UNIVERSIDAD PARA LA COOPERACIÓN INTERNACIONAL
(UCI)

PROPOSAL FOR A PMO
FOR THE MINISTRY OF AGRICULTURE, ANIMAL HUSBANDRY AND FISHERIES- SURINAME

RUWISHA PREMCHARAN

FINAL GRADUATION PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
MASTER IN PROJECT MANAGEMENT (MPM) DEGREE

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

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Jorge Trejos
TUTOR

_____

Alberto Redondo Salas
REVIEWER No.1

_____

REVIEWER No.2

_____

Ruwisha Premcharan
STUDENT

DEDICATION

"Life is full of miracles
You're one of them"

To the love of my life, to my son and my precious family, without whom I wouldn't have been able to complete this project.

ACKNOWLEDGMENTS

This journey would not have been possible without the support of my family, professors and mentors, and friends. To my family, thank you for encouraging me in all of my pursuits and inspiring me to follow my dreams.

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I owe a debt of gratitude to UCI, all the lecturers, assistants and fellow students, for their support, wonderful collaboration and excellent cooperation.

A special thanks to the OAS, without them I would not be in the position to study at the UCI.

Also a heartfelt thank you to my family and friends for your support and sacrifices.

Thank you very much, everyone!

Signed;

Ruwisha

INDEX OF CONTENTS

INDEX OF FIGURES

INDEX OF CHARTS

ABBREVIATIONS AND ACRONYMS

- AC Actual Cost
- CI Continuous improvement
- CMMI Capability Maturity Model Integration
- CPk Capabilities Index
- FGP Final Graduation Project
- OPM3 Organizational Project Management Maturity Model
- P3M3 Portfolio, Program &Project Management Maturity Model
- PF Planned Finished date
- PM Project Manager
- PM Project Management
- PMI Project Management Institute
- PMBOK® Guide A Guide to the Project Management Body of Knowledge
- PMO Project Management Office
- WBS Work Breakdown Structure

EXECUTIVE SUMMARY (ABSTRACT)

The Ministry of Agriculture, Animal Husbandry and Fisheries was established on December 4, 1903. The Ministry of Agriculture, Animal Husbandry and Fisheries is a part of the Surinamese government and is responsible for the policy regarding agriculture, animal husbandry, fishing and beekeeping. In order to implement its policy, the ministry has offices in most of the districts of Suriname.

The research looked for the most applicable PMO for the ministry of Agriculture, Animal Husbandry and Fisheries and proposed this to the central government of Suriname. Having a PMO to manage and control all projects will have benefits for the ministry. Some of the expected benefits of a PMO will be that projects will be completed within the available timeframe, resources availability will be managed efficiently, there will be better control of quality of products and resources, projects will be completed within budget and risks will be better anticipated.

The first decision is to identify the Ministry of Agriculture, Animal husbandry and Fisheries as the model research organization on which this research was conducted. Then the research began with a maturity assessment for a proposal for a PMO for the ministry. The assessment was conducted through a questionnaire. Twelve (12) questions covering twelve (12) predetermined six-sigma evaluation categories. The participants were key stakeholders and employees of the ministry.

The general objective of this FGP was to develop a Project Management Office (PMO) proposal for a PMO for the ministry of Agriculture, Animal Husbandry and Fisheries in Suriname. To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding need by analyzing the different PMO types in order to recommend the most suitable one for the ministry ,proposing the roles and

responsibilities to be assigned to the PMO in order to evaluate its efficiency, determining the appropiate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure and proposing a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to measure and improve its performance.

The methodologies used in this research were based on literature reviews of similar researches using the analytical, deductive and observational methods. The analytical and deductive methods allowed for an in-depth analysis of the ministry's structure, while the observational method was used to evaluate and record the deliverables and their acceptance by stakeholders. The tools used in this research were based on a six sigma questionnaire sample. The results of the analytical method propelled the analysis of the different types of PMOs in order to determine the most suitable for the ministry's development.

The conclusion to the main objective of this is research is that, a PMO is necessary and indeed should be developed. The Project Management Office (PMO) will be the centralized structure for all the projects of the ministry, ensuring standardization, reducing duplication and leveraging resources.

1. INTRODUCTION

1.1. Background

The Ministry of Agriculture, Animal Husbandry and Fisheries (LVV) is a service organization that is part of the Surinamese government. The management is as follows: Minister, Director and Deputy-Directors. LVV consists of one (1) directorate and six (6) sub directorates, which are in turn subdivided into departments and main departments.

Core values of the ministry are:

- We attach great importance to integrity and professionalism;
- We are at the service of the community and the stakeholders of the agricultural sector, and we treat them with great respect;
- We believe that good communication is important for the success for both internal as for external stakeholders;
- We believe that through quality and continuous improvement of our services through innovation, creativity and commitment we can make a major contribution to the prosperity and well-being of our nation;
- We believe in "our own ability" and develop this by providing our employees with a safe and satisfying work environment with sufficient opportunities to grow and develop knowledge;
- We always assume social responsibility and put the importance of the Surinamese nation first.

The ministry is responsible for the policy regarding agriculture, cattle breeding, fishing and beekeeping. To give substance to this task, the Ministry must formulate and implement policy for the agricultural sector.

