UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE MANAGING BELIZE'S AGRICULTURE RESILIENCE PROJECT

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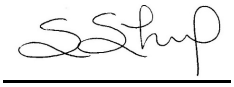

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DEDICATION

This research paper is dedicated to all who provided me with encouragement during this process; to the shining beacons in my life who had faith in me when it was hard to have faith in myself.

ACKNOWLEDGMENTS

“When you want something, all the universe conspires in helping you to achieve it” ~Paulo Coehlo~

I would firstly like to thank the Almighty for the strength, courage and patience to complete this project.

My deepest gratitude goes to the lecturers and my tutor, JuanCamilo Delgado, for their guidance.

Special thanks to my classmates who provided support, encouragement, and many laughs along the way! Your kindness will never be forgotten.

A most important thank you to my family support system for the love and patience shown during the many difficult days.

ABSTRACT

The objective of this document is to develop a project management plan for the Managing Belize's Agriculture Resilience Project being undertaken by the Ministry of Agriculture, Food Security and Enterprise. This document will be a useful resource guide for this, and future projects undertaken by the Ministry who has had varying degrees of project success.

The final product of this project are the various components of a project management plan which are a scope management plan, schedule management plan, cost management plan, resource management plan, quality management plan, procurement management plan, risk management plan, communication management plan and stakeholder engagement plan. This will be conducted utilizing an analytical and descriptive research methods and recommendations outlined in the PMBOK® Guide.

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ABBREVIATIONS AND ACRONYMS

Agriculture Disaster Response Management (ADRM)

Community-Based Storage Solution (CBSS)

Food and Agriculture Organization of the United Nations (FAO)

Managing Belize's Agriculture Resilience Project (MBARP)

Ministry of Agriculture, Food Security and Enterprise (MAFSE)

Project Management Body of Knowledge (PMBOK®)

Risk Breakdown Structure (RBS)

Work Breakdown Structure (WBS)

EXECUTIVE SUMMARY

The Ministry of Agriculture, Food Security, and Enterprises (MAFSE) is a government entity that undertakes various projects in an effort to provide an environment that is conducive to increasing production and productivity. The success of these project play an important role in creating this environment that will promote investment and encourage private sector involvement in agribusiness enterprises in a manner that ensures competitiveness, quality production, trade, and sustainability.

The Ministry has had varying degrees of project success over the years. They have a project execution office that is understaffed and underperforming. Technical coordinators are required to fill the role of project manager based on the project being undertaken and their area of expertise in agriculture. There is a lack of project management skills and use of best practices.

This project management plan is intended to be used as a guide for successful project execution as it will include several templates and outline best practices that can be followed by any personnel tasked with overseeing the Ministry's projects. These templates and best practices will be helpful in planning for communication, schedule, scope, cost, procurement, risk as well as stakeholder engagement.

The general objective of this project was to develop a project management plan utilizing the standards of the Project Management Institute for the Managing Belize's Agriculture Resilience Project (MBAR) from the Ministry of Agriculture, Food Security & Enterprises. The specific objectives were: to develop a project charter to ensure that the important elements of the project management plan are defined, to develop a scope management plan that identifies the work required to complete the project successfully, to develop a schedule management plan to ensure that the project and the resources will be allocated and managed throughout the project, to develop a cost management plan to ensure the project is completed and controlled within the approved budget, to develop a quaility management plan to identifiy quality requirements to meet stakeholder's objectives, to develop a resource management plan that will ensure that the appropriate resources are available for the project manager at the appropriate time and place, to develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy, to develop a risk management plan to identify,analyze and respond appropriately to project risk, to develop a procuremement managemement plan to acquire products,services and results required from outside of the project team and to develop a stakeholder engagement plan to identify, analyze and manage stakeholder expectation and impact on the project.

The methodology used for the research was analytical which required critical thinking skills and evaluation of information. The main sources used to gather information included A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Sixth Edition and interviews with key personnel in the Ministry of Agriculture. Information was analysed to create each subcomponent of the subsidiary plans used to develop the Project Management Plan for the Managing Belize's Agriculture Resilience Project.

The Project Management plan developed using the PMBOK® Guide provided a new methodology for the Ministry of Agriculture, Food Security and Enterprise to create a thorough project management plan for future projects, to improve the way would manage a

project. This project plan included all subsidiary plans, and several key observations were made during their development. Four main components were identified in the scope management plan and important activities were identified in the schedule management plan. Costs were broken down into three main categories and resources required were identified. As part of the risk management component, risks were identified, and a qualitative risk analysis was done to determine the risk that can impact the project negatively. Adequate communication and stakeholder engagement were also determined to be important. Strategies were developed and outlined in the respective plans to ensure meaningful communication and appropriate stakeholder interactions.

It is recommended that the management plans developed, be consulted regularly to ensure its continued relevance and updates are made in a timely manner. The Ministry of Agriculture, Food Security and Enterprise should consider the use of all templates developed for this project as a basis for future project. Further efforts should be made to align practices with those outlined in the PMBOK® Guide complemented by the acquisition of personnel who are trained in Project Management in conjunction with training of existing personnel. These recommendations were made to ensure that best practices are adopted in this project and future projects.

INTRODUCTION.

1.1. Background

This research project is based on the Managing Belizean Agriculture Resilience(MBAR) Project being undertaken by the Ministry of Agriculture, Food Sustainability and Enterprise (MAFSE) in partnership with the Food and Agriculture Organization of the United Nations (FAO). The Ministry of Agriculture, Food Sustainability and Enterprise faces many challenges in relation to underdeveloped agriculture and food value chain systems and inadequate rural area and territorial development. There is also high exposure to risks and limited resilience capacity and limited public policy and governance systems and mechanisms. There is a significant loss of perishable food in the value chain especially for small farmers. The MAFSE has identified several causes including:

1. the inaccessibility of appropriated storage and transportation pallets and crates for small farmers.
2. the varying storage and transportation protocols used by farmers who transport their produce to market.

the inadequate manner that farmer's produce is displayed for sale at municipal markets.

Various strategies and policies have been formulated and projects undertaken to address these challenges, however, the best practices of the PMBOK® Guide and the Project Management Institute are not always adhered to. The Managing Belize's Agriculture Resilience project aims to enhance trade in agricultural products, strengthen food and nutrition security and quality and promote sustainable and food resilient food systems.

1.2. Statement of the problem

The MAFSE has a project execution office that is understaffed and underperforming. Technical coordinators are required to fill the role of project manager based on the project being undertaken and their area of expertise in agriculture. There is a lack of project management skills and use of best practices. This project management plan is intended to be used as a guide for successful project execution as it will include several templates and

outline best practices that can be followed by any personnel tasked with overseeing the Ministry's projects.

1.3. Purpose

This study will enhance the capabilities of personnel in the MAFSE through a project management plan which is a needed resource to guide them as they undertake the management of projects assigned to them. This project management plan resource will include templates,reports and process plans that can be utilized for the Manage Belize's Agriculture Resilience Project and subsequent projects undertaken.

1.4. General objective

To develop a project management plan utilizing the standards of the Project Management Institute to Manage Belize's Agriculture Resilience for the Ministry of Agriculture,Food Security & Enterprises.

1.5. Specific objectives

1. To develop a project charter to ensure that the important elements of the project management plan are defined.
2. To develop a scope management plan that identifies the work required to complete the project successfully.
3. To develop a schedule management plan to ensure that project and the resources will be allocated and managed throughout the project.
4. To develop a cost management plan to ensure the project is completed and controlled within the approved budget.
5. To develop a quaility management plan to identify quality requirements to meet stakeholder's objectives.
6. To develop a resource management plan that will ensure that the appropriate resources are available for the project manager at the appropriate time and place.

7. To develop a communications mangement plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.
8. To develop a risk management plan to identify, analyze and respond appropriately to project risk.
9. To develop a procuremement managemement plan to acquire products,services and results required from outside of the project team.
10. To develop a stakeholder engagement plan to identify, analyze and manage stakeholder expectation and impact on the project.

2.THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

The Ministry of Agriculture, Food Security, and Enterprises is a government entity that is tasked with providing an environment that is conducive to increase production and productivity. This environment will promote investment and encourage private sector involvement in agribusiness enterprises in a manner that ensures competitiveness, quality production, trade, and sustainability. On average, Belize's agriculture sector contributes approximately BZD$500 million annually (Ministry of Agriculture, 2021) to the economy through various crops including fruits and vegetables consumed locally.

2.1.2 Mission statement

The mission of the Ministry of Agriculture, Food Security, and Enterprise is "to grow and continue as a key economic pillar, ensuring food and nutrition safety, diversifying business opportunities, reducing poverty, and enhancing human resource capacity in a sustainable and competitive environment" (Ministry of Agriculture, 2021). These can be established through well executed projects aided by a project management plan.

2.1.3 Vision Statement

Their vision is "to be an agriculture and food sector that is innovative, competitive, diversified, and sustainable" (Ministry of Agriculture, 2021). This vision can materialize by adapting the practices outlined in the project management plan for all projects undertaken.

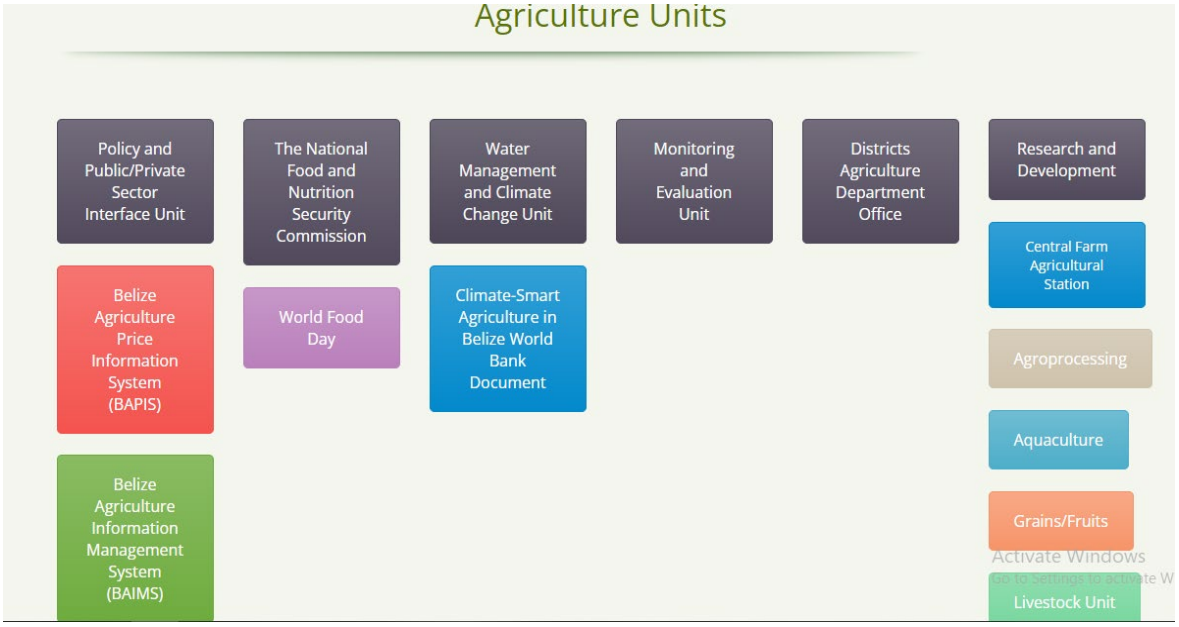
2.1.4 Organizational structure

The MAFSE is comprised of two departments: Agriculture and Cooperatives. The Agriculture Department is further divided into several units as illustrated in Figure 1. The two units that are directly related to the development of this project management plan are the Research and Development Unit and the Monitoring & Evaluation Unit. The Research and Development Unit comprises of several technical officers who are often tasked with managing the projects undertaken by the Ministry. The main goal of this unit is to promote

sustainable practices in horticulture crop production and address the research needs of the agricultural sector. The area of expertise of these officers can be complemented with access to a project management plan to guide them in project management best practices. The Monitoring & Evaluation Unit's goal is to contribute to improved governance by monitoring, evaluating, and reporting on the performance of agricultural projects, programs and policies undertaken by the Ministry of Agriculture. While this unit is tasked with producing performance reports, they lack the expertise in formal project management processes and their impact on scope, schedule, quality, and overall success of projects to provide adequate support to the technical officers.

Figure 1

Agriculture Units in the MAFSE



Note. From *Ministry of Agriculture, Food Security and Enterprise*, n.d. (https://www.agriculture.gov.bz/agriculture/)

2.1.5 Products offered

Apart from the activities described in relation to project management, there are several other services offered by various agriculture units in the Ministry of Agriculture. These services are all integral to achieving the mission of the Ministry.

- The Policy and Public/Private Sector Interface Unit collect and provide agricultural data to the public.
- The National Food & Nutrition Security Commission build capacity in the commission and establish linkages with regional and international stakeholders.
- The Water Management and Climate Change Unit conducts climate change adaptation and mitigation activities.
- The Monitoring & Evaluation Unit collects and provide information to determine efficiency, effectiveness and impact of project activities and identify gaps.
- The District Agriculture Department Office advise farmers, provide training, and collect and provide statistical data in districts.
- The Research & Development provide validation of seed varieties, production of fertilizers and various types of research.

2.2 Project Management concepts

2.2.1 Project

A Guide to the Project Management Body of Knowledge (PMBOK®) 6th Edition defines a project as “a temporary endeavour undertaken to create a unique product, service or result” (Project Management Institute, 2017). This final graduation project aims to develop a project management plan for the Managing Belize’s Agriculture Resilience Project.

2.2.2 Project management

The PMBOK® Guide defines project management as “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements” (Project Management Institute, 2017). Through the identification of appropriate processes and their subsequent application, projects can be executed efficiently and effectively. The absence of project management can have a negative impact on various components the project

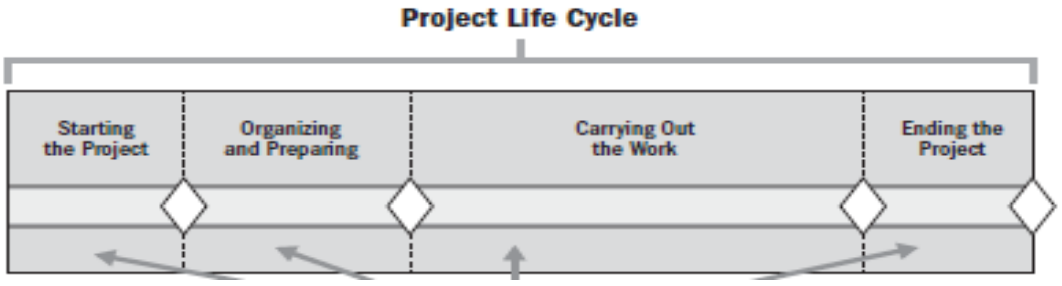
including its scope, cost, schedule, and overall objectives. The defunct project management office of the MAFSE does not have the capability to apply the skills, knowledge, and tools to projects currently being undertaken.

2.2.3 Project life cycle

The Project life Cycle is “the series of phases that a project passes through from its start to its completion” and functions as “a framework to manage the project” (Project Management Institute, 2017). The projects undertaken by the MAFSE follow a similar project life cycle as illustrated in Figure 2.

Figure 2

The Project Life Cycle



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

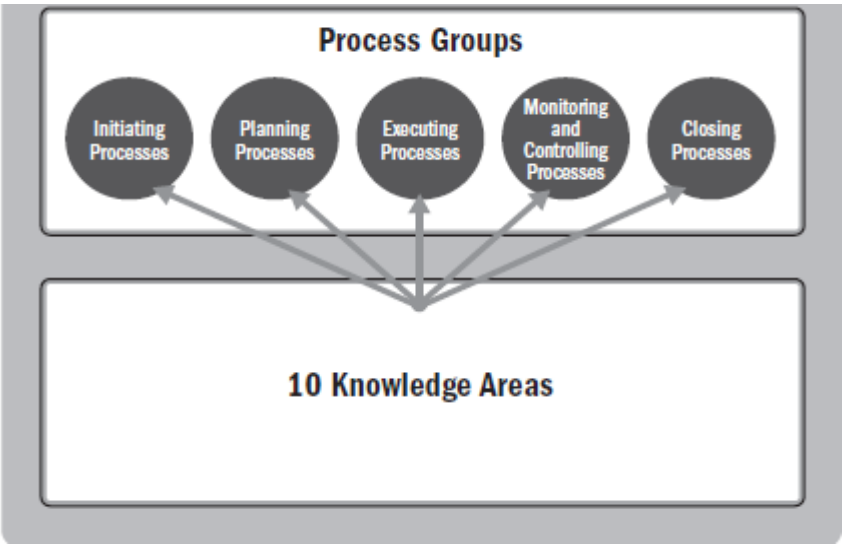
2.2.4 Project management processes

The PMBOK® Guide defines the project management processes as “a logical grouping of project management processes to achieve specific project objectives” (Project Management Institute, 2017). Figure 3 illustrates the five processes groups and how outputs are generated by each process. These processes may occur once, periodically, or continuously throughout the project. In developing a project management plan, the Develop Project Charter is an example of a process that occurs once. For the purpose of this project, the deliverables will be related to the initiating and planning process groups as

listed in Chart 1. The initiation process group involves the processes related to defining a new project or project phase. The planning process group involves the processes related to establishing the scope of the project, fine tuning the objectives, and identifying a course of action to attain the objectives that were defined.

Figure 3

The Project Management Process Groups



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Chart 1 Project management Knowledge Areas and Initiating & Planning Process Group (Source: Author of Study)

Knowledge Areas	Initiating Process Group	Planning Process Group
Project Integration Management	Develop Project Charter	Develop Project Management Plan
Project Scope Management		Plan Scope Management Collect Requirements Define Scope Create WBS
Project Schedule Management		Plan Schedule Management Define Activities Sequence Activities Estimate Activity Durations Develop Schedule
Project Cost Management		Plan Cost Management Estimate Costs Determine Budget
Project Quality Management		Plan Quality Management
Project Resource Management		Plan Resource Management Estimate Activity Resources
Project Communication Management		Plan Communication Management
Project Risk Management		Plan Risk Management Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses
Project Procurement		Plan Procurement Management

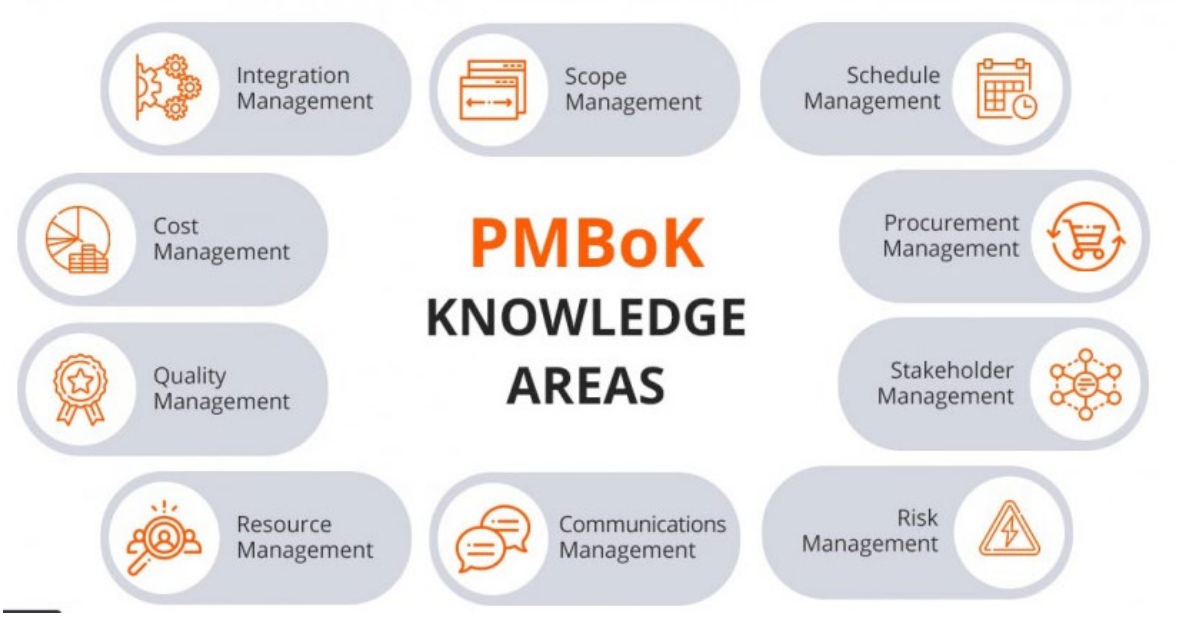
Management		
Project Stakeholder Management	Identify Stakeholders	Plan Stakeholder Engagement

2.2.5 Project management knowledge areas

There are ten knowledge areas as illustrated in Figure 4 in project management which are closely aligned with the process groups. Additionally, Figure 4 lists the ten knowledge areas and the initiating and planning process group corresponding processes that will be developed during the elaboration of the FGP.

Figure 4

Project Management Knowledge Areas



Note. From *Quality Assurance Assurance According to PMBOK* by QATestLab Blog, n.d. (https://blog.qatestlab.com/2019/05/23/quality-assurance-pmbok/)

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

2.3.1 Project Integration Management

Project Integration Management is concerned with “the processes and activities to define, identify, combine, unify and coordinate the various processes and project management activities within the Project Management Process Groups” (Project Management Institute, 2017).

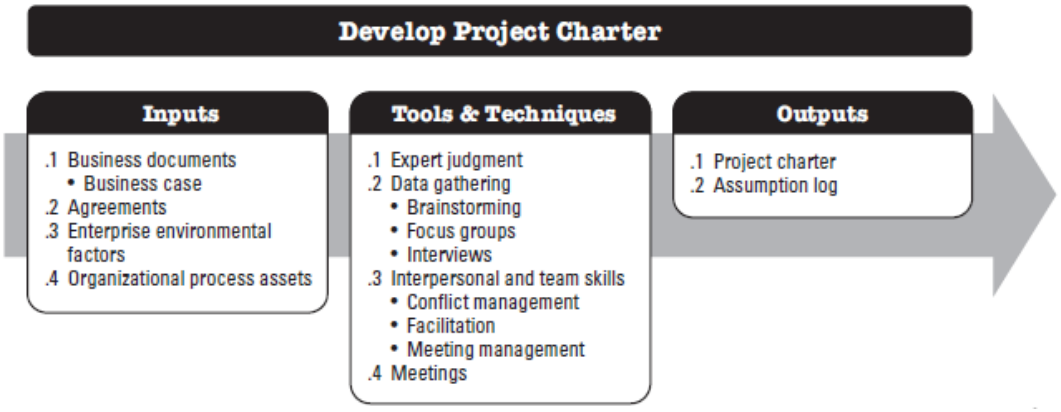
The process that will be elaborated in this project are:

- Develop Project Charter
- Develop Project Management Plan

These processes are part of the planning and initiating process groups. They will be instrumental in achieving the project objectives of a comprehensive document that outlines the project work and how it will be performed. Figure 5 and Figure 6 outlines the comprehensive list of inputs, tools & techniques and outputs that can be used for these processes.

