sellers needed throughout the project.	The identified seller may not be able to provide goods or services when needed for varying reasons.
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder	All stakeholders will be	During the course of a project the interest

Objectives	Assumptions	Constraints
relationships, their level of interest and their influence and impact on the project.	identified along with the attention they will receive based on their level of interest and power over the project.	and power of identified stakeholders may not remain constant.

3.5 Deliverables

A deliverable is described as any unique and verifiable product, result, or capability to perform a service that must be produced to complete a process, phase, or project (PMI, 2017)

Table 5

Project Deliverables

Objectives	Deliverables
1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the Project Management Plan.	1.The deliverable of this objective will be the finished project charter which will grant authority to the Project Manager allowing the project to proceed.
2.To create a Scope Management Plan which will outline the requirements and expectations of the project.	2.The deliverable of achieving this objective will be a Scope Management Plan. This plan includes the requirements traceability matrix, Work Breakdown Structure, Work Breakdown Structure Dictionary and a control process for the management of Scope Change with the scope change log which will form part of the approval of these changes.
3.To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.	3.The deliverable of achieving this objective will be a Schedule Management Plan which will guide the project team in relation to project schedule and time constraints. This plan will include the activity list, schedule illustrated in a GANTT chart and the milestone list and a process to monitor and control process for any changes to the project schedule.
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.	4.The deliverable of achieving this objective will be a Cost Management Plan which will outline the project budget. This plan includes the cost baseline, project costs estimate including the project budget. This plan also includes an earned value analysis to control any variances in the expenses of the project to keep it aligned with budgeted cost.
5. To create a Quality Management Plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders.	5.The deliverable when achieving this objective will be a Quality Management Plan which will guide the team in relation to the quality requirements of the project. This will include a basic cost of quality table to illustrate how cost of quality can

Objectives	Deliverables
	affect the project. The plan will also include quality metrics and baselines to measure quality and quality control tools such as non-conformance table and quality control responsibility index thus allowing the project manager the ability adequately control quality within the project.
6.To develop a Resource Management Plan to effectively assign resources providing proper management of these said resources.	6.The deliverable when this objective is achieved will be a Resource Management Plan which will provide a guideline as to the allocation of resources. This plan will include a table illustrating the roles and responsibilities of human resources and RACI Matrix. The plan will also guide the Project Manager as to the process of managing and evaluating the performance of resources.
7. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	7.The deliverable when the objective is achieved will be a Communication Management Plan which will outline the guidelines of communication during the project. This will include stakeholder communications requirements, communications flow and stakeholder requirements table matrix and modes of communication. The plan will also guide the Project Manager as to the means of monitoring and controlling communications within the project.
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks	8.The deliverable when this objective is achieved will be a Risk Management Plan which will identify all risks and how they can be dealt with. This will include the risk register, risk breakdown structure and risk probability and impact matrix. The Project Manager will be able to assess and monitor risks with the project and ways to mitigate and manage these risks.

Objectives	Deliverables
9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project	9.The deliverable when this objective is achieved will be a Procurement Plan which will outline the process to procure a contractor to perform the works. This plan will illustrate methods to evaluate potential contractors and criteria for selection. The plan will also guide as to the monitoring and controlling procedures of the procurement process. during the project and how they will be chosen. This will include the procurement process timelines and responsibilities.
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.	10.The deliverable when this objective is achieved will be a Stakeholder Management Plan which will outline how stakeholders will be managed based on varying factors. This will include a Stakeholder Register and Power/Interest Grid, tools to monitor and control the stakeholder engagement process.

Note. Project Deliverables, Source: Len Leonce 2023.

RESULTS

4.1 Project Charter

4.1.1 Project Name

The Project Management Plan for the construction of the La Clery SMART Wellness Centre in Castries, Saint Lucia.

4.1.2 Purpose of Project

With the increased demand for adequate health care in Castries, the capital of Saint Lucia, it is important that the government be able to provide the necessary services to the general population. The construction of a sustainable wellness Centre in an underdeveloped

community such as La Clery can be justified on various grounds, as it would address a range of social, economic, and health-related issues. Citizens in the community and general environs lack access to quality healthcare facilities, forcing residents to travel long distances to receive medical attention. This new Centre would provide essential healthcare services closer to home, reducing travel time and improving healthcare access. Access to healthcare is seen as a fundamental human right. Construction of this Centre in the community would promote health equity, ensuring that all community members have an opportunity to receive the medical care they need, regardless of their socio-economic status. It would also have a positive impact on the local economy as it can lead to increased productivity as healthier community members can participate more fully in the workforce. Additionally, it can attract healthcare professionals to the area, creating jobs and stimulating economic growth. The new SMART La Clery Wellness Centre is a multifaceted initiative with numerous benefits, ranging from improved healthcare access and health equity to economic growth and community resilience. Such a project can contribute to the overall well-being and development of the community, making it a worthy investment in both human and economic terms.

4.1.3 Project Objectives

The general objective of this project is to develop a Project Management Plan for the design and construction of the La Clery SMART Wellness Centre to serve the healthcare needs of the citizens of La Clery, Castries.

The specific objectives of this project are to:

1. To design and construct a SMART Wellness Centre in the community of La Clery, Castries which will facilitate the provision of health services to members of the community.
2. To construct a facility which will be climate resilient to cope and sustain the effects of natural disasters such as hurricanes and earthquakes
3. To construct the SMART La Clery Wellness Centre which is sustainable by being energy efficient and environmentally friendly.

4.1.4 Description of Project and Final Deliverables of the Project

The key deliverables for the construction of the SMART La Clery Wellness Centre will encompass a range of items, including tangible physical assets, documentation, and operational aspects that contribute to the overall sustainability of the facility. This will include:

1. Architectural Plans and Designs: Detailed architectural plans and designs for the building, including site layout, building structure and floor plans.
2. Completed Building: The physical structure of the Centre fully constructed, including all infrastructure, roofing, walls, windows, doors, utilities and interior finishes.
3. SMART/Sustainable Energy Infrastructure: Installation of renewable energy sources such as solar panels, rainwater harvesting and cooling systems to reduce the facility's carbon footprint.

4. Efficient HVAC and Lighting Systems: Installation of energy-efficient ventilation, and air conditioning (HVAC) systems and LED lighting to reduce energy consumption.
5. Closing of Project and Operational Handover: Closure of the project and a smooth transition of the facility from the construction phase to operational phase, ensuring all systems are functioning as intended and staff is ready to provide healthcare services.

The structure of the Centre will consist of waiting area, reception area, male and female client (disabled) and staff washrooms, one storage room, two doctor's offices, four consultation rooms, server room, pharmacy, laundry room, three nurse's offices, two treatment rooms, dental clinic room with adjoining office, triage area, kitchen and staff lounge.

4.1.5 Assumptions During the Project

1. The project charter will include all aspects integral to the success of the project.
2. The agreed upon scope of the Centre will be adhered to during construction.
3. That construction will be completed within schedule.
4. That funds will be managed efficiently so that the budget allocated for construction will be enough to complete the Centre.
5. That all involved in construction will ensure that the constructed Centre will be of the highest quality.
6. That all the necessary resources needed for construction will be readily available when needed.

7. That communication processes will be managed efficiently during the project.
8. All risks will be able to be managed effectively by the project team.
9. That all procurement processes will be conducted within the existing legal framework.
10. All stakeholders will contribute, when necessary, in their different roles to ensure that the project is successful.
11. That all necessary requirements will receive approval by the necessary authorities so that construction can begin and finish.

4.1.6 Constraints During the Project

1. The budget for this project is limited so the project team needs to ensure that they do not go beyond the outlined budget.
2. The project should not go beyond the time allotted for completion.

4.1.7 Possible Risks During the Project

1. Saint Lucia is a tropical country which is prone to natural disasters. In the event that a strong hurricane strikes the island, the project schedule may be affected and there is also the chance rework will have to be done if the structure is

damaged during construction. In this situation, additional funds will be needed to complete the Centre.

2. Should an integral member of the project team become sick, the absence of this individual may result in the delay of the project schedule. This would also be the case if there is an accident on the site of construction and team members are injured.
3. Shortage of scarce materials needed for construction on island or a delay in shipment of these items may result in the schedule of construction being delayed.
4. If the necessary approvals from organizations such as the Development Control Authority are delayed, this may result in delays in certain phases of construction taking place.
5. Changes in costs of materials due to supply and demand or inflation may affect the costs of goods. This is a risk that the project teams will have to be aware of as the budget for the project is limited.
6. Stakeholders whose contributions will be vital to the successful completion of the project may not be as dedicated to the cause, which will result in delays for several reasons.

4.1.8 Budget for the project

The construction of the SMART La Clery Wellness Centre will be funded at three million three hundred thousand Eastern Caribbean Dollars (3.3).

4.1.9 Milestones and Key Dates

Table 6

Milestones and Key Dates

Milestones and Key Dates		
Milestone	Start Date	End Date
Project Start Off	January 01, 2024	-
Finalize drawings & Designs	January 01, 2024	January 20, 2024
Receive approvals/permits from DCA, Ministry of Health, SLU Fire Service and Solid Waste Management	January 21, 2024	January 24, 20204
Procurement of Contractor	January 25, 2024	February 15, 2024
Site Preparation	February 16, 2024	February 25, 2024
Build Foundation	February 26, 2024	March 10, 2024
Walls and Roof	March 11, 2024	April 14, 2024
Plumbing and Solar System	April 15, 2024	April 28, 2024
Electricals	April 29, 2024	May 21, 2024
HVAC System and Vents	May 22, 2024	June 20, 2024
Interior Finishing and Carpentry	June 21, 2024	July 25, 2024
Exterior Finishings	July 26, 2024	August 18, 2024
Site Clearance	August 19, 2024	August 23, 2024
Final Inspections	August 24, 2024	August 29, 2024
Handover and Project End	August 30, 204	-

Note. Project Milestones and Key Dates, Source: Len Leonce 2023.

The project should be completed within a period of eight months from January 01, 2024, to August 30, 2024 and will include all components listed in the above chart.

4.1.10 Key Stakeholders

1. Ministry of Health and healthcare workers
2. Citizens of the community of La Clery
3. Project Team
4. Project Manager/Engineer
5. Ministry of Finance (Financier)
6. Contractor – Easy Construction Limited

4.1.11 Roles and Responsibilities

Table 7

Roles and Responsibilities

Stakeholder/Role in project	Responsibility
Ministry of Health – Owner of Project	The Ministry of Health will lead the project team and hold the authority over the project team ensuring the project is a success.
Ministry of Finance – Project Sponsor	They will be providing the funds to facilitate construction of the Centre and ensure that all financial regulations are adhered.
Project Manager/Engineer at MOH	Responsible for managing the daily activities of the project ensuring all objectives are met.
Planning Unit at MOH – Project Team	Assist the Project Manager by coordinating activities of the different management plans under his leadership.
Easy Construction Ltd - Contractor	Responsible for the construction of the Wellness Centre.

Note. Roles and Responsibilities, Source: Len Leonce 2023.

4.2. Scope Management Plan

This Scope Management Plan will serve as a critical component of the overall Project Management Plan for the SLCWC project. It will assist the Project Manager in ensuring that the project follows initial requirements, defining and controlling what is included and excluded from the project scope. Through this plan the Project Manager will be able to establish a clear and comprehensive understanding of the scope of this construction project ensuring successful project delivery. This Scope Management Plan will include requirements of the project, scope roles and responsibilities, the project's work breakdown structure and work breakdown dictionary.

4.2.1 Project Scope Statement

4.2.1.1. General and Specific Objectives of the Project

The design and construction of the La Clery SMART Wellness Centre to serve the healthcare needs of the citizens of La Clery, Castries. The specific objectives of this project are included in section 4.1.3 and guide the Project Manager through the life cycle of the project.

4.2.1.2 Scope Definition

The SLCWC project will primarily consist of building a facility which will include several amenities integral to the provision of health care services to the community. The approximately 4000 square foot building will include waiting area, reception area, male and female client (disabled) and staff washrooms, one storage room, two doctor's offices, four

consultation rooms, server room, pharmacy, laundry room, three nurse's offices, two treatment rooms, dental clinic room with adjoining office, triage area, kitchen and staff lounge accessed by steps and two wheelchair ramps for disabled clients. The infrastructure will include a plumbing system which will include toilets, sinks, wastewater system, rainwater harvesting, tanks and water pumps; and a solar system to provide hot water to the entire facility. It will also include electricity throughout the building and an energy efficient HVAC system to cool the building. The building will be constructed to serve as a hurricane shelter so the external doors and roof will be constructed with this in mind. Windows and doors will be outfitted with aluminum shutters which can be put to use in case of need. The SLCWC will be constructed with steel reinforced concrete walls and foundation/floor which will be painted and tiled respectively. The above will be done taking into consideration local and international building standards.

4.2.1.3 Project Exclusions

1. Furniture and equipment will not be included in the project deliverables.
2. The project does not include the cost of maintenance of the building.
3. The project does not include signage on doors and walls.
4. Parking lot and fencing for the property is not included in the scope of the project.

4.2.1.4 Project Constraints

1.The budget for this project is limited so the project team needs to ensure that they do not go beyond the outlined budget (3.3 million EC Dollars).

2.The project should not go beyond the time allotted for completion.

4.2.1.5 Project Assumptions

1.The agreed upon scope of the Centre will be adhered to during construction.

2.That construction will be completed within schedule.

3. That funds will be managed efficiently so that the budget allocated for construction will be enough to complete the Centre.

4.That all the necessary resources needed for construction will be readily available when needed.

5.That all necessary requirements will receive approval by the necessary authorities so that construction can begin, go through the different phases and finish on schedule.

4.2.2 Roles and Responsibilities

Throughout the Scope Management Process for the construction of a SLCWC, the management of the various roles and responsibilities of stakeholders are essential to ensuring effective planning, execution, and control of the project scope. Assigning clear roles and responsibilities helps streamline the scope management process and ensures that key stakeholders are actively involved in decision-making and oversight throughout the construction of the polyclinic. Regular communication and collaboration among team members are crucial for successful scope management.

Table 8

Scope management roles, responsibilities and duties

Role	Responsibility	Task
Project Manager/Engineer	Overall responsibility for leading project	1. Develop and communicate the Scope Management Plan.

Role	Responsibility	Task
	team and achieving project objectives.	2. Ensure alignment of project scope during project with initial plans. 3. Resolve scope related issues and conflicts. 4. Oversee scope related activities.
Chief Health Planner	Overall responsibility for project and scope management	1. Approve or deny changes to project scope. 2. Provide guidance on high level scope decisions
Ministry of Finance – Financier	Provide financial support to the project.	1. Participate in the scope change process to identify financial implications.
Project Team	Collaborate on defining, verifying and controlling the project scope.	1. Participate in scope measurement and verification activities. 2. Provide input on change requests and potential impacts. 3. Communicate scope changes to stakeholders.
Contractor	Lead the daily management of the project scope.	1. Ensure the project sticks to the initial scope plan within quality requirements. 2. Facilitate scope definition and verification. 3. Communicate issues related to scope of project in a timely manner, receiving approval before proceeding.

Note. Roles Responsibilities and Duties, Source: Len Leonce 2023.

4.2.3 Collect Requirements

Collecting requirements during the scope management phase of this project will serve as a crucial step in the construction of the SLCWC. The Project Manager will set the foundation for successful project planning, execution, and delivery by providing clarity, preventing scope creep, managing risks, and ensuring stakeholder satisfaction.

It is expected that the Project Manager will use the Requirements Traceability Matrix below to connect the various scope requirements throughout the project life cycle. Proper use by the project team will ensure that every requirement received after thorough research by the project team is addressed by the project and provides a means to track the progress of the project against the requirements.

Table 9

Requirements Traceability Matrix

Requirements ID	Requirement	Justification	Priority	Requested By
REQ01	The facility must be constructed with a high level of structural integrity and able to withstand **highest** level of seismic activity based on a specified building seismic evaluation scale.	This center is being financed with scarce resources and as a result, the end product must be of the highest quality.	High	Ministry of Health
REQ02	The facility building must be designed to be energy-efficient and environmentally sustainable where possible so that electricity and water costs are **fifty percent less** compared to other facilities of this size.	When it is in use, it is expected that the energy costs are minimized as a way of saving.	Medium	Ministry of Health
REQ03	The construction must comply with local and national	This is vital for the building t**o**	High	Regulation Authorities

Requirements ID	Requirement	Justification	Priority	Requested By
	building codes and regulations passing existing Department of Planning's checklist with a mark of **at least 98%.**	be considered safe for use and pass inspections		
REQ04	The Centre must be constructed with clear ramps, handrails and amenities so handicapped individuals can comfortably enter and exit facility at **each** entrance.	As a health facility, a high percentage of clients will be elderly, disabled or handicapped individuals so this must be a priority during construction.	High	Ministry of Health
REQ05	All construction materials must be non-toxic and free from hazardous substances passing **all** health standards before being used.	There have been buildings which have to be demolished as they have been built with toxic materials leading to a sick population.	High	Ministry of Health
REQ06	The waiting area must be designed to accommodate **at least 30** patients at a time.	With the advent of Covid-19 it has been realized at other facilities that there is a need for a large waiting area.	Medium	Ministry of Health

Requirements ID	Requirement	Justification	Priority	Requested By
REQ07	The project must be completed within the approved budget of **3.3 million XCD.**	Finances are limited and there may not be additional funds to complete if funds are exhausted.	High	Ministry of Finance
REQ08	The project should be completed within the approved project schedule of approximately **8 months.**	The services are needed in the community, so it is vital the facility is completed on time.	Medium	Ministry of Health
REQ09	The electrical, plumbing, HVAC system must be thoroughly inspected and passed by inspectors at a rate of **100%** after it is found that it is built according to the approved design before handover to staff.	In the past, facilities have been accepted without due process resulting in additional funds being sourced to rectify issues.	High	Ministry of Health

Note. Requirements Traceability Matrix, Source: Len Leonce 2023.

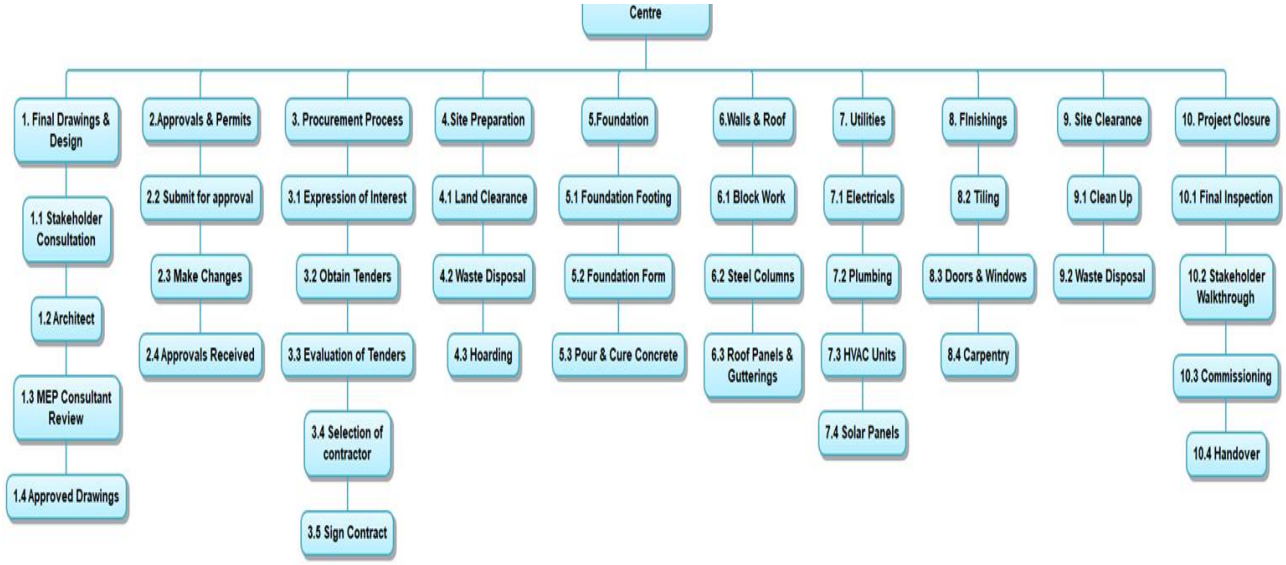
4.2.4 Work Breakdown Structure

The Work Breakdown Structure will prove to be a vital tool for the Project Manager during the process of managing the scope of the construction of the SLCWC as it will break the

project down into phases, deliverables, and work packages. It will help the project team to organize and define the total scope of the project.

Figure 6

Project Work Breakdown Structure



Note. Work Breakdown Structure, Source: Len Leonce 2023.

