UNIVERSIDAD PARA LA COOPERACIÓN INTERNACIONAL

(UCI)

# Project Management Plan for the Medical SARS-CoV-2 Response Project in San Ignacio, Belize

Fidel Luciano Cuéllar

FINAL GRADUATION PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

MASTER'S IN PROJECT MANAGEMENT (MPM) DEGREE

San Ignacio, Belize

January, 2021

UNIVERSIDAD PARA LA COOPERACIÓN INTERNACIONAL

(UCI)

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

Ing. Luis Diego Argüello Araya, MAP, PMP

TUTOR

Xavier Salas Ceciliano

REVIEWER No.1

Carlos Brenes Vega

REVIEWER No.2

Fidel Luciano Cuéllar

STUDENT

## DEDICATION

A journey, just shy of four years, has now come to an end. It started with an acceptance to the MSc. Public Health Nutrition programme of the University of Technology, Jamaica and has now ended with a Master's in Project Management from the Universidad para la Cooperación Internacional. However, the quest was not merely the conquest of two master's degrees; it resulted in a path to self-awareness and self-reckoning. Tony Robbins has said that "To succeed… you need to find something to hold on to, something to motivate you, something to inspire you."

These four years has taught me to hold on to my faith, especially when life got rough, work got hard, studies got grueling, and time with my family got scarce.

My motivation came from my love of learning. I had forgotten what that felt like, but now that passion for knowledge keeps me focused and sharp.

My wife has been my greatest inspiration on this journey. It was during this time that she was diagnosed, treated, and is now a cancer survivor. She refused to let cancer limit her life and forbade me to quit, even finding a way to make me excel in that semester. Her fearlessness, love of life, and devotion to her faith continue to inspire me to move forward on God's path.

With this in mind, I dedicate this work to my wife, to my son, to JC and Shera, to my Mom, and my Dad. Individually they are beacons in my life, and together they fortify who I am.

So, a journey that ended just shy of four years has placed me on the starting line of a new life adventure with my wife and God beside me, and I am secure in knowing only good things will follow.

## ACKNOWLEDGMENTS

I would like to thank my tutor Ing. Luis Diego Argüello Araya, whose expertise was invaluable in developing my final graduation project. Your insightful feedback encouraged me to research and present that information in an organized and logical manner, bringing my work to a higher level.

I would also like to thank instructor Sofia Crawford for her guidance and encouragement through a family crisis that I experienced. Your kind words and support will always be remembered and appreciated.

I would like to acknowledge the professors and support staff of the Master's in Project Management programme at the Universidad para la Cooperación Internacional. Their outstanding dedication and professionalism make this course genuinely world-class.

I thank my Mom for her words of encouragement and for always being willing to listen to my ideas, thoughts, and frustrations. I thank my Dad for that fateful conversation that put me on the path to becoming a Project Manager.

Lastly, I would like to thank my wife for her sacrifice and never-ending patience during these years of study. There is absolutely no way that I could have ever accomplished this without you beside me, thank you.

## INDEX OF CONTENTS

## INDEX OF FIGURES

## INDEX OF CHARTS

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| • BDF | Belize Defense Force |
| • BZE | Belize |
| • CDC | Center for Disease Control and Prevention |
| • COVID-19 | Coronavirus Disease 2019 |
| • CPI | Cost Performance Index |
| • CV | Cost Variance |
| • EVM | Earned Value Management |
| • FEMA | Federal Emergency Management Agency |
| • FGP | Final Graduation Project |
| • GOB | Government of Belize |
| • IAP | Incident Action Plan |
| • ICS | Incident Command System |
| • N/A | Not Applicable |
| • NEMO | National Emergency Management Organization |
| • PAHO | Pan American Health Organization |
| • PMBOK® | Project Management Book of Knowledge |
| • SARS-CoV-2 | Severe Acute Respiratory Syndrome Coronavirus 2 |
| • SPI | Schedule Performance Index |
| • SV | Schedule Variance |
| • WBS | Work Breakdown Schedule |
| • WHO | World Health Organization |

## EXECUTIVE SUMMARY (ABSTRACT)

The novel Coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), was declared a pandemic on March 11, 2020, by the World Health Organization (*Timeline of WHO's response to COVID-19*, 2020). The virus has since spread globally at an alarming rate, inundating health agencies' medical resources worldwide. Belize declared a national state of emergency on April 1, 2020 (*Health Alert: Belize, State of Emergency for Next 30 days.*, 2020) to mitigate the virus's spread in Belize.

The structure of the Ministry of Health in Belize did not allow for an effective plan to be developed and implemented in its SARS-CoV-2 response. The national SARS-CoV-2 response had been somewhat effective in containing the pandemic's spread but lacked immensely in harnessing resources, identifying risks, and having a formal, detailed, planned response.

Therefore, this project aimed to create a Project Management Plan for the medical response, which included the SARS-CoV-2 Field Hospital Project. This plan would follow project management knowledge areas, techniques, and tools to provide a clear understanding of the scope, objectives, budget, and resource and stakeholder management of the project, allowing for a greater chance of success in the project's execution.

The Final Graduation Project's general objective was to develop a Project Management Plan for the Medical Response to SARS-CoV-2 Project to set up a field hospital capable of managing 30 COVID-19 positive patients within two weeks of project initiation. The specific objectives were to create the Project Charter in order to define the critical input elements to the develop the Project Management Plan; to create a Project Plan to establish a baseline plan for the project which can then be used to assess the time performance of the project; to create a Financial Plan to list the costs that are likely to be incurred on the project, and a timeframe of when those expenses would occur; to create a Quality Plan to ensure the customer that the quality targets for the project will be met; to create a Resource Plan to identify the physical resources that would be required to complete the project; to create a Communications Plan to ensure that relevant information is disseminated to the appropriate stakeholders in a timely manner; to create a Risk Plan to identify the foreseeable project risks and to provide actions to manage those risks; to create a Procurement Plan to identify the outsourcing needs of the project and to define the selection process of the project suppliers; to create a Stakeholder Plan to identify all entities involved and to determine how they could impact the project, or how they could be affected by the project.

An analytical methodology was used in researching for this project. First and second-hand information sources were gathered and analyzed to determine how project management knowledge areas, processes, and techniques could be applied to the medical response project.

The conclusions for the SARS-CoV-2 Field Hospital Project indicated that this government-sponsored project required project management areas of knowledge, tools,

and techniques to ensure project success. By structuring the project in this fashion, all the key areas were developed and adequately documented. This process highlighted the deficit and need for the Ministry of Health and the Ministry of Transport and NEMO (National Emergency Management Organization) to adopt project management methodologies to their projects and to implement processes to protect project scope and the procurement process, both of which were at high risk of failure; the first because of outside interference and the second because without proper processes it opened the door to corrupt practices. Following project management methodologies, the SARS-CoV-2 Field Hospital project would become accountable, transparent, and with a clear purpose.

The recommendations for the SARS-CoV-2 Field Hospital Project reflected the need for the Ministry of Health and the Ministry of Transport and NEMO to adopt project management methodologies. The Ministries would see immediate value to their projects should they hire competent Project Managers and would even benefit from having their managers earn a Certified Associate in Project Management (CAPM)®. Furthermore, the Government of Belize should consider implementing a Project Management Office that would provide services to all ministries and different government branches. Such an investment would add value to all projects and undertakings, save money, increase the chances for project success, promote transparency, and standardize the processes and documentation associated with projects within the government.

# 1. INTRODUCTION

## 1.1. Background

Belize is an English-speaking Central American country with a land territory of 22,965 $km^2$, divided into six districts, and an estimated population of 408,000 (Government of Belize, n.d.-a). The Ministry of Health has also divided the country into four regions to provide health care services in a structured manner to the general population (Government of Belize, n.d.-b). Each of these health regions is unique in geographical location and the population they serve. The Northern Health Region has a border with Mexico at her most northern border, Chetumal. The Central Health Region is by the Caribbean Sea and is home to the Belize International Airport. The Western Health Region has Guatemala at its most Western Border, and the Caribbean Sea flanks the Southern Health Region to the East and Guatemala to its Western and Southern borders.

On March 23, 2020, Belize announced its first SARS-CoV-2 case (Government of Belize, 2020a). Shortly after that, it reported the fourth SARS-CoV-2 case that started a cluster in San Ignacio of the Western Health Region (Government of Belize, 2020b). As a result, the San Ignacio Community Hospital management was charged with mounting a medical response to the SARS-CoV-2 infections in the area.

## 1.2. Statement of the Problem

Each Health Region, because of its uniqueness, has been allowed to operate within a set of guidelines described by the Public Service Regulations (Belize Public Service, 2014). Although there are generally agreed on processes, they are not standardized and can be a part of a health region's makeup or not. Managers and department heads are usually left to design work processes independently or use generic templates, many of whom do not have the training or experience to plan or execute those templates.

The presence of SARS-CoV-2 in the country has only highlighted this deficit as many hospitals and clinics have been left to design and mount a medical response to SARS-CoV-2, mostly on their own. Those at the San Ignacio Hospital are restricted with resources, financing, and expertise on planning and preparing the necessary documents

to mount a medical response considering all those processes that are a part of Project Management.

The structure used by Project Management, along with the areas of knowledge and processes described in the Project Management Book of Knowledge (PMBOK®), would provide managers a plan to effectively execute an appropriate response to the SARS-CoV-2 pandemic they are now facing.

### 1.3. Purpose

This endeavor aims to create a Project Management Plan for the medical response to SARS-CoV-2 Project. The document that will be created will serve as a blueprint on how to approach the response project. Faced with the reality that the Ministry of Health does not have a structure on how the response should be developed, this document will provide a significant opportunity for success. The expected benefits of this project will include:

- A clear understanding of the scope of the response projects, so that scope creep does not occur.
- Established objectives, goals, milestones, and respective deadlines of the response project, ensuring that the project stays on track.
- A realistic budget with guidelines on how the finances will be tracked and spent so that the project does not go over budget.
- The integration of quality control measures, ensuring the quality of the outputs for the medical response project.
- The frugal management of already limited resources of the Ministry of Health.
- The inclusion of all stakeholders, encouraging their ownership of the response project.
- The understanding of the risks to the success of the project and preparing adequately for them.
- An increased chance for the successful execution of the project.

### 1.4. General Objective

To develop a Project Management Plan for the Medical Response to SARS-CoV-2 Project to set up a field hospital capable of managing 30 COVID-19 positive patients within two weeks of project initiation.

### 1.5. Specific Objectives

1. To create a Project Integration Management plan to coordinate all elements of the project and allow for any change control that may be required.
2. To create a Project Scope Management plan that will define what is included and what is excluded from the project.
3. To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets.
4. To create a Project Cost Management Plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur.
5. To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met.
6. To create a Project Resource Management plan to identify the physical resources required to complete the project.
7. To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders.
8. To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage those risks.
9. To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers.
10. To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be

affected by the project.

# 2. THEORETICAL FRAMEWORK

## 2.1. Company/Enterprise Framework

### 2.1.1. Company/Enterprise Background

The Ministry of Health of Belize began a reformation that included the expansion of the Social Security services, which encompassed workers' coverage for sick and injury benefits. At the same time, there were critical structural changes to the Ministry of Health, which saw the identification of the four health regions, the formalization of the Karl Heusner Memorial Hospital becoming the national referral hospital, and the development of the Policy Analysis and Planning Unit (Pan American Health Organization, 2009). These developments allowed for the foundation and structure of what is now the Ministry of Health.

### 2.1.2. Mission and Vision Statements

The Ministry of Health, Belize is committed to working with relevant partners and stakeholders to benefit the general population. The medical response to the SARS-CoV-2 plan embraces these values. It seeks to engage the National Emergency Management Organization (NEMO), the local government, and others to ensure a comprehensive response to the SARS-CoV-2 pandemic. The mission and vision of the Ministry of Health are as follows:

#### 2.1.2.1. Mission

“The Ministry of Health will engage partnerships through innovative and collaborative efforts that will support the provision of effective services geared towards the wellness of the population and national development” (Ministry of Health Belize, 2014, p. 9).

#### 2.1.2.2. Vision

“The health sector envisions a healthy empowered, productive population supported by an effective network of quality services and effective partnerships for wellness” (Ministry of Health Belize, 2014, p. 9).

### 2.1.3. Organizational Structure

The Head of the Ministry of Health is the Minister of Health, an elected member of the House of Representatives who has been appointed by the Governor-General on the advice of the Prime Minister (National Assembly of Belize, n.d.). The Minister of Health is then at liberty to choose his Chief Executive Officer to direct the Ministry's policies and finances. The Director of Health Services, an established Public Servant, is then responsible for the Ministry of Health's operations. The director's responsibilities include the management of regional operations and hospital services country-wide.

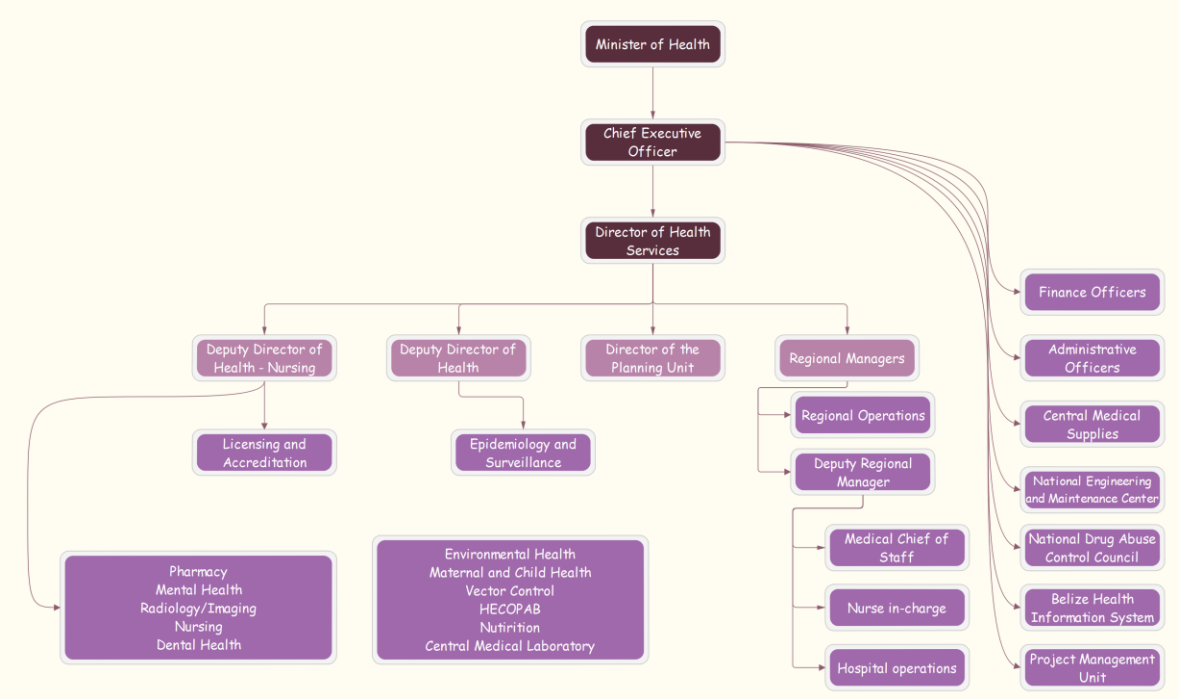



Figure 1. The Organizational Structure of the Ministry of Health, Belize (Source: Compiled by the Author)

### 2.1.4. Products Offered

The Ministry of Health provides a wide array of services, including hospital and clinic-based services such as medical, nursing, imaging, pharmaceutical, and medical laboratory. The ministry also provides nonclinical based services such as epidemiology, Public Health, Health Education, Health Policy, Licensing and Accreditation, and a Drug Inspectorate division (Government of Belize, n.d.b). All these services are geared towards ensuring acute and chronic illnesses are appropriately cared for and that the broader

public health safety is also protected.

## 2.2. Project Management Concepts

### 2.2.1. Project

The PMBOK® Guide 6th edition defines a project as a temporary endeavor undertaken to create a unique product, service, or result (Project Management Institute, 2017, p. 542). Temporary indicates that there is a defined end to the project. This is important because although some projects may take years to complete, there must be a clear definition of the close of the endeavor to be identified as a project.

An endeavor can be defined as a strenuous effort (Dictionary.com, 2020a). All projects can then be seen as work or effort strategically placed with a specific goal or intention in mind.

The goal or intention of a project is to create a unique product, service, or result. This means that projects are unique as they are crafted to create something in time and space that will never be duplicated again. Let us say that we were asked to build two identical houses. Even though the houses are identical, the projects would be different as the time of the year of construction will change, the land where they will be built will be different, and even if it were the same crew building both houses, the experience that they gained building the first house would enable them to be more efficient in the way they built the second house, making both projects unique.

### 2.2.2. Project Management

As defined by the PMBOK® Guide 6th Edition, project management is “the application of knowledge, skills, tools, and techniques to project activities to meet project requirements” (Project Management Institute, 2017, p. 542).

Project management will use specialist knowledge, skills, and experience to (Method123, 2018) identify and reduce the level of risk giving the project the best chance for success.

Project management will also employ specialized tools such as registers, planning and modeling software, and document templates to ensure the project's best chance of

success (Method123, 2018).

### 2.2.3. Project Life Cycle

According to the Project Management Institute (2017):

> A project life cycle is the series of phases that a project passes through from its start to its completion. A project phase is a collection of logically related project activities that culminates in the completion of one or more deliverables (p. 547).

A project life cycle can vary depending on the inherent characteristics of the project being described. However, all projects follow a basic format where the project is initiated, where planning occurs, followed by the project's execution, and finally its closure. These logical phases mark the life cycle of any project.

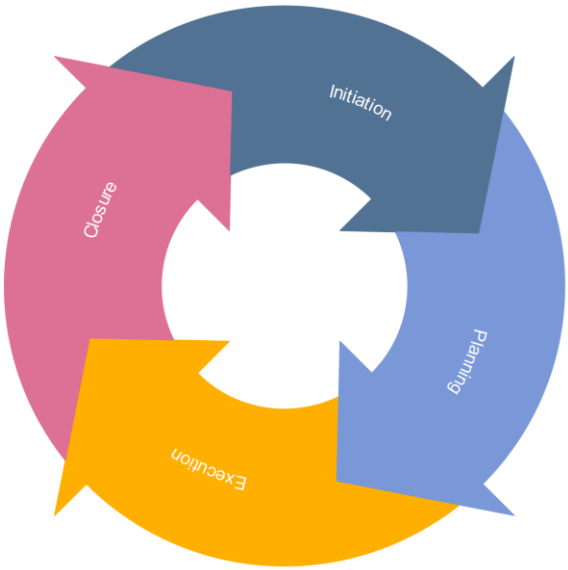



Figure 2. The Basic Project Life Cycle (Source: Compiled by the Author)

### 2.2.4. Project Management Processes

A process can be defined “as a systematic series of actions to some end” (Dictionary.com, 2020, n.p.), “and project management processes are employed to meet project objectives” (Project Management Institute, 2017, p. 554).

There are five process groups, namely initiating, planning, executing, monitoring and controlling, and finally, the closing process group.


Figure 3. The basic PMBOK® Process groups. Reprinted from Biohope, n.d., Retrieved from https://biohope.eu

The Initiating Process Group is the group of processes performed to start a new project or start a new phase of an existing project by obtaining the proper authorization to do so (Project Management Institute, 2017). The Planning Process Group is a group of processes required to establish its scope and objectives (Project Management Institute, 2017).

The Executing Process Group is a group of processes performed to complete the work defined in the project management plan (Project Management Institute, 2017). The Monitoring and Controlling Process Group are the processes required to track, review, and regulate the project's progress and performance (Project Management Institute, 2017). These processes also allow for changes in the plan to occur as needed. The Closing Process Group is the group of “processes performed to formally complete or close a project, phase, or contract” (Project Management Institute, 2017, p. 554).

### 2.2.5. Project Management Knowledge Areas

A Project Management Knowledge Area “is a set of processes associated with a particular topic in project management” (Project Management Institute, 2017, p. 553). Each Knowledge Area represents a complete area of specialization, which includes tools, concepts, and tasks. There are ten knowledge areas, and they encompass a total of forty-nine processes.

The ten knowledge areas as described by the PMBOK® Guide 6th Edition are as follows:

#### 2.2.5.1. Project Integration Management

“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” (Project Management Institute, 2017, p. 69).

#### 2.2.5.2. Project Scope Management

“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” (Project Management Institute, 2017, p. 129).

#### 2.2.5.3. Project Schedule Management

“Project Schedule Management includes the processes required to manage the timely completion of the project” (Project Management Institute, 2017, p. 173).

#### 2.2.5.4. Project Cost Management

“Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget” (Project Management Institute, 2017, p. 231).

#### 2.2.5.5. Project Quality Management

“Project Quality Management includes the processes for incorporating the organization’s quality policy regarding planning, managing, and controlling project quality requirements in order to meet stakeholders’ objectives” (Project Management Institute, 2017, p. 271)

#### 2.2.5.6. Project Resource Management

“Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project” (Project Management Institute, 2017, p. 307)

#### 2.2.5.7. Project Communications Management

“Project Communications Management includes the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of artifacts and implementation of activities designed to achieve effective information exchange” (Project Management Institute, 2017, p. 359).

#### 2.2.5.8. Project Risk Management

“Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project” (Project Management Institute, 2017, p. 395).

#### 2.2.5.9. Project Procurement Management

“Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team” (Project Management Institute, 2017, p. 459)

#### 2.2.5.10. Project Stakeholder Management

According to the Project Management Institute (2017):

> 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 (p. 503).

Each one of the knowledge areas as previously described has different processes that are then grouped into one of the five Project Management process groups (Initiating, Planning, Executing, Monitoring and Control, and Closing) depending on the inherent characteristics of the particular process. For example, the first knowledge area, Project Integration Management, has seven different processes:

1. Develop Project Charter.

2. Develop Project Management Plan.
3. Direct and Manage Project Work.
4. Manage Project Knowledge.
5. Monitor and Control Project Work.
6. Perform Integrated Change Control.
7. Close Project or Phase.

They are each accommodated into one of the five Project Management process groups, and this applies to all of the ten knowledge areas. The figure below demonstrates how the ten knowledge areas' different processes fit into the five process groups that define how a project is planned, executed, monitored, controlled, and ultimately closed.

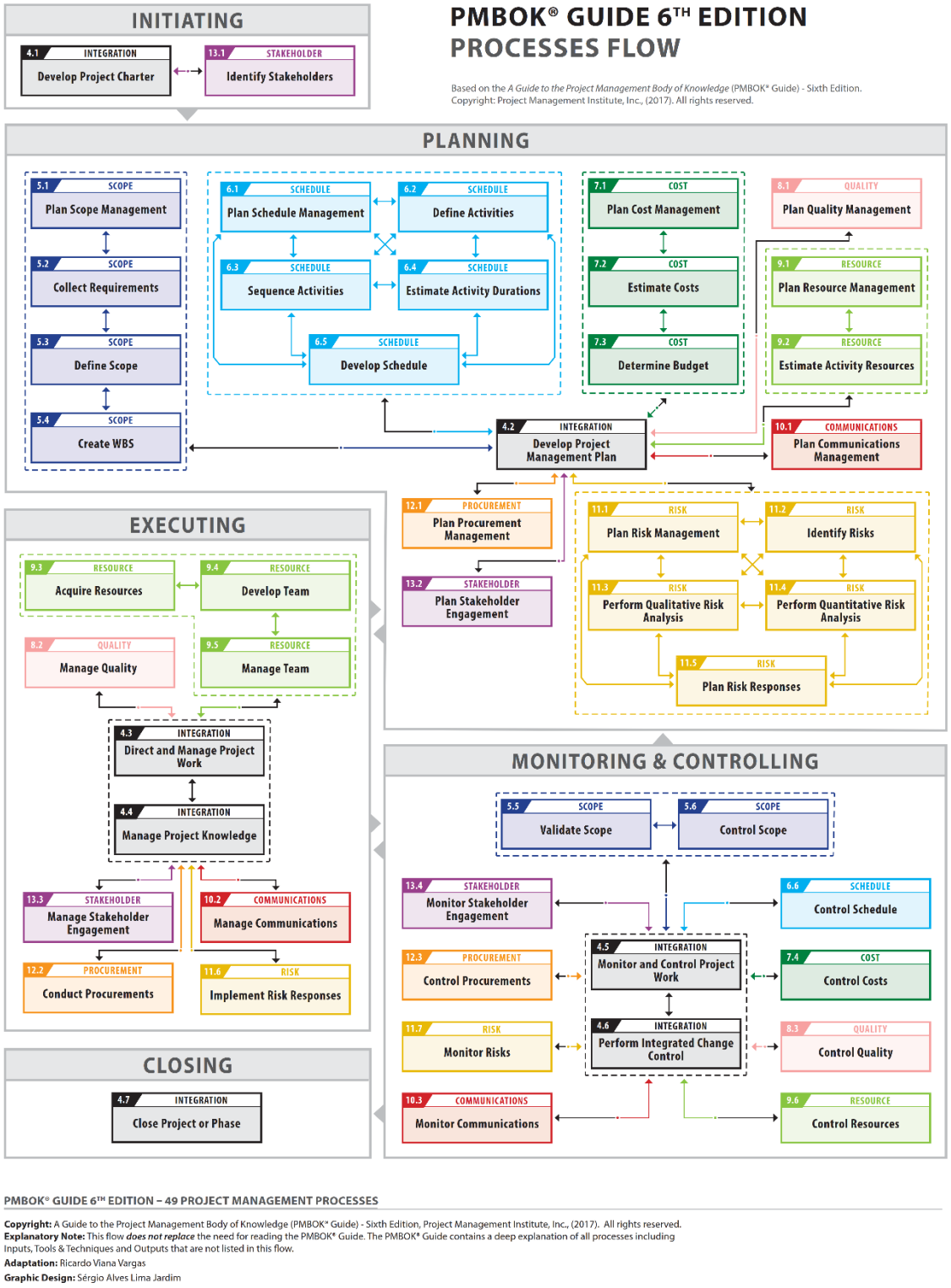



Figure 4. The basic PMBOK® Process groups. Reprinted from Biohope, n.d., Retrieved from https://biohope.eu

## 2.3. The Incident Command System

“The Incident Command System (ICS) was developed in the 1970s following a series of catastrophic fires in California” (FEMA, 2018, p. 15). It was noted that the inadequate response to the disaster did not have to do with the lack of resources or technical expertise. The problem with the response was the response itself, and as such, the concept of the Incident Command System was born.