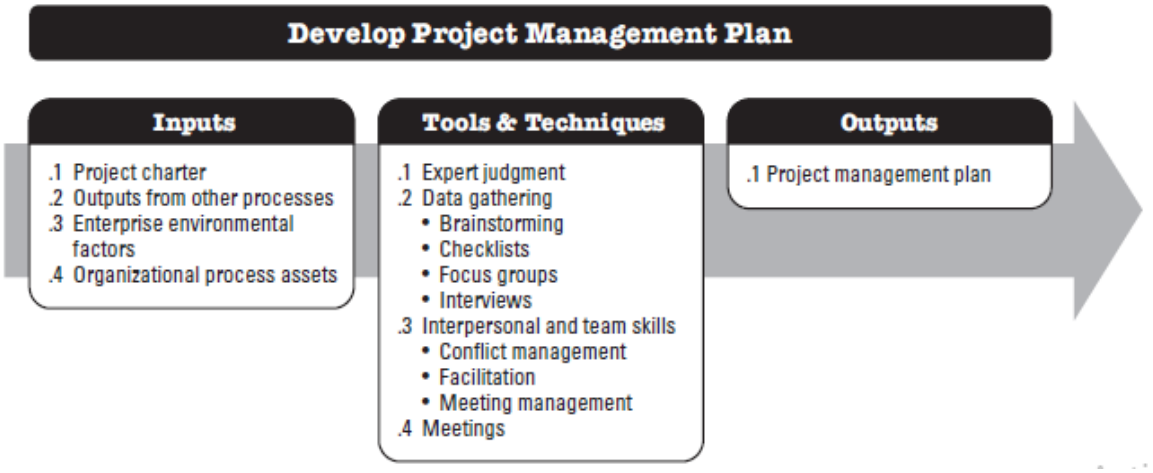
Figure 5

Develop Project Charter



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 6
Develop Project Management Plan



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.2 Project Scope Management

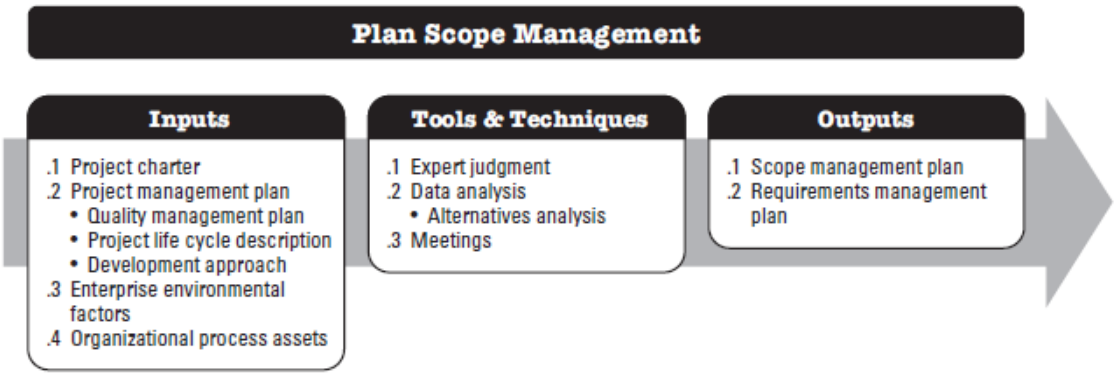
Project Scope Management is concerned with "the processes required to ensure that the project includes all the work required, and only the work required to complete the project successfully" (Project Management Institute, 2017). The processes that will be elaborated in this project are:

- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS

These processes are part of the planning and initiating process group. Figures 7 ,8,9 and 10 outlines the inputs, outputs and tools & techniques that are recommended for these processes. These will be utilized where considered feasible.

Figure 7

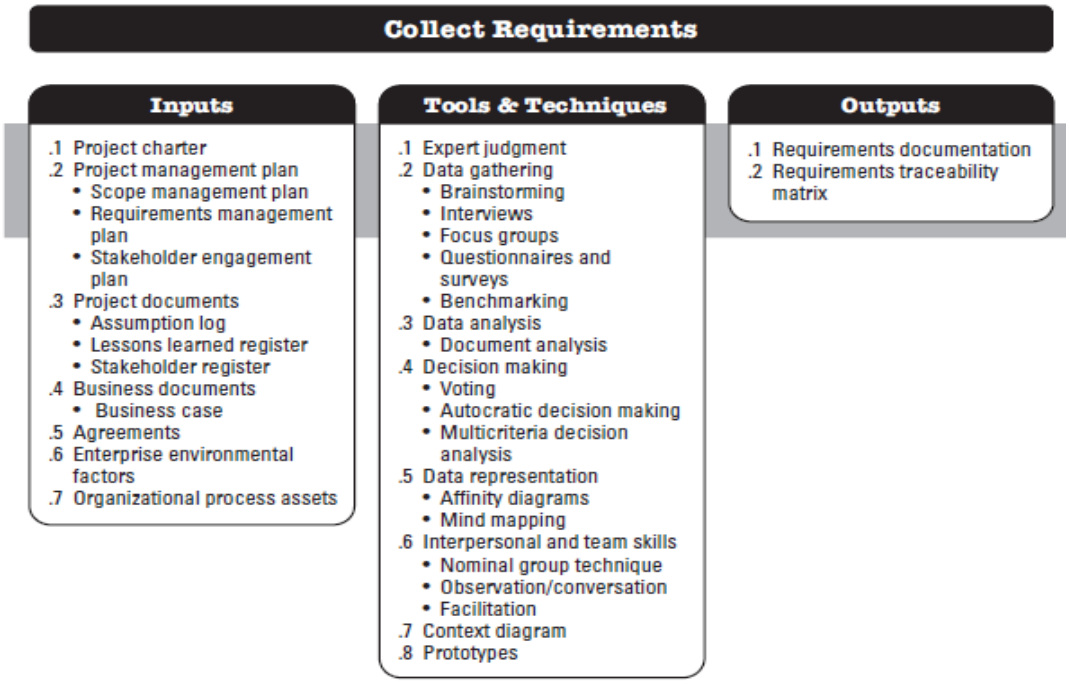
Plan Scope Management Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

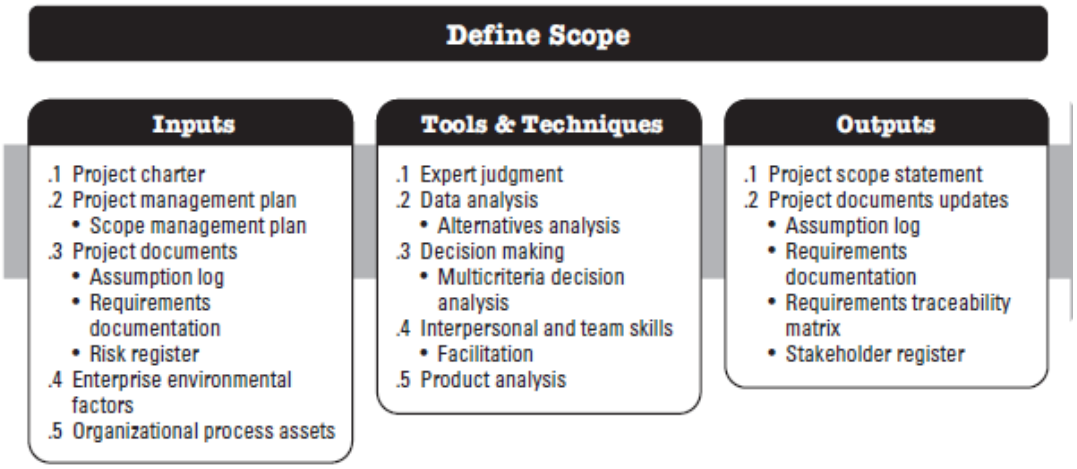
Figure 8

Collect Requirements



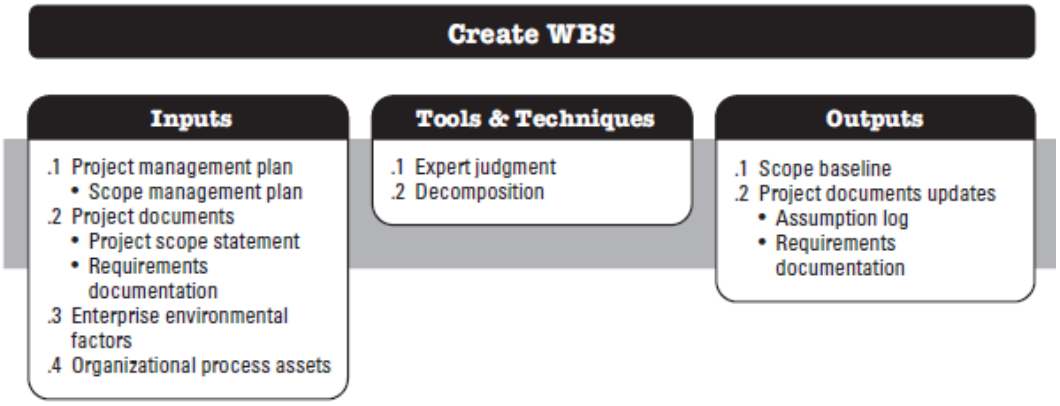
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 9
Define Scope Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 10
Create WBS Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.3 Project Schedule Management

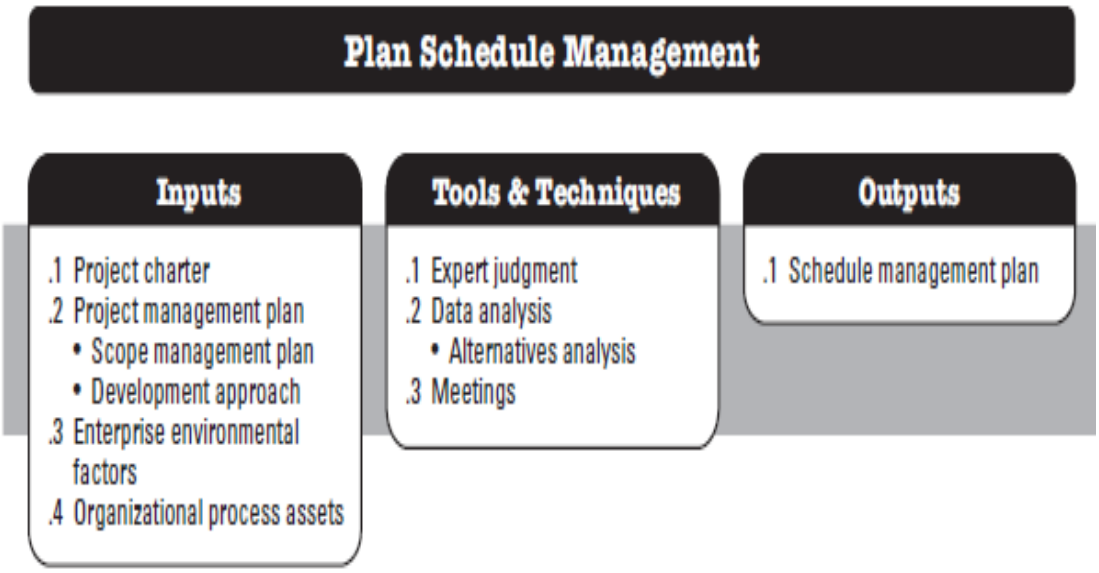
Project Schedule Management is concerned with "the processes required to manage timely completion of the project" (Project Management Institute, 2017). The processes that will be elaborated in this project are:

- Plan Schedule Management
- Define Activities
- Sequence Activities
- Estimate Activity Duration
- Develop Schedule.

These processes are a part of the planning and initiating process group and will assist in creating a framework for timely completion. Figures 11,12,13,14 and 15 outline the recommended inputs, tools & techniques, and outputs of these processes. These will be utilized where considered feasible.

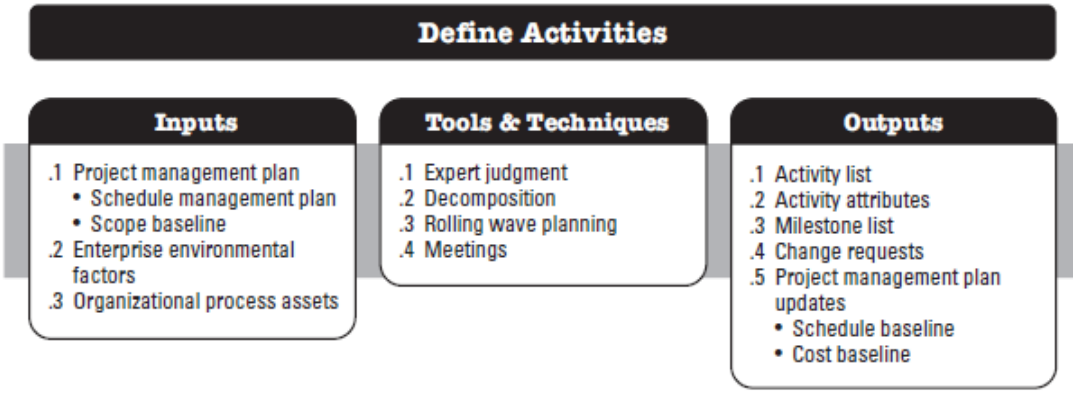
Figure 11

Plan Schedule Management Process



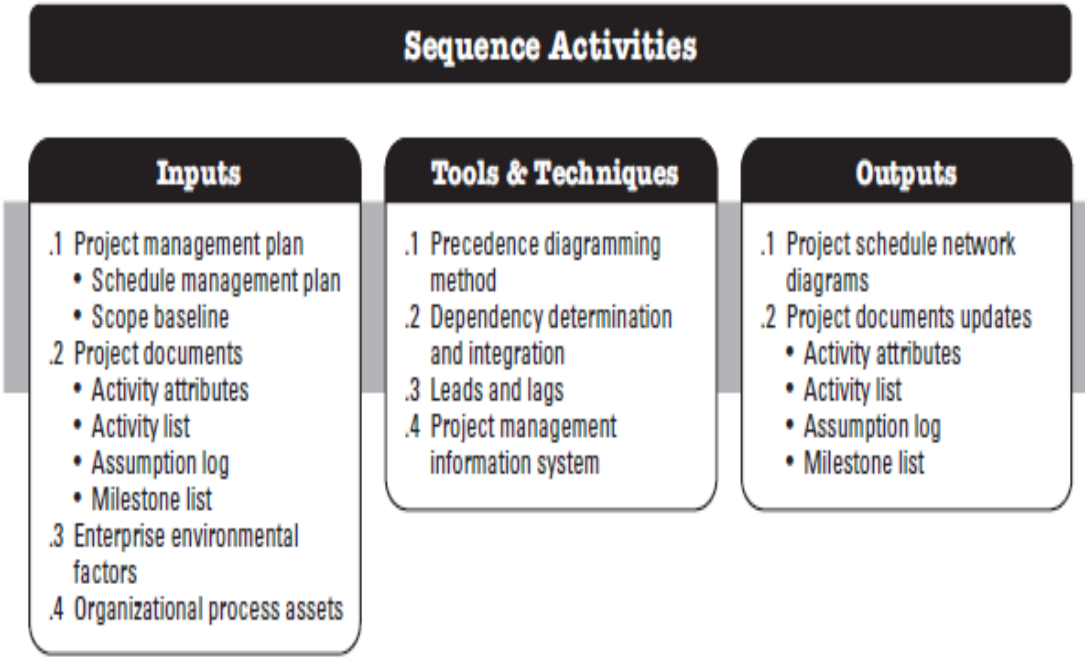
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 12
Define Activities Process



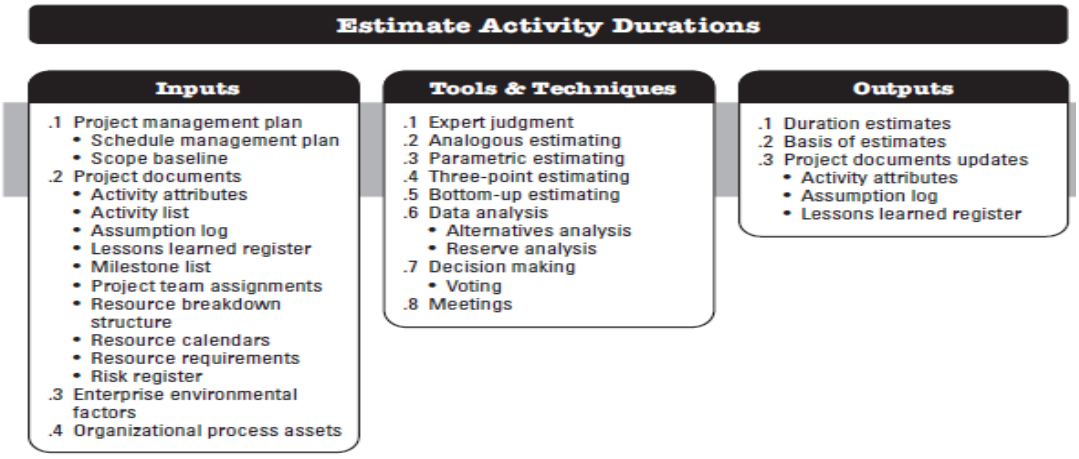
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 13
Sequence Activities Process



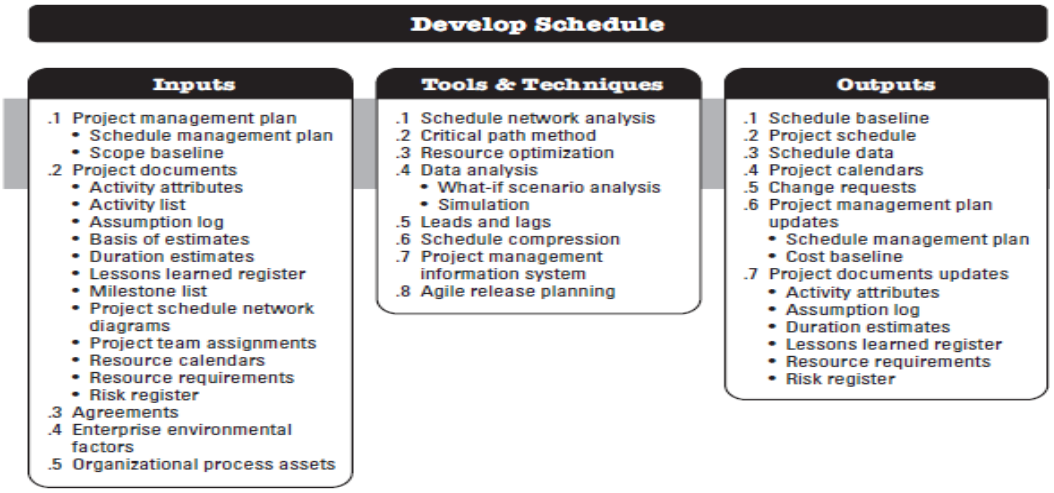
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 14
Estimate Activity Durations Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 15
Develop Schedule Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.4 Project Cost Management

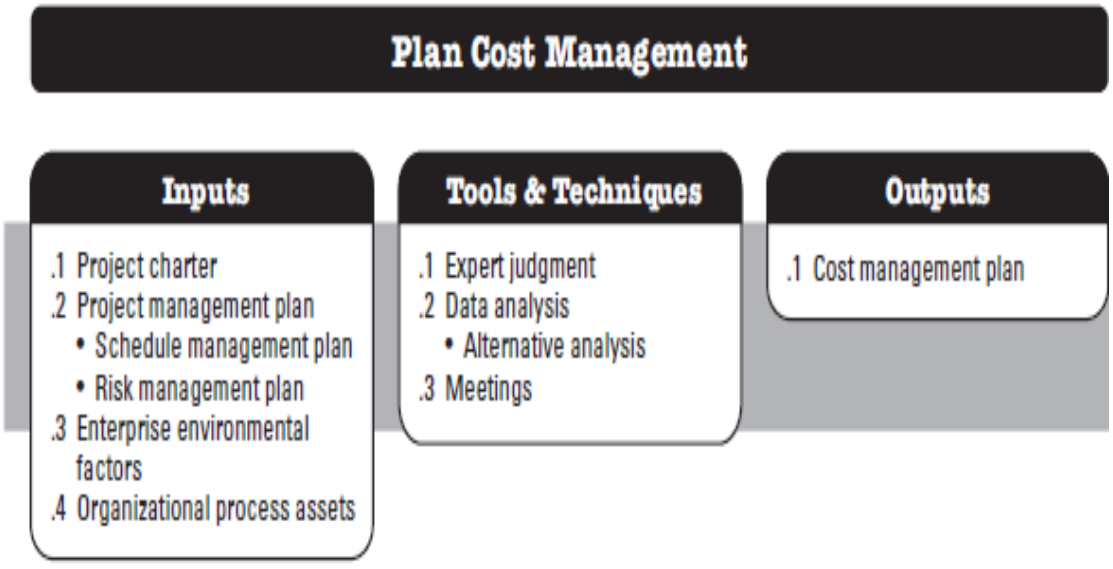
Project Cost Management is concerned with "the processes involved in planning, estimating, budgeting, financing, funding, managing and controlling costs" (Project Management Institute, 2017) The processes that will be elaborated in this project are:

- Plan Cost Management
- Estimate Costs
- Determine Budget

These processes fall under the planning and initiating process groups and will assist in creating a framework for a project completed within budget. Figures 16, 17 and 18 outline the recommended inputs, tools & techniques, and outputs of these processes. These will be utilized where deemed appropriate.

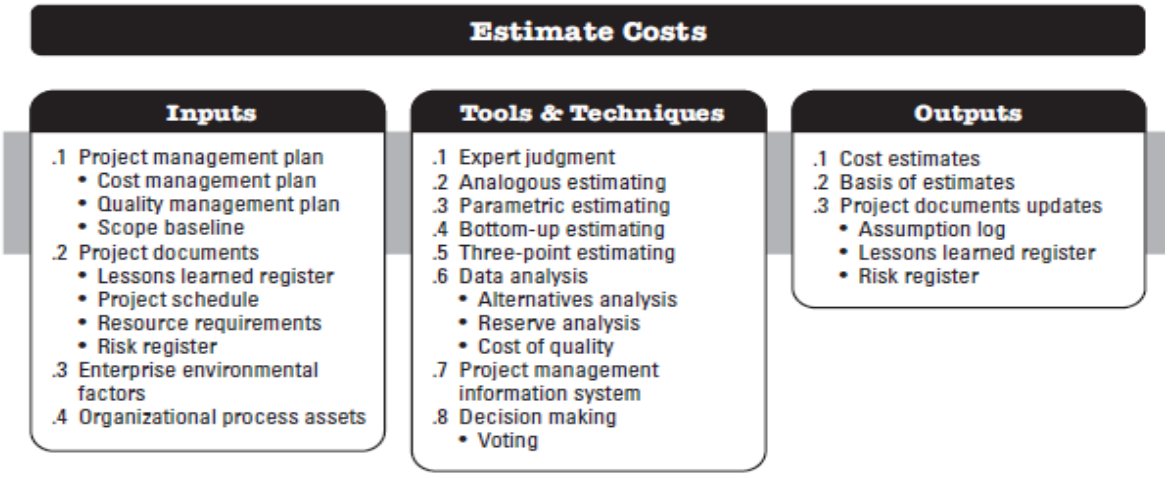
Figure 16

Plan Cost Management Process



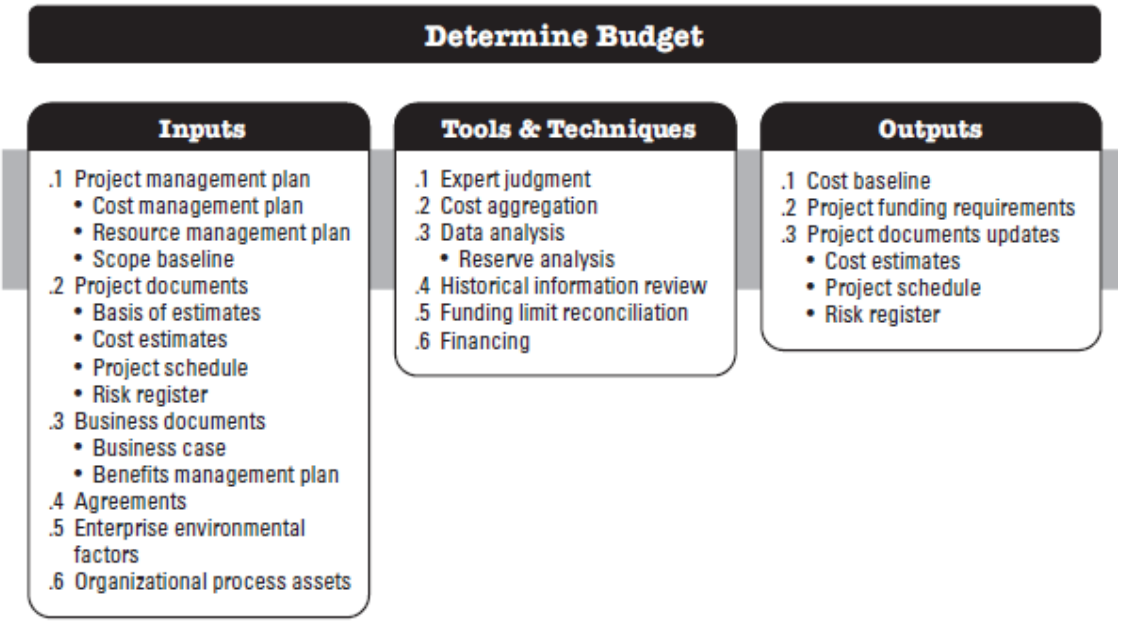
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 17
Estimate Costs Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 18
Determine Budget Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

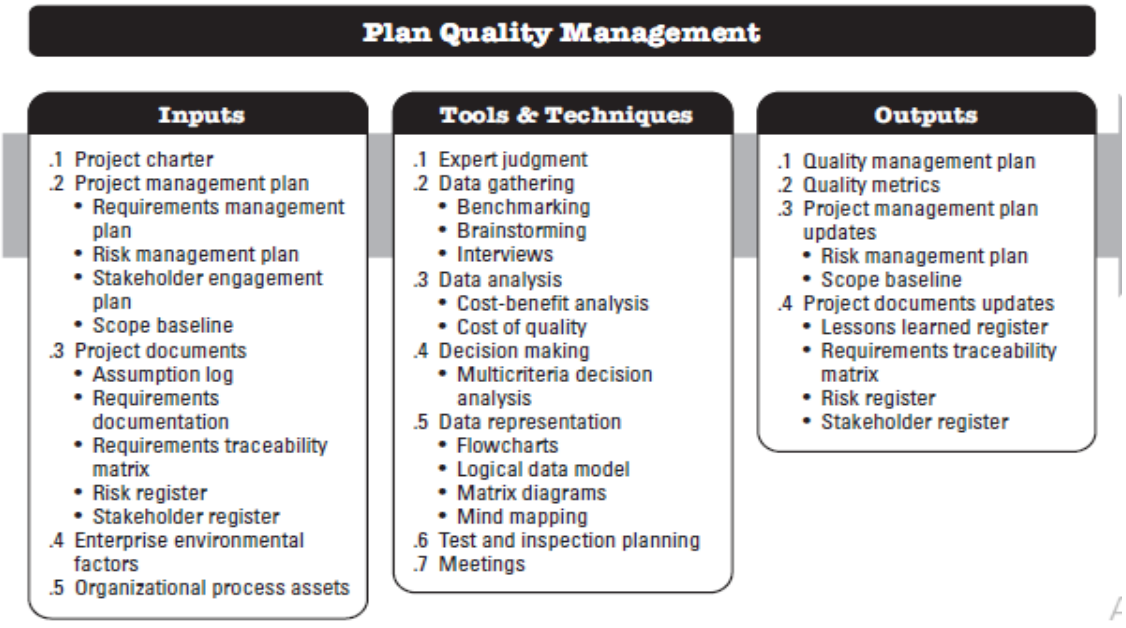
2.3.5 Project Quality Management

Project Quality Management is concerned with "the processes for incorporating the organization's quality policy regarding planning, managing, and controlling project and product quality requirements in order to meet stakeholder's objectives" (Project Management Institute, 2017). The process that will be elaborated in this project is plan quality management.