4.2.5 Work Breakdown Structure Dictionary

The Work Breakdown Structure Dictionary provides detailed information to the project manager about each element in the Work Breakdown Structure. It will include a description of the work package, responsible parties, deliverables, schedule information and final deliverable of the work package. The WBS dictionary for the construction of the SLCWC used by the Project Manager is listed below in the table:

Table 10

Work Breakdown Structure Dictionary

WBS ID	Task Name	Description	Responsible Parties	Deliverable	Time Period
1	Final Drawings and Design	This will include the final architectural drawings of the facility with layout of utilities.	Project Manager, Project Team, Architect, MEP Consultant	Architectural Plans, Engineering Plans	17 days
1.1	Stakeholder consultations	Research will be done and consultation with various stakeholders	Project Manager	Information from stakeholders	5 Days
1.1.1.	Collect Scope Requirements	Stakeholders will provide their scope requirements for the project	Project Team & Project Manager	Scope Requirements	-
1.2	Architect	Individual is chosen to prepare drawings	Project Team	N/A	6 Days
1.2.1	Prepare Drawings	Layout of the facility is prepared by architect	Architect	Architectural drawings	-
1.3	MEP consultant	MEP Consultant is chosen by project team	Project Team	N/A	7 Days
1.3.1	Review & Final Drawings	MEP consultant includes components under his purview	MEP Consultant	Revised Architectural Drawing	-
1.4	Drawings Approved	Architectural Drawings approved	Project Team	Final Drawings and Designs	1 Day

WBS ID	Task Name	Description	Responsible Parties	Deliverable	Time Period
2	Approvals and Permits	Approval to proceed with construction from regulatory authorities	Project Team	Final Approval for construction	4 Days
2.1	Prepare documents for submission	Documents prepared for Development Control, Waste Management, Fire Service Dept., MOH.	Project Team	Prepared Documents	1 Day
2.2	Submit documents to authorities	Documents compiled and submitted.	Project Team	N/A	1 Day
2.3	Make necessary changes	Make changes at the request of the authorities	Project Team	N/A	1 Day
2.4	Approval from Authorities	Approval to construct facility	Project Team	All approvals and permits to proceed with construction	1 Day
3	Procurement Process	Procurement of contractor to construct facility	Project Team	Contractor will be retained on contract.	16 Days
3.1	Request for Bids	Request for bids to build sent out to potential contractors to tender	Project Team	N/A	4 Days
3.2	Tenders	Tenders sent to Project Team	Project Team	N/A	6 Days
3.3	Evaluation of Tenders	Project Team to evaluate tenders received in a transparent process	Project Team	N/A	4 Days
3.4	Selection of Contractor	Contractor is selected through evaluation based on various criteria	Project Team	N/A	1 Day
3.5	Contract is signed by contractor	Based on evaluations, the contract will be signed.	Project Team	Signed contract	1 Day

WBS ID	Task Name	Description	Responsible Parties	Deliverable	Time Period
4	Site preparation	Property is prepared for construction	Contractor and Project Manager	Property is cleared and hoarded for construction	7 Days
4.1	Land Clearing	Bush, trees are cleared and land levelled for construction	Construction team	N/A	2 Days
4.2	Waste Disposal	Debris is trucked and disposed of.	Construction team	N/A	4 Days
4.3	Hoarding Site	Site is hoarded to limit access	Construction team	N/A	2 Days
5	Foundation	Structural foundation is built.	Contractor and Project Manager	The foundation of the facility is built to a high standard	11 Days
5.1	Lay Foundation Footing	Foundation footings are set	Contractor and Project Manager	N/A	6 Days
5.2	Install Foundation Form	Foundation forms are installed with steel laid	Contractor and Project Manager	N/A	2 Days
5.3	Set Concrete	Concrete is poured and cured	Contractor and Project Manager	N/A	4 Days
6	Walls and Roof	Walls and Roof are installed	Contractor and Project Manager	All walls and the roof of the facility is constructed.	26 Days
6.1	Blockwork and steel	Block work and steel for walls are constructed	Contractor and Project Manager	N/A	11 Days
6.2	Steel Columns	Columns are reinforced with steel	Contractor and Project Manager	N/A	7 days
6.3	Roof Panels and Guttering	Roof and panels are constructed & installed and guttering installed	Contractor and Project Manager	N/A	8 Days
7	Utilities	Electricals, Plumbing, HVAC and Solar Panels to be installed	Contractor and Project Manager	All outlined utilities to be installed.	49 Days
7.1	Electricals	Electricals are to be installed.	Contractor and Project Manager	N/A	13 Days

WBS ID	Task Name	Description	Responsible Parties	Deliverable	Time Period
7.1.1	Install Panel	Main electrical panel to be installed	Contractor	N/A	4 Days
7.1.2	Install Conduit & Cables	Electrical cables installed	Contractor	N/A	5 Days
7.1.3	Install Outlets and Fixtures	Electrical outlets and fixtures	Contractor	N/A	5 Days
7.2	Plumbing	Plumbing to the facilities	Contractor	N/A	22 Days
7.2.1	Install Pipes	Pipes to be installed	Contractor	N/A	8 Days
7.2.2	Install Plumbing fixtures	Plumbing fixtures to the facility installed	Contractor	N/A	9 Days
7.2.3	Install Tanks and rainwater harvesting	Water tanks, pumps and rainwater harvesting	Contractor	N/A	5 Days
7.3	HVAC Units	Installation of HVAC units at the facility	Contractor	N/A	15 Days
7.3.1	Install Units	Installation of AC Units in the facility	Contractor	N/A	9 Days
7.3.2	Gas units	Fill up AC Units with Gas to function adequately	Contractor	N/A	3 Days
7.4	Install Solar Panels	All solar panels for the facility to be installed	Contractor	N/A	3 Days
8	Finishings	Interior and Exterior finishing to the facility to be completed	Contractor	All plastering and painting of the facility to be done along with tiling of floors, installation of doors and windows and carpentry work to be completed.	42 Days
8.1	Plastering and painting	Plastering and painting of entire facility	Contractor	N/A	14 Days
8.2	Tiling	Floor tiles to be installed	Contractor	N/A	9 days

WBS ID	Task Name	Description	Responsible Parties	Deliverable	Time Period
		throughout the facility			
8.3	Install doors and windows	Doors and windows to be installed at facility	Contractor	N/A	5 Days
8.4	Carpentry	Carpentry works to be done at facility.	Contractor	N/A	14 Days
8.4.1	Install shelves and cupboards	Shelves and cupboards to installed	Contractor	N/A	-
9	Site clearance	All deep cleaning and disposal of waste to be done on new facility	Contractor	N/A	5 Days
9.1	Clean Up	The facility would be deep cleaned to remove waste and extract smells	Contractor	N/A	3 Days
9.2	Waste Disposal	All waste will be removed and disposed of.	Contractor	N/A	2 Days
10	Project Closure	Final inspections and processes to close off project is completed	Project Manager, Project Team, Contractor, MOH	Handover	6 Days
10.1	Final inspection	Final MEP inspection,	Project Team, PM, Contractor	N/A	2 Days
10.2	Stakeholders walk through	Stakeholders of the facility tour the new facility	Contractor and PM	N/A	1 Day
10.3	Commissioning of facility	Users of center tour facility to ensure it meets scope requirements	Staff, Contractor, Project Team and Project Manager	N/A	2 Days
10.4	Handover	Wellness Centre is handed over to the Ministry of Health	MOH, Contractor, Project Manager	Finished wellness center handed over to the Ministry of Health	1 Day

Note. WBS Dictionary, Source: Len Leonce 2023.

4.2.6 Validation of Scope

The scope validation process within the Scope Management Plan will be a critical step in this construction project as it will ensure that the project deliverables, objectives, and requirements are in line with the stakeholders' expectations. For the construction of this construction project, it is the responsibility of the Project Manager to confirm that the project scope is accurate, complete, and well-defined throughout the life cycle of the project. This will be done by intermittent site visits which will be performed by the project team which includes the Project Manager alongside the contractor. This task will be done at milestones along the project schedule to ensure that work being done is in line with the initial scope.

4.2.7 Control of Scope

As a result of the tight budget and schedule which the project will be constrained by, it is important that the scope of the construction of the SLCWC is managed effectively to avoid unnecessary changes in scope or scope creep. Consequently, it is important that the Project Manager implements a change control process as unforeseen conditions, or other factors may arise which may force changes. This process will help the project team in ensuring that changes are properly evaluated, documented and approved while minimizing the impact on the project's scope, schedule, and budget. Any prospective changes should be submitted to the Project Manager through a change request log form which will include the description and reason for the change in scope, the impact of the change on the schedule, cost, resources of the project and which must be approved by the project manager before proceeding. These records must be kept for proper record keeping as part of the project’s

Scope Management Plan. A copy of the form to be used by the Project Manager can be seen below. This log is to be regularly updated and reviewed as it serves as a record of all scope changes, their impact, and the approval status. Any changes made without proper documentation and approval may result in project risks.

Table 11

Scope Change Log

Change ID	Date	Requested By	Justification	Description	Impact on Cost	Impact on Schedule	Approval Status	Date Approved	Sign Off

Note. Scope Change Log, Source: Len Leonce 2023.

4.3. Schedule Management Plan

4.3.1 Plan Schedule Management

It is expected that during the life cycle of the project, the Project Manager working along with the project team will effectively manage the schedule of the project ensuring that it i effectively created, monitored and controlled throughout its lifecycle. The project schedule for the SLCWC was used with information from the Work Breakdown Schedule and the Microsoft Project tool. This tool provided the project team with a Gantt Chart, depicting the

duration of the various project deliverables, start and finish times and dependencies which could be constantly monitored and controlled.

4.3.2 Schedule Activity List

It will be the responsibility of the project team to create an activity list which will be a major input into creating the project schedule. This activity list will outline all the tasks or activities that need to be accomplished to complete the project successfully. Each activity included in the list will be measurable, achievable and time bound. The activity list for the SLCWC project is illustrated below.

Table 12

Project Activity List

WBS CODE	WORK PACKAGE	ACTIVITY	DESCRIPTION
1.1.1	Collect Scope Requirements	To collect scope requirements	Hosting meetings and stakeholder consultations to learn and find out the requirements to build the facility.
1.2.1	Prepare Drawing	To prepare drawing for facility	Preparation of graphical illustrations of user requirements of facility by architect.
1.3.1	Review of Drawings	To review drawings of facility	Drawings are reviewed and electrical, plumbing, HVAC and other components are included within drawings.

WBS CODE	WORK PACKAGE	ACTIVITY	DESCRIPTION
2.1	Prepare documents	To prepare documents for submission	Documents are compiled and prepared for the relevant regulatory authorities to begin construction.
2.2	Submit to Authorities	To submit documents to authorities	Submit compiled documents to Solid Waste Authority, Dept. of Planning & Infrastructure, Fire Service Dept and Environment Health
2.3	Make Changes	To make changes to submitted documents	Make necessary changes to documents as requested by authorities to receive approval
3.1	Expressions of Interest	To advertise EOI for Contractor of works	Preparation of EOI and post it for public knowledge through different mediums
3.2	Receive Tenders	Receive tenders based on advertisement	Collect and compile tenders received for the position of contractor
3.3	Evaluation of Tenders	To evaluate received tenders	Tenders are evaluated by a committee of selected individuals who assess based on criteria
3.4	Select Contractor	To select contractor for project	Based on the results of the evaluation, a contractor is selected
3.5	Sign Contract	Signing of contract	Selected contractor is given an offer

WBS CODE	WORK PACKAGE	ACTIVITY	DESCRIPTION
			letter and signs contract
4.1	Land Clearing	To clear property to begin construction	Clearance of land by cutting bush and trees on construction site
4.2	Waste Disposal	To dispose of waste from clearing land	Dispose of compiled waste at waste landfill
4.3	Hoarding of site	To hoard construction site	Installation of fencing to cordon of construction site from public
5.1	Lay Foundation Footings	To lay footings for foundation	Mark out positions of footings with pegs and lines while digging trench to required depth of footing
5.2	Install Foundation Form	To install the form for the foundation	Construct the formwork for the foundation of the facility
5.3	Pour & Cure Concrete	To pour concrete and allow to cure	Mix and pour the concrete within the forms of the structure and allow time to cure
6.1	Walls – Blockwork	To put in concrete blocks	To install blocks on layout of drawings
6.2	Walls- Steel Columns	To install steel columns	Erect steel structure based on layout of drawings
6.3	Build roof panels & Guttering	To build the roof panels and guttering for roof	Installation of roof panels and guttering
7.1	Electricals	To install electricals	Installation of panels, conduits, cables, outlets and fixtures

WBS CODE	WORK PACKAGE	ACTIVITY	DESCRIPTION
7.2	Plumbing	To install plumbing	To install pipes within the facility, plumbing fixtures and water tanks.
7.3	HVAC	To install HVAC units at facility	Installation of HVAC units, vents and putting gas into the units
7.4	Solar Panels	To install solar panels at facility	Installation of solar panels at facility
8.1	Plastering & Painting	To plaster and paint walls	Plastering of walls are done and walls are primed and painted
8.2	Tiling	To tile floors of facility	Floors are tiled with non-slip health facility tiles
8.3	Doors & Windows	To install doors and windows at facility	Installation of doors and windows at facility
8.4	Carpentry	To install cupboards and shelves	Cupboards and shelves which have been constructed off-site are installed at facility
9.1	Site Clean up	Cleaning up of construction site	All construction debris is piled up and facility is cleaned up
9.2	Waste Disposal	To dispose of waste and garbage	All construction waste is disposed of at landfill
10.1	Final Inspection	To perform inspection all works	Project manager and contractor perform inspection of facility to ensure works are done at a satisfactory level
10.2	Stakeholder walkthrough	To host use and stakeholder walkthrough	Users and stakeholder perform a tour of facility

WBS CODE	WORK PACKAGE	ACTIVITY	DESCRIPTION
10.3	Commissioning	To perform commissioning of facility	Users are informed of how to use plumbing, electrical, HVAC and other technical components of the facility

Note. Project Activity List, Source: Len Leonce 2023.

4.3.3. Milestone List

To allow for a high level of clarity, accountability, and a structured approach to achieving project objectives it is expected that the project team will use a milestone list throughout the project period. This milestone list will serve several important purposes, contributing to the overall success and efficient management of the project. It will allow for adequate progress monitoring, allow for stakeholder engagement, aide in risk management, assist in resource allocation and allow for some form of quality control during the phases. The milestone and key date list, subject to change, for this project is listed below.

Table 13

Milestones and Key Dates

Milestones and Key Dates	
Milestone	Start Date
Project Start Off	January 01, 2024
To finalize Drawings and Designs of Facility	January 20, 2024
To receive approvals from Development Control, Ministry of Health, SLU Fire Service and National Waste Management	January 24, 2024
To complete procurement of contractor	February 15, 2024
To complete site preparation for construction	February 25, 2024
To build the foundation	March 10, 2024
To build walls and roof	April 14, 2024

To complete installation of plumbing and solar system	April 28, 2024
To complete electricals for building	May 21, 2024
To complete installation of HVAC System	June 20, 2024
To complete interior finishings and carpentry	July 25, 2024
To complete exterior finishings	August 18, 2024
To clear site on completion of facility	August 23, 2024
To perform final inspections	August 29, 2024
To handover facility and close project	August 30, 2024

Note. Milestones and Key Dates, Source: Len Leonce 2023.

4.3.4 Activity Duration

To have a baseline schedule for this project, the project team will use analogous project estimation, where the project team will use data and information from past successful projects of this magnitude within the ministry which shared similarities with this project to construct the SLCWC to estimate the duration of the project.

Table 14

Activity Duration Table

WBS Code	Work Package	Activity	Duration of activity in days
1.1.1	Collect Scope Requirements	To collect scope requirements	Five days
1.2.1	Prepare Drawing	To prepare drawing for facility	Five days
1.3.1	Review of Drawings	To review drawings of facility	Six days
2.1	Prepare Documents	To prepare documents for submission	One day
2.2	Submit to Authorities	To submit documents to authorities	One day
2.3	Make Changes	To make changes to submitted documents	One day
3.1	Expressions of Interest	To advertise EOI for Contractor of works	One day

WBS Code	Work Package	Activity	Duration of activity in days
3.2	Receive Tenders	Receive tenders based on advertisement	Six days
3.3	Evaluation of Tenders	To evaluate received tenders	Four days
3.4	Select Contractor	To select contractor for project	One day
3.5	Sign Contract	Signing of contract	One day
4.1	Land Clearing	To clear property to begin construction	Two days
4.2	Waste Disposal	To dispose of waste from clearing land	Four days
4.3	Hoarding of site	To hoard construction site	Two days
5.1	Lay Foundation Footings	To lay footings for foundation	Six days
5.2	Install Foundation Form	To install the form for the foundation	Two days
5.3	Pour & Cure Concrete	To pour concrete and allow to cure	Four days
6.1	Walls – Blockwork	To put in concrete blocks	Eleven days
6.2	Walls- Steel Columns	To install steel columns	Seven days
6.3	Build roof panels & Guttering	To build the roof panels and guttering for roof	Eight days
7.1	Electricals	To install electricals	Four days
7.2	Plumbing	To install plumbing	Nine days
7.3	HVAC	To install HVAC units at facility	Nine days
7.4	Solar Panels	To install solar panels at facility	Three days
8.1	Plastering & Painting	To plaster and paint walls	Fourteen days
8.2	Tiling	To tile floors of facility	Nine days
8.3	Doors & Windows	To install doors and windows at facility	Five days

WBS Code	Work Package	Activity	Duration of activity in days
8.4	Carpentry	To install cupboards and shelves	Fourteen days
9.1	Site Clean up	Cleaning up of construction site	Five days
9.2	Waste Disposal	To dispose of waste and garbage	Two days
10.1	Final Inspection	To perform inspection all works	Two days
10.2	Stakeholder walkthrough	To host use and stakeholder walkthrough	One day
10.3	Commissioning	To perform commissioning of facility	Two days

Note. Activity Duration, Source: Len Leonce 2023.

4.3.5 Project Schedule

The proper development of the project schedule can be considered to be one of the most important processes of the Project Management Plan for the construction of the SLCWC. It will play a crucial role in the successful planning, execution, and completion of the project, serving as a roadmap that outlines the timeline for completing various tasks and milestones throughout the construction project. The project schedule was developed using Microsoft Project and is illustrated below through a Gantt Chart.

1. Finalize Drawing and Designs

1.1. Stake holder consultations
    1.1.1. Collect scope requirements
1.2. Architect
    1.2.1. Prepare Drawings
1.3. MEP Consultant

- 1.3.1. Review of Drawings
- 1.4. Drawing Approved

2. Approval and Permits

- 2.1. Prepare Documents
- 2.2. Submit to Authorities
- 2.3. Make Changes
- 2.4. Final approval from Authorities

3. Procurement Process

- 3.1. Expressions of Interest
- 3.2. Receive Tenders
- 3.3. Evaluation of Tenders
- 3.4. Select Contractor
- 3.5. Sign Contract

4. Site Preparation

- 4.1. Land Clearing
- 4.2. Waste Disposal
- 4.3. Hoarding of Site

5. Foundation

- 5.1. Lay Foundation Footings
- 5.2. Install Foundation Form
- 5.3. Pour & Cure Concrete

6. Walls and Roof

- 6.1. Blockwork and Steel
- 6.2. Steel Columns
- 6.3. Build Roof Panels & Guttering

7. Utilities

- 7.1. Electrical
  - 7.1.1. Install Panel
  - 7.1.2. Install Conduit & Cables
  - 7.1.3. Install Outlets and Fixtures
- 7.2. Plumbing
  - 7.2.1. Install Pipes
  - 7.2.2. Install Plumbing Fixtures
  - 7.2.3. Install Water Tanks
- 7.3. HVAC
  - 7.3.1. Install Units
  - 7.3.2. Gas Units
- 7.4. Install Solar Panels

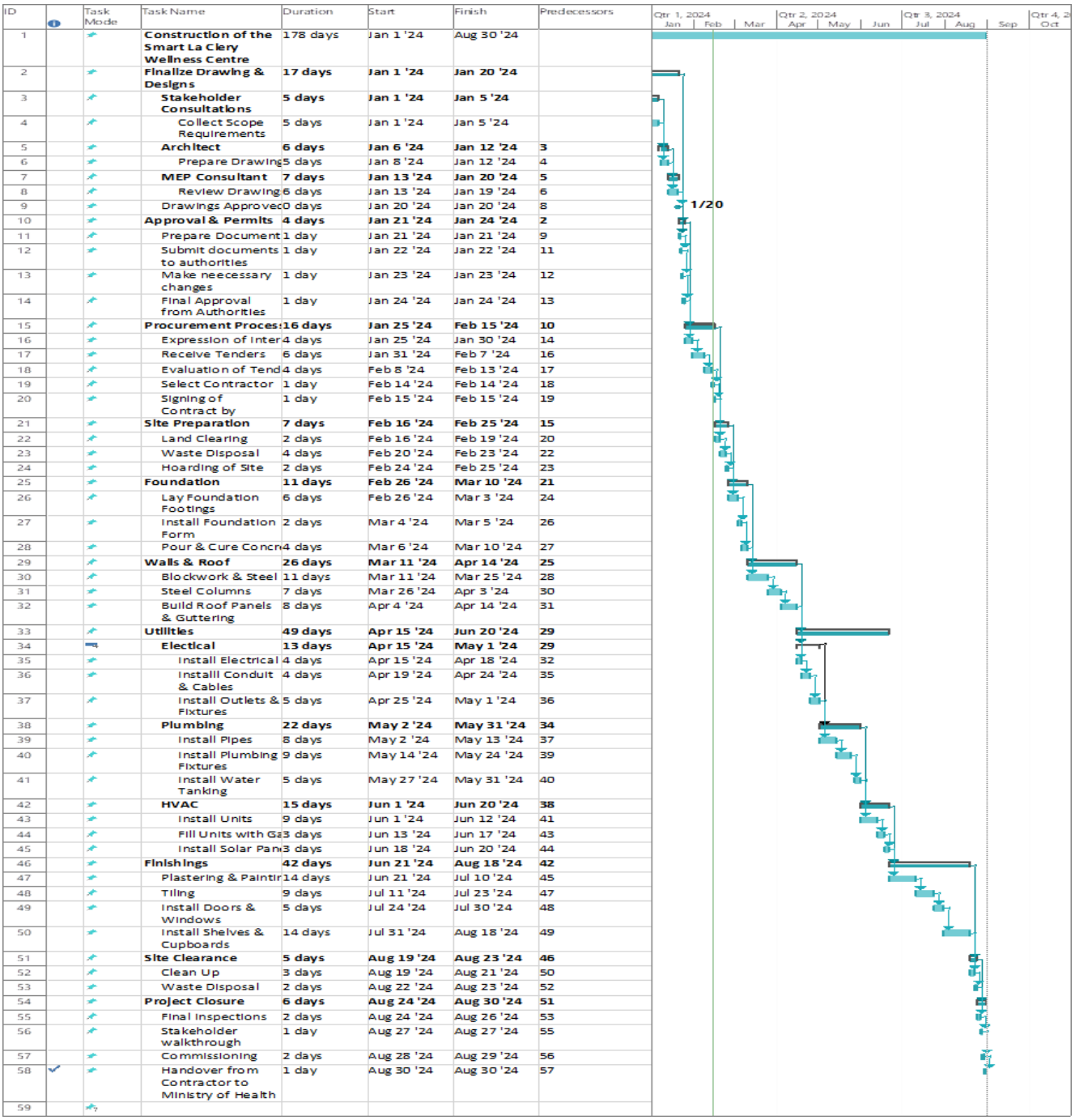
8. Finishings

- 8.1. Plastering and Painting
- 8.2. Tiling
- 8.3. Install Doors & Windows
- 8.4. Carpentry
  - 8.4.1. Install Shelves and Cupboards

9. Site Clearance
- 9.1. Clean Up
- 9.2. Waste Disposal

10. Project Closure
- 10.1. Final Inspection
- 10.2. Stakeholder Walkthrough
- 10.3. Commissioning

Figure 7 ***Project Schedule***



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Construction of the Smart La Clery Wellness Centre**	178 days	Jan 1 '24	Aug 30 '24	
2		**Finalize Drawing & Designs**	**17 days**	**Jan 1 '24**	**Jan 20 '24**	
3		**Stakeholder Consultations**	**5 days**	**Jan 1 '24**	**Jan 5 '24**	
4		Collect Scope Requirements	5 days	Jan 1 '24	Jan 5 '24	
5		**Architect**	**6 days**	**Jan 6 '24**	**Jan 12 '24**	3
6		Prepare Drawing	5 days	Jan 8 '24	Jan 12 '24	4
7		**MEP Consultant**	**7 days**	**Jan 13 '24**	**Jan 20 '24**	5
8		Review Drawing	6 days	Jan 13 '24	Jan 19 '24	6
9		Drawings Approvec	0 days	Jan 20 '24	Jan 20 '24	8
10		**Approval & Permits**	**4 days**	**Jan 21 '24**	**Jan 24 '24**	2
11		Prepare Document	1 day	Jan 21 '24	Jan 21 '24	9
12		Submit documents to authorities	1 day	Jan 22 '24	Jan 22 '24	11
13		Make neecessary changes	1 day	Jan 23 '24	Jan 23 '24	12
14		Final Approval from Authorities	1 day	Jan 24 '24	Jan 24 '24	13
15		**Procurement Proces**	**16 days**	**Jan 25 '24**	**Feb 15 '24**	10
16		Expression of Inter	4 days	Jan 25 '24	Jan 30 '24	14
17		Receive Tenders	6 days	Jan 31 '24	Feb 7 '24	16
18		Evaluation of Tend	4 days	Feb 8 '24	Feb 13 '24	17
19		Select Contractor	1 day	Feb 14 '24	Feb 14 '24	18
20		Signing of Contract by	1 day	Feb 15 '24	Feb 15 '24	19
21		**Site Preparation**	**7 days**	**Feb 16 '24**	**Feb 25 '24**	15
22		Land Clearing	2 days	Feb 16 '24	Feb 19 '24	20
23		Waste Disposal	4 days	Feb 20 '24	Feb 23 '24	22
24		Hoarding of Site	2 days	Feb 24 '24	Feb 25 '24	23
25		**Foundation**	**11 days**	**Feb 26 '24**	**Mar 10 '24**	21
26		Lay Foundation Footings	6 days	Feb 26 '24	Mar 3 '24	24
27		Install Foundation Form	2 days	Mar 4 '24	Mar 5 '24	26
28		Pour & Cure Concn	4 days	Mar 6 '24	Mar 10 '24	27
29		**Walls & Roof**	**26 days**	**Mar 11 '24**	**Apr 14 '24**	25
30		Blockwork & Steel	11 days	Mar 11 '24	Mar 25 '24	28
31		Steel Columns	7 days	Mar 26 '24	Apr 3 '24	30
32		Build Roof Panels & Guttering	8 days	Apr 4 '24	Apr 14 '24	31
33		**Utilities**	**49 days**	**Apr 15 '24**	**Jun 20 '24**	29
34		**Electical**	**13 days**	**Apr 15 '24**	**May 1 '24**	29
35		Install Electrical	4 days	Apr 15 '24	Apr 18 '24	32
36		Installl Conduit & Cables	4 days	Apr 19 '24	Apr 24 '24	35
37		Install Outlets & Fixtures	5 days	Apr 25 '24	May 1 '24	36
38		**Plumbing**	**22 days**	**May 2 '24**	**May 31 '24**	34
39		Install Pipes	8 days	May 2 '24	May 13 '24	37
40		Install Plumbing Fixtures	9 days	May 14 '24	May 24 '24	39
41		Install Water Tanking	5 days	May 27 '24	May 31 '24	40
42		**HVAC**	**15 days**	**Jun 1 '24**	**Jun 20 '24**	38
43		Install Units	9 days	Jun 1 '24	Jun 12 '24	41
44		Fill Units with Ga	3 days	Jun 13 '24	Jun 17 '24	43
45		Install Solar Pan	3 days	Jun 18 '24	Jun 20 '24	44
46		**Finishings**	**42 days**	**Jun 21 '24**	**Aug 18 '24**	42
47		Plastering & Paintir	14 days	Jun 21 '24	Jul 10 '24	45
48		Tiling	9 days	Jul 11 '24	Jul 23 '24	47
49		Install Doors & Windows	5 days	Jul 24 '24	Jul 30 '24	48
50		Install Shelves & Cupboards	14 days	Jul 31 '24	Aug 18 '24	49
51		**Site Clearance**	**5 days**	**Aug 19 '24**	**Aug 23 '24**	46
52		Clean Up	3 days	Aug 19 '24	Aug 21 '24	50
53		Waste Disposal	2 days	Aug 22 '24	Aug 23 '24	52
54		**Project Closure**	**6 days**	**Aug 24 '24**	**Aug 30 '24**	51
55		Final Inspections	2 days	Aug 24 '24	Aug 26 '24	53
56		Stakeholder walkthrough	1 day	Aug 27 '24	Aug 27 '24	55
57		Commissioning	2 days	Aug 28 '24	Aug 29 '24	56
58	✓	Handover from Contractor to Ministry of Health	1 day	Aug 30 '24	Aug 30 '24	57
59						

Note. Schedule of Construction of Smart La Clery Wellness Centre, Source: Len Leonce 2023.

