

UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE DESIGN, CONSTRUCTION AND
EQUIPMENT OF THE BALTAZAR'S HEALING CENTRE PROJECT USING
SUSTAINABLE ENERGY TECHNOLOGIES.

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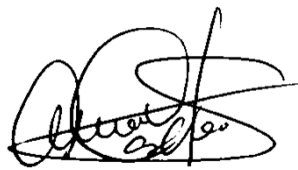
UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

This Final Graduation Project was approved by the University as
partial fulfillment of the requirements to opt for the
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DEDICATION

I dedicate this work to my grandparents, especially in the honor of my grandfather, Baltazar Mendez, who was instrumental in my studies. May his soul rest in peace and rise in glory. We love you 'papito' and you will never be forgotten.

I would also like to dedicate this work to my parents, sisters and my amazing nephews who have been supportive.

Lastly but not least, I dedicate this work to my significant other for being very supportive.

Thank you!

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Lastly, I would like to express sincere gratitude to both reviewers, Cristian Soto Vasquez and Luis Diego Arguello.

ABSTRACT

The objective of this document is to devise an integrated Project Management Plan conceptualized within the standards set by the Project Management Institute (PMBOK, 2021) to manage effectively and efficiently the successful completion of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies. The level of mental health of the residents of Belize is at an alarmingly high rate. This Centre will facilitate in person and tele psycho-pedagogical and psychological service from a preventive approach and early diagnosis to assist in lessening the negative impacts the country is facing and for citizens to live a more fulfill life.

The final product of this project is to develop an integrated project management plan containing nine subsidiary plans to be utilized by the project manager to guide the execution of the project. For this an analytical, synthetic, and qualitative methodology and the guide provided by the Project Management Institute (PMI) is being utilized.

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ABBREVIATIONS AND ACRONYMS

ADD	Attention Deficit Disorder.
ADHD	Attention Deficit Hyperactivity Disorder
AC	Air Conditioning
CBA	Central Building Authority
DFC	Development Finance Corporation
FGP	Final Graduation Project
GPM	Green Project Management
HHRIC	Helping Hands Resource and Intervention Centre
LED	Light Emitting Diode
MIDH	Ministry of Infrastructure and Development
NCABZ	National Council on Ageing Belize
NGO	Non-Governmental Organization
OPS	Organizational Process Assets
PAHO	Pan American Health Organization
PMBOK	Project management Body of Knowledge
PMI	Project Management Institute
RACI	Responsible, Accountable, Consulted, Informed
UNICEF	United Nations International Children's Emergency Fund

EXECUTIVE SUMMARY

Belize is facing an alarming high rate of poor mental health among its citizens which increased during the COVID-19 Pandemic period. Late diagnosis has become a burden to the country, requiring more resources to provide the much-needed assistance and to curb the impacts. The country and several health organizations must take a preventative approach to minimize the impact of late diagnosis. To assist the residents of Belize to live more fulfilling lives, the Baltazar's Healing Center will focus on providing in-person psycho-pedagogical and psychological services to the community of Belmopan and its surrounding communities. It will further extend its services to the entire country of Belize via teleservices. The Baltazar's Healing Center will be a non-governmental organization (NGO) managed by a Board of Directors and operated by its employees. The Centre will be fully operated using sustainable energy technologies making it environmentally friendly.

At this point, a lack of standardized approach to project planning exists. There isn't any project management plan or framework to manage the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies making it challenging for the project manager to manage the project for its successful completion.

The sole purpose of this study was to develop a Project Management Plan to conduct the project activities in an efficient and effective manner within its stipulated time frame, desired quality, and budget to increase the successful chances of the project. Moreover, the intended benefit of this Project Management Plan is to serve as precedence for other projects that the Baltazar's Healing Center will embark on.

The Final Graduation Project (FGP) general objective was to devise an integrated Project Management Plan conceptualized within the standards set by the Project Management Institute to manage effectively and efficiently the successful completion of the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies. The specific objectives were to create a project charter to formally authorize the development of a Project Management Plan to provide the project manager with the written authority to begin work to achieve the project outcomes, to develop a Scope Management Plan to describe how the scope will be defined, developed, monitored, controlled, and validated, to devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule, to prepare a Cost Management Plan to describe how the cost will be planned, structured, and control, to create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives, to

devise a Resource Management Plan that describe how the project resources will be acquired, allocated, monitored and controlled, to prepare a Communication Management plan that details how, when, and by whom information will be administered and disseminated, to develop a Risk Management Plan that delineate how risk management activities will be structured and performed, to create a Procurement Management Plan that describes how external goods and services will be acquired, to prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution.

The methodology used for the research was the analytical, synthetic, and qualitative method of research. A series of interviews were also held. All information gathered was analyzed to create all project management plans. The main sources of information used include A guide to Project Management Body of Knowledge (PMBOK® Guide)- Sixth and Seventh Edition.

The Baltazar's Healing Center has five deliverables, which are the design of the facility, the obtention of the NGO certificate, the construction of the facility, the installation of sustainable energy technologies and the official inauguration.

Ten project management plans were elaborated upon to ensure successful completion of the design, construction and equipment of the Baltazar's Healing Center Project using sustainable energy technologies. Each subsidiary management plan details inputs, tools and techniques, and outputs for each PMI knowledge area in line with each specific objective.

To ensure that the design, construction, and equipment of the Baltazar's Healing Center Project is successfully completed, it is recommended that the project manager performs regular monitoring of the schedule management plan, scope management plan, cost management plan and risk management plan as a baseline to mitigate issues that can greatly impact the project and to avoid scope creep. Moreover, the project manager shall ensure that the project complies with local industry standards and ensure that all building codes are adhered to.

1 INTRODUCTION

This chapter aims at formalizing the Final Graduation Project (FGP): Project Management Plan for the design, construction and equipment of the Baltazar's Healing Center Project using sustainable energy technologies. This section details the background information, the statement of the problem, its purpose, general objectives, and specific objectives.

The official project, for which this project management plan is designed, is born from an official project that the researcher plans to implement and complete successfully. Moreover, the completion of the Center is to contribute positively to the society by providing access to psycho-pedagogical and psychological services at a low to free cost to the community. This service is to create an impact in society where mental health is a priority.

1.1. Background

The organization for which the Project Management Plan is developed is for the Baltazar's Healing Center. The Project Management Plan is for the design, construction and equipment of the Baltazar's Healing Center Project using sustainable energy technologies. The Centre will be a non-governmental organization (NGO) to be registered under the Belize Non-Governmental Organizations Act Chapter 315 and the Non-Governmental Organizations (Amendment) Act, 2017. The center will be located in the Capital City of Belmopan, Belize, specifically at Canaan Street.

Being that the actual project is in its conception phase, there is no record relating to executing other projects using project management plans or related studies done by the non-governmental organization. However, this study sets precedence and standards to ensure that future projects be conducted using best practices in project management.

Belize's educational sector was not an exception to the significant impact caused by COVID-19. The impact equates to learning loss during the pandemic period. Moreover, as Tomassini (2020) states children who participated in school feeding programs didn't had access to proper nourishment, children were more vulnerable to violence, exploitation, abuse, and trauma. All these factors have had a significant impact in the education sector where children are to readapt to the educational setting bringing unresolved conflict that affects their learning process with the expectation for all to succeed. It is placed in the hands of the educators to solve these problems without proper training to know how to intervene based on the several factors that children faced during the pandemic period.

The findings in a study carried by the Pan American Health Organization, prior to the Covid-19 Pandemic, in the field of mental health yield alarming findings about the state of mental health throughout the life cycle of the Belizean citizens. PAHO (2018) alludes that mental disorders, neurological disorders and substance abuse disorder and suicide account up to thirty per cent of the burden and its projection for this burden will remain at a high percentage. PAHO provides a more detailed breakdown where it can be noted that depressive disorder, anxiety disorder, self-harm, somatic symptoms disorder with prominent pain are the highest. Children are mostly impacted by autism spectrum disorder, AD/ADHD. PAHO emphasizes the need for early detection and treatment for common disorders and that technology should be considered in providing online services to reach as many citizens as possible.

Another age group affected in Belize is the elderly. The elderly is affected by poverty which makes it challenging for them to meet their basic needs and have access to proper metal health services. This remains a challenge and not much is

being done. The elderly has contributed to the development of the country and should be merited as deserved.

Based on the above data, the country requires the psycho-pedagogy services and psychological services at affordable cost and easy access. With this same reason, the Baltazar's Healing Centre aims at providing psycho-pedagogical and psychological services to the community of Belmopan and surrounding communities. Furthermore, to make an impact countrywide, the Centre will be equipped with technological devices to deliver online services to the population of the country with the intention of reaching as many citizens as possible. The services provided by the Centre will range from a low to free cost to ensure the sustainability of the Centre.

1.2. Statement of the problem

The problem is that there is a lack of standardized approach to project planning due to lack of exposure to project management practices exists. At this conception phase of the project, there isn't any project management plan or framework that details the execution of the different activities and the management of the project for its successful completion. For the project manager, it will be challenging to manage the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies without a systematical approach to project management. This ineffective approach to managing the project runs the risk of project failure.

Being a new innovative project, starting on the right track by developing a project management plan that will guide the design, development, and construction for the successful completion of the project through a systematic approach to project execution sets precedence to future projects that the Centre will venture on. The project management plan will be part of its first documented record of proper

project planning and will serve as a framework for all other projects. Furthermore, the project management plan will serve as the basis of the project work and detail how it will be performed.

The level of mental health of the residents of the country of Belize is alarming. Diagnosis happens at a late stage which makes it more costly and requires more effort to curb the impacts caused by late diagnosis. A more preventative approach should be taken into consideration where necessary treatment can be applied at an early preventative stage to improve the mental health of the citizens of Belize (PAHO, 2018). The Baltazar's Healing Centre aims at providing preventative services for the residents of Belize to live more fulfilling lives.

1.3. Purpose (Justification for the Project)

The main purpose of this Final Graduation Project (FGP) is to increase the success chances for the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies. These chances of success can be increased via the development of an Integrated Project Management Plan using the standards provided by the Project Management Institute (PMI, 2017) in managing projects effectively and efficiently.

The intention of the FGP is to answer the research question: What elements should a Project Management Plan contain for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies? Therefore, the hypothesis for the FGP is: Is it possible to develop a Project Management Plan that details the steps to design, construct and equip the Baltazar's Healing Centre Project using sustainable energy technologies?

The development of a project management plan will integrate best practices and principles to execute the project management activities within the prescribed

schedule, quality, and budget. Furthermore, the development of the project management plan document will detail all crucial aspects to manage the project including the different templates, reports, and process plans.

Moreover, the Project Management plan will serve as the first documented project management plan for the organization and will serve as a framework or organizational process asset (OPS) for future projects that the organization will embark on.

1.4. General Objective

To devise an integrated Project Management Plan conceptualized within the standards set by the Project Management Institute (PMI, 2021) to manage effectively and efficiently the successful completion of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.

1.5. Specific Objectives

1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.
2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.
3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the

design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.

4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned, structured, and controlled.
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be structured and performed.
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and

equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.

2 THEORETICAL FRAMEWORK

According to Vinz (2022, par. 1) a theoretical framework is “a foundational review of existing theories that serves as a roadmap for developing the arguments you will use in your work.” For the College of Education (n.d., par. 2), a theoretical framework “consists of concept, together with their definitions, and existing theory/theories that are used for your particular study.”

2.1 Company/Enterprise framework

This section provides a framework of the non-governmental organization for whom the project management plan is being developed. The framework includes the background of the company, mission and vision statement, organizational structure, and products offered.

2.1.1 Company/Enterprise background

Considering that the researcher has selected a new personal, family, community-based project that is not yet up and running, there is currently no psycho-pedagogical Centre in Belize and in extension, there isn't any non-governmental organization (NGO) that provides psychological services at a low to free cost. Under the Belize Non-Governmental Organizations Act Chapter 315 and the Non-Governmental Organizations (Amendment) Act, 2017, there is a possibility of incorporating the Baltazar's Healing Center registered as an NGO.

The Baltazar's Healing Centre will be situated at Canaan Street, City of Belmopan, Belize. The Centre will provide psycho-pedagogical and psychological service(s) to any individual, family or group that requires assistance. Being a non-governmental organization, it will sustain itself via different donations from private individuals, profit companies, charitable foundations and small fees charged to the clients in order to sustain its operations.

By being a non-governmental organization, Baltazar's Healing Centre is committed to providing psycho-pedagogical and psychological services to individuals, families, and vulnerable groups. Furthermore, the Centre professions will be contributing to research related to the fields of psycho-pedagogy and psychology in Belize.

2.1.2 Mission and vision statements

As a non-governmental organization, the Baltazar's Healing Centre has the following Mission and Vision statements based on a patient-centered perspective. The objective of developing a Project Management plan for the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies is aligned with the Centre's mission and vision as outlined below.

Mission Statement:

We are on a mission to offer the best possible psycho-pedagogical and psychological evaluation and therapeutic intervention services for individuals, families, and vulnerable groups in Belize. We have the best equipped offices and teleservice equipment that provides our professionals with a comfortable atmosphere to provide the best services and care for our patients. We are committed to improving our patients' overall mental health through our therapeutic interventions. We believe in treating our patients with the dignity that any human deserves and try maintaining our reputation to being the leading institution guided by scientific research.

Vision Statement:

We envision reaching every individual, family, and vulnerable group in our community to provide them with the necessary guidance and therapeutic intervention that they require to live a more fulfilled life. By 2027, we will:

- a. Be a centralized established Non-Governmental Organization.

- b. Be a partner in education and health.
- c. Expand our footprint.
- d. Achieve financial sustainability.

2.1.2 Organizational structure

The Baltazar's Healing Centre resembles the governing structure as required by the Non-Governmental Organization Act. Within its structure, it is comprised of five members that make up the Board of Directors, from which the members elect a director that will serve as the Chair. The chair is responsible for the management of the Board and the principal contact persons for the Centre's policy. The Board of Directors is solely responsible for the principal policy-making organ of the Centre. The Board of Directors is to serve for a period of three consecutive years.

The Board of Directors will appoint a Centre Director who will oversee all the operations and affairs of the Centre. The Board of Directors, as it sees fit, will hire an Executive Officer who will oversee the day-to-day management and affairs of the Baltazar's Healing Centre.

In order to meet the sustainable human development objective under which the NGO is enshrined, it requires registered and licensed professionals, where applicable, in the field of psycho-pedagogy and psychology who will ensure the proper performance of the NGO programs. Hence, a psycho-pedagogical and Psychological Program Manager will be hired for the operation of each assigned program.

As prescribed under the Non-Governmental Organizational Act, an external auditor will be hired to audit the Baltazar's Healing Centre.

It can be concluded that Baltazar's Healing Centre resembles a hierarchical organizational structure. The Project Manager will be the contact person during the entire Project Management Plan development.

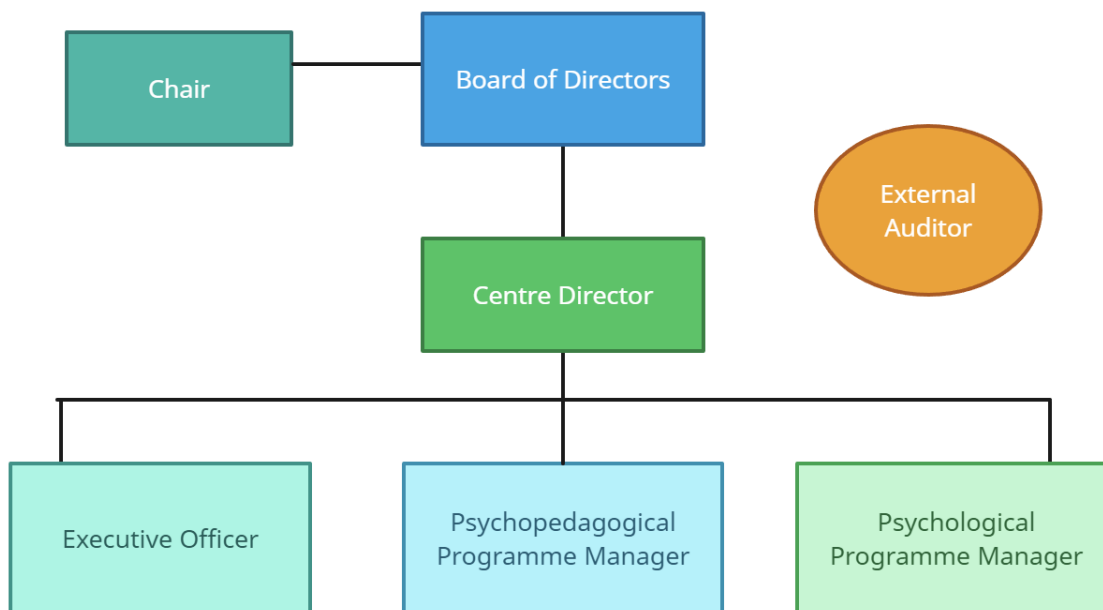


Figure 1. *Baltazar's Healing Centre Organizational Structure (Prepared by Author)*

2.1.3 Products offered

The Baltazar's Healing Centre will provide psycho-pedagogical and psychological services to any individual, family, or vulnerable group. These services will entail evaluation and if necessary, a therapeutic intervention based on the needs of the individual, family, or vulnerable groups. In essence for children, it will entail the evaluation, treatment, and socio-educational intervention. As it relates to adolescents, it will focus on guidance counselling for adolescents to achieve self-realization and become functional citizens. Furthermore, when working with children and adolescents, the Centre also will focus to provide the necessary psycho-education sessions for families to better understand their children and provide continuity at home. In relation to adults, guidance will be provided for them to overcome different crises they might be going through at specific periods in their

lives. Where required, a patient can receive an integrated psycho-pedagogical and psychological service to better meet their needs.

Finally, the Center also focuses on providing parental and family training and capacity building to educators and administrators.

2.2 Project Management concepts

A project is “a temporary endeavor undertaken to create a unique product, service, or result” (PMI, 2021, p. 245). The term ‘temporary’ signifies that an endeavor, to be considered a project, needs to have an established beginning and end. The beginning and end can also be a phase of the project. Furthermore, each product, service or result is unique. This implies that the product, service, or result to be developed is distinctive. It details what is required and what must be accomplished rather than being an ordinary operational routine. PMI (2021) alludes that a project is expected to deliver worth, importance or usefulness to the organization and its stakeholders.

2.2.1 Project management principles

PMI defines a principle as “a fundamental norm, truth, or value” (2021, p. 4). The principle’s intentions are to serve as a guide to how the people involved in a project should behave. Reciprocally, it will influence and shape the performance domains to meet the intended goals. The PMI provides twelve principles that guide behavior. The following principles will guide the behavior of the Project Manager and Team in the development of the Project Management Plan for the design, construction and equipment of the Baltazar’s Healing Centre Project using sustainable energy technologies.

1. **Be a diligent, respectful, and caring steward:** to deliver value, the Project Manager of this FGP needs to be hard-working and looking for solutions to problems encountered on the way. Furthermore, the Project Manager needs to be respectful to the professor, tutor, philologists, Board of Examiners, and any other stakeholder involved during this FGP process. The Project Manager should demonstrate care for the project and the impact the project would have on external stakeholders.

The Project Manager will perform activities with integrity, care, and trustworthiness and comply with internal guidelines (UCI) and External (APA) Guidelines.

Regarding the specific project for which this Project Management Plan has been developed, the Project Manager is committed to the financial, social, and environmental impacts that the deliverable can have.

2. **Create a collaborative team environment:** to develop the FGP it is necessary that the project team (tutor, researcher, philologist, and others) bring in their diverse skills, knowledge and experience and work collaboratively to achieve the objective of the FGP effectively and efficiently. Each member contributes towards the success of the FGP. Success doesn't solely rely on the Project Manager but on the Project Manager and Team.

Moreover, during the actual implementation of the project, which is out of the scope of the FGP, it is paramount that the Project Manager and the Team create a collaborative environment. The knowledge, skills, and techniques of each individual in the project team will contribute towards achieving the expected project objective(s).

3. **Effectively engage with stakeholders:** The stakeholder involved in this FGP will not only be identified but will be proactively engaged during the process to elicit, analyze, document, and verify FGP requirements. This will

minimize the impact of rework, additional expenses, and negative impacts on the project schedule while adding value delivery. This principle also serves to proactively engage all stakeholders in the implementation of the actual project.

4. **Focus on value:** The FGP will undergo continuous evaluation and adjustment to ensure project alignment with the University's objectives and intended benefits and value. In this particular case, the quantitative and qualitative value will accumulate throughout the FGP, at the end of the FGP and after the FGP by adding a social perceived benefit from the project outcome.

At the end of the implementation of the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies, the project will add qualitative and quantitative value. The service that will be provided will meet the needs of the community which will equate to reaching many people who will develop knowledge, skills, and attitudes to living a more fulfilled life and become productive citizens.

5. **Recognize, evaluate, and respond to system interactions:** The FGP constitutes individuals, technology, processes, and internal and external conditions. Moreover, the FGP has subsystems that require effective integration to achieve its intended outcome. Hence, the project manager should have holistic thinking to anticipate the changes in any system and adjust its plan accordingly to minimize negative impacts and yield positive performance.

Recognizing, evaluating, and responding to system interaction is a beneficial principle to the organization. Systems do not stay stagnant, they constantly evolve. Hence, the project manager and team will respond better to changing needs of any circumstance and adapt accordingly. Efficient

decisions can be made for the project and the overall organization that will yield positive performance.

6. **Demonstrate leadership behaviors:** The project manager should possess leadership qualities rather than authoritative qualities. As a leader, the project manager can take different leadership styles or a blend of different styles to approach different situations during the FGP. As can be noted, during the FGP conflict can arise since organizations, departments and vendors will be involved and influence the project. Any individual in the team can exercise a leadership position at any given point in time. Authority doesn't have to be given. Different team members can lead different programs and projects for the Baltazar's Healing Centre.

In a nutshell, leadership behaviors are intended to support individuals and the needs of the team. Leadership abilities yield project success and positive project outcomes while demonstrating honesty, integrity, and ethical conduct.

7. **Tailor based on context:** Each project is unique, hence, the same project management plan used in other projects can't be implemented for the successful completion of this project. Project management plans for the FGP need to be tailored to ensure that it is enough to achieve the objectives of the project. The same principle applies in the implementation of Baltazar's Healing Centre. Plans need to have a balance; they can't be bloated or reflect poor planning. It requires it to be just right.

8. **Build quality into processes and deliverables:** The FGP will demonstrate quality by fulfilling the requirements established by the university, PMI, APA, and other relevant stakeholders. The quality will be evident during the FGP process and the deliverables.

Along the same line, Baltazar's Healing Centre will fulfil the quality during its project implementation and will continue producing quality during its service.

9. **Navigate complexity:** The FGP poses a level of complexity that leads to uncertainty. The project manager is required to continually evaluate and navigate the complexity of the FGP to set mechanisms such as approaches and plans to enable effective transit through the project life cycle.
Baltazar's Healing Centre project will also pose complexity because of human behavior, system interactions, uncertainty, and ambiguity. The project manager and team need to be vigilant and apply the concept of how to navigate such complexity.

10. **Optimize risk responses:** Just as with any other project, the FGP has threats and opportunities. The project manager needs to ensure that opportunities are maximized, and threats are minimized bearing in mind that not all risks require a response.
In relation to Baltazar's Healing Centre, the same principle applies. However, risks are to be assigned to risk owners who have the expertise in managing the risk.

11. **Embrace adaptability and resiliency:** The FGP or any other project is subject to changes such as a tight schedule, unexpected issues, and others. The project manager and team need to develop adaptation mechanisms to overcome and recover from the challenges caused by the different changes. The Baltazar's Healing Centre project is prone to encounter internal and external changes. Hence, the project manager and team need to continue moving forward, keep diligent and use resources adequately.

12. Enable change to achieve the envisioned future state: Ineffective management of change can be counterproductive. For the FGP, the project manager needs to develop a structured approach to manage change and to assist any stakeholder involved in bridging a current state to a future state. The Baltazar's Healing Centre should apply the same principle in providing guidance to those who have been impacted by the change. The guidance should focus on transitioning to the desired future while avoiding fatigue and resistance.

In the development of the FGP, it is vital to consider all twelve principles for the successful completion of the project. The project manager is the facilitator in modelling and implementing the twelve principles that will guide the behavior of all.

2.2.2 Project management domains

The performance domains in project management refers to “a group of related activities that are critical for the effective delivery of project outcomes” and are “interactive, interrelated, and interdependent areas of focus that work in unison to achieve desired project outcomes” (PMI, 2021, p. 7).

According to PMI (2021), the project domains are not stand-alone domains. They are interconnected and it serves the purpose of the successful completion of the project. All domains must be present in every project. However, the specific activities for each domain are affixed to the organizational context, the project, deliverables, the team, stakeholders, and other factors.

PMI (2021) provides eight project performance domains as follows:

1. **Stakeholders:** This domain deals with aspects associated with all stakeholders. The domain's effective implementation contributes to developing a productive working relationship with all stakeholders from the

beginning to the end of the project. Proactive stakeholder engagement, the cyclical aspect of identifying, understanding, analyzing, prioritizing, engaging, and monitoring, enables stakeholders to agree with the project objectives. To break it further, beneficiaries' stakeholders become supportive, and their expectations are satisfied. It minimizes the impact that foreseeable opposing stakeholders may have on projects and their deliverables.

2. **Team:** This domain refers to all aspects (activities and functions) related to the individuals who make up the team and are responsible for producing the expected project deliverables that will add value. Effective implementation of the team domain will yield positive outcomes where each team member will demonstrate shared ownership, high performance, leadership, and other interpersonal skills.
3. **Development Approach and Life Cycle:** This domain speaks of activities and functions in line with the approach, cadence, and life cycle phases of the project. Its effective execution yields an approach that is harmonious with the project deliverables. Moreover, the project life cycle phases reflect value throughout the project and yield cadence and development approach necessary to effect project deliverables.
4. **Planning:** The planning domain encompasses the organization, elaboration, and coordination of the project work throughout the project lifespan. Effective planning enables the project to proceed in an organized, coordinated, and deliberate manner maintaining a holistic delivery approach. In this domain, time spent planning is of the essence. The information planned is enough to manage the expectations of stakeholders. Emerging and changing needs or conditions are effectively managed through the plan adaptation process.

5. **Project Work:** This domain associates itself with the activities and functions related to the establishment of processes, management of physical resources, and fostering of a learning environment. The effectiveness of its implementation produces project performance on an effective and efficient level. Furthermore, processes are aligned to the projects and their environment, there is effective communication with stakeholders, physical resources are properly managed, procurement is managed effectively, and it increases team capability due to a lifelong learning approach.
6. **Delivery:** This domain entails all aspects associated with delivering the established project scope and quality. Its appropriate execution contributes to meeting the objectives of the business and it advances its strategy. The project is completed within its stipulated time frame. Stakeholders become satisfied and accept the intended deliverables.
7. **Measurement:** This domain encompasses all aspects correlated to project performance assessment and taking necessary measures to maintain acceptable performance. The effective management of this domain yields a well-founded understanding of the project status and yields data which facilitates informed decision-making. Any deviations are timely addressed to ensure that the performance of the project is kept within the accepted range. The reliable forecast and evaluation allow timely and informed decision-making which enables target achievement and value addition.
8. **Uncertainty:** This domain encompasses the aspects related to risk and uncertainty. It develops awareness of the project environment (technical social, political, market, economic, etc.). It allows for a proactive mechanism to manage uncertainty. Furthermore, it foresees and manages threats and opportunities and understands the impacts of issues. It effectively uses the cost and schedule reserve to keep the project aligned with its objectives.

In essence, for the successful completion of the FGP, it is crucial to integrate all eight domains to meet the FGP objectives and deliverables.

2.2.1 Predictive, adaptative and hybrid projects

A development approach refers to “a method to create and evolve the product, service, or result during the project life cycle, such as predictive, iterative, incremental, agile, or hybrid method” (PMI, 2021, p. 239). In other words, it refers to the entire system of how the design and the project will be governed.

For the purpose of the FGP, the following three approaches will be discussed:

- a. Predictive:** can be defined as “a development approach in which the scope, time, and cost are determined in the early phases of the life cycle” (PMI, 2021, p. 244). Moreover, PMI (2017), states that at the beginning of the project, the deliverables are defined and changes to the scope are managed progressively.

Amongst the characteristics of a predictive approach, Shultis (2019) mentions that its intention is to create a complete product (single delivery), it follows a linear approach with specific pre-planned steps, it requires proper documentation, is dependent on accurate planning, its goal is to manage cost and is adequate for projects where the scope is faced with insignificant changes.

Therefore, it can be concluded that a predictive approach is defined as a linear, plan-driven, or sequential order of the process: plan, create, review, and release to achieve the project's objective, deliverable, or outcome. The deliverable must be well-defined and planned (scope, time, and cost) at the start of the project.

- b. Adaptive:** can be defined as “a development approach in which the requirements are subject to a high level of uncertainty and volatility and are likely to change throughout the project” (PMI, 2021, p. 235). Additionally, PMI (2017, p. 131), states that “deliverables are developed over multiple iterations where a detailed scope is defined and approved for each iteration when it begins.” In this same line, Gemino et. al. states that “basic outcomes are defined, initial targets are established, and the project outcomes are consistently revisited and further refined using an adaptive process” (2021, para. 13).