### 2.3.1. Incident Command System benefits

The Incident Command System (ICS) is a standardized approach to the incident management that can be used for emergencies, allowing for the integration of resources within a common organizational structure (FEMA, 2018). The ICS will benefit incident management efforts by:

- Clarifying the chain of command and supervision responsibilities to improve accountability.
- Leveraging interoperable communications systems and plain language to improve communications.
- Providing an orderly, systematic planning process.
- Implementing a common, flexible, predesigned management structure.
- Fostering cooperation between diverse disciplines and agencies (FEMA, 2018, p.25).

### 2.3.2. Incident Command System Organizational Structure

The Incident Command System (ICS) organizational structure develops in a modular fashion (FEMA, 2018), based on the size and complexity of the incident being addressed. This ICS structure is established by the Incident Commander, responsible for expanding and or subdividing the structure depending on the incident response's complexity.

#### 2.3.2.1. Incident Commander

The Incident Commander is responsible for establishing incident objectives that drive incident operations (FEMA, 2018). The incident objectives established that an Incident

Action Plan (IAP) is then developed. An “IAP is a concise, coherent means of capturing and communicating overall incident priorities, objectives, strategies, tactics, and assignments in the context of both operational and support activities” (FEMA, 2018, p. 52).

### 2.3.2.2. Unified Command

There are incidents, however, that require the resources of various jurisdictions, agencies, or organizations. This occurs when no one organization has the authority or resources to manage the incident independently (FEMA, 2018). In these incidences, there is no single “Commander”; instead, there is a Unified Command system which “allows agencies with different legal, geographic and functional responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability” (FEMA, 2018, p. 64).

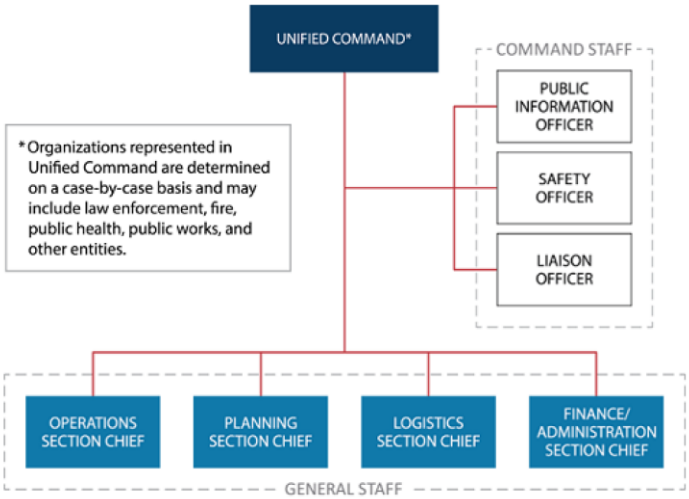



Figure 5. The Unified Command System. Reprinted from An Introduction to the Incident Command System (p 64). 2018, FEMA

An example of the Unified Command System would be the response required to manage a plane crash on a highway. A glance at this incident would identify the Police, Fire, National Security, Aviation, and Medical agencies that would be involved in mounting a rescue response. A Unified Command System approach would mean that each agency's senior officers meet and form the Unified Command under a Unified Commander. Then, based on the required responses, the respective senior officer would order his people into

action. The senior Police would ensure that the Police shut down the highway and re-directs traffic. The senior Fire Chief would instruct his trucks and people to put out any fires caused by the plane crash and remove people from the wreckage. The senior Medical Officer would coordinate paramedics and ambulances to transfer the wounded to waiting for emergency rooms for immediate medical attention.

#### 2.3.2.3. The Incident Command Structure functional areas

The Incident Command Structure Functional Area Descriptions:

- Incident/Unified Command: “Sets the incident objectives, strategies, and priorities, and has overall responsibility for the incident” (FEMA, 2018, p. 79).
- Operations: “Conducts operations to reach the incident objectives. Establishes tactics and directs all operational resources” (FEMA, 2018, p. 79).
- Planning: “Supports the incident action planning process by tracking resources, collecting/analyzing information, and maintaining documentation” (FEMA, 2018, p. 79).
- Logistics: “Arranges for resources and need services to support achievement of the incident objectives” (FEMA, 2018, p. 79).
- Finance/Administration: “Monitors costs related to the incident. Provides accounting, procurement, time recording, and cost analyses” (FEMA, 2018, p. 79).

The last four functional areas make up the general staff in the ICS structure.

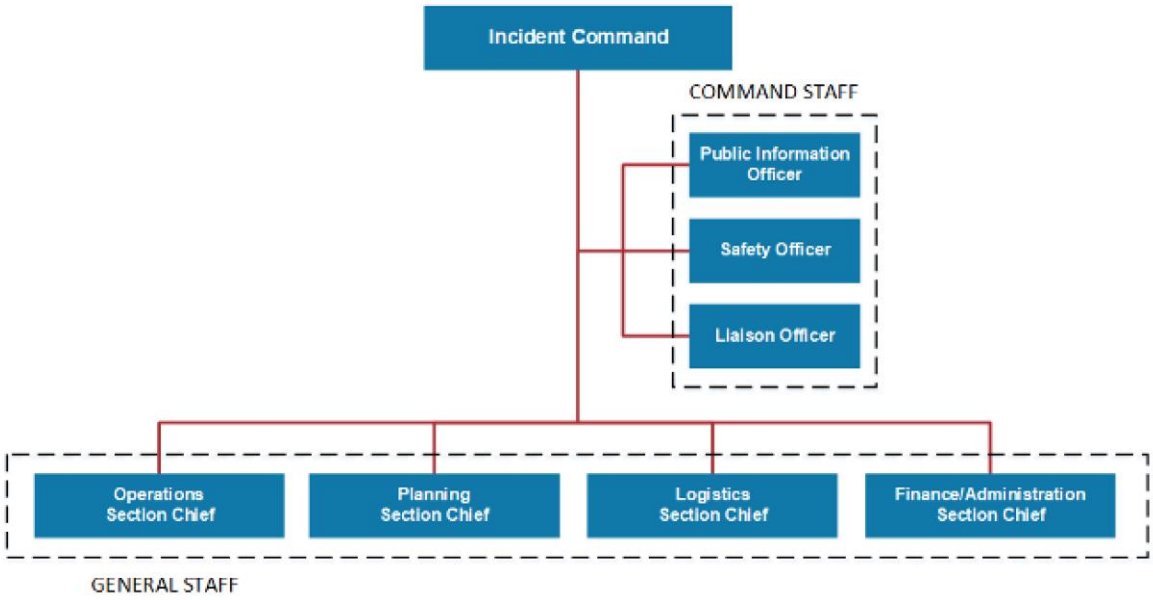



Figure 6. The Unified Command System. Reprinted from An Introduction to the Incident Command System (p 64). 2018, FEMA

The standard Incident Command System organizational structure is shown in the figure above. “The Incident Command, which could be a single Incident Commander or a Unified Command, will lead the effort and, as needed, assign Command Staff and General Staff” (FEMA, 2018, p. 86). The Incident Command System Command Staff comprises of:

- “Public Information Officer, who interfaces with the public and media and/or with other agencies with incident-related information requirements” (FEMA, 2018, p. 98).
- “Safety Officer, who monitors incident operations and advises the Incident Commander on all matters relating to safety, including the health and safety of incident management personnel” (FEMA, 2018, p. 98).
- “Liaison Officer, who serves as the Incident Commander’s point of contact for representatives of governmental agencies, non-governmental organizations, and private-sector organizations” (FEMA, 2018, p. 98).

The Incident Command System uses a flexible command structure to absorb different agencies or response organizations and use its resources and legal jurisdictions under one Unified Command System. It is this system that is so valuable for the response to a

national emergency like the one that is being caused by the pandemic SARS-CoV-2.

# 3. METHODOLOGICAL FRAMEWORK

## 3.1. Information Sources

A source can be defined as “someone or something that supplies information” (Cambridge Dictionary, 2020, s. p.). Of the many types of resources, the primary and secondary sources will be identified for this project.

### 3.1.1. Primary Sources

Primary resources contain first-hand information. First-hand information comes from the author’s account on a specific topic or event that he participated in. Some examples of a primary source include original documents such as interviews and eyewitness accounts, empirical scholarly works such as research articles and clinical reports, and creative works such as poetry and photography (Northcentral University Library, 2020).

### 3.1.2. Secondary Sources

“Secondary sources describe, summarize, or discuss information or details originally presented in another source” (Northcentral University Library, 2020, s. p.). This means that the author did not participate in the event. Some examples of secondary sources include textbooks, magazine articles, and book reviews.

**Chart 1. Information Sources (Source: Compiled by the Author)**

| Objectives | Information Sources | |
|---|---|---|
| | Primary | Secondary |
| To create a Project Integration Management plan to coordinate all elements of the project and allow for any change control that may be required. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master’s in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Scope Management plan that will define what is included and what is | Verbal and written communications with university tutors and subject | PMBOK® Guide 6th Edition.<br>UCI master’s in project management study materials. |

| | | |
|---|---|---|
| excluded from the project. | matter experts. | Project Management websites, articles, and books. |
| To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Resource Management plan to identify the physical resources required to complete the project. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Management Risk plan to identify the foreseeable project risks and to provide actions to | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |

| | | |
|---|---|---|
| manage those risks. | | |
| To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |
| To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project. | Verbal and written communications with university tutors and subject matter experts. | PMBOK® Guide 6th Edition.<br>UCI master's in project management study materials.<br>Project Management websites, articles, and books. |

### 3.2. Research Methods

"Research methods are the strategies, processes or techniques utilized in the collection of data or evidence for analysis in order to uncover new information or create better understanding of a topic" (Northcentral University Library, 2020, n.p.). There are many research methods, including Descriptive vs. Analytical, Quantitative vs. Qualitative, and Conceptual vs. Empirical research (UKEsssays, n.d.).

#### 3.2.1. Analytical Method

"Analytical research is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted" (Reference.com, 2020, s. p.). This research paper is analytical as it seeks to analyze first and second-hand sources regarding project management techniques, processes and knowledge areas and to determine how best this information can be applied to a medical response which traditionally does not employ project management in its operations.

**Chart 2. Research Methods (Source: Compiled by the Author)**

| Objectives | Research Methods |
|---|---|
| To create a Project Integration | The analytical research method will |

| | |
|---|---|
| Management plan to coordinate all elements of the project and allow for any change control that may be required. | determine the most effective tools and techniques to develop a Project Integration Management Plan. |
| To create a Project Scope Management plan that will define what is included and what is excluded from the project. | The analytical research method will determine the most effective tools and techniques to develop a Project Scope Management Plan. |
| To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets. | The analytical research method will determine the most effective tools and techniques to develop a Project Schedule Plan. |
| To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur. | The analytical research method will determine the most effective tools and techniques to develop a Financial Plan. |
| To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met. | The analytical research method will determine the most effective tools and techniques to develop a Quality Plan. |
| To create a Project Resource Management plan to identify the physical resources required to complete the project. | The analytical research method will determine the most effective tools and techniques to develop a Resource Plan. |
| To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders. | The analytical research method will determine the most effective tools and techniques to develop a Communications Plan. |
| To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage those risks. | The analytical research method will determine the most effective tools and techniques to develop a Risk Plan. |
| To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers. | The analytical research method will determine the most effective tools and techniques to develop a Procurement Plan. |
| To create a Project Stakeholder Management Plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project. | The analytical research method will determine the most effective tools and techniques to develop a Stakeholder Plan. |

### 3.3. Tools

A tool is “something tangible, such as a template or software program, used in performing an activity to produce a product or result” (Project Management Institute, 2017, p. 725).

**Chart 3. Tools (Source: Compiled by the Author)**

| Objectives | Tools |
|---|---|
| To create a Project Integration Management plan to coordinate all project elements and allow for any change control that may be required. | Expert judgment<br>Data gathering<br>Interpersonal and team skills<br>Meetings |
| To create a Project Scope Management plan that will define what is included and what is excluded from the project. | Expert judgment<br>Data analysis<br>Meetings |
| To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets. | Expert judgment<br>Data analysis<br>Meetings |
| To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur. | Expert judgment<br>Cost aggregation<br>Data analysis<br>Historical information review<br>Funding limit reconciliation<br>Financing |
| To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met. | Data gathering<br>Data analysis<br>Data representation<br>Audits<br>Problem-solving<br>Quality improvement methods |
| To create a Project Resource Management plan to identify the physical resources required to complete the project. | Expert judgment<br>Bottom-up estimating<br>Analogous estimating<br>Data analysis<br>Project Management information system<br>Meetings |

| | |
|---|---|
| To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders. | Communication technology<br>Communication methods<br>Project Management information system<br>Project reporting<br>Interpersonal and team skills<br>Meetings |
| To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage these risks. | Expert judgment<br>Data gathering<br>Data analysis<br>Prompt lists<br>Meetings |
| To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers. | Expert judgment<br>Advertising<br>Data analysis |
| To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project. | Expert judgment<br>Data gathering<br>Data analysis<br>Decision making<br>Data representation<br>Meetings |

### 3.4. Assumptions and Constraints

An assumption is “a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration” (Project Management Institute, 2017, p. 699). “A constraint is a limiting factor that affects the execution of a project, program, portfolio, or process” (Project Management Institute, 2017, p.701). There are six project constraints as defined by the PMBOK® Guide 6th Edition, which are Scope, Schedule, Cost, Quality, Resources, and Risk.

**Chart 4. Assumptions and Constraints (Source: Compiled by the Author)**

| Objectives | Assumptions | Constraints |
|---|---|---|
| To create a Project Integration Management plan to coordinate all | Primary Source materials will be readily available. | Schedule:<br>There is a two-week |

| | | |
|---|---|---|
| elements of the project and allow for any change control that may be required. | There will be sufficient time to complete the objectives.<br>The Senior Minister of the area has the authority to initiate and sponsor this project.<br>There will be public support for the project.<br>The stadium will be available for the project.<br>There will be relevant political support for this project.<br>The Project Manager has the expertise to design and execute the Project Integration Management Plan.<br>The Project Manager will have the authority and autonomy to execute the Project Integration Management Plan.<br>There will be no outside interference in executing the Project Integration Management Plan. | timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>The stadium will only allow for a maximum of 30 beds.<br>Resources are limited to what NEMO can procure within their organization and the $5,000 BZE budget.<br>Scope:<br>The field hospital is limited to a thirty-bed capacity. |
| To create a Project Scope Management plan that will define what is included and what is excluded from the project. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>There will be political will to respect and complete project scope without interference. | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>The stadium will only allow for a maximum of 30 beds.<br>Resources are limited to what NEMO can procure within their organization and the $5,000 BZE budget. |
| To create a Project Schedule Management | Primary Source materials will be readily available. | Schedule:<br>There is a two-week |

| | | |
|---|---|---|
| plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets. | There will be sufficient time to complete the objectives.<br>Material, financial and human resources will be available before start of project.<br>Technically adept personnel will be available to work on the project.<br>No training will be necessary for project team members to complete their tasks. | timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>Human and material resources can only be procured from public servants, NEMO, and the telecommunications company. |
| To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>There will be political support to meet financial expectations of the project.<br>The project will be initiated at a time of national emergency, allowing for NEMO to access emergency funds.<br>Project estimates represent the true cost of the project.<br>There will not be any increase in prices of materials and services during the state of emergency. | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>Human and material resources can only be procured from public servants, NEMO, and the telecommunications company.<br>Cost:<br>There is a budget of $5,000 BZE to procure items and services not available from NEMO. This budget is flexible. |
| To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>The FEMA standard for field hospitals will be adapted for use in Belize.<br>NEMO managers have experience in quality assurance and quality | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>Technical expertise is limited to NEMO human resources.<br>Quality: |

| | | |
|---|---|---|
| | control, and will participate in ensuring the project's quality targets are met. | Limited to personnel qualifications and experience. |
| To create a Project Resource Management plan to identify the physical resources required to complete the project. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>The SARS-CoV-2 Hospital Field Project will be initiated during a time of national emergency.<br>The Resource Management Plan is designed to be executed within the existing National Emergency Management Organization of Belize policy for its national emergency response.<br>All human resources, except for that required to install the telephone/internet services, will be taken from the pool of government public servants.<br>All equipment and materials, except for miscellaneous items that may not be available, will be procured through NEMO. Those items that are unavailable will be procured through pre-approved government suppliers.<br>NEMO will be able to procure the materials required to execute the project.<br>Vendors will be able to provide the materials, in the quantity and of the quality required to execute the project in a timely | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>The budget for items that are not available through the NEMO network of resources is restricted to $5,000 BZE. This can be flexible.<br>The cost derived from work will only be recorded in hours worked.<br>Except for the staff from the telecommunication service, there will not be any private sector participation. |

| | | |
|---|---|---|
| | manner.<br>The Government of Belize is able to pay vendors for materials and services provided. | |
| To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>Stakeholders are aware of their roles and responsibilities and are highly motivated to complete the project.<br>Project team members respect and follow the Project Manager's lead and authority. | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable. |
| To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage these risks. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>The project team is able to properly identify the most important risks to the project.<br>Potential risks have a realistic response plan. | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable. |
| To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>The procurement requirements will remain unchanged throughout this project.<br>The Government approved suppliers will be interested in and be able to supply the project.<br>The project will be initiated during a time of national | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources<br>The selected suppliers must have local maintenance and support staff in all store regions.<br>Potential solution options are limited by the budget allocated. |

| | | |
|---|---|---|
| | emergency allowing for NEMO to access finances, materials and equipment from any and all ministries as it sees fit to do so. | Only the Project Manager is authorized to make purchases.<br>Cost:<br>There is a budget of $5,000 BZE to purchase materials not available from NEMO resources. |
| To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project. | Primary Source materials will be readily available.<br>There will be sufficient time to complete the objectives.<br>The project team will consist of experienced NEMO managers with the project sponsor being the senior minister for the area.<br>Technical human resources will be available from within the various NEMO Committees.<br>There will not be any outside or political interference to the project.<br>The established chain of command will be respected. | Schedule:<br>There is a two-week timeline for the completion of the project which is firm and non-negotiable.<br>Resources:<br>Human resources can only be taken from NEMO resources or from the pool of public servants. |

### 3.5. Deliverables

"A deliverable is any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project" (Project Management Institute, 2017, p. 704).

**Chart 5. Deliverables (Source: Compiled by the Author)**

| Objectives | Deliverables |
|---|---|
| To create a Project Integration Management plan to coordinate all elements of the project and allow for any change control that may be required. | The Project Integration Management plan. |

| | |
|---|---|
| To create a Project Scope Management plan that will define what is included and what is excluded from the project. | The Project Scope Management plan. |
| To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding budgets. | The Project Schedule Management plan. |
| To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur. | The Project Cost Management plan. |
| To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met. | The Project Quality Management plan. |
| To create a Project Resource Management plan to identify the physical resources required to complete the project. | The Project Resource Management plan. |
| To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders. | The Project Communications Management plan. |
| To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage these risks. | The Project Risk Management plan. |
| To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers. | The Project Procurement Management plan. |
| To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project. | The Project Stakeholder Management Plan. |

# 4. RESULTS

## 4.1. Project Integration Management

“Project Integration Management includes the processes and activities to define, combine, unify and coordinate the various processes and project management activities within the Project Management Process Groups” (Project Management Institute, 2017, p. 69). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Develop Project Charter.
- Develop Project Management Plan.
- Direct and manage Project Work.
- Manage Project Knowledge.
- Monitor and Control Project Work.
- Perform Integrated Change Control.
- Close Project or Phase.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Charter and Project Management Plan were developed using the PMBOK® Guide, 6th Edition as a source, and a template from ©Project Management Docs was used for the structure of the plan.

Project Charter and Project Plan for

SARS-CoV-2 Emergency Field Hospital Project

# Table of Contents

## 1. Executive Summary

The SARS-CoV-2 pandemic has overwhelmed hospitals' medical capacities globally as people get sick quickly and require some degree of hospitalization. Belize has also been affected by the pandemic. Fortunately, due to an early response and closure of her international borders, we have not seen an explosion of cases that require hospitalization. However, this can change at any moment as people continue to enter the country illegally, and the airport is scheduled to soon reopen.

Presently, the San Ignacio Community Hospital can only admit four SARS-CoV-2 patients and is therefore vulnerable to being inundated with patients.

This document defines the Project Charter for the SARS-CoV-2 Emergency Field Hospital Project. It describes the vision, objectives, scope, deliverables, project organization, and implementation approach.

The project's vision is “to provide a temporary field hospital capable of managing 30 mild to moderate SARS-CoV-2 patients”. To accomplish this, the project will produce the following deliverables:

- Signed documents of authorization from key stakeholders.
- The formation of the Incident Command System.
- The outfitting of the Galvez Stadium as a field hospital.
- The provision of vehicles.
- The housing for hospital staff.
- A patient flow and decontamination plan.

## 2. Project Definition

### 2.1 Vision

To provide a temporary field hospital capable of managing 30 mild to moderate SARS-CoV-2 patients.

### 2.2 Objectives

#### 2.2.1 General Objective

To develop a Project Management Plan for the Medical Response to SARS-CoV-2 Project to set up a field hospital capable of managing 30 COVID-19 positive patients within two weeks of project initiation.

### 2.2.2. Specific Objectives

- To secure the required authorizations from key stakeholders to ensure the project's approbation within two days of project initiation.
- To establish an Incident Command System to oversee and run the hospital.
- To outfit the Galvez Stadium as a field hospital capable of housing thirty mild to moderate positive SARS-CoV-2 patients within two weeks of project initiation.
- To provide vehicles to transport patients, hospital, and support staff to and from the field hospital.
- To provide a housing area for the hospital staff for rest and downtime between work shifts.
- To provide a patient flow and decontamination plan to detail field hospital access flow and the decontamination of staff, vehicles, and equipment.

## 2.3 Scope

The following items are considered to be within the scope of this project:

- Outfitting the Galvez Stadium to house 30 mild to moderate SARS-CoV-2 patients.
- The establishment of the Incident Command System.
- The patient flow plan for the hospital.
- The decontamination plan for staff and equipment.
- Vehicles.
- The housing of hospital personnel.

The following items are considered to be outside the scope of this project:

- Burial of bodies.
- Maintenance of buildings or vehicles.
- The running of the hospital.