4.3.6 Control Schedule

The monitoring and management of the project schedule is a very important role which the Project Manager and team will have to perform to ensure that the project is a success. Using the project schedule generated from Microsoft Project and the table of milestone and key dates as a baseline, they will have to be proactive in realizing risks in falling behind on the schedule and log any deviations. Through dialogue with key stakeholders of the particular phase of the project which has deviated, it is expected that measures will be implemented to have the project back on schedule.

4.4. Cost Management Plan

4.4.1 Plan Cost Management

The Cost Management Plan will be an integral part of the overall project management process for constructing the SLCWC. It will provide a structured framework for financial control, risk mitigation, and effective decision-making, ultimately ensuring the project stays within budget and being completed in a cost-effective manner. The Project Manager will use the Cost Management Plan to define how the project costs will be estimated, budgeted, managed, and controlled throughout the project lifecycle.

The project has been funded by the Ministry of Finance, Government of Saint Lucia at a cost of (3.3) three million, three hundred thousand Eastern Caribbean Dollars. These funds will be used to pay all costs associated with the project excluding the salaries of the Project Manager and project team who are employees of the Ministry of Health. Through adequate

management of the cost plan, it is the responsibility of the Project Manager to ensure that the budget stays within the quality control measures of +/- 3% of the total cost.

4.4.2 Project Estimated Costs

Estimate costs is the process of developing an approximation of the cost of resources needed to complete the project work. (PMI, 2017, p. 240) The cost of the project was estimated by the Project Manager who conveniently for the Ministry of Health, is also an engineer. Using analogous estimating, he was able to use information from previous projects withing the department to provide these estimates. Once the contractor for the project was chosen, using the estimates provided by the ministry as a baseline, cost estimates for the project were finalized based on the budget provided.

Table 15

Project Costs Estimate

Deliverable/Activity	Estimated Cost
Architectural Drawings	$ 135,000.00
Quantity Surveyor Fees	$ 100,000.00
MEP Services	$ 128,000.00
Review and Configuration of drawings by MEP Consultant	$ 100,000.00
Site Preparation	$ 83,000.00
Excavations & Build Foundation of Centre	$ 389,583.00
Walls/Superstructure	$172,768.00
Carpentry	$250,825.00
Electrical and HVAC	$1,122.767.69
Roof	$247,156.68
Plumbing	$90,750.00
Painting	$94,050.00
Finishings	$ 98,071.40
Site Clearance and cleaning	$ 50,000

Total Project Cost Estimate	$ 3,061,971.77

Note. Project Cost Estimate, Source: Len Leonce 2023.

4.4.3 Determine Project Budget

Determining budget is the process of aggregating costs of individual activities or work packages to establish an authorized cost baseline (PMI, 2017, p. 248) During this project, it is expected that the Project Manager will use this cost aggregate as a baseline tool to measure, monitor and control project cost and management performance, in alignment with the project schedule. In determining the project budget, it was recognized by the project team and the Ministry of Finance that based on past project issues, apart from the project estimated costs, it was necessary to include in the budget an allocation for contingency reserve of 10%.

4.4.4 Control Costs

As a result of one of the major constraints of this project being the limited funds to construct the Centre, it is very important that the project team ensures that costs are controlled throughout the project cycle. One of the main tools to be used by the project team to control and monitor costs will be the Earned Value Management which will use three factors during analysis; planned value, earned value and actual cost which will allow the team to calculate the project's cost variance and cost performance index.

Figure 8

Earned Value Analysis Equations

Earned Value Analysis					
Abbreviation	**Name**	**Lexicon Definition**	**How Used**	**Equation**	**Interpretation of Result**
PV	Planned Value	The authorized budget assigned to scheduled work.	The value of the work planned to be completed to a point in time, usually the data date, or project completion.		
EV	Earned Value	The measure of work performed expressed in terms of the budget authorized for that work.	The planned value of all the work completed (earned) to a point in time, usually the data date, without reference to actual costs.	EV = sum of the planned value of completed work	
AC	Actual Cost	The realized cost incurred for the work performed on an activity during a specific time period.	The actual cost of all the work completed to a point in time, usually the data date.		
BAC	Budget at Completion	The sum of all budgets established for the work to be performed.	The value of total planned work, the project cost baseline.		
CV	Cost Variance	The amount of budget deficit or surplus at a given point in time, expressed as the difference between the earned value and the actual cost.	The difference between the value of work completed to a point in time, usually the data date, and the actual costs to the same point in time.	CV = EV – AC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost
SV	Schedule Variance	The amount by which the project is ahead or behind the planned delivery date, at a given point in time, expressed as the difference between the earned value and the planned value.	The difference between the work completed to a point in time, usually the data date, and the work planned to be completed to the same point in time.	SV = EV – PV	Positive = Ahead of Schedule Neutral = On schedule Negative = Behind Schedule
VAC	Variance at Completion	A projection of the amount of budget deficit or surplus, expressed as the difference between the budget at completion and the estimate at completion.	The estimated difference in cost at the completion of the project.	VAC = BAC – EAC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost
CPI	Cost Performance Index	A measure of the cost efficiency of budgeted resources expressed as the ratio of earned value to actual cost.	A CPI of 1.0 means the project is exactly on budget, that the work actually done so far is exactly the same as the cost so far. Other values show the percentage of how much costs are over or under the budgeted amount for work accomplished.	CPI = EV/AC	Greater than 1.0 = Under planned cost Exactly 1.0 = On planned cost Less than 1.0 = Over planned cost
SPI	Schedule Performance Index	A measure of schedule efficiency expressed as the ratio of earned value to planned value.	An SPI of 1.0 means that the project is exactly on schedule, that the work actually done so far is exactly the same as the work planned to be done so far. Other values show the percentage of how much costs are over or under the budgeted amount for work planned.	SPI = EV/PV	Greater than 1.0 = Ahead of schedule Exactly 1.0 = On schedule Less than 1.0 = Behind schedule
EAC	Estimate At Completion	The expected total cost of completing all work expressed as the sum of the actual cost to date and the estimate to complete.	If the CPI is expected to be the same for the remainder of the project, EAC can be calculated using: If future work will be accomplished at the planned rate, use: If the initial plan is no longer valid, use: If both the CPI and SPI influence the remaining work, use:	EAC = BAC/CPI EAC = AC + BAC – EV EAC = AC + Bottom-up ETC EAC = AC + [(BAC – EV)/(CPI x SPI)]	
ETC	Estimate to Complete	The expected cost to finish all the remaining project work.	Assuming work is proceeding on plan, the cost of completing the remaining authorized work can be calculated using: Reestimate the remaining work from the bottom up.	ETC = EAC – AC ETC = Reestimate	
TCPI	To Complete Performance Index	A measure of the cost performance that must be achieved with the remaining resources in order to meet a specified management goal, expressed as the ratio of the cost to finish the outstanding work to the budget available.	The efficiency that must be maintained in order to complete on plan. The efficiency that must be maintained in order to complete the current EAC.	TCPI = (BAC – EV)/(BAC – AC) TCPI = (BAC – EV)/(EAC – AC)	Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete

Note: From "A Guide to the Project Management Body of Knowledge Sixth Edition," by PMI, 2017. Copyright 2017 by Project Management Institute. Permission not sought.

Using the cost variance figure derived from the use of the equations in the above Earned Value Analysis table, it is expected that the Project Manager will make decisions to ensure that the project stays within the outlined budget. Throughout the project's lifecycle, particularly at each milestone, the Project Manager will subtract the budgeted costs from the actual cost to find the cost variance; with a positive variance by indicating the project costs are under budget while a negative cost variance will indicate that the project's cost is over budget. Whether the variance is negative or positive, it is important that the project

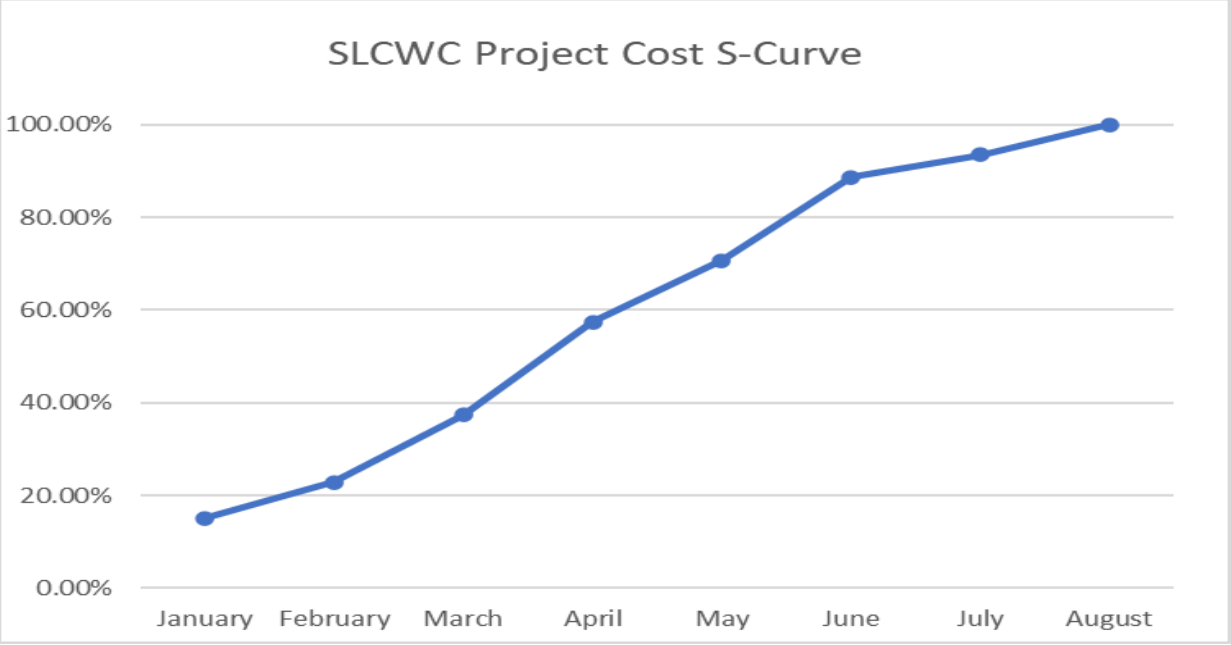
team investigate the reasons for this so that strategies can be developed to remedy this situation. The Project Manager will also use the cost variance figure to control costs by using some form of forecasting. If there is a consistent positive variance at consecutive milestones this may be a sign that the project will be completed below budget. On the contrary, a consistent negative variance may mean the Project Manager may need to meet with stakeholders and contractors to see what can be done to bring the costs back in line with the budget. By understanding the sources of variances, the project team and manager can also identify and mitigate risks that may impact the project's budget. It is also important that the Project Manager intermittently communicates cost variance figures to stakeholders, most importantly the Ministry of Finance who will be providing the funds for the project. This communication will help manage expectations and keep stakeholders informed about the project's financial status.

In order to allow for costs to be controlled and to only be paid for work done to a high level of quality, adequate sign-off will be needed for cheques to be issued by the treasury. At each milestone in the schedule, it is the responsibility of the Project Manager to perform an inspection along with the contractor and verify that the work was done to an expected standard. Subsequently, an invoice and report produced by the Project Manager will be verified correctly by the Chief Health Planner and forwarded to the Ministry of Finance for final approval and payment by the treasury. It is expected that this documentation is filed and saved for record keeping and in case an audit of payments needs to be done.

4.4.5 Project Cost S-Curve

Figure 9

Project Cost S-Curve



Note. Project Cost S-Curve, Source: Len Leonce 2023.

Table 16

Project costs and timelines

Phase of the Project	Estimated cost of each phase	Cost percentage of the budget	Time period of project phases
Drawings & Designs	$ 463,000	15.12%	January
Site Preparation	$ 83,000	2.71%	February
Excavation & Foundation	$ 389,583	12.72%	February to March
Walls & Roof	$ 419,924.68	13.71%	March to April
Utilities	$ 1, 213,517.69	39.63%	April to June
Finishings & Paintings	$ 442,946.40	14.47%	June to August

Site Clearance	$ 50, 000	1.63%	August

Note. Project costs and timeline, Source: Len Leonce 2023.

It is expected that the Project Manager will utilize **Figure 9**, which is the Project Cost S-Curve and **Table 16** to assist in the monitoring and control of the finances available to fund the project. It will assist the Project Manager and team in estimating cost distribution across different periods within the project, allowing the team to adequately allocate funds for specific tasks and activities at certain junctures. In the curve in figure 9 it is expected that by the fourth month of the project, 57.48% of funds should have been spent. The use of this tool will also allow the Project Manager to assess the cost performance index visually by tracking planned versus actual expenditures over time allowing for early identification of any discrepancies between the planned and actual costs. If the actual cost curve is consistently deviating from the planned costs curve, it is the responsibility of the Project Manager to take corrective actions to bring the project costs back in line. Throughout the project's lifecycle, it is expected that this tool will contribute to the effective cost management process enabling proactive cost decision making.

4.5. Quality Management Plan

4.5.1 Plan Quality Management

The Quality Management Plan will outline the approach and procedures which will be followed to ensure that the construction of the SLCWC will meet the required quality standards. The monitoring and management of the various quality objectives, quality

control measures and quality standards and requirements will be vital during the various phases of the project and would thus lead to the project being a successful one. The Project Manager will be mainly responsible for ensuring these quality measures are taken along with the various stakeholders at different junctures, with the use of the various quality management tools which will be documented. The primary objectives include achieving compliance with regulations, meeting client expectations, and delivering a facility that upholds the standards of healthcare quality.

4.5.2 Quality Assurance

Quality Assurance processes will be critically important during the construction of the SLCWC as it is essential for safety, functionality and success of the project. Quality assurance assessments, managed by the Project Manager, will be held at different intervals of the project ensuring all outlined processes are being executed as planned. The Project Manager will lead various quality management initiatives, monitor and evaluate quality performance metrics and responsibilities, manage various quality related audits and identify areas of quality improvement during the project to ensure conformance to initial requirements.

4.5.3 Cost of Quality

The Cost of Quality is an assessment of the costs associated with both poor quality and maintaining good quality throughout the construction of the SLCWC. The Cost of Quality concept categorizes quality costs into four main types: Prevention Costs, Appraisal Costs, Internal Failure Costs, and External Failure Costs.

Table 17

Cost of Project Quality

Cost Category	Description	Acton Taken/Effect on Project
Prevention Costs	Costs incurred to prevent defects before they occur	- Quality planning and design reviews - Training programs for construction team members - Quality control measures
Appraisal Costs	Costs incurred to assess and evaluate the project's conformance to quality requirements.	- Inspection and testing of materials and workmanship - Quality audits and reviews
Internal Failure Costs	Costs associated with defects discovered before the project is delivered to the client.	- Rework or corrections in construction - Material waste due to errors - Downtime for fixing issues
External Failure Costs	Costs associated with defects discovered after the project is delivered to the client	- Warranty claims and repairs after project completion
Total Quality Costs	The sum of prevention, appraisal, internal failure, and external failure costs.	Sum of all the above categories.

Note. Cost of Project Quality, Source: Len Leonce 2023.

During the project, the Project Manager will aim to prioritize minimizing the costs associated with poor quality (internal and external failure costs) by investing in prevention and appraisal activities. While these costs may prove to be unavoidable, the aim is to keep the internal and external failure costs to a minimum to reduce internal and external failure costs.

By using the above table, the Project Manager will be able to monitor and evaluate the opportunities for reduction in costs by focusing on prevention and appraisal to minimize failures and rework thereby improving overall project efficiency and quality.

4.5.3 Quality Control

The Quality Control processes for the construction of the SLCWC will be focused on keeping the project within outlined quality parameters based on the phases and deliverables. During this process, it is hoped that the Project Manager, with the assistance of his team, manage any quality changes by assessing performance of quality activities with the aim of keeping them within requirements. It is expected that non-conformities and findings are documented through quality controls tools for stakeholder consultation and corrective action.

4.5.3.1 Measuring Quality Metrics and Baseline

Table 18

Quality Metrics and Baselines

Metric	Description	Acceptable Baseline	Project Target
1. Safety Metrics			
Safety Training	% of workers trained in safety procedures	90%	100%
Near Miss Incident	No. of near misses on project site	1 incident a week	No incidents
Lost Time Injury	Hours lost to injury during project	1 hour a week	No hours
2. Quality Metrics			

Metric	Description	Acceptable Baseline	Project Target
Material Inspection	% of materials meeting quality standards	97%	100%
Workmanship defects	Defects requiring rework per 500 sq. ft related to workmanship	1	0
Inspection Pass Rate	Inspection Percentage rate	95%	100%
3. Schedule Metrics			
Schedule Adherence	Percentage of project tasks completed on schedule	95%	100%
Change Order Turnaround	Average time taken to process and approve change orders	5 days	2 days
Project Delays	Number of days the project is behind schedule	0	0
4. Cost Metrics			
Cost Variance	Difference between actual and budgeted costs	±0%	0%
Procurement Savings	Percentage cost savings on purchased materials	5%	10%

Note. Quality Metrics, Baselines and Targets, Source: Len Leonce 2023.

With the use of the above table, the Project Manager will track and manage quality throughout the course of the project, ensuring that it aligns with various safety, quality, schedule, cost, goals measured by outlined targets for each. It will be the responsibility of

the Project Manager to regularly input data into the table for quality control, quality assurance and continuous quality improvement.

4.5.3.2 Measuring Deliverables Quality Metrics

Table 19

Quality Control and Responsibility

Activity	Metric	Acceptance Criteria	Frequency of assessment and activity	Responsibility
Site Preparation	% of construction site cleared	100% of site debris collected and disposed of.	Once/ Site inspection	Head Contractor
	Soil compaction and testing	Achieving a minimum percentage between 95% to 98% of the maximum dry density specified for the soil.	Once and a soil compaction test	Project Engineer
Foundation and structural construction	Foundation Drying and Curing test	Proper drying and curing allowed with a result of **more than 40** using the rebound hammer concrete test.	Throughout curing process and a rebound hammer concrete test	Head Contractor
	Reinforcement Placement	Proper positioning and alignment of reinforcement bars within foundation according to drawings with 100% accuracy level.	Throughout process with review of drawings	Head Contractor
	Concrete mix proportions	Mix made according to	Throughout process and	Head Contractor

Activity	Metric	Acceptance Criteria	Frequency of assessment and activity	Responsibility
		specifications (concrete mixing ratio for foundation should be 1:2:4)	according to general concrete mixing ratio	
Building Envelope	Wall and Roof insulation installation	Alignment of wall meets approved drawings specifications with 0% variation.	Throughout process and according to drawings	HVAC Officer
	Windows and door installation	Strong weather resistant and airtight. Should be 100% leak free to be approved	Throughout process and according to drawings	Head Contractor
Installation of utilities	Electrical Installation	Neat installation of wiring and LED lights based on electrical requirements of the facility and electrical code. Zero visibility of wiring and 100% of fixtures working.	Throughout process and based on local electrical codes and drawings	Electrical Engineer
	Plumbing and Solare system Installation	Neat plumbing and installation of sinks, tanks, pumps, toilets and pipes pressure and leak tested. Plumbing should be 100% leak free to be approved.	Throughout process and based on drawings	Plumbing Contractor
	HVAC Installation	Neat installation of AC Units installed	Throughout process and	HVAC Contractor

Activity	Metric	Acceptance Criteria	Frequency of assessment and activity	Responsibility
		to drawing specifications with 0% variations.	based on drawings.	
Interior Finishes	Carpentry and painting	Built within initial requirements outlined in drawings. Painting done with 100% coverage and no defects.	Throughout process and based on drawings	Head contractor
	Flooring and tiling	Quality and evenness of floor with no tiling defects and 100% coverage.	Throughout Process and based on drawings	Head Contractor
Safety and Compliance	Compliance with building codes and standards	100% adherence to local building codes	Throughout process and based on local building codes	Quality Assurance Officer and Project Manager
	Safety Regulations	Implementation of protocols to protect individuals on site to have a 0% incident rate	Throughout process and based on incident reports	Quality Assurance Officer and Project Manager
End product	Centre is inspected to ensure no rework is required	Building is inspected to ensure construction was done within scope and requirements with 0 % need for rework	Once at end of Project and based on drawings	Project Team

Note. Quality Control and Responsibility, Source: Len Leonce 2023.