This process falls under the planning process group and will be instrumental in identifying quality standards. Figure 19 outlines the inputs, tools & techniques, and outputs of this process. These will be utilized where considered appropriate.

Figure 19

Plan Quality Management



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.6 Project Resource Management

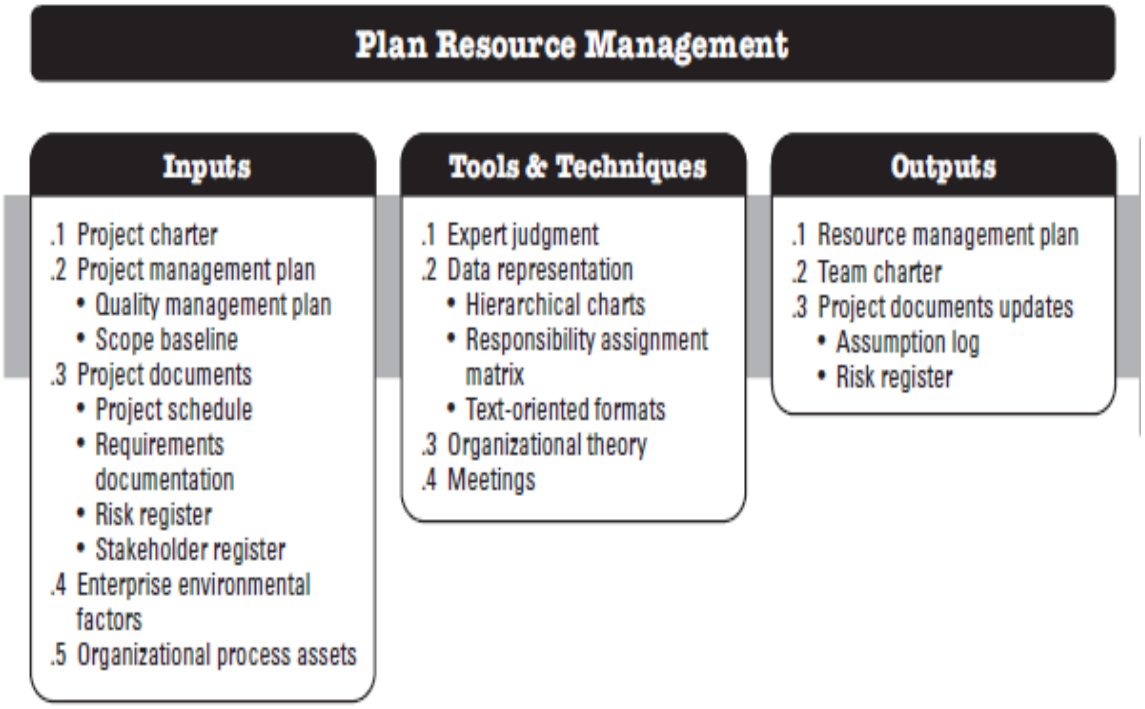
Project Resource Management is concerned with “the processes to identify, acquire, and manage the resources needed for the successful completion of the project” (Project Management Institute, 2017). The processes that will be elaborated in this project are:

- Plan Resource Management
- Estimate Activity Resources.

These processes fall under the planning process group will be instrumental in ensuring that the project team has the necessary resources in a timely fashion. Figures 20 and 21 outline the inputs, tools & techniques, and outputs of these processes. They will be utilized where considered appropriate.

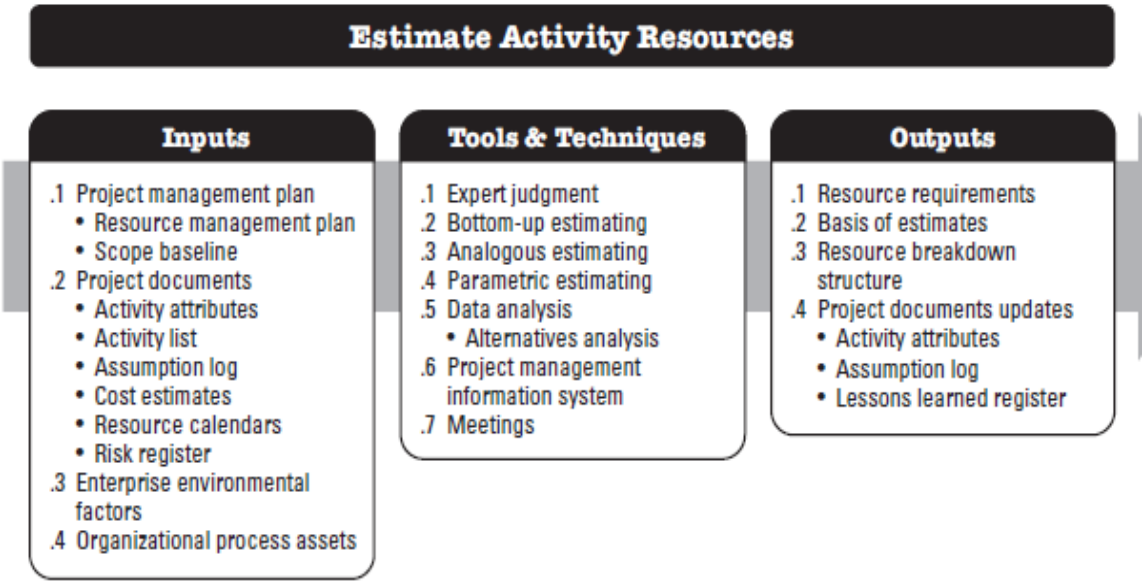
Figure 20

Plan Resource Management Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 21
Estimate Activity Resources Process



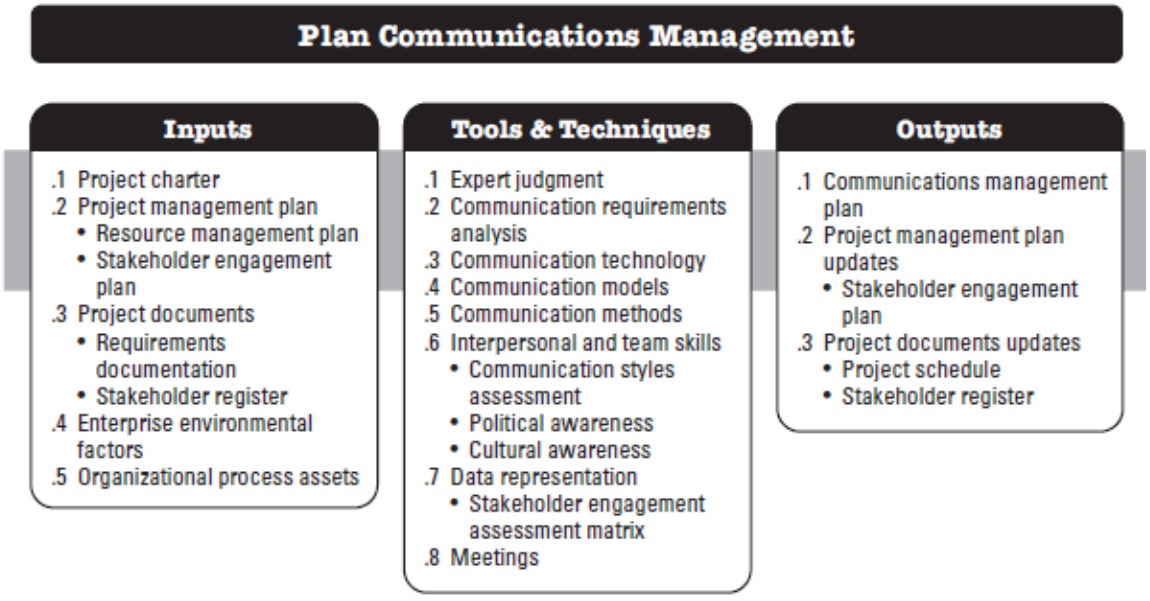
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.7 Project Communications Management

Project Communications Management is concerned with "the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of artefacts and implementation of activities designed to achieve effective information exchange" (Project Management Institute, 2017). The process that will be elaborated in this project is plan communications management which falls under the planning process group. This process will be instrumental in ensuring that stakeholders are effectively and efficiently engaged. Figure 22 outline inputs, tools & techniques, and outputs of this process that will be utilized as deemed appropriate.

Figure 22

Plan Communications Management Process



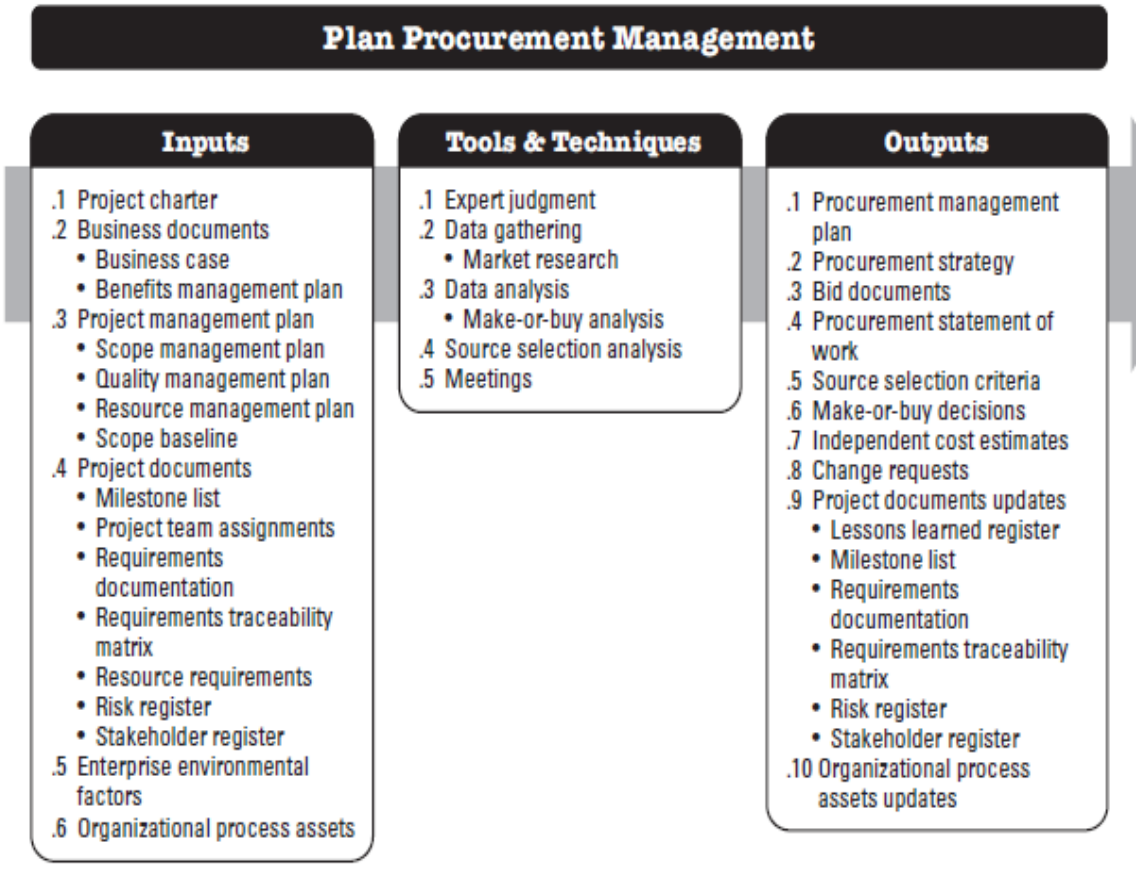
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.8 Project Procurement Management

Project Procurement Management is concerned with “the processes necessary to purchase or acquire products, services, or results needed from outside the project team” (Project Management Institute, 2017). The process that will be elaborated in this project is plan procurement management which falls under the planning process group. It will identify whether resources will be allocated from outside of the project. Figure 23 outlines the inputs, tools & techniques, and outputs of this process that can be utilized as considered appropriate.

Figure 23

Plan Procurement Management Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.9 Project Risk Management

Project Risk Management is concerned with "the processes of conducting risk management planning, identification, analysis, response planning, response implementation and monitoring risk on a project" (Project Management Institute, 2017). The processes that will be elaborated in this project are:

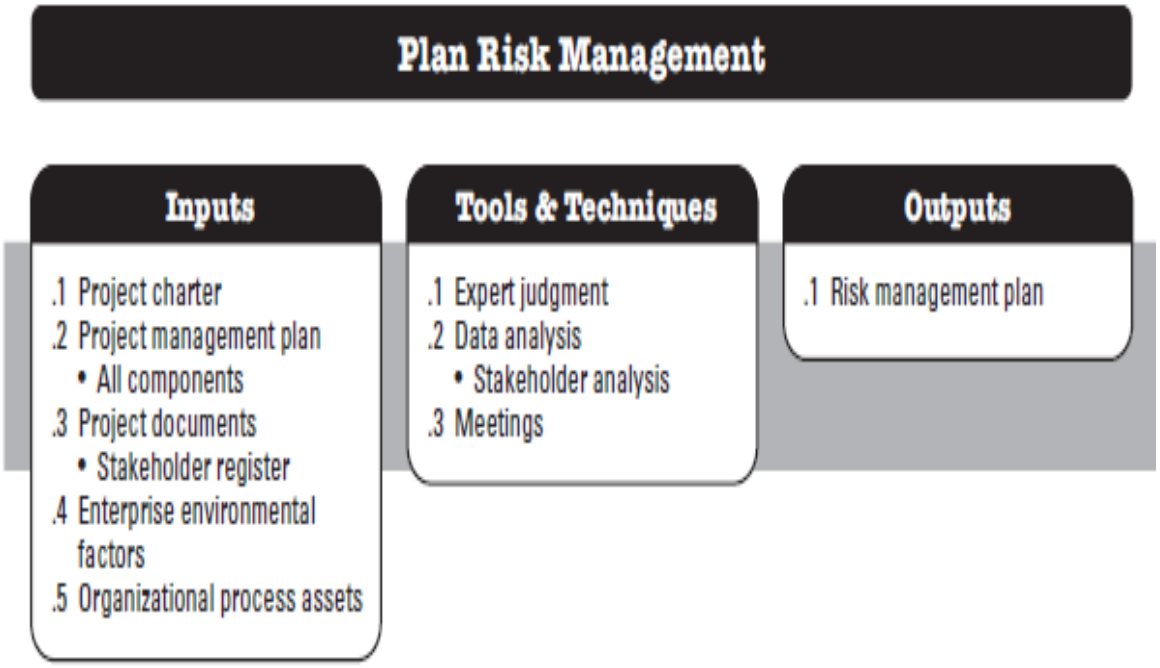
- Plan Risk Management
- Identify Risk
- Perform Qualitative Risk Analysis

- Plan Risk Responses
- Perform Quantitative Risk Analysis.

These processes are a part of the planning process group and will be instrumental in ensuring that risks are effectively managed. Figures 24,25,26 and 27 outline inputs, tools & techniques, and outputs and will utilized as deemed appropriate.

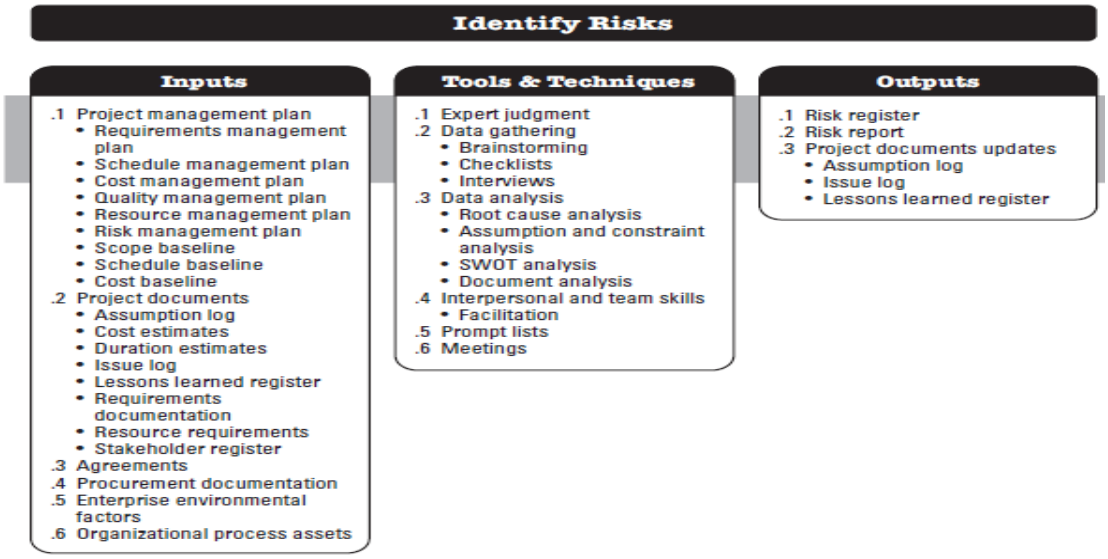
Figure 24

Plan Risk Management Process



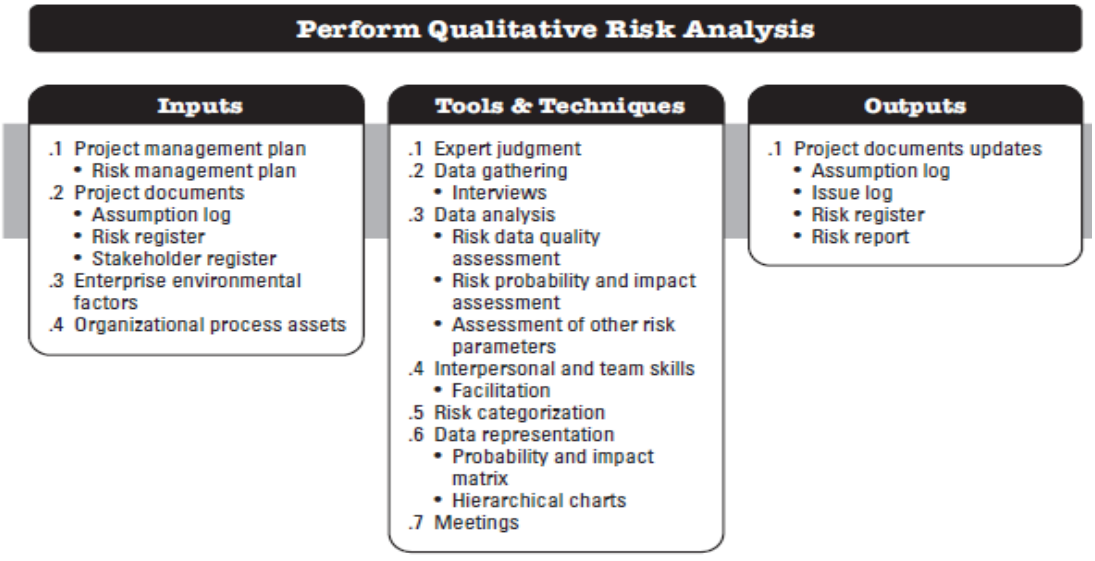
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 25
Identify Risks Process



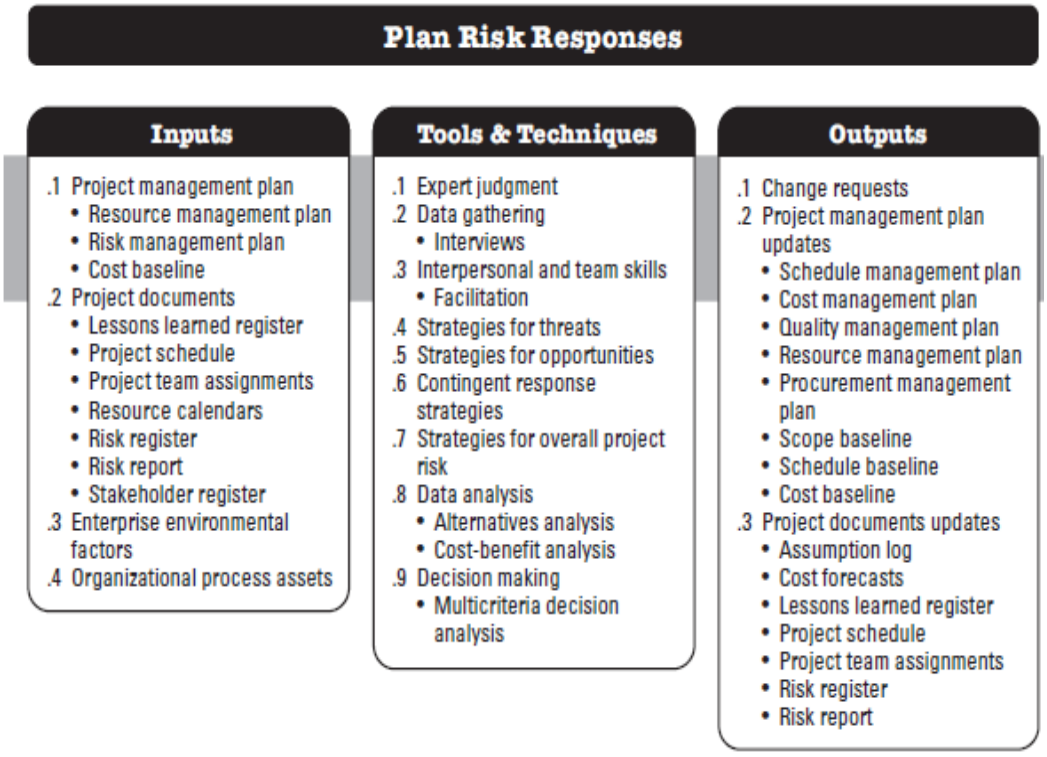
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 26
Perform Qualitative Risk Analysis



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 27
Plan Risk Responses Process



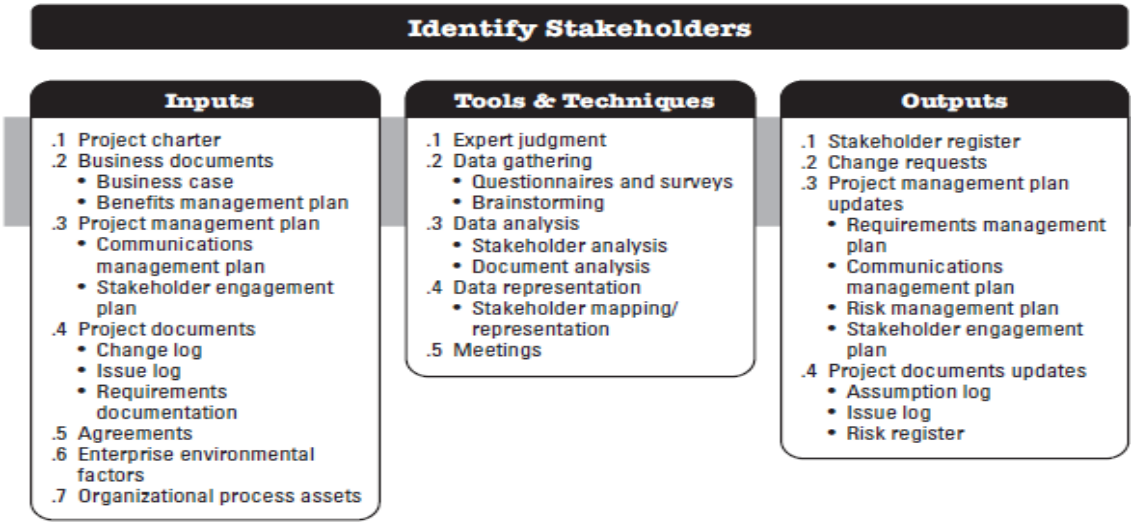
Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

2.3.10 Project Stakeholder Engagement

Project Stakeholder Engagement is concerned with “the processes required to identify the people, groups or organizations that could impact or be impacted by the project, to analyse stakeholder’s expectations and their impact on the project” (Project Management Institute, 2017). The process that will be elaborated in this project is identify stakeholders, plan stakeholder engagement, and fall under the initiating and planning process groups. Figure 28 and Figure 29 outline the inputs, tools & techniques and outputs that can utilized as deemed appropriate.