In its core characteristics PMI (2017) mentions that the adaptive approach is dynamic with its requirements, the activities are repeated until correct, deliveries are frequent and small, and its goal is to add customer value via frequent deliveries and feedback.

In a nutshell, the agile approach doesn't follow a plan-driven or linear process to complete the deliverable. Instead, the final deliverable is divided into different parts that can be fully completed or improved in every repetitive circular process of plan, create, review, release until the solution, outcome or deliverable requested is complete.

- c. Hybrid:** can be defined as “a combination of two or more agile and nonagile elements, having a nonagile end result” (PMI, 2021, p. 241). Bernsen (2022) states that a hybrid approach element of both the waterfall and the agile world in order to best suit for an individual project case and fix rules exist as elements are matched based on the project needs.

By marrying both approaches, the hybrid approach gets the best of both worlds. Its benefits include sticking to a budget and schedule, using iterations for improvements, keeping the team motivated by implementing an approach that fits both team and project and it provides the most innovative outcome.

In conclusion, a hybrid is basically a combination of one or more approaches based on the needs of the project. The project manager needs to ensure that they are experts on the combination they plan to implement in a hybrid approach.

In relation to both the FGP and the implementation of the Baltazar's Healing Centre, it follows a predictive approach since the scope, cost and time are determined at the beginning of the project. Moreover, the deliverables have been defined.

2.2.1 Project management

Project Management is “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements” (PMI, 2021, p. 245).

APM (2019) defines project management in a more detailed manner. APM looks at project management as an application of processes, methods, skills, knowledge, and experience to yield the achievement of the project objectives in accordance with the established acceptance criteria and the project is to be achieved within the agreed parameters. APM further differentiates between project management and management stating that project management has final deliverables and a finite timespan, likewise management is an ongoing process.

For Pratt, project management is “the discipline of using established principles, procedures and policies to guide a project from conception through completion” (par. 1).

As can be inferred based on all three definitions, project management requires proficiency from a professional that will guide project planning, project organization and its management to achieve the established objectives and outcomes.

Furthermore, project management entails leading a team who will achieve its goals within the constraint of time.

For the purpose of the FGP, project management, as previously defined, will be applied for the successful completion of the Project Management Plan for the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.

2.2.1 Project management knowledge areas and processes

According to PMI (2017), project management areas are classified as areas of specialization used in the management of projects. For a precise definition, PMI states that a project management knowledge area is “a management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools and techniques” (p.716). Each knowledge area entails process groups. PMI (2021, p. 245) defines a project management process group as “a logical grouping of project management input, tools, and techniques, and outputs.” PMI further mentions that the initiating processes, planning processes, executing processes, monitoring, and controlling processes and closing process makes up a process group.

PMI (2017) details ten project management knowledge areas and its processes as follows.

1. **Project Integration Management:** includes “the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups” (PMI, 2017, p.553).

2. **Project Scope Management:** includes “the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully” (PMI, 2017, p.553).
3. **Project Schedule Management: includes** “the processes required to manage the timely completion of the project” (PMI, 2017, p.553).
4. **Project Cost Management:** 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, p.553).
5. **Project Quality Management:** 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, p.553).
6. **Project Resource Management:** includes “the processes to identify, acquire, and manage the resources needed for the successful completion of the project” (PMI, 2017, p.553).
7. **Project Communications Management:** includes “the processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and ultimate disposition of project information” (PMI, 2017, p.553).
8. **Project Risk Management:** includes “the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project” (PMI, 2017, p.553).
9. **Project Procurement Management:** includes “the processes necessary to purchase or acquire products, services, or results needed from outside the project team” (PMI, 2017, p.553).
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 stakeholder expectations and their

impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution” (PMI, 2017, p.553).

The following diagram illustrates the relations between the Process Groups and the Project Management Knowledge Areas.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Figure 2. Project Management Knowledge Groups and Project Mapping Areas.

Note: Adapted from A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Sixth Edition. Project Management Institute, 2017, Figure 1-1, p. 556. Copyright 2017 by Project Management Institute, Inc.

2.2.2 Project life cycle

A project life cycle is a “series of phases that a project passes through from its start to its completion” (PMI, 2017, p. 19). It is the basic framework for project management. The project phases can be sequential, iterative, or overlapping. Furthermore, the life cycle of a project can be predictive or adaptive. Moreover, PMI (2017) states that one or more phases are connected to the development of the product, service, or result, which is referred to as a development life cycle. A development life cycle can either be iterative, incremental, adaptive or follow a hybrid model. According to PMI, all project life cycles can be mapped to the following generic life cycle illustrated in Figure 3.

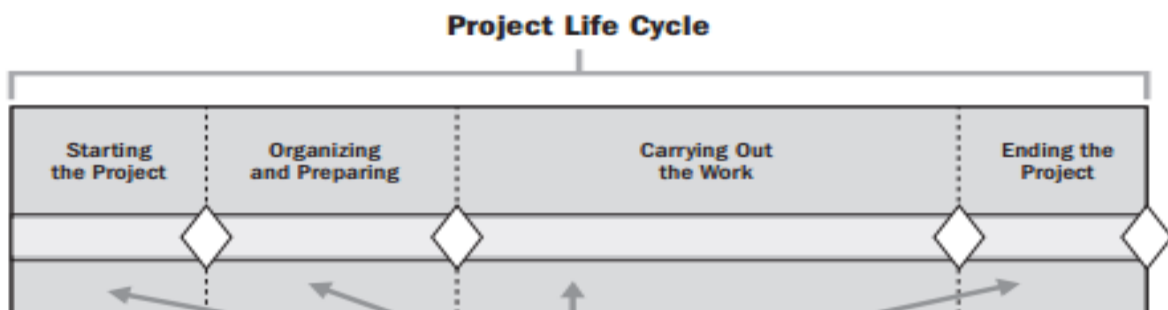


Figure 3. *Generic Life Cycle*

Note: Adapted from A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Sixth Edition. Project Management Institute, 2017, Figure 1-5, p. 18. Copyright 2017 by Project Management Institute, Inc.

For ADEACA, a project life cycle is “the sequence of phases through which a project progresses” (2020, par. 1). ADEACA further states that the phases include initiation, planning, execution, and closure and the phases vary depending on the company and the type of the project.

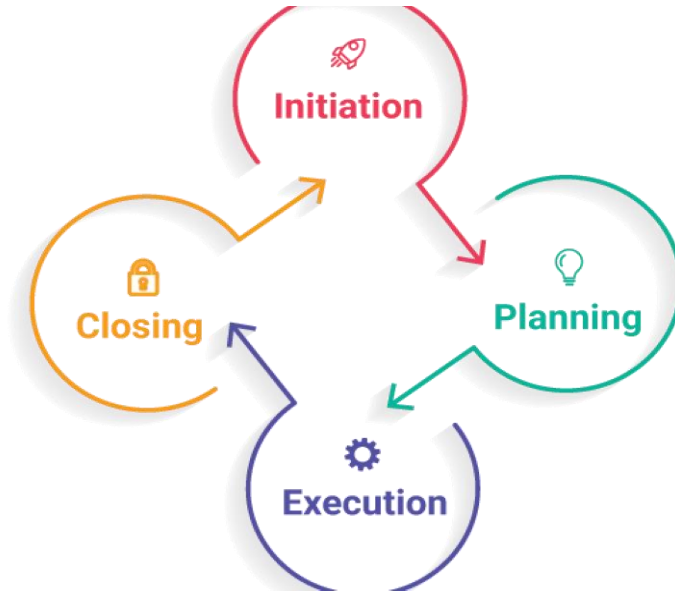


Figure 4. ADEACA Project Life Cycle

Note: From “What is the Project Life Cycle?” by ADEACA, 2020, ADEACA. Copyrights © 2023 ADEACA Corp.

Aston (2022, par.3) defines a Project life cycle as “the order of processes and phases used in delivering project.” He further states that it details the high-level process to project delivery and lay out the steps for the project.

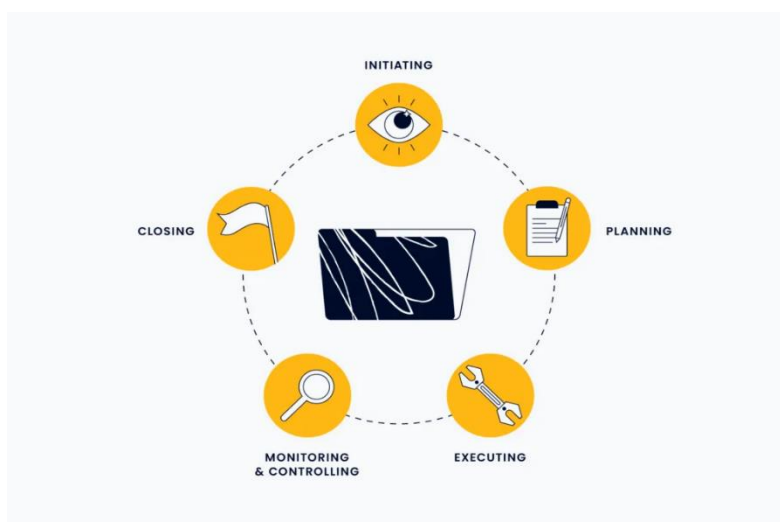


Figure 5. Anston's Project Life Cycle

Note: From “What Is The Project Life Cycle: The 5 Phases & Why It’s Still Important,” by Aston, B, 2022, dpm. Copyrights 2023 by the authors.

Based on the above definition the project life cycle can be referred to as the different stages it needs to go through from its inception to its end. Depending on the organization and the project itself the phases are adapted and adjusted. As can be evident, Figure 5 includes monitoring & control while Figure 4 & 3 doesn’t.

The development of the FGP will use a hybrid approach since it encompasses a predictive approach in the development of the deliverables by knowing the required information for each deliverable. However, the deliverables are subject to improvements in the process based on the feedback provided.

2.2.3 Company strategy, portfolios, programs, and projects

According to IMD (2022), a company strategy is also referred to as a business strategy and is a tool that assists in the achievement of business goals. This tool is a strategic plan for the company or organization. PMI (202, p. 251) defines a strategic plan as “a high-level document that explains an organization’s vision and mission plus the approach that will be adopted to achieve this mission and vision, including the specific goals and objectives to be achieved during the period covered by the document.” This tool will then yield portfolios, program, and projects.

A portfolio is “projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives” (PMI, 2021, p.244).

A program refers to “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. 245).

A project is “a temporary endeavor undertaken to create a unique product, service, or result” (PMI, 2021, p. 245).

As IMD expresses, the importance of company strategy is to ensure that a business or organization does not fall into struggles due to lack of definition. Furthermore, it assures long-term viability rather than short-term results at the expense of long-term viability, if done accordingly to its intent.

Regarding the FGP, it is rooted in a project characteristic being a temporary endeavor to produce a product and result. On the other hand, to achieve the strategic goal of Baltazar’s Healing Centre it will be structured using portfolios, programs, and projects.

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

It is vital to consider other applicable theories/ concepts related to the FGP topic in order to benefit the development of the project management plan in line with the research topic.

2.3.1 Current situation of the problem or opportunity in study

At this stage, the Baltazar’s Healing Centre is not an active and running non-governmental organization. Hence, Baltazar’s Healing Centre does not have any record related to Project Management Plans. Nevertheless, this opens the opportunity for the non-governmental organization to start on the right path with an actual record of Project Management Plans that will guide future projects of the Centre.

In a nutshell, the Project Management Plan will set the standards for the future successful management of projects that the organization will embark on.

2.3.2 Previous research done for the topic in study

The preliminary bibliographical research conducted in line with the topic of psychopedagogy and psychology in Belize provides insight as to the need of the Centre. The Centre will be beneficial to the community by being of service. The following are important insights to take into consideration for this FGP.

UNICEF Belize shared the impacts of COVID in the livelihood of Belizeans. The education sector was greatly impacted due to the closure of schools affecting over forty per cent of the Belizean children. The impact of Covid upon students is related to them falling behind in their schoolwork and not getting the required nourishment they were getting while being dependent upon a school feeding program. Furthermore, due to the lockdown, many protection agencies couldn't protect children. Children were more vulnerable to violence, exploitation, abuse, and trauma. UNICEF alludes that violence has increased since the start of the Covid pandemic. According to UNICEF, about twenty-five percent of households skipped meals or reduced food intake (Tomassini, 2020).

The 2018, PAHO reports raised alarming findings related to mental health. In their findings the mental, neurological, substance use disorder and suicide accounted for 20 and 30 per cent of the total burden. PAHO further alludes that it will remain the largest burden. Depressive disorder, anxiety disorder, self-harm, somatic symptoms disorder with prominent pain were the highest. Schizophrenia, bipolar disorder, alcohol use disorders, drug use disorder and eating disorders also showed a significant percentage. Alarmingly, a high number of children suffer from autistic spectrum disorder, AD/ADHD. PAHO conclusion to these findings entails providing training for primary care providers to prioritize detection and treatment or referral for the common disorders identified. PAHO also concludes that the use of technology should be used to reach more citizens for attention and treatment.

The National Council on Ageing Belize (NCABZ) states that poverty of old age is a genuinely concerning condition on Belize and find it challenging to meet their basic need. NCABZ further states that little provision of financial benefits exists for the elderly. There have been attempts by the Government and other organizations to assist the elderly in meeting their financial needs. Nonetheless, the elderly still poses challenges in their mental health conditions and not much is being done. Having a financial constraint impedes them from seeking necessary assistance.

Overall, the above research has provided an overview of the challenges present in the Belizean community from children to the adolescents and to the elderly. The Baltazar's Healing Centre will be contributing to a more sustainable human development for better and resilient communities.

2.3.3 Other theory related to the topic in study

In reference to the development of a Project Management Plan for the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies, the topic of construction and sustainable energy technologies must be defined.

2.3.3.1 Construction in Project Management

Project management in construction is in line with the same ideology of project management where it entails directing and organizing each part of the project life cycle from its initiation to its completion ensuring to meet the constraints of time and budget. Furthermore, project management in construction, being a complex discipline, addresses cost control, scheduling, procurement, and risk assessment. Project managers are required to interact with a diverse team, from architecture to owners to contractors (Hexagon, n.d).

Hexagon adds that project management in construction is to ensure that the process is in accordance with the plan while avoiding scope creep and adding

quality. Usually, construction projects entail five major stages which are planning and development, design, preconstruction, procurement, and construction. Construction also has four core processes that keep the smooth process. The four core processes are ideation and research, defining and planning the project, determining roles, and finalize and executing construction plans.

As with any other project, construction also brings construction project management challenges. Hence, the following areas are areas of concern that the project manager needs to always have in mind, these include communication and document management, estimating, siloed data and lack of real-time data for risk assessment and change management (Hexagon, n.d.).

2.3.3.2 Sustainable energy technology

JHU (2021), mentions that sustainable energy comes from resources that have the capacity to maintain current operations without jeopardizing the energy needs or climate of future generations. Some examples include wind, solar and hydropower.

The Baltazar's Healing Centre will be designed to invest in solar panel systems and water harvesting systems to sustain its daily operations. DFC (n.d.) recommends that it is more productive to invest as much in renewable energy and energy efficiency technology into the actual construction plan before the actual construction to be more cost-effective. Other than the benefit of being cost-effective the Centre will contribute positively to the environment by going green. The Centre will also incorporate LED Lighting, solar AC units, high -efficiency faucets and low-flow and dual-flush toilets.

3 METHODOLOGICAL FRAMEWORK

A methodological framework can be defined as “a structured guide to completing a process or procedure” (McMeekin, Wu, Germeni, & Briggs, 2020, p.1). It serves as a tool to guide the process in stages, phases, or step-by-step process. McMeekin, et. al. further provides a series of reference words for methodological framework, which are, the body of methods, procedure rules and postulates, structured principles, task structure and sequence of methods.

For Hassan (n.d.), a methodological framework is a structure for organizing research. It includes methods and concepts related to a specific field of study. He alludes that it serves as a guide so that the research can be conducted in a systematic and efficient manner. The methodological framework determines what data needs to be collected and how the data should be analyzed.

The benefits of using a methodological framework are that it can improve consistency, allows robustness and reporting activity, standardizes approaches, and maximizes the trustworthiness of findings (McMeekin, et. al., 2020).

Based on the research findings of McMeekin et. al. (2020), a methodological framework can be categorized into three categories. The first stage includes identifying evidence or data to inform and shape the methodological framework. The data comes from existing methods, literature review, experience, expertise or surveys, interviews, and/or focus groups. The second stage is developing the framework using the data gathered. This phase deals with data extraction, synthesizing, or developing and evolving iteratively. The third category is evaluated and refined which can be done via case studies to pilot the methodological framework, Delphi panels and it be refined using the results from the evaluations.

3.1 Information sources

Source of information refers to all the resources that have the function of meeting the informative needs of any individual. Furthermore, the sources of information accumulated throughout history provide important data relevant to the investigation. Sources of information can be classified as either primary sources, secondary sources, or tertiary sources (Martinez, R. 2018).

3.1.1 Primary sources

Primary sources of information are also known as the original source documents. The author or the creator of the source presents original materials as a result of the discovery, or to share new information or opinions. A precise definition would be the “main text or work that you are discussing, actual date or research results, or historical documents, or first-hand testimony” (Librarian, 2023, par. 1).

Examples of primary sources include diaries, published materials, documentaries, public opinion polls, reprinted primary sources or maps (Librarian, 2023).

The primary information sources used on the FGP are as follows.

- Non-Governmental Organizations ACT Chapter 315
- Interview: Directress of an NGO and or Architecture

3.1.2 Secondary sources

A secondary source can be defined as “materials that are produced with the benefit of hindsight and materials that filter primary sources through interpretation and evaluation” (Librarian, 2023). It refers to works derived from a primary source done by non-participants in the event. Examples of secondary sources include encyclopedias, biographies, general histories, most journal articles, and most published books.

The secondary information sources used on the FGP are as follows.

- PMBOK® Guide- Sixth Edition
- PMBOK® Guide- Seventh Edition
- Library database
- Internet

Chart one provides a summary of the primary and secondary to be used.

As primary resources, a meeting will be held with the prospective Board of Directors along with the Centre Director. An interview with the Directress of Helping Hands Resource and Intervention Centre (HHRIC) NGO will be conducted to get an insight into NGOs. Furthermore, an interview will be conducted with an architect about the sustainable design of the Centre.

As a secondary source, the PMBOK®, Guide, Sixth Edition, 2017 provides fundamental information for each of the ten knowledge areas outlined. The book Sustainable Project Management, The GPM Reference Guide, 2nd edition, 2018 details practices towards moving to the planning and implementation of Sustainable projects.

Chart 1: Information Sources (Source: A. Cardenas, Author, 2023)

Objectives	Information sources	
	Primary	Secondary
1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.	Meeting with the Board of Directs and Centre Director.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned, structured, and controlled.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website

Objectives	Information sources	
	Primary	Secondary
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be structured and performed.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	Meeting with the Board of Directs and Centre Director and interview results of another NGO.	PMBOK® Guide, 6 th edition, PMI (2017) and Relevant website

3.2 Research methods

Research methods can be referred to as the building block of scientific enterprise. It explains “how” systematic knowledge is built (Patten & Newhart, 2018). For Hernandez & Perez (2018), research methods refer to a highly intellectual activity in investigating nature and matter and its focus on the manner in which information is collected, analyzed, and interpreted. Furthermore, it defines the purpose of the research, its activities, procedures, measurement, and applications. In a nutshell, it refers to the research that is formulated and conducted.

3.2.1 Analytical method

The analytical method refers to a method of analysis of problems, status, or facts. The method is usually time-limited and task-limited (Analytical Tech, n.d.). As for dictionary search (n.d.) the analytical method means “the ability of studying objects/people/ action in detailed and intelligent manner in order to reach to conclusion.” According to Sharma (2017, p.7), the analytical method refers to “a generic process combining the power of Scientific Method with the use of formal process to solve any type of problem.”

3.2.2 Synthetic method

According to Anzalone (2016, p. 230), a synthetic method refers to “a relationship of meticulous process of discovering truth contradicted against a fabricated, as in concocted, reality.” Defiance College (n.d.) states that the synthetic method refers to bringing resources together to look for themes. The intention is to look for the links. In a nutshell, it is related to comparison and contrast, classification, and division.

3.2.3 Qualitative Method

Bhandari (2023, par. 1) defines the qualitative method as “collecting and analyzing non-numerical data to understand concepts, opinions, or experiences.” For Bhat

(n.d., par. 1), the qualitative method “allows for in-depth and further probing and questioning of respondents based on their responses.” The FGP interviews will provide qualitative data for later analysis.

The research method for each specific objective is reflected in Chart 2 below.

Chart 2: Research Methods (Source A. Cardenas, The Author, 2023)

Objectives	Research methods		
	Analytic Method	Synthetic Method	Qualitative Method
1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 1 in the decision-making process to create the project charter.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the project charter.	The qualitative method will be used to provide qualitative analysis of the data collected.
2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 2 in the decision-making process to develop the scope management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the scope management plan.	The qualitative method will be used to provide qualitative analysis of the data collected.
3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 3 in the decision-making process to devising the schedule management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the schedule management plan.	The qualitative method will be used to provide qualitative analysis of the data collected.
4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned,	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the	The qualitative method will be used to provide qualitative analysis of the

Objectives	Research methods		
	Analytic Method	Synthetic Method	Qualitative Method
structured, and controlled.	objective 4 in the decision-making process to prepare the cost management plan.	development of the cost management plan.	data collected.
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 5 in the decision-making process to create the quality management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the quality management plan.	The qualitative method will be used to provide a qualitative analysis of the data that was collected.
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 6 in the decision-making process to devising the resource management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the quality management plan.	The qualitative method will be used to provide qualitative analysis of that data that was collected.
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 7 in the decision-making process to prepare the communication management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the communication management plan.	The qualitative method will be used to provide qualitative analysis on the data that was collected.
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the	The qualitative method will be used to provide qualitative analysis of the

Objectives	Research methods		
	Analytic Method	Synthetic Method	Qualitative Method
structured and performed.	objective 8 in the decision-making process to develop the risk management plan.	development of the risk management plan.	data collected.
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 9 in the decision-making process to create the procurement management plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the procurement management plan.	The qualitative method will be used to provide qualitative analysis of the data collected.
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	The analytical method of research will be used to analyze information found in the information sources identified in Chart 1. It will aid objective 10 in the decision-making process to prepare the stakeholder engagement plan.	Triangulating the data in the sources highlighted in Chart 1, convergence and findings will reduce the impact of biases during the synthesis of the development of the stakeholder engagement plan.	The qualitative method will be used to provide qualitative analysis of the data collected.

3.3 Tools

PMBOK® Guide defines a tool as “something tangible, such as a template, or software program, used in performing an activity to produce a product or result” (PMI, 2017, p. 725). The Project Management Guide (n.d., par. 1) states that tools “are specially designed to assist an individual or team in organizing and managing their projects and tasks effectively.” Each tool will guide the development and visualization of a project charter, a particular knowledge area management plan and an analysis of regenerative and sustainable development. The tools will range from templates to software and produce deliverables.

A summary of these tools is provided in Chart 3 below.

Chart 3: Tools (Source A. Cardenas, Author, 2023)

Objectives	Tools
<p>1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.</p>	<ul style="list-style-type: none"> • Project charter template • Microsoft word
<p>2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.</p>	<ul style="list-style-type: none"> • Requirement's traceability matrix template • Requirement management plan template • Scope management plan template • WBS generator and WBS dictionary • Microsoft word • Expert judgement
<p>3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	<ul style="list-style-type: none"> • Schedule management plan • Microsoft word • Excel • Expert judgement
<p>4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned, structured, and controlled.</p>	<ul style="list-style-type: none"> • Cost management plan template • Microsoft word • Excel • Expert judgement
<p>5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	<ul style="list-style-type: none"> • Quality management plan template • Checklist template • Microsoft word

Objectives	Tools
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.	<ul style="list-style-type: none"> • Resource management plan template • Responsibility assignment matrix • Microsoft word • Expert judgement
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.	<ul style="list-style-type: none"> • Communication management plan template • Communication matrix • Microsoft word • Expert judgement
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be structured and performed.	<ul style="list-style-type: none"> • Risk management plan template • Risk register template • Risk checklist • Microsoft word • Expert judgement
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	<ul style="list-style-type: none"> • Procurement management plan template • Microsoft word • Expert judgement
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	<ul style="list-style-type: none"> • Stakeholder management plan template • Stakeholder analysis chart • Stakeholder engagement assessment matrix • Microsoft word • Expert judgement

3.4 Assumptions and constraints

PMBOK® Guide defines an assumption as “a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration” (PMI, 2017, p. 699). As for Malsam, an assumption “can be an event or circumstance that one expects to happen over the life cycle of the project” (2022, par. 5). Malsam further states that assumptions are crucial in planning a project and it requires careful analysis since at times an assumption can be true or not.

For Malsam, a constraint refers to “a limitation to the project” (2022, par. 16). Malsam further states that can be related to the budget, schedule, and resources needed to execute the project. As for PMBOK® Guide, it defines a constraint as “a limiting factor that affects the execution of a project, program, portfolio, or process” (PMI, 2017, p. 701). As is evident both definitions speak of limitations to the project. For the PMI ® Guide, the limitations can be related to the scope, quality, schedule, budget, resources, and risk.

Chart 4: Assumptions and Constraints (Source: A. Cardenas, Author, 2023)

Objectives	Assumptions	Constraints
<p>1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.</p>	<p>It is assumed that the project charter will be developed before all other management plans. The Board of Directors will sign the project charter to give their authorization.</p>	<p>The Project charter needs to be created within a specified time frame and be referred to for the constraint of time, quality, and budget for the project.</p>
<p>2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.</p>	<p>It is assumed that the scope management plan for the project can identify all the work that is required. It is assumed that the Board of Directors are supportive in the facilitation of related work.</p>	<p>The project needs to be completed within the time and as stated in the scope management plan.</p>
<p>3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	<p>It is assumed that allotted time to complete the project is adequate and realistic to accomplish all the scope of work.</p>	<p>The project needs to be completed within the scheduled time and each phase is depended on other phase</p>
<p>4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned, structured, and controlled.</p>	<p>It is assumed that the budget for the project will be detailed, realistic and sufficient to complete the project.</p>	<p>For its success, the project needs to be completed within the constraint of the budget.</p>

Objectives	Assumptions	Constraints
<p>5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	<p>It is assumed that the quality management plan will detail all the requirements to achieve the expected quality for the project and its metrics will allow us to evaluate and achieve quality for the design, construction, and equipment for the project.</p>	<p>The Baltazar's Healing Centre needs to meet the specified quality requirement detailed in the Quality Management Plan.</p>
<p>6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.</p>	<p>It is assumed that the resource management plan will identify all necessary and required human, financial, and material resources. It is also assumed that all resources will be available.</p>	<p>All resources need to be available within specified times and need to be of the proper quality. The resources need to be kept within the allocated budget.</p>
<p>7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.</p>	<p>It is assumed that the strategies developed in the communication management plan will be effective and beneficial for the flow of information and decision-making during the project.</p>	<p>All communication during the project needs to be executed as stated and need to ensure it remains within the available technology.</p>
<p>8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be structured and performed.</p>	<p>It is assumed that all the risk identified will managed properly throughout the life cycle of the project</p>	<p>Risks need to be managed properly to ensure that the project is kept within scheduled time, quality, and budget.</p>

Objectives	Assumptions	Constraints
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	It is assumed that all procurement needed for the project will be procured as planned and stipulated.	All human or resource procurement needs to be within the schedule and the budget of the project.
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	It is assumed that all stakeholders identified will be actively engaged and will not risk or delay the project completion.	Stakeholder engagement needs to be executed as planned, monitored, and managed as stipulated.

3.5 Deliverables

The PMBOK® Guide- Sixth Edition defines a deliverable as “any unique and verifiable product, result, or capacity to perform a service that is required to be produced to complete a process, phase, or project.” (PMI, 2017, p. 704). As for the Project Management Guide (n.d., p.1), a deliverable is “an element of output within the scope of a project. It’s the result of objective-focused work completed within the project process.” To device an integrated Project Management Plan conceptualized within the standards set by the Project Management Institute (PMBOK, 2021) to manage effectively and efficiently the successful completion of the design, construction, and equipment of the Baltazar’s Healing Centre Project using sustainable energy technologies is the main deliverable for the FGP. The other deliverables for the FGP as the project charter and other management plans are detailed in Chart 5 below.

Chart 5: Deliverables (Source: A. Cardenas, Author, 2023)

Objectives	Deliverables
<p>1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.</p>	<ul style="list-style-type: none"> • Project Charter
<p>2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.</p>	<ul style="list-style-type: none"> • Scope Management Plan
<p>3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	<ul style="list-style-type: none"> • Schedule Management Plan
<p>4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy</p>	<ul style="list-style-type: none"> • Cost Management Plan

Objectives	Deliverables
technologies will be planned, structured, and controlled.	
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	<ul style="list-style-type: none"> • Quality Management Plan
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.	<ul style="list-style-type: none"> • Resource Management Plan
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.	<ul style="list-style-type: none"> • Communication Management Plan
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using	<ul style="list-style-type: none"> • Risk Management Plan

Objectives	Deliverables
sustainable energy technologies will be structured and performed.	
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	<ul style="list-style-type: none"> • Procurement Management Plan
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	<ul style="list-style-type: none"> • Stakeholder Engagement Plan

Note: Prepared by Author

4 RESULTS

The result of the Final Graduation Project (FGP) is the Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies. The Project Management Plan entails ten-project management knowledge areas as stipulated by the PMBOK®. Each knowledge area will cover four project management process groups as follows: initiating, planning, executing, and monitoring and controlling (PMI, 2017). The Project Management Plan incorporates the project charter and nine subsidiary management plans detailed in this chapter.