As a result of the Project Manager establishing metrics for each deliverable, the project team can benchmark progress and evaluate performance as shown in the table above. Consequently, the project team can quickly identify areas that may need improvement or deviations from the initial plan leading to improvement of processes during construction. This proactive approach supports effective risk management, allowing the project team to address problems before they escalate. The above metrics table also ensures that the final deliverables align with the client's expectations and requirements. This helps enhance client satisfaction by providing a transparent framework for evaluating the construction project's progress and quality.

4.5.3.3 Record of Quality Non-conformance

It is important that the Project Manager introduces the habit of recording various non-conformances which would have been recognized during inspection over the course of the project. The non-conformance table will be used during the SLCWC project for identifying, documenting and managing the various instances where work done does not conform to initial requirement or existing building standard. Through its use, the Project Manager will ensure that there is a high level of quality, accountability, communication and project success.

Table 20

Project Non-conformance Log

Date	Defect	Phase	Description of Non-Conformance	Officer Responsible	Corrective Action Taken	Status

DD/M /YY	Type of Defect	Phase of project cycle	Bried description	Officer	Description	Open /Closed

Note. Non-conformance table, Source: Len Leonce 2023.

4.6 Resource Management Plan

The Resource Management Plan for the construction of the SMART La Clery Wellness Centre will serve as a guide for the Project Manager and project team in the identification, acquisition and management of the human and physical resources to be used during the life of the project. It is expected that the Project Manager will implement the necessary processes and use the relevant tools so that this can be done effectively.

4.6.1 Identification of Resources

During the project it is expected that human and physical resources will be sourced for different activities. In relation to human resources, the Ministry has led various projects in the past so there are lessons learned as to the resources needed to ensure the project is a success. The Project Manager for the project is an employee within the corporate planning unit of the Ministry of Health. He is also a civil engineer so he will be using his technical skills and expertise during the project. The project team consists of members of the planning unit all supervised by a chief planner. In the case of the quantity surveyor and architect, these individuals are contracted by the Ministry on various projects, so they are familiar with the requirements in constructing such a facility. The contractor will be procured through a tendering process, where, based on an outlined criterion, the best and most suitable candidate will be chosen. This contractor has the responsibility of subcontracting various components of the construction which he may not be viable for him

to undertake on his own. In this regard, the contractor will have the responsibility of procuring the raw materials and tools for construction with general oversight by the Project Manager to ensure what is purchased is up to standard and within requirements.

4.6.2 Human Resources for Project

4.6.2.1 Roles and Responsibilities

Table 21

Duties and Responsibilities of Stakeholders

Role	Duties and Responsibility	Competencies
Permanent Secretary of Finance through the Ministry of Finance	The Ministry of Finance will be the entity providing funding for the project. Status reports and approvals will need to be obtained before funds are disbursed intermittently. All changes to agreed scope, budget, schedule and requirements would have to go through the Ministry of Finance.	1. Master's degree in finance, economics, business administration, public administration, or a related field. 2. Extensive experience in finance, accounting, or economic management, preferably at a senior level in government, financial institutions, or private sector organizations. 3. In-depth knowledge of economic and financial principles, public finance management, taxation, budgeting, and fiscal policy. 4. High ethical standards and integrity, as the role involves handling sensitive financial information and making decisions that can impact the economic well-being of the country or organization. 5. Ability to adapt to changing economic

Role	Duties and Responsibility	Competencies
		conditions, policy priorities, and external factors that may impact the financial landscape.
Ministry of Health through the CHP	The Ministry was responsible for initiating the project, designating duties to all internal officers and finalizing the project requirements.	1. A minimum of a Master's degree in a relevant field such as health planning, public health, healthcare administration, or a related discipline is required. 2. Strong strategic planning and analytical skills to assess healthcare needs and develop effective plans and strategies. 3. Leadership and management experience, including the ability to lead a team and work collaboratively with other departments. 4. Strong project management skills to oversee the development and implementation of health planning initiatives. 5. In-depth knowledge of healthcare systems, including understanding of healthcare delivery, financing, and policy issues. 6. Knowledge of relevant healthcare laws, regulations, and compliance requirements.
Project Manager	Coordinate and manage project activities particularly the scope, budget and schedule of the project. Provide leadership to the project team while ensuring areas such as communication, stakeholder	1. A bachelor's degree in project management, construction management, civil engineering, architecture or related field.

Role	Duties and Responsibility	Competencies
	engagement and risk management within the project is handled effectively. Status reports and updates should be provided regularly to his superiors at the Ministry.	2. Relevant work experience of at least 5 years in construction project management is crucial. 3. Familiarity with different construction methodologies (e.g., design-bid-build, design-build) and project types (residential, commercial, industrial) is required. 4. Proficiency in project management software and tools, such as scheduling software, cost estimation software and Microsoft Project. 5. The ability to prepare clear and concise reports, proposals, and project documentation. 6. Strong verbal and written communication skills are essential for effective communication with team members, clients, subcontractors, and other stakeholders. 7. Leadership skills to guide and motivate project teams. 8. Ability to assess, monitor and control processes of cost, schedule, risk, resource, quality, communications, procurement, stakeholder management components within a project. 9. Knowledge of Sustainable Project Management is required

Role	Duties and Responsibility	Competencies
Project Officers	Provide operational and administrative support to the project manager particularly in the procurement and financial components of the project.	1. A bachelor's degree in construction management, project management, engineering, or a related field is typically required. 2. Relevant work experience in project management, preferably in the construction industry. 3. Strong understanding of construction project management principles and methodologies. 4. Proficiency in project management tools and software. 5. Familiarity with local building codes, regulations, and safety standards. 6. Flexibility to adapt to changing project requirements, unexpected challenges, and shifting priorities.
Architect	Prepares the designs and layout drawings for the facility based on consultation and meetings with requirements obtained from the users of the facility ensuring they meet all building codes and regulations.	1. A bachelor's or master's degree in architecture from a recognized institution. 2. Local registration or licensure as an architect in the relevant jurisdiction. 3. A portfolio showcasing previous projects, including design sketches, construction drawings, and completed buildings. 4. Familiarity with various types of construction projects such as commercial, or institutional. Similar experience with health facilities will be an asset.

Role	Duties and Responsibility	Competencies
		5. Understanding of relevant engineering principles and construction techniques. 6. Awareness of sustainable design principles and environmentally friendly construction practices. 7. Ability to understand and address client needs and preferences.
Quantity Surveyor	Has the responsibility of estimating the costs of the construction of the facility based on designs and materials and labor needed.	1. A bachelor's degree in Quantity Surveying, Construction Management, Civil Engineering, or a related field is required. 2. Member of a relevant professional organization, such as the Royal Institution of Chartered Surveyors (RICS) or other local equivalent bodies. 3. Relevant work experience in the construction industry is essential particularly in health facilities construction. 4. Proficiency in using quantity surveying software and tools. 5. Ability to explain complex technical concepts to non-technical stakeholders. 6. Knowledge of local and national construction regulations and compliance requirements. 7. Knowledge of cost estimating, budgeting, and financial management.

Role	Duties and Responsibility	Competencies
MEP Consultant	Responsible for inputting the mechanical, electrical and plumbing components of the facility into the technical drawings based on the requirements of the users.	1. Bachelor's degree in Mechanical Engineering or a related field. 2. Professional engineering license or certification is required. 3. Demonstrated at least 5 years' experience working as an MEP consultant on construction projects with experience in health sector. 4. In-depth knowledge of mechanical, electrical, and plumbing systems. 5. Understanding of local building codes, regulations, and industry standards. 6. Effective communication skills to interact with clients, architects, contractors, and other project stakeholders. 7. Ability to prepare and deliver clear and concise technical reports and presentations. 8. Knowledge of local, state, and national building codes and regulations related to MEP systems. 9. Awareness of sustainable design practices and energy-efficient MEP solutions.
Contractor	Responsible for managing construction and coordinating the activities in the scope of construction. Also has the responsibility of ensuring that the project stays within scope, schedule and budget with any change requests going through the proper channels	The competencies required for the contractor are outlined in section 4.9.3.1 and 4.9.3.2

Role	Duties and Responsibility	Competencies
	for approval. The contractor will be tasked with providing progress reports and hosting meetings where this will be discussed with the Project Manager. The procurement of materials and subcontracting of work will also be done by the contractor.	
Subcontractor	Responsibly for managing parts of the construction as engaged by the contractor. These activities may include the plumbing and solar system, electrical works, finishings, carpentry and HVAC system.	Subcontractors will be hired based on the discretion and previous working experience with contractor

Note. Duties and Responsibilities of Stakeholders, Source: Len Leonce 2023.

It is the responsibility of the Project Manager to ensure that through proper monitoring, evaluation and communication, all mentioned in the above table perform the necessary duties effectively, contributing to the success of the project. It is important that these individuals understand their roles and what is expected of them and how they contribute to the success of the project.

4.6.2.2 Project RACI Matrix

During the lifecycle of this project, the Project Manager will utilize the RACI Chart to assist in managing human resources by clarifying and communicating roles and responsibilities for the various activities of the project. The chart will identify each stakeholder and whether they are responsible or accountable for the activity and whether they should be consulted or only informed of the activity.

Table 22

Project RACI Matrix

Activity	Responsible	Accountable	Consulted	Informed
Project Start Off	MOF, MOH, Project Manager, Project Officers	Project Manager	Staff of facility	Community of La Clery
Finalize drawings & Designs	Architect, MEP Consultant, Quantity Surveyor	Project Manager	Staff of Facility	All Stakeholders
Prepare approvals/permits from Regulators	Project Manager	Project Manager/MOH	N/A	MOH
Procurement of Contractor	Project Manager, Project Officers	MOF, MOH,	N/A	All Stakeholders
Site Preparation	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Build Foundation	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Walls and Roof	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Plumbing and Solar System	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Electricals	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
HVAC System and Vents	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Interior Finishing and Carpentry	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders

Activity	Responsible	Accountable	Consulted	Informed
Exterior Finishings	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Site Clearance	Contractor, Sub-Contractor	Project Manager/Engineer	Project Manager/Engineer	All Stakeholders
Final Inspections	Contractor, Sub-Contractor, Project Manager	Project Manager	MOH	N/A
Handover and Project End	Contractor, Project Manager	Contractor, Project Manager	MOH	All Stakeholders

Note. Project RACI Chart, Source: Len Leonce 2023.

The roles of different individuals as it pertains to the various activities are:

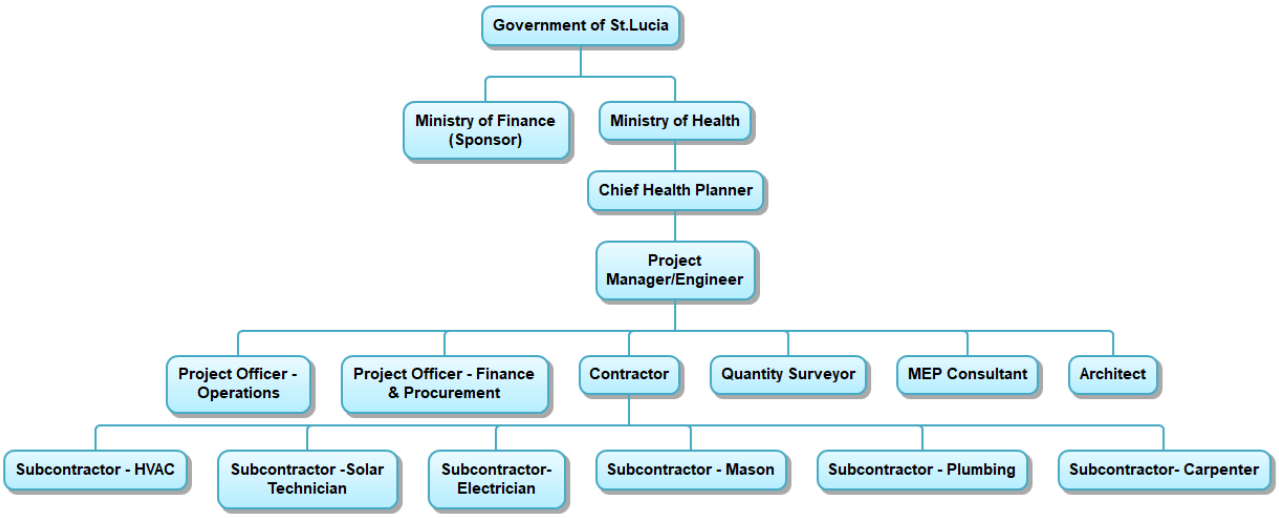
1. Responsible: These individuals are responsible for performing the particular activity. Accountable: These individuals are tasked with answering or reporting on the completion of the task or activity. This person usually delegates the activity to the responsible party and ensures that it is completed to requirements.
2. Consulted: These individuals provide input or expertise and are consulted before decisions are made in relation to performing an activity or task.
3. Informed: These individuals are constantly updated about the progress of the task or decision but have little say in decision making in relation to the tasks.

It is important that the RACI chart is regularly reviewed and updated by the Project Manager throughout the project so that it can adapt to the various changes and ensure constant clarity concerning roles and responsibilities.

4.6.2.3 Project Hierarchy Chart

Figure 10

Project Hierarchy Chart



Note. Project Hierarchy Chart, Source: Len Leonce 2023.

Figure 10 illustrates levels of supervision within the projects type which directly correlates to the authority each stakeholder holds over others. This chart will also aid in the communication channels which should be used during project lifecycle.

4.6.2.4 Human Resource Evaluation and Management

It is vital that Project Manager effectively evaluates and manages the human resources within the project as this process is integral to project success by ensuring that the right

people are in the right roles, fostering a positive work environment, and addressing challenges effectively. This will involve team building activities such as ensuring that conflict among stakeholders within the project is resolved quickly so the project team will continue being motivates and productive which is essential for achieving project goals and delivering high-quality outcomes.

4.7 Communications Management Plan

During the life cycle of this project, it is important that the Project Manager, who is the main stakeholder in the communication processes of the project, ensures that all stakeholders are well-informed, expectations are managed, and potential issues are addressed promptly through effective communication. During this Communications Management Plan, the modes of communication, channels and tools used to communicate between stakeholders will be outlined.

4.7.1 Plan Communications Management

It is the responsibility of the Project Manager to implement mechanisms and processes to allow for project stakeholders to understand and address the diverse communication needs of such a critical project. Doing so will align stakeholders, resolving conflicts during the project's life cycle, optimizing resources, and ultimately contributing to the overall success of the project. Tools which will enable the above which will be used by the Project Manager will include the Communication Stakeholder Requirements Table which will capture, organize an**d** manage the communication needs and preferences of various stakeholders during the project life cycle and the Communications Matrix which will organize and document the communications strategy used during the project life cycle.

Table 23

Project Communication Matrix

Element of Communication	Responsible	Target	Frequency	Mode	Purpose
Project Start-off	Project Manager	All Stakeholders	Once	General Meeting	Introduce project goals and roles of stakeholders
Weekly project updates	Project Manager/ Contractor	Project Team	Weekly and at milestones	Meeting	Discussion on status of project and issues.
Project Change Requests	Project Manager	Project Team/Contractor	As need arises	Meeting /Email	To discuss changes and the impact importantly on schedule and costs and approval
Project Issues	Project Manager	Project Team/Contractor	As need arises	Meeting /Email	To identify, report and resolves issues in a timely manner so they do not impact scope, schedule or cost.
Risk analysis updates	Project Manager	Project Team	Weekly	Email	To ensure risks are being handled effectively.
Emergency communication	Project Manager	Project Team, Contractor	As needed	Email, Meeting	To deal with any arising emergencies
Site Management Meeting	Contractor	Sub-Contractors, laborers and	Weekly	Meeting	To discuss ongoing and future workplans

Element of Communication	Responsible	Target	Frequency	Mode	Purpose
		Project Manager			and issues related to construction
Project Debriefing	Project Manager	Project Team, Contractor	At end of project	Meeting	To discuss project lessons and finalize closure.
Project Closure	Project Manager	MOH, Project Team, Contractor	At end of project	Meeting, Report, Presentation	To have a discussion in relation to success of project, the conclusions and recommendations to key stakeholders.

Note. Project Communication Matrix, Source: Len Leonce 2023.

Table 24

Communication Flow and Stakeholder Requirements Table

Responsible (From)	Stakeholder (To)	Information Needs	Frequency	Mode	Responsible
Project Manager	Project Team	Project status, deadlines and tasks	Weekly	Meetings, emails	Project Manager
Project Manager	Chief Heath Planner	Project update and progress report	Bi-weekly	Reports, meetings	Project Manager
Project Manager	Contractor	Project updates and any requests	Weekly	Meetings, Reports	Project Manager
Contractor/Project Manager	Subcontractors	Project Schedule, changes	Weekly	Emails, meetings	Contractor/Project Manager

		and work plans			
Sub-Contractors	Laborers	Daily tasks and project changes	Weekly	Meetings	Sub-Contractors

Note. Project Communication Flow and Stakeholder Requirements, Source: Len Leonce 2023.

4.7.2 Approved modes of communication

During the project to construct the SLCWC, various modes of communication will be allowed to convey vital project information, collaborate with team members, and keep all key stakeholders informed. The choice of communication mode will depend on critical factors such as the nature of the information, the urgency of communication, and the technological infrastructure available.

Virtual Meetings: Stakeholders on the project will use virtual meetings which enable video conferencing through the project's Zoom account. This method will be particularly useful when members are not geographically in a close location and a formal meeting is required. These project virtual meetings will be recorded through the platform and emailed to all stakeholders who were present and absent. These include:

1. Email: This form of communication will be used to transfer documents, pictures and large files for viewing. It will provide stakeholders with a means of documentation and record keeping.
2. Face-to-face Meetings: This method will allow for interaction between stakeholders, allowing for interpersonal discussions. Since important decisions will be made at

such meetings, it is expected that whatever decisions made at these meetings are emailed to relevant parties so it can be put on record and validated.

3. Reports: It is expected that scheduled project progress reports are produced and communicated to relevant stakeholders at key project points such milestones, progress on deliverables, reports on schedule, report on costs and upcoming events in the project life cycle.
4. Phone calls and messaging: It is expected that this form of communication will be very common during the lifecycle as it allows for urgent communication and decisions to be made. However, these forms will not serve as an approved form of project communication so it is expected that any decision made through phone calls and messaging be put on record through a report which can be validated by multiple parties and become a project document.

4.7.3 Monitor Communications

"Monitor Communications is the process of ensuring the information needs of the project and its stakeholders are met. Monitor Communications determines if the planned communications artifacts and activities have had the desired effect of increasing or maintaining stakeholders' support for the project's deliverables and expected outcomes. The impact and consequences of project communications should be carefully evaluated and monitored to ensure that the right message with the right content is delivered to the right

audience, through the right channel, and at the right time". (PMI, 2017, pp. 388-389) It is expected that the Project Manager will observe stakeholders intensely during the project life cycle, requesting feedback from all parties to ensure that the communication methods being used are effective. He will be required to note cases where habits of the stakeholder or the method or flow of communication is an issue and devise a plan or change in communication method to deal with such. A bottleneck of information or wrong information being communicated can have a great effect on the success of the project, so it is expected that the Project Manager will take this duty very seriously.

4.8 Risk Management Plan

A key component of this project's success will be the ability of the Project Manager and his team to mitigate the various risks that the project will face during the life of the project. To effectively do so, the project team would have to identify these potential risks, subsequently performing a qualitative analysis of each risk. Based on their probability of occurring, the impact of the risk on the project and resources available, the project team would be tasked with devising certain measures to either accept the consequences of the risk, put measures in place to avoid the risk, transfer the impact of the risk or mitigate the impact of the risks brought upon during the project.

4.8.1 Plan Risk Management

The first step in completing the Project Risk Management Plan would be the identification and planning of the various potential risks. Based on lessons learned from previous projects

of a similar nature, it would not be as difficult for the project team to identify associated risks. To illustrate these risks, the Project Manager will use a Risk Breakdown Structure (RBS) to allow for classification of the outlined risks. The RBS will contain a few levels of risk which will be classified whether they are technical, management, commercial or external risks.

Table 25

Project Risk Breakdown Structure

RBS Level 0	RBS Level 1	RBS Level 2	RBS Level 3
0. All Sources of Project Risk	1. Technical Risks	1.1 Scope definition 1.2 Technical capacity 1.3Technological/equipment mishap	1.1.1 Forced changes to the scope of the project. 1.2.1 If the skills of workers are not up to standard then the technical progress of the project can be impacted. 1.2.2 Incompetent technical officers such as the Contractor can pose a serious risk. 1.3.1 Equipment failure or theft poses a great risk to the project. 1.3.2 Loss of project records and data can pose a significant risk to the success of the project.
	2.Management Risks	2.1 Resources 2.2 Communication processes 2.3 Project Management 2.4 Safety	2.1.1 Lack of tools, materials and labor shortages can pose a risk to the project. 2.2.1 Poor communication between stakeholders can result in project delays.

RBS Level 0	RBS Level 1	RBS Level 2	RBS Level 3
			2.2.2 Conflict between stakeholders can serve as a risk and can derail project progress. 2.3.1 Civil unrest overworked, or unhappy stakeholders can halt the project which is a serious risk. 2.3.2 Poor leadership and oversight such as a delay in approving progress reports and approving requests can delay the project posing a serious risk. 2.4.1 The possibility of a serious accident occurring on the project site serves as a risk to the project.
	3.Commercial Risks	3.1 Supply of materials 3.2 Contractual Miscommunication 3.3 Payment Issues	3.1.1 A sudden increase in prices can have a negative effect on the project budget which would pose a risk to the project. 3.1.2 Supply Chain issues can result in delays in receiving raw materials resulting in a delay in the project schedule 3.1.3 If raw materials are damaged or of poor quality it may result in a delay of schedule or if already used may require that the task is redone.

RBS Level 0	RBS Level 1	RBS Level 2	RBS Level 3
			3.2.1Miscommunication or poorly negotiated contracts between contractor and subcontractor can result in delays of works posing a risk to project schedule. 3.3.1 Late payment to suppliers and subcontractors can result in a project falling behind schedule due to unfortunate work delays.
	4. External Risks	4.1 Bad Weather/Climate 4.2 Pandemic/Disease Outbreak 4.3 Local government laws	4.1.1 A natural disaster causing high level damage to various sectors can affect the progress of the project. 4.1.2 Limited construction can be done during rainfall and considering the project will be done during the rainy season this may serve as a risk. 4.2 An outbreak of Covid-19 or a similar pandemic can bring about an unfortunate shutdown of project works. 4.3 Elections can be held and a new government may halt the project and divert funds to another project.

Note. Project Risk Breakdown Structure, Source: Len Leonce 2023.

4.8.3 Qualitative Risk Analysis

To provide a proper analysis of the risks identified in the RBS, the Project Manager will use Qualitative Risk Analysis to evaluate and prioritize the various risks based on their potential impact and probability using his assessment skills and judgment. Using this analysis will help the Project Manager, project team and other stakeholders on the SLCWC make informed decisions about how to allocate the necessary resources and focus efforts to mitigate potential arising issues. The Qualitative Risk Analysis Tools used for this project will be the probability and impact scale and matrix.