The seven strategic goals for the agricultural sector are formulated as follows:

1. Realizing and guaranteeing food security for the total Surinamese population;
2. Ensuring agricultural health and food safety;
3. Developing a sustainable agricultural sector;
4. The development of the agricultural sector to the food producer and supplier for the area;
5. Increasing the contribution of the agricultural sector to the national economy;
6. Creating conditions for the sustainable development of the agricultural sector;
7. Managing the preconditions and risks in the implementation of the agricultural policy.

In order to pursue set goals, the Ministry carries out projects relating to its policy areas.

1.2. Statement of the problem

The challenge the ministry faces is that within the ministry of Agriculture, Animal Husbandry and Fisheries there are multiple ongoing projects and projects that have to be started. However, there is no specific department or skilled personnel to manage all those projects. The result of this is that projects cost more, are managed inefficiently and often overlap each other. Part of the personnel of the ministry got training in project management skills (Six sigma). However, this is not enough to manage all the projects of the ministry. The Ministry has always attracted external consultants to prepare and lead large projects. This costs the ministry a lot of money.

This is partly the fault of their non-exposure to current project management procedures and practices, which could engender better systems for project development and project goal attainment.

The imminent problem is the non-existence of Project Management Practices and skills, which is directly related to accountability issues like financial record keeping. To be able to manage

projects better, it will require the systematic creation and inclusion of a PMO, to catalyze its transition to a properly functional ministry.

1.3. Purpose

The research will look for the most applicable PMO for the ministry of Agriculture, Animal Husbandry and Fisheries. Having a PMO to manage and control all projects will have benefits for the ministry.

Some of the expected benefits of a PMO will be;

1. Projects will be completed within the available timeframe;
2. Resources availability will be managed efficiently;
3. Better control of quality of products and resources;
4. Projects will be completed within budget;
5. Better anticipation on risks;
6. No extra costs for attracting external consultants.

1.4. General objective

Develop a Project Management Office (PMO) proposal for the Ministry of Agriculture, Livestock and Fisheries in Suriname, in order to optimize project management.

1.5. Specific objectives

1. To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding need;
2. To analyze the different PMO types in order to recommend the most suitable one for the ministry;
3. To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency
4. To determine the appropriate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure;

5. To propose a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to measure and improve its performance.

2. THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

The Ministry of Agriculture, Animal Husbandry and Fisheries was established on December 4, 1903. The ministry is part of the Surinamese government and is responsible for the policy regarding agriculture, animal husbandry, fishing and beekeeping in Suriname. In order to implement its policy, the ministry has offices in most of the districts of Suriname.

2.1.2 Mission and vision statements

According to the state decree of the Republic of Suriname, the ministry of Agriculture, Animal Husbandry and Fisheries is responsible for the policies regarding the agriculture sector, animal Husbandry sector, fish sector and beekeeping sector.

The ministry has the following mission and vision statements:
Mission:
Ensuring food security and food safety for agricultural products for the Surinamese society, and promoting and facilitating sustainable development for the agricultural sector. (LVV, Articles of Association, 2012)

Vision:
That Suriname has a Ministry of LVV in 2015, that through sustainable agricultural policy and its excellent implementation has ensured that more locally produced food is available for the menu of Surinamese citizens and that the agricultural products are of high quality; the first choice on national, regional and international markets. (LVV, Articles of Association, 2012)

2.1.3 Organizational structure

The ministry has a hierarchical organizational structure. In hierarchical structure employees are ranked at various levels within the organization, each level is one above the other. At each

stage in the chain, one person has a number of employees directly under them, within their span of control. The organizational structure is as follows;