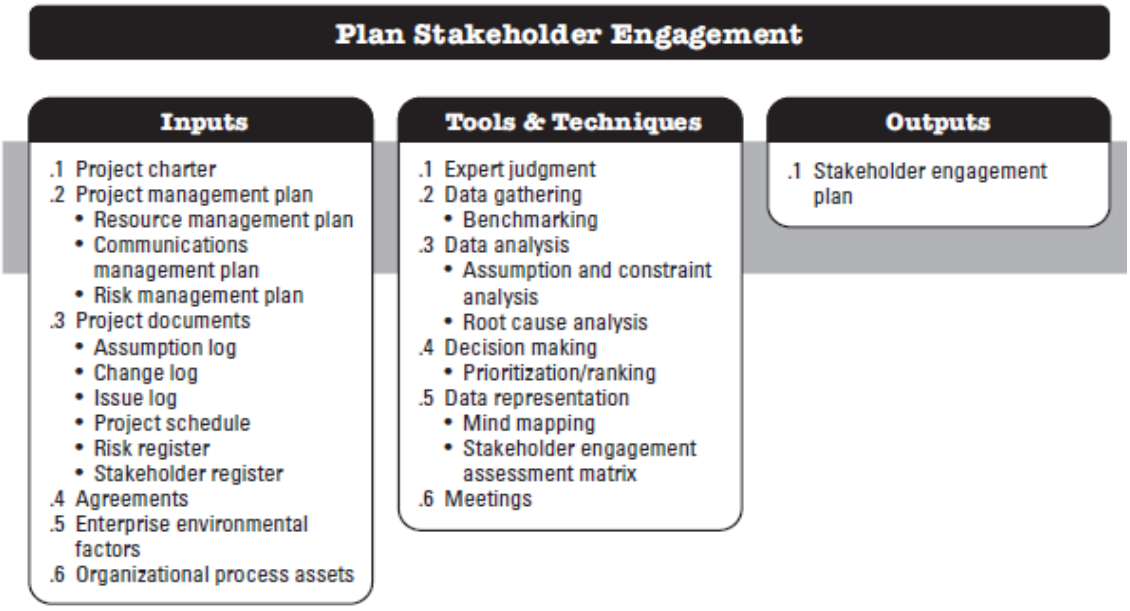
Figure 28

Identify Stakeholders Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

Figure 29
Plan Stakeholder Engagement Process



Note. From Project Management Institute. (2017). A guide to the Project Management Body of Knowledge (PMBOK guide) (6th ed.). Project Management Institute.

METHODOLOGICAL FRAMEWORK

3.1 Information sources

An information source is “anything that might inform a person about a topic or provide knowledge” (LISBDNETWORK, 2018). In the elaboration of this document, information will be utilized from primary and secondary sources.

3.1.1 Primary sources

Primary sources are first-hand information which is an “author’s own account on a specific topic or event that s/he participated in” (North Central University Library, 2021). For the development of this document primary sources will include:

- Interviews with the FAO Country Representative
- Interviews with the Project Lead (Technical Officer) MAFSE
- MAFSE documents and reports
- Personal Observation
- Email Correspondence

3.1.2 Secondary sources

Secondary sources “describe, summarize, or discuss information or details originally presented in another source” (North Central University Library, 2021). For the development of this document secondary sources will include:

- Web Information
- PMBOK Guide
- Books
- Previous Research
- PMI Database
- Course Notes

Chart 2 outlines the primary and secondary sources that will be utilized for this project.

Chart 2 Information sources (Source: Author of Study)

Objectives	Information sources	
	Primary	**Secondary**
To develop a project charter to ensure that the important elements of the project are defined.		*PMBOK® Guide*
To develop a scope management plan that identifies the work required to complete the project successfully.	Interview with FAO Ministry Representative and Project Lead	*PMBOK® Guide* Web Information with relevant material on scope management plans
To develop a schedule management plan to ensure that the project and the resources will be allocated and managed throughout the project.	Interview with FAO Ministry Representative.	*PMBOK® Guide*, Web Information with relevant material and templates on schedule management, work breakdown structure etc.
To develop a cost management plan to ensure the project is completed and controlled within the approved budget.	Cost Estimates provided by FAO Ministry Representative	*PMBOK® Guide*
To develop a quality management plan to identify quality requirements to meet stakeholder's objectives.	Document Analysis	*PMBOK® Guide* Web Information with relevant material on quality management.

To develop a resource management plan to ensure that the appropriate resources are available for the project manager at the appropriate time and place.	Document Analysis	*PMBOK® Guide* Web Information with relevant material on resource management.
To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.	Observation and interview with Project Lead.	*PMBOK® Guide* Web Information with relevant material on communications management plans.
To develop a risk management plan to identify, analyse and respond appropriately to project risk	Observation Document Analysis	*PMBOK® Guide* Web Information with relevant material on risk management plans.
To develop a procurement management plan to acquire products, services and results required from outside of the project team.	Document Analysis Observation	*PMBOK® Guide* Web Information with relevant material on procurement management
To develop a stakeholder engagement plan to identify, analyse and	Interview with Project Lead	*PMBOK® Guide* Web Information with relevant material on stakeholder engagement.

manage stakeholder expectations and impact on the project.		

3.2 Research methods

In identifying research methods for this project, it is imperative to first understand research. Research is defined as “a systematic process of collecting, analysing, and interpreting information-data- in order to increase our understanding”. (Leedy & Omrod, 2015) 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” (University of New Castle Library , 2020).

There are various types of research methods including: analytical, quantitative, qualitative, descriptive conceptual, and empirical. For this project management plan, the analytical and descriptive research methods will be applied. Chart 3 outlines the use of these research methods and their application to meeting the project objectives.

3.2.1 Analytical Research Method

The analytical research method is a “specific type of research that involves critical thinking skills and the evaluation of facts and information” (Reference.com, 2020). With this research method, information from various primary and secondary sources will be analysed and utilized to find the most relevant information to aid in developing the project deliverables.

3.2.2 Descriptive Research Method

The descriptive research method is defined by (Kothari, 2004) as a “fact-finding enquiry” to provide a “description of the state of affairs”. This research method will be utilized to garner an in-depth understanding of the organization and project being undertaken and how the inferences made can be utilized in meeting the project objectives.

Chart 3 Research Methods (Source: Author of Study)

Objectives	**Descriptive Research Method**	**Analytical Research Method**
To develop a project charter to ensure that the important elements of the project management plan are defined	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming will be the main technique utilized from this method to meet the objective.
To develop a scope management plan that identifies the work required to complete the project successfully.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a schedule management plan to ensure that the project and the resources will be allocated and managed throughout the project. .	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a cost management plan to ensure the project is completed and controlled within the approved budget.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a quality management plan to identify quality requirements to meet stakeholder's objectives.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.

To develop a resource management plan that will ensure that the appropriate resources are available for the project manager at the appropriate time and place.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a risk management plan to identify, analyse and respond appropriately to project risk.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a procurement management plan to acquire products, services and results required from outside of the project team.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.
To develop a stakeholder engagement plan to identify, analyse and manage stakeholder expectation and impact on the project.	Observation will be the main technique utilized from this method to meet the objective.	Brainstorming and data analysis will be the main technique utilized from this method to meet the objective.

3.3 Tools

Project Management tools are the “munitions” (nTask, 2020) that are required to help a team or individual in getting their work organized and are used to manage tasks. The PMBOK® Guide defines a tool as “something tangible, such as a template or software program, used in performing an activity to produce a product or result”. Several templates will be utilized in the development of this document as well as scheduling software. Additional tools will be utilized in accordance with the PMBOK® *Guide* recommendations such as:

Expert Judgement: Judgement provided based on expertise in an application area, knowledge area, discipline, industry etc., as appropriate for the activity being performed. Such expertise may be provided by any group or person with specialized education, knowledge, skill, experience, or training. For this process, expertise should be considered from individuals or groups with specialized knowledge of or training in the following topics: Organizational Strategy, benefits management, technical knowledge of agriculture and climate change resiliency, duration and budget estimation and risk identification.

Data Gathering Techniques: Techniques used to collect data and information from a variety of sources. For the purpose of this project the main data gathering techniques will be brainstorming and meetings.

Benchmarking: The comparison of actual or planned products, processes, and practices to those of comparable organizations to identify best practices, generate ideas for improvement, and provide a basis for measuring performance.

Chart 4 further outlines these tools in relation to the objective they assist in meeting.

Chart 4 Information sources (Source: Author of Study)

Objectives	Tools
To develop a project charter to ensure that the important elements of the project management plan are defined.	Expert Judgment & Data Gathering: Brainstorming & Interviews.
To develop a scope management plan that identifies the work required to complete the project successfully.	Scope Management Template Expert Judgment, Decomposition, & Data Gathering: Brainstorming & Interviews.
To develop a schedule management plan to ensure that project and the resources will be allocated and managed throughout the project. .	Schedule Management Template Microsoft Projects Software Expert Judgment, Decomposition, & Data Gathering: Brainstorming & Interviews, Dependency determination & integration, Schedule Network Analysis.
To develop a cost management plan to ensure the project is completed and controlled within the approved budget.	Cost Management Template Expert Judgment, Cost Aggregation & Historical Information Review
To develop a quality management plan to identifies quality requirements to meet stakeholder's objectives.	Quality Management Template Expert Judgement, Data Analysis, Data Gathering: Benchmarking & Brainstorming, Cost of Quality
To develop a resource management plan that will ensure that the appropriate resources are available for the project manager at the appropriate time and place.	Resource Management Template Expert Judgement & Data Representation.

To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.	Communication Management Template Expert Judgement, Communications Requirements Analysis, Communication Technology, Communication Methods.
To develop a risk management plan to identify, analyse and respond appropriately to project risk.	Risk Management Template Expert Judgement, Data Analysis: Stakeholder Analysis, Data Gathering, Risk Categorization, Strategies for Threats, Strategies for Opportunities, Strategies for Overall Project Risk
To develop a procurement management plan to acquire products, services and results required from outside of the project team.	Procurement Management Plan Template Expert Judgement, Data Gathering, Data Analysis, Source Selection Analysis
To develop a stakeholder engagement plan to identify, analyse and mange stakeholder expectation and impact on the project.	Stakeholder Engagement Plan Template Expert Judgement, Data Gathering, Data Analysis, Decision Making

3.4 Assumptions and constraints

Assumptions are “a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration” (Project Management Institute, 2017).

A Constraint is a “limiting factor that affects the execution of a project” (Project Management Institute, 2017). The assumptions and constraints determined for each objective of this project are outlined in Chart 5.

Chart 5 Assumptions and constraints (Source: Author of Study)

Objectives	Assumptions	Constraints
To develop a project charter to ensure that the important elements of the project management plan are defined.	It is assumed that the contents of the project charter will be accepted by key stakeholders.	Availability of acceptance.
To develop a scope management plan that identifies the work required to complete the project successfully.	It is assumed that the scope management plan will be adequately defined and accepted by key stakeholders.	Time frame to develop plan.
To develop a schedule management plan to ensure that the project and resources will be allocated and managed throughout the project. .	It is assumed that the schedule will be realistic and adhered to.	Time frame to develop plan.
To develop a cost management plan to ensure that the project and the resources will be allocated and controlled within the approved budget.	It is assumed that delivery times and availability of resources will be outlined as in the plan.	Budget of $42,900.00
To develop a quality management plan that identifies quality requirements to meet stakeholder's objectives.	It is assumed that quality requirements will be identified.	Time frame to develop plan
To develop a resource management plan that will ensure that the appropriate resources are	It is assumed that a resource management plan will be developed, and resources will be readily available.	In kind human resource contributions may

available for the project manager at the appropriate time and place.		have other responsibilities for other tasks and projects.
To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.	It is assumed that a communications management plan will be developed with effective communication channels being established.	Quality of information available.
To develop a risk management plan to identify, analyse and respond appropriately to project risk.	It is assumed that a risk management plan will be developed.	Time frame to develop risk management plan
To develop a procurement management plan to acquire products, services and results required from outside of the project team.	It is assumed that all relevant components of the procurement management plan will be developed, and procurements will be done in a timely manner	Availability of consultants/vendors to choose from.
To develop a stakeholder engagement plan to identify, analyse and manage stakeholder expectation and impact on the project.	It is assumed that all relevant components of the stakeholder engagement plan will be developed, and stakeholders will be willing to participate.	Time frame to develop stakeholder engagement plan.

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). Chart 6 outlines the objectives of this document and the related deliverables based on the initiating and planning process groups.

Chart 6 Deliverables (Source: Author of Study)

Objectives	Deliverables
To develop a project charter to ensure that the important elements of the project management plan are defined.	Project Charter
To develop a scope management plan that identifies the work required to complete the project successfully.	Scope Management Plan WBS
To develop a schedule management plan to ensure that the project and the resources will be allocated and managed throughout the project.	Schedule Management Plan Activity List Schedule (Gantt chart)
To develop a cost management plan to ensure the project is completed and controlled within the approved budget.	Cost Management Plan Cost Estimates Project Budget
To develop a quality management plan to identify quality requirements to meet stakeholder's objectives.	Quality Management Plan Quality Objectives & Metrics
To develop a resource management plan that will ensure that the appropriate resources are available for the project manager at the appropriate time and place.	Resource Management Plan responsibility assignment matrix
To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the	Communications Management Plan

strategy.	
To develop a risk management plan to identify, analyse and respond appropriately to project risk.	Risk Management Plan Risk Breakdown Structure Risk register
To develop a procurement management plan to acquire products, services and results required from outside of the project team.	Procurement Management Plan
To develop a stakeholder engagement plan to identify, analyse and manage stakeholder expectation and impact on the project.	Stakeholder Engagement Plan, Stakeholder Register

4 RESULTS

The Objectives of the Project Management Plan Project are elaborated in this section encompassing the initiating, planning and controlling project management processes. This includes the project charter and nine subsidiary management plans. The project charter provides the rationale for the project through a link to the organization's need and includes a budget, timeline, and deliverables. The subsidiary management plan are as follows:

- Scope Management Plan
- Schedule Management Plan
- Cost Management Plan
- Quality Management Plan
- Resource Management Plan
- Communication Management Plan
- Risk Management Plan
- Procurement Management Plan
- Stakeholder Engagement Plan

These plans will be elaborated utilizing the Project Management Institute's suggested inputs and tools and techniques as previously discussed.

4.1 Project Charter

In developing the Project Management Plan for the Managing Belize's Agriculture Resilience Project, a project charter is required. The project charter development is the responsibility of the project manager who collaborates with the project sponsor who is the main initiator and supporter of the project.

This charter provides clear boundaries as it identifies a general objective of the project followed by specific objectives which outline how the general objective will be achieved. The expected deliverables were clearly defined.
In creating a project charter, there are certain assumptions that must be made in relation to schedule, cost, and scope. Related schedule, cost and scope constraints are also identified along with preliminary risks. A general cost estimate of main deliverables is outlined in the project charter as well project milestones. The project manager is required to identify a list of direct and indirect stakeholders to be included.

The project charter provides a high-level overview of all major components of the project. It paints a picture of what is to be expected as the project is elaborated. It formalizes the project start and confers the project manager with the authority to assign organization resources to project activities.

Figure 30
Project Charter

PROJECT CHARTER	
Date:	**Project Name:**
June 2022	Managing Belize Agriculture Resilience
Project Start Date:	**Project Finish date:**
1st July,2022	21st August,2023
Project Objectives (General and Specific):	
General Objective: To reduce the vulnerability of the agro-food system to better protect perishable produce at the farm level and along the value chain and to improve risk management capacity in the MAFSE. **Specific Objectives:** 1. To develop a community-based storage solution to quickly remove field heat from harvested crops and protective packaging of produce to be transported to the market. 2. To develop an Agriculture Disaster Risk Management (ADRM) Strategy. 3. To train farmers to assess risks to their operations and develop mitigation or prevention for expected disasters. 4. To conduct train-the trainer workshops to build MAFSE capacity to effectively carry out and replicate training events across targeted vulnerable communities. 5. To conduct a pilot of the community-based storage solution and develop a subsequent pilot expansion plan.	
Project purpose or justification (merit and expected results):	
There is a high percentage of loss of perishable food in the value chain in Belize and tends to be higher for smaller farmers. These losses are caused by rural farmers not having access to appropriate storage and crates and pallets to transport their produce to the market as well as a lack of standard protocols for transportation. These losses have cause shortages of perishable food and resulting price increases, worsening nutritional problems and reduced farmers earning. This project will better protect perishable foods through improve storage and transportation. This project will also aid farmers in being able to minimize damage or disruptions to their operation through training in alignment with the ADRM strategy. Capacity building for MAFSE personnel will also be conducted to ensure that training events can be effectively carried out and replicated.	
Description of Product or Service to be generated by the Project – Project final deliverables:	

The Managing Belize's Agriculture Resilience Project will provide farmers with increased financial, technical, and operational resilience against disruptions

Specific deliverables include:

- ADRM Strategy and Manual
- Trained MAFSE personnel in ADRM delivery to farmers
- Community- based produce storage solution design, construction manual and training resource
- Trained MAFSE Personnel with improved capacity to train in relation to community-based storage solution
- Pilot of Community- Based Produce Storage Solution
- Lessons learned report of pilot
- Pilot Expansion Plan

Assumptions:

1. It is assumed that government and stakeholders will be willing to embrace and scale up new practices, models and lessons learnt.
2. It is assumed that MAFSE has sufficient human and financial resources for the replication of success cases across the country.
3. Agriculture producers' transporters and distributers will accept upgraded produce crates and pallets to help improve food safety and reduce losses in the supply chain.
4. Farmers will accept support and attend required training.

Constraints:

Resource: The project will be dependent on a portion of in-kind contribution from the MAFSE and other stakeholders.
Time: The deadline for each deliverable is strict.
Scope:
Quality: Special attention is required to ensure conformity with predefined quality requirements.

Preliminary Risks:

- Covid-19 outbreaks can cause delays for trainings.
- Natural Disasters can affect schedule since June-November is hurricane season.
- Consultants causing delays in delivery of reports.

Budget:

The Budget for the Managing Belize's Agriculture Resilience Project is $42,900.00 US. It includes a budget for personnel services, materials supplies & equipment and training.

Milestones and dates:

Milestone	**Start Date**	**End Date**
Project Start	July 1st,2022	July 1st,2022
ADRM Strategy Process	July 1st,2022	January 12th,2023
ADRM Training	December 26th,2022	January 12th,2022
CBSS	July 1st,2022	November 2nd, 2022
CBSS Capacity Building Training	October 27th,2022	November 2nd,2022

Pilot	January 20th,2033	June 13th,2023
Pilot Expansion	June 14th,2023	August 21st,2023
Project End	August 21st, 2023	August 21st, 2023

Relevant historical information:

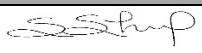
The Ministry of Agriculture, Food Sustainability and Enterprises in Belize is tasked with ensuring efficiency and effectiveness in the structure and institutional management systems of the Agriculture and Food Sector in Belize. They have undertaken several projects with an aim to enhance food security and stakeholder capacity such as the Belize Covered Structure and Capacity Enhancement Project.

Stakeholders:

Direct stakeholders:
Project Sponsor
MAFSE Personnel
FAO Country Representative
Beneficiaries
Consultants

Indirect stakeholders:
Consumers/ Patrons of the Produce Market
Pesticides Control Board
Belize Marketing and Development Corporation
Belize Agriculture Health Authority

Approval:

Project Manager: Shakira Sharp	Signature: 
Authorized by:	Signature:

4.2 Scope Management Plan

4.2.1 Scope Management Plan Introduction

The scope management plan is a component of the Project Management Plan. This plan identifies the tasks required to complete the project successfully. The processes being elaborated in this section are

- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS
- Validate Scope
- Control Scope

The project will be undertaken by the MAFSE with technical assistance from the FAO. Financial resources will be required for the procurement of consultants for the implementation of an Agriculture Disaster Response Management (ADRM) Strategy and the Community-Based Storage Solution (CBSS). Administrative support and other resources will be provided by MAFSE as in-kind contributions.

4.2.2 Scope Management Approach

Plan Scope Management is the process of creating a scope management plan that documents how the project and product scope will be defined, validated and controlled. The key benefit of this process for the MBAR project is the guidance and direction it provides to stakeholders on how the scope will be managed throughout the project.

For this project, the development of the scope management approach will be the responsibility of the Project Manager in collaboration with the project sponsor, MAFSE technical focal point and FAO country representative. The project manager will establish documentation for measuring the project's scope and this will be reviewed and approved by the Project Sponsor and implementing agency. The project scope is defined by the WBS and scope statement.

4.2.3 Roles & Responsibilities

The Project Manager, Project Management Team, Project Sponsor and organization will have key roles in determining and controlling the project's scope. Chart 7 outlines each person's role and responsibility in the Scope Management Process

Chart 7 Roles & Responsibilities for Scope Management (Source: Author of Study)

ROLE	RESPONSIBILITES
Project Sponsor	• Provide financial support to the organization for the implementation of the project • Collect requirements • Ensure that deliverables are completed as agreed. • Works closely with the project manager to ensure that the organization's needs are closely aligned with that of the sponsor • Approves the project's deliverables • Provides additional funds for scope change • Reviews scope change requests • Approves or denies scope change requests
Project Management Team	• Provides technical support to the project • Ensure that the project delivers its deliverables as agreed • Works closely with the project manager to ensure the organization's needs are identified and linked to the project • Approves the project deliverables • Reviews scope change
Project Manager	• Measures and verifies project scope • Facilitates scope change requests • Facilitates impact assessments of scope change requests • Organizes and facilitates scheduled change control meetings • Communicates outcomes of scope change requests • Update project documents upon approval of all scope changes

4.2.4 Plan Scope Management

In planning scope management, the project manager will review the project charter and other documents as inputs to this process. Meetings are required with relevant stakeholders. The expert judgement will be provided by ministry personnel and funding agency counterparts to capture specific agriculture related information for the project.

Considering that the FAO has implemented similar projects which focused on increasing technical capacities, lessons learned where available will be reviewed to ensure the most effective and efficient means are used to attain project objectives.

4.2.5 Collect Requirements

Project requirements were identified through discussion by the project manager with the project sponsor and a technical officer in the MAFSE. Requirements were identified that best respond to the needs of farmers and technical personnel in the MAFSE. Requirements were identified that align with organizational policy and project outputs as follows:

1) Framework & System to improve market access for small scale producers of certain crops
2) Creation of an ADRM Strategy and Manuals
3) Training of Ministry of Personnel to deliver ADRM services to farmers.
4) Prepare relevant reports.
5) Design of a community-based produce storage solution to reduce agriculture product loss.
6) Training of Ministry Personnel in the design of the community-based produce storage solution
7) Provide Farmers with access to improved storage and transport solutions for agriculture products.
8) Provide Farmers with training on developing Agriculture Disaster Response Management Plans
9) Develop a Lessons- learned report.
10) A roadmap to replicate and expand pilot.

4.2.6 Define Scope

Defining scope includes a product scope description, identifying deliverables, acceptance criteria and exclusions. The Managing Belize's Agriculture Resilience Project has four main components:

- *A National Agriculture Disaster Response Management Strategy*

Once created, this strategy will be used to develop a standardized manual to be used by Ministry personnel in developing and implementing ADRM plans with farmers. Ministry personnel will also be trained in their delivery to farmers.

- *A Community Based Agriculture Produce Transport and Storage Solution*

Once the solution is identified and designed, construction manuals and training resources will be created. Ministry personnel will be trained in the implementation of the identified storage solution.

- *A Pilot Group Training for Farmers*

Identified producers (farmers) will be provided with training in developing ADRM plans for their farms. They will also be provided with access to improved storage and transportation of their agricultural products.