The objective is to create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.

4.1 Project Charter

To develop the Project Charter, a brainstorming session was held with the Directress of the Helping Hands Resource and Intervention Centre and the Prospective Board Members of the Baltazar's Healing Centre. Expert judgement was also sought. For the remaining parts of the plan, an interview was held with a construction engineer and online research was also performed.

Chart 6: *Project Charter (Source A. Cardenas, The Author, 2023)*

PROJECT CHARTER	
Date	Name of Project
April 3, 2023	Design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.

Type of project:	Predictive	
Knowledge areas / process groups	Application area (Sector / Activity)	
<p>Knowledge Areas</p> <p>Project Scope Management Plan Project Schedule Management Plan Project Cost Management Plan Project Quality Management Plan Project Resource Management Plan Project Communication Management Plan Project Risk Management Plan Project Procurement Management Plan Project Stakeholder Engagement Plan</p> <p>Process Groups</p> <p>Initiating, Planning, Executing, Monitoring, and controlling.</p>	Health, education, construction	
Tentative start date	Tentative completion date	Duration (months)
September 1, 2023	May 31, 2024	9 months
Project objectives (general and specific)		
<p>General Objective</p> <p>To design, construct, install sustainable energy technologies, equip and launch the Baltazar's Healing Centre to provide psycho-pedagogical and psychological services to improve the mental health of the Belmopan Community, its surroundings and the nation at large within a budget of \$128,050.00 BZE dollars during a period not exceeding nine (9) months.</p> <p>Specific Objectives</p> <ol style="list-style-type: none"> 1. To develop all the required project management plans in compliance with the standards set by the PMBOK (2017) within a period of five (5) months to manage the Baltazar Healing Center Project. 2. To obtain the NGO certification for the Baltazar Healing Center within a period of three (3) months to officially register the Center as a Non-Governmental Organization under the laws of Belize. 3. To create the architectural design plan of the Baltazar Healing Center within a period of six (6) weeks to acquire the Central Building Authority (CBA) approval of the plan to commence construction work. 		

4. To construct the 548 Sq. Ft. Baltazar Healing Center with a width of 21'6" and a diameter of 25'6" within a period of five (5) months to deliver psychopedagogical and psychological services to the City of Belmopan, its surrounding, and the country at large.
5. To install the sustainable energy technologies of the Baltazar Healing Center within a period of twenty (20) days to power up and to ensure a smooth running of the facility.
6. To equip the psychopedagogical clinic, psychological clinic, bathroom, kitchenet, and awaiting area of the Baltazar Healing Center within a period of twenty-two (22) days to ensure its readiness to commence its service.
7. To organize an official inaguration of the Baltazar Healing Center within a period of fifteen (15) days to officially launch the facility to the community.

Justification or purpose of the project (Contribution and expected results)

Currently, Belize has an alarming rate of poor mental health amongst its citizens, from the young to the elderly, that worsen during the pandemic period. Children were out of school for a prolonged period of time. Many lost the daily nourishment from feeding programs they were receiving at school. Children were vulnerable to different types of abuse at home. Mental disorders, neurological disorders, substance abuse disorder and suicide accounts for up to thirty per cent of the burden that citizens face. Moreover, it is project that this will remain at a high percentage. Poverty and access to receiving adequate and affordable mental helath treatment for the elderly is difficult in Belize.

Due to the lack of adequate facilities throughout the country and the availability of trained professionals, late diagnoses has become a burden to the country. This requires more resources in order to provide the much-needed assistance and to curb its impacts.

PAHO states that the country and the different organizations shall take a preventaive approach to ensure the minimization of the impacts caused by late diagnosis. The Baltazar's Healing Centre will act from a preventative approach to ensure that the young to the elederly have access to a facility that can provide psycho-pedagogical and psychological services with a minimum to no cost to improve their metal health. Furthermore, in the future, training will be provided to educators, parents and mental health practicioners to ensure continuity. The residents of the City of Belmopan, its surroundings and by extension the entire country of Belize will tremendously benefit from this service.

Description of the product or service that the project will generate - Final project deliverables

The design, construction and equipment of the Baltazar's Healing Centre using sustainable energies technology will consist of the following deliverables aligned with the specific objectives:

1. NGO certificate of registration for the Baltazar's Healing Centre.
2. Project Charter and nine subsidiary management plans.
3. CBA approved facility plan incorporating sustainable energy technologies in its design.
4. Construction of the facility as shown in the facility plan.
5. Installation of the energy technologies, as per the facility plan, to run the Baltazar's Healing Centre.
6. Proper equipment of the waiting and consulting rooms of the Baltazar's Healing Centre.
7. Official launch ceremony of the Baltazar's Healing Centre.

Assumptions

1. The design, construction and equipment of the Baltazar's Healing Centre using sustainable energy technologies can be completed within nine months.
2. The certification of the Baltazar's Healing Centre as an NGO will conclude within a period of eight weeks.
3. CBA Belize will approve the design of the facility within schedule timeframe.
4. The cost for the design, construction and equipment of the Baltazar's Healing Centre is within the available budget.
5. The procurement of the contractors to perform the works is successful at the first instance.

Restrictions

1. Construction will take place during the hurricane season.
2. Constant increase in fuel prices can impact the cost of construction material and equipment and its transportation.
3. Prejudice mindset about attending psycho-pedagogical and psychological services.
4. The fund for the project not being readily available.
5. Minimum option in procuring a contracting firm do provide and install the sustainable energy technology.

Preliminary identification of risks

As a result of ineffective stakeholder engagement meetings, crucial information can be missed and the design, construction or equipment of the Baltazar's Healing Centre

could be affected by rework.

If fuel prices continue to constantly increase, due to the war in Ukraine, the cost of material and transportation can increase impacting the cost of the project.

If a hurricane hits Belize, due to an active hurricane season, it can damage construction work and will require work to stop and rework on damage portions.

If constant daily rain occurs or severe weather, due to the the wet season, potential delay on the project could occur increasing the cost and prolonging the schedule of the project.

Deliverable	Name of the resource (can be human, equipment, material, supply, infrastructure, contracting)	Total cost BZE
Construction of the Baltazar's Healing Centre	Human Material Equipment Contracting	\$76,000
Sustainable energy technologies	Solar panels Solar AC Units + Inverter Units High Efficiency Faucets LED Lighting Renewable hot water heater Low Flow & Dual Flush Toilets	\$35,000
Furnishing and Equipment	Furnishing and Equipment <ul style="list-style-type: none"> • 2 clinic rooms • Waiting area • Bathroom • Kitchen 	\$8,000.00
Launch of the Centre	Ceremony	\$2,050
Contingency		\$7,000
	TOTAL	\$128,050 .00

Milestones schedule

Milestone name	Start date	End date
Start	September 1st, 2023	

Baltazar's Healing Centre NGO Certification	September 1st, 2023	November 3rd, 2023
Design of the Baltazar's Healing Centre and CBA Approval	September 1st, 2023	October 13th, 2023
Construction of the Baltazar's Healing Centre	October 31, 2023	March 31st, 2024
Installation of sustainable energy technologies	March 31st, 2024	April 19th, 2024
Equipment of the Baltazar's Healing Centre	April 26th, 2024	May 17th, 2024
Baltazar's Healing Centre Launch	May 17th, 2024	May 31st, 2024
End		May 31st, 2024

Relevant historical information

The Baltazar's Healing Centre will become a newly established NGO that will provide psycho-pedagogical and psychological services to the residents of the City of Belmopan and its surrounding and will extend its services via tele-services. The NGO will be located in Caannan Street, City of Belmopan.


Given the situation of the country with poor mental health. The Centre aims at providing mental health services to curb the alarming rate. Poverty throughout the country is high and affording mental health services is a luxury. The Centre aims at providing the services at low-cost to free cost to any citizen, from the young to the elderly.

The Centre will act from a preventative approach. To ensure that the issues are tackled from the start and it will minimize the cost incurred due to late diagnosis.

Identification of groups of interest (stakeholders)

Direct Stakeholders: Contractors, Centre Board, Architect, Ministry of Public Works

Indirect Stakeholders: Ministry of Education, Ministry of Health, Residents of the City of Belmopan and its surroundings, citizen of Belize, Schools

Student's name (Armin Cardenas):	Signature: 
Name and title of the authorizing person (facilitator):	Signature:

4.2. Scope Management Plan

4.2.1 Introduction

The Scope Management Plan refers to “the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully” (PMI, 2017, p.129). It aims at defining, validating, and controlling the project. It details what shall and shall not be included in the project.

To clearly define what shall and shall not be included in the Baltazar’s Healing Centre Project, a scope management plan was created. The plan is comprised of the scope management approach, roles and responsibilities, scope definition, project scope statement, the Work Break Down Structure (WBS) and WBS Dictionary, scope verification and the scope control that serves as a guide to the project.

4.2.2 Approach

The Baltazar’s Healing Centre takes the form of a predictive approach where the project deliverables are well defined from the beginning of the project. Changes to the scope are managed progressively.

The scope management of the Baltazar’s Healing Centre will be the responsibility of the Project Manager. The scope for the project is defined by the Scope Statement, Work Breakdown Structure (WBS), and the WBS dictionary as stipulated in this FGP. The Project Manager, sponsor, and stakeholder will follow the principle of establishing and approving documentation for measuring the project scope.

Any changes requested by the Project Manager, stakeholder or any other member of the team will require us to follow a formal change request process where the effects of the changes being requested are to be evaluated by an overall view of the project. As per protocol, when a change request is received, the Project Manager will submit the change request to the Change Control Board and the

Project Sponsor for its acceptance or not. Where the change request is approved, the Project Manager shall update all project documents and communicate such change to all the stakeholders.

4.2.3 Collect Requirement

The PMI (2017, p. 138) defines collect requirements as “the process of determining, documenting, and managing stakeholder needs and requirements to meet objectives.” This data serves as the basis for the product and project scope.

The Baltazar’s Healing Centre Board acts as the representation of the Sponsor and is highly involved in this process. During Board meetings, tools, and techniques like brainstorming, expert judgement, and interviews were used to decipher project requirements. Furthermore, Expert judgement on other NGO organization and those of the contractors are key, due to the wealth of knowledge and experience in alike projects. The Board will work to ensure the effective management of the requirements throughout the project’s lifecycle.

The following documentation matrix describes the requirements for the project based on the needs of the Board, Sponsor, Project Manager and Team.

Chart 7 Requirements (Source: A. Cardenas, The Author, 2023)

ID	Requirement	Stakeholder	Category	Priority	Acceptance Criteria	Test or Verification	Phase or Release
1	Obtain NGO Certification	Sponsor and Board	Business	High	The certification is obtained within the scheduled time.	Verification	At the end of the design phase.
2	Project is completed within schedule and allocated budget within agreed standards.	Sponsor Project Manager	Business	High	The project doesn't exceed the stipulated time frame, is within budget and withing the standards.	Analysis Report	At the end of the design phase, construction phase and equipment phase.
3	Project Team demonstrates the knowledge and experience in project management (Construction).	Project Manager	Technical	High	Proper project management documents are developed. The project is well managed throughout its lifecycle.	Inspection	Throughout the phases of the project.
4	Stakeholders' active participation	Board	Technical	High	The Board is actively involved and provided acceptance of deliveries and approve/ deny changes request after thorough analysis.	Analysis report	Throughout the project lifecycle.
5	Construction abides by the local building codes.	Architect	Technical	High	CBA Approval	Inspection	Design Phase
6	Service provider to have safety and proper equipment during the activity's implementation phases.	Contractors	Technical	High	Safety equipment as stipulated by the laws	Inspection	Construction phase and installation of sustainable energy technologies phase.
7	Facility is fully functional with the	Subcontractor	Technical	High	All sustainable energy technologies are functional	Test Inspection	Sustainable energy technologies

ID	Requirement	Stakeholder	Category	Priority	Acceptance Criteria	Test or Verification	Phase or Release
	sustainable energy technologies.				and well installed.		installation phase.
8	Facility is well equipped with professional related equipment for the running of the Centre.	Director of the Centre	Technical	High	Consulting rooms are well equipped to make it patient focused. The waiting room is well equipped as well, including the data system.	Test Inspection	Equipment phase
9	Results of each project evaluation are presented in a report format, is submitted the project sponsor, and relevant stakeholders.	Project Manager and Team	Business	High	Concise and detailed reports are presented on time.	Analysis	At the end of each project phase.
10	Official Launch Ceremony	Sponsor and Board	Business	High	Successfully launched the Baltazar Healing Centre aired live.	Analysis	Handing over.

4.4.5 Requirement Traceability Matrix

A requirement traceability matrix objective is to keep track of several requirements throughout the project life cycle. The information in the requirement documentation is used to address other aspects of the project (PMI, 2017). The following Chart illustrates how each requirement will be traced to the objectives of the project, WBS deliverables, and how it will be validated.

Chart 8 Requirement Traceability Matrix (Source: A. Cardenas, The Author, 2023)

Requirement Information					Relationship Traceability			
ID	Requirement	Source	Category	Priority	Business Objective	Deliverable	Verification	Validation
1	Obtain NGO Certification	Sponsor	maintainability	High	To register the Baltazar Healing Centre as a Non-Governmental Organization.	NGO Certificate		Approval of NGO Registration Certificate.
2	Project is completed within schedule and allocated budget within agreed standards.	Sponsor Board Member	Functional	High	To hire a contractor to build the facility as per the design.	Design Facility	Analysis Report	Site visit and evaluation Sponsor and the Board.
4	Stakeholders' active participation	Board Member	Functional	High	The Board is actively involved and provided acceptance of	Meetings	Analysis report	The Project Manager will provide a report.

Requirement Information					Relationship Traceability			
ID	Requirement	Source	Category	Priority	Business Objective	Deliverable	Verification	Validation
					deliveries and approve/deny5changes request after thorough analysis.			
5	Construction abides by the local building codes.	Architecture Board Member	Security	High	To hire an architect to design and aquire the Central Building Authority (CBA) approval of the Baltazar's Healing Centre integrating sustainable energy technologies.	Acceptance Report	Inspection	Approval from CBA is received.
6	Facility is fully functional with the sustainable energy technologies.	Architecture Board Member	Functional	High	To hire a contracting firm to supply and install the sustainable energy technologies to run the Centre.	Green light on test.	Test Inspection	Evaluation/ Report after testing.

Requirement Information					Relationship Traceability			
ID	Requirement	Source	Category	Priority	Business Objective	Deliverable	Verification	Validation
7	Facility is well equipped with professional related equipment for the running of the Centre.	Psycho-pedagogy and Psychological Professional	maintainability	High	To equip the Baltazar Healing Centre to adequately provide its services.	Functional Facility	Test Inspection	Evaluation after test/ inspection.
8	Results of each project evaluation are presented in a report format, are submitted to the project sponsor, and relevant stakeholders.	Board	Functional	High	To hire a contractor to build the facility as per the design.	Project Reports.	Analysis	Evaluation of document by the board.
9	Official Launch Ceremony	Sponsor and the Board	Functional	Medium	To launch the Baltazar Healing Centre	Ceremony		Evaluation of Sponsor and Board.

4.2.6 Scope Definition

According to (PMI, 2017, p. 150), the term define scope refers to “a detailed description of the project and product.” The objective is to describe the result boundaries and its acceptance criteria.

The scope for the Baltazar’s Healing Centre project was defined by the project sponsor, the Baltazar’s Healing Centre Board, the psycho-pedagogical and psychological professional in tandem with the project manager.

The project scope encompasses from the obtention of NGO certification to design, construction and equipment of the Baltazar’s Healing Centre to its official launch.

4.2.7 Project Scope Statement

The project scope statement entails a description of the project scope, its major deliverables, and its exclusions. The deliverables are detailed. Furthermore, it provides a clear scope of the project to the stakeholders. The project scope statement aims at ensuring detailed planning, project teamwork is guided during the execution and serves as the baseline to evaluate change request or additional work within or outside the project limitations.

The project scope statement highlights the scope description, project deliverables, acceptance criteria, constraints, and assumptions. The project scope statement is presented in Chart 10 as shown below.

Chart 9 Project Scope Statement (Source: A. Cardenas, The Author, 2023)

Project Scope Statement	
Project Title:	Design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.
Date Prepared:	April 20, 2023
Project Scope Description:	The project scope entails obtaining the NGO certification, designing the Centre, and receiving approval from CBA to ensure that all building codes are in order. Furthermore, the scope includes the construction of the facility as stipulated in the plan and the installation of sustainable energy technologies. Lastly, the scope of the project entails the proper equipment of the Centre and its official launch.
Project Deliverables:	<ul style="list-style-type: none"> • Obtain the NGO Certification under the Laws of Belize • Architectural Design of the Baltazar's Healing Centre and its CBA Approval. • Construction of the Baltazar's Healing Centre by construction phases. • Installation of sustainable energy technologies. • Proper equipment for the Baltazar's Healing Centre. • Official Launch of the Baltazar's Healing Centre.
Acceptance Criteria:	<ul style="list-style-type: none"> • The certification is obtained within the scheduled time. • The architectural design of the Baltazar's Healing Centre contains a psycho-pedagogical clinic, a psychological clinic, a waiting area, kitchenet area and waiting room. The designers receive the green light from CBA within the expected time. • Each construction phase is completed successfully as per design; the construction phases are completed within time and of quality material. • Sustainable energy technologies pass the test and run efficiently. • Both psycho-pedagogical and psychological clinics are equipped with proper equipment and materials. The waiting area is well equipped and comfortable. The kitchenet has the proper equipment as well. • Advertising, invitations, media and preparation is well executed and on time.
Project Exclusions:	Hiring personnel to work at the Centre is out of the scope of the project. Designing the Centre polices and other required documents to run the Centre is also out of the scope of the project. Furthermore, the project doesn't include maintenance of the building and maintenance for sustainable energy technologies. Lastly, it doesn't include fencing or parking area.
Project	Scope:

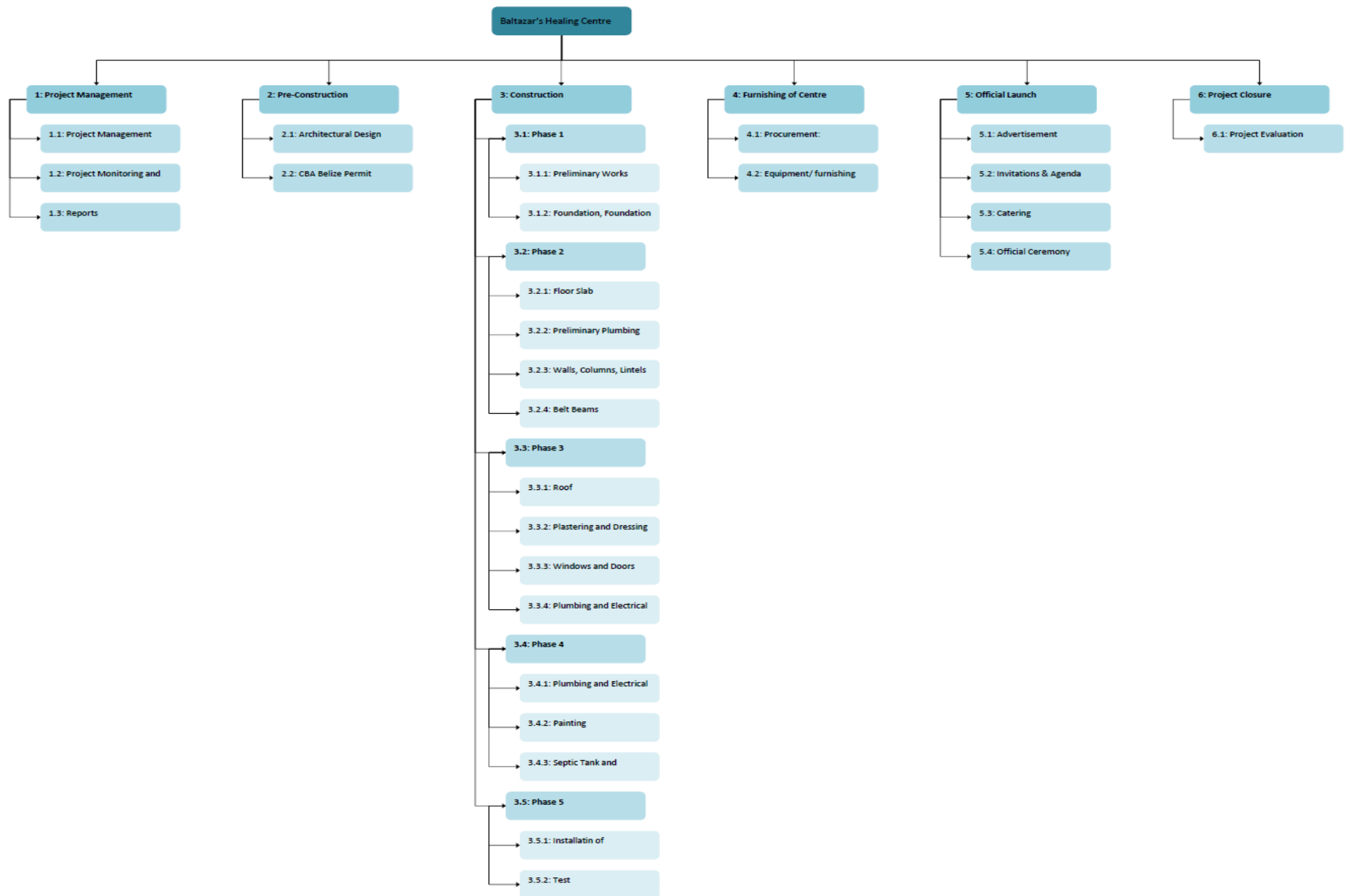
Constraints:	<ul style="list-style-type: none"> • The project will be executed during the hurricane/ wet season. • The project needs to follow the as per scope plan. <p>Schedule</p> <ul style="list-style-type: none"> • The project should not exceed the period of six (6) months to complete the project. <p>Cost:</p> <ul style="list-style-type: none"> • The project should not exceed the budgeted amount of BZ \$128,050.00 in expenditure. <p>Quality</p> <ul style="list-style-type: none"> • Facility is sustainable with the use of sustainable energy technologies.
Project Assumptions:	<ul style="list-style-type: none"> • The design, construction and equipment of the Baltazar’s Healing Centre using sustainable energy technologies can be completed within nine months. • The certification of the Baltazar’s Healing Centre as an NGO will conclude within a period of eight weeks. • CBA Belize will approve the design of the facility within schedule timeframe. • The cost for the design, construction and equipment of the Balatazar’s Healing Centre is within the available budget. • The procurement of the contractors to perform the works is successful at the first instance.

4.2.8 Work Breakdown Structure

The Work Breakdown Structure, also known as the WBS, is the “process of subdividing project deliverables and project work into smaller, more manageable components” (PMI, 2017, p. 156). The WBS aims at outlining what needs to be delivered for the successful completion of the project. PMI (2017), states that the WBS starts with the project level and is then broken down into finer detailed levels.

The following WBS represents the decomposed project deliverables into manageable work packages. The WBS will allow for effective management of the project works.

Figure 6: WBS- Baltazar's Healing Centre Project (Source A. Cardenas, The Author, 2023)



4.2.9 WBS Dictionary

PMI (2017, p.162) states that the WBS dictionary a “detailed deliverable, activity, and scheduling information about each component in the WBS.” The WBS dictionary acts as support to the WBS, it provides the details about the control accounts and work packages. The approved WBS, it subsequent dictionary and the project scope statement encompasses the scope baseline for the Baltazar’s Healing Centre Project.

Chart 10 WBS Dictionary (Source: A. Cardenas, The Author, 2023)

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
1	1	Project Management	To ensure that that project contains all necessary plans to monitor, control and to provide timely reports to ensure that the project can be completed successfully.		\$-	
2	1.1	Project Management Plans	Formulate all Project Management Plans and subsidiary Plan.	Project Charter Scope Management Plan Schedule Management Plan Cost Management Plan Quality Management Plan Resource Management Plan Communication Management Plan Risk Management Plan Procurement Management Plan Stakeholder Engagement Plan	\$0.00	Project Manager
2	1.2	Project Monitoring and Control	Use all plans to monitor and control the different activities of the project and if any changes arise.	Analysis Reports Change Control	\$0.00	Project Manager
2	1.3	Reports	To provide continuous reports of the	Soft Copy Reports	\$0.00	Computer

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
			project phases and its progress to the Sponsor and Board.			Internet
1	2	Pre-Construction	Encompasses the architectural design of the Baltazar's Healing Centre and the required approval and permit to commence construction.		<u>\$806.00</u>	
2	2.1	Architectural Design	Draw the architectural design the Baltazar's Healing Centre. The design shall include two (2) clinic rooms, a waiting area, a bathroom and a kitchenet area.	Approved Architectural Design of Facility.	\$500.00	Architecture
2	2.2	CBA Belize Permit	Submit drawing, relevant document and make payment to obtain approval of drawing and green light to begin construction work.	Letter to commence work.	\$306.00	Architecture
1	3	Construction	Encompasses the building of Baltazar's Healing Centre through different phases.	Build the facility	<u>\$107,406.34</u>	
2	3.1	Phase 1	Phase 1 of the project will cover preliminary works, foundation, and foundation walls and subsequent backfill.		<u>\$12,944.90</u>	
3	3.1.1	Preliminary Works	Preliminary work entails the purchasing of items such as nails, tying wire, lumber and starting to do proper measurements of the site and where the facility will be constructed.	Preliminary materials at site. Markers of measurements including posts.	\$1,125.00	Human Resource Construction Materials
3	3.1.2	Foundation, Foundation Walls and Backfill	Foundation entails excavation and the construction of the foundation beams and subsequent walls and doing the backfill works.	Excavation Foundation Beams Foundation Walls Backfill	\$11,819.90	Construction material Human Resource
2	3.2	Phase 2	Entails the work of floor slab, preliminary plumbing and electrical, walls, columns,		<u>\$24,412.46</u>	

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
			and lintels.			
3	3.2.1	Floor Slab	To perform floor slab to complete the concrete floor.	Floor slab	\$6,764	Construction material Human Resource
3	3.2.2	Preliminary Plumbing and Electrical	Purchase plumbing and electrical material as directed by the sustainable energy technologies contractor and commence preliminary plumbing and electrical works.	Materials are available on site. Initial plumbing and electrical work	\$1,564.30	Construction material Human Resource
3	3.2.3	Walls, Columns, Lintels	Build the walls, columns, and lintels as per architectural design.	Walls Columns Lintels	\$9,394.52	Construction material Human Resource
3	3.3.4	Belt Beams	Construct the belt beams as indicated in the architectural design.	Belt beams	\$6,689.64	Construction material Human Resource
2	3.3	Phase 3	Encompasses the works of roof, plastering and dressing, windows and doors, and advancement in plumbing and electrical.		\$29,559.08	
3	3.3.1	Roof	Commence construction of the roof as per architectural design.	Roof	\$12,274.48	Construction material Human Resource
3	3.3.2	Plastering and	Commence interior and exterior	Plastering and dressing	\$6,610.00	Construction

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
		Dressing	plastering and dressing of the Centre.			material Human Resource
3	3.3.3	Windows and Doors	Installation of windows and doors as per architectural design.	Windows and doors installed	\$6,050.00	Window and doors Human Resource
3	3.3.4	Plumbing and Electrical	Interior advancement of plumbing and electrical works.	Advanced works in plumbing and electrical	\$4,624.60	Plumbing and electrical material Human Resource
2	3.4	Phase 4	Encompasses finalization of plumbing and electrical works, painting, construction of septic tank and soak-away		\$5,489.90	
3	3.4.1	Plumbing and Electrical Finalization	Finalization of plumbing and electrical design as stipulated in the architectural design.	Plumbing and Electrical wiring completed	\$3,810.00	Plumbing and electrical material Human Resource
3	3.4.2	Painting	Selection of interior and exterior painting and commencement of painting work.	Painting of facility	\$510.50	Painting Materials Human Resource
3	3.4.3	Septic Tank	Construction of septic tank and soak-	Septic tank and soak-away	\$1,169.46	Construction

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
		and Soak away	away, until complete.			Material Human Resource
2	3.5	Phase 5	Includes the installation of energy technologies and its subsequent testing.		\$35,000.00	
3	3.5.1	Installation of Sustainable Energy Technologies	Procurement of sustainable energy technologies and its subsequent installation from provider.	Solar panels Solar AC Units + Inverter Units High Efficiency Faucets Let Lighthing Renewable hot water heater Low Flow & Dual Flush Toilets	\$35,000.00	Sustainable Energy Technologies Human Resource
3	3.5.2	Test	Testing to ensure that all is working adequately and that the Centre can be run by sustainable energy technologies on a daily basis.	Test Report on the function of sustainable energy technology.	\$-	Human Resource
1	4	Furnishing of Centre	Includes the procurement of equipment and furnishing and its subsequent work.		\$8,000	
2	4.1	Procurement: Equipment/ Furnishing	Procure interior furnishing and necessary equipment for the two clinic rooms, bathroom, waiting area and kitchenet area.	Purchase of furnishing and equipment.	\$6,500	Equipment Furnishing
2	4.2	Equipment/ Furnishing Works	Perform works of equipping the two clinic rooms, bathroom, waiting area and kitchenet area	Equipment of 2 clinics Equipment of bathroom and kitchenet Equipment of waiting area	\$1,500	Human Resource
1	5	Official Launch	Conduct all activities to ensure that the official launch of the Baltazar's Healing Centre is launched successfully.		\$2,050.00	
2	5.1	Advertisement	Prepare videos and flyers to advertise	Advertisements online/ radio/	\$600.00	Human

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
			the Centre as an NGO. The Centre is to be advertised at the community and national level.	TV		Resource Technology-computer/ Canva
2	5.2	Invitations & Agenda	Prepare invitations to key stakeholder and its subsequent distribution. Prepare the agenda/ program for the ceremony and receive confirmation from participants.	Design and Virtual Distribution of Invitations Printed of Agenda/ Program	\$150.00	Computer Printing Service
2	5.3	Catering	Procure catering services for the guest.	Catering/ menu scheduled and paid/ deposit for due date.	\$700.00	Human Resource
2	5.4	Official Ceremony	To prepare the place with decoration, tables, chairs, PA System, and any other item required for a successful ceremony. Launch ceremony.	Decoration Tables and chairs PA System	\$600.00	PA System Decoration materials Chairs/ chair
1	6	Project Closure	Is the final phase of the project.	Final Closure phase	\$-	
2	6.1	Project Evaluation	Perform final evaluation of the projects including final reports to be submitted to the Board and Sponsor.	Meeting and Final Reports	\$-	

4.2.10 Scope Validation

Scope validation is referred as “the process of formalizing acceptance of the completed project deliverables (PMI, 2012, p. 163).” The scope validation aims is to bring objectivity in the acceptance process to increase the probability of the final project acceptance through the validation of each deliverable. The validation scope will be performed periodically throughout the project life cycle.