Figure 11

Project Probability and Impact Scale.

Scale	Probability	Probability score	Impact on Project			
			Schedule	Cost	Scope	Impact score
VLO	<10%	0.1	<2 weeks	<1%	Temporary defects, causing minor short term consequences	0.05
LO	10 to <30%	0.3	2 weeks to <1 month	1% to <2%	Product performance shortfall in area of tertiary (minor) importance	0.1
MED	30 to <50%	0.5	1 month to <2 months	2% to <4%	Product performance shortfall in area of secondary importance	0.2
HI	50 to <70%	0.7	2 months to <4 months	4% to <8%	Minor product performance shortfall in area of primary (critical) importance	0.4
VHI	70% plus	0.9	4 months plus	8% plus	Significant failure of product to meet one of its primary (critical) purposes	0.8

Note: From "https://www.praxisframework.org/en/library/probability-impact-assessment,". Copyright 2023 by Praxis Framework Limited. Permission not sought.

4.8.3.1 Probability and Impact Matrix and Scale

"A probability and impact matrix is a grid for mapping the probability of each risk occurrence and its impact on project objectives if that risk occurs. This matrix specifies combinations of probability and impact that allow individual project risks to be divided into priority groups. Risks can be prioritized for further analysis and planning of risk responses based on their probability and impacts. The probability of occurrence for each individual project risk is assessed as well as its impact on one or more project objectives if it does occur" (PMI, 2017, p. 425)

The scale in figure 9 quantifies the probability of the risk happening expressed as a percentage and on a scale ranging from very low to very high and the impact of risk on the scope, cost and schedule of the project.

Figure 12

Project Probability and Impact Matrix

Probability		Threats					Opportunities				
	0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05
	0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
	0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
	0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
	0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
		0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05
		Impact									

Note: From "https://www.praxisframework.org/en/library/probability-impact-assessment." Copyright 2023 by Praxis Framework Limited. Permission not sought.

It can be seen in figure 10 that the matrix contains two axes: one for probability of the risk happening during the project cycle and the other for the impact the risk will have on the project. The intersection of these axes forms a grid where the particular risk can be categorized into a particular level. These risk scores are found by getting the product of the impact figure and the probability figure and are rated by the color zones of red, yellow and green.

High Probability, High Impact (Red Zone): The project risks in this area will be considered the most critical and require immediate attention and mitigation.

High Probability, Low Impact or Low Probability, High Impact (Yellow Zone): Risks in these areas may be significant, and their management should be considered carefully by the Project Manager.

Low Probability, Low Impact (Green Zone): Risks in this area are considered low priority, but continuous monitoring is still necessary by the project manager and team.

4.8.4 Risk Register

"The risk register captures details of identified individual project risks. The results of Perform Qualitative Risk Analysis, Plan Risk Responses, Implement Risk Responses, and Monitor Risks are recorded in the risk register as those processes are conducted throughout the project" (PMI, 2017, p. 417) To allow for proper documentation and monitoring of these risks, it is important that the Project Manager and team include the risks mentioned above into the project's risk register. The use of this register would allow the Project Manager to record the risks, their causes, owners, and strategies which can be employed to deal with these risks.

Table 26

Project Risk Register

RBS ID	Risk	Cause	Pot. Result	Trigger	Owner	Probability	Impact	P*I	Strategy
1.1	Scope Change	Stakeholder such as users require change in scope of project	This will influence the budget & schedule of the project.	Staff of the facility/MOH	Project Manager	.10	.60	.06	Mitigate: Ensure that the stakeholder consultation process where requirements are collected is done thoroughly.
1.2	Limited skilled labor	Laborers not as skilled as subcontractors first thought	Work will be done poorly and might need to be redone.	Workers being hired	Contractor	.10	.30	.03	Mitigate: Ensure that the hirings process for workers entails vigorous

RBS ID	Risk	Cause	Pot. Result	Trigger	Owner	Probability	Impact	P*I	Strategy
									interviews and screening
1.3	Equipment failure & theft	Limited maintenance done on equipment and lack of security	It will take time to replace important equipment affecting the schedule and additional costs.	Low quality equipment is purchased resulting in frequent downtime	Project Manager & Contractor	.20	.30	.06	Mitigate: Ensure that all equipment is logged, and security mechanism are installed. A maintenance schedule will be implemented to avoid equipment failure.
1.4	Loss of Data	System malfunction	Project progress may be hindered resulting in schedule being affected.	Device where project information is stored may be infected by malware	Project Manager	.10	.30	.03	Mitigate: Ensure that all project information and data is backed up
1.5	Incompetent technical officers	Technical officers may not possess required skills	Work may need to be redone while time will be lost hiring more competent officers	Poor recruitment techniques	Project manager	.10	.50	.05	Mitigate: Ensure that the recruitment of technical officers
2.1	Lack of tools & materials	Tools and materials are scarce	Increase in costs to find other sources and the wait to receive will affect the schedule	Shortage on island	Project Manager & Contractor	.30	.50	.15	Mitigate: Purchase in bulk and seek alternative options where possible
2.2	Poor Communication	Methods of communication may not be working	Delay in project schedule as time is wasted finalizing decisions	Communication not flowing between stakeholder	Project Manager	.10	.30	.03	Mitigate: ensure all stakeholders are aware of proper communication methods

RBS ID	Risk	Cause	Pot. Result	Trigger	Owner	Probability	Impact	P*I	Strategy
2.3	Stakeholder conflict	Personal disagreements and differing opinions	Delay in work being done	Miscommunication and difference in opinions	Project Manager	.10	.30	.03	Mitigate: Project manager will have to intervene and provide conflict resolution techniques to members
2.4	Overworked/Unhappy team members	Limited staff on site	Delay in work being done as team members are unavailable	Staff reporting sick resulted in high rates of absenteeism	Contractor & Project Manager	.30	.40	.12	Mitigate: measures in place to have replacement staff and staff on rotation
2.5	Poor project leadership	Poor attitude towards duties	Poor monitoring and evaluation can lead to project not meeting schedule, budget & quality requirements	Project Manager unable to do his job/ does not prioritize duties	MOH	.10	.60	.06	Mitigate: Ensure project manager submits thorough workplan and hold timely meetings to review
2.6	Accident on project site	Safey measures not taken into consideration	Will affect project schedule as work may be halted	Lack of adherence to site rules.	Project Manager	.30	.30	.09	Mitigate: proper safety training to all on site
3.1	Increase in prices	Taxes, demand and supply	Increase in project costs affecting budget	Poor economy	Project Manager	.30	.60	.18	Mitigate: Source alternative materials at a cheaper rate
3.2	Damaged/poor raw materials	Goods damaged during delivery or poor quality purchased	Increased costs and delay in schedule while awaiting new materials	Poor quality checks on purchase	Contractor	.30	.60	.18	Mitigate: Ensure that guidelines are in place to perform checks on materials purchased

RBS ID	Risk	Cause	Pot. Result	Trigger	Owner	Probability	Impact	P*I	Strategy
3.3	Poor contracts	Poor procurement measures	Delay in project as terms are not clear	Deliverables not in line with requirements	Project Manager	.10	.70	.07	Ensure that terms in contracts are clear and understood before signature so any issues can be dealt with beforehand
3.4	Supply Chain Issues	Delay in International suppliers	Delay in project schedule	Order made for materials	Contractor & Manager	.30	.50	.15	Mitigate: with proper planning materials can be ordered and stored before they need to be used
3.5	Late Payment to Suppliers	Unclear processes and holdups	Delay in project schedule	Bad communication	Project Manager	.20	.30	.06	Mitigate; proper communication in relation to all payment processes and deadlines
4.1	Natural Disaster	Climate Change	Delay in project schedule and costs based on damage done	Disaster	Project Manager	.20	.70	.14	Accept: alter work schedule in case of natural disaster
4.2	Covid 19	Pandemic	Delay in schedule as work will be halted to reduce transmission	Pandemic	Project Manager	.20	.50	.10	Accept: alter work schedule in case this happens
4.3	Elections	Government Change	Scope of project may change with no adjustment to budget and schedule	Mandatory elections	Project Manager	.20	.80	.16	Accept: Justify to new officials as to why scope is unable to change.

RBS ID	Risk	Cause	Pot. Result	Trigger	Owner	Probability	Impact	P*I	Strategy
4.4	Rainfall	Climate Change	Delay in project schedule.	Weather	Project Manager	.40	.40	.16	Mitigate: Provisions to be made for time lost by working on evenings

Note. Project Risk Register, Source: Len Leonce 2023.

4.8.5 Monitor Risk

It is expected that the Project Manager and team will monitor all the aforementioned risks and arising risks through continuous identification, planning and updating of various tools such as the RBS and Risk Register. The Project Manager and team will need to continuously assess the probability and impact of risks due to changes in the project scope, external or internal factors such as geopolitical events, economic conditions, regulatory changes or changes in available resources which can influence the risk landscape. The Risk Register will be constantly reviewed and updated to reflect changes in the project's risk landscape. At project status meetings, reports will need to be produced from the desk of the Project Manager containing the status of identified risks, new risks, project risks mitigation strategies and the effectiveness of Project Risk Management Strategies. To also ensure that all stakeholders are aware of the risk environment which the project will be operating in, it is vital that continuous communication on project risks takes place among all stakeholders. By consistently monitoring risk during the construction of the SLCWC, the project team can ensure that it adapts to changes in the risk environment, implementing timely risk mitigation strategies.

4.9 Procurement Management Plan

The Procurement Management Plan will serve as an important component of the project management plan which the Project Manager and team will be using to construct the SLCWC. The Procurement Plan will serve as a framework for how the various procurement processes will be managed throughout the project lifecycle. It will guide and demonstrate how the project team will manage the acquisition of required services in an organized and competent manner, while curtailing risks and warranting compliance with project requirements. This plan will contain the procurement approach during this project, selection criteria used to evaluate and select the contractor, the contract type which will be used to engage the contractor and how the awarded will be monitored.

4.9.1 Procurement Timeline and Responsibilities

Table 27

Procurement Processes Timelines and Responsibilities

Activity	Description	Date	Owner
Request for Bids.	A request for bids will be sent out for advertisement through various mediums with a general description and terms of conditions of the construction of the SLCWC.	January 25th, 2024 to February 07, 2024	Project Manager and Project Team
Deadline for Tenders.	The period to receive tenders will close on this day.	February 07, 2024	Project Manager

Activity	Description	Date	Owner
Evaluation of Tender.	All tenders will be evaluated on this date by a committee of members to ensure that the process is transparent.	February 08th, 2024 to February 13, 2024	Project Manager, Ministry of Health, Ministry of Finance, Ministry of Planning.
Selection of Contractor.	Based on selection criteria outlined, a contractor is selected.	February 14, 2024	Project Manager, Ministry of Health, Ministry of Finance, Ministry of Planning.
Contract is signed.	Contract and Team arrange for the signing of the contract	February 15, 2024	Project Team, Contractor

Note. Procurement Processes Timelines and Responsibilities, Source: Len Leonce 2023.

4.9.2 Project Procurement Approach

The Project Manager and team will be procuring the services of an experienced contractor to construct the SLCWC on behalf of the Ministry of Health. In this regard, it is the responsibility of the successful contractor to handle the procurement of sub-contractors and all raw materials and tools which may or may not be needed, based on the approved Bill of Quantities and technical drawings which have been approved to build the facility to ensure that the project is successful.

4.9.3 Conduct Procurement

4.9.3.1 Request to Bid

In collaboration with the members of the project team who are better versed in procurement process, the Project Manager will carefully prepare the request for bids document based on a similar format used by the Ministry of Health for similar project in the past. This bid document will be communicated through the national gazette, email blast, television, social media and local newspapers. The request to bid for the construction of the SMART La Clery Wellness Centre will entail:

Country: Saint Lucia

Name of Project: Construction of the SMART La Clery Wellness Centre

Contract Title: Contract – Smart La Clery Wellness Centre

1. The Ministry of Health has received financing from the Ministry of Finance towards the construction of the SMART La Clery Wellness Centre.
2. The Ministry of Health requests sealed Bids from eligible Bidders for the construction of the SMART La Clery Wellness Centre.

The project will primarily consist of building a facility which will include a number of amenities integral to the provision of health care services to the community. The approximately 4000 square foot building will include waiting area, reception area, male and female client (disabled) and staff washrooms, one storage room, two doctor's offices, four consultation rooms, server room, pharmacy, laundry room, three nurse's offices, two treatment rooms, dental clinic room with adjoining office, triage area, kitchen and staff

lounge accessed by steps and two wheelchair ramps for disabled clients. The infrastructure will include a plumbing system which will include toilets, sinks, wastewater system, rain water harvesting, tanks and water pumps; and a solar system to provide hot water to the entire facility. It will also include electricity throughout the building and an energy efficient HVAC system to cool the building. The building will be constructed to serve as a hurricane shelter so the external, doors and roof will be constructed with this is mind. Windows and doors will be outfitted with aluminum shutters which can be put to use in case of need. The SLCWC will be constructed with steel reinforced concrete walls and foundation/floor which will be painted and tiled respectively. The above will be done taking into consideration local and international building standards.

The site of construction is in the community of La Clery, a community, a quarter of the capital, Castries, Saint Lucia. The rehabilitation works are expected to be completed within a period of eight (8) months.

All persons willing to submit bids are expected to meet the following key qualification requirements:

(a) Substantial experience working within construction contracts in the title role of primary contractor or management contractor for at least the last 15 (fifteen) years.

(b) Serve as the primary contractor for a minimum of two (2) similar contracts of minimum value of EC two million each or one (1) contract of minimum value of EC

three million which have been completed to the satisfaction of owner as the primary contractor in the last 5 years.

(c) Access to, or accessibility to, liquid assets, credit line, and other financial means sufficient to meet the necessary construction cash flow requirements estimated at three million dollars.

(d) In the capacity of a primary contractor, a minimum construction experience in the which led to the satisfactory completion of the construction of health, education or business complex of similar size and scope in last 5 years.

(e) Experience in managing construction risks and impacts in the following aspects for contracts as primary contractor in last 5 years:

i. traffic management
ii. occupational health and safety
iii. exposure to biological hazards
iv. sustainable construction management

3. Bidding for the construction of the SMART La Clery Wellness Centre will be conducted through national competitive procurement using a Request for Bids during the period January 25th to February 07, 2024 and is open to all bidders.

4. All interested eligible bidders may obtain further information from the Project Manager, Ministry of Health through email address project.manager@health.govl.lc.

5. The project bidding documents will be sent by email to interested and eligible bidders upon the submission of a written application to the address below with the caption, "Request for Prequalification Documents for Construction of SMART La Clery Wellness Centre," and including e-mail address and other contact details of candidates for which the bidding documents are being requested.

6. Bids must be delivered to the address stated below on or before February 07th, 2024 no later than 4:30 p.m. Electronic Bidding shall be permitted. Late Bids will be rejected. Bids will be opened in the presence of designated officials at an address to be announced.

7. The addresses referred to within:

Project Manager
Ministry of Health
Sir Stanislaus James Building
2nd Floor, Waterfront
Castries, Saint Lucia
Email: project.manager@health.govl.lc

4.9.3.2 Evaluation of Bids

The Project Manager will oversee and manage the evaluation of all bids received during the allocated period to select the best bid fitting the outlined criteria. This evaluation will be conducted by a team of individuals with representatives from the Corporate Planning Unit of the Ministry of Health, the Ministry of Finance, the Ministry of Infrastructure and the Ministry of Housing and Planning. To conduct this evaluation, the team will allocate a grade to the received bids using the following eligibility and qualification criteria:

1. Eligibility: it is expected that the bidder is a Saint Lucian national who does not have a criminal record in St. Lucia. The bidder must ensure that there is no conflict of interest or any relations to the Project Manager or a key stakeholder within the Ministry of Health.

2. Technical Capacity: technical capacity of the bidder to mobilize personnel and source the necessary equipment for the contract, consistent with their bid in relation to the scheduling and work methods in compliance with the project requirements outlined in the bidding documents.

3. History of Non-performing Contract: the bidder should not have a history of any non-performing contract or works which would have ended in litigation. In special cases all court documents should be provided with the bid so that a proper

assessment can be made of the situation. This criterion will also take into consideration references, quality of previous work, reputation and past client feedback through various means.

4. Financial Performance: the bidder should have access to, or accessibility to, liquid assets, credit line, and other financial means sufficient to meet the necessary construction cash flow requirements estimated as three million dollars. To validate this the audited balance sheets of the bidder shall be submitted for perusal and analysis.

5. Construction Experience: Substantial experience working within construction contracts in the title role of primary contractor or management contractor for at least the last 15 (fifteen) years and serve as the primary contractor for a minimum of two (2) similar contracts of minimum value of EC two million each or one (1) contract of minimum value of EC three million which have been completed to the satisfaction of owner as the primary contractor in the last 5 years.

6. Costing of Project: The bids will be evaluated using the existing Bill of Quantities as a baseline of proposed costs. It is expected that the chosen contractor's costing of the project will not variate from the BOQ by more than five percent. As a result of the budget being one of the main constraints during the project, this will be an important criterion during evaluations.

7. Project Scheduling: Similar to cost, the allotted time period to complete the project serves as a major constraint. The prospective contractor's ability to achieve set project milestones will be evaluated to ensure that if chosen the project will be a success.

8. Sustainable Construction: Considering that a major component of this project is the fact that the SLCWC needs to be completed in a sustainable manner, all bidders will be evaluated on whether they have completed such sustainable projects in the past; whether they exhibit sustainable and environmentally friendly practices through their construction methods, material use and waste disposal.

9. Project Risk: The bidders will be evaluated on their ability to deal with various risks which may arise during the project's life cycle. The potential candidate should have methods in place to record, communicate and mitigate these risks.

4.9.3.3 Contract

Subsequent to the evaluation of the bids, the best bid will be selected by the committee based on the criteria and a letter of offer will be written to the bidder. A contract will then be prepared and offered to the contractor. The contract will contain the following clauses:

1. Statement of work and deliverables
2. Contract price

3. Schedule and completion of works
4. Payment schedule
5. Program and progress reports
6. Quality control guidelines
7. Project risk management
8. Role of Project Manager
9. Project monitoring
10. Engagement of subcontractor
11. Change request management
12. Communication guidelines
13. Procedures for disputes
14. Environment and sustainable project guidelines
15. Termination and payment upon termination
16. Project closure guidelines

Once all the terms and conditions of the control are agreed upon the contract will be signed by the contractor and the project manager and witnessed by the Chief Health Planner so that construction can begin.

4.9.4 Procurement Monitoring and Control

It will be the responsibility of the Project Manager and project team to ensure that the contractor abides by the terms and conditions outlined in the contract. As stated in the contract, the Project Manager will have to intermittently meet with the contractor to go over

progress reports produced by the contractor which will provide details as to whether the scope, cost, schedule and quality requirements stated within are being adhered to. During these meetings all change requests will be discussed among the necessary stakeholders taking into consideration the effect it will have on the terms of the contract.

4.10 Stakeholder Management Plan

The Stakeholder Management Plan for the construction of the SMART La Clery Wellness Centre will serve to effectively manage the various stakeholders involved in the project. The primary purpose of this plan is to ensure that the interests, expectations, and concerns of all stakeholders are considered and addressed based on the level and power which they possess over success through the use of proper communication methods. The Stakeholder Management Plan for this project will identify stakeholders of the project, help the project manager understand the expectations of these stakeholders, communication plan for these stakeholders, identify the roles and responsibilities of these stakeholders and the influence and impact which they would have on the project. The formulation of a thorough Stakeholder Management Plan will contribute greatly to the project's success by minimizing conflicts, addressing concerns, and promoting collaboration throughout the construction process.

4.10.1 Identify Stakeholders

When the stakeholders for the construction of the SMART La Clery Wellness have been identified they will be entered into the project’s stakeholder register. This register will be

updated iteratively so that any new stakeholder or their new relationship will be captured enabling the project manager to adequately manage all stakeholders and their expectations.

Table 28

Project Stakeholder Register

ID	Stakeholder	Role	Expectation	Impact (H, M, L)	Influence (H, M, L)	Communication Method
S-1	Ministry of Health	Project Owner	Project is completed successfully within scope & quality requirements, budget and schedule.	High	High	Emails and meetings, status reports
S-2	Ministry of Finance	Project Financier	Project is completed within budget	High	High	Email and meetings
S-3	Chief Health Planner	Supervisor of Project Manager	Project Manager performs duties to ensure project is a success	High	High	Email and meetings, status reports
S-4	Project Manager/Engineer	Manager of project and technical supervisor	Successful completion of the project	High	High	Email, meetings, status reports, telephone and site visits
S-5	Project Officer - Finance & Procurement	Assistant to Project Manager	Provides adequate support to ensure project is successful	High	Medium	Email, meetings, status reports, telephone and site visits
S-6	Project Officer - Operations	Assistant to Project Manager	Provides adequate support to	High	Medium	Email, meetings, status reports,

ID	Stakeholder	Role	Expectation	Impact (H, M, L)	Influence (H, M, L)	Communication Method
			ensure project is successful			telephone and site visits
S-7	Architect	Prepare technical drawings	To design a facility which meets the request of MOH.	High	Medium	Email and meetings
S-8	Quantity Surveyor	To prepare BOQ within existing budget	To effectively estimate the cost of completing the project	High	High	Email and meetings
S-9	MEP Consultant	Incorporate MEP components into drawings	To design a facility which meets the request of MOH.	High	Medium	Email and meetings
S-10	Easy Construction – Contractor	Firm to construct SLCWC	To complete the project successfully within requirements	High	High	Email, meetings, status reports, telephone and site visits
S-11	Subcontractor	Firms hired by contractor to perform works	To complete their assigned jobs within outlined requirements	High	Medium	Email, meetings, status reports, telephone and site visits
S-12	Staff of facility	Staff of the new SLCWC	The facility meets the requirements to provide care	Low	Medium	Meetings
S-13	Clients of facility & Community of La Clery	Users of the new SLCWC	Facility meets their needs and adds value to the community	Low	Medium	Meetings

ID	Stakeholder	Role	Expectation	Impact (H, M, L)	Influence (H, M, L)	Communication Method
S-14	Solid Waste Management, MOH, Fire Service and Development Control Authority	Building regulators	To ensure that facility is built with adherence to country regulations	Medium	High	Emails and meetings.