- *Support for Pilot Expansion*

A guide to replicating the pilot throughout the country will be created with a lesson learned report being a useful resource. Consultation and Stakeholder engagement will be required to gain support.

The deliverables for this project were identified as follows:

- Agriculture Disaster Response Management (ADRM) Strategy
- Agriculture Disaster Response Management Strategy Manual
- Trained Ministry personnel in ADRM delivery to farmers.
- Community-based produce storage solution design, construction manual and training resource
- Training of Ministry Personnel in community-based produce storage solution
- Pilot of Community-based produce storage solution

- Lessons learned report of pilot
- Pilot Expansion Plan

For this project, the acceptance criteria were identified as specific conditions which must be met before the project's deliverables can be classified as acceptable. It was agreed that training reports and list of participants for all trainings conducted with Ministry personnel should be prepared. Secondly, the construction manuals must be in accordance with standard building principles. Additionally, the storage solutions must be of a certain size and farmers must be registered with MAFSE to participate in the pilot. These criteria must be documented in the project requirements document.

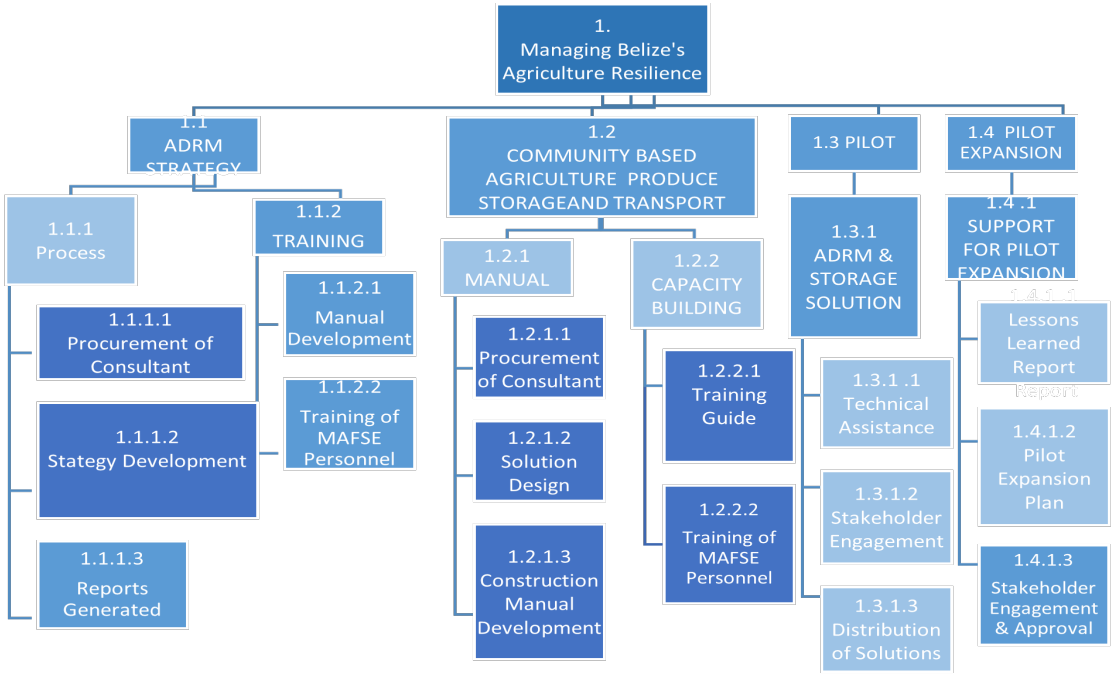
The main project exclusion is the maintenance of storage solutions.

4.2.7 Create WBS

The WBS is useful in providing a framework of what is to be delivered. It is helpful in making the project more manageable. By applying the decomposition technique, the project scope and project deliverables were subdivided to develop the project's WBS outlined in Figure 31.

Figure 31

Work Breakdown Structure (WBS)



4.2.8 Validate Scope

Validate scope involves formalizing acceptance of the completed project deliverables. This will be conducted through continuous monitoring and evaluation of the project. The project manager is the owner of this process and will compare progress against the scope statement and WBS. Once the deliverables have been finalized, it will be shared with the project sponsor for acceptance. If acceptable, the project sponsor will sign off on the document and this will become part of the project's official documents which will then be presented at the subsequent stakeholder meeting.

4.2.9 Control Scope

Control Scope is the process involved with monitoring the status of the project and managing changes to the scope baseline. The scope of the project will be controlled by the project manager with inputs from the project team. The project team will ensure that only the work authorized through the WBS is completed and will ensure that the project stays within budget and schedule. As lead, the project manager will review monthly progress reports as submitted by the team member. The project manager will lead the project team and monitor their activities and progress throughout the project's life cycle.

To control scope, the project manager will review the scope management plan, and requirements management plan.

4.2.10 Scope Change

The Project Sponsor, Organization or any other key stakeholder may request changes to the project during project's life cycle. The project manager will ensure that the change process is clear and concise and communicated to all stakeholders. Requests will be categorized based on the following thresholds:

- Change requests which may cost less than $1,000: these can be approved by the project manager
- Change requests which may cost more than $1,000: these can be approved by the project sponsor.

The change management process is as follows:

1. Change requests must be submitted to the project manager who log them into the Change Control Log
2. The project manager will review the requests to ascertain its relevance and level of importance given to the stage of the project.
3. If the project manager believes that there is some level of substance to the request, he will look for the alternatives in the off chance that the request is approved.
4. The Project Manager will evaluate the impact of the request on the project's scope, budget, and schedule.
5. Submit to the project sponsor for review and decision making if outside the PM's level for approval.
6. If approved, the project sponsor will formally accept the change by signing off on the project change control document
7. The project manager will update the project documents and advise stakeholders of the approved changes and their impact on the project.

4.3 Schedule Management Plan

4.3.1 Schedule Management Plan Introduction

The schedule management plan ensures that the project and the resources will be allocated and managed throughout the project. The project's schedule must be closely managed to ensure that all its activities are completed within the agreed timeframe. The planning and controlling processes being elaborated in this section are:

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

The schedule management approach, roles and responsibilities, and change management will also be defined. This plan is completed after the scope and cost management plans.

4.3.2 Schedule Management Approach

Project schedules will be created using the deliverables outlined in the project's WBS. The plan will be used to outline the process the team will use to develop the project's schedule. Once a schedule baseline is established, changes to the schedule are managed through the project's change control process.

The project manager will provide updates on the project's schedule during progress report meetings. The project manager will also advise the sponsors of any proposed amendments to the schedule and outline any measures required to keep the project on track.

The plan will outline the tools and techniques which will be utilized throughout the project. Project documents such as the charter will be a valuable input to the development of the schedule. The project manager and implementing agency will ensure that there are no scheduling conflicts around the delivery of key deliverables.

The project team will discuss which project methodology to follow such as critical path or agile approach. When such method is agreed upon, the next step will be to enter specific project related data into the scheduling tool.

4.3.3 Roles & Responsibilities

The Project Manager, Project Management Team and Project Sponsor will have key roles in determining and controlling the project's schedule. Chart 8 outlines each person's role and responsibility in the Schedule Management Process.

Chart 8 Roles & Responsibilities for Schedule Management (Source: Author of Study)

ROLE	RESPONSIBILITIES
Project Sponsor	• Approves the project's schedule and schedule management plan • Provides recommendations as required to ensure project is completed on time.
Project Team	• Provides recommendations as required to ensure project is completed on time
Project Manager	• Develop the schedule management plan • Create the project's schedule using identified software (MS Project) • Decomposition of work packages into activities • Lead discussions on sequencing and estimating duration periods and resources for each work package/activity • Define the project's activities • Obtain approval for the project schedule and schedule management plan from key stakeholders • Provide regular status updates during meetings

4.3.4 Plan Schedule Management

Plan Schedule Management is the process that involves establishing policies and documentation for planning, developing, and controlling the project schedule. The project manager will conduct meetings with the participation of the project team, project sponsors and relevant stakeholders. They will analyse and select the most appropriate schedule method, the level of detail of the schedule plan, and the level of time and effort necessary

for reporting and managing the project schedule using expert judgement. Scheduling software (Microsoft Project) will be used to plan the project schedule. The WBS presented in Figure 6 will be the basis of the schedule management plan to ensure that the duration of each project deliverable and all their work packages are accurately represented in the project schedule.

4.3.5 Define Activities

This process involves identifying and documenting specific actions required to produce project deliverables. Work packages are decomposed during the define activities process to identify specific actions. Chart 9 outlines the activities to be performed in relation to the previously defined work packages. Activities associated with the procurement of consultants will follow the standard procurement process. The project manager, MAFSE personnel and FAO representative will use professional judgement and lessons learned documents for this process, as these activities have been completed in similar projects.

Chart 9 Activity List (Source: Author of Study)

WBS ID	Work Package	Activity Name	Description
1.1.1.1	Process	Procurement of Consultant	Follow procurement plan to evaluate proposals and make selection of consultant to develop a ADRM strategy.
1.1.1.2	Process	Strategy Developed	Consultant develops National ADRM Strategy with oversight from project sponsor and executing agency.
1.1.1.3	Process	Reports	Final Reports prepared after assignment completed.
1.1.2.1	Training	Training Plan	Training of Trainers Planned based on ADRM Strategy
1.1.2.2	Training	Personnel Training	Training and mentoring of technical ministry personnel in the planning, mobilization and delivery of ADRM training to farmers

1.2.1.1	Manual	Procurement of Consultant	Follow Procurement Plan including publishing of a request for proposal for a design specialist for the design of a community-based storage solution.
1.2.1.2	Manual	Design Solution	Develop appropriately sized community-based storage solutions
1.2.1.3	Manual	Develop Construction Manual	Develop construction manuals according to schedule
1.2.2.1	Capacity Building	Training	Prepare Training Resources and Conduct training of Ministry Personnel in the implementation of the community-based storage solutions.
1.3.1.1	Pilot Execution	Technical Assistance	On the job training and technical assistance by Project Sponsor personnel for Ministry Technical Officer to deliver extension services to recipients of community-based storage field solution.
1.3.1.2	Pilot Execution	Stakeholder Engagement	A communication plan will be developed to engage and sensitize potential recipients (targeted stakeholders) for buy- in to the pilot.
1.3.1.3	Pilot Execution	Farmer Training in ADRM	Ministry technical personnel to train farmers to develop and implement ADRM plans for individual farms.
1.4.1.1	Support for Pilot Expansion	Lessons Learned Register	Record knowledge gained during the project and more specifically the pilot component.
1.4.1.2	Support for Pilot Expansion	Pilot Expansion Plan Development	Develop an expansion roadmap so that the pilot can be implemented nationally.

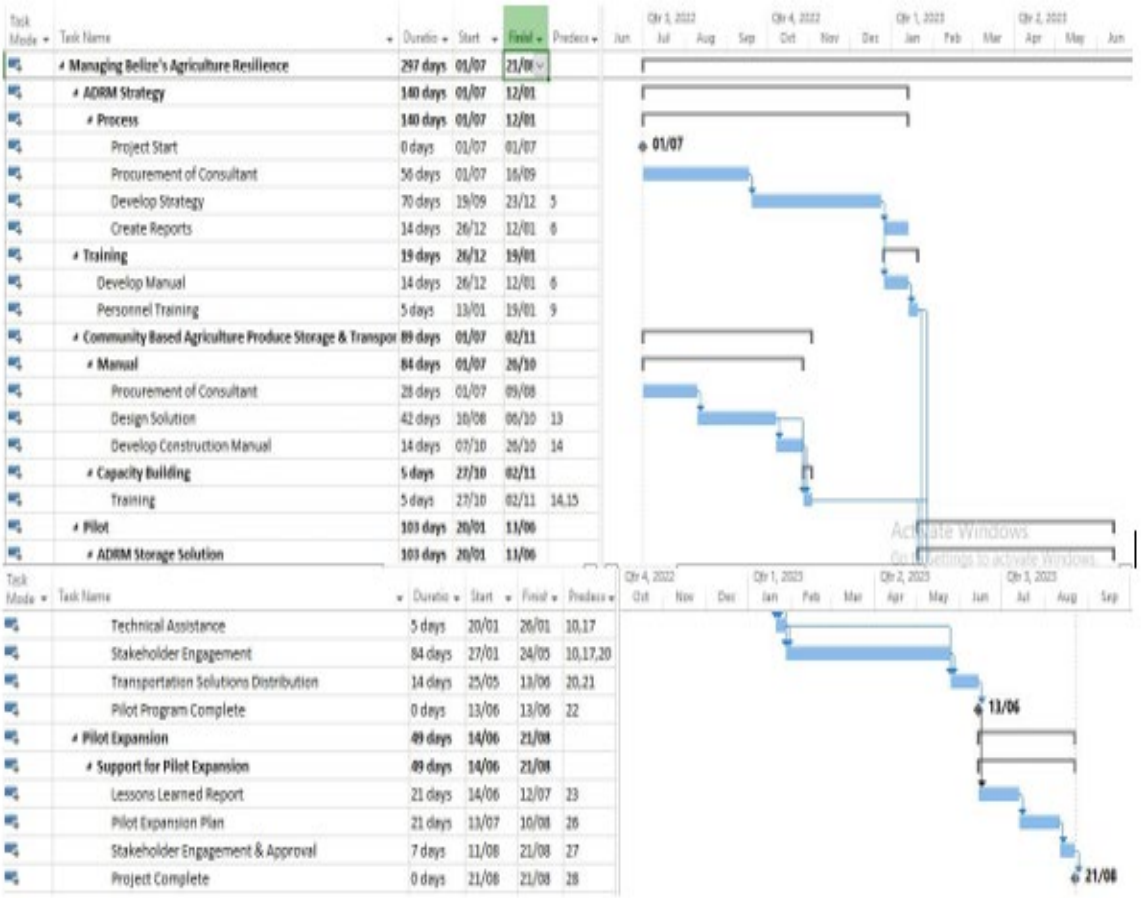
1.4.1.3	Support for Pilot Expansion	Stakeholder Engagement & Approval	Consultation with local government authorities, financial institutions, and other stakeholders to support large scale replication of the previously implemented pilot.

4.3.6 Sequence and Estimate Activities

There are several apparent dependencies between activities identified for the execution of this project. These include the need for manuals and strategies to be created before personnel training is conducted and the need for consultants to be contracted before manuals and strategies can be developed. A discretionary dependency exists for the training activities since they can either be done at two separate times after each manual is complete or they can be done during one period. Expert Judgement will be a valuable tool in estimating duration of specific activities. Figure 32 illustrates the schedule developed and provides a more thorough illustration of project dependencies and sequencing as well as duration of specific activities.

Figure 32

Schedule for Managing Belize's Agriculture Resilience Project



Task Mode	Task Name	Duration	Start	Finish	Predecessors
	Managing Belize's Agriculture Resilience	**297 days**	**01/07**	**21/08**	
	ADRM Strategy	**140 days**	**01/07**	**12/01**	
	Process	**140 days**	**01/07**	**12/01**	
	Project Start	0 days	01/07	01/07	
	Procurement of Consultant	56 days	01/07	16/09	
	Develop Strategy	70 days	19/09	23/12	5
	Create Reports	14 days	26/12	12/01	6
	Training	**19 days**	**26/12**	**19/01**	
	Develop Manual	14 days	26/12	12/01	6
	Personnel Training	5 days	13/01	19/01	9
	Community Based Agriculture Produce Storage & Transpor	**89 days**	**01/07**	**02/11**	
	Manual	**84 days**	**01/07**	**26/10**	
	Procurement of Consultant	28 days	01/07	09/08	
	Design Solution	42 days	10/08	06/10	13
	Develop Construction Manual	14 days	07/10	26/10	14
	Capacity Building	**5 days**	**27/10**	**02/11**	
	Training	5 days	27/10	02/11	14,15
	Pilot	**103 days**	**20/01**	**13/06**	
	ADRM Storage Solution	**103 days**	**20/01**	**13/06**	
	Technical Assistance	5 days	20/01	26/01	10,17
	Stakeholder Engagement	84 days	27/01	24/05	10,17,20
	Transportation Solutions Distribution	14 days	25/05	13/06	20,21
	Pilot Program Complete	0 days	13/06	13/06	22
	Pilot Expansion	**49 days**	**14/06**	**21/08**	
	Support for Pilot Expansion	**49 days**	**14/06**	**21/08**	
	Lessons Learned Report	21 days	14/06	12/07	23
	Pilot Expansion Plan	21 days	13/07	10/08	26
	Stakeholder Engagement & Approval	7 days	11/08	21/08	27
	Project Complete	0 days	21/08	21/08	28

4.3.7 Control Schedule

The project schedule will be reviewed and updated as necessary by the Project Manager with inputs from the project team. The project manager during his monthly project status update meetings with the project team will analyse the reports compiled for each deliverable and identify activities that may be outside of the parameters of the initial schedule. The project team will brainstorm on alternatives or mitigating measures to ensure that the project is completed on time.

Performance reviews will be conducted comparing the planned versus actual schedule, level of completion and remaining time for the deliverable to be completed. In addition, a variance analysis will be utilized to determine the cause(s) for the difference in the schedule between planned and actual.

If an activity results in a significant change to the schedule, the project manager will alert the Project Sponsor and Implementation agency for high-level decision-making discussion in relation to the project's future. If this results in a change request, the previously established change control process should be followed.

4.3.8 Schedule Change

Schedule change management helps to ensure that requirements for the time related elements of the project meet the stakeholder needs. It is important to provide the project manager, sponsor, and other stakeholders with a standard process for managing schedule change on the MBAR Project. Schedule change management involves managing each change request from initiation through to closure, process change requests based upon direction from the relevant personnel and communicate the impact of schedule changes to the appropriate personnel. If any member of the project team determines that a change to the schedule is necessary, this will be formally communicated the project manager who logs, monitors, and controls the progress of all changes within the project.

A change request form (Appendix 5) is the formal document to be completed by the personnel requesting the change. It includes description of the change, reason, impacts, and approvals. In reviewing the change request form, the project manager and execution team will determine whether additional information to assess the impact of change on areas such as budget, procurement contract, resources etc. After a formal review, the schedule change may be rejected, approved as requested or approved with specified conditions. If the change to the schedule is approved, the change should be communicated to the team and in the project status report. Project deliverables will also be updated to reflect the change. The process should be conducted in a manner that allows small changes to be managed with a minimum overhead.

4.4 Cost Management Plan

4.4.1 Cost Management Plan Introduction

The cost management plan ensures the project is completed and controlled within the approved budget. The processes being elaborated in this section are:

- plan cost management
- estimate costs
- determine budget.

Costs will be planned for, measured, determined, reported on and controlled. Effective monitoring will be undertaken throughout the project to ensure that the project deliverables are achieved at predetermined values or less. Cost management activities will be conducted throughout the project life cycle.

The cost management plan will be created by the project manager in collaboration with the project sponsor and accounts personnel. The plan aids in visualising the project's baseline costs and counteracts possible cost overruns.

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, (PMI 2017). The plan will ensure that there is sustainability built within the projects budget. Costs will be planned for measured determined reported on and controlled. In addition, effective monitoring will be carried out throughout the project to ensure that the project's deliverables are achieved at or under costs estimated during the planning phase. Cost Management activities will be conducted throughout the project's life cycle.

4.4.2 Cost Management Approach

Project Cost Management is primarily concerned with the cost of the resources need to complete project activities. It involves planning, estimating, budgeting financing, funding managing and controlling costs. This is important to complete the project within the approved budget.

Considering the project is relatively small, cost estimating and budgeting are tightly linked and will be treated as a single process. Cost performance reports will be prepared by the project manager and shared at project status report meetings that are held monthly. Cost performance reports will be updated continuously and made available upon request. This will be done with the aid of Microsoft Project Software.

Other PMBOK ® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert Judgement
- Data Analysis
- Meetings
- Analogous Estimating
- Bottom-up Estimating
- Cost Aggregation
- Historical Information Review

4.4.3 Cost Roles & Responsibilities

The roles and responsibilities of key individuals with responsibility for Cost Management are outlined in Chart 10. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 10 Roles & Responsibilities for Cost Management (Source: Author of Study)

ROLE	RESPONSIBILITIES
Project Sponsor	• Provide financial support to the organization for implementation of the Project • Review reports provided by the Project Manger • Approve or deny change requests
Project Manager	• Create the cost management plan • Monitoring and reporting for cost management • Present and review the project's cost performance • Identify variances and create mitigating measures to keep project within cost

Accounts Personnel (Project Team)	• Utilize accounting software to review project budgeting and update project budget with actual costs • Identify variances and inform the Project manager • Generate cost management reports

4.4.4 Plan Cost Management

Cost planning for the Managing Belize's Agriculture Resilience project will consider the different funding source and their requirements, if any, to determine control thresholds, reporting formats and frequency, and level of accuracy. The Project Manager will convene project team planning meetings to develop the cost management plan. The project team member responsible for project finances and the project sponsor representative are key stakeholders in this process. Costs will be broken down into four main categories. Personnel Services, Materials, supplies and equipment and Training. These costs will be further linked to WBS components.

4.4.5 Estimate Costs & Determine Budget

The estimated costs for the Managing Belize's Agriculture Resilience Project were determined using analogous and bottom-up estimating techniques. Chart 11 outlines the costs estimated based on the categories of personnel services, materials, supplies, equipment, and training. Chart 12 outlines the costs that were further categorized to align with WBS components as well as to include a 10% contingency reserve and a general operating cost. These costs aggregated provide the budget for the Managing Belize's Agriculture Resilience Project which is USD $42,900.00.

Chart 11 Cost Estimates Based on Categories (Source: Author of Study)

	ADRM STRATEGY	CBASS	PILOT	PILOT EXPANSION
Personnel Services:				
Consultant	$4,400.00	$4,000.00		
FAO Technical Support	$2,875.00			
Consultant Travel	$375.00	$750.00		
FAO Travel	$2,325.00			
OTHER STAFF	$1,500.00	$1,500.00	$1,500.00	$1,500.00
OTHER STAFF TRAVEL	$187.50	$187.50	$187.50	$187.50
Materials Supplies & Equipment:				
TRAINING EQUIP	$550.00	$550.00		
EXPENDABLE EQUIPMENT			$12,000.00	
TRAINING:				
	$1,250.00	$1,250.00		
TOTAL	$13,462.50	$8,237.50	$13,687.50	$1,687.50

Chart 12 Cost Estimates Based on WBS Components (Source: Author of Study)

WBS ID	Component	Estimated Cost (USD)
1.1	ADRM STRATEGY	13,462.50
1.2	Community Based Agriculture Storage Solution	8,237.50
1.3	Pilot	13,687.50
1.4	Pilot Expansion	1,687.50
1.5	General Operating Costs	1,925.00
1.6	Contingency Reserve	3,900
	Total	**42,900**

4.4.6 Control Costs

Cost control will require continuous monitoring, evaluating, and reporting of the project's finances by the Project Manager with support from accounts personnel and the project sponsor. The Project Manager will utilize accounting software to update the projects

budget with actual costs. Actions required to ensure the project costs are controlled include:

- Ensuring that change requests are addressed in a timely manner
- Ensuring that cost expenditures do not exceed the authorized funding outlined in the budget
- Informing appropriate stakeholders of all approved changes and associated costs
- Keeping overruns within acceptable limits
- Monitoring work performance against funds expended.

The projects performance will be measured using Earned Value Analysis including the calculation of Cost Variance (CV), Schedule Variance (SV), Schedule Performance Index (SPI) and Cost Performance Index (CPI). Chart 13 outlines how the results of these calculations should be determined. The project manager will continuously monitor the budget and schedule to ensure that they do not fall below 1.0. If this occurs, the project manager must report the reason for the deviation and provide a detailed mitigation plan to bring the project's schedule and budget into a reasonable range once more. The plan must include details such as:

- description of the control measure
- personnel responsible for implementation
- timeline for implementation
- associated risks
- effect on overall project performance

Chart 13 Cost Estimates Based on Categories (Source: Author of Study)

Name	Description	Interpretation
Cost Variance (CV)	The amount of budget deficit or surplus as on status date	Positive= under budget Zero= on budget Negative= over budget
Cost Performance Index (CPI)	A measure of the cost efficiency	>1.0= Under Budget 1.0= On budget <1.0= Over Budget
Schedule Variance (SV)	The amount by which the	Positive= ahead of

	project is ahead or behind the planned delivery date as on status date	schedule Zero= on schedule Negative= behind schedule
Schedule Performance Index (SPI)	A measure of schedule efficiency	>1.0= Ahead of schedule 1.0= On Schedule <1.0= Behind Schedule

4.5 Quality Management Plan

4.5.1 Quality Management Plan Introduction

The quality management plan identifies quality requirements of the project to meet stakeholder's objectives. The process being elaborated in this section is:

- Plan quality management
- Control Quality

The quality management plan approach and roles and responsibilities will also be defined. The Managing Belize's Agriculture Resilience Project is focused on increasing protection of perishable produce and improving risk management capacity through the development of an Agriculture Disaster Risk Management Strategy. The goals of this project are of utmost priority and compliance with predefined quality standards is paramount. Compliance with quality standards will ensure that the time, effort, and resources allocated will result in quality deliverables. The quality of the deliverables is important for achieving a sustainable, long-lasting, and meaningful effect on beneficiaries. The success of the project includes complying with scope, schedule, and cost to attain project objectives.