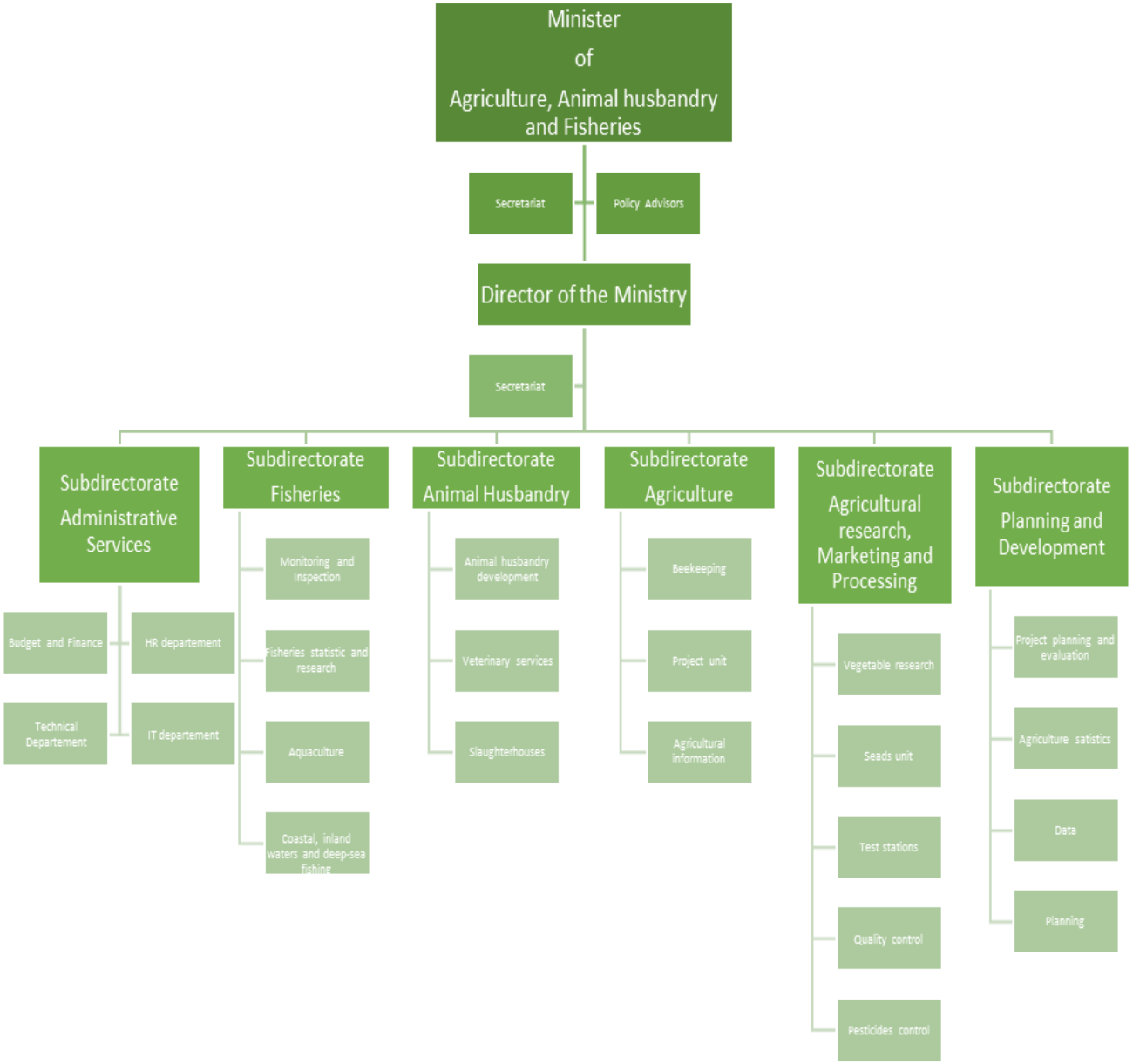

Figure 1. Organizational Structure of LVV, source author, 2018.

2.1.4 Products offered

The ministry is a service-oriented organization. Services provided by the ministry are:

- Agricultural, stockbreeding, fishing and beekeeping policy;
- The supervision of correct use of land and waters issued for the agricultural sector;

- Research and information in the sectors mentioned;
- Determining the need for and the distribution of goods and services in the sectors mentioned;
- Matters relating to the production, storage, processing and marketing of products produced in the sectors mentioned, where necessary, in an interdepartmental connection;
- The prevention and control of animal and plant diseases and pests;
- The establishment of quality standards for and the quality control of products of the sectors mentioned;
- The investment and credit policy of the sectors mentioned, in cooperation with the appropriate ministries;
- Promoting, coordinating, regulating and controlling co-operatives and other organizations in the sectors mentioned, where necessary interdepartmental connection;
- Checking compliance with the legislation concerning the sectors mentioned, where necessary in an interdepartmental context;
- Aquaculture and agro-industry;
- The promotion of production in the sectors mentioned for food supply and exports;
- Efficient management of national fishing capacities and the rational exploitation of fish resources, as well as enforcement of legislation to protect fish resources.

2.2 Project Management concepts

2.2.1 Project

According to the PMBOK Guide 6th edition, a project is a temporary endeavor undertaken to create a unique product, service, or result. Projects are undertaken to fulfill objectives by producing deliverables. An objective is defined as an outcome toward which work is to be directed, a strategic position to be attained, a purpose to be achieved, a result to be obtained, a product to be produced, or a service to be performed. A deliverable is defined as any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. Deliverables may be tangible or intangible. (PMI,

2017, p.4). For the purposes of this research, a project shall be a proposal of a Project Management Office (PMO) for the ministry of Agriculture, Animal Husbandry and Fisheries.

2.2.2 Project management

It is well established that the management techniques we call “modern project management” had their beginnings in the late 1950’s with the first real papers being published in 1958. Now, we are at the point where the professional project manager is a major part of the management team in not only the construction industry, but a wide variety of other businesses (Snyder, J. R. (1987). There are many different methodologies when it comes to project management, like PRINCE2, AGILE, SCRUM, PMBOK GUIDE etc. All these methodologies give us guidelines in applying project management in a project.

According to the PMBOK Guide 6th edition, Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the appropriate application and integration of the project management processes identified for the project. Project management enables organizations to execute projects effectively and efficiently.
Project management is accomplished through the appropriate application and integration of the 49 logically grouped project management processes, which are categorized into five Process Groups, namely initiating, planning, executing, monitoring and Controlling and closing (PMI, 2017, p.10).

Managing a project also includes, but is not limited to the identification of requirements, addressing of needs, concerns and expectations of stakeholders and managing them, creating project deliverables and balancing the project constraints. These constraints can be scope, schedule, resources, quality, budget and risks.

2.2.3 Project life cycle

A project life cycle is a “series of phases that a project passes through from its initiation to its closure” (PMI, 2017, p.38). These phases are generally time bounded, with a start and an end.

The project life cycle can be determined or shaped by the unique aspects of the organization and provide the basic framework for managing the project. Figure 2 shows a generic project life cycle structure.