- The feeding of personnel.
- The closing of the hospital.
- The quarantine of positive but asymptomatic SARS-CoV-2 patients.

### 2.4 Deliverables

**Chart 6. Deliverables (Source: Compiled by the Author)**

| Deliverable | Description |
|---|---|
| Signed documents of authorization from key stakeholders | All required documents that give the authorization for the activation of NEMO and her committees are signed.<br>All required documents give the involved committees authorization to participate in the SARS-CoV-2 Emergency Field Hospital Project signed. |
| Formation of the Incident Command System | The formation and establishment of the team forming the Incident Command System, properly authorized by NEMO and their respective department seniors. |
| Outfitted Galvez Stadium as a field hospital | The placement of hospital cots, dividers, office space, sleeping, and eating areas. Establishment of patient flow in and out of the hospital. |
| The provision of vehicles | The assignment of vehicles for security, transport of personnel, and patients acquired. |
| Housing for hospital staff | The assignment of living areas for staff that will not return home during the time they are assigned to the field hospital. |
| Patient flow and Decontamination Plan | The plan is outlining patient flow and how to decontaminate personnel and equipment when they leave the hospital. |

## 3. Project Organization

### 3.1 Stakeholders

**Chart 7. Stakeholders (Source: Compiled by the Author)**

| Stakeholder / Group | Stakeholder Interest |
|---|---|
| Local National Emergency Management Organization (NEMO) | NEMO is tasked to preserve life in the event of an emergency and mitigate its impact on the country and its people. All members, therefore, have a keen interest in the successful completion of the project. |
| The Commandant of the Belize | The Commandant will have personnel in key positions on the Incident Command System |

| | |
|---|---|
| Defense Force | team. He will have an interest in ensuring his team is being used effectively. |
| The Commissioner of Police | The Commissioner of Police will have personnel in key security roles. His interest will be to ensure that the safety of those involved and the community will be kept. |
| SARS-CoV-2 patients | The patients infected with SARS-CoV-2 have a high interest in completing the field hospital. It would mean patient management at a local level, without their transfer to the Regional Hospital. |
| The Government of Belize | There will be high interest from the Government of Belize to see the project's success, not only to ensure medical care for affected patients but also to reassure the general public that efforts are being made to mitigate the pandemic. |

### 3.2 Roles

The following key roles have been defined for this project:

**Chart 8. Key Roles (Source: Compiled by the Author)**

| Role | Resource Name | Organization | Assignment Status | Assignment Date |
|---|---|---|---|---|
| Project Sponsor | Hon. Michel Chebat | House of Representatives; Senior Minister for the district of Cayo. | Assigned | 17/Nov/2020 |
| Project Manager | Fidel Cuéllar | The San Ignacio Community Hospital; Ministry of Health. | Unassigned | Pending |
| NEMO Managers | Pending | Members of the NEMO Committee | Unassigned | Pending |

### 3.3 Responsibilities

**Project Sponsor**

The Project Sponsor will be primarily responsible for:

- Defining the vision, purpose, and objectives of the project.
- Authorizing the project and assigning the Project Manager.
- Approving of the requirements, timetable, and resources.
- Approving of funding and changes to the project budget.

**Project Manager**

The Project Manager will be primarily responsible for:

- Delivering the project on time, within budget, and to specification.
- Managing stakeholders and overseeing communications.
- Managing the processes required to initiate, plan, execute, and close the project successfully.

**NEMO Managers**

The NEMO managers will be primarily responsible for:

- Completing assigned tasks given by the Project Manager.
- Reporting on the progress of the execution of the assigned tasks to the Project Manager.

### 3.4 Structure

The following organizational structure will be employed to facilitate the successful delivery of this project:

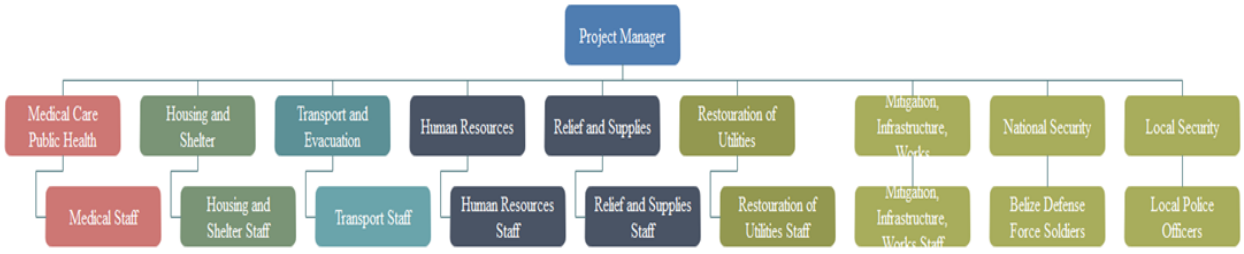



Figure 7. Project Organizational Structure (Source: Compiled by the Author)

## 4. Project Considerations

### 4.1 Risks

The following chart lists the three most important risks identified for this Project.

**Chart 9. Project Risk Description (Source: Compiled by the Author)**

| Risk Description | Risk Likelihood | Risk Impact | Action to be Taken to Mitigate Risk |
|---|---|---|---|
| Scope Creep | High | High | Communication with Project Sponsor to keep the project within scope. Referral to project charter as the reference document. |
| Interference from those outside of the project | High | High | Keep Project Sponsor informed of project interference to mitigate effects. |
| NEMO managers are not cooperative | Medium | High | Clear documentation and authorization of roles and responsibilities. Regular communication between Project Manager and NEMO managers. |

### 4.2 Issues

The following chart lists the issues presently affecting the project.

**Chart 10. Project Risks (Source: Compiled by the Author)**

| Issue Description | Issue Priority | Action to be Taken to Resolve Issue |
|---|---|---|
| There can be an overlap in jurisdiction between other agencies not directly involved in the project that can steer it off-course or terminate it. | High | Project clearance and relevant authority need to come from the senior ministerial levels. The senior minister who is the sponsor for this project needs to garner support from his other senior colleagues to move forward without hindrance. |

### 4.3 Assumptions

Within this project, it is assumed that:

- Primary Source materials will be readily available.
- There will be sufficient time to complete the objectives.
- The Senior Minister of the area has the authority to initiate and sponsor this project.

- There will be public support for the project.
- The stadium will be available for the project.
- There will be relevant political support for this project.
- The Project Manager has the expertise to design and execute the Project Integration Management Plan.
- The Project Manager will have the authority and autonomy to execute the Project Integration Plan.
- There will be no outside interference in executing the project.
- Material, financial and human resources will be available before the start of the project.
- No training will be necessary for project team members to complete their tasks.
- Technical human resources will be available and taken from within the various NEMO committees and the pool of public servants.
- The project will be initiated at a time of national emergency.
- Project estimates are accurate.
- There will not be any increase in prices of materials and services during the state of emergency.
- All equipment and materials, except for miscellaneous items that may not be available, will be procured through NEMO.
- Vendors will be able to provide the materials in a timely manner, and will be paid for such services.
- Stakeholders are aware of their roles and responsibilities and recognize the Project Manager's lead and authority.
- The Project Team is able to properly identify the most important risks to the project.
- The procurement requirements will remain unchanged throughout this project.

### 4.4 Constraints

The following constraints for this project have been identified:

- There is a two-week timeline for the completion of the project which is firm and

non-negotiable.

- The stadium will only allow for a maximum of 30 patient beds.
- Resources are limited to what NEMO can procure within their organization and the $5,000 BZE budget.
- Human resources will come from the NEMO organization and the pool of public servants.
- The selected suppliers must have local maintenance and support staff in all store regions.
- Only the Project Manager is allowed to make purchases.

**Sponsor Acceptance**

Approved by the Project Sponsor:

---------- Date: ----------

Project Sponsor Name

Project Sponsor Title

### 5. Project Plan

“Develop Project Management Plan is the process of defining, preparing, and coordinating all plan components and consolidating them into an integrated project management plan” (Project Management Institute, 2017 p. 82). The Project Management Plan is a component of the Integration Management Plan; however, it will be presented progressively through the subsidiary management plans defined for this project's knowledge area.

### 6. Perform Integrated Change Control

“This change control is the process of reviewing all change requests, approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating the decisions” (Project Management Institute, 2017 p. 70). The following steps comprise the change control process employed in the SARS-CoV-2 Emergency Field Hospital Project.

**Chart 11. Change Control Processes (Source: Compiled by the Author)**

| ID | Process Description | Stakeholder Responsible |
|---|---|---|
| 1 | Identify the need for a change.<br>The requester will submit a change request form to the Project Manager. | Any Stakeholder |
| 2 | Log change in the change request register.<br>The Project Manager will maintain a log of all change requests for the duration of the project. | Project Manager |
| 3 | Evaluate the change.<br>The Project Manager will evaluate the impact of the change to cost, risk, schedule, and scope. | Project Manager, Project Team, Requestor |
| 4 | The Project Manager, if he determines merit, will submit the change request to the Project Sponsor for approval. | Project Sponsor |
| 5 | Implement change.<br>Should the change be approved, the Project Manager will update all project documents and communicate changes to the project team and relevant stakeholders. | Project Manager |

The SARS-CoV-2 Field Hospital Project will use the following template to request any

changes to the project.

**Chart 12. Change Request Form**

| **Change Request** | | |
|---|---|---|
| **Project:** | | **Date:** |
| **Change Requestor:** | | **Change No:** |
| **Change Category (Check all that apply):**<br>□ Schedule □ Cost □ Scope<br>□ Requirements/Deliverables<br>□ Quality □ Resources | | |
| **Does this Change Affect? (Check all that apply)**<br>□ Corrective Action □ Preventative Action □ Repair □ Updates<br>□ Other | | |
| **Describe the Change Being Requested:** | | |
| **Describe the Reason for the Change:** | | |
| **Describe all Alternatives Considered:** | | |
| **Describe any Technical Changes Required to Implement this Change:** | | |
| **Describe Risks to be Considered for this Change:** | | |
| **Estimate Resources and Costs Needed to Implement this Change:** | | |
| **Describe the Implications to Quality:** | | |
| **Disposition:**<br>□ Approve □ Reject □ Defer | | |
| **Justification of Approval, Rejection, or Deferral:** | | |
| **Change Board Approval:** | | |
| **Name** | **Signature** | **Date** |
| | | |

| | | |
|---|---|---|
| | | |

Reprinted from https://www.projectmanagementdocs.com/template/project-documents/change-request/. Accessed November 17, 2020.

## 4.2. Project Scope Management

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" (Project Management Institute, 2017, p. 129). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Scope Management.
- Collect requirements.
- Define Scope.
- Create WBS.
- Validate Scope.
- Control Scope.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Scope Management Plan was developed using the PMBOK® Guide, 6th Edition as a source, and a template from ©Project Management Docs was used for the structure of the plan.

Scope Management Plan

SARVS-CoV-2 Emergency Field Hospital Project

# Table of Contents

## 1. Scope Management Approach

The Project Manager will be responsible for the scope management of this project. The scope will be defined by the Scope Statement, Work Breakdown Structure (WBS), and the WBS Dictionary. The Project Manager, Sponsor, and Stakeholders will set guidelines on how the project scope will be measured and documented. Proposed scope changes may be initiated by the Project Manager, Stakeholders, or any member of the NEMO committee. These requests will be submitted to the Project Manager, who will evaluate the request. Should the Project Manager accept the scope change request, it shall then be presented to the Project Sponsor for approval. Once approved, the Project Manager will update all relevant project documents and communicate the scope change to all stakeholders. The Project Sponsor is ultimately responsible for the acceptance of the final deliverables and project scope.

## 2. Roles and Responsibilities

The chart below defines the roles and responsibilities for the scope management of this project.

**Chart 13. Scope Management Roles and Responsibilities (Source: Compiled by the Author)**

| Name | Role | Responsibilities |
|---|---|---|
| Senior Minister for the Cayo area | Sponsor | • Approve or deny scope change requests as appropriate<br>• Evaluate the need for scope change requests<br>• Accept project deliverables |
| To Be Announced | Project Manager | • Measure and verify project scope<br>• Facilitate scope change requests<br>• Facilitate impact assessments of scope change requests<br>• Organize and facilitate scheduled change control meetings<br>• Communicate outcomes of scope change requests |

| | | |
|---|---|---|
| | | • Update project documents upon approval of all scope changes |
| NEMO Committee Managers | Team Members | • Measure and verify project scope<br>• Validate scope change requests<br>• Participate in impact assessments of scope change requests<br>• Communicate outcomes of scope change requests to the team<br>• Facilitate team level change review process |
| | | • Participate in defining change resolutions<br>• Evaluate the need for scope changes and communicate them to the project manager as necessary |

**3. Scope Definition**

The scope of this project was defined through a comprehensive requirements collection process. The project description and deliverables were then developed and incorporated into this project.

**4. Project Scope Statement**

This project includes the Galvez stadium's preparation and outfitting for a field hospital capable of admitting thirty mild to moderate positive SARS-CoV-2 patients within two weeks of project initiation. The project will also provide decontamination and flow plans for the stadium and provide an Incident Command System to run the hospital once it has opened. The deliverables for this project are the signed documents of authorization from key stakeholders, the Incident Command System's formation, the Galvez Stadium outfitting as a field hospital, the provision of vehicles, and the housing for hospital staff the patient flow and decontamination plan. The project will be accepted once the Stadium has been outfitted, plans completed, Incident Command System formed, housing arrangements completed, and vehicles made available. This project will not address the

burial of bodies, the maintenance of buildings or vehicles, the hospital's operations, the feeding of the personnel, and the quarantine of positive but asymptomatic SARS-CoV-2 patients or the closing of the field hospital. The project will have two weeks to be completed once initiated and will make provision for only thirty patients. It is assumed that the Senior Minister of the Cayo area has the authority to initiate and sponsor this project, that the stadium will be available for use as a field hospital for SARS-CoV-2 patients, technical human resources will be available from NEMO, and that there will be political and public support for the successful completion of the project. Of note, all works not included in this document are not included in the project.

## 5. Work Breakdown Structure

To effectively manage the work required to complete this project, it will be subdivided into individual work packages. For this project, there will be 12-hour workdays, and Saturday and Sunday are considered regular workdays. This will allow the Project Manager to manage the project's scope more effectively as the project team works on the tasks necessary for project completion.

### 5.1 Phases

The project is broken down into four phases: the initiation phase, the planning phase, the execution phase, and the closure phase, detailed in the following chart.

**Chart 14. Phase Title, Description, and Sequence (Source: Compiled by the Author)**

| Phase Title | Phase Description | Phase Sequence |
|---|---|---|
| Initiation | After the Project Charter document's approval, the activation of the local National Emergency Management Organization with the relevant sub-committees will allow for the initiation of the SARS-CoV-2 Emergency Field Hospital Project. Committee managers with key roles will be assigned to the project. | 1 |
| Planning | With the team appointed, the project's detailed planning phase begins where | 2 |

| | | |
|---|---|---|
| | the relevant processes required to complete the project successfully will be described and documented. | |
| Execution | During the execution phase, the Galvez Stadium will be outfitted to become an emergency field hospital, and the Incident Command System will be formalized. | 3 |
| Closure | After completing the Galvez Stadium outfitting, the formalization of the Incident Command System, payment to suppliers, and the completion of all deliverables, the project will be ready for closure and handing over to the Incident Command System Commander for hospital services to be activated. | 4 |

### 5.2 Activities

Each phase is composed of a series of activities that are required to produce each project deliverable. The chart below lists all of the project activities, which are to be completed throughout the Project Lifecycle.

**Chart 15. Project Lifecycle Activities (Source: Compiled by the Author)**

| Phase Title | Activity Title | Activity Description | Activity Sequence |
|---|---|---|---|
| Initiation | Approval of Project Charter | The Project Charter is presented to and reviewed by the Senior Minister for the Cayo area. Once approved, he signs off on the Project Charter, initiating the project. | 1 |
| | Activation of local NEMO | The Senior Minister for the Cayo area activates the local NEMO and the relevant committees. | 2 |
| Planning | Create a detailed Project Plan | Create each of the detailed plans required to schedule tasks, staff, suppliers, expenditure, and communications within this project. | 3 |
| | Contract the | Identify suitable, pre-government | 4 |

| | | | |
|---|---|---|---|
| | Suppliers | approved suppliers for this project. | |
| Execution | Formation of the Incident Command System | The Incident Command System team members are identified, and the Incident Commander begins to structure and formalize the Incident Command team. | 5 |
| | Site Preparation | The grounds are cleared of bushes and high grass, and the Stadium is cleaned. The service gates are repaired and locked. | 6 |
| | Install/Repair Services | Water, sanitation, bathroom, electricity, lighting, Wi-Fi services are either repaired or installed. | 7 |
| | Create Triage Infrastructure | Two field tents are installed on the stadium's grounds, and signage is placed indicating traffic and patients' flow into and out of the stadium property. | 8 |
| | Outfit the Galvez Stadium | The Galvez Stadium is outfitted by the placement of patient cots and associated medical peripherals. The pharmacy, eating and office areas are also identified and prepared for their respective functions. | 9 |
| Closure | Close-out with suppliers | All outstanding bills to the government-approved supplies need to be canceled, and any used materials returned. | 10 |
| | Finalizing the Project | The building and all components required to run the hospital are handed-over to the Incident Commander, who will then take charge of operations and declare the field hospital open, and the Post Project Review begins. | 11 |

**5.3 Tasks**

The following chart lists all the project tasks that are to be completed during the project.

**Chart 16. Project Tasks to be completed (Source: Compiled by the Author)**

| Activity Title | Task Title | Task Description | Task Sequence |
|---|---|---|---|
| Approval of Project Charter | Assignment and Authorization of Project Manager | The Project Manager is signed on to the project and authorized to lead it. | 1 |
| Activation of local NEMO | Assignment and Authorization of NEMO Committee | NEMO committee members are authorized for the project, given roles and responsibilities, and are given their specific tasks. | 2 |
| Create a detailed Project Plan | Create a Project Integration Management Plan | Create a document with Project Charter, Project Management Plan, and how the work will be directed, managed, monitored, and controlled. | 3 |
| | Create a Project Scope Management Plan | Define what is considered part of the project and what is considered not part of the project. | 4 |
| | Create a Project Schedule Management Plan | Create a plan with a timeline of work, goals, and deliverables for the project. | 5 |
| | Create a Project Cost Management Plan | Plan for estimating, budgeting, and controlling costs for the project. | 6 |
| | Create a Project Quality Management Plan | Plan for ensuring that the quality of work delivered is within the specifications of the project. | 7 |
| | Create a Human Resource Management Plan | Define the roles and responsibilities of all involved in the project. Documenting how they will be organized and managed. | 8 |

| | | | |
|---|---|---|---|
| | Create a Communication Management Plan | Define how the information regarding the project is documented, managed, controlled, and distributed. | 9 |
| | Create a Project Risk Management Plan | Identify and document foreseen risks associated with the project and develop a plan to manage each of them. | 10 |
| | Create a Project Procurement Management Plan | Define how items will be procured during the project and how vendors will be managed. | 11 |
| | Create a Stakeholder Management Plan | Documentation of stakeholder influence, power, and expectations with a plan on how they are managed. | 12 |
| | Create a Decontamination and Flow Plan | Define how patient and workflow happens in and out of the Stadium with corresponding decontamination plans and flow plans. | 13 |
| Formation of the Incident Command System | Identification and Authorization of the Incident Command Team | The Incident Commander is identified, and with his assistance, the Incident Command team members are identified and assigned. | 14 |
| Site Preparation | Clear and clean the site | The bushes and grass are trimmed and cut. Trash and debris removed. | 15 |
| | Clear access roads and driveways | The driveways and access roads will be cleared of bush/debris and marked to prevent loitering and illegal access. | 16 |
| Install/Repair services | Install/repair water and sanitation | Faucets, showers, toilets, and urinals to be working correctly. | 17 |

| | | | |
|---|---|---|---|
| | services | | |
| | Install/repair communication services (telephone and Wi-Fi) | Telephone landlines are repaired/activated, and wireless internet is installed in the Stadium and the surrounding area. | 18 |
| | Install/repair electrical and lighting services | Electrical access for equipment repaired/installed, along with appropriate lighting for the stadium and its facilities. | 19 |
| Create Triage Infrastructure | Assembly and installation of field tents | Two field tents to be assembled in front of the Stadium; cots, examination beds, and desks will be placed under them. | 20 |
| | Installation of Triage signage | Arrows indicating the flow of vehicles and patients to be placed; signs to indicate areas are to be installed. | 21 |
| Outfit the Galvez Stadium | Assembly and placement of cots and peripherals | Thirty cots to be assembled and placed in the Stadium with their IV-line stands. | 22 |
| | Installation of medical equipment | Oxygen tanks, cardiac monitors, and EKG machines to be installed in the stadium. | 23 |
| | Outfit Pharmacy and Medical Supplies Storage | One of the stadium rooms is to be outfitted for the storage and distribution of medical supplies. | 24 |
| | Outfit Office | A small, enclosed tent is to be assembled on the stadium grounds and outfitted as an office for the Incident Command staff. | 25 |
| | Outfit eating area | One of the rooms in the stadium is to be outfitted as an eating area for the staff. | 26 |

| | | | |
|---|---|---|---|
| | Identification and assignment of transport vehicles | Ambulance transport services along with drivers assigned to the hospital. Support vehicles identified and secured along with drivers. | 27 |
| | Housing for hospital staff identified and secured | The housing area for the hospital staff is identified and secured, and prepared. | 28 |
| Close-out with suppliers | Cancel bills and return unused items | All outstanding bills are to be canceled and documentation submitted to the Project Manager. Unused items are to be returned to the respective suppliers. | 29 |
| Finalizing the Project | Hand-over to Incident Commander | The project is accepted and closed by the Project Sponsor and the field hospital. The grounds of the Galvez Stadium are handed over to the Incident Commander, who will then accept responsibility for the installations and the hospital's operations after that. | 30 |
| | Perform Post Project Review | Review and access the project's processes and activities and prepare a report to be delivered to the Cayo area's Senior Minister. | 31 |

**5.4 A Summary of the Phases, Activities, and Tasks**

Each of these phases is then subdivided further down into work packages, as shown in the WBS structure below.

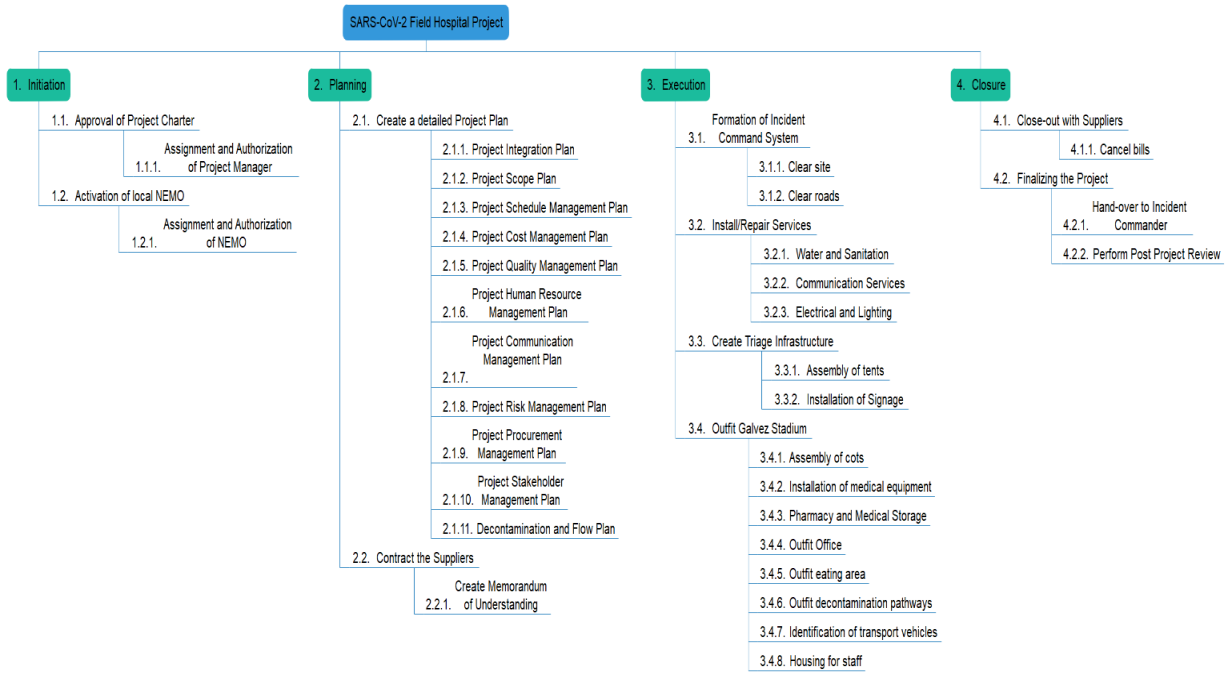



Figure 8. SARS-CoV-2 Field Hospital Project Work Breakdown Structure (Source: Compiled by the Author)

## 6. Scope Verification

As the project progresses, the Project Manager will verify project deliverables against the original scope as defined in the scope statement, WBS, and WBS Dictionary. Once the Project Manager has verified that the scope meets the project plan's requirements, the Project Sponsor will formally accept the deliverable. The Project Sponsor will accept the deliverable by signing a project deliverable acceptance document. This ensures that project work remains within the project's scope consistently throughout the life of the project.