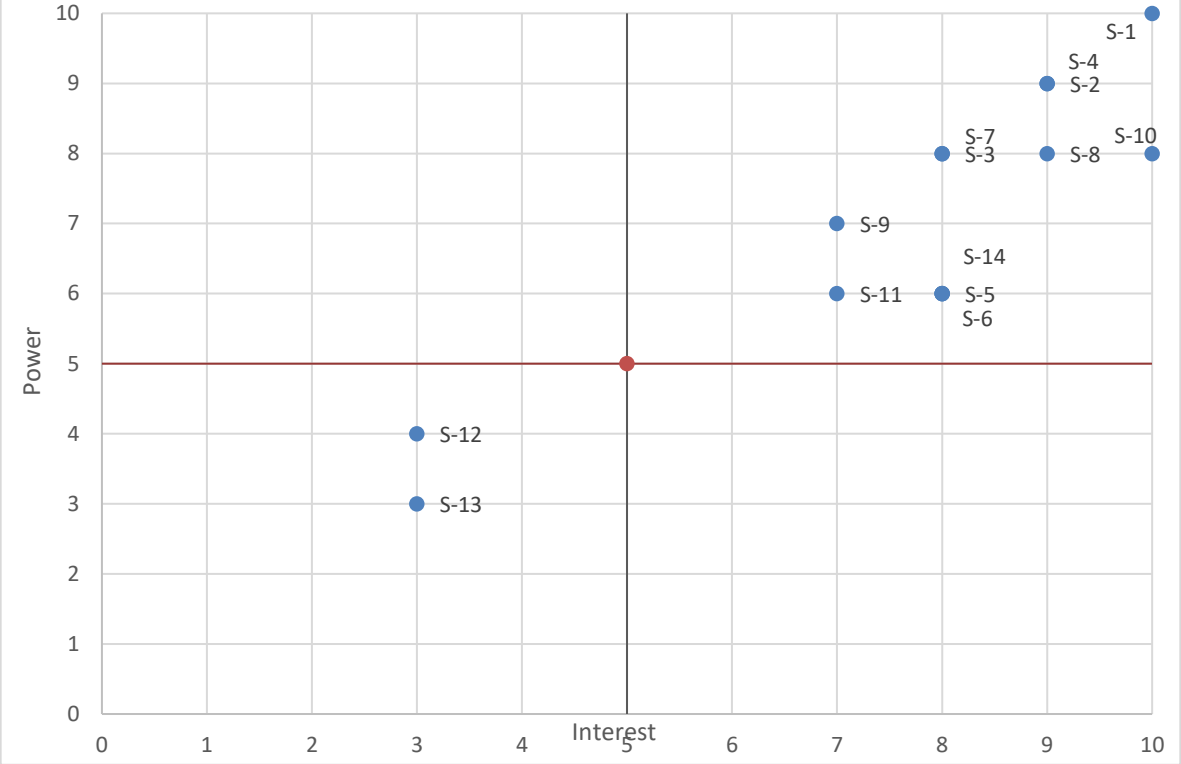
Note. Project Stakeholder Register, Source: Len Leonce 2023.

4.10.3 Stakeholder Power and Interest Grid

The project Stakeholder Power/Interest Grid for the construction of the SMART La Clery Wellness Centre will be used by the Project Manager is a useful tool in project management for analyzing and prioritizing stakeholders based on their level of power and interest in the project. The grid helps project managers tailor their communication and engagement strategies to effectively manage relationships with stakeholders.

Figure 13

Project Stakeholder Register



Note. Project Stakeholder Grid, Source: Len Leonce 2023.

The above stakeholder grid illustrates the level of power each stakeholder holds over the project and the level of interest in the project being a success each stakeholder from the stakeholder register holds. The stakeholder's power in relation to this project are derived from factors such as their general authority, control over resources used to construct the facility and expertise. The stakeholder's interest in relation to the SLCWC is related to how much the different stakeholders are affected by the project and how engaged they are in its outcomes. The grid in figure 11 has four quadrants and two axes (power, interest) with scales of 1(low) to 10(high) and based on where each stakeholder falls within the grid it is

the responsibility of the project manager to either manager them closely, keep them satisfied, keep them informed or to monitor and update them.

1.High Power/High Interest (Manage Closely) - Involve them actively in decision-making and keep them informed regularly.

2.High Power/Low Interest (Keep Satisfied) - Keep them informed about project progress and address concerns periodically.

3.Low Power/High Interest (Keep Informed) - Provide regular updates and address specific concerns as needed.

4. Low Power/Low Interest (Monitor) - Provide occasional updates and respond to issues if they arise.

It is also the responsibility of the Project Manager to intermittently review and update the grid as the during the lifecycle of the project and as the various stakeholder dynamics change to allow for better decision-making process which can lead to a higher chance of the project being a success.

4.10.4 Managing Stakeholder Engagement

Effective stakeholder engagement by the Project Manager on the SLCWC project will greatly contribute to its success by ensuring that the needs and expectations of stakeholders are understood, addressed, and managed. It is critical that the Project Manager creates and maintains positive relationships with all stakeholders who have an interest in or are affected by the project. This engagement expected will take place constantly so that any drastic changes can be captured immediately allowing for the necessary action to be taken. The

Project Manager will have to be adaptable and responsive to changes in stakeholder expectations and requirements.

4.10. 5 Monitor Stakeholder Engagement

As mentioned earlier, it is vital that the Project Manager monitors all stakeholders and the methods used to monitor them. This will be done effectively by creating regular communication channels to keep stakeholders informed about project progress, milestones, and any changes to the scope of the project. The Project Manager will aim to be transparent about challenges and risks which this project may face, creating mechanisms for stakeholders to provide feedback on the project. By using meetings, site visits and other communication channels to gauge satisfaction, interest and identify areas for improvement the project manager will be able to monitor the stakeholders of the project, receiving feedback leading to a higher chance of project success.

4 CONCLUSIONS

1. The project charter is an integral and vital foundational component of the project management plan for the construction of the SLCWC. Apart from officially authorizing the initiation of the project, it serves as a most adequate guide and reference for stakeholders to monitor the project's progress throughout against initial objectives, deliverables, project scope and resource requirements. It also is instrumental in aligning project stakeholders, their roles and level of contribution to the project, all factors which led to the construction of the SLCWC being a successful project.

2. The Scope Management Plan for the construction of the SLCWC serves as a crucial component within the Project Management Plan as it establishes a clear framework for defining, validating, and controlling the project's scope. By illustrating how scope changes are assessed, documented, and approved, the Scope Change Log and the Scope Management Plan helps to prevent scope creep, which can unfortunately lead to budget overruns and delays. Using tools such as the WBS and the WBS dictionary the Scope Management Plan assists in facilitating efficient resource allocation and enhanced project team accountability, ultimately contributing to the successful delivery of the construction project within the specified scope.

3. The Schedule Management Plan for this project is another vital component within the Project Management Plan for the construction project as it outlines the approach and methodologies for developing, maintaining, and controlling the project schedule. Throughout the timeline of this dynamic project, where numerous activities and tasks need to be coordinated, the Schedule Management Plan provides a guide for managing dependencies and ensuring timely completion of project milestones. It defines the schedule baseline and established procedures for handling schedule changes and potential delays. By integrating time management strategies, such as defining work packages, estimating durations, and establishing milestones, the schedule management plan enhances the overall project efficiency, minimizing risks associated with delays. It serves as a comprehensive guide to achieving timely project delivery within the constraint of time with the use of the milestone list, Gantt chart and activity list.

4. The inclusion of a Cost Management Plan within a Project Management Plan for a construction project is essential for effective cost control and project success. The Cost Management Plan outlines strategies for estimating, budgeting, allocating, and controlling the various project costs throughout the lifecycle of the project. By defining cost baseline and variance throughout the project timeline, the Project Manager is able to adequately monitor costs, thus helping in preventing cost overruns and ensuring that the project stays within budget constraints. The plan establishes processes for monitoring expenses, managing changes that may impact

costs. In essence, it serves as a critical tool for achieving cost-effectiveness, avoiding financial risks, and delivering the project within the specified budget of 3.3 million with a high level of transparency.

5. The Quality Management Plan serves the purpose of ensuring that all aspects of the project adhered to specified quality standards and requirements. It outlines the processes, methodologies, and responsibilities necessary to achieve and maintain high-quality outcomes throughout the project lifecycle. By outlining clear quality objectives, criteria, and performance measures many possible defects, errors, and deviations from project specifications are prevented. It provides a structured framework for quality assurance and control activities, such as inspections and audits, to be integrated seamlessly into the overall project management process. With the use of tools such as cost of Quality Matrix, Deliverable Quality Metrics and Quality Non-conformance Table, the Project Manager is able to successfully deliver the facility by minimizing risks, enhancing stakeholder satisfaction, and ensuring compliance with local industry standards and regulations.

6. The Resource Management Plan outlines how the project's resources will be allocated and utilized throughout the project lifecycle. This component of the Project Management Plan serves as a guide to ensure efficient resource utilization, prevent overallocation or shortages, and optimize productivity. By using the RACI matrix, the Project Manager is able to effectively manage his human resources,

clarifying and communicating their roles and responsibilities detailing resource requirements, helping the project managers anticipate potential challenges. Additionally, the plan serves as a guide which encouraged collaboration among project team members and stakeholders by providing a clear framework for resource allocation, thereby enhancing overall project success and minimizing risks associated with resource constraints.

7. The Communication Management Plan for the project served as a structured framework throughout the project to ensure effective and timely communication among all project stakeholders. With the use of Communication Matrix and Communication Flow and stakeholder requirements, the plan outlines the communication goals, stakeholders' roles, information distribution channels, frequency of updates, flow of communication and methods of communication. By establishing a well-defined Communication Management Plan, the Project Manager and team are able to monitor communication effectively minimizing misunderstandings, and address various challenges promptly, ultimately fostering a cohesive and efficient project environment. The use of the communication plan will help to mitigate risks, align project objectives, and ensures that all team members and stakeholders are well-informed throughout the SLCWC project lifecycle.

8. The Risk Management Plan for the SLCWC project aims to identify, assess, and illustrate strategies to manage potential uncertainties which impact the project's

objectives. In the formulation of the Risk Management Plan, the Project Manager will identify the possibility of several risks which could impact the project such as weather conditions, regulatory changes, material shortages, and unforeseen resource challenges. The Risk Management Plan provides a structured approach to understanding and mitigating these uncertainties, allowing the project team to proactively anticipate and respond to the potential risks before they escalated. By analyzing and prioritizing risks bases on their probability and impact, the plan allows the Project Manager to allocate resources effectively, enhance decision-making, and risk mitigating measures ultimately contributing to the successful and timely completion of the facility while minimizing potential disruptions.

9. The Procurement Management Plan, another vital component of the Project Management Plan outlines the strategies and method used by the Project Manager and project team for acquiring goods and services necessary to fulfill the project requirements. This plan serves as a roadmap for the procurement process, detailing the chosen procurement methods, responsibilities, timelines, and evaluation criteria. A major process of the project is the procurement of a contractor to perform the construction works which is fully illustrated within the procurement management plan. By clearly defining the procurement procedures the plan enhances transparency, accountability, and efficiency in the procurement process, ultimately contributing to the successful execution of the SLCWC project.

10. The Stakeholder Management Plan for the SLCWC project aims to identify and manage the various individuals and groups which have a vested interest or influence/power in the project's outcome. These stakeholders included the Ministry of Health and Finance which finances the project, the project team, local community, contractor and subcontractors and regulatory bodies to name a few. The Stakeholder Management Plan helps to establish clear communication channels, define roles and responsibilities, and anticipate potential issues or concerns. By proactively addressing stakeholders' expectations, needs, and potential conflicts, the plan fosters positive relationships and mitigates stakeholder risks throughout the project lifecycle. Additionally, the effective Stakeholder Management Plan enhances the project’s success by ensuring the alignment with stakeholder interests and minimizing disruptions which could impact the project's progress and outcomes.

RECOMMENDATIONS

1. It is recommended that the Project Manager sets up a policy of hosting meetings on a weekly basis or whenever an emergency meeting is needed. These regular meetings provide a platform to update stakeholders on project progress, including milestones achieved, challenges encountered, and upcoming plans. This transparency will foster additional trust among stakeholders, ensuring everyone is on the same page. These stakeholders represent different perspectives and can offer valuable insights on project decisions, potential issues, and improvement opportunities. These meetings facilitate the collection of valuable feedback and incorporate this feedback into project planning and execution. By regularly discussing progress and challenges, the Project Manager can ensure stakeholders' expectations remain aligned with the initial project reality. This reduces the risk of disappointment and fosters collaborative problem-solving. Through regular meetings, the Project Manager can also proactively inform stakeholders about potential risks and opportunities, allowing for collaborative decision-making and risk mitigation strategies. Consistent stakeholder engagement by project manager showcases a professional and transparent approach to project management, building trust and confidence in the project and the team.

1. The Project Manager needs to ensure that throughout the project that adequate evaluation of the sustainability of the project is done. This can include performing a sustainability audit where the Project Manager can assess the project’s achievement of

its sustainable goals against the targets set. The facility's record in terms of energy consumption, use of water and impact on client and users can be included in this evaluation. This report will also portray all the project sustainability achievements, including information on facility waste disposal and utility cost savings. These measures can assist the Project Manager in ensuring that the sustainable impact of the project continues to resonate beyond its construction phase and is enjoyed throughout use of the facility.

2. The Project Manager should ensure that all knowledge gained, and lessons learned from this project are integrated into future projects not only managed by the Ministry of Health, but also at the other ministries so that a same level of success can possibly occur. By ensuring that there is some level of collaboration with other project teams at these ministries before and after this project, best Project Management Principles and lessons can be shared to provide wider adoption across the public sector. The project manager can use this project's success to advocate for the wider adoption of Project Management Principles across all government sponsored projects.

3. The Project Manager should prioritize the use of project management software during the project life cycle. Technology should be leveraged through to assist with planning, scheduling, budgeting, project communication and reporting. There are a number of time tracking, Data analytics and reporting, budgeting, file sharing and storage, communication and collaboration and project tools which undoubtedly will assist and

contribute to the success of the project. Utilization of these tools will lead to improved communication and collaboration among stakeholders, increased efficiency and productivity, improved ability to track progress and better data-driven project decision making.

4. It is recommended that justification be made for future projects which are sponsored/led by the Ministry of Health to incorporate a contingency reserve in the allocated budget as it will server a number of purposes. A project such as the construction of the SLCWC can prove to be complex and riddled with potential uncertainties, from weather delays to material shortages to unforeseen scope changes. An allocated reserve in this case can mitigate these risks, providing the financial resources to deal with these unexpected costs.

   The presence of contingency reserves can also serve to assure stakeholders that the project is prepared for potential challenges and committed to delivering within budget and timeframe, fostering trust and confidence in the Project Manager's ability to navigate unforeseen circumstances. Allocating contingency reserves also encourages a proactive approach to risk management. The project managers will more likely conduct thorough risk assessments and actively plan for mitigation strategies when financial resources are readily available.

5. It is recommended that the Project Manager and team regularly review all the Project Management Plans throughout the life of the SLCWC construction project with special emphasis on the cost, scope and schedule management plans. By constantly monitoring

project progress against the outlined plans, the Project Manager can quickly identify any deviations in scope, cost, or schedule. This early detection allows for proactive intervention to address issues before they manifest into larger ones. Regular reviews provide timely insights into the project's performance, enabling the Project Manager to make informed decisions about resource allocation, risk mitigation, and corrective actions. They also assist in keeping the project on track and ensuring adherence to the initial plan. This helps avoid scope creep, budget overruns, and missed deadlines which are all key factors in project success and client satisfaction. Construction projects such as this one are dynamic, and unforeseen circumstances can arise at any time. Regularly reviewing the plan allows the project manager to adapt to changes proactively, adjust schedules, allocate resources efficiently, and minimize the impact of disruptions. Identifying potential risks early through regular reviews will allow the Project Manager to implement mitigation strategies proactively. This proactive approach will minimize the impact of risks on the project's scope, cost, and schedule. Regular reviews provide opportunities to identify areas for improvement in planning, execution, and resource allocation. This continuous learning and adaptation drive process optimization and will improve project outcomes.

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

The main objective of this FGP is to produce a Project Management Plan for the construction of the La Clery SMART Wellness Centre Project, in alignment with the guidelines set out by the Project Management Institute which will guide the management of construction. However, a main component of this Project Management Plan will be the incorporation of the principles of Regenerative and Sustainable Development. Regenerative development has been defined as an approach to sustainable development that goes beyond minimizing harm and tries to actively restore and renew natural systems. It seeks to create self-sustaining communities that generate more resources than they consume and to thereby enhance the well-being of all living things (GPM, 2023). 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 (IISD, 2024)

During the duration of the project, it is important that the Project Manager considers the various sustainable or regenerative targets that he can meet while achieving his project objectives. This can include establishing targets for reducing energy consumption and waste as well as using materials that are environmentally friendly. The primary concept of the project where a SMART facility will be built will seriously take this into consideration.

8.1 Saint Lucia and the Concept of Sustainable Development

In 2015, along with the rest of the Global Community, Saint Lucia made a commitment to the 2030 Agenda for Sustainable Development. As a small island developing state with significant vulnerabilities to external economic shocks, the impacts of natural disasters and effects of climate change, Saint Lucia recognizes fully that sustainable development with a focus on people, planet, prosperity, partnerships and peace must be at the core of our national plans and programmes, in order to meet the needs of present and future generations (Nations, 2019). In this regard and with this commitment from the Government of Saint Lucia, this project which will be led by the Ministry of Health will undoubtedly make a concerted effort to fulfill its sustainable and regenerative goals while contributing to the achievement of Sustainable Development Goal 3 of ensuring healthy lives and promote well-being for all, at all ages.

8.2 FGP's Relationship with Dimension of Regenerative Development

8.2.1 Environmental Dimension

The Project Management Plan for the construction of the SMART La Clery Wellness Centre will have to consider the environmental dimension of regenerative development in order for it to achieve its objective of being a sustainable project. During construction, sustainable construction practices should be employed to reduce environmental impact. The use of eco-friendly raw materials and minimizing toxic waste will be prioritized. The PAHO Smart building concepts will also be implemented where energy-efficient systems, renewable energy sources and natural lighting and ventilation will be considered during

construction thus lowering the carbon footprint of the facility. Also, water management such as the use of rainwater through water harvesting and low flow plumbing fixtures will form part of the infrastructure of the facility.

8.2.2 Social Dimension

This project should also be socially inclusive to all stakeholders before, during and after completion. Firstly, involving the local community in the planning and decision-making processes related to the polyclinic can enhance its acceptance and ensure that it meets the needs of the community in a sustainable manner. The facility once completed should be accessible to the citizens of the community ensuring that the services are available to the vulnerable and underserved, which is a fundamental aspect of sustainable development.

8.2.3 Economic Dimension

It is expected that this project will have an enormous economically regenerative impact on the community. Firstly, many job opportunities will be created during construction and after completion of the facility; with the additional services on offer, more job opportunities will be available to various health care professionals. The center is also hoped that the new center will stimulate the economy of the community by attracting additional business, increasing the property value in the area and attracting clients from outside of the community. It is also envisaged that the facility will operate with a high level of cost efficiency through reduced energy and water utility expenses and maintenance costs.

8.2.4 Political Dimension

Unlike a majority of the projects undertaken by the Government of Saint Lucia, during construction of this Centre, it is envisaged that there will be a high level of transparency and control as a result of an effective Procurement Management Plan unlike many projects before this one.

8.3 P5 Impact Analysis

"P5 connects projects to sustainability by allowing them to evaluate their effects and take steps to support the United Nations' Sustainable Development Goals (SDGs). P5 also aids organizations in aligning their strategy with sustainable performance through principle-based project management techniques" (GPM, 2023). In the context of the construction of the SMART La Clery Wellness Centre, the use of the P5 impact analysis can lead to an analyzation of the sustainability of the project, painting a picture which can lead to environmentally friendly and socially responsible outcomes. The P5 analysis in GPM refers to five key areas where sustainability principles are applied namely, People, Planet, Prosperity, Process, and Product.

1. **People (Social Sustainability):**

Labor Practices: Evaluation of the treatment of workers, ensuring fair wages, safe working conditions, and opportunities for skill development and career growth for all who would have participated or contributed to the construction of the facility.

Society and Customers: The GPM P5 Standard when applied will evaluate and consider the positive contribution to society of the project ensuring that it meets the needs and expectations of the clients and of a high quality.

Community Engagement: Consider the project's impact on the La Clery community, including noise, traffic, and disruption, and engage with local stakeholders to address concerns.

Human Rights: During the project it is expected that all human rights processes and followed and not bypassed during the duration of the project such as ensuring that there is no discrimination of stakeholders and adherence to child and forced labor local laws. These stakeholders will include but are not limited to project team members, suppliers, clients and community members. It is also the responsibility of the project manager to address and follow due process if any human rights violations occur.

Ethical Behavior: Promotion of ethical behavior during the duration of the project ensuring that there is a culture of transparency, honesty, accountability and integrity among stakeholders during operations. Through the leadership and guidance of the project manager it is expected that proper investment and procurement practices this principles will be considered while prohibition of bribery, corruption and anti-competitive behavior will be prohibited.

2. **Planet (Environmental Sustainability):**

Resource Management: Assessment of the project's use of natural resources such as water and raw materials and the implementation of measures to reduce waste and excess resource consumption during construction.

Energy Efficiency: Incorporate energy-efficient design and construction methods, such as using renewable energy sources and energy-efficient building materials.

Waste Reduction: Implement strategies to minimize construction waste through recycling and reuse of materials during construction of the facility.

Transport: Is it expected that the project manager report on the project's transportation activities such as the level of fuel consumption, types of vehicles used and emissions generated while promoting the reduction of the environmental impact of transportation during the project. The component of transport will cover the areas of local procurement, digital communication, travelling and commuting and logistics.

Energy: Assessment of the project's energy use and sources of energy by recording and analyzing data on energy consumption such as electricity and fuel while finding innovative ways to improve on energy efficiency.

Water: Implementation of measures to track daily water usage, sources or water and total consumption by the project. Also, efforts to reduce water usage, recycle water and the minimization of water pollution will be made.

Consumption: There will be reporting on the type and quantity of resources used during the duration of the project while a special effort will be made to minimize wastage through the promotion of recycling practices and the adoption of sustainable procurement practices.

3. **Prosperity (Economic Sustainability):**

Cost Control: Analyze the financial aspects of the project, ensuring that sustainability measures do not significantly increase costs. Consideration of long-term cost savings from energy efficiency and reduced operational expenses.

Return on Investment (ROI): Evaluation of the potential ROI of sustainability initiatives, including factors like reduced energy bills and increased property value.

Project Feasibility: An assessment as to whether the project is feasible based on demand for the project, availability of resources for the project, the risks associated with the project and whether the project is technically feasible will be performed in other for the project manager to decide whether to initiate the project.

Business Agility: The adoption of flexible and adoptive approaches to allow for adjustments to project requirements and objectives so that the project will be able to respond effectively and quickly to changes in the immediate environment.

Market and Economic Stimulation: The project will increase economic activity in the community through the creation of employment opportunities while improving on the financial benefits for impacted indivuduals.

4. **Process (Project Management Sustainability):**

Project Planning: Integration of sustainability goals and objectives into the project's scope, schedule, and budget.

Green Procurement: Selection of eco-friendly materials and equipment and work with suppliers who prioritize sustainability.

Environmental Compliance: Ensure compliance with local environmental regulations and obtain necessary permits before construction.

5. **Product (Environmental Impact of the Final Product):**

Green Building Design: Incorporation of green building principles into the project's design, including features like energy-efficient HVAC systems, natural lighting, and low-impact landscaping.

Certification: Consider pursuing green building certifications such as PAHO SMART Toolkit to demonstrate the project's commitment to sustainability.

Lifecycle Assessment: Evaluation of the environmental impact of the building throughout its lifecycle, including construction, operation, and eventual demolition or renovation.