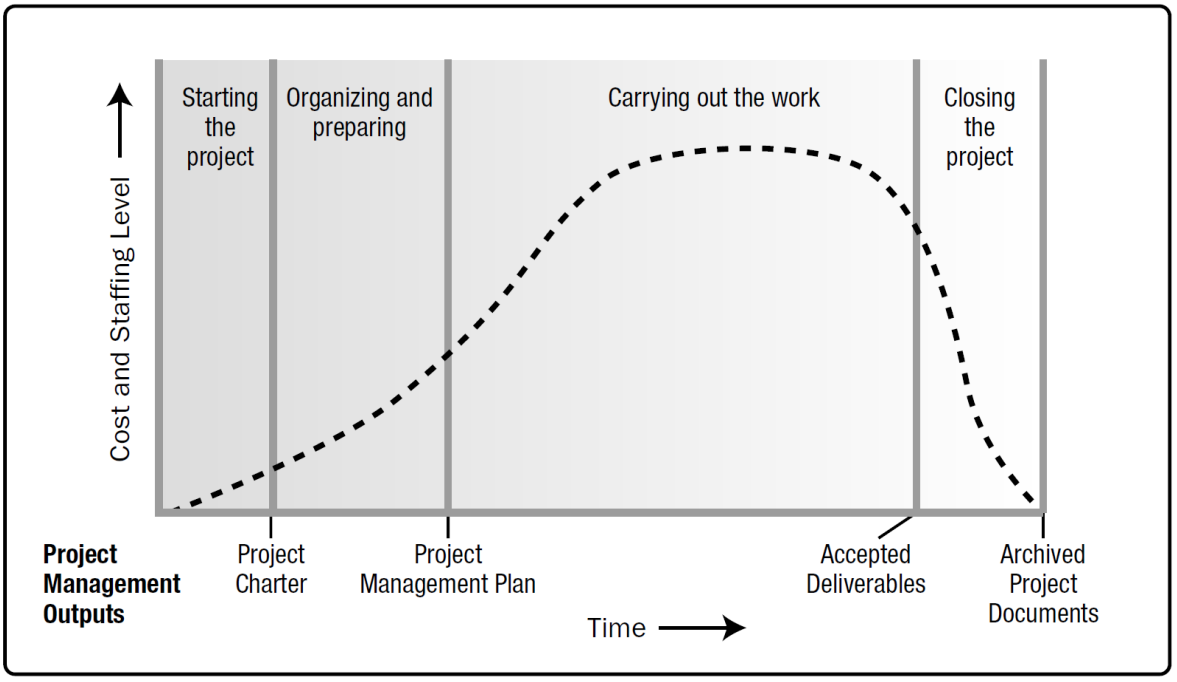

Figure 2. Typical Cost and Staffing Levels Across a Generic Project Life Cycle Structure. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 39), Project Management Institute, 2013.

Within each phase of a project life cycle, the six process groups interact with each other. The level of interaction is shown in figure 3. The ministry does not have a defined project cycle. One of the intents of this research is to enable via the proposed PMO, procedures such as structured project cycles that would assist the ministry in managing its projects from staffing to start the project, managing and executing right down to closing the project, mainly based on the guidelines of the PMBOK Guide 6th edition, because the PMO will be based on the methodologies from this guide.

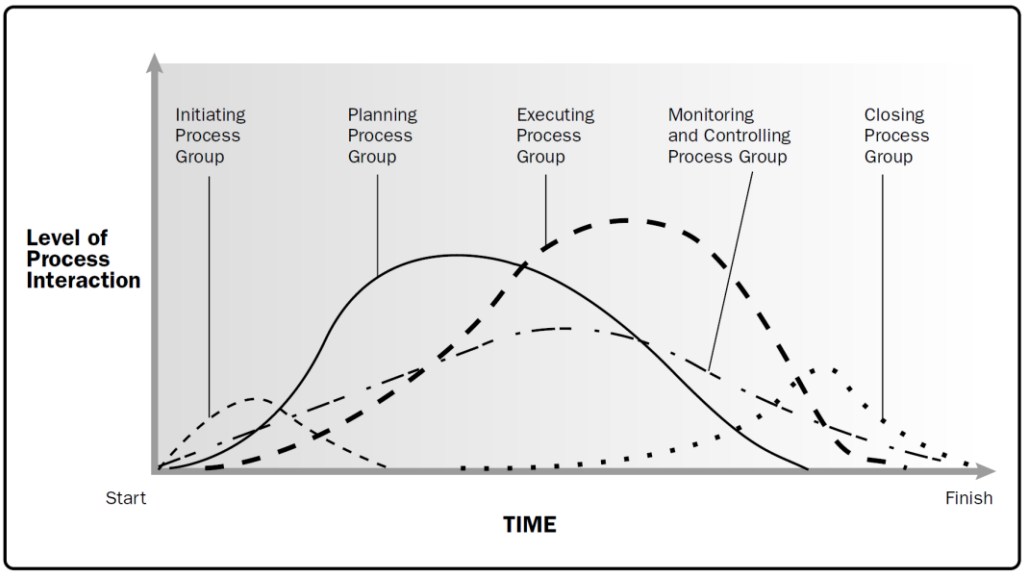

Figure 3. Process groups interact in a Phase or Project. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 51), Project Management Institute, 2013.

2.2.4 Project management processes

Project management 49 processes ensures the effective flow of the project throughout its life cycle. These processes encompass the tools and techniques involved in applying the skills and capabilities of the 10 knowledge areas. A process is a set of interrelated actions and activities performed to create a pre-specified product, service, or result. Each process is characterized by its inputs, the tools and techniques that can be applied, and the resulting outputs. (PMI, 2017, p.47).

The 10 knowledge areas and their place in the process groups is shown in figure 5.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Figure 4. Project Management Process Group and Knowledge Area Mapping. Reprinted from A Guide to the Project Management Body of Knowledge (p. 423), Project Management Institute, 2013.