Throughout the project life cycle, the Project Manager’s responsibility will be to verify the project deliverables against the scope statement as stipulated in the scope statement, Work Breakdown Structure, and the Work Breakdown Structure Dictionary. Subsequently, after the Project Manager finalizes the verification, the Project Manager will conduct a meeting with the Sponsor and the Board for their formal inspection and acceptance of the deliverable. To formally accept the deliverables both the Sponsor and the Board members will be required to sign the deliverable acceptance document.

4.2.11 Scope Control

The PMI (2017, 167) defines control scope as “the process of monitoring the status of the project and product scope and managing changes to the scope baseline.” The scope control aims at maintaining the scope baseline throughout the project lifecycle.

The scope of the Baltazar’s Healing Centre project will be mainly controlled by the Project Manager with the assistance of the Project Team. The WBS Dictionary will be the document that will ensure that works stipulated is performed and the WBS elements are produced. The Sponsor and the Centre Board will oversee the scope control process.

If any scope change is requested during the lifecycle of the project the process of recommending and estimating changes will be performed. Any change is to be

submitted to the Project Manager on the required change request form. It will be the duty of the Project Manager to review the recommended change to the scope and perform an impact estimation to the project in term of cost and schedule. The Project Manager will have the prerogative to reject the change if it is not aligned to the project or call a meeting with the Change Control Board comprised of the Sponsor and the Board Centre to formally submit the change request. If the change is approved by the Change Committee, the Committee members are to sign the change control document to formally approve such change. Subsequently, the duty of the Project Manager is to update all project documents; thereafter, communicate the scope change to the team and stakeholders.

4.3 Schedule Management Plan

4.3.1 Introduction

Project Schedule Management refers to “the process required to manage the timely completion of the project (PMI, 2017, p. 173).” For the Schedule Management Plan PMI (2017, p.56,), it is part of the project management plan and “it specifies how the project schedule will be developed, monitored, and controlled. Therefore, the schedule management plan for the Baltazar’s Healing Centre Project will detail how the project team will be monitored and managed using the schedule management plan.

The Schedule management Plan will serve as a detailed plan which will represent the ‘how’ and ‘when’ the project is to deliver the product as described in the project scope. Moreover, the Schedule Management Plan will serve as a tool for communication, management of stakeholder’s expectation, and the basis for performance reporting (PMI, 2017).

4.3.2 Schedule Management Approach

The schedule for the Baltazar’s Healing Centre project was formulated using the software: Microsoft Project 2019. This plan was developed using the previous meetings with the sponsor and board and the interview with architecture and contractor to complete the process of defining the activities. Furthermore, the WBS work package, as stipulated in the Scope Management Plan, served as an input to the Schedule Management Plan. These packages were further broken down into activities. During a meeting with the project team, the activities were listed, reviewed, and documented. Subsequently, the relationship between activities and its duration were determined. The Baltazar’s Healing Centre Project will follow the critical path scheduling method.

4.3.3 Define Activities

Define activities is “the process of identifying and documenting the specific actions to be performed to produce the project deliverables” (PMI, 2017, p.173). The define activities process aims at decomposing work packages into schedule activities which will become the basis for estimating, scheduling, executing, monitoring, and controlling all the project work required to successfully complete the Baltazar’s Healing Centre Project.

The following chart details all the activities required to complete the project work for the Baltazar’s Healing Centre.

Chart 11 Activity List (Source: A. Cardenas, The Author, 2023)

Level	WBS Code	Element Name	Description of Work
1	1	Perform Project Management	Ensure that that project contains all necessary plans to monitor, control and to provide timely reports to ensure that the project can be completed successfully.
2	1.1	Formulate Project	Formulate all Project Management Plans and

Level	WBS Code	Element Name	Description of Work
		Management Plans	subsidiary Plan with relevant forms.
2	1.2	Perform Project Monitoring and Control	Use all plans to monitor and control the different activities of the project and if any changes arise.
2	1.3	Write Reports	To provide continuous reports of the project phases and its progress to the Sponsor and Board.
1	2	Perform Pre-Construction	Encompasses the architectural design of the Baltazar's Healing Centre and the required approval and permit to commence construction.
2	2.1	Execute Architectural Design	Draw the architectural design the Baltazar's Healing Centre. The design shall include two (2) clinic rooms, a waiting area, a bathroom and a kitchenet area.
2	2.2	Obtain CBA Belize Permit	Submit drawing, relevant document and make payment to obtain approval of drawing and green light to begin construction work.
1	3	Perform Construction	Encompasses the building of Baltazar's Healing Centre through different phases.
2	3.1	Phase 1	Phase 1 of the project will cover preliminary works, foundation, and foundation walls and subsequent backfill.
3	3.1.1	Perform Preliminary Works	Preliminary work entails the purchasing of items such as nails, tying wire, lumber and starting to do proper measurements of the site and where the facility will be constructed.
3	3.1.2	Execute Foundation, Foundation Walls and Backfill	Foundation entails excavation and the construction of the foundation beams and subsequent walls and doing the backfill works.
2	3.2	Phase 2	Entails the work of floor slab, preliminary plumbing and electrical, walls, columns, and lintels.
3	3.2.1	Build Floor Slab	To perform floor slab to complete the concrete floor.
3	3.2.2	Perform Preliminary Plumbing and Electrical	Purchase plumbing and electrical material as directed by the sustainable energy technologies contractor and commence preliminary plumbing and electrical works.
3	3.2.3	Build Walls, Columns, Lintels	Build the walls, columns, and lintels as per architectural design.

Level	WBS Code	Element Name	Description of Work
3	3.2.4	Build Belt Beams	Construct the belt beams as indicated in the architectural design.
2	3.3	Phase 3	Encompasses the works of roof, plastering and dressing, windows and doors, and advancement in plumbing and electrical.
3	3.3.1	Construct Roof	Commence construction of the roof as per architectural design.
3	3.3.2	Perform Plastering and Dressing	Commence interior and exterior plastering and dressing of the Centre.
3	3.3.3	Install Windows and Doors	Installation of windows and doors as per architectural design.
3	3.3.4	Perform Plumbing and Electrical	Interior advancement of plumbing and electrical works.
2	3.4	Phase 4	Encompasses finalization of plumbing and electrical works, painting, construction of septic tank and soak-away
3	3.4.1	Perform Plumbing and Electrical Finalization	Finalization of plumbing and electrical design as stipulated in the architectural design.
3	3.4.2	Perform Painting	Selection of interior and exterior painting and commencement of painting work.
3	3.4.3	Build Septic Tank and Soak away	Construction of septic tank and soak-away, until complete.
2	3.5	Phase 5	Includes the installation of energy technologies and its subsequent testing.
3	3.5.1	Install Sustainable Energy Technologies	Procurement of sustainable energy technologies and its subsequent installation from provider.
3	3.5.2	Perform Testing	Testing to ensure that all is working adequately and that the Centre can be run by sustainable energy technologies on a daily basis.
1	4	Furnishing of Centre	Includes the procurement of equipment and furnishing and its subsequent work.
2	4.1	Procure Equipment/ Furnishing	Procure interior furnishing and necessary equipment for the two clinic rooms, bathroom, waiting area and kitchenet area.
2	4.2	Perform Equipment/ Furnishing Works	Perform works of equipping the two clinic rooms, bathroom, waiting area and kitchenet area
1	5	Official Launch	Conduct all activities to ensure that the official launch of the Baltazar's Healing Centre is launched successfully.

Level	WBS Code	Element Name	Description of Work
2	5.1	Execute Advertisement	Prepare videos and flyers to advertise the Centre as an NGO. The Centre is to be advertised at the community and national level.
2	5.2	Create and distribute Invitations & Agenda	Prepare invitations to key stakeholder and its subsequent distribution. Prepare the agenda/ program for the ceremony and receive confirmation from participants.
2	5.3	Arrange Catering	Procure catering services for the guest.
2	5.4	Prepare Official Ceremony	To prepare the place with decoration, tables, chairs, PA System, and any other item required for a successful ceremony. Launch ceremony.
1	6	Project Closure	Is the final phase of the project.
2	6.1	Perform Project Evaluation	Perform final evaluation of the projects including final reports to be submitted to the Board and Sponsor.

4.3.4. Sequence Activities

Sequence activities refers to “the process of identifying and documenting relationships among the project activities” (PMI, 2017, p.187). The intention of the sequence activities for the Baltazar’s Healing Centre is to define the logical sequence of work to be efficient knowing the constraints of the project.

Microsoft Project Profession was used to sequence the activities and find the relation and to create a diagram for the Baltazar’s Healing Centre to ensure optimization.

4.3.5 Estimate Activity Duration

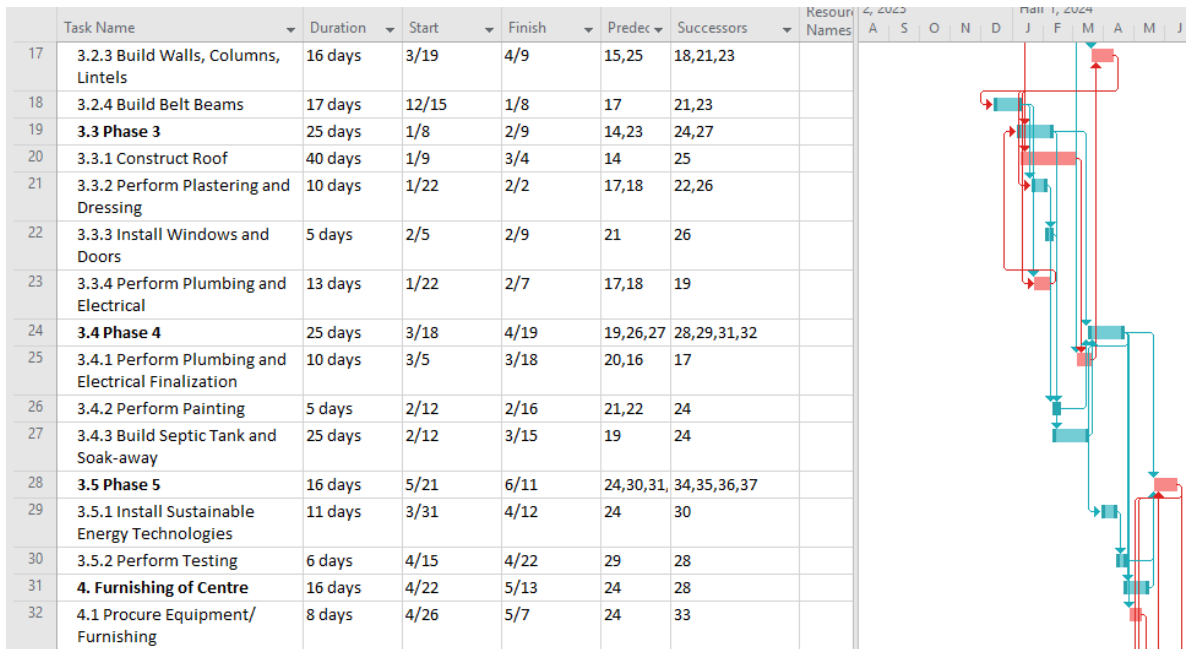
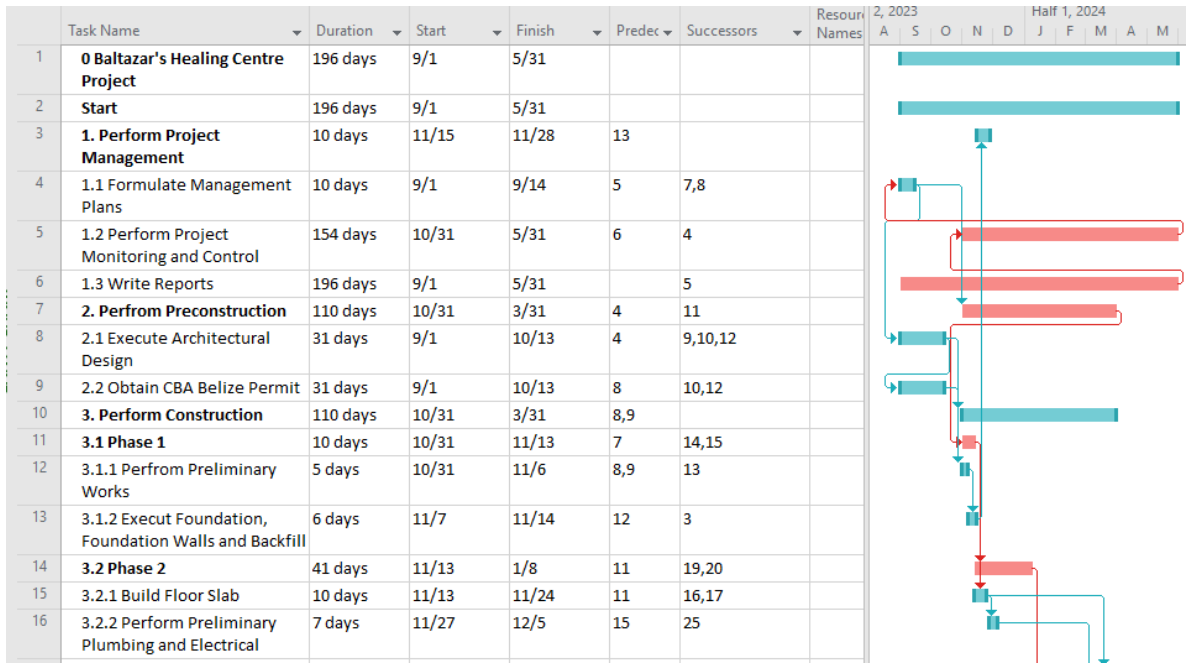
The PMI (2017, p.195) states that estimating activity duration is “the process of estimating the number of work periods needed to complete individual activities with estimated resources.” In essence, estimate activity duration defines the time that each activity will take to complete.

For the Baltazar's Healing Centre, expert judgement and meetings were used to provide the estimated duration for each activity. The Architecture and Construction Contractor were the main individuals consulted for this process. Subsequently, the information was entered in the Microsoft Project Professional. The information then produced the project schedule.

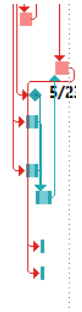
4.3.6 Project Schedules

Project Schedules refer to “the process of analyzing activities sequences, duration, resource requirements, and schedule constraints to create a schedule model project execution and monitoring and controlling (PMI, 2017, p.205). Its objective is to formulate a schedule model containing dates to complete the project activities. The Baltazar's Healing Centre project schedule will combine data from the activity list, network diagram, duration estimates and other pertaining information to determine start and finish dates for all project activities. This is presented on the following Gantt Chart which illustrates the dependencies between activities.

Figure 7: Gantt Chart (Source A. Cardenas, The Author, 2023)



33	4.2 Perform Equipment/ Furnishing Works	9 days	5/8	5/20	32	28	
34	5. Official Launch	11 days	6/12	6/26	28,38	39,40	
35	5.1 Execute Advertisement	0 days	5/23	5/23	28	38	
36	5.2 Create and distribute Invitations and Agenda	6 days	5/17	5/24	28	38	
37	5.3 Arrange Catering	6 days	5/17	5/24	28	38	
38	5.4 Prepare Official Ceremony	10 days	5/27	6/7	35,36,37	34	
39	6. Project Closure	1 day	5/31	5/31	34		
40	6.1. Perfrom Project Evaluation	1 day	5/31	5/31	34		

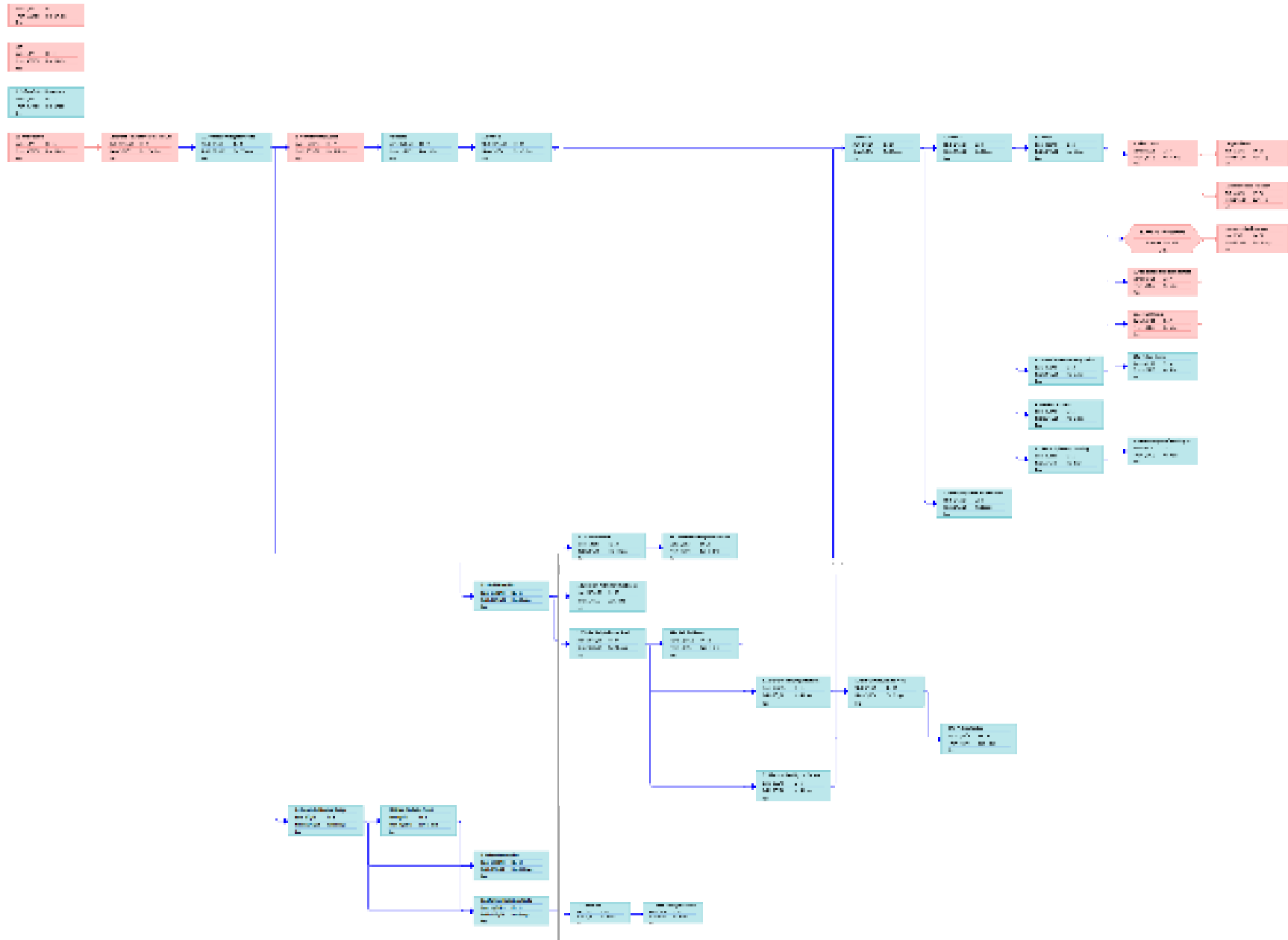


33	✦	4.2 Perform Equipment/ Furnishing Works	9 days	5/7	5/17	32	
34	✦	5. Official Launch	11 days	5/17	5/31	28	39,40
35	✦	5.1 Execute Advertisement	0 days	5/23	5/23	28	38
36	✦	5.2 Create and distribute Invitations and Agenda	6 days	5/17	5/24	28	38
37	✦	5.3 Arrange Catering	6 days	5/17	5/24	28	38
38	✦	5.4 Prepare Official Ceremony	10 days	5/20	5/31	35,36,37	
39	✦	6. Project Closure	1 day	5/31	5/31	34	
40	✦	6.1. Perfrom Project Evaluation	1 day	5/31	5/31/2024	34	



Note: Figure 7 depicts the project schedule (Author’s own creation).

Figure 8: Project Network Diagram (Source A. Cardenas, The Author, 2023)



4.3.7 Schedule Control

Control schedules refers to “the process of monitoring the status of the project to update the project schedule and managing changes to the schedule (PMI, 2027, p. 222). The schedule control purpose is to maintain the baseline throughout the project lifecycle.

The schedule for the Baltazar’s Healing Centre will be controlled utilizing performance review, variance analysis, critical path method and through resource optimization. Reports will be provided bi-monthly. The project milestone provides deadlines for specific deliverables to be accomplished. The construction period will require close monitoring. Upon any delays to the project, the project team will identify and evaluate its source and provide appropriate intervention techniques to bring back the project to schedule. Contingency budget has been set aside for any delays and techniques that may be required if any delay comes to life. The contingency fund is to be used upon approval of the Sponsor and Board.

4.4 Cost Management Plan

4.4.1 Introduction

The Cost Management Plan is part of the project management plan that stipulates how the cost of the project will be estimated, structured, monitored and controlled (PMI, 2017). According to the PMBOK (2017, p.231,) cost management refers to “the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling cost so that the project can be completed within the approved budget.”

4.4.2 Approach

The cost management plan was derived from expert judgement; these were individuals with specialized knowledge and training in previous similar projects, information from the construction discipline and sustainable energy technologies.

Moreover, a meeting was conducted with the Sponsor and the Board to further finalize the cost management plan.

In addition, the cost for the Baltazar's Healing Centre Project will be managed at the third level of the WBS where Control Accounts (CA) will be formulated to allow for effective cost tacking. Thereafter, Earned Value calculation for the Control Accounts will be performed to measure and manage the financial performance of the Baltazar's' Healing Centre.

To report on the performance of the cost and schedule to the Sponsor and the Board, the project manager will provide information in a simplified manner.

4.4.3 Cost Estimate

Cost Estimate provides data on the cost of resources to complete the project. It includes the cost for labor, equipment, supplies, services, facilities, and materials (PMI, 2017). In a summary, PMI (2017, p. 240) defines estimate cost as "the process of developing an approximation of the cost of resources needed to complete project work." In essence, the estimate cost provides the monetary figures necessary for the project completion. For the Baltazar's Healing Center, cost estimated relied on expert judgement and bottom-up estimates where information such as technical requirement, engineering drawings, labor duration and other direct and indirect cost are used and detailed in the work package.

The total project cost estimate is summarized in the following table:

Chart 12 Estimating Cost of Work (Source: A. Cardenas, The Author, 2023)

Item	Total
Project Management	\$0.00
Pre-construction	\$806.00
Construction	\$107,406.34
Furnishing of Centre	\$8,000
Official Launch	\$2,050.00
Project Closure	\$0.00
Total Project Cost	\$118,262.34
Contingency Reserve (7.64%)	\$9,787.66

Description			COST OF RESOURCES				
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
1	1	<u>Perform Project Management</u>					<u>\$0.00</u>
2	1.1	Formulate Project Management Plans	Human Resource	1	Project Manager	\$0.00	\$0.00
2	1.2	Perform Project Monitoring and Control	Human Resource	4	Project Manager and Team	\$0.00	\$0.00
2	1.3	Write Reports	Human Resource	1	Project Manager	\$0.00	\$0.00
1	2	<u>Perform Pre-Construction</u>					<u>\$806.00</u>
2	2.1	Execute Architectural Design	Human Resource	1	Architecture	\$500	\$500.00
2	2.2	Obtain CBA Belize Permit	Application Fee Centre Size	1 624 Sq. Ft	Processing Processing	\$150 \$0.25	\$150 \$156
1	3	<u>Perform Construction</u>					<u>\$107,406.34</u>
2	3.1	<i>Phase 1</i>					<i>\$12,944.90</i>
3	3.1.1	Perform Preliminary Works	Nails Tying Wire Lumber Labor	1 1 1 1	Construction Materials Human Resource	\$375.00 \$300.00 \$200.00 \$250.00	\$375.00 \$300.00 \$200.00 <u>\$250.00</u>

							<i>Total</i>	<i>\$1,125.00</i>
Description			COST OF RESOURCES					
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)	
3	3.1.2	Execute Foundation, Foundation Walls and Backfill	Excavation	1	LS	\$700.00	\$700.00	
			Steel- ½ inch	35	Lengths	\$38.00	\$1,330.00	
			Steel- 3/8"	35	Lengths	\$28.00	\$980.00	
			Sand	18	CY	\$35.00	\$630.00	
			Gravel	20	CY	\$42.00	\$840.00	
			Cement	90	Bags	\$19.00	\$1,710.00	
			Labor	1	LS	\$3,700	\$3,700.00	
			Edge Form- 1x12x12	24	Lengths	\$44.55	\$1,069.20	
			Backfill	30	CY	\$28.69	\$860.70	
							<i>Total: \$11,819.90</i>	
2	3.2	Phase 2					<i>\$24,412.46</i>	
3	3.2.1	Build Floor Slab	Construction Plastic	1	Roll	\$120.00	\$120.00	
			Steel- 3/8"	30	Lengths	\$28.00	\$840.00	
			Sand	10	CY	\$35.00	\$350.00	
			Gravel	12	CY	\$42.00	\$504.00	
			Cement	50	Bags	\$19.00	\$950.00	
			Labor	1	LS	\$4,000.00	\$4,000.00	
							<i>Total: \$6,764</i>	
3	3.2.2	Perform Preliminary Plumbing and Electrical	Meter Pole	1	Nr.	\$1,500.00	\$1,500.00	
			Outlets	10	Nr.	\$6.43	\$6.43	
				3	Nr.			
							<i>Total: \$1,564.30</i>	
3	3.2.3	Build Walls, Columns, Lintels	Blocks- 6 inch	900	Construction material	\$2.00	\$1,800.00	
			Blocks- 4 inch	300		\$1.65	\$495.00	
			Steel- 3/8"	20		\$28.00	\$560.00	
			Sand	6	Human	\$35.00	\$210.00	

			Gravel	4	Resource	\$42.00	\$168.00
			Cement	50		\$19.00	\$950.00
			Labor	1		\$3,000.00	\$3,000.00
			Steel- 1/2inch-cols	18		\$53.28	\$959.04
			Steel-3/8"-columns	42		\$29.94	\$1,257.48
							Total: \$9,394.52
Description			COST OF RESOURCES				
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
3	3.3.4	Build Belt Beams	Steel- 1/2 inch	30	Lengths	\$38.00	\$1,140.00
			Steel-3/8"	25	Lengths	\$28.00	\$700.00
			Sand	7	CY	\$35.00	\$245.00
			Gravel	8	CY	\$42.00	\$336.00
			Cement	35	Bags	\$19.00	\$665.00
			Labor	1	LS	\$2,500.00	\$2,500.00
			Edge Form- 1x12x12	20	Lengths	\$44.55	\$891.00
			Edge Form- 1x6x10	12	Lengths	\$17.72	\$212.64
							Total: \$6,689.64
2	3.3	Phase 3					\$29,559.08
3	3.3.1	Construct Roof	Steel- 1/2 inch	10	Lengths	\$38.00	\$380.00
			Steel- 3/8"	60	Lengths	\$28.00	\$1,680.00
			Sand	14	CY	\$35.00	\$490.00
			Gravel	16	CY	\$42.00	\$672.00
			Cement	70	Bags	\$19.00	\$1,330.00
			Labour	1	LS	\$4,500.00	\$4,500.00
			1/2" construction plywood	16	Sheets	\$120.00	\$1,920.00
			2x4x12'- rough	30	Lengths	\$22.50	\$675.00
			1x4x12'- rough	18	Lengths	\$14.86	\$267.48
			Props	120	Lengths	\$3.00	\$360.00
							Total \$12,274.48
3	3.3.2	Perform	Sand	8	CY	\$35.00	\$280.00