This above approach is aligned with the principles of sustainable development and aims to ensure that this project not only meets its immediate goals but also contributes positively to broader environmental, social, and economic considerations. From the P5 Impact Analysis performed for the SLCWC in **Figure 13** below, a number of important observations were made:

1. There are a number of opportunities for enhanced sustainability during the project lifecycle. During the lifespan of the project, it will be the responsibility of the team to identify negative potential negative impacts on the environment and put policies to minimize these. It also illustrated the ability to optimize the use of resources, reduce waste and energy consumption throughout which can leave to both savings in costs and improved environmental treatment.
2. Another opportunity which was shown through the P5 Impact Analysis was the chance to enjoy cost savings by evading environmental fines and interruptions in work as the analysis would help in making informed decisions to abide by regulations. The analysis would also improve the goodwill and reputation of the Ministry as it would show their dedication to the environment.
3. The identification of vulnerabilities to climate impacts and implement adaptation strategies where possible, safeguarding the project against future risks and ensuring its long-term viability.
4. The use of the analysis can be seen as an investment which could yield significant returns in terms of sustainability, project outcomes, and long-term value. It should not only be seen as a means to ensure environmental compliance; however, will assist in making informed decisions that will benefit the project, the environment, and society as a whole.

By considering the aforementioned, the project team can ensure that they can reduce their environmental footprint, improve social responsibility, and potentially realize long-term economic benefits. It will be vital that the Project Manager engages stakeholders, sets clear sustainability goals, and monitor progress throughout the project to ensure successful implementation of the GPM principles.

Figure 14

Project P5 Impact Analysis

P5 Impact Analysis

Impacts

This impact will improve the project's outcome(s) from a sustainability perspective.

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

Category / Subcategory / Element	Description (Cause)	Potential Impact	Impact Score Before	Proposed Response	Impact Score After	Change
2.1 Product Impacts						
2.1.1 Lifespan of the product	Construction of a SMART La Clery Wellness Centre which will be able to withstand natural disasters such as hurricanes & earthquakes serving as a emergency shelter while functioning in a sustainable fashion.	Facility is not fixed when damage is sustained due to lack of funding	1	Justification is made to the Ministry of Finance during budget allocations to assign the required funding to ensure the building maintains it's sustainable features.	5	4
2.1.2 Servicing of product	Smart health facility which posseses sustainable features	Lack of proper scheduled and proactive maintenance done on facility due to lakc of funds	2	Importance of servicing and maintenance is recognized and necessary funds allocated	4	2
2.2 Process (Project Management) Impacts						
2.2.1 Effectiveness of project processes	Processes are not monitored and assesed to ensure that work is being done effectively	Work done poorly resulting in rework leading to added costs or scope change leading to a final product which is not agreed upon.	2	Ensure that proper work assessments are done by suitable individuals at key stages or milestones	4	2
2.2.2 Efficiency of project processes	Proper procedures not are practiced during project to maximize opportunity for efficient project lifecycle	Project work is not produced effeciency leading to delay in schedule, cost exceeding budget and	2	Processes are clearly stated, ensuring all stakeholders are aware of them and skilled and abled to carry these tasks out.	5	3
2.2.3 Fairness of project processes	Stakeholders are satisfied with the various processes agreed upon	Resulting in disgruntled stakeholders who contribute to the project's success	2	Meetings and stakeholder consultations are constantly held to ensure internal and external stakeholders are satisfied fairness of processes	4	2
		Product and Process Average	**1.8**		**4.4**	**2.6**

3 People (Social) Impacts							
3.1 Labor Practices and Decent Work							
3.1.1	Employment and staffing	Staff are overworked and not compensated adequately due to availability of cheap construction labour	Staff are not as dedicated to success of project as they do not feel they are compensated fairly	2	Guidelines are implemented where project staff members are paid livable wages, with fair hours so that they can maintain a work-life balance	5	3
3.1.2	Labor/management relations	Labour issues not prioritized by project manager	Workers who are aware of their rights may not wish to be part of the team as they will not feel they will be treated fairly. Project will only be able to attract "the bottom of the barrel".	2	Engaged and motivated project team membersas they see policies being implemented to address labor issues fairly without compromising the rights of the worker.	4	2
3.1.3	Project health and safety	Lack on consideration to health, safety and emergency management in relation to the project	High accident rate resulting in work stoppages and delay in project schedule	1	Identify and implement local health and safety regulations while educating project members of safe practices. It is also important to procure the necessary safet equipment and tools leading to a safe project environment with less lost time.	5	4
3.1.4	Training and education	Project members may be lacking certain skills a result of little specialized training and education.	Team members may not be able to carry out specific project activities	2	Identify gaps in the skills of team members then coach and mentor individuals to build their skills and capabilities	4	2
3.1.5	Organizational learning	Poor approach to new knowledge management and knowledge from previous similar projects	Team members may not be able to deal with situations as a result of lack of sharing of knowledge from the top down	2	Communication of knowledge and lessons throughout project and also establishing the practice of sharing lessons throught project team	4	2
3.1.6	Diversity and equal opportunity	Disrimination of project team members	May not be attractive to work on project if discrimination occurs and equal opportunites are no given based on age, race, gender or class	2	Emphasis that the projetc is one of equal opportunity and preference will only be based on skills and expertise with little bias.	3	1
3.1.7	Local competence development	Project members need to be sourced outside of community/ general area	No development of local workforce or business for local suppliers	1	Incorporate local employment targets so that opportunites may be available to locals. Will also benfit local economy	3	2

3.2 Society and Customers							
	3.2.1 Community support	Acceptance and support of community towards project	Acceptance of project will lead to community stakeholders providing requirements and ensuring on their end that project is a success	3	Ensure that community support is central to decision for project to be accepted and stakeholder feel part of the process through consultation	4	1
	3.2.2 Public policy compliance	Lack of aderance to publlic laws and regulations	If project manager does not consider existing laws and regulations the project may be at risks for stoppages or legal action being taken.	3	Project manager should establish mechanisms to ensure that compliance to these regulations always take place and educate team members of such so that ignorance cannot be used as an excuse	4	1
	3.2.4 Customer health and safety	Assurance that project is socially and environmentally responsible	Although team members safety may be taken into consideration, the general public may be affected negatively if they are not paid attention to. Poor disposal of waste may find way into nearby yards. Members of public may also innocently get injured.	2	Establish transperancy for the project by publishing safety advisories showing public that the project is doing its part to ensure customer safety.	3	1
	3.2.5 Product and service labeling	N/A	N/A		N/A		
	3.2.6 Market communications and advertising	Reporting of project incidents	Failure to report a criticial pertaininng to regulatory compliance, environmental impact or breakiing of laws may make the project manager seem unethical resulting in increased project risks.	2	Mechanisms should be put in place to identify such breaches as early as possible and formats to communicate to relevant personnel or auhtoirties throught identified medium based on breach	3	1
	3.2.7 Customer privacy	N/A	N/A		N/A		

3.3 Human Rights							
3.3.1	Non-discrimination	Discrimination of team members based on various factors	If discrimination occurs during projecy lifecycle, this can increase project costs by increased a rise in absenteism, lower productivity and disgruntled workers	2	Decisions impacting team members and compensation should be made based on expertise and skills and not based on bias.	4	2
3.3.2	Age-appropriate labor	Non adherance to local labor laws		2	Project manager should ensure that they are aware of child labor laws and screening mechanisms in place to ensure project activities are carried out by age appropriate individuals	3	1
3.3.3	Voluntary labor	N/A	N/A		N/A		
3.4 Ethical Behavior							
3.4.1	Procurement practices	Consideration of sustainable principles during procurement	Contractor may unable to take sustainability into consideration while carrying project activities	1	Sustainability during project activites should be included in procurement process and criteria for selection	2	1
3.4.2	Anti-corruption	Bribery and sharing of confidential project information	High chance of risks in the form of lawsuits and costs may be inflated so someone can profit	2	Communicate cleary the implications of being caught accepting bribes or taking part in unethical behaviour. Implement as safe medium to report such activity for whistleblowers	3	1
3.4.3	Fair competition	Price fixing, and opportunities kept in house and not advertised	Project activites can be halted as such activities like bid-rigging and pre agreed prices are not allowed within the government project policies and guidelines	2	Prohibition of collusive tendering, bid rigging and fixing of prices through education in relation to existing policies and consequences	3	1
			People Average	**1.9**		**3.6**	**1.6**

4 Planet (Environmental) Impacts							
4.1 Transport							
	4.1.1 Local procurement	Local resource ssuppliers are not considered	Local economy may not benefit from added business opportunities. Capacity of local suppliers of resources may miss an opportunity to improve. In the case of CO2 emmissions, the added transportation of raw materials would worsen the cause.	2	Preference can be given to local suppliers once processes are not compromised and they possess the capacity to provide at high quality	3	1
	4.1.2 Digital communication	Only face to face meetings during project	Increase in time lost due to long travelling and added cost of travelling for meetings	2	Permit the use of virtual project teams, allowing for less stress of travelling and reduction of CO2 emmissions from long travels	4	2
	4.1.3 Traveling and commuting	Unnecessary travelling by project team members	More officers on the road means more time spent in traffic, more CO2 emmissions and the need to provide added parking .	2	Permit team members to work remotely or on a flexible schedule on productivity is not compromised can reduce among other things fuel and costs	4	2
	4.1.4 Logistics	Unsustainable policies on tranportation of goods & materials	Increased frequency in ordering raw materials internationally can lead to added air pollution and CO2 emmissions	2	Implementation of policies which promote delivery of products in an environmentally friendly manner such as bulk orders, and ordering goods that may be recycled. Use of local suppliers can reduce tranportation costs whil reducing wait times	3	1
4.2 Energy							
	4.2.1 Energy consumption	Energy consumption not monitored during project	Energy consumption levels and types of energy used are not envrionmentally friendly	2	Implement mechanisms to monitor weekly project energy levels and priortise the use of renewal energy sources	3	1
	4.2.2 CO2 emissions	CO2 emmissions are not monitored	Poor air quality and pollution of community by using by using high carbon emmitting machines and no monitoring mechanisms to implement mitigating procedures based on levels	2	Implement monitoring mechanisms to asess the levels of emmissions and use alternative energy solutions if needed	3	1
	4.2.3 Clean energy return	No use of energy returning mechanisms	High energy costs and high level of emmissions	1	Use of solar panels and alternative energy solutions	4	3
	4.2.4 Renewable energy	No consideration for renewable energy sources	Project may not be taking advnatage of the energy cost savings	1	Use of solar panels and educating team members of beneifts of renewable energy	4	3

4.3 Land, Water, and Air							
4.3.1	Biological diversity	No consideration for environment during project	Natural resources in near environment and living organisms may be killed of due to proor practices	2	Assessment is done before on environment and project ensures that they monitor the impact of their activites on living organism and natural environment	4	2
4.3.2	Water and air quality	No consideration of water sources in close proximity and monitoring of any pollution to them	Water sources within community become polluted killing living organisms and causing to become sick	3	Creation and implementation of policies and procedures to preserve river and streams new site and monitoring as to whether if there is any increase in water borne diseases during project time line	4	1
4.3.3	Water consumption	No monitoring of project water usage	Increased project expenses to pay for water which may be wasted	1	Planning as to amount of water needed and monitoring of the wataer usage	3	2
4.3.4	Sanitary water displacement	Proper systems not in place for sanitary water displacement	Increase in water related diseases and insect infestations during and after project	3	Enusre processes and systems are in place to ensure water runoff is handled sanitarily and ensure all project stakeholders recognize the impact of not doing so will have on the environment	5	2
4.4 Consumption							
4.4.1	Recycling and reuse	No recycling policies and practices during project	Increased waste disposal and added costs during project lifecycle	2	Project manager emphasis the sourcing and use of materials which can be recycled. This can lead to reduced disposal cost and less harm to environment	4	2
4.4.2	Disposal	Ignoring processes of disposal after materials used	Left with items which are difficult and costly to dispose of as a result of their toxicity level.	2	Project team will work with contractor to ensure that materials which can be recycled will be purchased instead when possible and as little items with residual toxic levels will be purchased	4	2
4.4.3	Contamination and pollution	Little consideration for pollution regulation	Degredation of the environment leading to contaminated local ecosystem and increase in disease profile in community	3	Ensure project considers regulatory health requirements keading to the minmization of hazardous chemicals or fumes entering ecosystem	5	2
4.4.4	Waste generation	Improper waste handling	Damage to the environment and increase in illness in local community	2	Procedures to minimize waste levels and ensuring through assessments that waste disposal procedures are adhered to	4	2
			Planet Average	**2.0**		**3.8**	**1.8**

5 Prosperity (Economic) Impacts							
5.1 Business Case Analysis							
5.1.1 Modeling and simulation	N/A	N/A		N/A		
5.1.2 Present value	N/A	N/A		N/A		
5.1.3 Direct financial benefits	N/A	N/A		N/A		
5.1.4 Return on investment	N/A	N/A		N/A		
5.1.5 Benefit-cost ratio	N/A	N/A		N/A		
5.1.6 Internal rate of return	N/A	N/A		N/A		
5.2 Business Agility							
5.2.1 Flexibility/optionality	Unable to balance projet components with the social and environmental values	Emphasis is on financials gains and not sustaibilty and environmental impact	2	Remember project is more of a social one rather than financial so place a better balance of focus on environment and society and not as much in outputs	3	1
5.2.2 Business flexibility	Little consideration of social and environmental impact	Project will have a low level of sustainability during and after	1	Adherance to flexibility goals by balancing goals of project to needs of society and environement	2	1
5.3 Economic Stimulation							
5.3.1 Local economic impact	Promote community as one with economic potential	A healthier community as a result of this projeect will be able to be productive. Also, the fact that local individuals and suppliers will be engaged during the project, money will be circulating within local economy	3	This can be used as a justification for further project as the value of land and attractiveness to live and work in are increases as a result of such a project	4	1
5.3.2 Indirect benefits	Value to community	Community is more attractive to potential investors and citizens	3	This can be used as a justification for further project as the value of land and attractiveness to live and work in are increases as a result of such a project	5	2
			Prosperity Average	**2.3**		**3.5**	**1.3**
			Overall Average	**2.0**		**3.8**	**1.8**

Note. Project P5 Impact Analysis, Source: Len Leonce 2023.

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APPENDICES

Appendix 1: FGP Charter

CHARTER OF THE PROPOSED
FINAL GRADUATION PROJECT (FGP)

1. Student name

Len Leonce

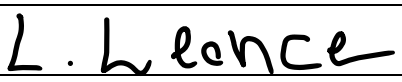
2. FGP name

Project Management Plan for the construction of the La Clery SMART Wellness Centre in Castries, Saint Lucia

3. Application Area (Sector or activity)

Construction Sector

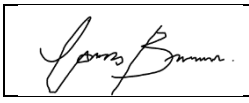
4. Student signature



5. Name of the Graduation Seminar facilitator

Mr. Carlos Brenes

6. Signature of the facilitator



7. Date of charter approval

November 30, 2023

8. Project start and finish date

Dec 01, 2023	April 30, 2024

9. Research question

What integral elements should be included within the Project Management Plan to construct a SMART Wellness Centre in the community of La Clery, Saint Lucia?

10. Research hypothesis

Is it possible to develop a Project Management Plan for the construction of the SMART Wellness Centre in the community of La Clery, Saint Lucia, in alignment with the guidelines set out by the Project Management Institute allowing for the provision of adequate health care to citizens within the community.

11. General objective

To outline and develop a Project Management Plan, for the construction of the La Clery SMART Wellness Centre Project, in alignment with the guidelines set out by the Project Management Institute which will guide the management of construction.

12. Specific objectives

1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the Project Management Plan.
2.To create a Scope Management Plan which will outline the requirements and expectations of the project.
3.To create a Schedule Management Plan which will support the management of the project schedule ensuring that the project meets all time allotted deadlines.
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within the outlined budget.
5.To create a Quality Management Plan which will ensure that the project meets all necessary quality requirements thus satisfying the requirements of all stakeholders.
6.To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these resources.
8. To develop a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks.

9.To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project.
10.To create a Stakeholder Management Plan which will help in identifying and managing all stakeholder relationships, their level of interest and their influence and impact on the project.

13. FGP purpose or justification

It is envisaged that the creation of this Project Management Plan for this project will serve as an excellent guide for the project team during the construction of the Wellness Centre. This Management Plan will allow for this much needed facility to be constructed while allowing the team to adhere to the scope, time and costs of the project. The management of the stakeholders, risks, and procurement process will also be well served by this. With the increased demand for adequate health care in Castries, the capital of Saint Lucia, it is imperative that the Ministry of Health be able to provide the necessary services to the general population. The existing situation is that citizens of the densely populated capital must resort to going to the General Hospital for primary health services resulting in an increased wait time for lower-level care and a strain on the resources of the hospital. It is expected that the construction of the new La Clery SMART Wellness Centre will alleviate this situation. It should be noted that the "SMART" component of this health facility will set it apart from others.

The concept underlining the SMART Hospital/Healthcare Facilities an initiative of PAHO is "Safe plus Green equals Smart." The construction of the facility using the guidelines from this concept these guidelines will make it safer, by increasing it resilience to natural disasters; and greener, by increasing energy efficiency through water harvesting, improved ventilation and electricity use.

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.

Graduation Project

1. Graduation Seminar

1.1 FGP Deliverables
1.1.1 Project Charter
1.1.2 Work Breakdown Structure

15. FGP budget

It is estimated that the total cost of the FGP will be 1000 USD. This budget will cover the cost of paying for software to produce some components, the physical production and the review of the FGP.

16. FGP planning and development assumptions

1. The FGP will be completed within the allotted time period and budgeted costs.
2. The information required for the completion of the FGP is readily available from the prospective sources.
3. Adequate assistance will be received from the designated tutor to assist in the development of the FGP.
4. Researcher will be able to dedicate at least 12 hours a week towards development of the FGP.

17. FGP constraints

1. The FGP is being done with a limited budget so the researcher is limited as to the extent he can use resources.
2. The FGP must be completed within the 5 ½ month period outlined be guidelines.
3. The FGP would need to be completed while adhering to standards set out which may sometimes prove to be difficult.
4. This project will have may technical components which the researcher may not be familiar with and may have difficulty getting relevant information.

18. FGP development risks

1. Poor or lack of communication between tutors and the Project Manager may result in the quality of the final project being compromised.
2. The cost of the development of the FGP can surpass the budgeted amount.
3. Faulty equipment (laptop) or loss of vital information may result in a delay in the scheduled finish.
4. Researcher may have difficulty developing topic which would result in topic being changed thus causing a delay in schedule

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.Graduation Seminar	March 26, 2024
1.2 Graduation Seminar Approval	October 23, 2023
1.2.1 Introduction Module	September 04, 2023
1.2.2 FGP Charter	September 18, 2023
1.2.3 Theoretical Framework	September 25, 2023
1.2.4 Methodological Framework	October 02, 2023
1.2.5 Introduction	October 09, 2023
1.2.6 Executive Summary	October 16, 2023
2. Tutoring Process	January 30, 2024
2.1.1 Tutor Assignment	October 24, 2023
2.1.2 Communication	October 26, 2023
2.2 Adjustment of previous chapters	November 02, 2023
2.3 Chapter IV – Development (Results)	January 16, 2024
2.4 Chapter V. Conclusions	January 23, 2024
2.5 Chapter VI. Recommendations	January 30, 2024
3. Reading by reviewers	February 20, 2024
4. Adjustments and Modifications	March 19, 2024
5. Presentation to Board of Examiner	March 26, 2024

20. Theoretical framework

20.1 Estate of the "matter"

The Ministry of Health within the government of Saint Lucia is directly responsible for public health service delivery or provision in the country, the functions of promotion, preventive, curative and rehabilitative care, policy formulation, monitoring and evaluation, resource mobilization, regulation of the health service delivery in the country and the building and maintenance of the health infrastructure. In line with the responsibility of providing adequate healthcare to the general population, the Ministry has identified that there currently exists a gap in the provision of the required health services within the Castries North region. This region consists of various communities where housing developments, schools, churches, businesses and other organizations are located. Consequently, there exists a high demand for readily available quality health care. Currently, there is a Wellness Centre in the La Clery community, however, it is not able to provide the necessary services due to the limited space, poor state of infrastructure and the fact that it was first built as a residential building retrofitted to accommodate the provided services. Based on these factors, research has shown that individuals in the vicinity would travel to the main hospital or a facility in another district to receive care. In this regard, after research and stakeholder consultation, the Ministry of Health has decided to invest in the construction of a SMART Wellness in the community of La Clery, Castries which will undoubtedly result in healthier population outcomes in an environmentally sustainable setting. This is not the first project of this kind and scale which will be undertaken; however, it is hoped that with this Project Management Plan as a guide, it will be built most importantly within cost, schedule and quality requirements unlike others in this past.

20.2 Basic conceptual framework

1.Project Management Plan
2. Development of Project Management Knowledge Areas
3. Construction Management
4. Sustainable and Regenerative Development

5. Project Management Processes

21. Methodological framework

Objective	Name of deliverable	Information sources	Research method	Tools	Restrictions
1.To create a project charter to officially authorize the project and designate the Project Manager with the responsibility of applying Project Management Principles which will result in the Project Management Plan.	Project charter	-Interview with project manager and civil engineer. -Documents from similar projects. -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes	The information needed to create the charter will be received by interviewing the project leader and also using the PMBOK Guide 6th and 7th Editions. Through this method all the necessary information will be obtained which will then allow for the authorization of the project.	-Project Charter Template -Microsoft Word	The time allocated to produce the charter for authorize the project is limited.

			(Qualitative Research Method)		
2.To create a Scope Management Plan which will outline the requirements and expectations of the project.	Scope Management Plan	-Interview with Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	Based on information received in relation to the expectations and requirements of the project through interviews with the project leader and stakeholders and also through web research, the Scope Management Plan will be developed. (Qualitative Research Method)	-Work Breakdown Structure Template -Requirement Traceability Matrix Template -Work Breakdown Structure dictionary template -Microsoft Word and Excel -Scope management plan template	During construction the scope of the project may change for several reasons.
3. To create a Schedule Management Plan which will support the management of the project schedule	Schedule Management Plan	-Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader	-Schedule Management Plan template -Microsoft Project -Project Schedule network diagram -Gantt Chart	Due to varying factors the schedule of the project may need changing.

ensuring that		Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	who will have expertise in the field of construction, a schedule plan can be developed where activities will be sequenced and their duration estimated. (Qualitative Research Method)		
4.To create a Cost Management Plan which will illustrate the development and management of the project budget ensuring that project objectives are met within outlined budget.	Cost Management Plan	-Interview with Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, an accurate cost plan/budget which can be used for the	-Cost Management Plan Template -Microsoft Excel -Cost baseline Template	The project will be working with a limited budget which it must stay within.

		-Articles from the PMI Library	duration of the project can be developed. (Qualitative Research Method)		
5. To create a quality Management Plan which will ensure that the project meets all the necessary quality requirements thus satisfying the requirements of all stakeholders.	Quality Management Plan	-Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library -Standards from ISO Library	It is expected that through interviews with stakeholders and project leader who will have expertise in the field of construction and quality management in construction, a standardized quality plan can be developed which will ensure that the final product meets the required quality standards. (Qualitative Research Method)	-Quality Management Plan Template -Microsoft Word and Excel -Checklists	The quality of the project may be compromised due to factors beyond the control of the project team.