4.5.2 Quality Management Plan Approach

For the purposes of this project management plan, the primary focus will be on Plan Quality Management and Control Quality. The purpose of Plan Quality Management will be to ensure that quality is planned, how quality will be managed is defined and quality assurance activities are defined. Control Quality will be integral in assessing performance and ensuring the project deliverables are complete, correct and meet stakeholders' expectations.

The MAFSE will use previously established quality processes to ensure that quality is incorporated into the project and approval is granted for project deliverables through its governance mechanism. The governance mechanism includes MAFSE personnel, FAO representative and Minister of Agriculture who will be integral in giving final approvals and validation of the project.

PMBOK® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert Judgement
- Data Gathering
- Data Analysis
- Decision Making
- Data Representation
- Meetings

4.5.3 Quality Roles and Responsibilities

The roles and responsibilities of key individuals with responsibility for Quality Management are outlined in Chart 14. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 14 Quality Roles and Responsibilities (Source: Author of Study)

Role	Responsibilities
Project Team	• Identify, report, review and/or analyze project deliverables and/or work products, focusing on quality characteristics such as completeness, consistency, alignment with agency standards, alignment with project standards, fit for purpose etc. • Follow the quality plan
Project Manager	• Communicates quality (risks and issues) to relevant stakeholders • Communicate with project staff regularly to direct project activities and stay up to date on project quality status • Monitor milestones, activities, timelines, resources, budgets and quality • Communicate with project's technical staff and consultants on quality related matters. • Approve quality plan
Project Sponsor	• Review and approve quality management plan

4.5.4 Plan Quality Management

Plan Quality Management involves providing guidance on how quality will be managed and verified during the project lifecycle. In planning for quality, the project manager will review the best practice, standards, and methodologies for incorporating quality assurance into the project. The project charter, project management plan, and other project documents will serve as inputs for this process. Expert judgement will be sought from subject matter experts within the MAFSE who have experience with similar types of projects. Quality planning will be performed in parallel with other planning processes. The project Manager will ensure that quality standards are maintained throughout the project by ensuring that changes to the project's scope, schedule and costs stay within the quality guidelines.

Quality Standards for the post-harvest storage manual includes the following key performance indicators:

1. Identification of target crops and vegetables
2. Identification of target farm types
3. Value chain analysis for target crops
4. Design and testing of cooling and storage solutions completed
5. Development of appropriate post-harvest techniques
6. Provide recommendations to pilot facilities on appropriate protective packaging
7. Development of training manuals and resources
8. Execute the training of MAFSE technical personnel.

Quality Standards for the post-harvest storage solutions requires that the following parameters are met:

1. Produce must be kept dry
2. Produce must be kept at uniform temperature
3. Produce must be protected from insect attack
4. Produce must be sheltered from rodents and birds

It is important to be proactive rather than reactive when making decisions on quality. Beneficiaries of the project will be monitored closed as their feedback on project deliverables will be crucial to the project success. Technical input and review will be

conducted at pre-defined points during the project. Expert judgement will be sought from personnel in the MAFSE and other partner agencies to ensure that the projects final deliverables meet its purpose.

Quality Standards for the lessons learned and pilot replication report are linked to their timely completion while the standards for the trainings are linked to ensuring a minimum participation. The quality objectives of this project are outlined in Chart 15 along with metrics that describe project attributes. To ensure that the project quality objectives are met, individuals with quality responsibilities are outlined in the quality management plan along with level of acceptance for the identified quality metrics. Where levels of acceptance are not met, the owner of these objectives along with the project team and sponsor will discuss measures to mitigate the effect on the project quality.

Chart 15 Quality Management Table (Source: Author of Study)

Quality Objective	Metric	Metric Definition	Expected Outcome/Result	Measurement Frequency	Owner	Level of acceptance
To reduce agricultural product loss	% Reduction in agricultural product loss among farmers from pilot	Spoilage Data collected by Ministry Personnel	20% reduction in spoilage of agricultural product	Annually after project closure	Consultant	No more than 20% of spoilage in agricultural product.
To adopt the ADRM strategy and manual	# of manuals completed	A standardized manual provided to Ministry Personnel	Ministry Personnel receive training on ADRM strategy with the aid of the standardized manual	Once, upon completion of manual.	Consultant	No tolerance threshold will be established for this metric
To provide training to ministry personnel	# of personnel trained	Attendance Register	10 ministry personnel receive training	Once, when manuals are complete	FAO Tech Support	No less than 8 personnel receive

						training.
To improve farmers' capacity to develop ADRM plans	# of ADRM plans developed by individual farmers	Training Register	500 farmers	Once, upon completion of training	Project Manager	No less than 450 farmers with training register
To develop a pilot of the the community-based storage solution	Number of farmers using upgraded storage stations and produce displays	List of registered farmers who received and are using upgraded storage stations and produce displays	25 famers	Once, upon delivery of equipment	MAFSE Personnel	No less than 20 farmers.
To develop a lessons-learned report	Time frame of completion	MAFSE approved final report	Within 4 weeks of completion of pilot	Once, upon delivery of report	Project Manager	No tolerance threshold will be established for this metric
To develop a replication roadmap of the pilot	Time frame for completion	MAFSE endorsed roadmap	Within 6 weeks of completion of pilot	Once, upon delivery of report	Project Manager	No tolerance threshold will be established for this metric

4.5.5 Control Quality

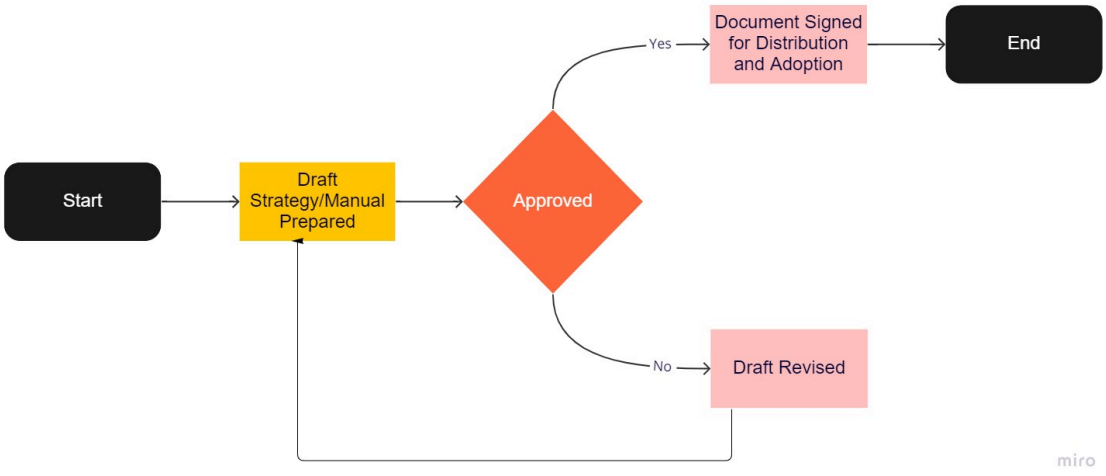
Control Quality involves performing reviews of project documents that outline requirements necessary to ensure that the project deliverables are not only complete but meet the stakeholder expectations and quality standards. Corrective action may be required where deliverables do not conform with quality requirements. It is important to document quality improvements to develop a robust lessons-learned depository. Quality control activities will include inspection of post-harvest storage facilities and review of manuals and strategies

developed by the consultants. Figure 33 outlines the process to review the manuals and strategies and manuals developed. The review of manuals and strategies and subsequent approval will be based on the inclusion of all relevant key performance indicators outlined in the manage quality process. When the draft strategy or a manual is complete, it will be reviewed and a determination made whether it meets quality standards for approval. Where changes are required or omissions identified, the consultant will be required to make the necessary adjustments and resubmit for review and approval. Where the draft strategy or manual meets all expected outputs, it will be approved and subsequently signed for distribution and adoption. Approval of the strategy or manual completes the quality control process for that deliverable. Similar processes will be conducted for all deliverables.

The control quality process is beneficial as it verifies that project deliverables and work meet the requirements specified by key stakeholders in order to receive final acceptance.

Figure 33

Quality Control Flowchart for Strategies and Manuals



4.6 Resource Management Plan

4.6.1 Resource Management Plan Introduction

Plan resources management is an important component of this project. Despite the limited human resource requirement, various MAFSE staff will provide in-kind contributions of expert judgement.

Human resources management plan will aid in the management of human resource activities throughout the project until closure. This plan will include the processes required to identify, acquire and manage the resources for the project's completion. Inputs into this process will include meetings where expert judgement from working with previous projects will be utilized and decisions made on the applicability of these procedures to this project.

The resource management plan ensures that the proper resources are available to the project manager at the appropriate time and place. The project is relatively small in relation to budget and resource requirements. The processes being elaborated in this section are plan resource management and estimate activity resources.

4.6.2 Resource Management Approach

This resource management plan will focus primarily on resource acquisition of services and goods required to meet the project objectives. Resources may include capital, material costs, tools and software, office space, personnel (internal or external) and material.

It will identify the resources required to complete the project, the quantity, where they will be sourced from, associated costs and whether training will be required for personnel. It will take into consideration the interrelationships of project impacting factors such scope, risk, time, and communication.

PMBOK ® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert Judgement

- Data Representation
- Meetings
- Organizational Theory
- Decision Making

4.6.3 Plan Resource Management and Estimate Activity Resource

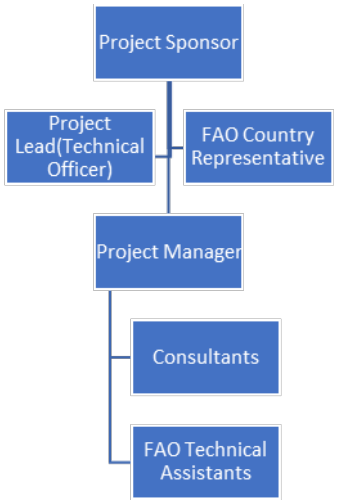
In planning resource management, the project team will identify and estimate resources that are required. The project charter will be reviewed along with documents from similar projects to determine resource needs. Resource acquisition for the project includes staffing for the project while the Ministry and other stakeholders have committed to in-kind contributions of facilities, services, office space, equipment, staffing, transport coordination, leadership among others. Chart 16 outlines staffing estimates for the project and Figure 34 outlines the organizational chart of the MBARP. Resource acquisition also includes hiring of consultants and purchasing of equipment and training material.

Chart 16 Staffing Estimates (Source: Author of Study)

Role	Number of Persons Required	Time Frame Needed
Project Lead	1	Project Duration
Project Manager	1	Project Duration
Consultant: Community-based post-harvest storage design	1	See Schedule
Consultant: ADRM	1	See Schedule
FAO Technical Assistant	2	See Schedule

Figure 34

Organizational Chart for MBAR Project



A responsibility assignment matrix will be developed by the Project Manager. The RACI Matrix is a system that brings structure and clarity when assigning roles to members of a team. RACI is an acronym that stands for Responsible, Accountable, Consulted & Informed. The person identified as responsible is required to execute an action. The person identified as accountable oversees the actions completed by the responsible individual/group and approves or rejects these actions. Others may be consulted before final approval while some may be informed or updated on decisions made and actions taken. The Managing Belize's Agriculture Resilience is a small project; therefore, the RACI chart outline in chart 17 is basic in nature.

Chart 17 RACI CHART (Source: Author of Study)

		Person			
		Project Manager	FAO Country Representative	Project Lead(Tech Officer)	Project Sponsor
Activity	Create Charter	R	C	C	A
	Project Deliverables	R	C	R	A
	Project Reports	R	I	I	A

4.6.4 Manage Resources

The manage resource process is related to the human resource management component. Human resource management is paramount to organization success and in project success, there is no exception. Activities required will include tracking personnel progress, providing timely feedback, resolving issues, and managing team changes. These activities will fall under the purview of the project manager. The project manager will be required to identify a strategy for conflict resolution, if the need arises. The PMBOK ® Guide outlines 5 approaches as follows:

1. Withdraw or avoid
2. Smooth or accommodate
3. Compromise or reconcile
4. Force or direct
5. Collaborate or problem solve

The collaborate or problem solve technique often results in a win-win situation and requires a cooperative attitude and open dialogue resulting in consensus.

4.6.5 Control Resource

Controlling resources for the MBAR Project will include ensuring that the tangible resources assigned and allocated are available as planned. This will reduce delays in project implementation. The project manager will be responsible for this process, and it also involves monitoring the planned use of resources in comparison to the actual use of resources. Continuous collaboration with MAFSE personnel, contractors and suppliers will be required by the project manager to ensure resource availability. Where there is a variance between planned and actual use of resources, corrective action is required.

4.7 Communications Management Plan

4.7.1 Communications Management Plan Introduction

The communications management plan ensures that there is a strategy to effectively communicate with stakeholder and that the strategy is implemented. The process being elaborated in this section is:

- plan communication management
- monitor communications

4.7.2 Communication Management Plan Approach

The project manager in collaboration with the project team will conduct these processes to identify communication channels and the development of a communication matrix.

Information exchange between the project stakeholders will be primarily in written and spoken format. Written communication will be disseminated via the determined email account.

Where required, a media plan will be included as a component to ensure timely and relevant information dissemination to stakeholders and the wider public.

Change requests will follow the change control mechanisms that have been established by the MAFSE. These change requests should be submitted to the Project Manager for review and approval.

The PMBOK ® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert Judgement
- Communication Methods
- Meetings
- Data Representation

4.7.3 Roles and Responsibilities

The roles and responsibilities of key individuals with responsibility for Communications Management are outlined in Chart 18. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 18 Roles & Responsibilities for Communication Management (Source: Author of Study)

ROLE	RESPONSIBILITIES
Project Sponsor	• Provide financial support to the organization for the implementation of the Project • Review communication status reports shared by the Project Manager • Approve or deny change requests
Project Manager	• Ensure that communications activities are performed by the project team within the budget and schedule identified in the project document. • Communicate with stakeholder to determine their preferred frequency and method of communication, and update the stakeholder register with this information • Develop the communications matrix • Outline the project's communication channels.

4.7.4 Plan Communications Management

In Planning communications management, the stakeholder register is an important tool. This plan includes identifying communication channels by the project manager as outlined in chart 19. This will provide an effective and efficient manner to engage stakeholders by providing relevant information in a timely manner using the appropriate medium. Proper communication will increase visibility of the project and provide opportunities for feedback.

Chart 19 Communication Channels (Source: Author of Study)

Communication Channel	Conditions that will influence selection and use
Face-to Face	Covid-19 Restrictions, Distance from team members, Time availability, financial resource availability
	Distance from team members, Covid-19 restrictions, Information to be disseminated
Email	Time availability, distance from team members, urgency of correspondence
	Distance from team members, time availability, Covid-19 restrictions
Reports/ Publications	Information to be disseminated, financial resource availability

The project team will review the project charter, project management plan and organizational process assets. Expert judgment will be utilized based on experience with similar projects. A review of organizational process assets will be done to determined what can be included in the project's communication plan. Special attention will be given to organizational policies and procedures in relation to social media usage, ethics and security, historical information, and the stakeholder directory. Chart 20 outlines the communication matrix developed by the project manager in consultation with the project team.

Project communication and documentation where possible will be made available on the MAFSE website. This will be helpful in ensuring that project information is readily available to all stakeholders who have internet access.

Chart 20 Communication Matrix (Source: Author of Study)

Communication	Purpose	Communication Channel	Frequency	Audience
Kick-off Meeting	Introduce Project & Review objectives	Face-to-Face	Once	Project Team, Project Sponsor, Stakeholders
Project Team Meetings	Review status of projects	Face-to-face or Teleconference	Weekly	Project Team
Technical Meetings	Discuss and review technical components, problems and solutions	Face-to-face	As Required	Technical Team, Consultants
Project Status Meetings	Update leadership on project status	Face-to-face or teleconference	Monthly	Project Manager, Stakeholders
Project Status Reports	Detailed report on project status including progress, costs, and problems	Email	Monthly	Project Manager, Stakeholders

4.7.5 MANAGE & MONITOR COMMUNICATIONS

These processes include ensuring that communication activities are carried out in accordance with the planned communications process and method. During this process, the project team will review the communications matrix, project schedule and stakeholder matrix to ensure that they distribute information in a timely matter, and in the medium that the stakeholder requested. Monitoring communications ensures that the communication

needs of stakeholders are met. When done efficiently, there is optimal information exchange. Any request for change to the communication plan, must be submitted using the project's established change control process, with requests submitted to the project manager.

4.8 RISK MANAGEMENT PLAN

4.8.1 Risk Management Plan Introduction

Risk management is a continuous process throughout the life cycle of the project. Project risk management involves conducting risk management planning, identifying risk, analyzing risk using either qualitative and/or quantitative methods, creating plans to counter risks, implementing the necessary risk responses and monitoring risks as recommended by the PMBOK Guide.

An analysis of risk should be carried out by all projects undertaken by the MAFSE and mitigation measures are outlined during the initial planning phase of the project. Given the size and scope of this project, a simplified approach to risk management will be utilized.
The risk management plan involves identifying, analysing, and responding appropriately to project risk. The processes being elaborated in this section are:

- plan risk management
- identify risks
- perform qualitative risk response
- plan risk responses
- Monitoring and controlling risk

4.8.2 Risk Management Plan Approach

The main objective of the risk management plan will be to identify risks specific to the project and outline measures to counter those risks, which may negatively impact the project. The project manager has oversight of the project and managing project risks. Throughout each stage of the project, and during weekly project team meetings, risks will be discussed and assessed. Risks, which were not identified before, will be recorded, analyzed and a mitigation strategy will be developed.

PMBOK ® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert Judgement
- Data Gathering
- Data Analysis

- Meetings
- Risk Categorization
- Data Representation

4.8.3 Roles and Responsibilities

The roles and responsibilities of key individuals with responsibility for Risk Management are outlined in Chart 21. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 21 Roles & Responsibilities for Risk Management (Source: Author of Study)

ROLE	RESPONSIBILITIES
Project Manager	• Oversee the project team and deliverables • Ensure that the risk register is developed and available for use • Conduct regular risk identification and assessments in collaboration with the project team • Ensures that there are opportunities for discussions around risk during project meetings • Prepare risk management plan • Report to the project sponsor on any risks that are beyond the threshold outlined in the risk management plan • Identify and implement risk mitigation strategies as needed
Project Team	• Support the Project Manager in Risk Management Plan Activities • Brainstorm on possible risks that may affect the project • Recommend mitigation measures based on level of risks.

4.8.4 Plan Risk Management

Plan risk management is the process involved with defining how to conduct risk management activities for the project. The project team will perform this process during the planning phase of the project to verify that the project is feasible and not susceptible to high level risks which could derail the project. The Project Manager will use the project charter, subsidiary project management plan, organizational assets, and project documents as inputs into the process.

Expert judgement will be sought from individuals with specialized knowledge or training on the types of risk that are likely to be encountered on projects in the same area/field. The plan will be developed during the projects kick-off meeting where key stakeholders will be engaged to provide input into the process. This will include the project manager, FAO representative etc.

The project manager will collect information on all risks identified for the next phase of the Risks Management Process. A simple Risk breakdown structure (RBS) is proposed that will categorize risk.

Risk management planning will be conducted by the project manager/coordinator alongside the project sponsor. They will ensure that risks are identified, analysed, and managed throughout the life of the project.

4.8.5 Identify Risks

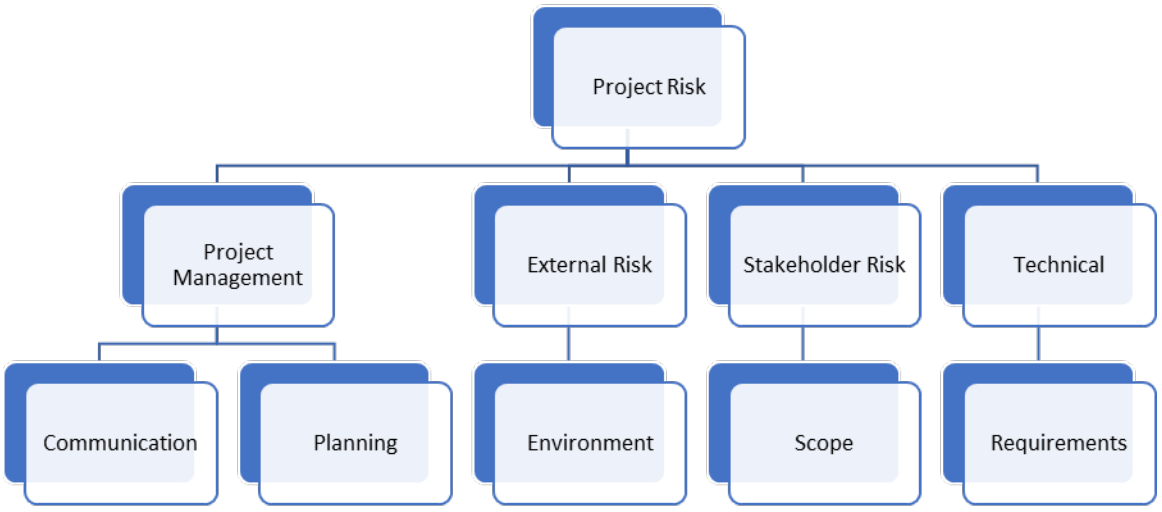
Identification of risks will include the participation of appropriate stakeholder and project team with attention given to project deliverables, assumptions, constraints, WBS, cost and schedule estimates and other key project documents. A risk management log will be generated and updated as needed.

In this process the project manager will review subsidiary plans under the project management plan, project documents such as duration and cost estimates, procurement documentation and the stakeholder register. This process will be completed by the project team with the Project Manager as the lead. This is an iterative process since new project risks may be found throughout the project's life cycle. The schedule and cost management plan will be reviewed as these can show areas where there may be ambiguity and uncertainty. The other plans will also be reviewed to ensure uncertainties are analysed to

determine whether they may pose a potential risk to the project. The Agreement for the hiring of the consultant will also need to be reviewed to capture details on milestone dates for deliverables and contract type that may pose potential threats or opportunities.

The project team will use expert judgement during their weekly meetings to brainstorm on the list of individual and overall project risks. Figure 35 outlines risk categories in a risk breakdown structure.

Figure 35
Risk Breakdown Structure



4.8.6 Perform Qualitative Risk Analysis

The risks identified will be assessed to identify the range of possible project outcomes. Qualification will be used to determine appropriate risk responses. The probability and impact of occurrence for each identified risk will be assessed by the project manager with input from the project team. Chart 22 outlines the description of probabilities while Figure 36 demonstrates an impact probability matrix. Risks that fall into red and yellow zones are considered major risk and will require risk mitigation and contingency. When impact is high it means that the risk has the potential to greatly impact the project cost, schedule or performance. Medium Impact means that the risk has the potential to slightly impact

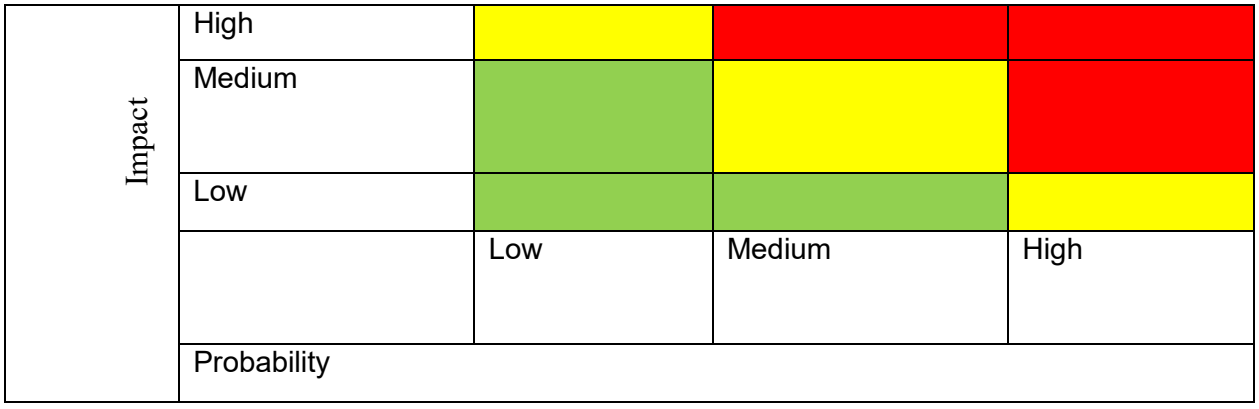
project cost, schedule, or performance. Low impact indicates that the risks have relatively little impact on project cost, schedule, or performance.