		Plastering and Dressing	Cement	70	Bags	\$19.00	\$1,330.00
			Labor	1	LS	\$5,000	\$5,000.00
Total: \$6,610.00							
Description			COST OF RESOURCES				
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
3	3.3.3	Install Windows and Doors	Double Windows	4	Nr.	\$500.00	\$2,000.00
			Single Windows	4	Nr.	\$287.50	\$1,150.00
			Main door	2	Nr.	\$750.00	\$1,500.00
			Interior door	3	Nr.	\$300.00	\$900.00
			Labor	1	LS	\$500.00	\$500.00
Total \$6,050.00							
3	3.3.4	Perform Plumbing and Electrical	Light fixture-int.	4	Nr.	\$25.00	\$100.00
			Roll #12 Black wire.	2	Nr.	\$300.00	\$600.00
			Roll #12 Red wire	2	Nr.	\$300.00	\$600.00
			Roll #14 Green wire	2	Nr.	\$200.00	\$400.00
			Panel Box	1	Nr.	\$175.00	\$175.00
			Breakers	16	Nr.	\$9.35	\$149.60
			Switches	1	Nr.	\$100.00	\$100.00
			Labor	1	LS	\$2,500.00	\$2,500.00
Total: \$4,624.60							
2	3.4	Phase 4					\$5,489.90
3	3.4.1	Perform Plumbing and Electrical Finalization	Pipes- 1 1/2"	2	Lengths	\$40.00	\$80.00
			Pipes 2"	4	Lengths	\$65.00	\$260.00
			Pipes 4"	2	Lengths	\$200.00	\$400.00
			Pipes 3/4"	6	Lengths	\$20.00	\$120.00
			Complete toilet	1	Nr.	\$500.00	\$500.00
			Complete basin	1	Nr.	\$300.00	\$300.00
			Shower faucet	1	Nr.	\$350.00	\$350.00
			Labor	1	LS	\$1,800.00	\$1,800.00
Total: \$3,810.00							

Description			COST OF RESOURCES				
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
3	3.4.2	Perform Painting	Primer	3	Buckets	\$130.00	\$130.00
			Interior Paint	2	Buckets	\$60.00	\$60.00
			Roller Sets	2	Nr.	\$16.00	\$16.00
			Brushes 4"	2	Nr.	\$4.50	\$4.50
			Labor	1	LS	\$300.00	\$300.00
			Total: \$510.50				
3	3.4.3	Build Septic Tank and Soak away	Blocks- 6 inch	100	No.	\$1.20	\$120.00
			Blocks- 4 inch	30	No.	\$1.10	\$33.00
			Cement	10	Bags	\$19.00	\$190.00
			Sand	1	CY	\$31.80	\$31.80
			Sand and Gravel	2	CY	\$31.49	\$62.98
			Steel 3/8"	5	Nr.	\$14.75	\$73.75
			Tying wire	4	Lbs.	\$2.92	\$11.68
			2" wire nail	3	Lbs.	\$2.75	\$8.25
			½ plywood	2	Nr.	\$69.00	\$138.00
			Labor	1	LS	\$500.00	\$500.00
Total: \$1,169.46							
2	3.5	Phase 5					\$35,000.00
3	3.5.1	Install Sustainable Energy Technologies	Package Deal: Solar panels Solar AC Units + Inverter Units High Efficiency Faucets Let Lighthing Renewable hot water heater Low Flow & Dual Flush	1	Package Deal	\$35,000	\$35,000.00

			Toilets				
Description			COST OF RESOURCES				
Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
3	3.5.2	Perform Testing	Report	1	Package Deal		\$0.00
							Total: \$35,000.00
1	4	Furnishing of Centre					<u>\$8,000</u>
2	4.1	Procure Equipment/ Furnishing	single piece sofa	2	Set	\$200.00	\$400.00
			long piece sofa	4	Set	\$350.00	\$1,400.00
			center tables	3	Set	\$150.00	\$450.00
			desk	1	Set	\$200.00	\$200.00
			table	2	Individual	\$175.00	\$350.00
			filing cabinet	2	Individual	\$100.00	\$200.00
			whiteboard	2	Individual	\$65.00	\$130.00
			office chairs	3	Set	\$125.000	\$375.00
			Sink	1	Individual	\$700.00	\$1000.00
			Bathroom supplies		Set	\$200.00	\$200.00
			Therapeutic Supplies		Set	\$800.00	\$800.00
			Refrigerator	1	Item	\$675.00	\$675.00
			Microwave	1	Item	\$320.00	\$320.00
							Total: \$6,500
2	4.2	Perform Equipment/ Furnishing Works	Labor	1	LS	\$1,500.00	\$1,500.00
							Total: \$1,500
Description			COST OF RESOURCES				

Level	WBS Code	Activity	Resource Description	Quantity (A)	Unit Type	Unit Cost (B)	Total Cost (A x B)
1	5	Official Launch					<u>\$2,050.00</u>
2	5.1	Execute Advertisement	Radio announcement	1	Commercial	\$200.00	\$200.00
			Tv Advertisement	1	Commercial	\$400.00	\$400.00
			Facebook Advertisement	2	Virtual	\$0.00	\$0.00
							Total: \$600.00
2	5.2	Create and distribute Invitations & Agenda	Electronic Invitations	1	virtual	\$0.00	\$0.00
			Program	60	copies	\$150.00	\$150.00
							Total: \$150.00
2	5.3	Arrange Catering	Food	60	Food	\$9.66	\$580.00
			Drink	60	Drink	\$2.00	\$120.00
							Total \$700.00
2	5.4	Prepare Official Ceremony	PA System	1	System	\$50.00	\$50.00
			Decoration materials	1	Decor	\$460.00	\$460.00
			Chairs	60	Items	\$1.00	\$60.00
			Tables	6	Item	\$5.00	\$30.00
							\$600.00
1	6	Project Closure					<u>\$0.00</u>
2	6.1	Perform Project Evaluation	Project Evaluation Report	1	Report	\$0.00	\$0.00
							Total: \$0.00
		Contingency	Contingency Fund		Fund	\$7,000	\$7,000
							Total: \$7,000.00

4.4.4 Determine Budget

Determining budget can be defined as “the process of aggregating the estimated cost of individual activities or work packages to establish an authorized cost baseline” (PMBOK, 2017, p. 248). The objective of determining the budget is that it provides the cost baseline. The cost baseline can be used to monitor and control project performance.

The summary of the budget for the Baltazar’s Healing Centre is detailed below on Chart 14. Chart 15 details the cost estimates for individual activities of the schedule.

The Project Manager met with the experts in the field along with the Sponsor and Board to develop the cost baseline. Through data analysis, they defined the contingency reserve for the project, which is defined in Chart 14, and it represents 7.64% contingency reserve of the budget. The contingency of 7.64% was derived from the project risk analysis and expert judgement was used as well. The contingency reserve will serve to cover financial impacts in case risks occur. 7.64% of the budget provides an adequate response mechanism to a major risk such as an active hurricane season and the rapid inflation in construction material and labor.

Chart 13 Project Budget (Source: A. Cardenas, The Author, 2023)

Item	Total
Project Management	\$0.00
Pre-construction	\$806.00
Construction	\$107,406.34
Furnishing of Centre	\$8,000

Official Launch	\$2,050.00
Project Closure	\$0.00
Total Project Cost	\$118,262.34
Contingency Reserve (7.64%)	\$9,787.66

4.4.5 Control Cost

Control cost is referred to as “the process of monitoring the status of the project to update the project costs and managing changes to the baseline” (PMI 2017, p. 257). The control cost aims at maintaining the cost baseline throughout the lifecycle of the project and is performed throughout the project.

The Earn Value Methodology will be used to control the project cost. This requires that a bi-monthly report be submitted with the updated EVA and the work performance information. The analysis should stipulate the progress of the project regarding cost and time. Where applicable, the report may contain corrective action, if its CPI or SPI is less or above the control threshold. The planned value (PV) will be derived from the cost baseline and the schedule baseline.

Therefore, any changes to be made to the cost of Baltazar’s Healing Centre will require a formal change request process. This will require that the Project Manager does a proper evaluation against the project triple constraint. Thereafter, the Project Manager is to submit such a change request analysis to the Sponsor and the Centre Board for final decision. Upon approval, the Change Control Board will be required to sign the official change request document for its formalization.

4.5 Quality Management Plan

4.5.1 Introduction

PMI (2017, p. 286) defines the quality Management plan as a “component of the Project management plan that describes how applicable policies, procedures, and guidelines will be implemented to achieve the quality objectives.” The quality

management plan can include quality standards, quality objectives, quality roles and responsibilities, deliverables, and processes subject to quality review, quality control and quality management activities and quality procedures.

4.5.2 Approach

To avoid unnecessary work, waste, cost, and time quality must be planned and incorporated into the project. For the Baltazar's Healing Centre, quality is being considered from both a product and process perspective. Furthermore, the quality objectives for this project will utilize an integrated approach to define its quality standards, quality measures and its quality continuous improvement.

Defining process quality standards will ensure that the activities are in conformance with industry and local standards which will yield a successful delivery of the project. The Project Manager will be responsible for documenting all the organizational and project-specific quality standards. All documents will become part of the Baltazar's Healing Centre process assets.

The establishment of metrics will be utilized to measure quality throughout the project life cycle. The Project Manager utilized brainstorming, expert judgement, and meetings to establish these metrics. Moreover, the Project Manager and team will be responsible for conducting measurements and analyzing results. These measurements will be one aspect of determining the success of the project. The metrics must be reviewed by the project sponsor.

The Baltazar's Healing Center will include metrics such as building design, schedule, cost, process performance, and product performance. Any member of the project team can identify quality improvements. Prior to the implementation of these changes, the recommendations will be reviewed, and an analysis will be done to determine the cost versus the benefit of its implementation and its impact

on the process and product. If a green light is given, the Project Manager will be responsible for updating all relevant project documents.

4.5.3 Quality Objectives

The quality objectives for the Baltazar's Healing Center are detailed in the following table. For each deliverable, the quality acceptance criterion is outlined including the criterion by which these quality requirements will be measured, managed, and controlled.

Chart 14 Quality Objectives (Source: A. Cardenas, The Author, 2023)

Deliverable	Requirement	Acceptable Criteria	Stakeholder	Metric	Manage Quality Activity	Control Quality Activity
Obtain the NGO Certification under the Laws of Belize	Time-bound	A minimum of one month should be used to obtain the NGO Certification as prescribed by the Laws of Belize	Project Sponsor and Board	Time- 3 months	Project Sponsor will convene a meeting to formally establish the Board. The chair of the board will ensure to get all proper documentation and ensure that the Project Sponsor conducts the necessary procedure to obtain the NGO Certification.	The Project Manager will conduct a follow-up on the entire process.
Architectural Design of the Baltazar's Healing Center and its CBA Approval.	Time-bound Cost Effective Follows Local Regulations	The design contains two clinic rooms, a waiting area, kitchenet, bathroom and allows for the equipment of sustainable energy technologies.	Architecture Project Sponsor Board	Time- 2 months	Design is in line with local regulation (Building codes). The design contains all characteristics listed by the Project Sponsor and the Board.	The architecture shall submit the first draft of the plan to the board and adjust as recommended. Upon approval it shall then be submitted to relevant authorities (CBA) for its approval and to issue approval.
Construction of	Time-bound	Each phase	Contractor	Time- 6	Acceptance Criteria will be	The Project

Deliverable	Requirement	Acceptable Criteria	Stakeholder	Metric	Manage Quality Activity	Control Quality Activity
the Baltazar's Healing Centre by construction phases.	Cost-bound	delivers what is stipulated and follows the architectural design with precise measurement as approved by CBA. Materials used are of high quality. For instance, steel strength. Concrete missing is as prescribed.	Project Manager Project Sponsor Board	months Cost- \$107,40 6.34 BZE	clearly outline in the contract to be signed by the contractor.	Manager and team will conduct site visits, inspections of the building materials and their works, and testing to ensure that acceptance criteria are met.
Installation of sustainable energy technologies.	Time Bound Cost Bound	Follows the architectural design. The different sustainable energy technologies are of high quality. Pass testing	Contractor/ Suppliers Project Manager Project Sponsor Board	Cost- \$35,000 BZE Time- 20 days	Acceptance Criteria will be clearly outline in the contract to be signed by the contractor.	The Project Manager and team will conduct site visits, inspections of the sustainable energy technologies and its works, and testing to ensure that acceptance criteria are met.
Proper equipment of	Time- bound. Cost- bound	Interior furnishing and	Project Manager &	Time- 23 days	Procure quality furnishings based on its manufacturing	The Project Manager will

Deliverable	Requirement	Acceptable Criteria	Stakeholder	Metric	Manage Quality Activity	Control Quality Activity
the Baltazar's Healing Center		necessary equipment for the two clinic rooms, bathroom, waiting area and kitchenet area are of high quality.	Team Board Project Sponsor	Cost- \$8,000	company.	perform an inspection of the procured goods before their actual purchase. Details of the furnishing shall be sent to the Project Manager.
Official Launch of the Baltazar's Healing Center.	Time- Bound Cost- Bound	Invitations are sent on time. Procurement of food and beverages. Decoration and other equipment are procured on time.	Project Manager Board	Cost- \$2050.00 Time- 1 month	Program to be created in due time. All procurement to be done according to its schedule. Ensure that all is on order two days prior to official ceremony.	The Project Manager will perform an inspection and update on the process.

4.5.4 Roles and Responsibilities

A collective approach is required for the Baltazar's Healing Center Project. Each stakeholder being responsible for a specific role and responsibility. The following table outlines the responsibilities for each stakeholder involved in the Baltazar's Healing Center Project.

Chart 15 Quality Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Role	Responsibility
Project Sponsor/ Baltazar's Healing Center Board	To provide documentation and expected quality standards or framework for the project to be used throughout the project life cycle.
Project Manager	To provide documented planning of the quality standards and framework to be utilized for the project and how it will be managed and controlled. Identify quality improvement opportunities. Implement corrective actions or process improvement. Perform Quality Control. Ensure that all deliverables and work are measured, tested and is in conformance with quality standards.
Project Team	To perform quality assurance. Focus attention on details for continuous improvement of activities and processes to achieve quality. Identify quality improvement opportunities.

4.5.5 Quality Requirements/ Standards

Below are the detailed quality standards for both product and process.

4.5.5.1 Product Quality

The product quality standards and requirements are determined by the Project Sponsor, Baltazar's Healing Center Board, and the Project Manager. These standards are based on the industry and local standards. It is vital to note that some product-specific quality standards might be identified later in the project cycle by the Project Manager and Team that are not currently part of the document's standards. In this event, the project manager will review and provide an analysis and upon its approval it will be incorporated into all relevant organization documentation. If the need arises the Project Sponsor and Board may request chemical tests to verify the concrete PH.

4.5.5.2 Process Quality

The process quality standards and requirements are to be determined solely by the Project Manager. These standards are to be determined based on existing process standards related to the industry.

4.5.6 Quality Assurance

The quality assurance of the Baltazar's Healing Center Project will concentrate on the processes used throughout the design, construction, and equipment of the facility. An iterative quality process will be adopted to ensure quality throughout the project life cycle. The iterative process incorporates measuring process metrics, analyzing process data, and continuously improving the processes.

Both the Project Manager and Project Team will conduct assessments at specified intervals throughout the project to verify that all processes are being implemented

and executed as stipulated. The following table provides key quality assurance metrics for the Baltazar's Healing Center Project.

Chart 16 Quality Assurance Metrics (Source: A. Cardenas, The Author, 2023)

Process Action	Acceptable Process Standards	Project Phase	Assessment Interval
Obtain the NGO Certification under the Laws of Belize	Completion- Obtain NGO Certificate as prescribed under the NGO Laws	Initiation	Weekly
Architectural Design of the Baltazar's Healing Center and its CBA Approval.	Dimension- 21'8" W x 25'10" (562 Sq. Ft.) Contains two clinic rooms, one bathroom, waiting room, and kitchenet. Design encompasses sustainable energy technologies.	Initiation	Weekly
Construction of the Baltazar's Healing Centre by construction phases.	Materials are of high quality. Steel strength and Concrete slump test, compression testing (4000 psi compressive strength)	Implementation	Weekly and bi-weekly
Installation of sustainable energy technologies.	Sustainable energy technologies are of high standards. Passes test	implementation	Prior to purchase After installation

	process		
Process Action	Acceptable Process Standards	Project Phase	Assessment Interval
Proper equipment of the Baltazar's Healing Center	Furnishing is of high-quality material and ensures durability.	Implementation	Prior to purchase and after installation
Official Launch of the Baltazar's Healing Center.	All procurement is in order. All details other arrangements have been secured.	Closing	Predefined date inspection

4.5.7 Quality Control

The quality control for the Baltazar's Healing Center Project concentrated on the design, construction, and equipment of the facility. Its quality performance standards for the building are in line with the industry and local construction standards. Moreover, physical measurements will be required to ensure its compliance with established quality standards.

The project team will be responsible for performing physical measurements to ensure that all performance standards are met as stipulated to secure the successful completion of the project.

4.5.8 Quality Control Measurements

In order for the Project Manager and Team to ensure that the Project is meeting the prescribed standards, the Project Manager and Team will be responsible for measuring the Project quality. The following quality assurance log and quality control log in Chart 18 and 19 will be utilized.

Chart 17 Quality Assurance Log (Source: A. Cardenas, The Author, 2023)

Process Inspection	Date	Process Measured	Required Value	Actual Measured	Acceptance: Yes/ No	Recommendation	Date Resolved.

Chart 18 Quality Control Log (Source: A. Cardenas, The Author, 2023)

Deliverable	Date	Item Measured	Required Value	Actual Measured	Acceptable: Yes/ No	Recommendation	Date Resolved

4.5.9 Quality Change Control

Any change request in the project quality will be officially submitted to the Project Manager utilizing the change request form. The project manager will conduct an analysis of cost and the impacts it will have on the process. This will then be submitted to the Project Sponsor and Board for either approval or denial of the change request. If approved, the Project Manager will update all relevant project documents.

4.6 Resource Management Plan

4.6.1 Introduction

The resource management plan serves as a guide on how the team and the physical resources are to be allocated, managed, and released. The resource management plan can include information on how the project team members are to

be acquired and released, roles and responsibilities, training requirements, rewards and recognition, team development, information on how physical resources will be acquired and amongst others (PMI, 2017). The PMBOK (2017, p. 307) explicitly states that the project resource management includes the “processes to identify, acquire, and manage the resources needed for the successful completion of the project.” Its primary objective is that the right resources will be available at the right time and place for the project manager and team.

4.6.2 Approach

The resource management plan for the Baltazar’s Healing Center will entail all the relevant information required for the creation and management of the project team. The Project Team will be made of the Project Manager and the Baltazar’s Healing Center Board. This is a strategic move to ensure that expectations are met. The resource management plan will detail the roles and responsibilities of team members, how the team is chosen, team development strategies and plan for safety.

The resource management plan will also detail how the physical resources for the construction phase will be obtained and managed. It is required that these resources be well managed to ensure that they are used appropriately to avoid any rework or delays that will negatively affect the project.

4.6.3 Roles and Responsibilities

In any project, the roles and responsibilities of team members should be clearly outlined to ensure that everyone is aware of their duties. Depending on the organizational structure, project team members may represent different groups or departments and act in different capacities. Moreover, team members can have varying degrees of authority and responsibility.

Project success is tied to a clear definition of roles and responsibilities of its members. Upon a clear understanding of each individual role and responsibilities to perform certain portions of the project leads to the successful completion of the project. The following Figure outlines a graphic representation of the organizational structure for the project and the subsequent chart details the team roles and responsibilities that have been established.

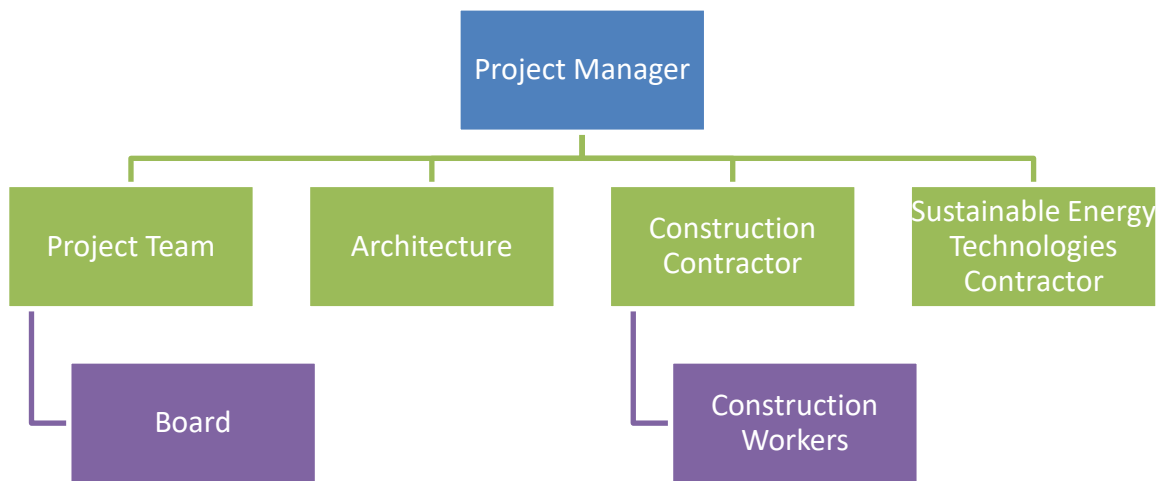


Figure 9. *Project Team Organization Structure (Source: Author, 2023)*

The roles highlighted in the above figure are represented in the following chart detailing the responsibility of each role. The roles and responsibilities will communicate to all on the first meeting.

Chart 19 Resource Management Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Roles	Authority	Responsibilities	Competency/ Skills
Project	• Full authority	• Project planning	• Leadership

Roles	Authority	Responsibilities	Competency/ Skills
Manager	over all project resources and project direction. The Project Sponsor is the only other role that is superior to the project manager and can override the project manager if deemed necessary.	<ul style="list-style-type: none"> • Change control documentation • Leader of the project and team • Updating all project documents • Manage the project funds, schedule, and all other project processes. • Monitor and evaluate the project performance. • Measure and verify project scope. • Facilitate change request. • Communicate outcomes and changes 	<ul style="list-style-type: none"> • Management • Effective communication • Project Management Experience • Budgeting • Scheduling • Written communication
Project Team/ Board	<ul style="list-style-type: none"> • Authority to stop the project if deemed necessary. 	<ul style="list-style-type: none"> • Assist the project manager in project planning and scheduling. • Measure and verify project scope. • Approve change request. • Communicate outcomes of changes to the Project Manager. • Provide documentation to Project Manager • Assist in Monitoring and Evaluation 	<ul style="list-style-type: none"> • Leadership • Effective communication • Decision making • Budgeting • Scheduling
Architecture	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • Design the facility in accordance with the detailed expectations. 	<ul style="list-style-type: none"> • Architectural design studies and

Roles	Authority	Responsibilities	Competency/ Skills
		<ul style="list-style-type: none"> Process the building plan for CBA approval. 	experience <ul style="list-style-type: none"> Experience in local law and procedure in construction.
Construction Contractor	<ul style="list-style-type: none"> Authority of construction workers 	<ul style="list-style-type: none"> Perform construction of the facility in phases as prescribed in the design of the facility. Ensure that quality standards are adhered to. Ensure that employees have all protective gear. Ensure that project is within cost, schedule, and budget. 	<ul style="list-style-type: none"> Experience in construction Leadership and construction management High quality construction works.
Construction Workers	<ul style="list-style-type: none"> none 	<ul style="list-style-type: none"> Perform construction work as prescribed by the design and under the supervision of the construction contractor. 	<ul style="list-style-type: none"> Building construction skills
Sustainable Energy Technologies Contractor	<ul style="list-style-type: none"> none 	<ul style="list-style-type: none"> Provide high-end sustainable energy technologies. Install sustainable energy technologies. Ensure that installation passes required testing. 	<ul style="list-style-type: none"> Sustainable energy technology installation

4.6.4 Project Organizational Chart

The following RACI Chart outlines the relationship between project tasks and team members. (R) represents who is responsible for completing the work, (A) represents who is accountable for ensuring that the task is completed/ sign off, (C)

represent who is consulted before any decisions are made, and (I) represents who need to be informed of when an action/ decision has been made.

Chart 20 RACI Matrix (Source: A. Cardenas, The Author, 2023)

Task Name	PROJECT TEAM MEMBER					
	Project Manager	Project Team/ Board	Architecture	Construction Contractor	Construction Workers	Sustainable Energy Technologies Contractor
Obtain the NGO Certification under the Laws of Belize	A	R	C	C	I	I
Architectural Design of the Baltazar's Healing Center and its CBA Approval.	A	C	R	C	I	C
Construction of the Baltazar's Healing Centre by construction phases.	A	A	C	A	R	C
Installation of sustainable energy technologies.	A	I	I	C	C	R
Proper equipment of the Baltazar's Healing	A	R	C	C	I	C

Center						
Official Launch of the Baltazar’s Healing Center.	A	R	I	I	I	I
R= Responsible		A= Accountable		C= Consult		I=Inform

4.6.5 Staffing Management

4.6.5.1 Staff Acquisition

The Board of the Baltazar’s Healing Center will serve as the Project Team is categorized as an internal resource. The Board comprises of different members of the community who have direct experience with NGO or serving the community. The only outsourcing or contracting that will be required is the construction contractor and the sustainable energy technology contractor. Additionally, the construction contractor will bring its own construction workers to perform construction works. The Project Manager will negotiate with relevant people to identify and assign resources following the organizational structure. All resources must be approved by the Project Manager prior to commencement of project work.

The selection of the contractors will be fair and will undergo a democratic bidding process. The Board and Project Sponsor will make the final decision based on a scale of points and the best value for the service.

4.6.5.2 Training

The Baltazar’s Healing Project will not require training due to the scope of the project. The contractors who will be hired are expected to demonstrate knowledge and experience in construction and sustainable energy technologies. The contractor will be bringing their own construction workers who shall demonstrate knowledge and experience in construction works. The construction worker’s immediate supervisor is the construction contractor. Nonetheless, upon nonperformance, the Project Manager reserves the right to make a decision. All

workers employed under the construction of the facility are expected to know the trade with a wide range of experience.

4.6.5.3 Performance Review

In terms of performance review, the project manager will review the assigned work activities at the start of the project and communicate all work expectations to the responsible member in due time. Furthermore, the project manager is responsible for evaluating the performance of each team member throughout the project to ensure that their performance is efficient and effective when completing assigned work. The Baltazar's Healing Center Board will also perform performance reviews on the Project Manager and other relevant members.

4.6.5.4 Team Safety and Welfare

The welfare and safety of the construction workers are of great importance to this project. The construction contractor will be responsible for ensuring that the construction workers' welfare and safety are taken care of. This will include providing proper construction equipment, water for all workers, administering first aid when needed and being of high alert for any medical emergency that may arise including transporting the patient to the nearest medical center if the need arises.

4.6.5.5 Recognition and Rewards

In relation to recognition and rewards, monetary incentives are discouraged due to the nature of the project. Nonetheless, team members will be duly recognized and honored at the opening ceremony of the Launch of the Baltazar's Healing Center.

4.6.6 Physical Resources Management

4.6.6.1 Physical Resources

For the Baltazar's Healing Center, a physical resource assignment will be used with the objective of documenting the physical resources. The Project Manager will

be responsible for monitoring the document. The following table provides a template to be used for the physical resource assignment.

Chart 21 Physical Resources Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Physical Resources	Role	Responsibility
Construction Material	Project Manager/ Construction Contractor	<ul style="list-style-type: none"> • Allocation of resources to construction works. • Monitoring levels of materials used in relation to work performed. • Securing construction materials • Value for material procurement • Procuring protective equipment • Provide construction tools
Sustainable Energy Technologies	Project Manager/ Sustainable Energy Technology Contractor	<ul style="list-style-type: none"> • Value of sustainable energy technology • Monitoring levels of material used in relation to work performed. • Securing the sustainable energy technologies.
Equipment of Facility	Project Manager/ Board	<ul style="list-style-type: none"> • Secure high-end equipment while getting quality for price. • Monitor levels of material used in relation to work performed.
Preparation of Launch Ceremony	Project Manager/ Board	<ul style="list-style-type: none"> • Secure procurement of sound system, decoration, catering and

		all relevant physical material needed for the successful launch of the center.
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4.6.6.2 Control Physical Resources

According to PMBOK (2017), control resources refer to the process which ensures that the physical resources are assigned and allocated for the project are available as previously planned. Moreover, it entails the monitoring of what has been planned versus the actual utilization of the physical resources and taking corrective measures were deemed necessary. For the Baltazar’s Healing Center, the Project Manager will have overall responsibility for the management of the physical resources but will be assisted by other team members.

4.7 Communication Management Plan

4.7.1 Introduction

A communication management refers to the “process necessary to ensure that the information needs of the project and its stakeholders are met through the development of artifacts and implementation of activities designed to achieve effective information exchange” (PMI, 2017, p.359). Moreover, the PMBOK® Guide explains that it entails two parts, the first is to develop a strategy for effective communication and the second is conducting the activities for its implementation. In other words, PMI (2017), states that communication management plan describes how project communications will be planned, structured, implemented, and monitored for its effectiveness. It may include stakeholder communication requirements, method or media, time frame and frequency, sender and communications assumptions and constraints.

The communication management plan for the Baltazar’s Healing Center will define the communication requirements for the project and its subsequent distribution. This plan represents the framework for this project. The plan is subject to change as communication needs arise.

4.7.2 Approach

The project manager is instrumental in ensuring effective communication; he needs to take a proactive approach to ensure communication success. The communication management plan details, in the communication matrix, what information to communicate, who is responsible to communicate the information, when it will be communicated and to whom it will be communicated.