2.2.5 Project management knowledge areas

A Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization (PMI, 2017, p.60). There are 49 project management processes identified in the PMBOK Guide 6th Edition, these are grouped into 10 separate knowledge areas. Processes under each knowledge areas are iterative and may or may not overlap or interact with each other. All the knowledge areas, except for Procurement management will be used in this research.

The attempt to propose a PMO will require the application of some of the project management knowledge areas to assist in the evaluation for the maturity of the ministry. The knowledge areas as established in PMBOK Guide, 6th edition, and applicable to the setting up of this research work are:

- Project Integration management: This knowledge area characterizes the initial steps of a project development. It embodies the integration of all project management processes and their interdependencies. Project integration management allows for the development of the Project Charter, Project Management Plan, project work development, and project monitoring and control plan which manages how to perform change control and close the project. All these constitute the series of first applications of the knowledge areas to project management.
- Project Scope Management: This is the knowledge area responsible for defining the processes required to ensure that the project includes all the work required to successfully complete the project. In this case, it was the development of the FGP.
- Project Schedule Management: This includes all the processes which ensure that a project is completed timely. This was defined by UCI, with the assumption that the FGP should be completed by February, 2019
- Project Cost Management: Includes the processes for all cost related aspects of a project. It normally allows the development of processes such as Plan Cost management, cost estimation, determining project budget and project cost control.
- Project Quality Management: This is the knowledge area which includes processes and activities that determine the quality objectives and responsibilities of the project. The intent is to guarantee the satisfactory delivery of product or products for which it produces. It uses processes like Quality management plan, and Quality assurance and control quality to ascertain its deliverables. Tutors and readers of this research constitute the custodian to the quality management component of the FGP.
- Project Resource Management: This includes processes that organize and manage the project team. It allows the development of a Human resource plan for the project.
- Project Communication Management: Includes the processes that ensure the timely collection, control, planning, retrieval, distribution, storage and management of the project information.

- Project Risk Management: This allows for conducting Plan Risk Management, Risk identification plan, Qualitative and quantitative risk analysis as well as the risk response plan with the view to increase the likelihood of a positive impact and decrease the likelihood of a negative impact or occurrence on a project.
- Project Procurement Management: Includes the processes necessary for ensuring the purchase or acquisition of required products. This is the only exception that this FGP had not fully instituted.
- Project Stakeholder Management. This includes the processes necessary to identify the person or persons, groups, and organizations that may impact or may be impacted by the outcome of a project. It also focuses on keeping the flow of communication to and from the stakeholders with a view of understanding their needs and expectations. These are acquired through processes such as Stakeholder identification, plan stakeholder management and control stakeholder management. In the case of this research, key stakeholders were the clients, management and staff of the ministry.

2.3 Project Management office (PMO), Project Management Maturity

PMO (Project management Office)

A project Management Office (PMO) is a management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques. The responsibility of a PMO can range from providing project management support to directly managing one or more projects. (PMI, 2017, p.10). The three (3) main types of PMO structures are, Supportive, Controlling and Directive. A supportive PMO structure performs primarily a consultative role to projects by supplying templates, best practices, training and serves as a repository of information from lessons learnt from previous projects. A Controlling PMO structure provides support to projects by requiring compliance through project management framework or methodologies and using specific templates, tools and forms or conformance to governance to achieve its mandate. A directive PMO structure is one that takes full control and directly manages the project or projects. This PMO structure has the highest control of all the three (3) PMO structures.

2.4 Project Management Maturity

Project management maturity is explained as a progressive and holistic model that develops an organization's approach, methodology, strategy, and decision-making process as defined by the three core areas of project management: people, process, and tools. A Maturity model can help your organization identify gaps, and take important operational steps toward improving its entire culture around project management. Mature organizational systems and processes assist the achievement of consistent project management excellence. The understanding of maturity, however, is often a subjective concept (Pretorius et al., 2012).

There are numerous maturity models, particularly within the Information Technology (IT) and Business Management sectors. It should be noted though, that, maturity models just like the discipline of project management apply generically to any industry sector.

Some of the main maturity models identified during the literature review for this FGP which are briefly mentioned and explained are:

- Capability Maturity Model Integration (CMMI)
- Portfolio, Program & Project Management Model (P3M3)
- Organizational Project Management Maturity Model (OPM3)
- Lean Six Sigma Maturity Model

2.4.1 Capability Maturity Model Integration (CMMI)

The Capability Maturity Model Integration (CMMI) was a project developed from a number of other tools put together in the late 80s to mid-90s to form a single integrated tool (de Souza and Gomes, 2015). It was spearheaded by the CMMI Institute. The CMMI Institute operates through a network of CMMI partners, which comprise trained and certified organizations and individuals providing

official training programs, appraisals and other consulting services. It provides a set of practices or improving processes, resulting in a continuous improvement system that paves the way for better operations and performance.

CMMI was used heavily by organizations that undertook software development, systems engineering and product development. It uses a single tool to assess maturity or capability.

There are five (5) maturity levels used in the assessment of CMMI: 1. Initial: Processes are unpredictable, poorly controlled and reactive 2. Managed: Processes are characterized for projects and are often reactive 3. Defined: Processes are characterized for the organization and are proactive 4. Quantitatively managed: Processes are measured and controlled 5. Optimizing: There is a focus on process improvement.