Chart 22 Risk Probability Description (Source: Author of Study)

Probability	Probability Description
High	Greater than 70% probability of occurrence
Medium	Between 30%-70% probability of occurrence
Low	Below 30% probability of occurrence

Figure 36

Impact Probability Matrix



4.8.7 Plan Risk Responses

The plan risk responses process involves the project team brainstorming and developing strategies to deal with those risks already identified for the project. The key benefit of this process is that alternatives are identified early in the planning process and can therefore be included as a buffer when calculating the projects budget and determining the schedule. For this process, the project team will review the project management plan and project documents. Tools used will include expert judgement, data gathering, strategies to deal with risks and alternative analysis.

Major risks as outlined in Chart 23 will be assigned for monitoring to ensure that it is not overlooked. The strategies for project threats as the defined by the Project Management Institute are as follows:

- Escalate: If the threat is outside of the project's scope. The Project Manager will notify the project sponsor. Once notified, these threats will no longer be monitored by the project team. The sponsor will take further action if they deem it necessary.
- Avoid: If the threat level is low and will not impact the project. The project team will monitor this risk but will take no further action.
- Mitigate: The Project Manager will consider alternatives to reduce the probability of the risk occurring. Mitigation measures will be identified early to inform the relevant stakeholders. An example of a mitigation measure is conducting trainings using a digital platform so that covid restrictions are not problematic.
- Accept: During risk identification and assessment alternatives are identified. The project manager will include costs associated with these alternatives within the project's budget contingency reserves.

Chart 23 Risk Register (Source: Author of Study)

MANAGING BELIZE'S AGRICULTURE RESILIENCE PROJECT RISK REGISTER						
Risk ID	Risk Description	Risk Probability	Risk Impact	Risk Severity	Risk Owner	Strategy
1	Project Scope not adequately defined	Low	High	High	Project Sponsor	**Mitigate:** Collaboration with stakeholders to define the scope in adequate detail
2	Project Schedule not adequately defined	Low	Medium	Medium	Project Manager	**Mitigate:** Update schedule as required with project team support and engagement.
3	Delays in Procurement of Consultants	Medium	High	High	Project Manager	**Escalate:** Discuss impact on schedule with Project Sponsor and FAO Representative to identify solutions.
4	Communication	Medium	High	High	Project	**Accept:**

	Breakdown				Manager	Make corrections to communication mediums immediately
5	Delays in delivery of reports by consultants	Medium	High	High	Project Manager	**Escalate:** Discuss impact on schedule with Project Sponsor and FAO Representative to identify solutions.
6	COVID-19 increase affecting ability to conduct in person training	Medium	High	High	Project Manager	**Mitigate:** Identify virtual platform for training where possible
7	Other projects may draw resources and interest away from this project and may impact schedule	Medium	Medium	Medium	Project Manager	**Accept:** Identify alternatives to reduce impact of competing resources
8	Inadequate support from	Medium	High	High	Project	**Mitigate:** Ensure

	beneficiaries of the project					stakeholder engagement and communications plans are robust and measures are taken to gain stakeholder buy-in.
9	Estimating/Scheduling Errors	Low	Low	Medium	Project Manager	**Escalate:** To Project Manager outlining the impact
10	Impact of Natural Disasters	Low	High	High	Project Manager	**Escalate:** Notify Project Sponsor
11	Unplanned work not captured in scope of works	Low	Medium	Medium	Project Team	**Escalate:** to project manager
12	Unresolved project conflicts not addressed in a timely manner	Low	Medium	Medium	Project Manager	**Accept:** Hold timely team meetings to identify conflicts early and determine

						conflict resolution technique as appropriate.

4.8.8 Implement Risk Responses

When the probability for risks affecting the project is high, the project team will engage the strategies identified. This process will be performed throughout the project with inputs from the risk management plan, risk register and other project documents and organizational process assets. The risk register will be utilized, and a risk report created. Change requests will be processed through the Change Control Process already identified.

4.8.9 Monitor and Control Risk Responses

The project manager will monitor risks through the life cycle of the project. Ongoing risk response activities will be conducted to ensure risks are controlled. For risks that have been mitigated, the project team will record the results and close the risk. Audits will be conducted at the mid-term and final stages of the project. The mid-term review will allow for corrections or mitigation measures to be implemented, so that for risks that have not been mitigated, risk response strategies will be formulated, and/or reassigned.

4.9 Procurement Management Plan

4.9.1 Procurement Management Plan Introduction

Procurement involves identifying and acquiring resources for use at a specific time. Project Procurement Management includes the processes necessary to acquire resource from outside of the project team. For this project, the primary resource to be acquired is technical in nature with the acquisition of consultants for development of a small community-based post-harvest storage design & development of an agriculture disaster risk management strategy. In-kind and financial resources including facilities, services, office space, equipment, staffing, transport, coordination, and leadership will be contributed by the MAFSE and other stakeholders.

The plan will be utilized for the life of the project and will include details on items to be procured, type of contract to be uses, risks associated, mitigation measures, estimation of costs and the contract approval process.

The procurement management plan involves anticipating the acquisition of products, services and result from outside of the project team. The project sponsor will play an important role in providing overall leadership to ensure the procurement requirements are met by reviewing and approving procurement documents and coordinating contract payments. The project manager will be responsible to ensure that the overall procurement management effort is being executed in accordance with the plan in a timely manner. The process being elaborated in this section is plan procurement management.

4.9.2 Procurement Management Approach

In creating a procurement management plan, processes through which procurement and their resulting contracts must be approved will be defined. It is important to define the processes and understand who is involved with decision making. Large purchases usually follow an established bidding process and follow a formal selection and approval process. Smaller purchases can be less formal. The risks associated with procurement will be reduced since procurement risk is reduced where the entire procurement process can be monitored. Identifying quality suppliers and standardizing procurement processes are some ways to reduce project risk. While the time frame to conduct procurements is an

apparent constraint, the Project manager and team will utilize the plan to be as efficient as possible.

PMBOK® Guide recommended tools and techniques that will be utilized during these processes include, but are not limited to:

- Expert judgement
- data analysis
- risk categorization
- meetings.

4.9.3 Roles & Responsibilities

The roles and responsibilities of key individuals with responsibility for Procurement Management are outlined in Chart 24. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 24 Roles & Responsibilities for Procurement Management (Source: Author of Study)

ROLE	RESPONSIBILITIES
Project Sponsor	• Provide financial support for the implementation of the project • Review communication status reports shared by the project manager • Approve or deny change requests
Project Manager	• Prepare bid proposals • Approve purchases • Draft Procurement Management Plan • Identify risk and assign appropriate risk management strategies • Inspect goods upon arrival to ensure they meet specifications • Identify contractual issues
Project Team	• Request purchase requisitions • Collect invoices • Process payments for goods and services procured • Create Project Financial Statements

4.9.4 Plan Procurement Management

The Plan Procurement Process will outline the procurement approach and identify potential sellers. Universal procurement principles of value for money, equity, and transparency will be the basis for this plan.

There are various types of contracts that can be utilized including firm-fixed price, time and materials and cost-reimbursable. All services for this project will be solicited under firm fixed-price contracts. Another important aspect of this process is cost determination which is directly related to the budget and involves a request for proposal. The project coordinator and sponsor will develop a term of reference for consultancy services and define items, types, and quantities of goods. A request for proposal will solicit bids from vendors for services. The contract approval process will include:

1. Reviewing of bid proposals and selection to award contract.

   The criteria for the selection and award of procurement contracts under this project will be based on the following:

   - Mandatory Requirements
   - General Qualifications & Experience
   - Past performance technical qualifications
   - Quality
   - Ability of the vendor to provide all items by the required delivery date
   - Cost

2. Negotiation with desired contractor
3. Final Approval and Signature
4. Contract Retention and Monitoring

Procurement of goods will be conducted using a shopping method. Using the shopping method for procurement of goods require a request for quotation and comparing at least three (3) suppliers.

A few aspects of procurement performance can be measured for this project. Procurement performance metrics track all relevant aspects of obtaining or buying goods or services. Supplier Lead Time can be measured for the purchase of equipment and training material. This determines the amount of time between when the supplier receives an order and the time when the order is shipped. Vendor availability can also be measured which gauges a vendor's capacity to respond to emergency needs. This will provide valuable information for future procurements conducted by the MAFSE.

The Managing Belize's Agricultural Resilience Project will require procurement of both goods and services. The service of a post-harvest storage design specialist will be required. Additionally, consultancy services will be required for formulation of the National ADRM Strategy. Procurement of Equipment for training and produce displays will also be required.

In this process, the Project Manager will determine whether to acquire resources from outside of the project. In-kind resources have already been identified during the Resources Management process, and these will be selected from other parts of the organization or from external sources. This process will be performed once in the project with inputs from the charter, business documents, project management plan and organizational process assets. The tools used by the Project Manager and team during this process will be primarily expert judgement and meetings. For human resource acquisitions, the project manager will first consider the current knowledge, skills, attributes, and other competencies within MAFSE.

4.9.5 Control Procurements

The key benefit of this process is that it ensures that both the sellers and buyers performance meet the project requirements according to the terms of the legal agreement. This process will be performed by the project manager throughout the project. The project manager through meetings with the consultant and other team members will ensure that the project activities have the resources required and stays on schedule, cost and quality. The Project Manager will review the terms of consultant's contract (see Appendix 4) at key

intervals to verify that items are being delivered within schedule and cost and to release payments as outlined in the contract for submission of deliverables.

Changes will follow the change control process as outlined for the project with the submission of a written request, which will be reviewed by the project manager and addressed accordingly.

4.10 Stakeholder Engagement Plan

4.10.1 Stakeholder Engagement Plan Introduction

Stakeholder engagement is vital to the success of the any project. It is important to understand who the stakeholders are and the needs of your key stakeholders and ensuring that these are captured and addressed during the project's planning phase. This plan will also address what need the project is intended to satisfy and how that translates to stakeholder expectations.

This plan will identify the stakeholders that could impact or be impacted by the implementation of the project, analyses their expectations, impact and develop appropriate management strategies to effectively engage them. Their interests in this project will be collected and information regarding their influence and impact on the project will be accumulated

The processes being elaborated in this section are identify stakeholder, plan stakeholder engagement, and monitor stakeholder engagement. Roles & responsibilities and stakeholder engagement approach will also be developed.

4.10.2 Stakeholder Engagement Approach

In developing a stakeholder engagement plan, expert judgement, data analysis and brainstorming will be utilized to identify stakeholders and plan stakeholder engagement. The project manager will host meetings with the project sponsor to identify stakeholders and determine a strategy to keep them appropriately engaged. A stakeholder register template will be utilized as a guide and the MAFSE stakeholder directory will be consulted. Other PMBOK ® Guide recommended tools and techniques that will be used during these processes include, but are not limited to:

- Expert Judgement
- Data Gathering
- Data Analysis

- Data Representation
- Meetings

4.10.4 Roles & Responsibilities

The roles and responsibilities of key individuals with responsibility for Stakeholder engagement are outlined in Chart 25. The project manager will require the support of the project sponsor before finalizing the plan.

Chart 25 Roles & Responsibilities for Stakeholder Engagement (Source: Author of Study)

Role	Responsibilities
Project Sponsor	• Early engagement with key stakeholders during the planning phase of the project • Endorse and approve the stakeholder engagement plan
Project Manager	• Development of the Stakeholder engagement plan • Aligning stakeholder profiles to communication activities • Maintain stakeholder register • Lead stakeholder identification and analysis • Ensure communication strategy is applicable for each stakeholder

4.10.5 Identify Stakeholders

In identifying stakeholders early, the project team can visualize the angle from which to engage each stakeholder or group. A brainstorming session will be conducted where the MAFSE stakeholder directory will be consulted. Stakeholders listed there will be discussed to determine their relevance to this project. The brainstorming session will include the project manager and project sponsor. There will be a focus on internal stakeholders and external stakeholders. Criteria will be used to determine which person or organization will

be included as a stakeholder. These criteria include whether the person or organization will be directly or indirectly affected by the project or whether they hold a position which can influence the project. Additionally, it will be determined whether the person or organization has an impact on the project resources or has any special skills or capabilities that the project will require. Finally, it will be determined whether the person or organization potentially benefits the project or is in a position to the resist the changes to be made. Any person or organization that meets one of the above-mentioned criteria will be deemed a stakeholder. Additional stakeholders not in the directory may be identified based on the review of criteria.

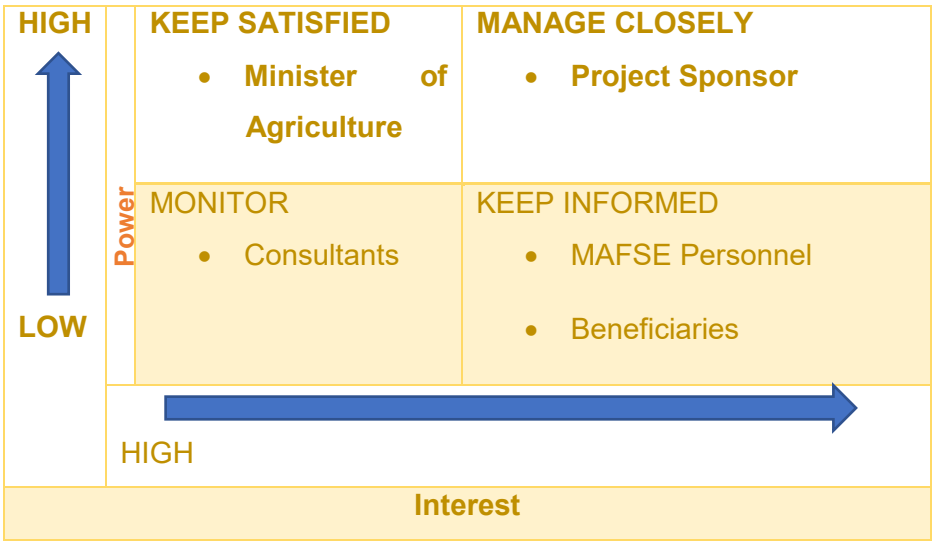
4.10.5 Plan Stakeholder Engagement

Directly following the identification of stakeholders, the plan stakeholder engagement will begin. This is the process where approaches are developed to involve project stakeholder based on their needs, expectations, interests, and perceived impact on the project.

This is done early so that stakeholder engagement can begin early, and their interest can remain at peak levels.

A power/interest matrix as outlined in Chart 26 is a meaningful guide in this process. Stakeholders with High Interest and Low Power should be kept informed such as MAFSE Personnel and Farmer Beneficiaries. The deliverables of this project will be tailored to the development of their skill sets and consideration should be shown to these stakeholders. The consultants being hired were identified as low power and low interest stakeholders. They should be monitored as they are contributing to the project in a task-oriented capacity. High Power and High Interest stakeholders such as the project sponsor should be managed closely as they oversee the project and have a vested interest in the project direction and success, they are considered key players. The Minister of Agriculture was identified as a high-power low interest stakeholder due to his position within the organisation. He will not be interested in the intricacies of the project execution but will expect project success and his needs should be met.

Chart 26 POWER/INTEREST MATRIX (Source: Author of Study)



The level of participation, frequency and type of communication required will also be determined. The determination may be made to involve key stakeholders in project meetings. Thorough communication with key stakeholders is necessary to ensure all concerns are identified and addressed. Project documents including the communication and risk management plan will be reviewed. Chart 27 outlines the additional analysis of the stakeholders identified.

Chart 27 Stakeholder Register (Source: Author of Study)

Managing Belize's Agriculture Resilience Project Stakeholder Register		
Stakeholder	Roles/Responsibilities	Influence/Impact
Project Sponsor	Funding of Project including approval of contingency funds if necessary	HIGH/HIGH
FAO Country Representative	Provide Support to Execution of Project and Liaison with Regional FAO office as necessary	HIGH/MEDIUM

MAFSE Personnel	Attend Trainings and Conduct Trainings for Farmers	MEDIUM/MEDIUM
Beneficiaries	Recipients of Trainings and Storage Solutions	MEDIUM/LOW
CONSULTANTS	Prepare Strategy and Storage Solution	MEDIUM/MEDIUM

4.10.6 Monitor Stakeholder Engagement

This process involves the monitoring, evaluation and tailoring of strategies by the project manager to ensure stakeholders are satisfactorily engaged based on their levels of interest, impact, and influence. The efficiency and effectiveness of the stakeholder activities are maintained throughout the evolution of the project evolution when this process is conducted. The project team is integral to this process as they will have more frequent contact with stakeholders. Any concerns raised by the stakeholders or deviations in interest communicated to the project team, requires the project manager to be informed. Alternatives analysis can be utilized to determine the adequate response to stakeholder interest deviations and its subsequent impact on the project. Discussions focused on maintain stakeholder interests will be discussed regularly at status meetings.

5 CONCLUSIONS

- A project charter was elaborated that provided a high-level overview of all major components of the project. It identified the general and specific objectives of the Managing Belize's Agriculture Resilience Project along with preliminary risks, assumptions, budget, schedule and stakeholders.
- A scope management plan was elaborated where it was determined that the MBAR Project had four main components and the related deliverables were identified. A WBS was develped that aids in decomposing the project components.
- A schedule management plan was elaborated that ensures the timely completion of the project. It was determined that timely procurement and development of the manuals by the consultants were important activities and delays could have a major impact on the project's estimated completion date.
- A cost management plan was elaboarted that ensures the project is completed within the approved budget. The costs were broken down into three main categories and a contingency reserve was included to provide additonal safegaurds.
- A quaility management plan was developed that ensured that quality would be maintained throughout the project. Quality standards were identified for the post-harvest storage manuals and solutions. Quaity objectives were also identified along with the associated measurements and levels of acceptance.
- A resource management plan was elaborated that will ensure that the appropriate resources are available for the project manager at the appropriate time and place. Considertions were made for in-kind contributions by the MAFSE and other stakeholders.
- A communications mangement plan was elaboarted that included a strategy for effective communication with stakeholders and implementation of the strategy through the identification of communication channels and the devleopment of a communication matrix.
- A risk management plan was elaborated that will increase the probability and/or impact of positive risks and decrease the probability and/or impact of negative risk to optimize chances of project success. Risks were identified and a

qualitative risk analysis was done to detemine the risks that can be most disruptive to the project. Where it was determined that the probability of the risk affecting the project is high, a strategy was identified that would be engaged to reduce the impact.

- A procurememement managemement plan was elaborated to acquire products,services and results required from outside of the project team. Procurement principles and methods were identified. The criteria for selection of award of procurement contract was developed along with procuement perfrormance metrics.
- A stakeholder management plan was developed that identified stakeholders and their level of interest. The project sponsor was deemed a high influence and impact stakeholder and involves managing closely. The beneficiaries of the project were considered high interest and low power and should be kept informed. Although they may be unable to stop the project, their participation is important for the project to meet its desired outcomes.

6 RECOMMENDATIONS

The following recommendations will be shared with the MAFSE to ensure that best practices are adopted in this project and future endeavours.

- The team should recognize the significance of the project charter developed in authorizing the MBAR project and review regularly to update as required to ensure alignment with the organization and sponsor's needs and expectations.
- Review the management plans created to ensures that information is still pertinent and act accordingly which may include making updates throughout project implementation.
- The project scope developed is a significant part of the project management plan and must be used as a benchmark for the MBAR project team in proceeding with the execution of the project objectives.
- The schedule and budget outlined are major impactors of the project and requires consistent monitoring and control to address risk to the project schedule and budget in a timely manner.
- The quality of the strategies, manuals, trainings, and post-harvest solutions are a major determinant of the MBAR project success. As a result, the project team should endeavour to maintain quality standards throughout the project.
- The procurement of goods and services (equipment, training material and consultants) should be conducted as early as possible to avoid delays in acquisition.
- Continuously monitor and evaluate stakeholder expectations to ensure that unfavourable feedback is addressed promptly. The project team must ensure that all stakeholders are heard and understood, and proper communication methods are used to disseminate information.
- Continuously monitor risk and look out for emerging risks that can affect project schedule, cost, scope, and overall project success.
- Acquisition of personnel who are trained in Project Management is paramount and can be aligned with training of existing personnel.

- Ensure that documents are updated in a timely fashion and disseminated to all respective persons.
- Considering the results of the stakeholder analysis, the project sponsor was identified as requiring special attention and should be managed closely to ensure that their needs and expectations are met.
- All change requests should be documented in the change request form (see appendix 5).
- The MAFSE should consider the use of all templates developed for this project as a basis for future projects. Further efforts should be made to align practices with those outlined in the PMBOK ® Guide.

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APPENDICES

Appendix 1: Project Charter

Project Charter	
Date:	**Project Name:**
April 4th, 2022	Project Management Plan for Managing Belize Agriculture Resilience
Knowledge Areas / PM Processes:	**Application Area (Sector / Activity):**
Knowledge Areas: Integration, Scope, Schedule, Cost, Quality, Resource, Communication, Risk, Procurement, Stakeholder **PM Processes:** Initiation & Planning	Agriculture
Project Start Date:	**Project Finish date:**
April 4th,2022	May 31st,2022
Project Objectives (General and Specific):	

General Objective:
To develop a project management plan for the Managing Belize's Agriculture Resilience Project to increase efficiency and effectiveness of personnel from the Ministry of Agriculture, Food Security & Enterprises.

Specific Objectives:

1. To develop a project charter to ensure that the important elements of the project are defined.
2. To develop a scope management plan that identifies the work required to complete the project successfully.
3. To develop a schedule management plan to ensure that the project and the resources will be allocated and managed throughout the project.
4. To develop a cost management plan to ensure the project is completed and controlled within the approved budget.
5. To develop a quality management plan to identify quality requirements to meet stakeholder's objectives.

6. To develop a resource management plan to ensure that the appropriate resources are available for the project manager at the appropriate time and place.
7. To develop a communications management plan to ensure the plan includes a strategy for effective communication with stakeholders and implementation of the strategy.
8. To develop a risk management plan to identify, analyse and respond appropriately to project risk.
9. To develop a procurement management plan to acquire products, services and results required from outside of the project team.
10. To develop a stakeholder engagement plan to identify, analyse and manage stakeholder expectations and impact on the project.

Project purpose or justification (merit and expected results):

The aim of this Project is to develop a Project Management Plan (PMP) that can be used by the Ministry of Agriculture, Food Sustainability & Enterprise as a guide for successful project execution. More specifically, it will provide guidance as they aim to reduce the vulnerability of Belize's agro food system by improving the storage capabilities and knowledge of farmers and technical personnel.
Having undertaken projects with varying degrees of success, this PMP will provide the Ministry with valuable insight for future projects since it will outline several templates and best practices in planning for communication, schedule, scope, cost, procurement, risk as well as stakeholder engagement.

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

This project will provide a comprehensive project management plan with all subsidiary management plans in accordance with good practices outlined in the Project Management Body of Knowledge (PMBOK 6th Edition) for the Managing Belize Agriculture Resilience Project. Specific deliverables associated with each specific objective include project charter, scope management plan, schedule management plan, cost management plan, quality management plan, resource management plan, communications management plan, risk management plan, procurement management plan, and stakeholder management plan.

Assumptions:

1 The schedule of two months is adequate time to complete the project management plan.
2. The human resource allocation is adequate to complete the project.
3. Requested changes to the project scope will be minimal and will be managed by a formal change control process.
4. Requested changes to the project budget will be minimal, not affecting the baseline, and will be managed by a formal change control process.

5. Requested changes to the project schedule will be minimal, not affecting the baseline, and will be managed by a formal change control process.
6. The key deliverables of the project will be aligned with the needs of the organization and of good quality.

Constraints:

Scope: The components of a project management plan are extensive.
Quality: Special attention is required to ensure conformity with predefined quality requirements
Schedule: There is a schedule of 2 months to complete the project management plan.
Budget: The budget for the project is $42,900.00

Preliminary Risks:

If all activities required to create the deliverables are not identified the project scope can be affected.
If the schedule is not managed appropriately the project might not be completed on time and the quality of deliverables might be affected.
If there are areas of ambiguity or dissatisfaction and changes are required, the project schedule can be affected.