4.7.3 Audiences

The main audiences for the Baltazar's Healing Center are as follows:

- Project Sponsor
- Project Team/ Board
- Project Manager
- Construction Contractor
- Construction workers
- Architect
- Sustainable Energy Technologies Contractor

4.7.4 Communication Delivery Methods and Technologies

The key methods of communication to be utilized for this project includes as follows:

- Face to face meetings
- Virtual meetings
- Telephone
- Emails
- WhatsApp messages
- Reports
- Presentations

4.7.5 Communication Management Constraints

Projects are subject to limitations and constraints, for instance, they need to be within scope, cost, time, and quality. The communication management plan is no other different, it needs to be within the project's approved budget, schedule and resource allocations. The project manager is solely responsible for ensuring that the communication activities are performed as stipulated and utilizing internal resources rather than external which can result in overbudget.

The communication matrix details the frequency that communication should happen and in accordance with a schedule constraint. Deviation to these timelines can lead to negative impacts to the project such as excessive cost or schedule delays.

4.7.6 Communication Matrix

Chart 22 Project Communication Matrix (Source: A. Cardenas, The Author, 2023)

Communication Type	Objective of Communication	Medium	Frequency	Audience	Owner	Deliverable	Format
Kickoff Meeting	To introduce the project team and the intricacies of the project. To review the project objectives and management approach.	Face to Face	Once	Project Sponsor Board Contractors	Project Manager	Agenda Meeting Minutes	Soft Copy
Project Team Meetings	To review the status of the project.	Face to Face Virtual Call	Weekly/ biweekly	Project Team Contractors	Project manager	Agenda Meeting Minutes	Soft Copy
Architectural Design Presentation	To discuss architectural design. To present the design and approve design prior to CBA submission.	Face to Face or virtual	Once	Project Manager Board Project Sponsor Contractors	Architect Project Manager	Agenda Copy of design Meeting Minutes	Soft Copy
Project Status Reports	To report on the status of the project including activities, progress, cost, and issues.	Email WhatsApp Face to face	Weekly Monthly	Project Sponsor Board	Project Manager	Project Status Reports	Soft Copy
Project Announcements	To make urgent and important announcement related to the project.	WhatsApp Email	Daily Weekly	Project Team Contractors Construction	Project Manager	Announcements Memos	Soft Copy

		Face to Face	As necessary	Worker			
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4.7.7 Communication Escalation Plan

The communication escalation plan refers to a proactive risk communication plan. Its intention so for a quick resolution to any issue that may arise. The issue is communicated to a higher individual who then takes ownership of the issue communicated. The following table illustrates the communication escalation plan.

Chart 23 Communication Escalation (Source: A. Cardenas, The Author, 2023)

Role	Triggers When:
Project Manager	<ul style="list-style-type: none"> • Delays in delivery of construction material/ furnishings. • Delays in approval of NGO Certification. • Delays in schedule • Cost overrun
Architecture	<ul style="list-style-type: none"> • Delays in drawings and its delivery • Issues with CBA • Delays in presentation
Construction Contractor	<ul style="list-style-type: none"> • Construction workers unavailable • Inclement weather • Any other construction issues • Delivery issues • Issues in testing
Sustainable Energy Technologies Contractor	<ul style="list-style-type: none"> • Delays on sustainable energy technologies delivery • Issues to design and plan • Issues in installation • Issue in testing

4.8 Risk Management Plan

4.8.1 Introduction

According to the PMBOK (2017, p.395) project risk management is the “process of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project.” Furthermore, the PMBOK explains that the intention of risk management is to optimize the probability and/ or impact of positive risk and to minimize the probability and/ or impact of negative risk to increase project success. In a nutshell, risk management describes how risk management activities will be structured and performed for both threats and opportunities. It typically includes risk strategy, methodology, frequency and timing for risk management activities, risk categories, probability and impact matrix and amongst others.

4.8.2 Approach

The Baltazar’s Healing Center takes a methodological approach where various risks are identified, scored, and ranked. Each risk identified and analyzed will include strategies that will be employed with the intention to mitigate the risk. The various risk managers will be responsible for providing status updates on their assigned risks. The risk updates shall be provided bi-weekly or as deemed necessary. At the closing stage of the project, the project manager will be responsible for analyzing each risk and the risk management process to create an analysis. The aim is for the project manager to identify improvements to the risk management plan that will be useful for future projects.

4.8.3 Roles and Responsibilities

Project risk management is not an isolated effort, it is rather a collaborative effort amongst different stakeholders. This allows different stakeholders to bring their own experience and knowledge of similar projects. Therefore, this allows different stakeholders to identify project risks and their responses. The roles and responsibilities related to project risk for the Baltazar’s Healing Center are detailed below.

Chart 24 Project Risk Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Roles	Responsibilities
Project Manager	<ul style="list-style-type: none"> • Create risk register • Monitor both risks and opportunities • Identify new risks and opportunities • Constantly evaluate and update probability of occurrence and potential impacts • Evaluate and document the effectiveness of response actions.
Project Sponsor	<ul style="list-style-type: none"> • Approve or disapprove change with the aim to mitigate or alleviate risks.
Project Team/ Board	<ul style="list-style-type: none"> • Approve or disapprove change with the aim to mitigate or alleviate risks. • Identify risks • Device and implement risk response strategies
Contractors	<ul style="list-style-type: none"> • Risk monitoring on working days.

4.8.4 Identify Risks

Several project documents such as cost management plan, schedule management plan, quality management plan and resource management plan served as an input to the identification of risks for the Baltazar's Healing Center. The use of expert judgement of the board and contractor were also used. The identified risk was then categorized and decomposed into a Risk Breakdown Structure as being represented below.

Chart 25 Baltazar's Healing Center Risk Breakdown Structure (Source: A. Cardenas, The Author, 2023)

Level 0	Level 1	Level 2	Level 3	
0 Project Risk	1. External Environment	1.1 Natural	1.1.1 Natural Disaster	
			1.1.2 Weather Condition	
		1.2 Economic	1.2.1 Labor Market	
			1.2.2 Prices of construction materials	
		1.3 Political	1.3.1 Change in Government Priorities	
		1.4 Legal	1.4.1 Building Permits	
			1.4.2 Safety and Health Standards	
	2.0 Internal Environment	2.1 Organizational Structure		2.1.1 Responsibilities and Chain of Authority and Reporting
				2.2.1 Planning and Monitoring and Quality Management
		2.2 Internal Processes		
		3.0 Project Management	3.1 Planning	
				3.1.2 Work Packages dependencies
3.2 Team			3.2.1 Stakeholder Engagement	

4.8.5 Qualitative Risk Analysis

Proper project management risks shall be quantified and qualified. The PMBOK details both the qualitative risk analysis and the quantitative risk analysis

processes to establish the probability of a risk occurring and establish, in case it occurs, the real impact to the project. Therefore, this analysis provides the project manager with the tool to establish prioritized risk monitoring and responses. The impact scale aims at providing a numerical value to the risk that occurring that would affect the project constraints like schedule, cost, scope, and quality. The impact scale represented from a very low (easily ignored) to a very high impact (requiring keen monitoring and control). The following Chart 27 details the impact levels for the Baltazar's Healing Center Project.

Chart 26 Impact Scale for Baltazar's Healing Center (Source: A. Cardenas, The Author, 2023)

Impact scale	Description	Number
Very low (VL)	Impact may be safely ignored	1
Low (L)	Impact minor with routine management procedures	2
Medium (M)	Large impact, but can be managed with effort using standard procedure	3
High (H)	Critical event, potential for major costs, or delays	4
Very high (VH)	Extremely event, potential for large, financed costs or delays or damage to the project organization's reputation	5

As well, all risks have a probability of occurring. For the Baltazar's Healing Center, a probability scale was generated based on the experience of the project manager and project team where each identified risk will be given a value. For the Baltazar's Healing Center, the team has created the following probability scale to categorize the identified risk from a very low probability to a very high probability of occurrence.

Chart 27 Priority Scale for Baltazar's Healing Center (Source: A. Cardenas, The Author, 2023)

Probability scale	Description	Number
Very low (VL)	Possible, but very unlikely	1
Low (L)	Possible, but unlikely	2
Slightly low (SL)	Possible, but slightly unlikely	3
Medium (M)	Possible, and likely	4
Slightly high (SH)	Likely	5
High (H)	Highly likely	6
Very high (VH)	Very highly likely	7

The Probability and Impact matrix is a part of the qualitative analysis in risk management. The matrix is a grid used to map the probability of each risk occurrence and its impact on the project objective if the risk occurs (PMBOK, 2017). This matrix is created for the Baltazar's Healing Center Project, and it provides the ratings to allow us to prioritize risks into priority groups. The matrix uses the Priority scale ratings from Chart 28 and the Impact scale ratings from Chart 27. The Probability and Impact matrix is calculated by multiplying the ratings from the two tables above to provide the numeric rating. Numeric calculations ratings range from 1 to 35 where by 1 is low probability and low threat or opportunity. The matrix also allows for risk to be categorized as a threat or opportunity and to determine where on the matrix such risk falls under each category. This allows the team to prioritize and strategize on how to resolve the risk.

The color provided in the Probability and Impact matrix reference identifies the impact and probability of the risk to occur to the project. Numerical calculation

results that are colored green generally means the risk does not impact the project significantly and can be ignored. Numerical calculations result that are colored yellow generally means the probability is medium to high, but the threat or opportunity is low meaning the management of the risk would require some routine management procedure. Numerical calculations resulting in red is considered to have a high probability of occurrence and threats and opportunities are medium to very high. This generally means these risks will require intervention or can delay the project schedule, cost, or scope. These risks will then be the priority risk to alleviate and develop planning solutions from the onset. The risk register will detail the risk identified by the team along with the priority and impact determined and calculate the probability and impact which will then use the table to identify where the risk falls within the table and the team can then prioritize the risk and plan accordingly for the Baltazar's Healing Center project.

Chart 28 Probability and Impact Matrix for Baltazar's Healing Center (Source: A. Cardenas, The Author, 2023)

	THREATS					OPPORTUNITIES				
Probability Scale	VL (1)	L (2)	M (3)	H (4)	VH (5)	VH (5)	H (4)	M (3)	L (2)	VL (1)
VH (7)	7	14	21	28	35	35	28	21	14	7
H (6)	6	12	18	24	30	30	24	18	12	6
SH (5)	5	10	15	20	25	25	20	15	10	5
M (4)	4	8	12	16	20	20	16	12	8	4
SL (3)	3	6	9	12	15	15	12	9	6	3
L (2)	2	4	6	8	10	10	8	6	4	2

VL (1)	1	2	3	4	5	5	4	3	2	1
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Risk Level	Range	Color Code
Low	1-7	Green
Moderate	8-12	Yellow
High	12-35	Red

4.8.6 Risk Register

Every Project shall contain a risk register to track risk and have in place its mitigation strategies. The risk register for the Baltazar’s Healing Center will detail the identified risk, its probability and impact, its triggers, its mitigations response, and the person responsible for monitoring the risk. The following table represents the risk register for the Baltazar’s Healing Center.

Chart 29 Risk Register for Baltazar's Healing Center (Source: A. Cardenas, The Author, 2023)

RBS Code	Cause	Risk	Consequence	Probability	Impact	P x I	Trigger	Potential Risk Response	Owner
1.1.1	Hurricane Impact	Construction destruction	Rework causing delays on project schedule and cost overrun for repairs.	6	4	24	Hurricanes are predicted to impact the country at or near the site.	Escalate: Project Manager will inform the Project Sponsor and Board to halt work and take alternative actions.	Project Manager Construction Contractor
1.1.2	Inclement weather due to rainy season	Construction site is flooded; work can't continue	Delays in project schedule, increase in cost.	6	4	24	Tropical storm/ depression is expected to impact at or near the site.	Escalate: Project Manager will inform the Project Sponsor and Board to halt operations and seek alternative actions.	Project Manager Construction Manager
1.2.1	High demand of construction	Limited construction skilled work	Delays in project work and increase in cost to obtain labor work.	4	4	20	Minimal construction workers around the city.	Transfer: The construction contractor will be responsible.	Construction Contractor
1.2.2	Inflation due to increase in demand vs supply and/ or increase in taxes due to national debt.	Increase in the price of construction materials.	The cost of the project may increase.	4	3	12	There is a demand, but a low supply of resources needed. Country debt increases.	Accept: include in the contingency budget.	Project Manager
1.3.1	Government priorities other areas	MOH no longer has a focus in	The Center will lose priority.	1	1	1	During the project MOH participation is	Accept: Project Sponsor enrolls on campaign to	Project Sponsor

	of health rather than mental health.	mental health.					not confirmed.	promote the need of mental health.	Board
RBS Code	Cause	Risk	Consequence	Probability	Impact	PxI	Trigger	Potential Risk Response	Owner
1.4.1	Architectural design is not to the requested standards or change in building codes/	Building permits are not approved.	Delay in schedule and increase in the cost of architectural design due to rework.	2	3	6	MIDH changes its building codes.	Accept: Architecture would need to redesign the facility plan to meet the needs.	Architecture
1.4.2	Construction contractor doesn't comply with safety standards.	A construction worker is injured at the site.	Worker sues the Sponsor or contractor. Reputational risk damaged.	4	3	12	Nin-compliance with safety standards upon inspections/	Escalate: Project Manager will inform the Project Sponsor and Board to halt work until all safety standards are complied. Contractor must possess' civil liability insurance for employees.	Construction contractor
2.1.1	Unclear line of authority, decision making and overdue reporting.	Overstep of authority, decision making and reporting	Communication issues creating changes in the project that can cause delay and rework.	1	1	1	Reminders sent for overdue reports. Decisions without following proper procedures.	Avoid: Project Manager will ensure to communicate the proper procedure to decision making and the operation of the project.	Project Manager
2.2.1	Contractor doesn't comply with	Deliverables doesn't meet planned	Rework will be required in the near future and	4	4	16	Acceptance criteria are not met, or testing	Escalate: Project Sponsor and Board will be	Project Manager

	quality standards.	quality standards and will not have the expected duration.	disbursement for following phases will be halted.				fails.	duly informed of actions.	
RBS Code	Cause	Risk	Consequence	Probability	Impact	PxI	Trigger	Potential Risk Response	Owner
3.1.1	Wrong estimation of the schedule and cost and its phases due to insufficient research.	The schedule and cost are not realistic.	Extension of schedule and can affect quality. Require more finances.	2	2	4	Phases are taking longer to complete.	Avoid: Ensure that phases are within schedule and meet the necessary standards. Ensure that cost is well calculated.	Construction Contractor
3.1.2	Previous phases are incomplete, requires reworks or are note of the expected quality.	Delays on dependencies phases.	Increase in cost and delays in schedule.	3	4	12	Critical path is compromised.	Avoid: Proper monitor and reporting to ensure that project is as per schedule.	Project Manager
3.2.1	Community and or organizations needs provides networking.	Opportunity: Broader needs align with the Baltazar's Healing Center.	Future grants to promote mental health areas.	3	4	12	Organizations align to mental health needs.	Exploit: create networking communication and exchange contacts.	Project Sponsor and Board

4.8.7 Risk Control and Monitoring

A strategy to monitor project risk is to add the risks with the highest priority to the project schedule and the assigned risk manager. This will assist the project manager to be attentive when these high risks need to be monitored more closely and will inform the manager when the risk manager is to provide update reports. Risk monitoring is a continuous process, and it should occur throughout the life of the project. For the Baltazar's Healing Center, the high risk will be added to the schedule for an effective monitoring and controlling of the potential risks that can cause extensive damage or affect the project negatively.

Moreover, each risk manager is to provide weekly, bi-weekly, monthly, or more frequent updates based on the work performance information included in the progress report. The project team shall vet the risk register as deemed necessary to identify further risk or changes that must be required. Any change to the risk responses and the inclusion of new or updated risks which will impact the project baseline or other documents and will require additional resources must be submitted as change request to the project manager and follow the change request process.

4.9 Procurement Management Plan

4.9.1 Introduction

Procurement Management is the that entails the purchase or acquisition of products, services, or results needed from outside the project team (PMBOK, 2017). It includes the management and control for the development and to administer agreements such as contracts, purchase order amongst others. In a nutshell, the procurement management plans describe the activities undertaken during the procurement process. It details the aspects of the management of procurement. It can include details such as procurement coordination and

integration with other project work such as scope, schedule; timing procurement activities, roles, and responsibilities and amongst others (PMI, 2017).

4.9.2 Approach

For the Baltazar's Healing Center, it will be the sole responsibility of the project manager to provide oversight and management of all procurement activities. In a collaboration effort, the project manager will work with the project team to identify all items required to be procured. The Board will review the contract to make a determination about whether it provides value for the project. The procurement will be executed through different phases; hence, it is crucial to outline the objectives to the project team and the criteria to proceed to other phases. This will also allow for effective procurement monitoring.

4.9.3 Roles and Responsibilities

Procurement will be the sole responsibility of the Project Manager. Nonetheless, the Board and Project Sponsor will have a level of authority and responsibility. The following table outlines the roles and responsibilities for the project team.

Chart 30 Procurement Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Roles	Responsibilities
Project Manager	<ul style="list-style-type: none"> • Preparation of bid proposals. • Approve purchases • Identify procurement risks • Vendor selections and awarding contracts • Detail vendor selection criteria
Board and Project Sponsor	<ul style="list-style-type: none"> • Review bid proposals • Approve awarding contracts • Contract advertisement • Control payment of goods and services • Keep financial records
Contractors	<ul style="list-style-type: none"> • Obtain permission to purchase materials

4.9.4 Procurement Definition

The following table outlines the essential items needed for each project phase. The items needed are listed along with their required quantity and its justification.

Chart 31 Procurement Definition (Source: A. Cardenas, The Author, 2023)

Phases	Item/ Service	Justification
Phase 1		
Perform Preliminary Works	Nails Tying Wire Lumber Labor	The items listed are needed to commence the marking and/ or landscaping of the construction site.
Execute Foundation, Foundation Walls and Backfill	Excavation Steel- ½ inch Steel- 3/8" Sand Gravel Cement Labor Edge Form- 1x12x12 Backfill	The items listed are key materials to execute the foundation, foundation walls and ensure that the backfill is to the correct level.
Phase 2		
Build Floor Slab	Construction Plastic Steel- 3/8" Sand Gravel Cement Labor	The items listed are crucial to complete the pouring of the floor slab with a required 5 inches thickness.
Perform Preliminary Plumbing and Electrical	Meter Pole Outlets	The items listed are essential to commence preliminary plumbing and electrical for later continuation of plumbing and electrical works.
Build Walls, Columns, Lintels	Blocks- 6 inch Blocks- 4 inch Steel- 3/8" Sand Gravel Cement Labor Steel- 1/2inch-cols Steel-3/8"-columns	The items listed are needed to build the walls, columns, and lintels of the facility.

Phases	Item/ Service	Justification
Build Belt Beams	Steel- ½ inch Steel-3/8" Sand Gravel Cement Labor Edge Form- 1x12x12 Edge Form- 1x6x10	The items listed are needed to build the belt beam for the facility and to complete the second phase.
Phase 3		
Construct Roof	Steel- ½ inch Steel- 3/8" Sand Gravel Cement Labour ½" construction plywood 2x4x12'- rough 1x4x12'- rough Props	The items listed are for the construction of the roof. All materials are essential to ensure the quality of the roof.
Perform Plastering and Dressing	Sand Cement Labor	
Install Windows and Doors	Double Windows Single Windows Main door Interior door Labor	The materials listed are for the installation of the windows and doors.
Perform Plumbing and Electrical	Light fixture-int. Roll #12 Black wire Roll #12 Red wire Roll #14 Green wire Panel Box Breakers Switches Labor	The materials listed are for the continuation of the plumbing and electrical works and to complete phase 3.
Phase 4		
Perform Plumbing and Electrical Finalization	Pipes- 1 ½" Pipes 2" Pipes 4" Pipes ¾" Complete toilet Complete basin	The items listed are for the continuation and the finalization of the plumbing and electrical works.

	Shower faucet Labor	
Phases	Item/ Service	Justification
Perform Painting	Primer Interior Paint Roller Sets Brushes 4" Labor	The materials listed are for the painting of the facility.
Build Septic Tank and Soak away	Blocks- 6 inch Blocks- 4 inch Cement Sand Sand and Gravel Steel 3/8" Tying wire 2" wire nail ½ plywood Labor	The materials listed are essential to build the septic tank and the soak away and to close phase 4.
Phase 5		
Install Sustainable Energy Technologies	Package Deal: Solar panels Solar AC Units + Inverter Units High Efficiency Faucets LED Lighting Renewable hot water heater Low Flow & Dual Flush Toilets	The items listed are for the installation of sustainable energy technologies.
Furnishing of Centre		
Procure Equipment/ Furnishing	single piece sofa long piece sofa center tables desk table filing cabinet whiteboard office chairs Sink Bathroom supplies Therapeutic Supplies Refrigerator Microwave	The items listed are for the furnishing of the center. This includes furnishing for the two clinics, the bathroom, the waiting room and the kitchen.

Phases	Item/ Service	Justification
Official Launch		
Execute Advertisement	Radio announcement Tv Advertisement Facebook Advertisement	The items listed are required for the successful launch of the center and the handing over of the project.
Create and distribute Invitations & Agenda	Electronic Invitations Program	
Arrange Catering	Food Drink	
Prepare Official Ceremony	PA System Decoration materials Chairs Tables	

4.9.5 Type of Contract

The type of contract to be employed for the construction of the Baltazar's Healing Center is a fixed price contract. A fixed price contract entails setting a fixed price for the stipulated product, service or result to be provided (PMI, 2017). This type of contract is relevant to the construction of the Baltazar's Healing Center since any drastic change to the cope is not expected. Moreover, the scope of work and requirements are predictable. Hence, the price for the service to be provided will be set from the onset and changes will occur unless the scope of work requires drastic changes.

4.9.6 Contact Approval Process

After the items to be procured have been defined, the project manager will be responsible for performing independent cost estimates for all the required materials. A bid document will be prepared and be vetted by the Project Sponsor and the board. The bid document shall entail a request for quotation. The Board will be responsible for sending the bid to all the hardware stores, vendors, located in the City of Belmopan and its vicinity. The vendors shall submit their proposal within a specified timeframe. Thereafter, the approval process begins. This process

entails comparing the submitted bids with their independent cost. After such an analysis the bid that meets the project requirements will be the successful bid.

4.9.7 Decision Criteria

The successful vendor shall meet a stipulated criterion. The vendor that meets the following criteria will be the successful vendor during the bidding process.

- Ability to provide all items on designated delivery dates
- Materials are of high quality
- Cost is within the expected range
- Delivery cost is affordable
- Promotes corporate and social responsibility on its products and service

4.9.10 Vendor Management

The management of the successful vendor is the sole responsibility of the project manager. It is expected that the vendor will deliver the materials as stipulated in the agreement within the scheduled delivery time. To ensure proper management the project manager will be required to engage with the vendors in meetings to detail the importance of following the agreement and the expectations of the vendors to meet the needs of the project. Moreover, the project manager will ensure an open channel of communication with the vendor to ensure that the materials procured meet the requirements. On the other hand, this open channel of communication will allow timely communication in case there is a change in the delivery time or certain products are low. This mechanism is a proactive strategy to mitigate delays that can cause an impact to the schedule.

4.9.11 Performance Metrics

In order to assess the performance of all engaged vendors, a rating scale was created. Each metric follows a rating scale from 1 to 3. A scale of '1' represents unsatisfactory performance, '2' represents an acceptable performance and '3'

represents an exceptional performance. The rating scale can be found on Appendix 5.

4.9.12 Procurement Change Control

The procurement change control process shall follow the stipulated change order process. If any change in the cost arises during the project, the project team and the project manager shall meticulously analyze any potential changes to the procurement management plan. All changes shall be scrutinized based on their impact and potential change on other relevant activities and possible effects to the schedule. Where the change is unavoidable, a change request must be submitted.

4.9.13 Closed Procurements

To formally close the procurement process, the project manager is tasked to submit a written formal notice to the sellers to indicate that the contract is closed.

The following conditions will indicate closure of the contract.

- All procured materials have been delivered on time.
- All procured materials meet the expected quality requirements.
- There are no outstanding claims or invoices.
- All final payments have been made.

4.10 Stakeholder Engagement Plan

4.10.1 Introduction

The project stakeholder engagement plan refers to the “processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution” (PMBOK, 2017, p. 503). In a nutshell, the stakeholder engagement plan details the strategies and actions that are to be implemented to promote a productive involvement of stakeholders in the

decision making and the project execution. It can include information such as desired and current engagement level of key stakeholders, scope and impact change to stakeholders, and engagement approach for each stakeholder or group of stakeholders.

4.10.2 Identify Stakeholders

In order to create an effective stakeholder engagement management plan, it is vital to clearly identify and assess all stakeholders. This will be done via a stakeholder analysis. Interests, involvement, interdependencies, influences, and potential impacts on the project success will be collected, documented, and analyzed in detail for each potential stakeholder.

Moreover, a stakeholder analysis register has been created. This document will assist in categorizing each stakeholder impact as High (H), Medium (M) or Low (Low). Furthermore, it will state if the stakeholder is Unaware (U) meaning that this groups has no information about the project, Resistance (R) meaning that they are aware of the project and are resistant to the changes and impacts the project may bring, Neutral (N) meaning that they are aware of the project and neither supportive nor resistance, Supportive (S) meaning that they are aware of the project and its potential changes and impacts and is supportive and Leading (L) meaning that they are aware of the project and they are actively engaged to ensure the project's is a success.

The following chart illustrate the list of stakeholders.

Chart 32 Internal and External Stakeholder (Source: A. Cardenas, The Author, 2023)

Stakeholder	Stakeholder
Internal Stakeholders	Board of Directors
	Chair
	Project Sponsor
	Internal
External Stakeholders	Energy Contractor
	Suppliers
	Architecture
	Construction Contractor

Chart 33 Stakeholder Power and Interest (Source: A. Cardenas, The Author, 2023)

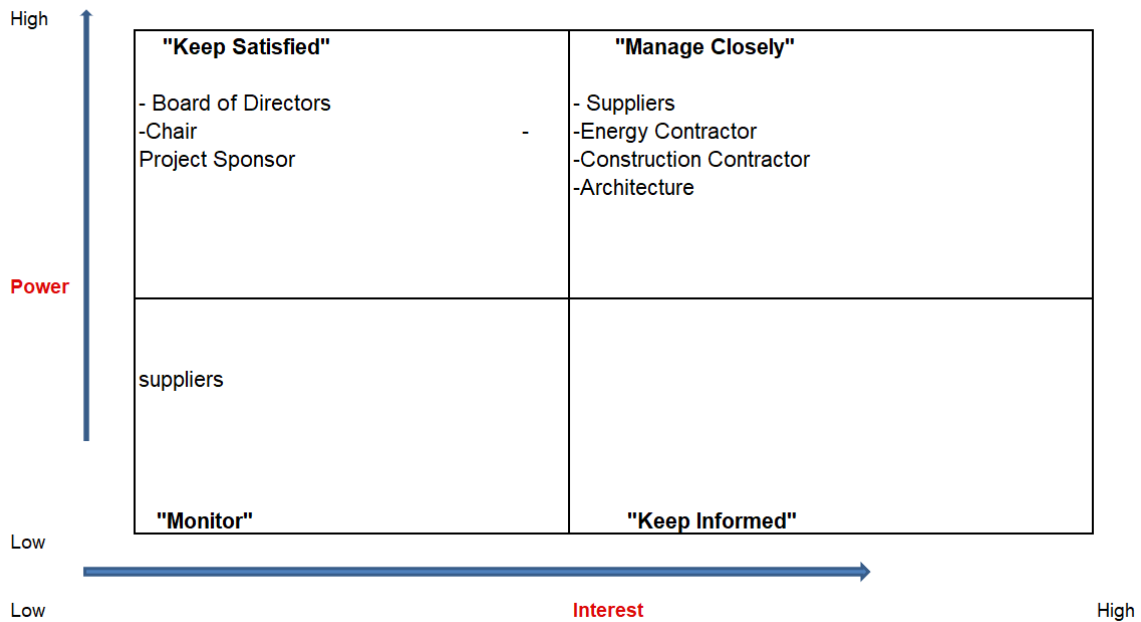


Chart 34 Baltazar's Healing Center Stakeholder Register (Source: A. Cardenas, The Author, 2023)

Group Name	No. in Group	Description and Key attributes	Impact on Project	Impacted by Project	Current State	Desired State	Issues, Opportunities and Risks	Mitigation Strategies and Actions
Board	7	Key decision makers	H	H	S	L	Issues: based on the number of board members decisions can take longer than expected due to different views.	Use hats de bono strategy to guide discussion make decisions.
Construction Contractor	1	Contracted professional	H	M	S	L	Risk: lack of concern, inaccurate and inefficient work	Regular site supervision from the project manager.
Energy Contractor	1	Contracted professional	H	M	S	L	Risk: lack of concern, inaccurate and inefficient work	Regular site supervision from the project manager.
Chair	1	Key decision maker	H	H	S	L	Issues: doesn't consult with board for collective decisions.	Project manager will ensure that collective decision is made and shall be provided in writing with proper letter head.