Some analysts have stated that there is a problem with the adoption of CMMI by organizations. An assessment facilitation of is required to avoid wasting resources (Allué et al., 2013). The challenges of CMMI are that, few tools support all of the types of CMMI related activities. The support level is often limited, and the ability to customize tools to suit the users, is quite small (Musat et al., 2010).

2.4.2 Portfolio, Program & Project Management Maturity Model (P3M3)

P3M3 is a model developed to assess government maturity standards. According to (Sowden et al., 2008), P3M3 also acts as a roadmap for ongoing improvement and progression towards realistic and achievable goals that are suitable for business needs and aspirations. P3M3 focuses on helping to expand emerging processes of project complexity that contribute to overall success. The levels of maturity assessment in P3M3 are effectively identical to those for CMMI. P3M3 has a strong support base in the United Kingdom. Its developed is based on seven project process-related perspectives. These perspectives are: 1. Organizational governance 2. Management control 3. Benefits management 4. Risk management 5. Stakeholder management 6. Finance management 7. Resource management. Young (Young et al., 2014) argue that one deficiency of the P3M3 model is that it uses a single number to represent maturity at the project, program and portfolio level. The concern is that the single number reported is therefore misleading and will generally report a lower level of maturity than which is present in an organization. It also may paint a poorer picture than what might exist and disregard the relative closeness of the next higher level. Another shortcoming they mention is that the ‘generic attributes’ evaluated in all three P3M3 domains are claimed as essential to achieving improvement in project management maturity. It is doubtful, however, whether these generic attributes are appropriate to program and portfolio management domains, which are typically more complex than standalone project management (Young et al., 2014)

2.4.3 Organizational Project Management Maturity Model (OPM3)

OPM3 is a maturity model developed between 1998 and 2013, by a team of volunteers from the PMI. The model is believed to be suitable for organizations of any size, location or practice environment. (Langston and Ghanbaripour, 2016) OPM3 is aligned specifically with PMBOK methodology. Its aim is to measure the level of maturity of projects and practices, based on best practices as its methodology for assessment. OPM3 compares organizational activities with a large number of standardized best practices, measuring them in project, program and portfolio management contexts by examining capabilities and related outcomes. (Langston and Ghanbaripour, 2016)

OPM3 maturity is classified into four levels. (Pinto and Williams, 2013): The levels are: 1. Standardize: Structured processes are adopted 2. Measure: Data is used to evaluate process performance 3. Control: Control plan developed for measures 4. Continuously improve: Processes are optimized

OPM3 is by far the most sophisticated of the identified maturity models in the discipline of project management. It is also the most resource intensive (Backlund et al., 2014). OPM3 is based on a series of project management best practice standards collated by certified assessors. The current unrest between certified assessor and the PMI over the current directions of a product and subsequent shared intellectual property rights, make access to the use of the tool difficult. OPM3 is currently under review.

2.4.4 Six sigma & Lean Six Sigma

Six sigma is described as a strict data driven methodology that has a set of techniques and tools for process improvement. It seeks to improve the quality of the output of a process by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes. (QP, 2017)

Lean six sigma is a fact-based data driven philosophy of quality improvement that values defect detection. It drives customer satisfaction and bottom line results by reducing variation, waste, and cycle time. It promotes the use of work standardization and flow, thereby creating a competitive advantage. It is applicable anywhere variations and waste exist. The distinction between six sigma and Lean is blurred because process improvements require aspects of

both. They overlap in many aspects, although they do present some functional differences. Lean focuses on waste reduction whilst six sigma focuses on variation reduction. Lean uses less technical tools such as workplace organization and visual controls, whilst six sigma uses statistical data analysis and design of experiments. (ASQ, org)

Lean six sigma maturity assessment model is based on a detailed step by step quantitative scoring of pre-established parameters. This is to diagnose the current state of an organization or company. The Six sigma methodology is aimed at leading an organization towards a future state of improving its internal processes, satisfy its customers/clients, and allow its leaders to know the current state of their business. This can also be used to identify the strengths and weaknesses of the organization. The same can engender, improve opportunities, and the balance sheet, and return on investment (ROI).

The Lean six sigma maturity model is categorized in five levels. The five levels are:

1. Initial: Processes are unpredictable, poorly controlled and reactive 2. Managed: Processes are characterized for projects and are often reactive 3. Defined: Processes are characterized for the organization and are proactive 4. Quantitatively managed: Processes are measured and controlled 5. Optimizing: There is a focus on process improvement.

One of the objectives of this FGP is to conduct a maturity assessment on the ministry. In lieu of that, various maturity models were reviewed and their characteristics examined.

Maturity models generally all gear toward evaluating the status quo of the organization with a view of highlighting, strengths and weaknesses in the organization. They also serve to direct executives into the directions that require immediate attention in order to attain or keep attaining measurable success in their organization. However, the analysis showed some of the inflexible characteristics and draw backs of some of the main maturity models reviewed. For the purposes of this FGP and its immediate application, a maturity model that presents the following characteristic.

The maturity model should be:

- Directed at assessing the current methods and processes of an organization or company.