## 7. Scope Control

The project manager's responsibility is to work with the project team to ensure control of the project's scope. The WBS Dictionary will be used to detail the work that will generate the defined deliverables. If a change to the project scope is needed, the following process must be carried out. The Sponsor or any project team member can request changes to the Project Scope. All change requests must be submitted to the Project Manager in the form of a project change document. The Project Manager will then review the suggested

change to the scope document. Should the Project Manager agree with the suggested change, it is then presented to the Project Sponsor for review and acceptance. If the Project Sponsor accepts the change, he will sign the project change control document. The project manager's responsibility is to update all relevant documents and inform the Project Team and stakeholders.

**Sponsor Acceptance**

Approved by the Project Sponsor:

---------- Date: ----------

Project Sponsor Name

Project Sponsor Title

### 4.3. Project Schedule Management

“Project Schedule Management includes the processes required to manage the timely completion of the project” (Project Management Institute, 2017 p. 173). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Schedule Management.
- Define Activities.
- Sequence Activities.
- Estimate Activity Durations.
- Develop Schedule.
- Control Schedule.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Schedule Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Schedule Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

## 1. Schedule Management Approach

The project schedules will be created using MS Project 2019. To complete the Project Schedule, the following processes will be used:

- Activity definition to identify the specific work packages required to complete each deliverable.
- Activity sequencing to determine the order of work packages and assign relationships between project activities.
- Activity duration estimating to calculate the number of work periods required to complete the work packages.
- Resource estimating to assign resources to work packages.

Once a preliminary schedule has been developed, it will be reviewed by the Project Team. The Project Team must agree with the proposed work package assignments, durations, and schedule, and it has to be achievable with the available resources for the project. Upon completion, the Project Sponsor will review the schedule and approve it, after which the schedule will be baselined.

### 1.1 Gantt Chart

The following schedule describes the activities and tasks on the timeline required to implement this project.

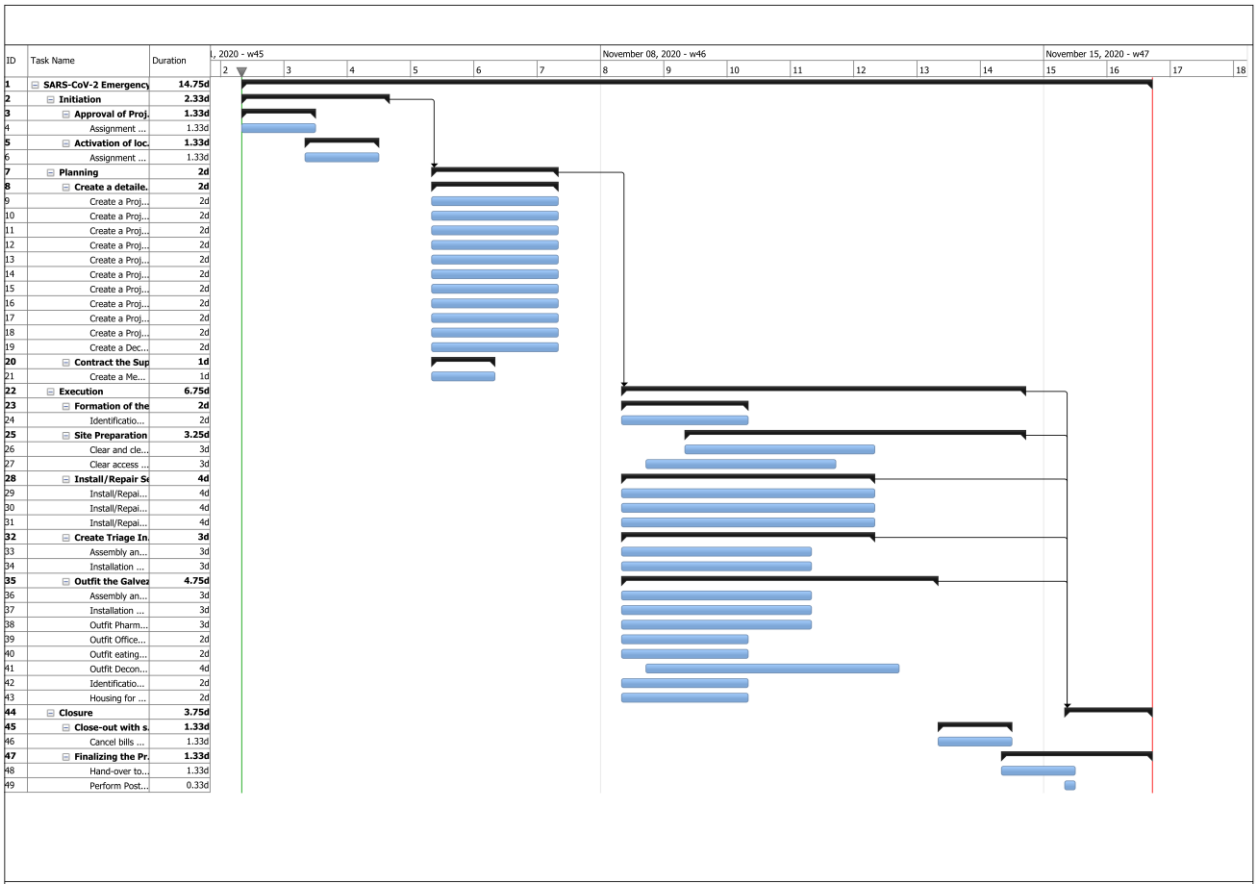
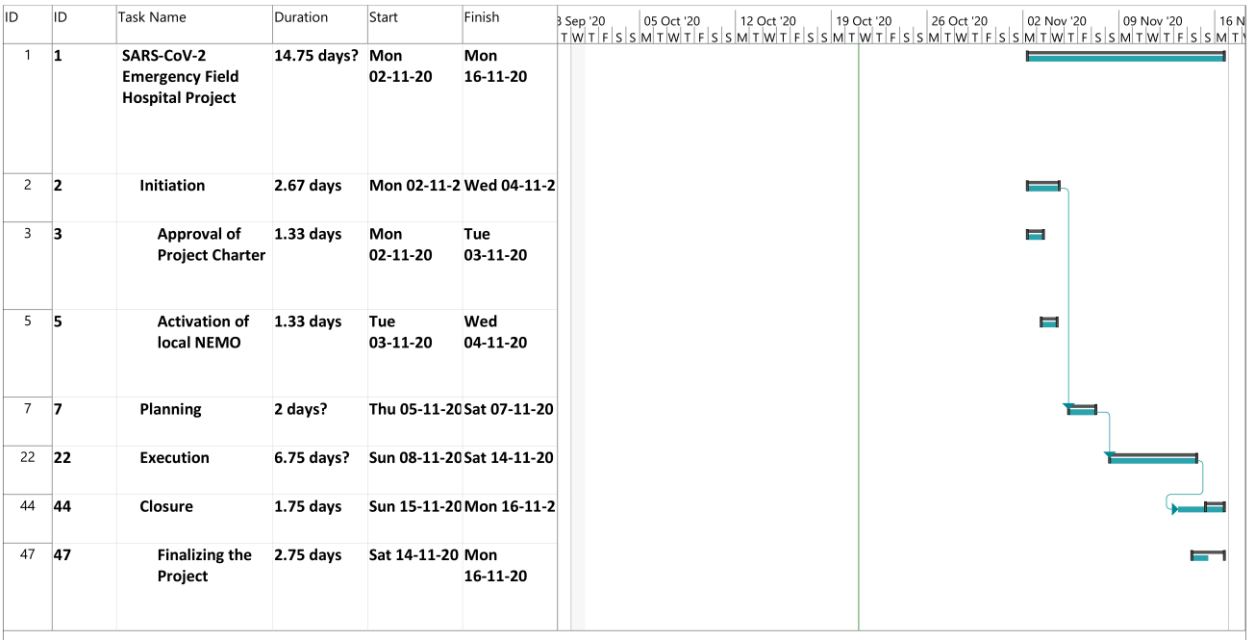



Figure 9. SARS-CoV-2 Field Hospital Project Gantt Chart (Source: Compiled by the Author)

## 1.2 Critical Path

The critical path is a schedule network analysis technique that calculates the early start, early finish, late start, and late finish dates for all activities without regard for any resource limitations. Therefore, the critical path “is the sequence of activities that represents the longest path through a project, which determines the shortest possible project duration” (Project Management Institute, 2017 p. 210).

This project at two weeks is short and has four phases. The activities in each phase are independent of each other and can be executed simultaneously. This is why the critical path follows the project phases, as shown in the figure below.



| ID | ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|---|
| 1 | 1 | SARS-CoV-2 Emergency Field Hospital Project | 14.75 days? | Mon 02-11-20 | Mon 16-11-20 |
| 2 | 2 | Initiation | 2.67 days | Mon 02-11-2 | Wed 04-11-2 |
| 3 | 3 | Approval of Project Charter | 1.33 days | Mon 02-11-20 | Tue 03-11-20 |
| 5 | 5 | Activation of local NEMO | 1.33 days | Tue 03-11-20 | Wed 04-11-20 |
| 7 | 7 | Planning | 2 days? | Thu 05-11-20 | Sat 07-11-20 |
| 22 | 22 | Execution | 6.75 days? | Sun 08-11-20 | Sat 14-11-20 |
| 44 | 44 | Closure | 1.75 days | Sun 15-11-20 | Mon 16-11-2 |
| 47 | 47 | Finalizing the Project | 2.75 days | Sat 14-11-20 | Mon 16-11-20 |



Figure 10. SARS-CoV-2 Field Hospital Project Critical Path (Source: Compiled by the Author)

## 1.3 Milestones

The following chart lists the project's milestones and their required delivery dates.

### Chart 17. SARS-CoV-2 Field Hospital Project Milestones (Source: Compiled by the Author)

| Milestone | Date | Description |
|---|---|---|
| Project Initiation | 02-Nov-2020 | The Regional Hospital is at 90% capacity for SARS-CoV-2 patients, and the need for the emergency field hospital arises. The SARS-CoV-2 Emergency Field Hospital Project is activated. |
| Meeting with stakeholders and signing of documents of authorization completed | 03-Nov-2020 | The Project Sponsor and the relevant Ministerial stakeholders' sign-off on the required documentation authorizing the project, project manager, and local NEMO's activation. |
| Task Assignments delivered to NEMO Committee Managers | 04-Nov-2020 | Roles and assignments for the respective participating NEMO committees have been defined and assigned. |

| | | |
|---|---|---|
| Outfitting of the Galvez Stadium begins | 08-Nov-2020 | Work begins on the Galvez Stadium. |
| Incident Command System staff assigned and authorized | 09-Nov-2020 | The Incident Command System staff has been identified, assigned, and authorized. |
| The field hospital is declared functional and is opened for patients. The project is complete. | 16-Nov-2020 | All deliverables have been completed, and the field hospital is handed over to the Incident Commander. The project is closed, and its review can commence. |

**Dependencies**

The critical project dependencies are listed in the following chart.

**Chart 18. Key Project Dependencies (Source: Compiled by the Author)**

| Project Activity | Impacts | Is Impacted by | Criticality | Date |
|---|---|---|---|---|
| Approval of the Project Charter | The entire project | The political will of the Senior Minister of the region | Very high | 02-Nov-2020 |
| Activation of local NEMO | All planning and execution activities | The political will of the Senior Minister of the region | Very high | 03-Nov-2020 |
| Formation of the Incident Command System | The operations of the field hospital and the coordination of all related activities once it is opened | The political will of the Senior Minister of the region | Very high | 08-Nov-2020 |

**2. Schedule Control**

The Project Schedule will be reviewed and updated as needed. The project timeline is only 14 days; therefore, close, daily monitoring may be required in this instance.

The Project Manager is responsible for holding daily schedule updates, determining the impacts of schedule variances, submitting schedule change requests, and reporting schedule status in alignment with the project's communication plan.

The Project Team is responsible for participating in daily schedule updates, monitoring, and communicating any events that could affect the project manager's project schedule.

The Project Sponsor will review and approve any schedule change requests if appropriate and will be made aware of the project schedule status.

**3. Schedule Changes and Thresholds**

Any member of the Project Team can request a schedule change if needed. The Project Manager and the team will review and evaluate the change to determine which tasks will be impacted, variance resulting from the potential change, and any alternatives or variance resolution activities they may employ to see how they would affect the scope, schedule, and resources. If, after the evaluation, the Project Manager determines that the requested change will exceed the established boundary conditions, then a schedule change request must be submitted.

The submittal of a schedule change request to the Project Sponsor for approval is required if either of the two following conditions are true:

- The proposed change is estimated to reduce or increase an individual work package's duration by 5% or more.
- The change is estimated to reduce or increase the overall baseline schedule duration by 5% or more.

Any change requests that do not meet these thresholds may be submitted to the Project Manager for approval.

Once the change request has been reviewed and approved, the Project Manager is responsible for adjusting the schedule, changing all relevant documentation, and informing the Project Team, Project Sponsor, and Stakeholders.

**4. Scope Change**

Any approved changes to the Project Scope will require a revision of the Project Team to evaluate the scope change's effect on the current schedule. Suppose the Project Manager determines that the scope change will significantly affect the current project schedule. In that case, he may request that the schedule be re-baselined to consider any changes that need to be made as part of the new Project Scope. The Project Sponsor must review and approve this request before the schedule can be re-baselined.

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.4. Project Cost Management

“Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget” (Project Management Institute, 2017 p. 231). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Cost Management.
- Estimated Costs.
- Determine Budget.
- Control Costs.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Cost Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Cost Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

## 1. Cost Management Approach

The costs for this project will be managed at the fourth level of the Work Breakdown Structure. Control Accounts will be created at this level to track costs. Earned Value calculations will measure and manage the financial performance of the project. Costs may be rounded to the nearest dollar and work hours rounded to the nearest whole hour. Those NEMO managers requiring materials or services for the project will make those requests to the project manager responsible for creating purchase orders for those requests. All invoices generated by materials or services required by the project will be documented by the Project Manager and used to calculate actual costs for all cost categories and WBS elements and compare these actual costs to the projected baseline costs daily. These comparisons will generate the data for all the metrics and status reports and variance analysis.

Cost variances of +/- 0.1 in the cost and schedule performance indexes will change the cost's status to cautionary; as such, those values will be changed to yellow in the project status reports. Cost variances of +/- 0.2 in the cost and schedule performance indexes will change the cost to an alert stage, and at this point, those values will be changed to red in the project status reports. A red stage alert will require corrective action by the Project Manager, which will have to go through a project change request with the Project Sponsor's approval before it can become the project's scope.

## 2. Measuring Project Costs

The performance of the project will be measured using Earned Value Management. The following four Earned Value metrics will be used to measure the project’s cost performance.

- Schedule Variance (SV).

“SV is a measure of schedule performance expressed as the difference between the earned value and the planned value, it is the amount by which the project is ahead or behind the planned delivery date” (Project Management Institute, 2017 p. 262).

- Cost Variance (CV).

“CV is the amount of budget deficit or surplus at a given point in time, expressed as the difference between earned value and the actual cost. It is a measure of cost performance on a project” (Project Management Institute, 2017 p. 262).

- Schedule Performance Index (SPI).

SPI “is a measure of schedule efficiency expressed as the ratio of earned value to planned value. It measures how efficiently the project team is accomplishing the work” (Project Management Institute, 2017 p. 263).

> An SPI value of less than 1.0indicates less work was completed than was planned. An SPI greater than 1.0 indicates that more work was completed than was planned. The SPI is equal to the ratio of the EV to the PV. Equation: SPI = EV/PV (Project Management Institute, 2017 p. 263).

- Cost Performance Index (CPI).

The CPI is:

> A measure of the cost efficiency of budgeted resources, expressed as a ratio of earned value to actual cost. It is considered the most critical EVA metric and measures the cost efficiency for the work completed. A CPI value of less than 1.0 indicates a cost overrun for work completed. A CPI value greater than 1.0 indicates a cost underrun of performance to date. The CPI is equal to the ratio of the EV to the AC. Equation: CPI = EV/AC.
>
> If the Schedule Performance Index or Cost Performance Index has a variance of between 0.1 and 0.2 the Project Manager must report the reason for the exception. If the SPI or CPI has a variance of greater than 0.2 the Project Manager must report the reason for the exception and provide management a detailed corrective plan to bring the project’s performance back to acceptable levels (Project Management Institute, 2017 p. 263).

The chart below shows the yellow and red areas for the performance measures used for this project.

**Chart 19. Performance Measure Values for the SARS-CoV-2 Field Hospital Project (Source: Compiled by the Author)**

| Performance Measure | Yellow | Red |
|---|---|---|
| Schedule Performance Index (SPI) | Between 0.9 and 0.8 or Between 1.1 and 1.2 | Less Than 0.8 or Greater than 1.2 |
| Cost Performance Index (CPI) | Between 0.9 and 0.8 or Between 1.1 and 1.2 | Less Than 0.8 or Greater than 1.2 |

### 3. Costing for the National Emergency Management Organization

The human resources for the SARS-CoV-2 Field Hospital Project will be taken from the pool of public servants from their respective ministries. Each ministry designates work hour costs depending on the officer's pay-scale and seniority assigned to the project. An example of this phenomenon would be assigning two Police Officers to the project; they could be on the same pay-scale (or not) but have different levels of seniority and responsibility, resulting in a different cost per hour for each of them. The Human Resources Manager can track on-site work hours and calculate the cost of those hours depending on who is accomplishing them once the project has begun to determine the project's running costs. This practice is not customary, however, and only work hours are documented.

The National Emergency Management Organization (NEMO) is activated once a national emergency state has been declared. For this project, the limit of 90% bed occupancy by SARS-CoV-2 patients at the Western Regional Hospital is sufficient and necessary to trigger this mechanism as the need for more hospital resources would justify NEMO's activation.

Once NEMO has been activated, it has access to human, equipment, and material resources. It can draw on from any of the Government ministries nationwide to complete the project at hand. These resources are documented and reported to NEMO after project completion.

### 4. Reporting Format

Reporting for cost management will be daily, with daily documentation of costs, Earned Value Metrics, and a final report at the end of the project as part of Project Closure. The Project Sponsor will be informed when the variances in the Schedule Performance and Cost Performance Indexes indicated will also include any corrective actions planned. Change Requests which are triggered based upon project cost overruns will be identified and tracked in this report.

**5. Cost Variance Response Process**

According to PMDocs (n.d.):

> The Control Thresholds for this project is a CPI or SPI of less than 0.8 or greater than 1.2. If the project reaches one of these Control Thresholds, a Cost Variance Corrective Action Plan is required. The Project Manager will present the Project Sponsor with options for corrective actions by the end of the business day when the cost variance is first reported. Within 12 hours from when the Project Sponsor selects a corrective action option, the Project Manager will present the Project Sponsor with a formal Cost Variance Corrective Action Plan. The Cost Variance Corrective Action Plan will detail the actions necessary to bring the project back within budget and the means by which the effectiveness of the actions in the plan will be measured. Upon acceptance of the Cost Variance Corrective Action Plan, it will become a part of the project plan and the project will be updated to reflect the corrective actions, and the Project Team will be informed of the changes (p. 5).

**6. Cost Change Control Process**

“The cost change control process will follow the established project change request process. Approvals for project budget/cost changes must be approved by the Project Sponsor” (PMDocs, n.d., p. 5).

**7. Allotted Resources and Expenses**

The list of human resources required to complete the project successfully is presented in the following chart. The unit cost associated with the list is based on an estimate from the Government of Belize PayScale for the government’s public servants. The work hours are

identified in the Resource Schedule.

**Chart 20. Unit Cost for Human Resources (Source: Compiled by the Author)**

| Role | Unit Cost (per hour) |
|---|---|
| Project Manager* | $30 |
| Medical Manager* | $25 |
| Senior Physician | $30 |
| Senior Nurse | $25 |
| Senior Pharmacist | $20 |
| Housing Manager* | $25 |
| Domestic | $10 |
| Transport Manager* | $25 |
| Driver (4) | $12 |
| Driver/Mechanic | $15 |
| Human Resources* | $25 |
| Relief and Supplies Manager* | $25 |
| Utilities Manager* | $25 |
| Electrician | $15 |
| Plumber | $15 |
| Infrastructure Manager* | $25 |
| Civil Engineer | $25 |
| National Security Manager* | $25 |
| Battalion Solder (50) | $12 |
| Decontamination Expert | $15 |
| Incident Commander | $20 |
| Electrician | $15 |
| Plumber | $15 |
| Local Security Manager* | $25 |
| Police Officer (5) | $20 |
| Traffic Officer (5) | $20 |

* Project Team Members

**8. Resource Schedule**

The Resource Schedule plots the human, material, and equipment resources over the lifecycle of the project. It identifies which resources are used at what time during the project and illustrates the work hours and expenses that the project will incur. The SARS-CoV-2 Field Hospital Project will require 8,436 work hours and $192,141.56 Belize dollars to produce the required deliverables to complete the project successfully.

**Chart 21. SARS-CoV-2 Field Hospital Project Resource Schedule (Source: Compiled by the Author)**

| | Project Days | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expense Type | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Total Work Hours | Total Cost (BZE Dollars) |
| **Labour** | | | | | | | | | | | | | | | | |
| *Project Manager | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 168 | 5,040 |
| *Medical Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Senior Physician | | | | | | | X | X | X | | | | | | 36 | 1,080 |
| Senior Nurse | | | | | | | X | X | X | | | | | | 36 | 900 |
| Senior Pharmacist | | | | | | | X | X | X | | | | | | 36 | 720 |
| *Housing Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Domestic | | | | | | | X | X | X | | | | | | 36 | 360 |
| *Transport Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Driver (4) | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 (x4) | 6912 |
| Driver/Mechanic | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 2,160 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Human Resources Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| *Relief and Supplies Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| *Utility Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Electrician | | | | | | | X | X | X | X | X | X | | | 72 | 1,080 |
| Plumber | | | | | | | X | X | X | X | X | X | | | 72 | 1,080 |
| *Infrastructure Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Civil Engineer | | | | | | | X | X | X | X | X | X | | | 72 | 1,800 |
| *National Security Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Battalion Soldier (50) | | | | | | | X | X | X | X | X | X | X | | 84 (x50) | 50,400 |
| Decontamination Expert | | | | | | | X | X | X | X | X | X | | | 72 | 1,080 |
| Incident Commander | | | | | | | X | X | X | | | | | | 36 | 720 |
| Electrician | | | | | | | X | X | X | X | X | X | | | 72 | 1,080 |
| Plumber | | | | | | | X | X | X | X | X | X | | | 72 | 1,080 |
| *Local Security Manager | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 | 3,600 |
| Police Officer (5) | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 (5) | 14,400 |
| Traffic Officer (5) | | | X | X | X | X | X | X | X | X | X | X | X | X | 144 (5) | 14,400 |
| Total Cost Hours | | | | | | | | | | | | | | | 8,436 | 136,692 |

| Equipment | | | | | | | | | | | | | | | Units | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 Army Trucks | | | | | | | X | X | X | X | X | X | | | 6 days | 2,400 |
| 4 Pickup Trucks | | | X | X | X | X | X | X | X | X | X | X | X | X | 12 days | 4,800 |
| 1 Ambulance | | | X | X | X | X | X | X | X | X | X | X | X | X | 12 days | 1,500 |
| 2 Army tents | | | | | | | X | X | X | | | | | | 2 Tents | 500 |
| 10 Laptops | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 10 Laptops | 1,000 |
| 2 Trailers | | | | | | | X | X | X | X | X | X | | | 6 days | 1,800 |
| 30 Cots | | | | | | | X | X | X | | | | | | 30 Cots | 2,250 |
| 30 IV Stands | | | | | | | X | X | X | | | | | | 30 stands | 900 |
| 20 Storage bins | | | | | | | X | X | X | | | | | | 20 bins | 800 |
| 2 EKG Machines | | | | | | | X | X | X | | | | | | 2 EKG | 1,500 |
| 40 Oxygen tanks with regulators | | | | | | | X | X | X | | | | | | 40 Oxygen Tanks | 15,000 |
| Total Cost | | | | | | | | | | | | | | | | 32,450 |
| General plumbing | | | | | | | X | X | X | X | X | X | | | N/A | 1000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| supplies | | | | | | | | | | | | | | | | |
| General electrical/lighting supplies | | | | | | | X | X | X | X | X | X | | | N/A | 1000 |
| General landscaping supplies | | | | | | | X | X | X | X | X | X | | | N/A | 1000 |
| General office supplies | | | | | | | X | X | | | | | | | N/A | 500 |
| General kitchen supplies | | | | | | | X | X | | | | | | | N/A | 500 |
| Wi-Fi, Internet, and telephone services | | | | | | | X | X | X | X | X | | | | N/A | 1000 |
| Total Supplies/Services Cost | | | | | | | | | | | | | | | | 5,000 |

**9. Contingency Reserve**

"The cost estimates for the SARS-CoV-2 Field Hospital Project included a contingency reserve. Contingency reserves are the budget withing the cost baseline that is allocated for identified risks" (Project Management Institute, 2017, p. 245), or what is also referred to as the known-unknowns that can affect the project. For this project, the contingency reserve was calculated at 5% of the activity cost estimates.