Group Name	No. in Group	Description and Key attributes	Impact on Project	Impacted by Project	Current State	Desired State	Issues, Opportunities and Risks	Mitigation Strategies and Actions
Suppliers	1	Provide construction materials and services	H	L	N	S	<p>Opportunity: International materials may be cheaper than local materials.</p> <p>Risk: delivery delays, faulty materials, and low-quality materials.</p>	Compliance with agreed standards and with international and national codes.
Project Sponsor	1	Key decision maker and sponsor	H	H	S	L	Risk: make swift decision without proper consultation with the board.	Project manager would remind the project sponsor that consultation with board is vital.
Project Manager	1	Key decision makes and ensures the success of the project.	H	H	L	L	Opportunity: to establish project documents as part of the process assets that will guide future projects.	Maintain proper records on the NGO drive. Perform all reports and lesson learnt as required
Architecture	1	Design the building plan in accordance with CBA regulations	H	H	L	L	Risk: lack of concern, inaccurate and inefficient work	The board will provide adequate follow-up and will assess the presentation.

4.10. 3 Roles and Responsibilities

The Sponsor, Project Manager, Baltazar's Healing Center Board, and the team have critical roles in managing the project scope. Hence, it is crucial for each member to be aware of their role and responsibilities to ensure that the work is completed as defined on the project scope and consistency occur through the project lifecycle. The following chart outlines the roles and responsibility.

Chart 35 Roles and Responsibilities (Source: A. Cardenas, The Author, 2023)

Name	Role	Responsibility
Baltazar's Healing Centre Director	Sponsor	<ol style="list-style-type: none"> 1. Provides financial resources. 2. Approve or deny any scope change requests as necessary. 3. Evaluate scope change requests. 4. Accept project deliverables and project scope. 5. Have final authority, including workplan and key hires.
Baltazar's Healing Centre Board	Board	<ol style="list-style-type: none"> 1. Serve as the change control board. 2. Approve or deny any scope change requests as necessary. 3. Evaluate scope change requests. 4. Accept project deliverables and project scope. 5. Provides management decisions when guidance is deemed necessary by the Project Manager. 6. Have pre-final authority, including work plan and key hires. 7. Responsible for scope management. Establishes and approves documentation for measuring the project scope.

Armin Cardenas	Project Manager	<ol style="list-style-type: none"> 1. Responsible for the project planning, implementation, coordinating, controlling, and monitoring. 2. Develops the TOR for the contractors. 3. Build effective work relationships with relevant stakeholders. 4. Secures acceptance and approval of deliverables. 5. Escalate issues that can't be resolved by the project team. 6. Facilitates scope change request and its impact assessment. 7. Organizes and facilitates scheduled change control meetings and communicates its outcomes. 8. Update documents upon approval of scope changes.
Construction Contractor	Team Lead	<ol style="list-style-type: none"> 1. Measure and verify the scope of the project. 2. Validate scope change request. 3. Partake in the impact assessment of the change request. 4. Communicate outcomes of scope change to the team.
Subcontractors	Team Member	<ol style="list-style-type: none"> 1. Partake in defining change resolutions. 2. Evaluate the need for any scope change and communicate the same to the project manager as deemed necessary.

4.10.4 Plan Stakeholder Management

According to the PMBOK (2017, p.503) plan, stakeholder engagement refers to the “process of developing approaches to involve project stakeholders based on their needs, expectations, interest, and potential impact on the project. In essence, it is to develop appropriate management strategies to engage stakeholders effectively and efficiently throughout the project lifecycle. This process aims at providing clear, actionable plans to interact with all project stakeholders to support the interests and needs of the project.

From the data gathered in the stakeholder analysis register and the communication management plan, it will be the sole responsibility of the project manager to engage all stakeholders throughout the project lifecycle. It is important to note that the level of engagement differs from stakeholder to stakeholder. Key stakeholders

shall be engaged in the early kick-off stage to ensure a buy-in to the project and to prevent any future obstacles.

4.10.5 Stakeholder Engagement

To detail the appropriate and effective level of engagement for each stakeholder, the project manager is to analyze the current level of engagement by utilizing the PMBOK Stakeholder Engagement Assessment Matrix. The following table illustrates the stakeholder engagement where “C” stands for current level of engagement and “D” for desired level of engagement.

Chart 36 Baltazar's Healing Center Stakeholder Engagement Assessment Matrix
(Source: A. Cardenas, The Author, 2023)

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Board				C	D
Construction Contractor				C	D
Energy Contractor				C	D
Chair				C	D
Suppliers					
Project Sponsor			C	D	
Project Manager					CD
Architecture					CD

4.10.6 Manage Stakeholder Engagement

The PMBOK (2017, p. 503) refers to stakeholder engagement as the “process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder engagement involvement.” In other words, it is a systematic process that will foster effective stakeholder engagement throughout the project lifecycle. This process aims at maximizing support and minimizing resistance from stakeholders.

To ensure effective stakeholder engagement, the Baltazar's Healing Center Project will utilize the communication plan and its strategies to communicate project relevant information to key stakeholders in a preventative and timely manner. Moreover, it will be the duty of the project team to actively listen and collect feedback to ensure that communication is received and understood as intended, and most importantly, to capture information that will assist in making necessary adjustments to respond to problems that may arise.

4.10.7 Monitor Stakeholder Engagement

Monitor stakeholder engagement refers to the process of “monitoring project stakeholder relationship and tailoring strategies for engaging stakeholders through the modification of engagement strategies and plans” (PMBOK, 2017, p. 503). This process will involve the collection of data to make any necessary adjustment to the strategies and tactics to strengthen an effective stakeholder engagement.

For the Baltazar's Healing Center Project, mechanisms such as receiving ongoing feedback from key stakeholders such as emails, personal communication, site meetings, status meetings and other forms of communication.

5 CONCLUSION

1. The project charter details high level information to seek approval for the Baltazar Healing Center Project. The project charter states the general and specific objective, purpose, deliverables, assumption, constraints, preliminary risks, budget, milestones and its corresponding dates, historical information, and project stakeholders. In the implementation of this project, the change request approval from the corresponding authority allows for changes in these preliminary details.
2. The scope management plan details the parameters of the Baltazar Healing Center Project. It clearly defines what the project is about and what is not about. Moreover, it establishes the relationship with the stakeholder to secure the project sustainability and effective project deliverables. The scope management plan provides details of the requirement traceability matrix, the project scope statement, the work breakdown structure (WBS), the WBS dictionary and how to collect requirements. Overall, it establishes how to plan, define, validate, and control the project scope of the Baltazar's Healing Center project.
3. The schedule management plan for the Baltazar's Healing Center details the different project activities, its sequence, and dependencies along with their estimated durations time. Moreover, it illustrates its schedule and network diagram. These tools aim at ensuring the project remains as per scheduled plan to avoid delays that can negatively hinder the successful completion of the project.
4. In order to ensure that the Baltazar's Healing Center project is within its available budget, a cost management plan was developed to plan, monitor, and control the cost of the project to ensure its successful completion. The cost management plan details the cost estimate of the project, and its

determined budget. Moreover, as an obligation, the project needs to avoid bribes, fraud, money laundering, and improper use of funds. Proper financial management best practices need to be adhered to.

5. The quality standard for the Baltazar's Healing Center is high to ensure its durability. It needs to be in compliance with local standards as listed in the quality management plan. The quality management plan details the project objectives, roles and responsibilities, quality requirement standards, quality metrics, quality control and quality measurement to determine the project's baseline and to manage and control the deliverables of the project.
6. The resource management plan for the Baltazar's Healing Center details the internal and external resources required for the successful completion of the project. The plan details the organization breakdown structure, the responsibility assigned matrix and the resource breakdown structure. For the project to be completed, the hiring of a construction contractor and contractor of sustainable energy technology will be required. Moreover, construction materials will be obtained via a bidding process. The human resource is also detailed to ensure its development and effective engagement to owning the project.
7. To ensure effective communication during the implementation of the Baltazar's Healing Center, a communication management plan was developed. The communication management plan aims at avoiding miscommunication that can hinder progress. It explicitly states the how and when of certain communication. Moreover, it clearly defines the communication strategy and the line of reporting authority.
8. Risks can cause great damage to the success of any project. Hence, to secure the risks for the Baltazar's Healing Center, a risk management plan was developed. The risk management plan aims at mitigating the risk that

has possibility to occur by having contingencies in place. Additionally, it looks at exploiting the opportunities that positive risks can bring to the project.

9. The Baltazar's Healing Center project required a procurement process. Hence, a procurement management plan was developed where it details how and when the different construction materials will be required and how to select the best bidder from the different hardware. Additionally, it details the management and control of the procurement during the different phases of the construction. Overall, the procurement management plan contains the method, contract type, constraints, and risks related to procurement.
10. Stakeholders in any project can influence or halt a project success. Each stakeholder needs to be analyzed and evaluated to understand the impact and the effects they can have in a project. Hence, a stakeholder engagement plan was created for the Baltazar's Healing Center. The stakeholder engagement plan identified and analyzed all the stakeholders and outlined a plan for a buy in to the project to ensure the project success. Overall, the plan ensures that the stakeholders are engaged and effectively monitored.

6 RECOMMENDATIONS

1. Being a newly non-governmental organization and commencing with best practices of project management at its initially stage and having the first records of project management document, the Baltazar's Healing Center should continue implementing the use of project management to implement future projects to ensure it success.
2. To avoid any delays and/or interruption because of noncompliance in line with the local authorities, it is highly recommended that the project manager ensures that all required standards and building codes are followed. Moreover, the construction plans shall always remain at the construction site.
3. The project manager and team shall update all subsidiary management plans and relevant documents as deemed necessary once approval has been granted through the change control process.
4. During the different meetings, the project manager shall provide room for the members to express the challenges, changes, or risks that the project team has identified which affect the availability and quality of the resources of the project. Any of these require to be addressed immediately or be escalated promptly.

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

The project aims at improving the management for the successful completion of the design, construction and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies. The project's principal objective is to contribute to improving the quality of education and health by providing psycho-pedagogical and psychological services.

The project's validation in the field of regenerative and sustainable development is as follows.

7.6 Relationship with the sustainable development objectives

According to Carboni, Duncan, Gonzales, Milsom & Young (2018), humanity has been erroneously guided by economic models that have negative impacts to our natural resources and endanger the ability of the survival of the human species. The economic models aim at profit being the major indicator in the success of business. The authors further allude that those demands are now models that reflect the reward to low-carbon and environmentally sustainable products and services. As for the project, which this project management plan is being developed, it aims at producing the construction of the Baltazar's Healing Center which will be operated by sustainable energy. Furthermore, the services that will be offered by the Center are in tandem with Sustainable development Goal (SDG).

Caroni, et. al. (2018) mentions that in the year 2011, Colombia proposed seventeen Sustainable Development Goals (SDGs). Other organizations supported such SDG as being the best was in which the pressing challenges can be addressed and therefore, this support became concrete in a resolution on the 2012

RIO+20 Conference. It is crucial to highlight that the goals are interconnected and the success of one goal contributes to the success of other goals.

The following SDGs will be achieved by this project (The 2030 Agenda for Sustainable Development, n.d.):

1. **Goal 3. Ensure healthy lives and promote well-being for all ages-** good health is crucial in sustainable development. The services that will be provided by the Baltazar's Healing Center include prevention and treatment of substance abuse (Goal 3.5). The Center will also focus on reducing premature mortality from non-communicable diseases through the approach of prevention and early treatment while promoting mental health and well-being (3.4).
2. **Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all-** as for this particular goal, the Baltazar's Healing Center will contribute towards achieving the specific goals of 4.1 through 4.7. The Center's focus is not only for those services to be present in an educational setting but ensuring that individuals learning needs are met by proper diagnostic and treatment to better improve their learning process. In primary and secondary education, the services that the Baltazar's Healing Center will provide are of essence so that educators are aware of the best approaches to working with children who are encountered with barriers in their learning. Every individual has the capability to learn, including adults. The services that will be provided will promote lifelong learning.
3. **Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all-** The Baltazar Healing Center will operate by utilizing clean

energy technologies which includes the use of renewable energy, and energy efficiency (7.a).

4. **Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation-** The Baltazar's Healing Center will be developed using quality, sustainable and resilient infrastructure (9.1). The Center will be sustainable with the use of resource efficiency with the adoption of clean and environmentally sound technologies.

5. **Goal 11. Make cities and human settlements inclusive, safe, resilient, and sustainable-** Citizens of Belize will have access to basic services (11.1). The Center will also focus on promoting inclusive societies.

In a nutshell, the Baltazar's Healing Center will contribute towards building resilient citizens through the promotion of psycho-pedagogical and psychological services.

BIBLIOGRAPHY

- Aaltola, K. (2017). *Project Management Handbook*. Laurea Julkaisut 76
- ADEACA. (2020, August 18). What is the Project Lifecycle?. ADEACA. Retrieved from <https://www.adeaca.com/blog/faq-items/what-is-the-project-lifecycle/>
- Analytical techniques. In: ManagementMania.com [online]. Wilmington (DE) 2011-2023, 02/14/2017 [cit. 02/11/2023]. Available at: <https://managementmania.com/en/analyses-analytical-techniques>
- Anzalone, P. (2016). Synthetic Research. Columbia University Graduate School of Architecture. http://papers.cumincad.org/data/works/att/acadia06_230.content.pdf
- Aston, B. (2022, December 16). What is The Project Life Cycle: The 5 Phases & Why It's Still Important. dpm. Retrieved from <https://thedigitalprojectmanager.com/projects/pm-methodology/project-management-life-cycle/>
- Association for Project Management. (2019). APM Body of Knowledge- seventh edition. Association for Project Management.
- Basics of Project Planning. (2015). SouRav.
- Bhat, A. (n.d.). Qualitative Research Methods: Types & Examples. QuestionPro. <https://www.questionpro.com/blog/qualitative-research-methods/>
- Bhandari, P. (2023, January 30). What Is Qualitative Research? Methods & Examples. Scribbr. <https://www.scribbr.com/methodology/qualitative-research/>

- Carboni, J., Duncan, W., Gonzalez, M., Milsom, P., & Young, M. (2018). Sustainable Project Management: The GPM® Reference Guide Second Edition. GPM Global 2018.
- DFC. (n.d.). Energy Efficiency Technologies. DFC.
<https://www.dfcbelize.org/energy-efficiency-technologies/>
- Fokaides, P., Apanaviciene, R., Černeckiene, J., Jurelionis, A., Klumbyte, E., Kriauciunaite-Neklejonoviene, V., Pupeikis, D., Rekus, D., Sadauskiene, J., Seduikyte, L., Stasiuliene, L., Vaiciunas, J., Valancius, R., & Ždankus, T. (2020). Research Challenges and Advancements in the field of Sustainable Energy Technologies in the Built Environment. *Sustainability* 2020, 12(20), 2-20. <https://doi.org/10.3390/su12208417>
- Gemino, A., Reich, B. H., & Serrador, P. M. (2021). Agile, Traditional, and Hybrid Approaches to Project Success: Is Hybrid a Poor Second Choice? *Project Management Journal*, 52, 161–175.
[doi:https://doi.org/10.1177/2F8756972820973082](https://doi.org/10.1177/2F8756972820973082)
- Hassan, M. (n.d.). Methodological Framework-Examples, Guide. Research Methods. Net.
<https://researchmethod.net/methodological-framework/#sidr-main>
- Hernandez, J. & Perez, A. (2016). A Review of Research Methods in Strategic Management; What Have Been Done, and What is Still Missing. *Scientific Papers* 2016, 5(2), 1-42. <https://d1wqtxts1xzle7.cloudfront.net>
- Hexagon. (n.d.). Construction Project Management: Definition, Processes, and More. HEXAGON EcoSys™. <https://www.ecosys.net/knowledge/construction-project-management/>
- John Hopkins... (2021, July 2). Renewable Energy vs Sustainable Energy: What's the difference?. John Hopkins School of Advance International Studies.
<https://energy.sais.jhu.edu/articles/renewable-energy-vs-sustainable-energy/>
- Lalmi, A., Fernandes, G., & Souad, S. (2021). A Conceptual hybrid Project Management Model for Construction Projects. *Procedia Computer Science*, 181,921-930.
<https://doi.org/10.1016/j.procs.2021.01.248>

- Librarian, FIU. (2023, February 3). Research: How- Information Literacy Toolbox: Sources of Information. FIU.EDU. <https://library.fiu.edu/infolit/sources>
- Martinez, R. (2018, March 19). The sources of information and its evaluation. School of Authors Comuncar. <https://doi.org/10.3916/school-of-authors-066>
- Malsam, W. (2022, November 2). Project Assumptions: A Quick Guide. PM Project Manager. <https://www.projectmanager.com/blog/project-assumptions>
- McMeekin, N., Wu, O., Germen, Briggs, A. (2020). How methodological frameworks are being developed: evidence from a scoping review. *BMC Med Res Methodol* **20**, 173. <https://doi.org/10.1186/s12874-020-01061-4>
- Mishra, S., & Alok, S. (2017). Handbook of Research Methodology: A Compedium for Scholars & Researchers. Educreation Publishing, New Delhi.
- Pattern, M, Newhart, M. (2018). Understanding Research Methods An Overview of the Essentials- Tenth Edition. Routledge
- PAHO. (2018). The Burden of Mentl Disorders in the Americas: Country Profile. PAHO. ORG. https://www.paho.org/sites/default/files/2020-09/MentalHealth-profile-2020%20Belize_Country_Report_Final.pdf
- Pratt. M. (n.d). Project Management. TechTarget, CIO. Retrieved from <https://www.techtarget.com/searchcio/definition/project-management>
- Project Management Institute. (2017). A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) - Sixth Edition, Project Management Institute, Inc., 2017.
- Project Management Guide 2020. (2020). FI in Schools. Educational Foundation Project Management Institute.
- Project Management Institute. (2021). A Guide to the Project Management Body of

Knowledge, (*PMBOK® Guide*) - Seventh Edition, Project Management Institute, Inc., 2021.

Project Management Guide. (n.d.). What Are Project Management Tools. Project Management Guide. <https://www.wrike.com/project-management-guide/>

Shultis, G. (2019, August 29). *Agile vs. Waterfall: Pros & Cons, Use Cases & More*.

Sharma, T. (2017). Analytical Method. Slide Share.
<https://www.slideshare.net/DrTriptiSharma/analytical-method>

Tabassi, A., Argyropoulou, M., Roufechaei, K., & Argyropoulou, R. (2016). Leadership Behavior of Project Managers in Sustainable Construction Projects. *Procedencia Computer Science*, 100, 724-730.
<https://doi.org/10.1016/j.procs.2016.09.217>

The Conceptual Framework. (2006). College of Education. Alabama State University;
Drafting an Argument. Colorado State University.
<https://library.sacredheart.edu/c.php?g=29803&p=185919>

Tomassini, M. (2020, August 25). 5 ways Covid-19 is affecting children in Belize and how UNICEF is helping. UNICEF Belize.
<https://www.unicef.org/belize/stories/5-ways-covid-19-affecting-children-belize>

Transforming Our World: The 2030 Agenda for Sustainable Development (n.d.)
Transforming Our World: The 2030 Agenda For Sustainable Development. United Nation.
<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>

Vinz. S. (2022, October 14). What Is a Theoretical framework? Guide to Organizing. Scribbr. <https://www.scribbr.com/dissertation/theoretical-framework/>

Wang, C.-H., Zhao, D., Tsutsumi, A. and You, S. (2017). Sustainable energy technologies for energy saving and carbon emission reduction. *Applied Energy*, 194, pp. 223-224.

APPENDICES

Appendix 1: FGP Charter

CHARTER OF THE PROPOSED FINAL GRADUATION PROJECT (FGP)

1. Student name

Armin Adiel Cardenas

2. FGP name

Project Management Plan for the design, construction and equipment of the Baltazar's Healing Center Project using sustainable energy technologies.

3. Application Area (Sector or activity)

Construction & Sustainable Energy.

4. Student signature



5. Name of the Graduation Seminar facilitator

Roger Valverde Jimenez

6. Signature of the facilitator

7. Date of charter approval

February 26, 2023

8. Project start and finish date

January 9, 2023

July 9, 2023

9. Research question

What elements should a Project Management Plan contain for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies?

10. Research hypothesis

Is it possible to develop a Project Management Plan that details the steps to design, construct and equip the Baltazar's Healing Center Project using sustainable energy technologies?

11. General objective

To devise an integrated Project Management Plan conceptualized within the standards set by the Project Management Institute (PMBOK, 2021) to manage effectively and efficiently the successful completion of the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies.

12. Specific objectives

1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes.
2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.
3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies.
4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be planned, structured, and controlled.
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy

technologies.

6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be administered and disseminated.
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be structured and performed.
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies will be acquired.
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies.
11. To develop an analysis which determines whether the implementation, maintenance and operation of the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies is in compliance with principles of regenerative and sustainable development for the purpose of supporting and promoting sustainability considerations of the project.

12. FGP purpose or justification

The main purpose of this project is to develop a project management plan for the design, construction, and equipment of the Baltazar's Healing Center Project using sustainable energy technologies. This Center will fall under a non-governmental organization (NGO) that provides the much-needed psycho-pedagogical and psychological services for families and children at an accessible to free cost.

Belize has high levels of people living with vulnerability and poverty. The age group affected are mostly children up to 14 years of age. The COVID-19 pandemic had major effects on all sectors, especially the education sector, where children were the most affected in terms of learning loss. Additionally,

mental health disorders are a non-communicable disease affecting the young; especially children between the age of 10-14 years. With such financial constraint, families can't afford to seek adequate services that their children need. This Center will provide a direct benefit to families and children to have access to psycho-pedagogical and psychological services to increase their opportunity of becoming healthy productive citizens. A second direct benefit is that this Center will operate with regenerative and sustainable technologies making it an environmentally friendly Center.

The Project Management Plan to be devised for the Final Graduation Project (FGP) aim at ensuring that proper planning is conducted and that subsidiary management plans are in place to guide the later implementation and management of the project for its successful completion.

- 0. Final Graduation Project (FGP)
- 1. Graduation Seminar
 - 1.1 FGP Deliverables
 - 1.1.1 FGP Charter
 - 1.1.2 WBS
 - 1.1.3 Chapter I. Introduction
 - 1.1.4 Chapter II. Theoretical Framework
 - 1.1.5 Chapter III. Methodological Framework
 - 1.1.6 Annexes
 - 1.1.6.1 Bibliography

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

- 1.1.6.2 Schedule
- 1.2 Graduation Seminar Approval
- 2. Tutoring Process
 - 2.1 Tutor
 - 2.1.1 Tutor Assigned
 - 2.1.2 Communication
 - 2.2 Adjustment of Previous Chapters (if needed)
 - 2.3 Chapter IV. Development (Results)
 - 2.3.1 Scope Management Plan
 - 2.3.2 Schedule Management Plan
 - 2.3.3 Cost Management Plan
 - 2.3.4 Quality Management Plan
 - 2.3.5 Resource Management Plan
 - 2.3.6 Communication Management Plan
 - 2.3.7 Risk Management Plan
 - 2.3.8 Procurement Management Plan
 - 2.3.9 Stakeholder Engagement Plan
 - 2.4 Chapter V. Conclusions
 - 2.5 Chapter VI. Recommendations
 - 2.6 Chapter VII. Regenerative & Sustainable Development
- 3. Reading by Reviewers
 - 3.1 Reviewers Assignment Request
 - 3.1.1 Assignment of Two Reviewers
 - 3.1.2 Communication
 - 3.1.3 FGP Submission to reviewers
 - 3.2 Reviewers Work
 - 3.2.1 Reviewer 1
 - 3.2.1.1 FGP Reading
 - 3.2.1.2 Reader 1 Report
 - 3.2.2 Reviewer 2
 - 3.2.2.1 FGP Reading
 - 3.2.2.2 Reader 2 Report
- 4. Adjustments
 - 4.1 Report for Reviewers
 - 4.2 FGP Updates
 - 4.3 Second Review by Reviewers
- 5. Presentation to Board of Examiners
 - 5.1 Final review by Board
 - 5.2 FGP Grade Report

14. FGP budget

The expected expenses for the FGP includes the following:

1. Hiring a philologist to review the FGP.
2. Printing and binding of FGP.

15. FGP planning and development assumptions.

The following are assumed regarding the Project Management Plan Project to be developed:

1. The development of the Project Management Plan can be finalized, reviewed, and approved within a time frame of four months.
2. Adequate feedback throughout the FGP process is provided in a timely manner and can be addressed within expected deadlines.
3. Deliverables devised during the Graduation Seminar are to the standards of the tutor and will only require minor changes in form and not in scope and time.
4. The theoretical concepts and its practical application learned are sufficient to devise and deliver a high-quality end plan.

16. FGP constraints

The following constraints are applicable for this project:

1. **Time:** The time to complete the FGP is determined by the University (UCI), a relative short period.
2. **Cost:** A pre-established budget has been determined that will guide the completion of the FGP. Any additional cost incurred outside the budget may have the potential to become an issue.
3. **Scope:** The project scope is to only develop the Project Management Plan for the project and not the implementation of it.
4. **Quality:** An assigned rubric to evaluate the quality and successful completion of the FGP was determined by the University (UCI).

17. FGP development risks

The following risks are applicable for this project:

EVENT	CAUSES(S)	IMPACT(S)
1. The activity “developing subsidiary management plans and other sections” before the assigned months.	Overburden (job, other studies, and volunteerism work) of the project manager.	Not meeting deadlines and will impact the final presentation of the FGP. Failing the FGP Course.
2. Low quality computer devise.	Unsaved FGP work document or loss of document.	Not have the FGP document for presentation and printing thereafter.
3. If the Project Manger gets sick (Covid-19 or any other sickness).	The Project Manager will not be in a healthy condition to do the assigned work.	Reduction of time to complete task and the scope of the project will be affected.
4. If the FGP topic is not accepted.	A new topic will be required, and the redoing of all related deliverables will be required.	The project schedule will be negatively impacted.