- Its procedure and processes should not only be rated against a “one size fit all” best practices, but also company specific best practices.
- Fit for any size company or sector and applicable to starter companies as well as existing and matured organizations or companies.
- Not too resourceful and not too financially demanding.
- User-friendly and non-complex in structure and execution
- Can be compared to a standardized industry benchmark or company specific generated benchmark.
- Level rating should be aspects-specific and not only single index level rating.
- Measure non-tangible aspects of organizations, such as employees “feel good”, loyalty, trust and creativity.
- A model that is evidence based, adaptable to a Plan, Do, Check, Act (PDCA) methodology and provides continuous improvement frameworks
- Another reason for using the Lean six sigma maturity model is because part of the personnel of the ministry that deals with projects within the ministry has received a training in the six sigma management method philosophy. Doing this research, it is easier to make the personnel of the ministry understand the Lean six sigma maturity model to rate the maturity level of the ministry and make their participation in the process more meaningful.

2.4.5 Maturity assessment model for this FGP

This research proposes to use an already established Lean six-sigma methodology of maturity assessment that is based on a detailed step by step quantitative scoring of pre-established parameters. Lean six sigma is chosen for this research because it embodies if not all, most of the characteristics described as fit for purpose for this FGP. Also because the ministry is familiar with the six sigma management method philosophy which makes it is easier to make personnel understand the Lean six sigma maturity model to rate the maturity level of the ministry and make their participation in the process more meaningful. The Six sigma methodology is aimed at leading an organization towards a future state of improving its internal processes, satisfy its customers /clients, and allow its leaders to know the current state of their business/organization. This can also be used to identify the strengths and

weakness of the organization. The same can engender, improvement opportunities, and the balance sheet, return on investment (ROI). The six sigma model applied herein comprised a series of questionnaires set to evaluate twelve categories that would normally cover an organization's structure. Six sigma methodology of maturity assessment recommends the use of a three (3) phase approach normally referred to as the 3A Approach (Analyze, Assess, and Address).

The 3A approach consists of using a scorecard with a twelve (12) six sigma pre-established parameters. These are, leadership alignment, leadership approach towards six sigma, employee involvement, training, process capability, approach to errors, data driven problem solving, continuous improvement methodologies, standard work, value stream mapping, accounting support to lean six sigma and housekeeping. These parameters, while originally set for quality management for the industrial sector, have been used to evaluate maturity levels in the sector, hence its use for this FGP.

Six sigma rating scale is from one (1) - five (5). This standard scale is used to assess the individual parameters where one (1) represents the lowest maturity and five (5) represents the optimum in a particular category. An average score for each parameter in the questionnaire is recorded, and then measured against a benchmark in that category. The tally of all the averages of each parameter is further used to measure against six sigma maturity level rating, which is also from one (1) – five (5). One (1) signifies the lowest maturity level while five (5) is the optimum maturity level. The maturity level assessment has been used to benchmark with another ministry in Suriname which does similar kinds of projects, ministry of public works, transport and communication. Benchmarking is very important because it allows an organization to evaluate its project management delivery capabilities just as much as to determine the financial impacts of project management in an organization against it peers or a set measureable standard. In certain cases, benchmarks or baselines are established not necessarily from scientific data gathering, but rather from empirical analysis. The analysis could be based on what exists with the company or organization in its current state, and what stakeholder's expectations are for improvement into the future. Once the determined maturity assessment index result is ready, it is compared with the benchmark index. Lean six sigma determines that the difference between the benchmarked value and the maturity level index is called the "maturity gap". The same is applied to this research.

The six sigma maturity assessment model, used interviews and surveys with the personnel of the ministry, and other stakeholders to establish the data from which the results and conclusions are reached.

One of the fastest proven ways based on other maturity assessment findings is the use of the questionnaire and or in conjunction with a technique called brain writing (Six Sigma, Tools and techniques, 2014). This has been proven to yield faster results, diverse solutions yet not compromising the value of the outcome Vis a Vis other techniques such as the traditional brain storming technique. The application of the brain writing techniques is preferred and applied here based on the assumption and constraints set forth in this research.
Due to both time and resource constraints, the research used the twelve (12) six sigma established categories and formulated twelve (12) corresponding questionnaires. Six (6) randomly selected personnel, made up of staff and six (6) senior management and key stakeholders were selected as the respondents. In total, there were 144 responses to the twelve (12) questions.

3. METHODOLOGICAL FRAMEWORK

3.1 Information sources

For the purposes of this research, Information sources can be defined as a location, portal, site, or institution, from where somebody is able to gather knowledge or information for their use or consumption.

The information source for this project stretches from literature reviews, PMBOK, to the World Wide Web, to documentaries, personal experiences, academic journals and archives of the ministry.

3.1.1 Primary source

The primary source of information for this research shall be defined as: a first hand and or a direct source from where the original information is obtained.

Interviews with the minister and the director of the ministry and other key stakeholders were conducted and personal experiences were documented from project related activities.

3.1.2 Secondary sources

A secondary source of information is the source that is not the primary source. For example, The PMBOK, 6th edition, 2017, LVV archives, The World Wide Web, journals, documentaries, presentations on project management and Pmo, all constitute secondary sources of information.