**10. Project Budget**

The budget for this project is detailed below.

**Chart 22. SARS-CoV-2 Field Hospital Budget (Source: Compiled by the Author)**

| Category | Explanation | Expenditure Value |
|---|---|---|
| Work Cost | Cost of total expected work hours | $136,692 |
| Equipment | Heavy Equipment required for | $32,450 |

| | | |
|---|---|---|
| | project execution | |
| Hardware Supplies | Miscellaneous hardware items | $4000 |
| Communication services and installation | Wi-Fi equipment and services | $1000 |
| Contingency Reserve | 5% Contingency Reserve Allocation | $8,707.10 |
| Cost Baseline | Performance Measurement Baseline | $182,849.10 |
| Management Reserve | 5% Management Reserve Allocation | $9,292.46 |
| Project Budget | Total Allocated Budget | $192,141.56 |

## 11. Assumptions

The Cost Management Plan is based on the following assumptions:

- Primary Source materials will be readily available.
- There will be sufficient time to complete the objectives.
- The SARS-C0V-2 Hospital Field Project will be initiated during a time of national emergency.
- The Resource Management Plan is designed to be executed within the existing National Emergency Management Organization of Belize policy for its national emergency response.
- All human resources, except for that required to install the telephone/internet services, will be taken from the pool of government public servants.
- All equipment and materials, except for miscellaneous items that may not be available, will be procured through NEMO. Those items that are unavailable will be procured through pre-approved government suppliers.
- NEMO will be able to procure the materials to execute the project.
- Vendors will be able to provide the materials, in the quantity and the quality required to execute the project in a timely manner.
- The Government of Belize is able to pay vendors for materials and services provided.

## 12. Constraints

The following constraints were identified while comprising the Cost Management Plan:

- There is a two-week timeline for the completion of the project which is firm and non-negotiable.
- The budget for items that are not available through the NEMO network of resources is restricted to $5,000 BZE.
- The cost derived from work will only be recorded in hours worked.
- Except for the staff from the telecommunication service, there will not be any private sector participation.

**13. Activities**

- All project expenses/resources will be recorded using Expense/Resource Forms.
- Each Expense/Resource Form will be sent to the Project Manager before the expense is incurred or the resource is ordered.
- The Project Manager will review all Expense/Resource Forms to determine whether the request is reasonable, budgeted, and associated with a valid activity or task.
- Only the Project Manager may approve project expenses and resources.
- An Expense/Resource Register will summarize the amount, type, approval status, and payment status for each item incurred during the project.
- The Project Plan will be updated daily with information from the Expense/Resource Register to keep the Project Manager current on the overall project expense and resource use.

**14. Roles**

The Project Team members will be responsible for:

- Identifying expenses/resources on the project and completing the required forms, which are to then be forwarded to the Project Manager for approval.
- Identifying risks, issues, or changes related to expenses or the use of material resources.

The Project Manager will be responsible for:

- Reviewing and approving expense/resource requests.
- Making payment of expenses once the relevant expense/resource form is approved.
- Updating the Expense/Resource Register.
- Resolving all identified expense-related issues.

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.5. Project Quality Management

“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’ objectives” (Project Management Institute, 2017 p. 271). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Quality Management.
- Manage Quality.
- Control Quality.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Quality Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Quality Plan

SARS-COV-2 Field Hospital Project

# Table of Contents

## 1. Quality Management Approach

The quality management approach for the SARS-CoV-2 Field Hospital Project will ensure quality is planned for both the product and processes. For the project to be successful, it will meet its quality objectives by utilizing an integrated quality approach to define quality standards, measure quality, and continuously improve quality.

Product quality for the SARS-CoV-2 Field Hospital Project will be defined using elements from the Federal Healthcare Resilience Task Force Alternate Care Site Toolkit, Third Edition (Federal Emergency Management Agency, 2020).

Process quality for the SARS-CoV-2 project will focus on the processes by which project deliverables will be produced. With the establishment of process quality standards, the activities will be held to those standards, ensuring the product's successful delivery.

The following chart lists the methods to be undertaken by internal team members to monitor and control the actual quality level of deliverables for this project:

**Chart 23. Methods to Monitor and Control Quality for the SARS-CoV-2 Field Hospital Project (Source: Compiled by the Author)**

| Process | Description |
|---|---|
| Time Management | All those working on the project, except for the management team, will be required to sign-in and sign-out when reporting to work. This information will be placed by the respective manager in a Timesheet register every two days. |
| Cost Management | Expense forms, invoices will be used to record expenses on this project. Daily submissions to be made to the Project Manager. |
| Quality Management | Managers will be responsible for reviewing respective work daily to ensure that the defined quality targets are achieved. These reports are to be submitted to the Project Manager every two days. |
| Change Management | Any changes within the project must be submitted to the Project Manager using the Change Request Form. The Project Manager will then deny, approve, or seek approval for the change. |
| Risk Management | All project risks are documented and detailed in the Risk Register, allowing the Project Manager to |

| | |
|---|---|
| | effectively monitor and control the status of risks throughout the project. |
| Issue Management | All project issues are documented and detailed in the Issue Register, allowing the Project Manager to monitor and control the status of issues throughout the project. |
| Procurement Management | All goods and services received from external suppliers must come from previously approved government businesses. |
| Acceptance Management | The Project Sponsor must approve all deliverables produced by this project for it to be deemed complete. |
| Communications Management | The Project Manager will meet with the NEMO managers and Project Sponsor as required. The Project Manager will either speak to or email NEMO managers daily. |

**2. Metrics**

Metrics will be established and used to measure quality throughout the product and processes throughout the project life cycle. The Project Manager will be responsible for working with the project team to develop and define these metrics, conduct measurements, and analyze the results. Metrics will include:

- Schedule/Cost.

Schedule Variance (SV) and Cost Variance (CV) are the metrics used to determine if the project is on schedule and budget. These metrics are paramount to establishing the quality of the project as being on-time and within cost. The Schedule Variance = Earned Value – Planned Value, and if the result is positive, it means that the project is ahead of schedule. If the SV is negative, it means that the project is behind schedule, and if the SV is zero, it means that the project is on schedule.

Cost Variance is a measure of the cost performance of the project. It provides information on whether the project is over or under budget. The Cost Variance = Earned Value – Actual Cost where a positive result means that the project is under budget. A negative result means that the project is over budget, and if the CV is zero, it means that the project is on budget.

The Schedule Performance Index (SPI) allows the Project Manager to scrutinize the overall efficiency. This helps to determine whether the time on the project is being used wisely. The formula is expressed as SPI = EV/PV.

The Cost Performance Index (CPI) allows the Project Manager to determine how much money is being spent on the project and determine how well it is being utilized. The CPI allows for a quick check on cost performance at any point in the project. The formula is expressed by CPI = EV/AC. These metrics are to be calculated daily and reported by the Project Manager. The values for the control thresholds are expressed in the chart below:

**Chart 24. Control Thresholds for the SARS-CoV-2 Field Hospital Project (Source: Compiled by the Author)**

| Performance Measure | Yellow | Red |
|---|---|---|
| Schedule Performance Index (SPI) | Between 0.9 and 0.8 or between 1.1 and 1.2 | Less than 0.8 or greater than 1.2 |
| Cost Performance Index (CPI) | Between 0.9 and 0.8 or between 1.1 and 1.2 | Less than 0.8 or greater than 1.2 |

- Resources.

To track how efficiently resources are being used on this project, both the Utilization and Realization rates will be used (Moses, 2019).

The Utilization Rate is a measure of the utilization of your resources, and for this project, it will be set at 80%. It indicates whether it is enough to work or too much work assigned to the staff, and is calculated as:

Utilization Rate = Hours Worked/Total Available Hours

The Realization Rate is a measure of the work staff's billable hours, and for this project, it will be set at 90%. It indicates whether resources are being used profitably and is calculated as:

Realization Rate = Total Billed Hours/Total Billable Hours

These metrics are to be calculated and reported by the Project Manager daily or as

needed.

- Process performance.

To ensure the project moves forward with minimal process performance difficulties, both project issues and project risks will be identified and addressed in the following manner by the Project Manager daily and reported to the project team and relevant stakeholders.

Number of issues occurred

Number of issues resolved

Number of risks identified

Number of risks that were not identified

Number of risks that occurred

Number of risks closed

- Product compliance.

This project will have a product, which is the SARS-CoV-2 Field Hospital. The hospital will have to be aligned with the Alternate Care Site Toolkit elements by the Federal Healthcare Resilience Task Force. These are the metrics that will be used to ensure product compliance.

Number of signs required

Number of signs erected

Number of donning and doffing areas required

Number of donning and doffing areas developed

Distance requirements for hospital cots

Distance requirements observed for hospital cots

These metrics will be documented and reported by the Project Manager to the Project Team and relevant stakeholders daily or as needed.

### 3. Quality Improvements

Quality improvements will be the responsibility of the project team and the Project Manager. Each recommendation will be reviewed to determine the cost versus benefit of implementing the improvement and its impact on the product or processes. If there is an improvement, the Project Manager will update all relevant project documentation and inform the project team and relevant stakeholders.

### 4. Quality Assurance

The quality assurance of the SARS-CoV-2 Field Hospital Project focuses on the processes used in the preparation and outfitting of the Galvez Stadium into a field hospital. To ensure quality, an iterative quality process will be used throughout the project life cycle. This iterative process includes measuring process metrics, analyzing process data, and continuously improving the process.

The Project Manager and the project team will perform assessments as needed throughout the project to ensure that all processes are correctly implemented and executed. The chart below provides the quality assurance plan for the SARS-CoV-2 Field Hospital Project.

**Chart 25. SARS-CoV-2 Field Hospital Project Quality Assurance Plan (Source: Compiled by the Author)**

| Quality Assurance Plan | | |
|---|---|---|
| **Technique** | **Description** | **Frequency** |
| Utilize Skilled Staff | To ensure that project deliverables are produced to a sufficient level of quality, the following will be observed:<br>• Only skilled staff will be assigned to this project.<br>• Ensure that all staff assigned has at least three years of experience in the area of work he is recruited to accomplish.<br>• Project Team Managers must have at least three years working as a NEMO manager on the local NEMO Committee. | This will apply throughout the project |
| Undertake Quality Assurance | The Project Manager will undertake Quality Reviews at the end of the following stages to ensure that the project is on time and within budget and has produced deliverables that | This will apply to the |

| | | |
|---|---|---|
| Reviews | ensure the success of the project:<br>• Detailed Project Plan prepared<br>• Incident Command System formed<br>• Site Prepared<br>• Services installed/repaired<br>• Triage Created<br>• Galvez Stadium Outfitted<br>• Suppliers closed-out<br>• Hand-over to Incident Commander complete<br>• Post-Project Review performed | completion of the described activities |
| Maintain Standards | The Project Manager will ensure that all work is performed following applicable elements of the Federal Healthcare Resilience Task Force Alternate Care Site Toolkit, Third Edition. An electronic copy will be given to all Project Team members with all relevant areas highlighted. Quality reviews will determine the level of compliance with these standards. | This activity is to occur throughout the project |

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.6. Project Resource Management

“Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project” (Project Management Institute, 2017 p. 307). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Resource Management.
- Estimate Activity Resources.
- Acquire Resources.
- Develop Team.
- Manage Team.
- Control Resources.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Schedule Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Resource Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

## 1. Roles and Responsibilities

The roles and responsibilities of the SARS-CoV-2 Hospital Field Project are essential to the project's success. All team members must have this clear to perform their part of the project successfully. For the SARS-CoV-2 Field Hospital Project, the following project team roles and responsibilities have been established:

Project Manager, (1 position):

The Project Manager (PM) is responsible for the overall success of the project. He is to authorize and approve all project expenditures. The Project Manager will also be responsible for ensuring work activities meet established acceptability criteria and fall within acceptable variances. According to the communications management plan and the communications to all project team members and relevant stakeholders, the reporting of project status is also the PM's responsibility. The Project Manager must be proficient in leadership/management, budgeting, scheduling, and effective communication.

National Emergency Management Organization managers/Project Team members (9 positions):

- Medical Care and Public Health.

Responsible for providing technical advice and support for setting up the medical aspects of the field hospital. The Medical/Public Health Manager will coordinate with his team to set up hospital costs and medical peripherals, medical equipment, medical documentation system, pharmacy storage, and supply system. The Medical/Public Health Manager is responsible for timely status reporting to the Project Manager as required by the communications management plan. The Medical/Public Health manager may not authorize any project expenditures nor allocate any resources without the project manager's prior approval. The Medical/Public Health Manager must be proficient in Public Health and management of hospital resources, and the PM will manage his performance.

- Housing and Shelter.

Responsible for identifying and securing temporary housing for those working on the SARS-CoV-2 Field Hospital project if required. The Housing/Shelter Manager is also

responsible for identifying and securing medium to long-term housing for the medical and nursing staff required to operate the SARS-CoV-2 Field Hospital. The Housing/Shelter Manager is responsible for timely status reporting to the Project Manager as required by the communications management plan. The Housing/Shelter manager may not authorize any project expenditures nor allocate any resources without the project manager's prior approval. The Housing/Shelter Manager must be proficient in resource management, and the PM will manage his performance.

- Transport and Evacuation.

Responsible for identifying and providing transport needs for the project and establishing transport protocols for the use of the vehicles during the project and the hospital's operations after the project has been completed. The Transport/Evacuation Manager will also be responsible for maintaining all vehicles, documentation of usage/mileage of all vehicles, fuel use of all vehicles, and assigning drivers to those vehicles. The Transport/Evacuation Manager is responsible for timely status reporting to the Project Manager as required by the communications management plan. The Housing/Shelter manager may not authorize any project expenditures, including fuel, nor allocate any resources without the project manager's prior approval. The Transport/Evacuation Manager must be proficient in resource management, and the PM will manage his performance.

- Human Resources Management.

Responsible for identifying and recruiting Public Servants across all ministries of the Government of Belize whose expertise would be needed for the successful completion of the SARS-CoV-2 Field Hospital Project. The Human Resources Manager is responsible for assigning duties, supervising Public Servants assigned to the project, and providing timely reports to the Project Manager on how the staff is being employed and work completed as required by the Communications Management Plan. The Human Resources Manager may not authorize any project expenditures or allocate any resources without the project manager's prior approval. The Human Resources Manager must be proficient in resource management, and the PM will manage his performance.

- Relief and Supplies Management.

Responsible for providing supplies and materials for the needs of the SARS-CoV-2 Field Hospital Project. The Relief/Supplies Manager will be responsible for identifying and sourcing supplies from other ministries of the Government of Belize nationwide to ensure the project's success. He will document the origin and source of supplies and use for the project and provide timely reports to the Project Manager as required by the Communications Management Plan. The Relief and Supplies Manager may not authorize any project expenditures or allocate resources without the project manager's prior approval. The Relief and Supplies must be proficient in resource management, and the PM will manage his performance.

- Restoration of Utilities.

Responsible for the repairs, maintenance, and installation of utilities at the Galvez Stadium and housing areas assigned by the Housing and Shelter Manager. The Restoration of Utilities Manager may not authorize any project expenditures or allocate resources without the project manager's prior approval. The manager must be proficient in utility repairs, and the PM will manage his performance.

- Mitigation, Infrastructure, Access, and Works.

Responsible for structural repairs to the Galvez Stadium and housing for medical staff as required. The Mitigation/Infrastructure, Access/Works Manager, will also be responsible for clearing and preparing the stadium grounds and road access as required. The manager may not authorize any project expenditures or allocate any resources without the project manager's prior approval. The Mitigation/Infrastructure, Access/Works Manager must be proficient in structural or civil engineering, and the PM will manage his performance.

- National Security (local Commander of the Belize Defense Force).

Responsible for providing specialized and non-specialized workers for the SARS-CoV-2 Field Hospital Project. The local Commander of the Belize Defense Force (BDF) will liaise with other NEMO managers and provide unskilled labor as required. He will also facilitate

specialized workers, including a decontamination expert and a trained Incident Commander, as required to complete the project successfully. The local Commander of the BDF may not authorize any project expenditures or allocate any resources without the project manager's prior approval. The local BDF Commander must be proficient in army command, and the PM will manage his performance.

- Local Security (Officer Commanding Police of the San Ignacio area).

Responsible for the overall security of the worksite and materials during the SARS-CoV-2 Field Hospital Project. The Officer Commanding Police of the San Ignacio Area will provide Police Officers to control traffic to and from the project site and ensure only authorized personnel has access to the site. The Officer Commanding Police of the San Ignacio area may not authorize any project expenditures or allocate any resources without the project manager's prior approval. The Officer Commanding must be proficient in logistics and security measures, and the PM will manage his performance.

## 2. Project Organizational Charts

The graphic below provides a representation of the reporting structure for the SARS-CoV-2 Field Hospital Project.

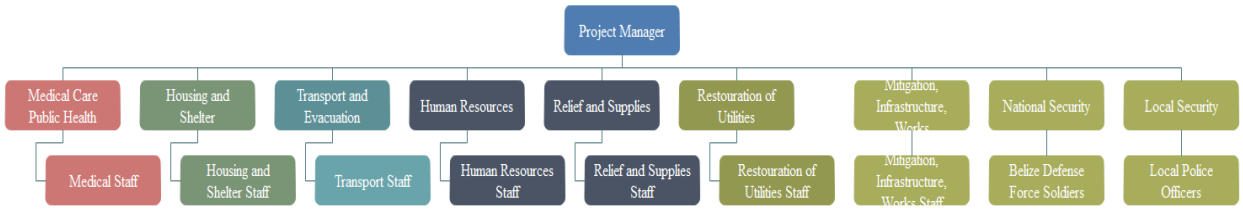



Figure 11. SARS-CoV-2 Reporting Structure (Source: Compiled by the Author)

The following RACI (Responsible, Accountable, Consulted, Informed) chart visualizes the relationship between project tasks and project team members. Any proposed changes to project responsibilities must be proposed following the project's change control process, then reviewed and approved by the Project Manager. Once approved, all changes will be reflected in the relevant project documents, and the Project Manager will notify the project team members and relevant stakeholders.

**Chart 26. SARS-CoV-2 Field Hospital Project RACI (Source: Compiled by the Author)**

| Project Tasks | Project Manager | Medical Manager | Housing Manager | Human Resources | Relief and Supplies | Restoration of Utilities | Infrastructure | National Security | Local Security |
|---|---|---|---|---|---|---|---|---|---|
| Assignment and Authorization of Project Manager | R | I | I | I | I | I | I | I | I |
| Assignment and Authorization of NEMO Committee | R | I | I | I | I | I | I | I | I |
| Create a Project Integration Management Plan | R/A | | | | | | | | |
| Create a Project Scope Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Project Schedule Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Project Cost Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Project Quality Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Human Resource Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Communication Management | R/A | C | C | C | C | C | C | C | C |

| Project Tasks | Project Manager | Medical Manager | Housing Manager | Human Resources | Relief and Supplies | Restoration of Utilities | Infrastructure | National Security | Local Security |
|---|---|---|---|---|---|---|---|---|---|
| Plan | | | | | | | | | |
| Create a Project Risk Management Plan | R/A | C | C | C | C | C | C | C | C |
| Create a Project Procurement Management Plan | R/A | I | I | I | I | I | I | I | I |
| Create a Stakeholder Management Plan | R/A | I | I | I | I | I | I | I | I |
| Create a Decontamination and Flow Plan | A | C | | | | | | R | |
| Identification and Authorization of the Incident Command Team | R/A | I | | I | I | | | C | |
| Clear and clean the site | A | | | C | C | | C | R | |
| Clear access roads and driveways | A | | | C | C | | C | R | C |
| Install/repair water and sanitation services | A | | | | C | R | C | C | |
| Install/repair communication services | A | | | | C | R | C | C | |
| Install/repair electrical and lighting services | A | | | | C | R | C | C | |

| Project Tasks | Project Manager | Medical Manager | Housing Manager | Human Resources | Relief and Supplies | Restoration of Utilities | Infrastructure | National Security | Local Security |
|---|---|---|---|---|---|---|---|---|---|
| Assembly and installation of field tents | A | I | | C | C | C | C | R | |
| Installation of Triage Signage | A | C | | C | C | | | R | |
| Assembly and placement of cots and peripherals | A | R | | C | C | | | C | |
| Installation of medical equipment | A | R | | C | C | | C | C | |
| Outfit Pharmacy and Medical supplies storage | A | R | | C | C | | C | C | |
| Outfit Office | A | | | C | C | | C | C | |
| Outfit eating area | A | C | | C | C | | C | C | |
| Identification and assignment of transport vehicles | A | | | | | | | C | |
| Secure housing for hospital staff | A | C | R | | C | | C | | |
| Cancel bills and return unused items | R/A | | | | | | | | |
| Hand-over to Incident Commander | R/A | I | I | I | I | I | I | I | I |
| Perform Post Project Review | R/A | | | | | | | | |

Key:

R – Responsible for completing the work

A – Accountable for ensuring task completion/sign off

C – Consulted before any decisions are made

I – Informed of when an action/decision has been made

## 3. Staffing Management

### 3.1 Staff Acquisition

For the SARS-CoV-2 Field Hospital Project, the project staff will consist entirely of internal sources. These internal sources will come from civil servants of the various ministries under the NEMO managers' supervision. The only contracted services will be Belize Telecommunications Limited who will provide land-line telephone communications, internet, and Wi-Fi services.

### 3.2 Resource Calendars

The SARS-CoV-2 Field Hospital Project will last for only two weeks, and all resources are required before the project can begin.

### 3.3 Training

There will be no staff training during the SARS-CoV-2 Field Hospital Project as all those participating are to have the required skill sets to contribute to the successful completion of the project.

### 3.4 Performance Reviews

The Project Manager will review each team member’s assigned work activities at the onset of the project and communicate all work expectations to be performed. The Project Manager will also be responsible.

### 3.5 Recognition and Rewards

This project has a somber overtone as it is in response to a critical medical need. There will not be any celebrations associated with the successful completion of the project, but most certainly, all those involved would be recognized.

- Upon completing the SARS-CoV-2 Field Hospital Project, the Cayo area's Senior Minister will hold a press conference where those involved will be invited, and their accomplishments acknowledged.

## 4. Resource Breakdown Structure

The resources that will be required by the SARS-CoV-2 Field Hospital Project for its successful completion is illustrated in the figure below.