Budget:

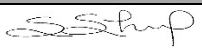
The estimated budget for the execution of this project is $42,900.00 USD with preliminary cost categories as follows:
Personnel Services and Travel Costs
Materials, Supplies and Equipment
Training
General Operating Costs related directly to project implementation
Management Reserve

Milestones and dates:

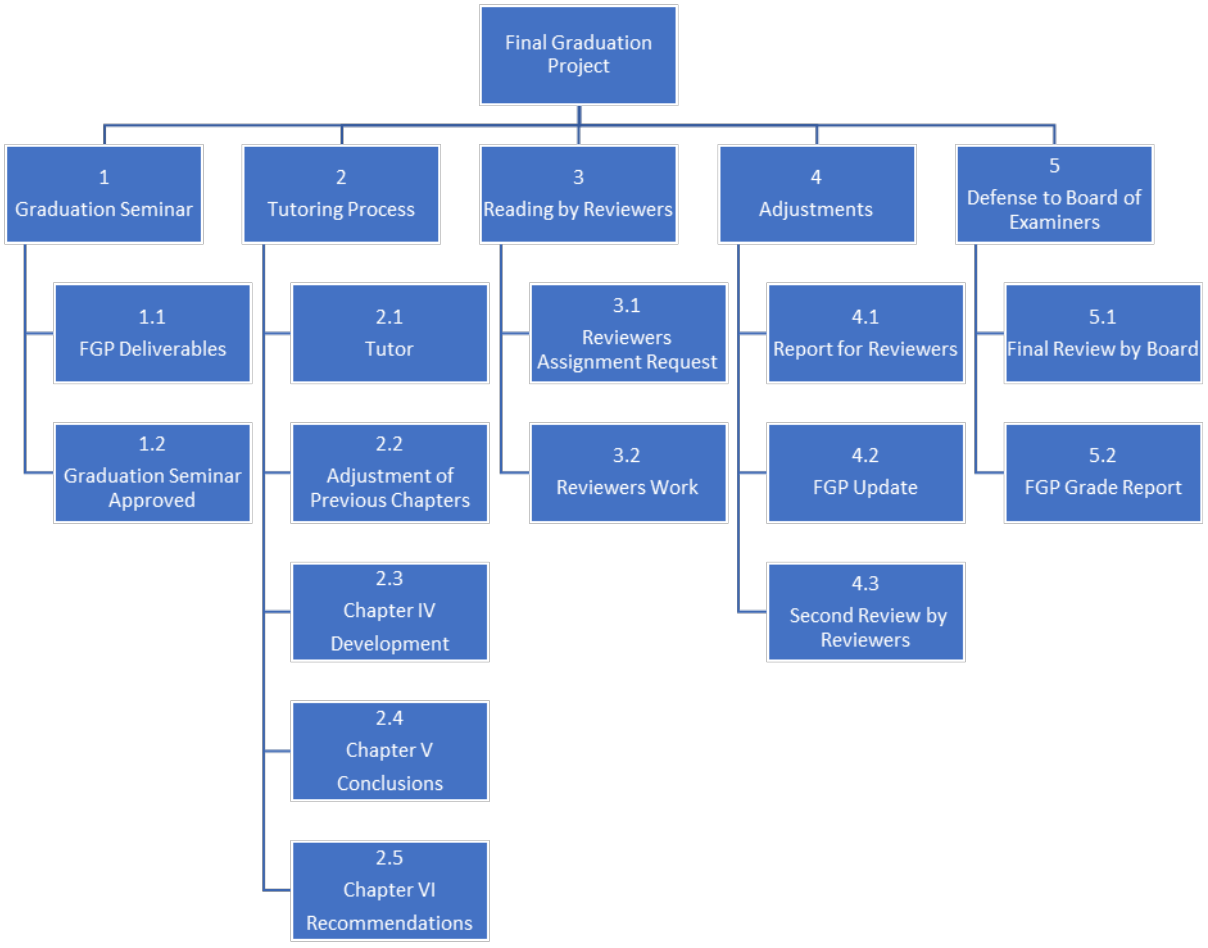
Milestone	**Start Date**	**End Date**
Develop Scope Management Plan	April 1st,2022	April 5th,2022
Review and Approve Scope Management Plan	April 6th,2022	April 7th,2022
Develop Cost Management Plan	April 8th, 2022	April 14th,2022
Review and Approve Cost Management Plan	April 15th,2022	April 16th,2022
Develop Schedule Management Plan	April 17th, 2022	April 21st, 2022
Review and Approve Schedule	April 22nd,2022	April 23rd, 2022

Management Plan		
Develop Quality Management Plan	April 24th,2022	April 28th,2022
Review and Approve Quality Management Plan	April 29th, 2022	April 29th,2022
Develop Resource Management Plan	April 30th,2022	May 4th,2022
Review and Approve Resource Management Plan	May 5th,2022	May 5th, 2022
Develop a Communications Management Plan	May 6th,2022	May 10th,2022
Review and Approve Communications Management Plan	May 11th,2022	May 11th,2022
Develop a Risk Management Plan	May 12th,2022	May 16th,2022
Review and Approve Risk Management Plan	May 17th,2022	May 17th,2022
Develop a Procurement Management Plan	May 18th,2022	May 21st,2022
Review and Approve Procurement Management Plan	May 22nd ,2022	May 22nd ,2022
Develop a Stakeholder Management Plan	May 23rd ,2022	May 26th,2022
Review and Approve Stakeholder Engagement Plan	May 27th,2022	May 28th,2022
Compilation & Final Review	May 29th,2022	May 31st,2022
Relevant historical information:		
The Ministry of Agriculture, Food Sustainability and Enterprises in Belize is tasked with ensuring efficiency and effectiveness in the structure and institutional management systems of the Agriculture and Food Sector in Belize. They have undertaken several projects with an aim to enhance food security and stakeholder capacity such as the Belize Covered Structure and Capacity Enhancement Project.		
Stakeholders:		

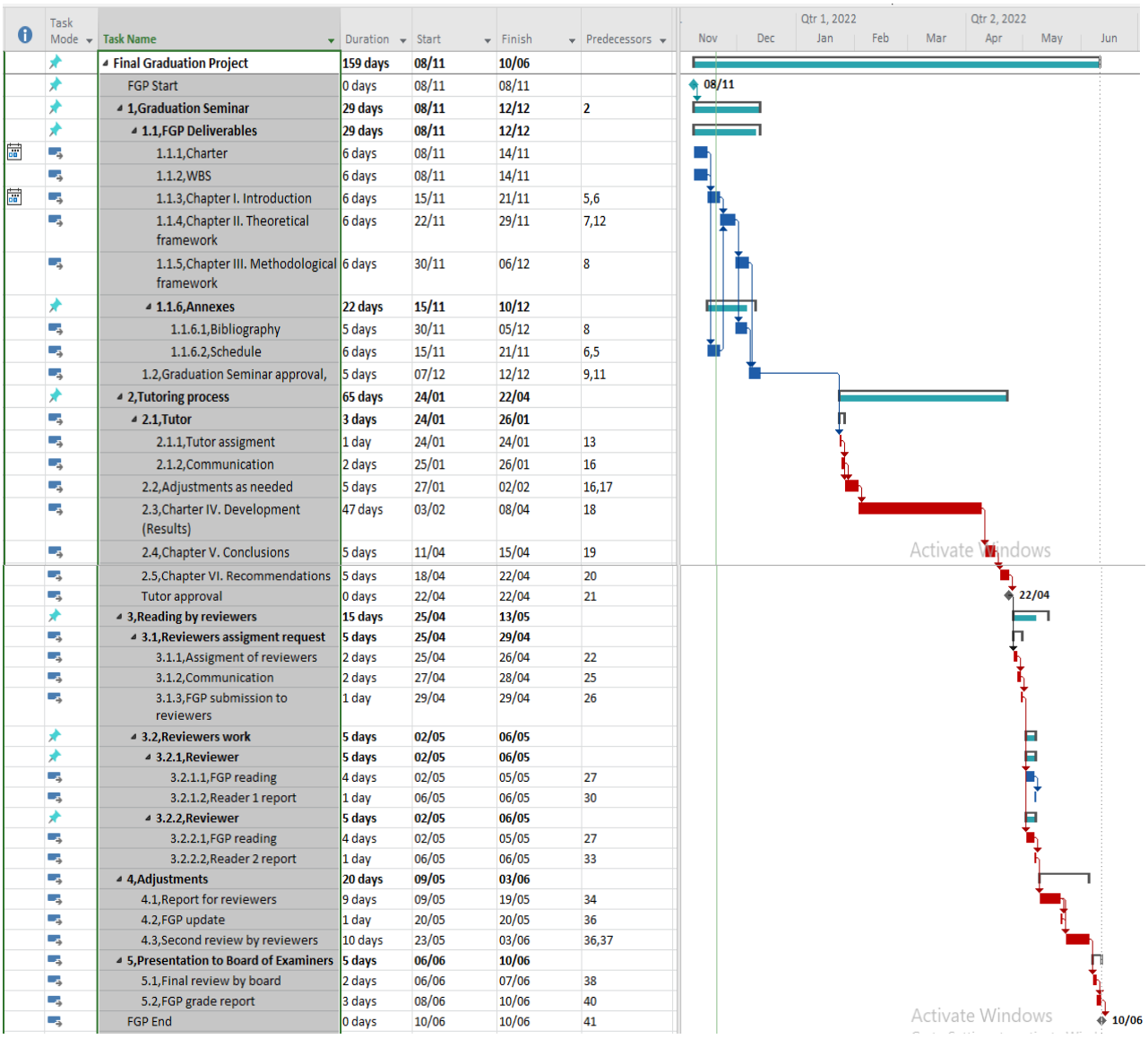
Direct stakeholders: Technical Personnel from the Ministry of Agriculture, Food Sustainability & Enterprises Management Team from the Ministry of Agriculture, Food Sustainability & Enterprises Project Manager **Indirect stakeholders:** Farmers Consumers/Patrons of the Produce Market Pesticides Control Board Belize Marketing and Development Corporation Belize Agriculture Health Authority Food & Agriculture Organization of the United Nations

Approval:	
Project Manager: Shakira Sharp	Signature: 
Authorized by:	Signature:

Appendix 2: Project WBS



Appendix 3: FGP Schedule



Task Mode	Task Name	Duration	Start	Finish	Predecessors
	Final Graduation Project	**159 days**	**08/11**	**10/06**	
	FGP Start	0 days	08/11	08/11	
	1,Graduation Seminar	**29 days**	**08/11**	**12/12**	2
	1.1,FGP Deliverables	**29 days**	**08/11**	**12/12**	
	1.1.1,Charter	6 days	08/11	14/11	
	1.1.2,WBS	6 days	08/11	14/11	
	1.1.3,Chapter I. Introduction	6 days	15/11	21/11	5,6
	1.1.4,Chapter II. Theoretical framework	6 days	22/11	29/11	7,12
	1.1.5,Chapter III. Methodological framework	6 days	30/11	06/12	8
	1.1.6,Annexes	**22 days**	**15/11**	**10/12**	
	1.1.6.1,Bibliography	5 days	30/11	05/12	8
	1.1.6.2,Schedule	6 days	15/11	21/11	6,5
	1.2,Graduation Seminar approval,	5 days	07/12	12/12	9,11
	2,Tutoring process	**65 days**	**24/01**	**22/04**	
	2.1,Tutor	**3 days**	**24/01**	**26/01**	
	2.1.1,Tutor assigment	1 day	24/01	24/01	13
	2.1.2,Communication	2 days	25/01	26/01	16
	2.2,Adjustments as needed	5 days	27/01	02/02	16,17
	2.3,Charter IV. Development (Results)	47 days	03/02	08/04	18
	2.4,Chapter V. Conclusions	5 days	11/04	15/04	19
	2.5,Chapter VI. Recommendations	5 days	18/04	22/04	20
	Tutor approval	0 days	22/04	22/04	21
	3,Reading by reviewers	**15 days**	**25/04**	**13/05**	
	3.1,Reviewers assigment request	**5 days**	**25/04**	**29/04**	
	3.1.1,Assigment of reviewers	2 days	25/04	26/04	22
	3.1.2,Communication	2 days	27/04	28/04	25
	3.1.3,FGP submission to reviewers	1 day	29/04	29/04	26
	3.2,Reviewers work	**5 days**	**02/05**	**06/05**	
	3.2.1,Reviewer	**5 days**	**02/05**	**06/05**	
	3.2.1.1,FGP reading	4 days	02/05	05/05	27
	3.2.1.2,Reader 1 report	1 day	06/05	06/05	30
	3.2.2,Reviewer	**5 days**	**02/05**	**06/05**	
	3.2.2.1,FGP reading	4 days	02/05	05/05	27
	3.2.2.2,Reader 2 report	1 day	06/05	06/05	33
	4,Adjustments	**20 days**	**09/05**	**03/06**	
	4.1,Report for reviewers	9 days	09/05	19/05	34
	4.2,FGP update	1 day	20/05	20/05	36
	4.3,Second review by reviewers	10 days	23/05	03/06	36,37
	5,Presentation to Board of Examiners	**5 days**	**06/06**	**10/06**	
	5.1,Final review by board	2 days	06/06	07/06	38
	5.2,FGP grade report	3 days	08/06	10/06	40
	FGP End	0 days	10/06	10/06	41

Appendix 4: Consultancy Agreement Template

Ministry of Agriculture, Food Security and Enterprise
CONSULTING AGREEMENT

This Consulting Agreement, dated effective _____, 202__ (this "Agreement"), is made and entered into by and among Ministry of Agriculture, Food Security and Enterprise (the "Company") and [**name of consultant]** (the "Consultant").

ARTICLE 1
SCOPE OF WORK

1.1 Services. The company has engaged Consultant to provide services in connection with the Company's [**summary of the project].** Consultant will **[summary of the services Consultant is to provide],** and such other services as described in Exhibit A (collectively, the "consulting services").

1.2 Time and Availability. Consultants will devote __ hours per month in performing the services for the Company as stated herein. Consultant shall have discretion in selecting the dates and times it performs such consulting services.

1.3 Confidentiality. In order for the Consultant to perform the consulting services, it may be necessary for the Company to provide Consultant with Confidential Information (as defined below) regarding the Company's business and products. The Company will rely heavily on Consultant's integrity and prudent judgement to use this information only in the best interest of the Company.

1.4 Standard of Conduct. In rendering consulting services under this Agreement, Consultants shall conform to high professional standards of work and business ethics. Consultants shall not use time, materials or equipment of the Company without prior written consent of the Company.

1.5 Outside Services. Consultant shall not use the service of any other person, entity or organization in the performance of the Consultant's duties without prior written consent of an officer of the Company.

1.6 Reports. Consultants shall periodically provide the Company with written reports of his or her observations and conclusions regarding the consulting services. Upon termination of this agreement, Consultant shall, prepare a final report of Consultant's activities.

ARTICLE 2
INDEPENDENT CONTRACTOR

2.1 Independent Contractor. Consultant is an independent contractor and is not an employee of the Ministry of Agriculture, Food Security and Enterprise.
2.2 Taxes. Consultants shall be responsible for all taxes arising from compensation and other amounts paid under this Agreement.

ARTICLE 3
COMPENSATION FOR CONSULTING SERVICES

3.1 Compensation. The Company shall pay to Consultant $_____ monthly payment for services rendered to the Company under this agreement.
3.2 Reimbursement. The Company agrees to reimburse Consultant for all actual reasonable and necessary expenditures, which are directly related to the consultancy services. These expenditures include, but are not limited to, expenses related to travel (i.e., airfare, housing, mileage etc.) telephone calls. Expenses incurred by the Consultant will be reimbursed by the Company within 15 days of Consultant's proper written request for reimbursement.

ARTICLE 4
TERM AND TERMINATION

4.1 Term. This Agreement shall be effective as of _____, 202_, and shall continue in full force end effect for ___ consecutive ___. The Company and Consultant may negotiate to extend the term of this Agreement and the terms and conditions under which the relationship shall continue.
4.2 Termination. The Company may terminate this Agreement for "Cause" after giving Consultant written notice of the reason. Cause means: (1) Consultant has breached the provisions of Article 5 or 7 of this Agreement in any respect, or materially breached any other provision of this Agreement and the breach continues for 30 days following receipt of a notice from the Company; (2) Consultant has committed fraud, misappropriation, or embezzlement in connection with the Company's business; (3) Consultant has been convicted of a crime; or (4) Consultant's use of narcotics, liquor, or illicit drugs has a detrimental effect on the performance of his or her employment responsibilities, as determined by the Company.
4.3 Responsibility upon Termination. Any equipment provided by the Company to the Consultant in connection with or furtherance of Consultant's services under this Agreement, including, but not limited to, computers, laptops, and personal management tools, shall, immediately upon the termination of this Agreement, be returned to the Company.
4.4 Survival. The provisions of Articles 5,6,7, and 8 of this Agreement shall survive the termination of this Agreement and remain in full force and effect thereafter.

ARTICLE 5
CONFIDENTIAL INFORMATION

5.1 Obligation of Confidentiality. In performing consulting services under this Agreement, Consultant may be exposed to and will be required to use certain "Confidential Information" (as hereinafter defined) of the Company. Consultant agrees that Consultant will not and Consultant's employees, agents, or representatives will not use, directly or indirectly, such Confidential Information for the benefit of any person, entity or organization other than the Company, or disclose such Confidential Information without the written authorization of the President of the Company, either during or after the term of this

Agreement, for as long as such information retains the characteristics of Confidential Information.

5.2 Definition. “Confidential Information” means information not generally known and proprietary to the Company or to a third party for whom the Company is performing work, including, without limitation, information concerning any patents or trade secrets, mbarconfidential or secret designs, processes, formulae, source code, plans, devices or material, research and development, proprietary software, analysis, techniques, directly or indirectly useful in any aspect of the business of the Company. All information which Consultant acquires or becomes acquainted with during the period of this Agreement whether developed by Consultant or by others, which Consultant has a reasonable basis to believe to be Confidential Information, or which is treated by the Company as being Confidential Information, shall be presumed to be Confidential Information.

5.3 Property of the Company. Consultant agrees that all plans, manuals and specific materials developed by the Consultant on the behalf of the Company in connection with services rendered under this Agreement, are and shall remain the exclusive property of the Company.

ARTICLE 6
GENERAL PROVISIONS

6.1 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the country of Belize.

6.2 Complete Agreement. This Agreement constitutes the complete agreement and sets forth the understanding and agreement of the parties as to the subject matter of this Agreement and supersedes all prior discussions and understandings in respect to the subject of this Agreement, whether written or oral.

6.3 Modification. No modification, termination, or attempted waiver of this Agreement, or any provision thereof, shall be valid unless in writing signed by the party against whom the same is sought to be enforced.

6.4 No Conflict. Consultant warrants that Consultant has not previously assumed any obligations inconsistent with those undertaken by Consultant under this Agreement.

IN WITNESS WHEREOF, this Agreement is executed as of the date set forth above.

[COMPANY]	**[CONSULTANT]**
By:_____	By:_____
Its:_____	Its:_____

Appendix 5: Change Request Form

Ministry of Agriculture, Food Security & Enterprise **Project Change Request Form**			
Project Name	Name of Project		
Requested By	Name of Requestor	Date	Date Request was made
Request Number	Request Number	Name of Request	Brief Name of Request
Change Description	Description of the Change		
Change Reason	Give the justification for the change		
Impact of Change	Specify the impact of the change in terms of cost impact, budget impact, schedule impact etc.		
Proposed Action	Does the project manager propose this change is accepted or rejected? Why?		
Status	In Review	Approved	Rejected
Approval Date	The date the change was approved or rejected		
Approved By	Who approved the change (project manager/project sponsor)		

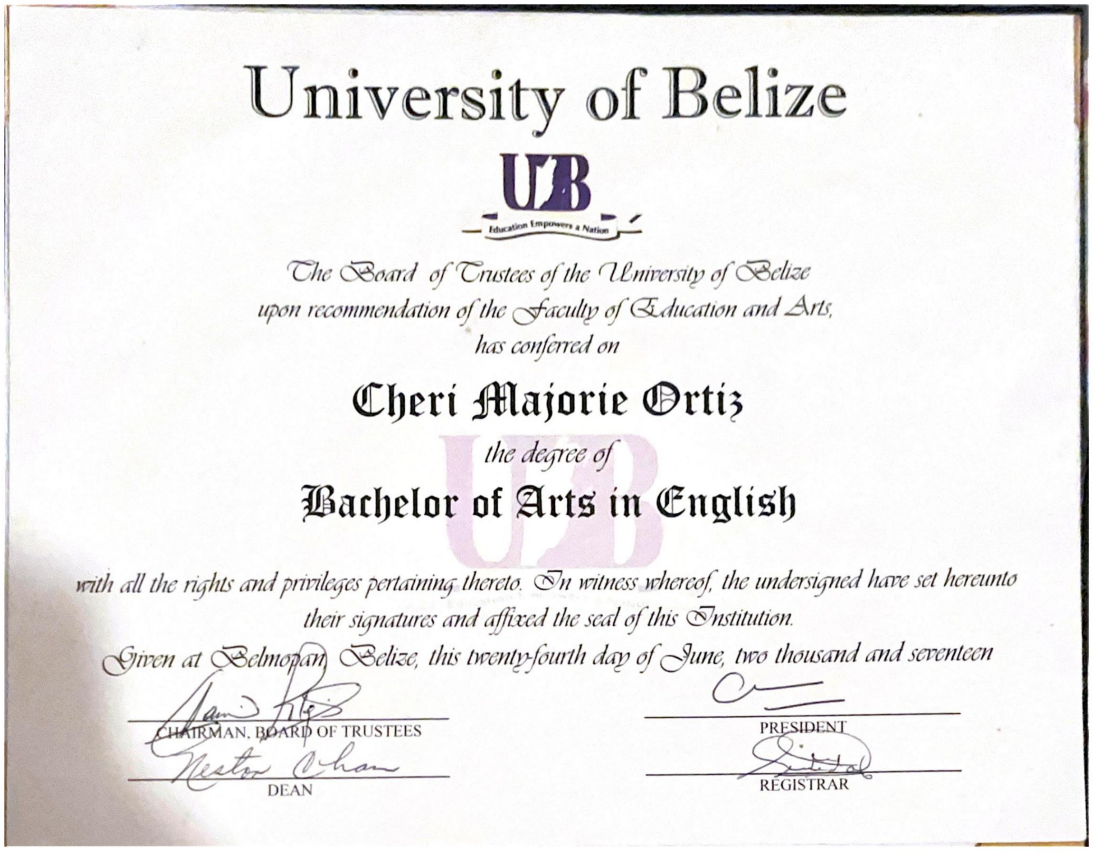
Appendix 6: Philologist's Letter and Supporting Documents

June 7, 2022
Academic Advisor
Masters Degree in Project Management (MPM)
University for International Cooperation (UCI)

Dear Academic Advisor,
Re: Philological Review of final Graduation Project submitted by Shakira Leshawn Sharp in partial fulfillment of the requirements for the Masters in project management (MPM) Degree.

I herby confirm that the document submitted captioned above, meets the literary linguistic standard expected of a students reading for a degree at the Masters level.

Cheri Ortiz



University of Belize

UB

Education Empowers a Nation

The Board of Trustees of the University of Belize
upon recommendation of the Faculty of Education and Arts,
has conferred on

Cheri Majorie Ortiz

the degree of

Bachelor of Arts in English

with all the rights and privileges pertaining thereto. In witness whereof, the undersigned have set hereunto their signatures and affixed the seal of this Institution.

Given at Belmopan, Belize, this twenty-fourth day of June, two thousand and seventeen

CHAIRMAN, BOARD OF TRUSTEES

PRESIDENT

DEAN

REGISTRAR

University of Belize

Education Empowers a Nation

The Board of Trustees of the University of Belize
upon recommendation of the Faculty of Education and Arts,
has conferred on

Cheri Majorie Ortiz

the award of

Diploma in Education Methodology

with all the rights and privileges pertaining thereto. In witness whereof, the undersigned have set hereunto their signatures and affixed the seal of this Institution,
this tenth day of December, two thousand and eighteen.

CHAIRMAN, BOARD OF TRUSTEES

PRESIDENT

DEAN

REGISTRAR

MINISTRY OF EDUCATION

LICENSE TO TEACH IN BELIZE

THIS IS TO CERTIFY THAT

Cheri Majorie Ortiz

HAS BEEN GRANTED A **FULL** LICENSE TO TEACH IN THE COUNTRY OF BELIZE FROM THE DATE OF ISSUE, IN ACCORDANCE WITH THE EDUCATION (AMENDMENT) RULES 2012, SECTIONS 56-58.

LICENSE NUMBER: **TO-2013-00008**

TEACHING LEVEL: **SECONDARY**

DATE OF ISSUE: **JANUARY 29, 2019**

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