18. FGP main milestones

Deliverable	Start Date	End Date
1 Graduation Seminar Start	January 9, 2023	February 26, 2023
1.1.1 FGP Charter	January 9, 2023	January 15, 2023
1.1.2 WBS	January 15, 2023	January 22, 2023
1.1.3 Chapter I. Introduction	February 12, 2023	February 19, 2023
1.1.4 Chapter II. Theoretical Framework	January 30, 2023	February 5, 2023
1.1.5 Chapter III. Methodological Framework	February 5, 2023	February 12, 2023
1.1.6.1 Bibliography	January 9, 2023	January 15, 2023

1.1.6.2 Schedule	February 12, 2023	February 19, 2023
1.2 Graduation Seminar Approval	February 26, 2023	February 26, 2023
2.1 Tutor Approval	June 9, 2023	June 9, 2023
2.3.1 Scope Management Plan	February 5, 2023	April 30, 2023
2.3.2 Schedule Management Plan	February 5, 2023	April 30, 2023
2.3.3 Cost Management Plan	February 5, 2023	April 30, 2023
2.3.4 Quality Management Plan	February 5, 2023	April 30, 2023
2.3.5 Resource Management Plan	February 5, 2023	April 30, 2023
2.3.6 Communication Management Plan	February 5, 2023	April 30, 2023
2.3.7 Risk Management Plan	February 5, 2023	April 30, 2023
2.3.8 Procurement Management Plan	February 5, 2023	April 30, 2023
2.3.9 Stakeholder Engagement Plan	February 5, 2023	April 30, 2023
2.4 Chapter V. Conclusions	May 15, 2023	June 9, 2023
2.5 Chapter VI. Recommendations	May 15, 2023	June 9, 2023
2.6 Chapter VII. Regenerative & Sustainable Development	February 12, 2023	February 19, 2023
3.2.1 First Review Approval	June 12, 2023	June 12, 2023
3.2.2 Second Review Approval	June 30, 2023	June 30, 2023
5 Final Graduation Project End	July 9, 2023	July 9, 2023

19. Theoretical framework

a. Estate of the “matter”

As has been presented, not much focus has been given to mental health and adequate assessment of students. It is evident that Belizeans are at a high risk and the age group more affected are the children and elderly. Little has been done to address and curb this alarming concern. If nothing is done, PAHO has mentioned that this will remain for a lifelong period. The Baltazar’s Healing Centre will provide psycho-pedagogical and psychological assistance. The intention is to reach out to as many people as it can by implementing technology. Furthermore, it looks at bridging the financial gap and making the service accessible to all. Having limited reach in Belize regarding what has been done, the Baltazar’s Healing Centre plans to contribute to the professional research in the professional field.

b. Basic conceptual framework

Project Management

Project Management Plans
Psycho-pedagogy
Psychology
Design and Construction
Sustainable Energy Technologies
Non-Governmental Organization

20. Methodological framework

Objective	Name of deliverable	Information sources	Research method	Tools	Restrictions
<p>1. To create a project charter to formally authorize the development of a Project Management Plan for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies for the Final Graduation Project (FGP) and provide the project manager with the written authority to begin work to achieve the project outcomes</p>	Project Charter	<p>Primary: meeting with Board or Directors and Centre Director</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> • Project charter template • Microsoft word. 	<p>Limited time on the Project Manager to create the document.</p>
<p>2. To develop a Scope Management Plan to describe how the scope for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be defined, developed, monitored, controlled, and validated.</p>	Scope Management Plan	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an NGO.</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> • Requirement's traceability matrix template • Requirement management plan template • Scope management plan template 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p>

				<ul style="list-style-type: none"> • WBS generator and WBS dictionary • Microsoft word • Expert judgement 	
<p>3. To devise a Schedule Management Plan to detail the criteria and activities for developing, monitoring, and controlling the schedule for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.</p>	Schedule Management Plan	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an NGO.</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> • Schedule management plan • Microsoft word • Excel • Expert judgement 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p> <p>Interview needs to be based on availability of the interviewee.</p>
<p>4. To prepare a Cost Management Plan to describe how the cost for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be planned, structured, and controlled.</p>	Cost Management Plan	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an NGO.</p> <p>Secondary:</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias</p>	<ul style="list-style-type: none"> • Cost management plan template • Microsoft word • Excel • Expert 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p>

		PMBOK® Guide, 6 th edition, 2017 and Relevant website	during its synthesis. Qualitative Method- Written information analysis.	judgement	Interview needs to be based on availability of the interviewee.
5. To create a Quality Management Plan that outlines the policies, procedures, and guidelines to be implemented to achieve quality objectives for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	Quality Management Plan	Primary: meeting with Board or Directors and Centre Director. Interview with an NGO. Secondary: PMBOK® Guide, 6 th edition, 2017 and Relevant website	Analytic Method- used to analyze information found on the information sourced identified in Chart 1. Synthetic Method- triangulation of all sources to avoid bias during its synthesis. Qualitative Method- Written information analysis.	<ul style="list-style-type: none"> • Quality management plan template • Checklist template • Microsoft word 	Limited time on the Project Manager to create the document. Limited resources available within recent research. Interview needs to be based on availability of the interviewee.
6. To devise a Resource Management Plan that describes how the project resources for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired, allocated, monitored, and controlled.	Resource Management Plan	Primary: meeting with Board or Directors and Centre Director. Interview with an NGO. Secondary: PMBOK® Guide, 6 th edition, 2017	Analytic Method- used to analyze information found on the information sourced identified in Chart 1. Synthetic Method- triangulation of all sources to avoid bias during its synthesis.	<ul style="list-style-type: none"> • Resource management plan template • Responsibility assignment matrix • Microsoft word • Expert 	Limited time on the Project Manager to create the document. Limited resources available within recent research. Interview needs

		and Relevant website	Qualitative Method- Written information analysis.	judgement	to be based on availability of the interviewee.
7. To prepare a Communication Management plan that details how, when, and by whom information about the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be administered and disseminated.	Communication Management Plan	Primary: meeting with Board or Directors and Centre Director. Interview with an NGO. Secondary: PMBOK® Guide, 6 th edition, 2017 and Relevant website	Analytic Method- used to analyze information found on the information sourced identified in Chart 1. Synthetic Method- triangulation of all sources to avoid bias during its synthesis. Qualitative Method- Written information analysis.	<ul style="list-style-type: none"> • Communication management plan template • Communication matrix • Microsoft word • Expert judgement 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p> <p>Interview needs to be based on availability of the interviewee.</p>
8. To develop a Risk Management Plan that delineates how risk management activities for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be structured and performed.	Risk Management Plan	Primary: meeting with Board or Directors and Centre Director. Interview with an NGO. Secondary: PMBOK® Guide, 6 th edition, 2017 and Relevant website	Analytic Method- used to analyze information found on the information sourced identified in Chart 1. Synthetic Method- triangulation of all sources to avoid bias during its synthesis. Qualitative Method- Written information	<ul style="list-style-type: none"> • Risk management plan template • Risk register template • Risk checklist • Microsoft word • Expert 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p> <p>Interview needs to be based on availability of the</p>

			analysis.	judgement	interviewee.
9. To create a Procurement Management Plan that describes how external goods and services for the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies will be acquired.	Procurement Management Plan	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an NGO.</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> • Procurement management plan template • Microsoft word • Expert judgement 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p> <p>Interview needs to be based on availability of the interviewee.</p>
10. To prepare a Stakeholder Engagement Plan that identifies the necessary strategies and actions for productive involvement of stakeholders in decision making and execution of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies.	Stakeholder Engagement Plan	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an NGO.</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> • Stakeholder management plan template • Stakeholder analysis chart • Stakeholder engagement assessment matrix • Microsoft 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p> <p>Interview needs to be based on availability of the interviewee.</p>

				<ul style="list-style-type: none"> word Expert judgement 	
<p>11. To develop an analysis which determines whether the implementation, maintenance and operation of the design, construction, and equipment of the Baltazar's Healing Centre Project using sustainable energy technologies is in compliance with principles of regenerative and sustainable development for the purpose of supporting and promoting sustainability considerations of the project.</p>	<p>Sustainable and Regenerative Development analysis</p>	<p>Primary: meeting with Board or Directors and Centre Director. Interview with an architecture.</p> <p>Secondary: PMBOK® Guide, 6th edition, 2017 and Relevant website</p>	<p>Analytic Method- used to analyze information found on the information sourced identified in Chart 1.</p> <p>Synthetic Method- triangulation of all sources to avoid bias during its synthesis.</p> <p>Qualitative Method- Written information analysis.</p>	<ul style="list-style-type: none"> Microsoft word Expert judgement 	<p>Limited time on the Project Manager to create the document.</p> <p>Limited resources available within recent research.</p>

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

The Baltazar's Healing Center is taking the approach of the Sustainable Development Goals. Its emphasis is on goals three, four, seven, nine and eleven of the 2030 Agenda for Sustainable Development. The Baltazar's Healing Center will run its operations in accordance with sustainable energy technologies that will contribute to a more friendly environment without compromising it. Furthermore, the services that the Baltazar's Healing Center will provide are geared to developing a resilient society that is inclusive. The aim of the Center is to strengthen the mental health and well-being of the citizens of Belize through psycho-pedagogical and psychological services. Moreover, it will promote lifelong learning and provide early diagnosis and prevention to better aid children in their formal education and equip educators to be able to refer children at an early stage and as well to have continuity of treatment in the formal educational settings. The Center is also focused on other aspects to assist vulnerable groups and create more inclusive societies.

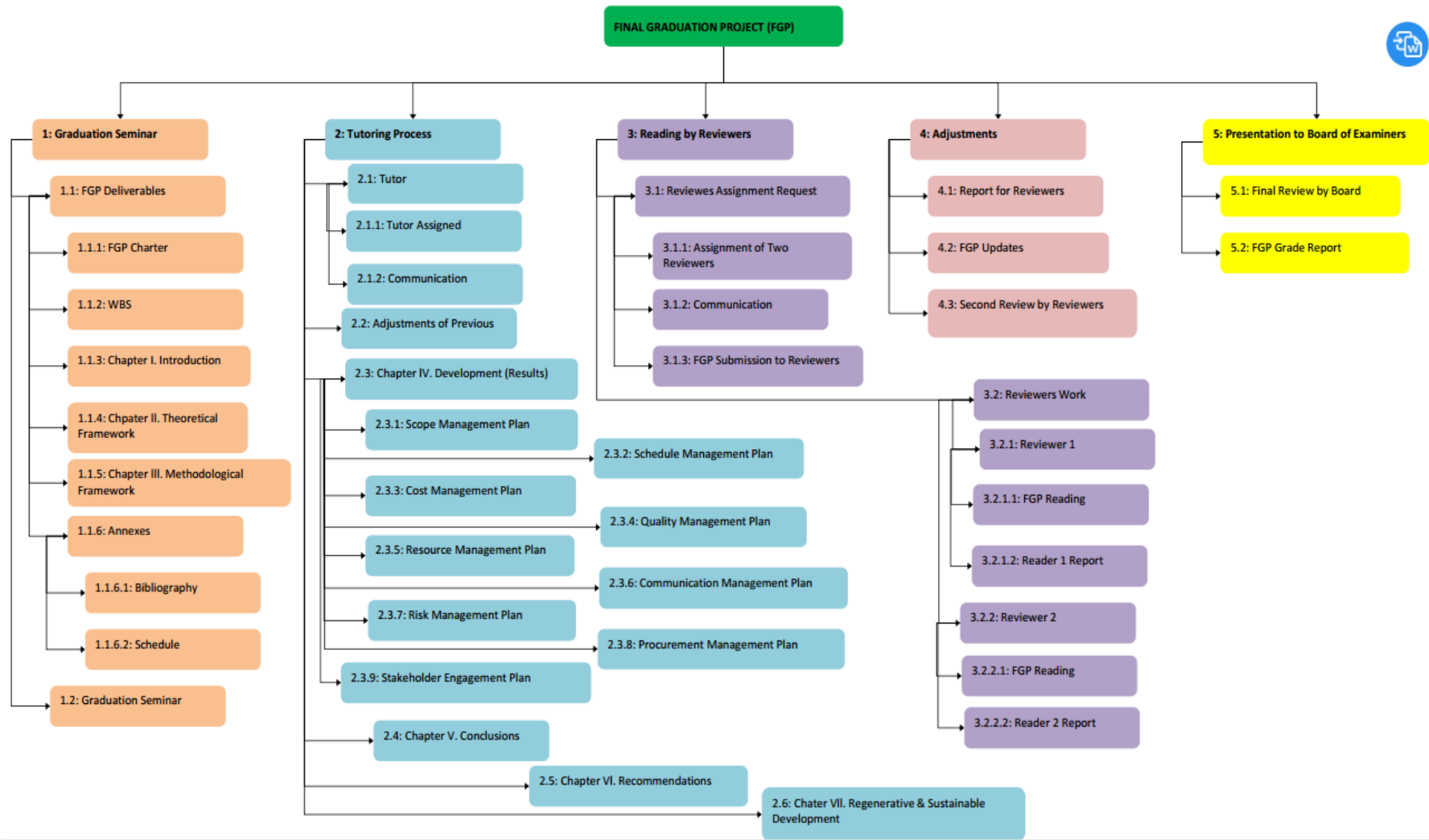
The goal will be measured by outcomes such as studies that the Center will embark on and the achievement success of children at school or any objective that the client sets to achieve. Also, a reduction of the percentage of non-communicable disease is expected with early intervention and prevention. Furthermore, communities will demonstrate inclusive and peaceful societies.

Appendix

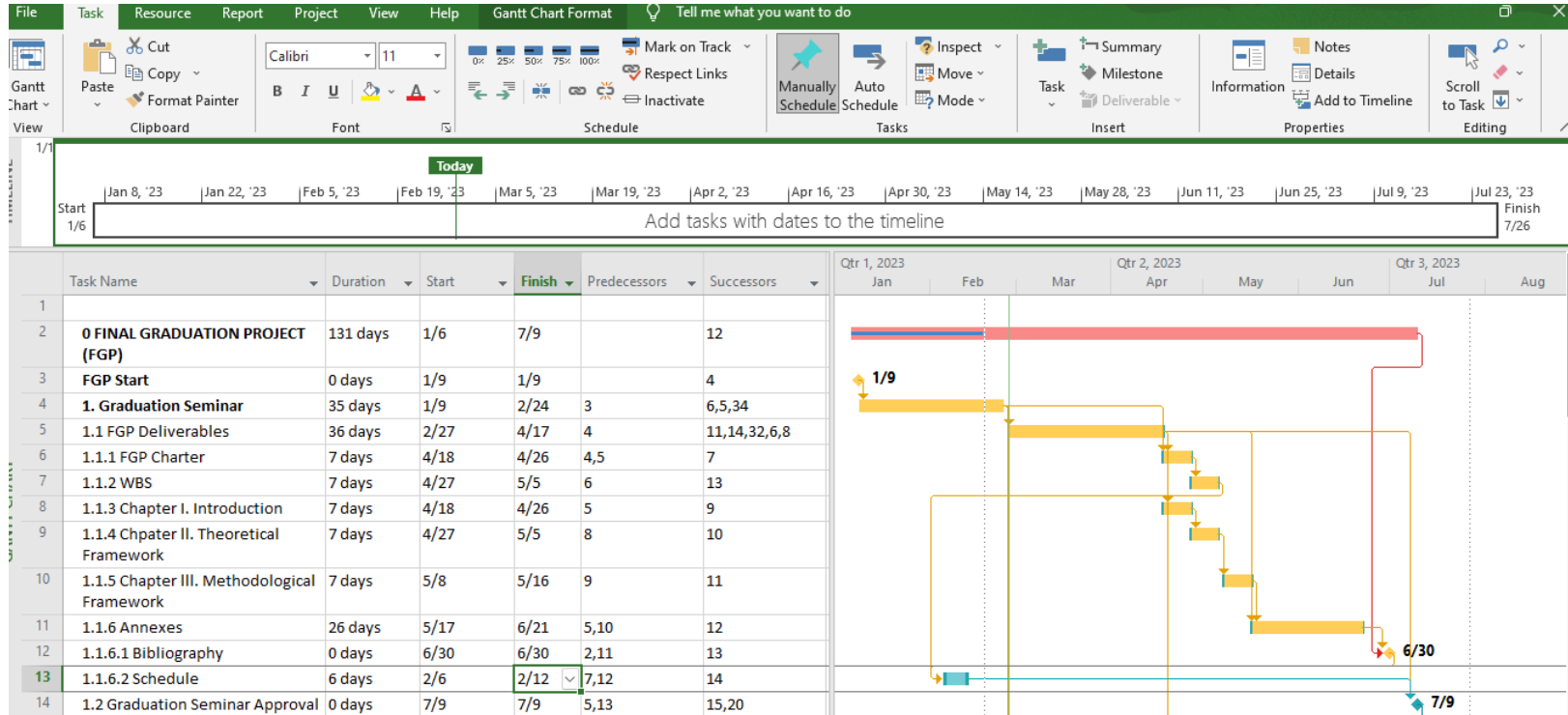
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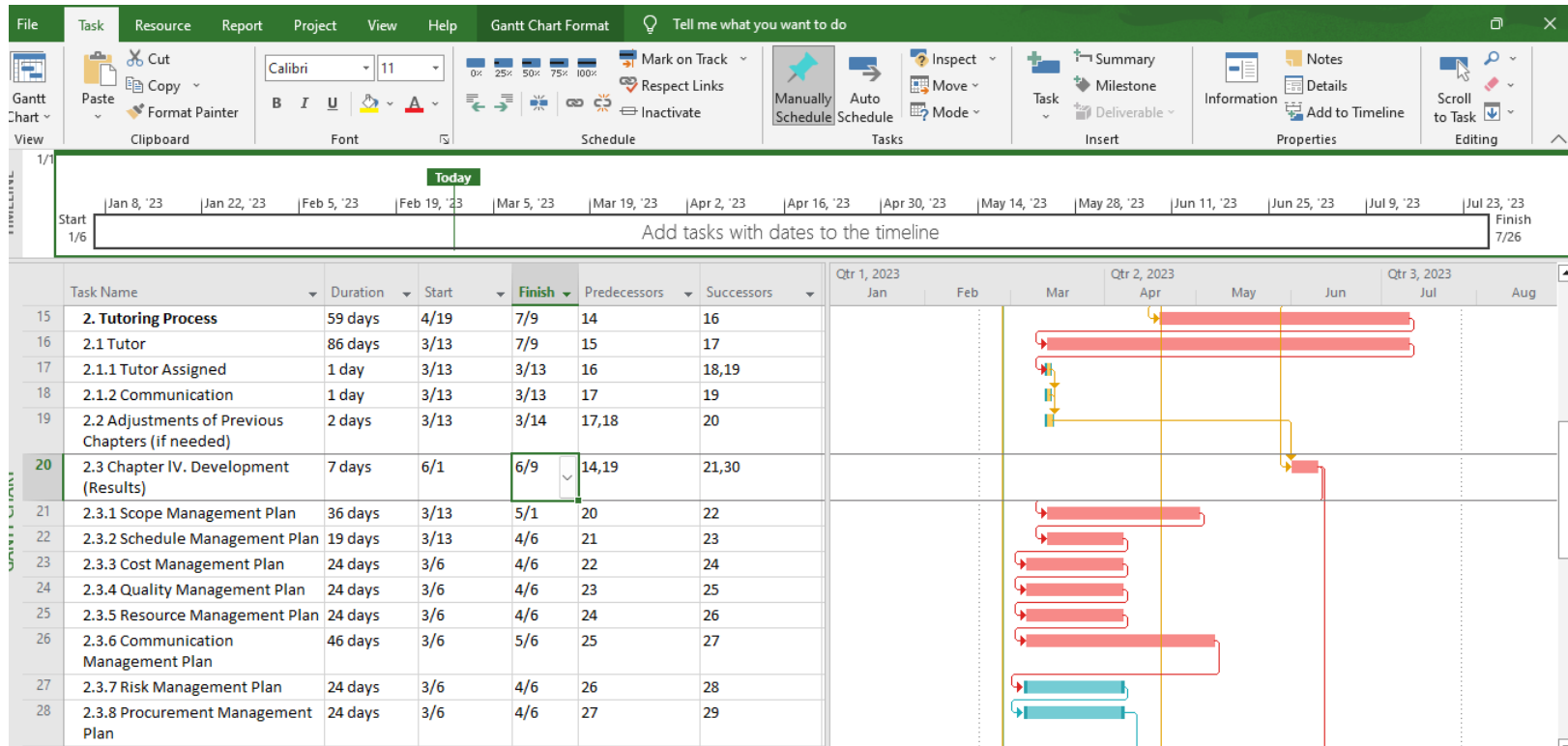
FGP

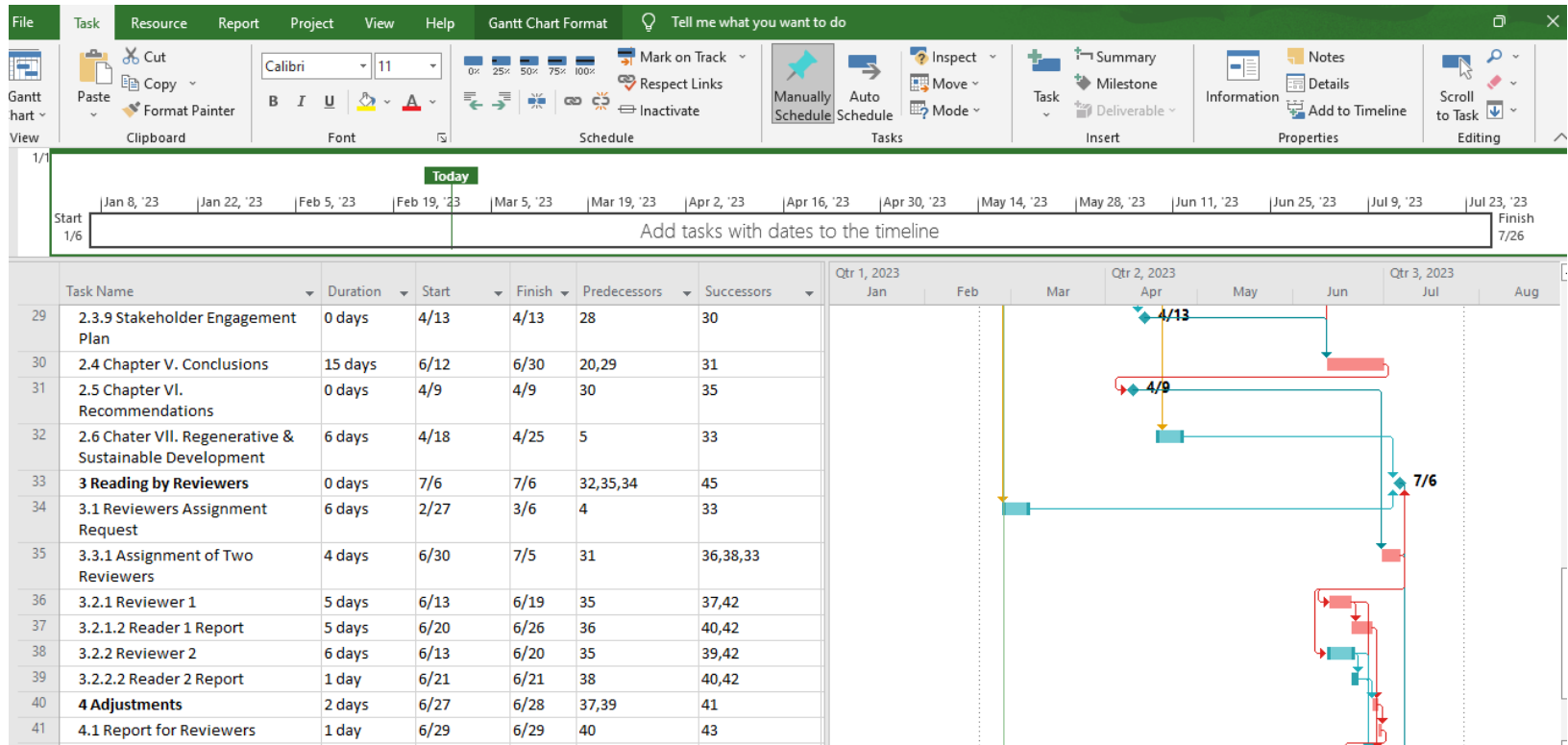
WBS



Appendix 3: FGP Schedule







42	4.2 FGP Updates	1 day	6/27	6/27	36,37,38,39	44
43	4.3 Second Review by Reviewers	9 days	6/23	7/5	41	44
44	5. Presentation to Board of Examiners	1 day	7/6	7/6	42,43	45
45	5.1 Final Review by Board	1 day	7/7	7/7	44,33	46
46	5.2 FGP Grade Report	11 days	7/11	7/25	45	47
47	FGP END	1 day	7/26	7/26	46	

Ready - New Table - Manually Scheduled

Appendix 4: Preliminary bibliographical research

Aaltola, K. (2017). *Project Management Handbook*. Laurea Julkaisut 76

ADEACA. (2020, August 18). What is the Project Lifecycle?. ADEACA. Retrieved from

<https://www.adeaca.com/blog/faq-items/what-is-the-project-lifecycle/>

Analytical techniques. In: ManagementMania.com [online]. Wilmington (DE) 2011-2023,

02/14/2017 [cit. 02/11/2023]. Available at:

<https://managementmania.com/en/analyses-analytical-techniques>

Anzalone, P. (2016). Synthetic Research. Columbia University Graduate School of Architecture.

http://papers.cumincad.org/data/works/att/acadia06_230.content.pdf

Aston, B. (2022, December 16). What is The Project Life Cycle: The 5 Phases & Why It's

Still Important. dpm. Retrieved from

<https://thedigitalprojectmanager.com/projects/pm-methodology/project-management-life-cycle/>

Association for Project Management. (2019). APM Body of Knowledge- seventh edition.

Association for Project Management.

Basics of Project Planning. (2015). SouRav.

Bhat, A. (n.d.). Qualitative Research Methods: Types & Examples. QuestionPro.

<https://www.questionpro.com/blog/qualitative-research-methods/>

Bhandari, P. (2023, January 30). What Is Qualitative Research? Methods & Examples.

Scribbr. <https://www.scribbr.com/methodology/qualitative-research/>

Carboni, J., Duncan, W., Gonzalez, M., Milsom, P., & Young, M. (2018). Sustainable

Project Management: The GPM® Reference Guide Second Edition. GPM Global 2018.

DFC. (n.d.). Energy Efficiency Technologies. DFC.

<https://www.dfcbelize.org/energy-efficiency-technologies/>

Fokaides, P., Apanaviciene, R., Černeckiene, J., Jurelionis, A., Klumbyte, E., Kriauciunaite-Neklejonoviene, V., Pupeikis, D., Rekus, D., Sadauskiene, J., Seduikyte, L., Stasiuliene, L., Vaiciunas, J., Valancius, R., & Ždankus, T. (2020). Research Challenges and Advancements in the field of Sustainable Energy Technologies in the Built Environment. *Sustainability* 2020, 12(20), 2-20. <https://doi.org/10.3390/su12208417>

Gemino, A., Reich, B. H., & Serrador, P. M. (2021). Agile, Traditional, and Hybrid Approaches to Project Success: Is Hybrid a Poor Second Choice? *Project Management Journal*, 52, 161–175. doi:<https://doi.org/10.1177/2F8756972820973082>

Hassan, M. (n.d.). Methodologica Framework-Examples, Guide. Research Methods. Net. <https://researchmethod.net/methodological-framework/#sidr-main>

Hernandez, J. & Perez, A. (2016). A Review of Research Methods in Strategic Management; What Have Been Done, and What is Still Missing. *Scientific Papers* 2016, 5(2), 1-42. <https://d1wqtxts1xzle7.cloudfront.net>

Hexagon. (n.d.). Construction Project Management: Definition, Processes, and More. HEXAGON EcoSys™. <https://www.ecosys.net/knowledge/construction-project-management/>

John Hopkins... (2021, July 2). Renewable Energy vs Sustainable Energy: What's the difference?. John Hopkins School of Advance International Studies. <https://energy.sais.jhu.edu/articles/renewable-energy-vs-sustainable-energy/>

Lalmi, A., Fernandes, G., & Souad, S. (2021). A Conceptual hybrid Project Management Model for Construction Projects. *Procedia Computer Science*, 181,921-930. <https://doi.org/10.1016/j.procs.2021.01.248>

Librarian, FIU. (2023, February 3). Research: How- Information Literacy Toolbox: Sources of Information. FIU.EDU. <https://library.fiu.edu/infolit/sources>

Martinez, R. (2018, March 19). The sources of information and its evaluation. School of Authors Comuncar. <https://doi.org/10.3916/school-of-authors-066>

Malsam, W. (2022, November 2). Project Assumptions: A Quick Guide. PM Project Manager. <https://www.projectmanager.com/blog/project-assumptions>

McMeekin, N., Wu, O., Germen, A., Briggs, A. (2020). How methodological frameworks are being developed: evidence from a scoping review. *BMC Med Res Methodol* **20**, 173. <https://doi.org/10.1186/s12874-020-01061-4>

Mishra, S., & Alok, S. (2017). Handbook of Research Methodology: A Compendium for Scholars & Researchers. Educreation Publishing, New Delhi.

Pattern, M, Newhart, M. (2018). Understanding Research Methods An Overview of the Essentials- Tenth Edition. Routledge

PAHO. (2018). The Burden of Mental Disorders in the Americas: Country Profile. PAHO. https://www.paho.org/sites/default/files/2020-09/MentalHealth-profile-2020%20Belize_Country_Report_Final.pdf

Pratt, M. (n.d). Project Management. TechTarget, CIO. Retrieved from <https://www.techtarget.com/searchcio/definition/project-management>

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

Project Management Guide 2020. (2020). FI in Schools. Educational Foundation Project Management Institute.

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

Project Management Guide. (n.d.). What Are Project Management Tools. Project Management Guide. <https://www.wrike.com/project-management-guide/>

Shultis, G. (2019, August 29). *Agile vs. Waterfall: Pros & Cons, Use Cases & More.*

- Sharma, T. (2017). Analytical Method. Slide Share.
<https://www.slideshare.net/DrTriptiSharma/analytical-method>
- Tabassi, A., Argyropoulou, M., Roufechaei, K., & Argyropoulou, R. (2016). Leadership Behavior of Project Managers in Sustainable Construction Projects. *Procedencia Computer Science*, 100, 724-730.
<https://doi.org/10.1016/j.procs.2016.09.217>
- The Conceptual Framework. (2006). College of Education. Alabama State University;
 Drafting an Argument. Colorado State University.
<https://library.sacredheart.edu/c.php?g=29803&p=185919>
- Tomassini, M. (2020, August 25). 5 ways Covid-19 is affecting children in Belize and how UNICEF is helping. UNICEF Belize.
<https://www.unicef.org/belize/stories/5-ways-covid-19-affecting-children-belize>
- Transforming Our World: The 2030 Agenda for Sustainable Development (n.d.)
 Transforming Our World: The 2030 Agenda For Sustainable Development. United Nation.
<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
- Vinz. S. (2022, October 14). What Is a Theoretical framework? Guide to Organizing. Scribbr. <https://www.scribbr.com/dissertation/theoretical-framework/>
- Wang, C.-H., Zhao, D., Tsutsumi, A. and You, S. (2017). Sustainable energy technologies for energy saving and carbon emission reduction. *Applied Energy*, 194, pp. 223-224.

Appendix 5 Performance Matrix Rating Scale

Bidder	Product Quality	On Time Delivery	Documentation Quality	Development Costs	Development Time	Cost Per Unit	Transactional Efficiency
Bidder 1							
Bidder 2							
Bidder 3							

Appendix 6 Philological Dictum

1 Valencia Street
City of Belmopan
Cayo District
Belize

27th June 2023

Academic Advisor
Master's Degree in Project Management
Universidad para la Cooperacion Internacional

Dear Academic Advisor,

Re: Philosophical Review of Final Graduation submitted by Armin Adiel Cardenas in partial fulfillment of the requirements for the Master's in Project Management Degree.

I hereby confirm that Armin Adiel Cardenas has made all required corrections and improvements suggested to the project entitled "PROJECT MANAGEMENT PLAN FOR THE DESIGN, CONSTRUCTION AND EQUIPMENT OF THE BALTAZAR'S HEALING CENTRE PROJECT USING SUSTAINABLE ENERGY TECHNOLOGIES." document as I have recommended. In my judgement, the document meets the literary and linguistic standards required of a student studying for a degree at the Master's level.

Yours sincerely,

Cecile M. Ramirez
Miss Cecile Ramirez M. Ed.



Appendix 7 Philologist's Credentials

University of North Florida

has conferred on

Cecile Maxine Ramirez

the degree

Master of Education

Secondary Education

and all the rights and privileges thereunto appertaining.

*In Witness Whereof, this diploma, duly signed, has
been issued and the seal of the University affixed.*

*Issued by the Board of Trustees upon the recommendation of the Faculty of the
College of Education and Human Services at Jacksonville, Florida, this second day of August, A. D. 2002*

Jet Ruse
Governor



June H. Hopkins
President

Katherine Goston
Dean