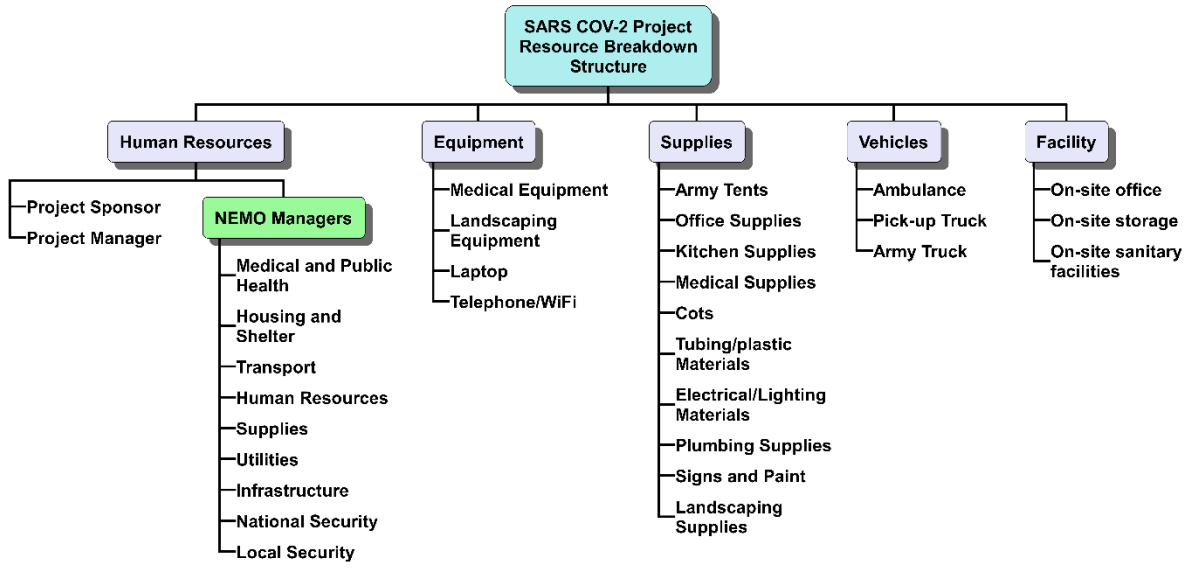



Figure 12. SARS-CoV-2 Field Project Hospital Resource Breakdown Structure (Source: Compiled by the Author)

## Sponsor Acceptance

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.7. Project Communications Management

According to the Project Management Institute (2017):

> Project Communications Management includes the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of artifacts and implementation of activities designed to achieve effective information exchange. Project Communications Management consists of two parts. The first part is developing a strategy to ensure communication is effective for stakeholders. The second part is carrying out the activities necessary to implement the communications strategy (p. 359).

The processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Communications Management.
- Manage Communications.
- Monitor Communications.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Communications Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Communication Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

**1. Communications Management Approach**

The Project Manager will be proactive in ensuring the establishment of persuasive communications on this project. The Communications Matrix, where the communications requirements are documented, is presented in this document and will guide what information will be communicated, to whom, and when the communications are to occur.

If an update or a change to the Communication Management Plan is needed, the Project Manager will be responsible for managing all proposed and approved changes. Once the change is approved, the Project Manager will update the plan and relevant documentation and distribute it to the Project team and all stakeholders. This methodology is consistent with the project's Change Management Plan and ensures that all stakeholders are informed of any Communication Management Plan changes.

**2. Stakeholder Communication Requirements**

The Project Manager will document the preferred frequency and method of communication of each stakeholder. The Project Manager will maintain this feedback in the project's Stakeholder Register.

Once all the stakeholders have been identified and communication requirements are established, the project team will maintain this information in the project's Stakeholder Register and use this and the project communication matrix as the basis for all communications.

**3. Roles**

- Project Sponsor.

The Project Sponsor is the project champion and has authorized the project by signing the Project Charter. The Project Sponsor is responsible for the funding of the project and ensuring the project's success. All communications presented at this executive-level should be presented in summary format unless specified otherwise.

- Project Manager.

The Project Manager is responsible for the execution of the project. He manages daily

resources, provides guidance, monitors, and creates reports on the project metrics. The Project Manager is the primary communicator for this project and will distribute information according to this Communications Management Plan.

- NEMO Managers.

The Project Team is comprised of persons who have a role performing work on the project. In this instance, the project team will consist of NEMO managers. They will also play a key role in defining the project's schedule, and work packages and are responsible for managing areas of the project that encompass their area of expertise. They take the lead from the Project Manager and report directly to him. The NEMO managers will also contribute to the project's monitoring and are expected to give timely reports to the Project Manager. The NEMO managers require a detailed communication level, which will be achieved through daily interactions with the Project Manager.

**4. Project Team Directory**

The following chart includes the contact information for all those identified in this Communications Management Plan. The missing fields will be filled once the positions have been confirmed.

**Chart 27. Contact Information for Project Stakeholders (Source: Compiled by the Author)**

| Role | Name | Title | Organization/ Department | Email | Phone |
|---|---|---|---|---|---|
| Project Sponsor | | | | | |
| Project Manager | | | | | |
| NEMO Manager | | | | | |
| NEMO Manager | | | | | |
| Project Stakeholders | | | | | |

**5. Communication Methods and Technologies**

The project team and the Project Manager will determine the communication methods and technologies used for this project. Although not everyone will have access to MS Project Software to maintain and communicate schedules, the schedule can be printed and distributed to the Project Team. Any changes or adjustments will be made by the Project Manager, who has access to the software and then distributes it to the Project Team.

It is understood that all members of the Project Team have access to computers, the internet, cell-phones, and cell-phone data. All documentation of communications will be the responsibility of the Project Team, supervised by the Project Manager.

- Meetings.

The Project Manager or any project team member may request a meeting with all or only part of the project team. The project's compressed schedule indicates that meetings will be held not more than every two days and up to various times a day if required. The recording of meeting minutes will be assigned at the beginning of each meeting, and meeting minutes will be distributed no later than the end of the workday.

- Email.

The Project Manager should be included in any email about the SARS-CoV-2 Emergency Field Hospital Project. Emails should be professional, grammatically correct, and provide brief communication. If the email's purpose is to bring forward an issue, it should provide a brief background on the issue and provide recommendations to correct it.

- Informal Communications.

Informal communications, including informal discussions, phone calls, text, and social media, are part of everyday communication. However, any concerns, issues, or updates that may arise from informal discussions must be communicated formally on time to take appropriate action.

**6. Communications Matrix**

The following chart identifies the communications requirements for this project.

**Chart 28. SARS-CoV-2 Field Hospital Project Communications Requirements (Source: Compiled by the Author)**

| Communication Type | Description | Frequency | Format | Participants/ Distribution | Deliverable | Owner |
|---|---|---|---|---|---|---|
| Review of documents | Present documents and content to the project team and stakeholders | As Needed | In-Person Meeting | Project Sponsor, Team, and Stakeholders | Signed documents of authorization | Project Manager |
| Review of Roles and Responsibilities of Command Team | Clarify Command System, roles/responsibilities of Command team and assign tasks | As Needed | In-Person Meeting and emails | Incident Command team | Formation of the Incident Command System | Project Manager |
| Management of the outfitting of Galvez Stadium | Review any technical details regarding the outfitting of Galvez Stadium. | As Needed | In-Person Meeting and emails | Project Team | Outfitting Galvez Stadium as field hospital | Project Manager |
| Assignment of vehicles | Review assignments of vehicles and drivers | As needed | In-person Meeting and emails | Project Team | Provision of transport vehicles | Project Manager |
| Assignment of housing for staff | Review of housing assignment and arrangeme | As needed | In-person Meeting and emails | Project Team | Housing for hospital staff | Project Manager |

| | | | | | | |
|---|---|---|---|---|---|---|
| | nts for staff | | | | | |
| Flow and Decontamination plans review | Revision of flow and decontamination plans for the Galvez Stadium | As needed | In-person meeting and emails | Project Team | Patient flow and decontamination plan | Project Manager |

## 7. Communication Escalation Process

Efficient and timely communication is the key to successful project completion. Therefore, all disputes, conflicts, or discrepancies regarding project communications must be resolved in a way that maintains the project schedule. For issues to be resolved and for the project to remain on schedule, the following chart will define the priority levels, decision authorities, and timeframes for resolution.

**Chart 29. SARS-CoV-2 Communication Escalation Process (Source: Compiled by the Author)**

| Priority | Definition | Decision Authority | Timeframe for Resolution |
|---|---|---|---|
| Priority 1 | Significant impact on the project or business operations. If not resolved quickly, there will be a significant adverse impact on revenue or schedule. | Project sponsor | Within 4 hours |
| Priority 2 | Medium impact to project or business operations, resulting in some adverse impact on revenue or schedule. | Project Sponsor | Within one workday |
| Priority 3 | A slight impact may cause some minor scheduling difficulties with the project but no impact on business operations or revenue. | Project Manager | Within two workdays |
| Priority 4 | Insignificant impact on the project, but there may be a better solution. | Project Manager | Work continues, and any recommendations are submitted via the project change control process |

## 8. Glossary of Communication Terminology

**Chart 30. Communication Terminology (Source: Compiled by the Author)**

| Term | Definition |
|---|---|
| Communication | The effective sending and receiving of information. Ideally, the information received should match the information sent. It is the responsibility of the sender to ensure this takes place. |
| Stakeholder | Individuals or groups involved in the project or whose interests may be affected by the project's execution or outcome. |
| Communications Management Plan | A portion of the overall Project Management Plan details how project communications will be conducted, participating in communications, frequency of communications, and communications methods. |
| Escalation | The process details how conflicts and issues will be passed up the management chain for resolution and the timeframe to achieve resolution. |

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.8. Project Risk Management

“Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project” (Project Management Institute, 2017 p. 395). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Risk Management.
- Identify Risks.
- Perform Qualitative Risk Analysis.
- Perform Quantitative Risk Analysis.
- Plan Risk Responses.
- Implement Risk Responses.
- Monitor Risks.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Risk Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Risk Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

With the development of new and unique projects, there is uncertainty about how the project will progress. Those uncertainties or risks need to be appropriately addressed in an established framework found in the Risk Management Plan. It is here that risks are identified and managed.

This project is considered a high-risk project as it has an overall risk score of 25 on a scale from 0 to 25. The project risk score is the average of the risk scores of the most significant risks to the project. A risk score below or equal to 10 is a low-risk project, a score from 11 and 19 is a medium-risk project, and a score from 20 to 25 is a high-risk project.

**1. Top Three Risks**

The top three high probability and high impact risks to this project are:

- Scope Creep.

The project sponsor is not familiar with the principles of Project Management, the Incident Command System, or SARS-CoV-2 management and safety protocols. The project sponsor was assigned as he is the political appointee with authority under the laws of Belize to sponsor this project. This lends to the high probability that requests will be made to make changes, and because of his authority, he will expect that the changes will be carried out regardless of the risk to the project's successful completion.

- Interference from outside of the project.

Every NEMO manager is a public servant who is assigned to his respective ministry. Ministers or politically appointed managers govern these ministries or departments. Should they have some interest in the project, they will interfere by making requests or instructing their managers who form part of the project team to do their bidding, undermining the project manager's authority.

- Uncooperative NEMO managers.

Every NEMO manager is a public servant who is assigned to his respective ministry. Ministers or politically appointed managers govern these ministries or departments. The NEMO manager may, therefore, not feel obligated to follow directives from the Project Manager, citing that he is not their legitimate supervisor. Not acknowledging the Project

Manager's authority will most certainly put the project at risk of not completing.

**2. Risk Management Approach**

The approach that has been taken to manage the risks for this project includes a systematic process by which the project team identified, scored, and ranked the various risks. The most likely and highest impact risks were added to the project schedule to ensure that the assigned risk managers took the required steps to implement the mitigation response at the appropriate time during the schedule.

**3. Risk Identification**

For this project, risk identification was conducted in the initial project risk assessment meeting. The project team employed brainstorming techniques to identify and record as many risks as possible. These risks were then scored, ranked, and documented in the risk register.

**4. Risk Qualification and Prioritization**

To determine the severity of the risks identified by the team, a probability and impact factor was assigned to each risk. This process allowed the Project Manager to prioritize risks based on their effect on the project. The chart below illustrates the probability scale that was used for this project.

**Chart 31. SARS-CoV-2 Field Hospital Project Probability Scale (Source: Compiled by the Author)**

| Title | Score | Description |
|---|---|---|
| Very Low | 1 | An event that has a 0 - 20% chance of occurring |
| Low | 2 | An event that has a 21 – 40% chance of occurring |
| Medium | 3 | An event that has a 41 – 60% chance of occurring |
| High | 4 | An event that has a 61 – 80% chance of occurring |
| Very High | 5 | An event that has an 81 – 100% chance of occurring |

The chart below illustrates the impact scale that was used in this project.

**Chart 32. SARS-CoV-2 Field Hospital Project Impact Scale (Source: Compiled by the Author)**

| Impact | |
|---|---|
| 1 | Barely noticeable, minimal changes to project affected by a change of Scope |
| 2 | Minor areas of the project affected by a change of Scope |
| 3 | Major areas of the project affected by a change of Scope |
| 4 | Scope change has rendered unacceptable changes to all major aspects of the Project |
| 5 | Catastrophic Scope changes have rendered the Project useless |

The chart below illustrates the Probability (P) x Impact (I) scale used for this project.

**Chart 33. SARS-CoV-2 Field Hospital Project Probability X Impact Scale (Source: Compiled by the Author)**

| PxI | |
|---|---|
| From 1 to 10 | Green |
| From 11 to 19 | Yellow |
| From 20 to 25 | Red |

**5. Risk Monitoring**

The most likely and most significant impact risks have been added to the project plan to ensure that they are monitored when the project is exposed to each risk. This project's two risks that fall into the most likely and most significant impact category are scope creep and interference outside the project. These risks can occur on the first day of this two-week-long project. For this reason, monitoring will begin when the project begins, and the appropriate measures will be taken as necessary.

**6. Risk Mitigation and Avoidance**

The Project Manager and the Project Team will continuously assess the project to identify previously unseen risks to develop avoidance and mitigation strategies. These risks will also be added to the Risk Register and the project plan to ensure proper monitoring and adequate response.

This project's risks will be managed and controlled mainly within the constraint of scope as this presents as the most vulnerable of the triple constraints for this project. The Project Manager and the Project Team will determine the best way to respond to each risk to ensure compliance with these constraints.

### 7. Risk Register

The Risk Register for this project is a log of all identified risks, their probability and impact to the project, mitigation strategy, and when the risk will occur. Based on the identified risks and timeframes in the Risk Register, the Project Manager will assign a risk manager to ensure adherence to the agreed-upon mitigation strategy. Each risk manager will provide the status of their assigned risk daily to the Project Manager, who will update the Project Sponsor and Stakeholders as needed. The Risk Register will be maintained as an appendix to this Risk Management Plan.

**Chart 34. SARS-CoV-2 Field Hospital Project Risk Register (Source: Compiled by the Author)**

| RBS Code | Cause | Risk | Consequence | Probability | Impact | PxI | Trigger | Owner | Preventative Action | Owner | Response |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Poorly defined Project Scope Plan | Scope Creep | Budget overrun, blown deadline, project not completed | 5 | 5 | 25 | Unreasonable Scope change requests | PM | Make a clearly defined statement of work | PM | Avoid the Risk: Seek support from Project Sponsor to maintain Scope |
| 2 | Poorly defined Stakeholder Manageme | Interfernce from outs | Budget overrun, blown deadline, | 5 | 5 | 25 | Directives being given to the Project Team that | PT | Establish a clear organizational plan to which all project team | PM | Avoid the Risk: Seek support from Project Sponsor |

| RBS Code | Cause | Risk | Consequence | Probability | Impact | Pxl | Trigger | Owner | Preventative Action | Owner | Response |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | nt Plan | ide the proj ect | proje ct not comp leted | | | | does not come from the Project Manager | | members sign on to | | and Project Team to prevent outside interfere nce of the project |
| 3 | No Stake holder buy-in | Unc oop erat ive NE MO Ma nag ers | Inco mplet e tasks, proje ct not comp leted | 2 | 5 | 10 | NEMO Manager s are not complyin g with directive s from the Project Manager | PM | Sensitizati on and training on subject matter to enhance understan ding and importanc e of role on project team | PM | Avoid the Risk: Seek support along with Project Sponsor to reinforce commitm ent from NEMO manager s and their direct supervis ors |
| 4 | Projec t Sched ule not monit ored | The proj ect doe s not me et the dea dlin e | No facilit y availa ble to admit sick patie nts on a prede termi | 2 | 3 | 8 | There is an increase d duration of an individua l work package of 5% or more | PM | Ensure that project team members understan d project schedule and deadlines before project | PM | Risk Mitigatio n: Recruit more human resource s as needed to meet the deadline |

| RBS Code | Cause | Risk | Consequence | Probability | Impact | Pxl | Trigger | Owner | Preventative Action | Owner | Response |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ned date | | | | | | launch | | |
| 5 | Work safety rules not observed | Injury on the work-site | Loss of working hours and workers available for the project | 1 | 2 | 2 | There are reports of unsafe work practices or injuries on the job | PT | Train workers in work safety rules before allowing them to work on the project | SSO | Risk Mitigation: Assign a safety officer to monitor daily work activities |
| 6 | Poor Project planning and execution | Project objectives are not met | Project failure | 1 | 5 | 5 | There isn't any coherent Project Plan | PM | Hire a qualified and competent Project Manager | PS | Restructure the project team and hire a new Project Manager |
| 7 | Material, financial or human resources not readily available for project execu | Project deliverables not met | Project Failure | 2 | 5 | 10 | Material, financial or human resource not available when required | PM | Procure or reserve resources before project execution | PM | Use NEMO resources to complement project requirements |

| RBS Code | Cause | Risk | Consequence | Probability | Impact | PxI | Trigger | Owner | Preventative Action | Owner | Response |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | tion | | | | | | | | | | |
| 8 | Poor project execution | Project deliverables not met | Project failure | 1 | 5 | 5 | Project team deliverables are not met | PM | Hire qualified and experienced project team members | PM | Restructure project team using technically proficient personnel |
| 9 | Poor project quality | Project quality targets are not met | Project failure | 2 | 5 | 10 | Project team deliverables are not met | PM | Hire project team members who are qualified and experienced in quality assurance and control | PM | Restructure project team using technically proficient personnel |
| 10 | Unrealistic schedule and cost expectations for vendors | Materials not delivered on-time | Project failure | 2 | 5 | 10 | Materials are not delivered on-time | PM | Check availability of materials from vendors at the beginning of the project | PM | Find alternative vendors from surrounding areas |

Key:

PM – Project Manager

PT – Project Team

SSO – Safety Security Officer

PS – Project Sponsor

## 8. Key Terms

### Chart 35. SARS-CoV-2 Risk Key Terms (Source: Compiled by the Author)

| | |
|---|---|
| Risk | The risk is stated in a complete sentence which states the cause of the risk, the risk, and the effect that the risk causes to the project. |
| Probability | The likelihood that risk or opportunity will occur (on a scale from 1 to 5, with 5 being the highest). |
| Impact | The impact of the risk on the project if the risk occurs (scale from 0 to 5 with 5 being the highest). |
| Risk Score | Determined by multiplying probability and impact (scale from 0 to 25). |
| Risk Ranking | A priority list is determined by the relative ranking of the risks (by their scores) within the project, with the number one being the highest risk score. |
| Risk Response | The action is to be taken if this risk occurs. |
| Trigger | Something which indicates that a risk is about to occur or has already occurred. |
| Risk Owner | The person who the project manager assigns to watch for triggers and manage the risk response if the risk occurs. |

### Sponsor Acceptance

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.9. Project Procurement Management

“Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team” (Project Management Institute, 2017 p. 459). These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Plan Procurement Management.
- Conduct Procurements.
- Control Procurements.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Procurement Management Plan was developed using the PMBOK® Guide, 6th Edition as a source, and a template from ©Project Management Docs was used for the development of the plan.

Procurement Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

### 1. Procurement Management Approach

The Project Manager will provide oversight and management for all procurement activities under this project. He will work with the Project Team to identify all items to be procured to complete the project successfully. Except for the telephone/Wi-Fi services, all procurements will come through the National Emergency Management Organization resources or from previously authorized local suppliers.

### 2. Procurement Definition

The following procurement items or services have been determined to be essential for project completion and success. The following list of items/services, justification, and timeline are pending review by the Project Team and Project Manager for purchase submission.

**Chart 36. Procurement Items with Justification and Budget (Source: Compiled by the Author)**

| Item/Service | Justification | Quantity | Budget | Needed By |
|---|---|---|---|---|
| Laptops | Work tool for the Project Team | 10 | 1,000 | 02/Nov/2020 |
| Pickup Truck | Transportation of staff and supplies | 4 | 4,800 | 04/Nov/2020 |
| Ambulance | Transportation of SARS-CoV-2 patients | 1 | 1,500 | 04/Nov/2020 |
| Army Tents | Staging and Triage areas | 2 | 500 | 08/Nov/2020 |
| Trailers | Transportation of materials and garbage | 2 | 1,800 | 08/Nov/2020 |
| Cots | Beds for the SARS-CoV-2 patients | 30 | 2,250 | 08/Nov/2020 |
| IV Stands | Support for SARS-CoV-2 patients | 30 | 900 | 08/Nov/2020 |
| Storage Bins | Waste Control and supply storage | 20 | 800 | 08/Nov/2020 |
| EKG Machines | Patient management and care | 2 | 1,500 | 08/Nov/2020 |
| Oxygen Tanks | Patient management | 40 | 15,000 | 08/Nov/2020 |

| | | | | |
|---|---|---|---|---|
| with Regulators | and care | | | |
| General plumbing supplies | Supplies for repair or replacement of plumbing services at the Galvez Stadium | N/A | 1,000 | 08/Nov/2020 |
| General electrical/lighting supplies | Supplies for repair or replacement of electrical or lighting services at the Galvez Stadium | N/A | 1,000 | 08/Nov/2020 |
| General landscaping supplies | Supplies for landscaping, clearing of land, bushes, obstacles at the Galvez Stadium | N/A | 1,000 | 08/Nov/2020 |
| General office supplies | Office supplies for the Incident Command Office at the Galvez Stadium | N/A | 500 | 08/Nov/2020 |
| General Kitchen supplies | Kitchen supplies for the staff | N/A | 500 | 08/Nov/2020 |
| Wi-Fi, Internet, and telephone services | Communication Services for the Field Hospital and the Incident Command System | N/A | 1,000 | 08/Nov/2020 |

**3. Assumptions**

The following assumptions have been made during the creation of this Procurement Plan:

- Primary Source materials will be readily available.
- There will be sufficient time to complete the objectives.
- The procurement requirements will remain unchanged throughout this project.
- The Government approved suppliers will be interested in and be able to supply the project.
- The project will be initiated during a time of national emergency allowing for NEMO to access finances, materials and equipment from any and all ministries as it sees fit to do so.

**4. Constraints**

The following constraints have been established during the creation of this Procurement

Plan:

- There is a two-week timeline for the completion of the project which is firm and non-negotiable.
- The selected suppliers must have local maintenance and support staff in all store regions.
- Potential solution options are limited by the budget allocated.
- Only the Project Manager is authorized to make purchases.
- There is a budget of $5,000 BZE to purchase materials not available from NEMO resources.

**5. Type of Contract to be used**

All items and services to be procured for this project will be solicited under firm-fixed-price contracts. The Project Team and the Project Manager will define the item types, quantities, services, and required delivery dates. Bids from approved vendors will then be evaluated to procure the items within the required time frame and at a reasonable cost under the firm fixed price contract once the vendor is selected. The contract will be for the duration of the project.

**6. Procurement Risks**

All procurement activities carry some potential risk, which must be managed to ensure project success. For this project, the following risks must be considered:

- Unrealistic schedule and cost expectations for vendors.
- Conflicts with current contracts and vendor relationships.
- Potential delays in shipping and impacts on cost and schedule.
- Questionable past performance for vendors.

**7. Procurement Risk Management**

Project risks will be managed following the project's risk management plan. However, as it pertains to issues or concerns regarding procurement actions, any newly identified risks will be immediately communicated to the Project Manager, who will then provide a report for the Project Sponsor.

## 8. Selection Process

The following activities will be used to select a preferred supplier for this project:

- Issue Request for Information (RFI): document a Statement of Work to describe the procurement items in detail. Then document a Request for Information to list the information required from suppliers to create a supplier shortlist. These two documents will be released to potential suppliers, who will then submit a formal response to the Project Team. Based on those responses, a shortlist will be created.
- Issue a Request for Proposal (RFP): The Statement of Work will be updated with any necessary changes. A new Request for Proposal will be created, stating the format of supplier proposals required to select a preferred supplier. These documents will then be released to the suppliers on the shortlist. From the detailed proposals received, a preferred supplier will then be selected.
- Issue Contract: A supplier contract will be negotiated and created with the preferred supplier. If an agreement is reached, the contract will be endorsed, and the contract terms will be initiated.