6. To create a Communication Management Plan which will provide the means for effective communication between stakeholders while providing project status reports and updates.	Communication Management Plan	-Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	It is expected that through interviews with stakeholders and project leader who will have expertise in the field of construction, a communication plan can be developed so that proper methods and channels of communication will exist. (Qualitative Research Method)	-Communication Management Plan template -Microsoft Word -Communications Matrix Flow of communication diagram	The availability of the necessary resources needed for proper communication may not be a reliable. Also, individuals may not be willing to cooperate as needed to allow for the needed level of communication.
7.To develop a Resource Management Plan to effectively assign resources providing proper management of these	Resource Management Plan	Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have	Resource Management Plan Template -Responsibility Management software Resource Breakdown Structure -Responsibility assignment matrix	The necessary resources may not be available and if acquired may go beyond the budget allocation.

said resources.		-The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	expertise in the field of construction, the necessary information needed to create a resource plan will be gathered. (Qualitative Research Method)	-Microsoft Word and Excel	
8. To create a Risk Management Plan which will identify and monitor risks while developing means and ways to eliminate these risks	Risk Management Plan	-Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	It is expected that through interviews with stakeholders which will include but not limited to the civil engineer and project leader who will have expertise in the field of construction, the necessary information required to formulate a risk plan will be gathered. (Qualitative Research Method)	-Risk Management Plan Template Risk Breakdown structure -Probability and Impact Matrix -Microsoft Word -Risk Register	It is common that risks may occur during the life cycle of the project which the team would not have foreseen.

9. To develop a Procurement Plan which will be used to manage the procurement of all services and products needed to successfully complete the project	Procurement Management Plan	-Interview with the Project Manager and civil engineer. -Documents from similar projects -The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	It is expected that through interviews with stakeholders which will include but not limited to the procurement specialist and project leader who will have expertise in the field of procurement in construction, necessary information required to formulate a procurement plan will be gathered. (Qualitative Research Method)	-Procurement Management Plan Template -Contract template -Seller list	The identified seller may not be able to provide goods or services when needed for varying reasons.
10.To create a Stakeholder Management Plan which will help in identifying and	Stakeholder Management Plan	-Interview with the Project Manager and civil engineer. Documents from similar projects	It is expected that through interviews with stakeholders and project leader the necessary information	Stakeholder Management plan template -Stakeholder register -Stakeholder engagement assessment matrix	During the course of a project the interest and power of identified stakeholders may not

managing all stakeholder relationships, their level of interest and their influence and impact on the project.		-The PMBOK Guide 7th Edition -The PMBOK Guide 6th Edition -Web Research -Textbooks -Course Notes -Articles from the PMI Library	required to formulate a Stakeholder Management Plan will be gathered. (Qualitative Research Method)	-Power-Interest chart	remain constant.

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

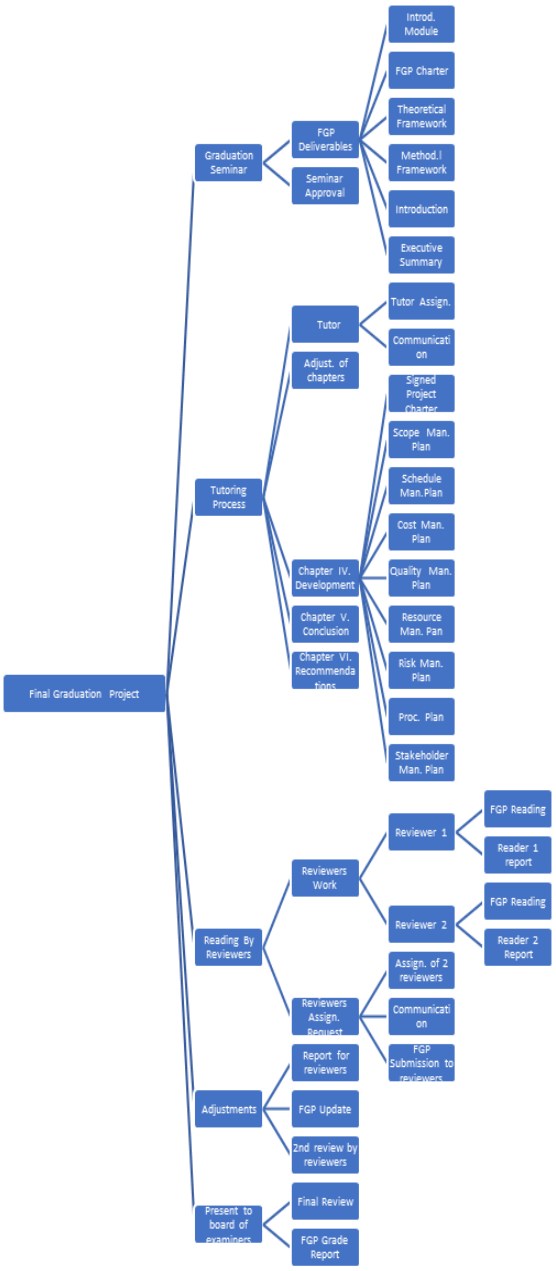
A major component of this Project Management Plan for the construction of a SMART La Clery Wellness Centre will be the Sustainable Management Plan which will need to illustrate clearly the relationships and impact of the project with sustainable and regenerative development. In order to adequately show these various concepts, development principles will be used throughout such as the Green Management P5 Impact Analysis and the Dimensions of Regenerative Development.

The PMP will aim to show during the plan, how the various regenerative development principles used during construction will create positive impacts on the environment and society and how it will integrate sustainable development to meet the needs of the stakeholders without compromising the needs of future generations.

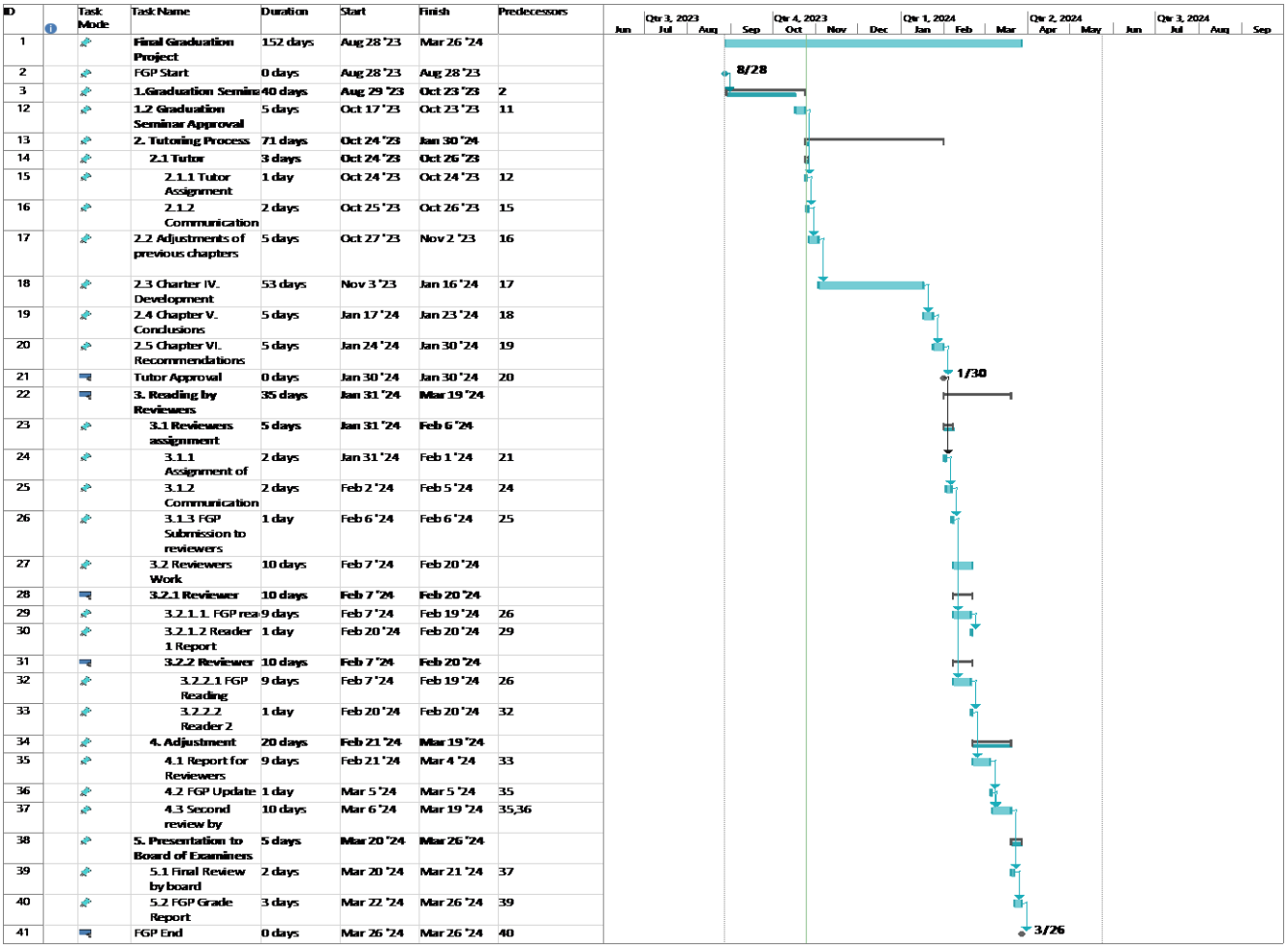
The P5 impact analysis will show the impact of the project based on five areas namely: people, planet, prosperity, process and product. Along with the P5 Impact Analysis, the plan will delve into an analysis into the dimensions of Regenerative Development, namely: social, economic, political, cultural and environmental dimensions and how they can be taken into consideration during development of the plan.

By effectively developing and elaborating on the aforementioned it is hoped that the project team will be able to assess the potential impacts of the project, and can identify and mitigate potential negative impacts, while also maximizing the positive impacts. This will help to ensure that the La Clery Wellness Centre is a regenerative and sustainable one which will benefit the community and the environment for years to come.

Appendix 2: FGP WBS



Appendix 3: FGP Schedule



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Final Graduation Project**	152 days	Aug 28 '23	Mar 26 '24	
2		FGP Start	0 days	Aug 28 '23	Aug 28 '23	
3		**1.Graduation Semina**	40 days	Aug 29 '23	Oct 23 '23	2
12		**1.2 Graduation Seminar Approval**	5 days	Oct 17 '23	Oct 23 '23	11
13		**2. Tutoring Process**	71 days	Oct 24 '23	Jan 30 '24	
14		**2.1 Tutor**	3 days	Oct 24 '23	Oct 26 '23	
15		2.1.1 Tutor Assignment	1 day	Oct 24 '23	Oct 24 '23	12
16		2.1.2 Communication	2 days	Oct 25 '23	Oct 26 '23	15
17		2.2 Adjustments of previous chapters	5 days	Oct 27 '23	Nov 2 '23	16
18		2.3 Charter IV. Development	53 days	Nov 3 '23	Jan 16 '24	17
19		2.4 Chapter V. Conclusions	5 days	Jan 17 '24	Jan 23 '24	18
20		2.5 Chapter VI. Recommendations	5 days	Jan 24 '24	Jan 30 '24	19
21		Tutor Approval	0 days	Jan 30 '24	Jan 30 '24	20
22		**3. Reading by Reviewers**	35 days	Jan 31 '24	Mar 19 '24	
23		3.1 Reviewers assignment	5 days	Jan 31 '24	Feb 6 '24	
24		3.1.1 Assignment of	2 days	Jan 31 '24	Feb 1 '24	21
25		3.1.2 Communication	2 days	Feb 2 '24	Feb 5 '24	24
26		3.1.3 FGP Submission to reviewers	1 day	Feb 6 '24	Feb 6 '24	25
27		3.2 Reviewers Work	10 days	Feb 7 '24	Feb 20 '24	
28		**3.2.1 Reviewer**	10 days	Feb 7 '24	Feb 20 '24	
29		3.2.1.1 FGP rea	9 days	Feb 7 '24	Feb 19 '24	26
30		3.2.1.2 Reader 1 Report	1 day	Feb 20 '24	Feb 20 '24	29
31		**3.2.2 Reviewer**	10 days	Feb 7 '24	Feb 20 '24	
32		3.2.2.1 FGP Reading	9 days	Feb 7 '24	Feb 19 '24	26
33		3.2.2.2 Reader 2	1 day	Feb 20 '24	Feb 20 '24	32
34		**4. Adjustment**	20 days	Feb 21 '24	Mar 19 '24	
35		4.1 Report for Reviewers	9 days	Feb 21 '24	Mar 4 '24	33
36		4.2 FGP Update	1 day	Mar 5 '24	Mar 5 '24	35
37		4.3 Second review by	10 days	Mar 6 '24	Mar 19 '24	35,36
38		**5. Presentation to Board of Examiners**	5 days	Mar 20 '24	Mar 26 '24	
39		5.1 Final Review by board	2 days	Mar 20 '24	Mar 21 '24	37
40		5.2 FGP Grade Report	3 days	Mar 22 '24	Mar 26 '24	39
41		FGP End	0 days	Mar 26 '24	Mar 26 '24	40

Appendix 4: Preliminary bibliographical research

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Appendix 5: SMART Facility Checklist

Name of Facility:		**Assessment Date:**	
Name of Assessors:			
Brief Summary of Green Assessment:			

INSTRUCTIONS: INSERT THE NUMBER "1" INTO THE ANSWER CELL FOR EACH QUESTION TO CALCULATE THE GREEN SCORE. INSERT COMMENTS.

Cells highlighted in Yellow are critical standard questions, which must be met by the facility in order for it to be certified as Green.

Theme	Title	Question/ Intent		Answer			Comments	Question Weight	Score achieved	Contribution To Total Points	Institutional type (Referral Hospital, District Healthcare, Poly Clinic; Health Center; Nursing Home; Psychiatric Hospital)						Critical Standard
				NA	YES	NO					RH	DH	PC	HC	NH	PH	
1. Water	1.1	1	Does the facility imple					1	**0**	1	X	X	X	X	X	X	X

			ment a water conservation plan?															
		2	Is plan updated regularly?					1	**0**	1	X	X	X	X	X	X		
	Water Conservation Planning	3	Do you educate and involve staff in water conservation?					2	**0**	2	X	X	X	X	X	X		
		4	Do you have water meters throughout the facility					2	**0**	2	X	X	X	X	X	X	X	
		5	Are drawings available that show all water using sources					2	**0**	2	X	X	X	X	X	X		

			(bathrooms, sinks, washing machines, HVAC, cooling, sterilizers)? Please provide copies to evaluators.															
	1.2	6	Are low-volume water fixtures installed throughout the facility?					3	**0**	3	X	X	X	X	X	X	X
		7	Do you actively detect leaks...					1	**0**	1	X	X	X	X	X	X	

		8	and repair them immediately?					1	**0**	1	X	X	X	X	X	X		
	Water	9	Does the facility use water efficient washing machines and dishwashers?					2	**0**	2	X	X	X	X	X	X		
	Efficiency	10	Do you use water efficient sterilizers?					2	**0**	2	X	X	X	X	X	X	X	
		11	Do you recycle steam condensate?					2	**0**	2	X							
		12	Do you have a rainwater catchment					2	**0**	2	X	X	X	X	X	X	X	

			system ?															
		13	Does it include anti-mosquito breeding measures?					1	**0**	1	X	X	X	X	X	X	X	
		14	Is vehicular fleet washed only when necessary?					1	**0**	1	X	X	X	X	X	X		
		15	Do maintenance personnel sweep instead of hosing down driveways, sidewalks and parking lots?					2	**0**	2	X	X	X	X	X	X		
		16	Do you practic					2	**0**	2	X	X	X	X	X	X		

			e water-efficient landscaping (Xeriscaping)?															
	1.3 Wastewater	17	Is used water treated and reclaimed?					2	**0**	2	X	X	X	X	X	X		
POINTS ACHIEVED IN SECTION 1 =								**0**										
Maximum Points Achievable in Section 1 (includes referral Hospitals) = 29. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**29**										
Theme	**Title**	**Question/ Intent**		**Answer**			**Comments**	**Question Weight**	**Score achieved**	**Contribution To Total Points**	**Institutional type (Referral Hospital, District Healthcare, Poly Clinic; Health Center; Nursing Home; Psychiatric Hospital)**						**Critical Standard**	
				NA	**YES**	**NO**					**RH**	**DH**	**PC**	**HC**	**NH**	**PH**		
2. Energy	2.1 Energy Audit	18	Does the facility implement an energy conser					3	**0**	3	X	X	X	X	X	X	X	

			vation plan? (please provide a copy of the plan)														
		19	Is plan updated regularly?					1	**0**	1							
		20	Has an energy audit been carried out in the past 5 years? If so, please provide a copy to the evaluators					4	**0**	4	X	X	X	X	X	X	X
	2.2 Renewable Energy	21	Do you use solar voltaic panels or other					4	**0**	4	X	X	X	X	X	X	

			type of renewable energy such as wind?														
		22	Do you use solar water heaters?					4	**0**	4	X	X	X	X	X	X	X
	2.3 Energy Efficiency	23	Do you use low energy lighting systems (LED)?					3	**0**	3	X	X	X	X	X	X	
		24	Do you use high energy efficient HVAC systems and inverter type AC Split systems?					3	**0**	3	X	X	X	X	X	X	
		25	Are equip ment					3	**0**	3	X	X	X	X	X	X	

			and appliances energy-efficient rated (US/EU standards)?															
		26	Do you utilize daylight to ensure adequate lighting in work areas while eliminating direct sunlight?					3	**0**	3	X	X	X	X	X	X		
		27	Does the facility have light sensors and occupancy sensors in					2	**0**	2	X	X	X	X	X	X		

			staff and patient areas?																
POINTS ACHIEVED IN SECTION 2 =								**0**											
Maximum Points Achievable in Section 2 (includes referral Hospitals) = 30. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**30**											
3. Atmosphere	3.1	28	Have you replaced (or phased out) any devices that contain chlorofluorocarbons (CFC)?					**3**	**0**	3	X	X	X	X	X	X		
	Refrigerants	29	Is your equipment serviced by a professional at least annually to reduce leakage/release into the					**3**	**0**	3	X	X	X	X	X	X		

			atmosphere?																	
POINTS ACHIEVED IN SECTION 3 =								**0**												
Maximum Points Achievable in Section 3 (includes referral Hospitals) = 6. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**6**												
4. Indoor Environmental Quality	4.1 Tobacco Smoke	30	Is the facility a smoke free environment and clearly indicated as such?					**2**	**0**	2	X	X	X	X	X	X	X			
	4.2	31	Is there adequate ventilation (windows and doors) that takes full advantage of the prevailing North-					**3**	**0**	3	X	X	X	X	X	X				

			East Trade Winds?															
	Ventilation	32	Is air quality (Temperature and humidity) assessed regularly? Please provide report/ results to the evaluators.					**2**	**0**	2	X	X	X	X	X	X		
	4.3 Dust/Particulate Control	33	Are entry way grills or mats able to capture dirt and particulates brought in from outside					**1**	**0**	1	X	X	X	X	X	X		

			the facility ?																
POINTS ACHIEVED IN SECTION 4 =								**0**											
Maximum Points Achievable in Section 3 (includes referral Hospitals) = 8. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**8**											
Theme	**Title**	**Question/ Intent**		**Answer**			**Comments**	**Question Weight**	**Score achieved**	**Contribution To Total Points**	**Institutional type (Referral Hospital, District Healthcare, Poly Clinic; Health Center; Nursing Home; Psychiatric Hospital)**						**Critical Standard**
				NA	**YES**	**NO**					**RH**	**DH**	**PC**	**HC**	**NH**	**PH**	
5. Hazardous Materials	5.1 Mercury Elimination	34	Have you replaced or phased out mercury-containing medical devices, substances and reagents?					**3**	**0**	3	X	X	X	X	X	X	X

	5.2 Pest Control	35	Does the facility apply an Integrated Pest Management program, with minimal use and safe application of hazardous chemicals applied by a trained professional on a regular basis? Please provide report/ visit log to					**2**	**0**	2	X	X	X	X	X	X	

			evaluators																	
POINTS ACHIEVED IN SECTION 5 =								**0**												
Maximum Points Achievable in Section 5 (includes referral Hospitals) = 5. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**5**												
6. Pharmaceuticals	6.1 Pharmaceutical Minimization	36	Does the facility have established procedures for procuring,					**1**	**0**	1	X	X	X	X	X	X	X
		37	storing,					**1**	**0**	1	X	X	X	X	X	X	
		38	dispensing,					**1**	**0**	1	X	X	X	X	X	X	
		39	and proper disposal of pharmaceuticals?					**1**	**0**	1	X	X	X	X	X	X	
POINTS ACHIEVED IN SECTION 6 =								**0**												
Maximum Points Achievable in Section 6 (includes referral Hospitals) = 4. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**4**												

7. Food Services	7.1	40	Do you procure food from local sources?					**3**	**0**	3	X	X	X	X	X	X	X	
	Local/Regional Foods	41	Have you established ways to reduce food waste?					**3**	**0**	3	X	X	X	X	X	X		
POINTS ACHIEVED IN SECTION 7 =								**0**										
Maximum Points Achievable in Section 7 (includes referral Hospitals) = 6. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**								**6**										
8 Solid and Infectious Waste Management	8.1 Waste Minimization	42	Do you practice waste minimization at source including pharmaceuticals?					**3**	**0**	3	X	X	X	X	X	X		
	8.2 Infections Waste	43	Have you procedures					**3**	**0**	3	X	X	X	X	X	X	X	

			and established practices to separate medical from non medical waste?															
	8.3 Reduce, Reuse, Recycle	44	Do you use biodegradable products like paper, cardboard and plant-based products instead of plastics and Styrofoam?					**3**	**0**	3	X	X	X	X	X	X	
		45	Do you recycle wastes,					**3**	**0**	3	X	X	X	X	X	X	

			including plastic; composting biodegradables; donating food waste to farmers?																		
POINTS ACHIEVED IN SECTION 8 =																				**0**	
Maximum Points Achievable in Section 8 (includes referral Hospitals) = 12. **ACTUAL TOTAL POINTS BASED ON APPLICABLE QUESTIONS =**																				**12**	
TOTAL MAXIMUM POINTS AVAILABLE = 100. **ACTUAL TOTAL MAXIMUM POINTS BASED ON APPLICABLE QUESTIONS =**																				100	
TOTAL POINTS ACHIEVED																				**0**	
MINIMUM TOTAL POINTS NEEDED FOR CERTIFICATION (MINIMUM = 70%) =																				70	
ACTUAL % RATING ACHIEVED FOR THIS FACILITY = Total Actual Points Achieved / Actual Total Maximum Points =																				**0%**	

Appendix 6: Philologist Dictum

ALICE LOREEN MEDARD

Union
Babonneau
aliceloreenmedard@gmail.com
1758-284-0496

February 26, 2024

TO WHOM IT MAY CONCERN:

This is to certify that I the undersigned, Alice Loreen Medard, having possessed a Bachelor of Education Degree in Language Education and Literacy Studies, have reviewed the final project of Mr. Len Leonce which was completed in partial fulfillment for the requirement to complete a Master's Degree in Project Management.

I hereby confirm that Mr. Leonce has made all the requested corrections to the Final Graduation Project document. It is my professional opinion that Mr. Leonce's work meets the literary and linguistic standards expected by a student completing a degree at the Master's level.

Yours respectfully,

Alice L. Medard
Philologist