The Project Manager is responsible for selecting a preferred supplier for this project and is responsible for approving tender documentation, choosing the preferred supplier, and drafting the supplier contract.

## 9. Performance Metrics for Procurement Activities

The following metrics are established for vendor performance for this project's procurement activities. Each metric is rated on a 1-3 scale as indicated below:

**Chart 37. Performance Metrics for Procurement (Source: Compiled by the Author)**

| Vendor | Product Quality | On-Time Delivery | Documentation Quality | Development Costs | Development Time | Cost per Unit | Transactional Efficiency |
|---|---|---|---|---|---|---|---|
| Vendor #1 | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vendor #2 | | | | | | | |

1 – Unsatisfactory

2 – Acceptable

3 - Exceptional

In addition to rating each vendor, actual values will be noted to build a past-performance database for selecting vendors for future procurement activities.

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 4.10. Project Stakeholder Management

According to the Project Management Institute (2017):

> 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 (p. 503).

These processes, as described by the PMBOK® Guide, 6th Edition, are:

- Identify Stakeholders.
- Plan Stakeholder Engagement.
- Manage Stakeholder Engagement.
- Monitor Stakeholder Engagement.

For the SARS-CoV-2 Emergency Field Hospital Project, the Project Risk Management Plan was developed using the PMBOK® Guide, 6th Edition as a source. A template from ©Project Management Docs was used for the development of the plan.

Stakeholder Management Plan

SARS-CoV-2 Field Hospital Project

# Table of Contents

**1. Identify Stakeholders**

The SARS-CoV-2 Field Hospital Project Team will identify the stakeholders for this project. The following criteria will be used to determine if an individual will be included as a stakeholder:

- Will the person or their organization be directly or indirectly affected by this project?
- Does the person or their organization hold a position from which they can influence the project?
- Does the person or their organization have any special skills or capabilities the project will require?
- Does the person potentially benefit from the project, or are they in a position to resist the change?

**2. Key Stakeholders**

The Project Team and the Project Manager will identify key stakeholders who will have the most influence on the project or who will be impacted the most by it. These key stakeholders will also require the most communication and management, which will be determined as stakeholders are analyzed.

**Chart 38. Stakeholder Register (Source: Compiled by the Author)**

| Name | Project Role | Title | Degree Stakeholder is impacted | Power level Outcomes | Interest level Project | Required Involvement | Comments |
|---|---|---|---|---|---|---|---|
| Senior Minister Cayo Area | Executive Sponsor | Minister | Low | 5 | 5 | Project Initiation, Execution, Closing | The Senior Minister of the Cayo area may leave the responsibility of Project Sponsor to the Junior Minister |

| Name | Project Role | Title | Degree Stakeholder is impacted | Power level Outcome | Interest level Project | Required Involvement | Comments |
|---|---|---|---|---|---|---|---|
| Local National Emergency Organization (NEMO) Managers | Project Team Member | NEMO Manager | Low | 5 | 5 | Project Planning, Execution, Monitoring | Once identified and assigned, this register will be updated with the participating managers from the local NEMO |
| Project Manager | Project Team Leader | Project Manager | Low | 5 | 5 | Project Initiation, Planning, Execution, Monitoring, Closing | The Project Manager is also a physician working with the Ministry of Health |
| The Commandant of the Belize Defense Force | Stakeholder | General | Low | 5 | 3 | Project Planning | The stakeholder authorizes the participation of his team in the project |
| The Commissioner of Police | Stakeholder | Commissioner | Low | 5 | 3 | Project Planning | The stakeholder authorizes the participation of his team in the project |
| The Government of Belize | Stakeholder | N/A | Low | 4 | 2 | N/A | The Government of Belize |

| Name | Project Role | Title | Degree Stakeholder is impacted | Power level Outcome | Interest level Project | Required Involvement | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | has an interest in this project as a body. The Ministry for NEMO takes a more involved role in the project |
| Patients infected with SARS-CoV-2 | Stakeholder | N/A | High | 2 | 4 | N/A | The positive SARS-CoV-2 patients do not have an active role in the project, but they can influence it through public opinion |

Key:

PM: Project Manager

PT: Project Team

SSO: Safety Security Officer

## 3. Stakeholder Analysis

Once all SARS-CoV-2 Field Hospital Project stakeholders have been identified, the Project Team and Project Manager will categorize and analyze each stakeholder. The result is the determination of stakeholders' level of power or influence, the management approach for each stakeholder, and the assignment of the appropriate communication and participation levels each stakeholder will have on the project.

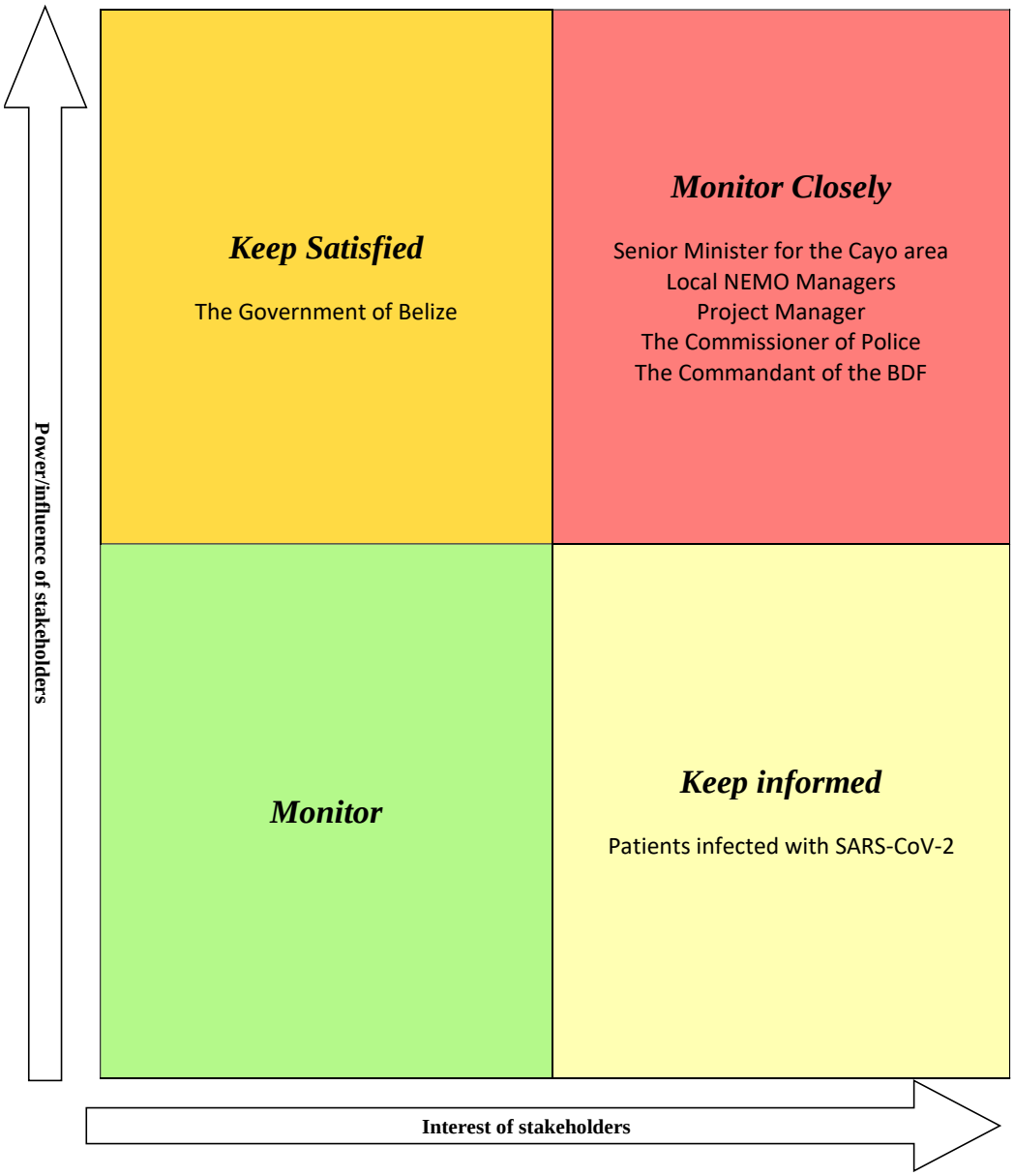



Figure 13. Stakeholder Power/Interest SARS-CoV-2 Field Hospital Project (Source: Compiled by the Author)

Based on the power and interest analysis, the patient stakeholders will need to be kept informed through frequent communication on project status and progress. The Government of Belize must be kept satisfied by ensuring concerns and questions are addressed adequately. Stakeholders Minister of Cayo, Local NEMO managers, Project Manager, Commissioner of Police, and the Commandant of the Belize Defense Force are considered vital players and must be involved in all project planning and change management levels. Additionally, the Project Team members should be participatory

members in all project status meetings, reviews, status reports, and ad hoc meetings as required.

**Chart 38. Stakeholder Communication Strategy (Source: Compiled by the Author)**

| Stakeholder | Concerns | Quadrant | Strategy |
|---|---|---|---|
| Senior Minister for the Cayo Area | Ensuring proper authorization of project activities and expenses. | Key Player Monitor closely | Communicate Project Planning, Monitoring, Execution, and Closing. Frequent communication is vital for project success. Meetings, Emails, phone calls, and status reports are required. |
| Local NEMO Managers | Project Team, responsible for project planning, execution, monitoring, and closing of the project. | Key Player Monitor closely | As members of the Project Team, all aspects of the project require close attention to detail. Daily meetings, Emails, phone calls, status reports required as needed. |
| Project Manager | Ensuring Project SARS-CoV-2 Field Hospital stays on schedule and within budget. | Key Player Monitor closely | Daily communications with all relevant stakeholders and Project Team members. Meetings, Emails, phone calls, status reports can be used. Status reports to Project Sponsor as needed. |
| Commandant of the Belize Defense Force | Provide technical expertise, manual and specialized labor for project completion. | Key Player Monitor closely | Present Project Plan and keep informed with frequent status reports on the progress of the project. |
| The Commissioner of Police | Provide technical expertise and specialized labor for project completion. | Key Player Monitor closely | Communicate test results and performance specifications and obtain feedback on customer requirements or any changes. Provide frequent status reports and updates. |
| The Government of Belize | Concerns regarding the capability and success of the project. | Keep Satisfied | Communicate Project Plan early seeking project support. Submit general status reports on the |

| | | | |
|---|---|---|---|
| | | | progress of the project to keep interest and support. |
| Patients infected with SARS-CoV-2 | Availability of hospital beds to treat and monitor patients. | Keep Informed | Allow technical staff to work with stakeholder to answer questions and address concerns and provide medical evidence for validation |

**4. Stakeholder Engagement**

“Plan Stakeholder Engagement is the process of developing approaches to involve project stakeholders based on their needs, expectations, interests, and potential impact on the project” (Project Management Institute, 2017 p.516).

For the SARS-CoV-2 Field Hospital Project, the following stakeholder engagement assessment matrix was developed, which included the key stakeholders and their desired participation level. This table is to be reviewed periodically to ensure that stakeholders' current involvement matches the required levels of participation for project success.

**Chart 39. Stakeholder Engagement Assessment Matrix (Source: Compiled by the Author)**

| Stakeholder | Unaware | Resistant | Neutral | Supportive | Leading |
|---|---|---|---|---|---|
| Senior Minister Cayo area | | | | D | |
| Local NEMO Managers | | | | | D |
| Project Manager | | | | | D |
| BDF Commandant | | | | D | |
| Police Commissioner | | | | D | |
| Government of Belize | | | | D | |
| SARS-CoV-2 Patients | | | | D | |

**5. Manage Stakeholder Engagement**

“Manage Stakeholder Engagement is the process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder involvement” (Project Management Institute, 2017 p.523). For the SARS-CoV-2 Field Hospital Project, the communication management plan will ensure that stakeholders are kept motivated and participatory in the areas required for project success.

**Sponsor Acceptance**

Approved by the Project Sponsor:

_____ Date: _____

Project Sponsor

Project Sponsor Title

## 5. CONCLUSIONS

This chapter aims to reflect on the general and specific objectives accomplished for the SARS-CoV-2 Field Hospital Project. It describes the conclusions arrived at as a result of the project management processes employed for project success.

1. The general objective “to develop a Project Management Plan for the Medical Response to SARS-CoV-2 Project to set up a field hospital capable of managing 30 COVID-19 positive patients, within two weeks of project initiation” was developed from a real need for a contingency plan to the SARS-CoV-2 pandemic. The proposed project seemed simple and straightforward enough but applying the principles, knowledge, and techniques from the PMBOK® Guide, 6th Edition. It was only then the real complexity of developing the project became evident. The application of good practices and project management global standards ensures the project's best possible result.

2. The first specific objective, “to create a Project Integration Management plan to coordinate all elements of the project and allow for any change control that may be required” refers to the part of the project that is the adhesive that holds all of the parts of the project together. When managing a project such as the SARS-CoV-2 Field Hospital Project, there are many hidden aspects or relationships between the project's various faucets. Should there be a change in one area, the Project Integration Management plan would enable the Project Manager to identify areas of the project that would be affected by the change and adjust relevant areas of the project to ensure project success. Project Integration Management, therefore, is the foundation for ensuring that all aspects of the project work seamlessly together.

3. The second specific objective, “to create a Project Scope Management plan that will define what is included and what is excluded from the project” is essential because it sets out the set of processes that ensure that the project’s scope is accurately defined and mapped. The SARS-CoV-2 Field Hospital Project is extremely vulnerable to scope creep or even scope changes that would completely modify the function and purpose that was initially intended for this

project. By providing a Scope Management plan, not only is the scope clearly defined, but there is a mechanism to request a change. The risks to the scope have also been identified, and contingency plans documented. This ensures the best chance for project success even though the SARS-CoV-2 Field Hospital Project is vulnerable to outside and political interference.

4. The third specific objective is “to create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates, and their corresponding budgets” to address the processes required to ensure the project's timely completion. The SARS-CoV-2 Field Hospital Project not only has a compressed schedule of two weeks, but one also has to consider that the project requires resources to be available at specific times. The Project Schedule Management plan provided the project timeline and plotted the work that would need to be accomplished and who would be responsible for getting it done. It also made provision for changes should it be needed and how to make the necessary adjustments to ensure that the project stayed on track.

5. The fourth specific objective “to create a Project Cost Management plan to list the costs that are likely to be incurred on the project, and a timeframe of when those expenses would occur” revealed the importance of having a structure to the project’s estimation, allocation, and control of costs for the required resources to complete all of the project’s activities. In Belize, resources are managed by the National Emergency Management Organization (NEMO) during a state of emergency. NEMO can access its resources or the resources from any ministry of the Government of Belize as it sees fit. However, it is not customary to document the costs of using human and material resources, as these resources come from the Government itself. By creating a Project Cost Management plan for the SARS-CoV-2 Field Hospital Project, the importance of documenting project costs and control became evident. The lack of creating Project Cost Management plans for NEMO projects contributes to the inefficient execution of projects and opens the door to corrupt practices.

6. The fifth specific objective, “to create a Project Quality Management Plan to ensure the customer that the quality targets for the project will be met” is designed to meet or exceed the stakeholders' expectations. Once again, the National Emergency Management Organization and the Ministry of Health does not routinely address quality management when executing projects. Quality is seen as “the best possible product” but there is no consultation with stakeholders about what they expect from the project, and hence there isn’t a clear description of what quality is for the project at hand. The SARS-CoV-2 Field Hospital Project has defined stakeholder expectations and defined processes to ensure that those expectations are met or exceeded. Whether it is acknowledged or not, Project Quality Management needs to be completed, or the project will not deliver as promised, resulting in unsatisfied stakeholders.

7. The sixth specific objective, “to create a Project Resource Management plan to identify the physical resources that would be required to complete the project” was useful for the SARS-CoV-2 Field Hospital Project. It provided information on which resources were needed for the successful completion of the project but assigned the relevant resource to the various tasks and scheduled when those resources would be required and for how long. This seemingly logical and straightforward plan, if not done correctly, however, can result in the wrong or inadequate resources being assigned or having the right resources assigned for too long or too short a period. These oversights have consequences that can affect other aspects of the project, such as the time-line, costs, and quality.

8. The seventh specific objective “to create a Project Communications Management plan to ensure that relevant information is disseminated to the appropriate stakeholders promptly” and for the SARS-CoV-2 Field Hospital Project, this plan is also essential. It has been said that about 90% of the time in a project is spent on communication by the Project Manager. This means that the timely communication of relevant information to the appropriate receiver is paramount for project success. The culture of the National Emergency Management Organization is to have many meetings (of which I have

participated), with seemingly no purpose or objective and ending up with an unclear result. This culture is detrimental to projects as the information remains stagnant, is not transferred or received, and results in members not knowing what to do. For the SARS-CoV-2 Field Hospital Project, the description of how communications would be defined as to who needs to be communicated to, what needs to be communicated when it should be communicated, how should the communication be accomplished and why the information is essential, and to what level it is essential leaves no doubt as to the manner of which information will be disseminated for the project.

9. The eighth specific objective “to create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage those risks”, and for the SARS-COV-2 Field Hospital Project, the plan was to identify potential risks, evaluate the consequence of those risks along with the probability of the risk occurring and finally develop a response to address those risks. As it turns out, the most significant risks to the project were scope creep and outside interference. By developing a risk management plan, the Project Manager will be able to be aware of these risks actively and act as soon as they occur. The Project Team and Project Sponsor are also aware of these documented risks and become involved in the risk response. Every project inherently carries some degree and type of risks, and a risk management plan is the best way to identify, prepare, and respond to those risks.

10. The ninth specific objective, “to create a Project Procurement Management plan to identify the outsourcing needs of the project and define the selection process of the project suppliers”, was relevant for the SARS-CoV-2 Field Hospital Project, mostly since it was a Government of Belize sponsored project. Procurement for NEMO and Governmental ministries do not have any formal protocol or processes. There is a list of approved suppliers or vendors, but getting on the list only requires a senior manager's recommendation, the particulars of the supplier, and the request is then approved. I could not find a comprehensive history of any of the approved vendors, so I could not determine

past performance to help me with my final selection. The Procurement Management plan defined what was needed to be procured with justification. It documented the risks involved, approximate costs, contract deadlines and deliverables, and the project's constraints. Of import note, the Procurement Management plan outlines the process by which suppliers are identified and selected. This allows for transparency and discourages the possibility of corruption.

11. The tenth specific objective, “to create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact, or how they could be affected by the project”, is developed for the SARS-CoV-2 Field Hospital Project. It is not only important to identify, classify, and document the project’s stakeholders, but one also has to manage them deliberately. Stakeholders can tank a project or make it a resounding success. Engaging them requires a broad spectrum of communication techniques and tools to keep them engaged and positively impact project success. This is the case with the SARS-CoV-2 Field Hospital Project, as there are not many key stakeholders, but those identified each have a significant amount of power and influence, and not having them on board will result in project failure.

## 6. RECOMMENDATIONS

This chapter lists the author's recommendations based on the research of the various organizations involved in the SARS-CoV-2 Field Hospital Project, the processes, tools, and techniques required for the successful project completion, and the internal and external enterprise environmental factors involved with the project.

1. The Ministry of Health has a department named the Policy Analysis and Policy Unit and Project Management Unit, which reports to the Director of Health Services and the Chief Executive Officer for the Ministry of Health. However, this unit does not have a Project Manager or any organized approach to project development and execution. It could be defined as being at a Project Maturity Level one (Initial). The recommendation here would be to immediately hire a competent Project Manager to provide the services that the department's name claims to provide.

2. The Ministry of Transport and NEMO (National Emergency Management Organization) does not have a department that deals with projects or a Project Manager on staff. It is recommended that a Project Manager be hired and a department formed to provide this much-needed service to the NEMO Ministry.

3. NEMO managers do not have any training in Project Management, even though they are frequently involved in project planning and execution. To make them proficient in their duties, it is recommended that the Ministry of Transport and NEMO sponsors them to earn a Certified Associate in Project Management (CAPM)®.

4. Both the Ministry of Health and the Ministry of Transport and NEMO need to document projects they have undertaken, lessons learned, and relevant recommendations. Each project undertaken is treated as a new one with no previous experiences to draw from as it stands presently.

5. Both the Ministry of Health and the Ministry of Transport and NEMO need to develop clear, concise, fair, and transparent processes regarding how suppliers are chosen and recommended to become an approved Government of Belize

supplier/vendor.

6. The Ministry of Transport and NEMO must develop processes to track and document resources used and associated with a monetary value. The practice of not attaching a cost to resources that are readily available from within the various ministries of the Government of Belize leads to hidden expenditures, a false notion of the real cost of the project, and, more importantly, the inability to track the work and expenses of the project.

7. One of the most significant risks that the SARS-CoV-2 Field Hospital Project faced was outside interference that could undermine the project. Interference from NEMO manager supervisors, interference from political appointees, and local government only serve to derail the project. The recommendation here would be to have the Senior Minister for the Cayo area not only sign-off authorizing the project but also to send out a MEMO to the local government and to the head-of-departments of the respective NEMO managers indicating the launch of the project and informing all that he as the executive sponsor along with the Project Manager are the only ones in charge of the project.

8. The Government of Belize needs to invest in a centralized Project Management Office that can offer expertise to all government branches and ministries. This will ensure that updated best practices are implemented, that departments requiring advice and guidance get what they need, and generally ensure that the right projects are implemented and have the best chance for project success.

**BIBLIOGRAPHY**

Belize Public Service. (2014). *Belize Public Service Regulations*.

Cambridge Dictionary. (2020). *Source*. Retrieved from https://dictionary.cambridge.org/dictionary/english/source

Dictionary.com. (2020a). *Endeavor*. Retrieved from https://www.dictionary.com/browse/endeavor?s=ts

Dictionary.com. (2020b). *Process*. Retrieved from https://www.dictionary.com/browse/process?s=t

Federal Emergency Management Agency. (2020). *Federal Healthcare Resilience Task Force Alternate Care Site (ACS) Toolkit Third Edition*.

FEMA. (2018). *ICS 100, Introduction to the Incident Command System*. FEMA, Emergency Management Institute. Retrieved from https://training.fema.gov/is/courseoverview.aspx?code=IS-100.c%0D

Government of Belize. (2020a). *Belize Health Information System*.

Government of Belize. (2020b). *Government of Belize Press Office*. Retrieved from https://www.pressoffice.gov.bz/

Government of Belize. (n.d.a). *Statistical Institute of Belize*. Retrieved from http://sib.org.bz/

Government of Belize. (n.d.b). *The Ministry of Health Belize, C.A*. Retrieved from

http://health.gov.bz/www/

Method123. (2018). *Project Management Guidebook 2018*. DOI: https://doi.org/10.1017/CBO9781107415324.004.

Ministry of Health Belize. (2014). *Belize Health Sector Strategic Plan 2014-2024.* DOI: https://doi.org/10.1039/an9224700476.

Moses, S. (2019). *11 Critical Project Management Metrics Every Agency Needs to Track. Workamajig*. Retrieved from https://www.workamajig.com/blog/project-management-metrics

National Assembly of Belize. (n.d.). Retrieved from https://www.nationalassembly.gov.bz

Northcentral University Library. (2020). *Guides by Subject*. Retrieved from https://ncu.libguides.com/?b=s

OSAC. (2020). *Health Alert: Belize, State of Emergency for Next 30 days*. Retrieved from https://www.osac.gov/Country/Belize/Content/Detail/Report/d7e46f05-2bae-4b28-acf1-1854f537c53e

Pan American Health Organization. (2009). *Health Systems Profile Belize*. Retrieved from http://www1.paho.org/hq/dmdocuments/2010/Health_System_Profile-St_Lucia_2008.pdf

PMDocs. (n.d.). *Project Cost Management Plan Template*. Retrieved from https://docushare.sfu.ca/dsweb/Get/Document-501966

Project Management Institute. (2017). *PMBOK ® Guide – Sixth Edition (6th ed.)*. Project

Management Institute, Inc.

Reference.com (2020). *What Is Analytical Research?* Retrieved from https://www.reference.com/business-finance/analytical-research-94534a536bf46028

UKEsssays. (n.d.). *Descriptive Research Vs. Analytical Research Economics Essay*. Retrieved from https://www.ukessays.com/essays/economics/descriptive-research-vs-analytical-research-economics-essay.php#citethis

World Health Organization. (2020). *Listings of WHO's response to COVID-19*. Retrieved from https://www.who.int/news-room/detail/29-06-2020-covidtimeline

# APPENDICES

## Appendix 1: Final Graduation Project Charter

| Project Charter | |
|---|---|
| Date: | Project Name: |
| 22-Jun-2020 | Project Management Plan for the Medical SARS-CoV-2 Project response in San Ignacio, Belize. |
| Knowledge Areas/PM Processes: | Application Area (Sector/Activity): |
| Knowledge Areas: Integration, Scope, Schedule, Cost, Quality, Resource, Communications, Risk, Procurement and Stakeholder Management<br><br>PM Processes: Initiation and Planning | The application area is the Public Health Sector. |
| Project Start Date: | Project Finish Date: |
| 22-Jun-2020 | 22-Nov-2020 |
| Project Objectives (General and Specific): | |
| General Objective:<br><br>To develop a Project Management Plan for the Medical Response to SARS-CoV-2 Project to set up a field hospital capable of managing 30 COVID-19 positive patients within two weeks of Project initiation.<br><br>Specific Objectives:<br><br>To create a Project Integration Management plan to coordinate all elements of the project and allow for any change control that may be required.<br><br>To create a Project Scope Management plan that will define what is included and what is excluded from the project.<br><br>To create a Project Schedule Management plan where the project will be divided into scheduled tasks with well-defined start and finish dates and their corresponding | |

budgets.

To create a Project Cost Management plan to list the costs that are likely to be incurred on the project and a timeframe of when those expenses would occur.

To create a Project Quality Management Plan to ensure the customer that the project's quality targets will be met.

To create a Project Resource Management plan to identify the physical resources required to complete the project.

To create a Project Communications Management plan to ensure that relevant information is promptly disseminated to the appropriate stakeholders.

To create a Project Risk Management Plan to identify the foreseeable project risks and to provide actions to manage these risks.

To create a Project Procurement Management plan to identify the project's outsourcing needs and define the selection process of the project suppliers.

To create a Project Stakeholder Management plan to identify all entities involved and determine how they could impact the project or how they could be affected by the project.

Project purpose or justification (merit and expected results):

The SARS-CoV-2 has stressed medical responses globally, exposing vulnerabilities in medical services' capabilities to respond to the overwhelming demands required to care for those affected. For San Ignacio, there is presently a need for a Project Management Plan to create the documents required to navigate such a response's executing, monitoring, and closing processes. This document would be invaluable to ensure the best possible outcome for coordinating and executing a most needed medical response.

Description of Product or Service to be generated by the Project – Project’s final deliverables:

The Project Management Plan will provide a detailed description of the processes required to coordinate a reliable medical response to a pandemic in San Ignacio, Belize.

Assumptions:

The information required to develop the Project Management Plan will be readily available.

The Project Management Plan will be developed before the stipulated deadline.

| Constraints: |
|---|
| The availability of those who hold information critical to the development of the Project Management Plan. |
| Compressed schedule. |

| Preliminary Risks: |
|---|
| The Project Charter may not be accepted, and the proposed Project Management Plan would have to be redone. |
| Some deliverables may not be submitted before deadlines due to the accelerated schedule. |

| Budget: | |
|---|---|
| The cost of the philologist for the review of the document. | $150 |
| The cost of printing and binding of the document. | $150 |
| The cost of sending the document to Costa Rica | $90 |

| Milestones and Dates: | | |
|---|---|---|
| Milestone | Start Date | End Date |
| Final Graduation Project | 22-June-2020 | 27-Nov-2020 |
| Graduation Seminar | 22-Jun-2020 | 26-Jul-2020 |
| Tutoring Process | 07-Sep-2020 | 27-Nov-2020 |
| Reading by Reviewers | 30-Nov-2020 | 13-Dec-2020 |
| Adjustments | 14-Dec-2020 | 20-Dec-2020 |
| Presentation to the Board of Examiners | 21-Dec-2020 | 27-Dec-2020 |
| Final Graduation Project Grade Report | 28-Dec-2020 | 31-Dec-2020 |

| Relevant historical information: |
|---|
| Not applicable |

| Stakeholders: |
|---|

Direct Stakeholders:

Final Graduation Project Proposal Tutor – Mr. Carlos Brenes Mena

Final Graduation Project Tutor – Luis Diego Argüello

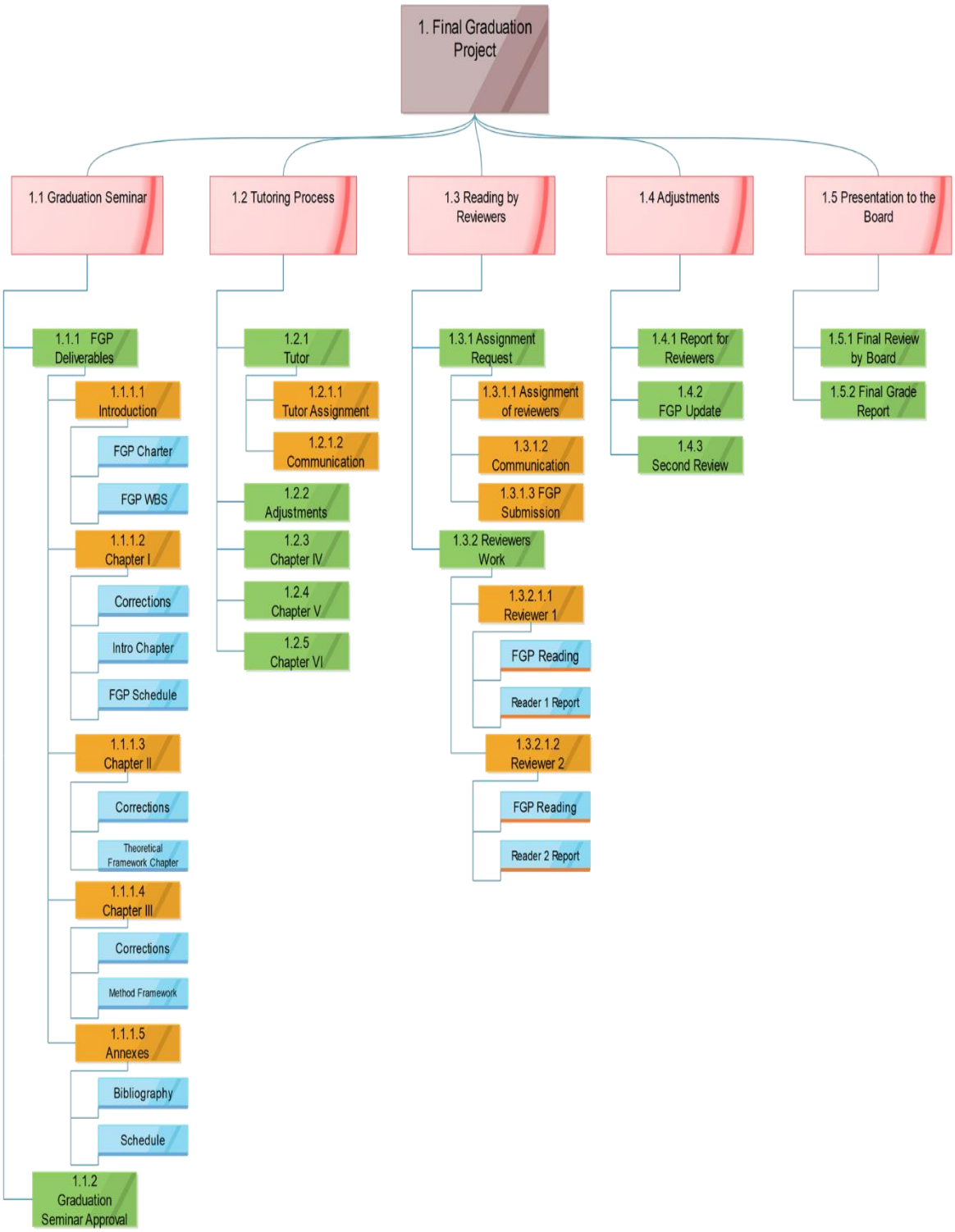
Indirect Stakeholders:

My family

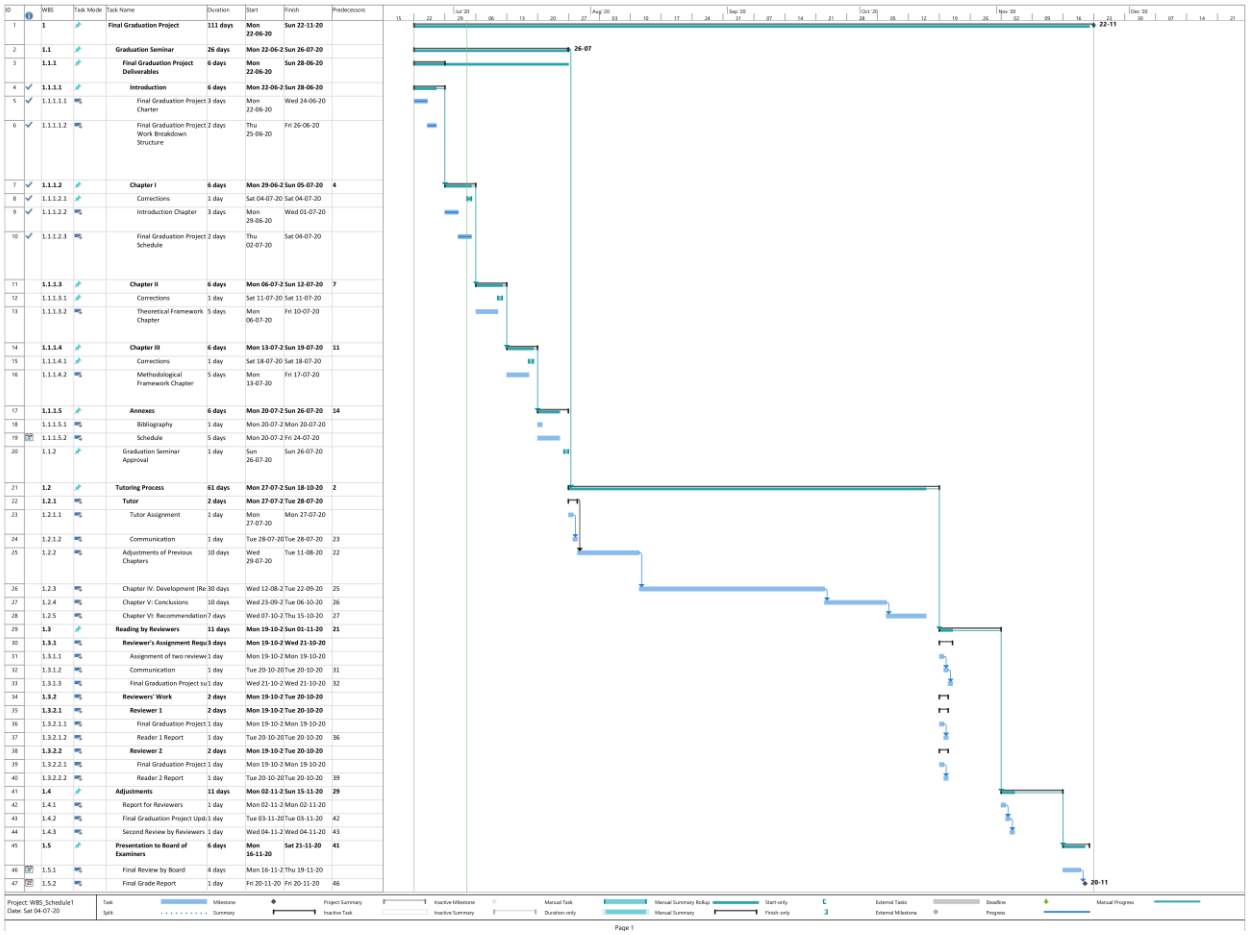
| **Approval:** | |
|---|---|
| Project Manager: Fidel Cuéllar | Signature: |
| Authorized by: | Signature: |

## Appendix 2: Final Graduation Project Work Breakdown Structure

| | WBS | Name |
|---|---|---|
| 1 | **1** | **Final Graduation Project** |
| 2 | **1.1** | **Graduation Seminar** |
| 3 | **1.1.1** | **Final Graduation Project Deliverables** |
| 4 | **1.1.1.1** | **Introduction** |
| 5 | 1.1.1.1.1 | Final Graduation Project Charter |
| 6 | 1.1.1.1.2 | Final Graduation Project Work Breakdown Structur |
| 7 | **1.1.1.2** | **Chapter I** |
| 8 | 1.1.1.2.1 | Corrections |
| 9 | 1.1.1.2.2 | Introduction Chapter |
| 10 | 1.1.1.2.3 | Final Graduation Project Schedule |
| 11 | **1.1.1.3** | **Chapter II** |
| 12 | 1.1.1.3.1 | Corrections |
| 13 | 1.1.1.3.2 | Theoretical Framework Chapter |
| 14 | **1.1.1.4** | **Chapter III** |
| 15 | 1.1.1.4.1 | Corrections |
| 16 | 1.1.1.4.2 | Methodological Framework Chapter |
| 17 | **1.1.1.5** | **Annexes** |
| 18 | 1.1.1.5.1 | Bibliography |
| 19 | 1.1.1.5.2 | Schedule |
| 20 | 1.1.2 | Graduation Seminar Approval |
| 21 | **1.2** | **Tutoring Process** |
| 22 | **1.2.1** | **Tutor** |
| 23 | 1.2.1.1 | Tutor Assignment |
| 24 | 1.2.1.2 | Communication |
| 25 | 1.2.2 | Adjustments of Previous Chapters |
| 26 | 1.2.3 | Chapter IV: Development (Results) |
| 27 | 1.2.4 | Chapter V: Conclusions |
| 28 | 1.2.5 | Chapter VI: Recommendations |
| 29 | **1.3** | **Reading by Reviewers** |
| 30 | **1.3.1** | **Reviewer's Assignment Request** |
| 31 | 1.3.1.1 | Assignment of two reviewers |
| 32 | 1.3.1.2 | Communication |
| 33 | 1.3.1.3 | Final Graduation Project submission to reviewers |
| 34 | **1.3.2** | **Reviewers' Work** |
| 35 | **1.3.2.1** | **Reviewer 1** |
| 36 | 1.3.2.1.1 | Final Graduation Project Reading |
| 37 | 1.3.2.1.2 | Reader 1 Report |
| 38 | **1.3.2.2** | **Reviewer 2** |
| 39 | 1.3.2.2.1 | Final Graduation Project Reading |
| 40 | 1.3.2.2.2 | Reader 2 Report |
| 41 | **1.4** | **Adjustments** |
| 42 | 1.4.1 | Report for Reviewers |
| 43 | 1.4.2 | Final Graduation Project Update |
| 44 | 1.4.3 | Second Review by Reviewers |
| 45 | **1.5** | **Presentation to Board of Examiners** |
| 46 | 1.5.1 | Final Review by Board |
| 47 | 1.5.2 | Final Grade Report |


1. Final Graduation Project
1.1 Graduation Seminar
1.2 Tutoring Process
1.3 Reading by Reviewers
1.4 Adjustments
1.5 Presentation to the Board
1.1.1 FGP Deliverables
1.1.1.1 Introduction
FGP Charter
FGP WBS
1.1.1.2 Chapter I
Corrections
Intro Chapter
FGP Schedule
1.1.1.3 Chapter II
Corrections
Theoretical Framework Chapter
1.1.1.4 Chapter III
Corrections
Method Framework
1.1.1.5 Annexes
Bibliography
Schedule
1.1.2 Graduation Seminar Approval
1.2.1 Tutor
1.2.1.1 Tutor Assignment
1.2.1.2 Communication
1.2.2 Adjustments
1.2.3 Chapter IV
1.2.4 Chapter V
1.2.5 Chapter VI
1.3.1 Assignment Request
1.3.1.1 Assignment of reviewers
1.3.1.2 Communication
1.3.1.3 FGP Submission
1.3.2 Reviewers Work
1.3.2.1.1 Reviewer 1
FGP Reading
Reader 1 Report
1.3.2.1.2 Reviewer 2
FGP Reading
Reader 2 Report
1.4.1 Report for Reviewers
1.4.2 FGP Update
1.4.3 Second Review
1.5.1 Final Review by Board
1.5.2 Final Grade Report

# Appendix 3: FGP Schedule



| ID | WBS | Task Mode | Task Name | Duration | Start | Finish | Predecessors |
|---|---|---|---|---|---|---|---|
| 1 | **1** | | **Final Graduation Project** | **111 days** | **Mon 22-06-20** | **Sun 22-11-20** | |
| 2 | **1.1** | | **Graduation Seminar** | **26 days** | **Mon 22-06-20** | **Sun 26-07-20** | |
| 3 | **1.1.1** | | **Final Graduation Project Deliverables** | **6 days** | **Mon 22-06-20** | **Sun 28-06-20** | |
| 4 | **1.1.1.1** | | **Introduction** | **6 days** | **Mon 22-06-20** | **Sun 28-06-20** | |
| 5 | 1.1.1.1.1 | | Final Graduation Project Charter | 3 days | Mon 22-06-20 | Wed 24-06-20 | |
| 6 | 1.1.1.1.2 | | Final Graduation Project Work Breakdown Structure | 2 days | Thu 25-06-20 | Fri 26-06-20 | |
| 7 | **1.1.1.2** | | **Chapter I** | **6 days** | **Mon 29-06-20** | **Sun 05-07-20** | 4 |
| 8 | 1.1.1.2.1 | | Corrections | 1 day | Sat 04-07-20 | Sat 04-07-20 | |
| 9 | 1.1.1.2.2 | | Introduction Chapter | 3 days | Mon 29-06-20 | Wed 01-07-20 | |
| 10 | 1.1.1.2.3 | | Final Graduation Project Schedule | 2 days | Thu 02-07-20 | Sat 04-07-20 | |
| 11 | **1.1.1.3** | | **Chapter II** | **6 days** | **Mon 06-07-20** | **Sun 12-07-20** | 7 |
| 12 | 1.1.1.3.1 | | Corrections | 1 day | Sat 11-07-20 | Sat 11-07-20 | |
| 13 | 1.1.1.3.2 | | Theoretical Framework Chapter | 5 days | Mon 06-07-20 | Fri 10-07-20 | |
| 14 | **1.1.1.4** | | **Chapter III** | **6 days** | **Mon 13-07-20** | **Sun 19-07-20** | 11 |
| 15 | 1.1.1.4.1 | | Corrections | 1 day | Sat 18-07-20 | Sat 18-07-20 | |
| 16 | 1.1.1.4.2 | | Methodological Framework Chapter | 5 days | Mon 13-07-20 | Fri 17-07-20 | |
| 17 | **1.1.1.5** | | **Annexes** | **6 days** | **Mon 20-07-20** | **Sun 26-07-20** | 14 |
| 18 | 1.1.1.5.1 | | Bibliography | 1 day | Mon 20-07-20 | Mon 20-07-20 | |
| 19 | 1.1.1.5.2 | | Schedule | 5 days | Mon 20-07-20 | Fri 24-07-20 | |
| 20 | 1.1.2 | | Graduation Seminar Approval | 1 day | Sun 26-07-20 | Sun 26-07-20 | |
| 21 | **1.2** | | **Tutoring Process** | **61 days** | **Mon 27-07-20** | **Sun 18-10-20** | 2 |
| 22 | **1.2.1** | | **Tutor** | **2 days** | **Mon 27-07-20** | **Tue 28-07-20** | |
| 23 | 1.2.1.1 | | Tutor Assignment | 1 day | Mon 27-07-20 | Mon 27-07-20 | |
| 24 | 1.2.1.2 | | Communication | 1 day | Tue 28-07-20 | Tue 28-07-20 | 23 |
| 25 | 1.2.2 | | Adjustments of Previous Chapters | 10 days | Wed 29-07-20 | Tue 11-08-20 | 22 |
| 26 | 1.2.3 | | Chapter IV: Development (Re | 30 days | Wed 12-08-20 | Tue 22-09-20 | 25 |
| 27 | 1.2.4 | | Chapter V: Conclusions | 10 days | Wed 23-09-20 | Tue 06-10-20 | 26 |
| 28 | 1.2.5 | | Chapter VI: Recommendation | 7 days | Wed 07-10-20 | Thu 15-10-20 | 27 |
| 29 | **1.3** | | **Reading by Reviewers** | **31 days** | **Mon 19-10-20** | **Sun 01-11-20** | 21 |
| 30 | **1.3.1** | | **Reviewer's Assignment Requ** | **3 days** | **Mon 19-10-20** | **Wed 21-10-20** | |
| 31 | 1.3.1.1 | | Assignment of two reviewe | 1 day | Mon 19-10-20 | Mon 19-10-20 | |
| 32 | 1.3.1.2 | | Communication | 1 day | Tue 20-10-20 | Tue 20-10-20 | 31 |
| 33 | 1.3.1.3 | | Final Graduation Project su | 1 day | Wed 21-10-20 | Wed 21-10-20 | 32 |
| 34 | **1.3.2** | | **Reviewers' Work** | **2 days** | **Mon 19-10-20** | **Tue 20-10-20** | |
| 35 | **1.3.2.1** | | **Reviewer 1** | **2 days** | **Mon 19-10-20** | **Tue 20-10-20** | |
| 36 | 1.3.2.1.1 | | Final Graduation Project | 1 day | Mon 19-10-20 | Mon 19-10-20 | |
| 37 | 1.3.2.1.2 | | Reader 1 Report | 1 day | Tue 20-10-20 | Tue 20-10-20 | 36 |
| 38 | **1.3.2.2** | | **Reviewer 2** | **2 days** | **Mon 19-10-20** | **Tue 20-10-20** | |
| 39 | 1.3.2.2.1 | | Final Graduation Project | 1 day | Mon 19-10-20 | Mon 19-10-20 | |
| 40 | 1.3.2.2.2 | | Reader 2 Report | 1 day | Tue 20-10-20 | Tue 20-10-20 | 39 |
| 41 | **1.4** | | **Adjustments** | **11 days** | **Mon 02-11-20** | **Sun 15-11-20** | 29 |
| 42 | 1.4.1 | | Report for Reviewers | 1 day | Mon 02-11-20 | Mon 02-11-20 | |
| 43 | 1.4.2 | | Final Graduation Project Upd | 1 day | Tue 03-11-20 | Tue 03-11-20 | 42 |
| 44 | 1.4.3 | | Second Review by Reviewers | 1 day | Wed 04-11-20 | Wed 04-11-20 | 43 |
| 45 | **1.5** | | **Presentation to Board of Examiners** | **6 days** | **Mon 16-11-20** | **Sat 21-11-20** | 41 |
| 46 | 1.5.1 | | Final Review by Board | 4 days | Mon 16-11-20 | Thu 19-11-20 | |
| 47 | 1.5.2 | | Final Grade Report | 1 day | Fri 20-11-20 | Fri 20-11-20 | 46 |

## Appendix 4: Revision Dictum



**CARTA DE APROBACIÓN DEL FILÓLOGO**

Cartago, 21 de diciembre de 2020

Los suscritos, Elena Redondo Camacho, mayor, casada, filóloga, incorporada a la Asociación Costarricense de Filólogos con el número de carné 0247, portadora de la cédula de identidad número 3-0447-0799 y, Daniel González Monge, mayor, casado, filólogo, incorporado a la Asociación Costarricense de Filólogos con el número de carné 0245, portador de la cédula de identidad número 1-1345-0416, ambos vecinos de Quebradilla de Cartago, revisamos el trabajo final de graduación que se titula: *Project Management Plan for the Medical SARS-CoV-2 Response Project in San Ignacio, Belize*, sustentado por Fidel Luciano Cuéllar.

Hacemos constar que se corrigieron aspectos de forma, redacción, estilo y otros vicios del lenguaje que se pudieron trasladar al texto. A pesar de esto, la originalidad y la validez del contenido son responsabilidad exclusiva del autor y de sus asesores.

Esperamos que nuestra participación satisfaga los requerimientos de la Universidad para la Cooperación Internacional.

ANA ELENA REDONDO CAMACHO (FIRMA)
Firmado digitalmente por ANA ELENA REDONDO CAMACHO (FIRMA)
Fecha: 2020.12.22 09:01:06 -06'00'

DANIEL ALBERTO GONZALEZ MONGE (FIRMA)
Firmado digitalmente por DANIEL ALBERTO GONZALEZ MONGE (FIRMA)
Fecha: 2020.12.22 08:59:13 -06'00'