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

Objectives	**Information sources**	
	Primary	**Secondary**
To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding needs.	The ministry's organizational structure and operational processes and procedure	PMBOK Guide, 6th Edition, PMI Website and other websites.
To analyze the different PMO types in order to recommend the most suitable one for the ministry.	Interviews, E-mail	Internet, PMBOK Guide, 6th Edition, PMI Website
To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency	Interviews, E-mail, Meetings	Internet, PMBOK Guide, 6th Edition, PMI Website
To determine the appropriate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure.	Interviews, E-mail, Meetings	Internet, PMBOK Guide, 6th Edition, PMI Website
To propose a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to be able to measure its performance and improve it.	Interviews, E-mail, Meetings	Internet, PMBOK Guide, 6th Edition, PMI Website

3.2 Research methods

The research is defined by Neuman (Mahmood, 2010, slide 15) as a collection of methods and methodologies that researchers apply systematically to produce scientifically based knowledge about the social world. Whereas methods are defined as a set of specific techniques for selecting cases, measuring and observing aspects of social life, gathering and refining data, analyzing data and reporting results (Mahmood, 2010, slide 17) Therefore, a research method must be systematic and follow a series of steps and a rigid standard protocol.
Some research methods are:

1. Comparative research
2. Explorative research
3. Causal research
4. Action research
5. Explanatory research
6. Theory testing research

For the development of this FGP, the research methods used are primarily Literature reviews, Analytical, Deductive - Inductive and Observation research methods.

3.2.1 Analytical method

The Analytical or explanatory research method aims at explaining the social relations and events and also to build, test or revise a theory (Mahmood, 2010, slide 38)
In Analytical Research, the researcher has to use facts or information already available, and analyze them to make a critical evaluation of the material. It involves the in-depth study and evaluation of available information in an attempt to explain complex phenomenon. Analytical Research is primarily concerned with testing hypothesis and specifying and interpreting relationships, by analyzing the facts or information already available (Scribd).

3.2.2 Deductive –Inductive method

This is a common method of research in which the deductive method is geared at testing an existing theory, thus arriving at a logical conclusion, while the Inductive method is aimed at generating a new theory or theories based on the gathered information or data at hand. (Gabriel, D. D., 2013)

3.2.3 Observational method

This form of research is non-experimental, in that the research is carried out through the mere observation and acknowledgement of the ongoing pattern. (Crossley, M. W., & Preston, R. 1987).

Chart 1. Research methods (Compiled by the Author)

Objectives	Research methods		
	Analytical Method	**Deductive-Inductive Method**	**Observational Method**
To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to Improved Opportunities And expanding needs.	This method was used to assess the current maturity status of the ministry. Six sigma standards were used as references and baseline standards	This method is applied by testing the tools and techniques used to assess the maturity status of the organization.	
To analyze the different PMO types in order to recommend the most suitable one for the ministry.	The analytical method in this instance was used to study and understand the general roles and responsibilities of a PMO in an organization.	This method was used to compare the characteristics of the different Pmo, to then determine correctly the suitable one for the ministry.	

Objectives	Research methods		
	Analytical Method	**Deductive-Inductive Method**	**Observational Method**
To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its Efficiency.	This method made for the critical thinking of the roles and responsibilities to be assigned to the PMO for the first time in the history of the ministry.	This method was used to gain an understanding of the roles and responsibilities of the various Pmo, and then systematically categorize these responsibilities as maybe applicable to the ministry PMO at this time.	
To determine the appropriate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure.	The analytical method helped with the literature reviews of similar management structures in order to prioritize the functions of the proposed PMO.		

Objectives	Research methods		
	Analytical Method	**Deductive-Inductive Method**	**Observational Method**
To propose a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to measure and improve is performance.	This method served as the critical thinking and analytical guide to developing the implementation plan for the PMO.	This method brought in the component of facts gathering and the effective use of the data that was collected from the research. The data was then used to create a new outcome.	This method helped record the questionnaire response patterns of stakeholders. It also helped summarize to which PMO stakeholders were more aligned with. Furthermore, it helped with gathering consensus on how improvement on new projects should be measured.

3.3 Tools

The PMBOK Guide 6th Edition, defines “tool” as something tangible, such as a template or software program, used in performing an activity to produce a product or result (PMI, 2017, p. 565).

The tools used in this final graduation project are meetings, expert judgment, scheduling tools, alternative analysis, analytical techniques, and Lean six sigma maturity model.

Chart 2. Tools (Compiled by the Author)

Objectives	Tools
To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding needs.	1. Lean six sigma maturity assessment model
To analyze the different PMO types in order to recommend the most suitable one.	1. Expert Judgement 2. Meetings
To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency.	1. Expert Judgement 2. Meetings 3. Stakeholders consultation 4. Online PMO templates
To determine the appropriate location of the proposed PMO within the existing management structure.	1. Meetings 2. Expert Judgement 3. Key stakeholder consultation
To propose a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to measure and improve its performance.	1. Stakeholder input 2. Online PMO template research 3. Expert Judgement

3.4 Assumptions and constraints

An Assumption is, according to PMBOK guide 6th edition (PMBOK Guide, 2017, Sixth edition, pg. 124): “An actor in the planning process that is considered to be true, real, or certain, without proof or demonstration” and Constraint as “A limiting factor that affects the execution of a project or process”.

The assumptions of this final graduation project are:

- The ministry’s current operations need a PMO;
- A PMO on the hierarchy of the ministry organizational structure will help it to be more effective with its projects;
- Due to ministry size, a non-complex PMO would be more appropriate;

The Constraints of this project were:

- Time

The time requirement for this project was short, three (3) months, thus making it one of the main constraints of the project. A lot more supporting areas for this research could have been covered if time allowed it.

- Cost

There were direct and indirect costs associated with gathering the information, and then processing it to extract what is relevant to apply to this research.

- Scope

✓ The scope of this project was to develop a project management office proposal for the ministry. The proposal required determining the maturity level of the ministry.

✓ The project scope started with proposing a PMO through implementing a PMO plan and determining the required sequence of implementation so this can be presented to the central government.

Chart 3. Assumptions and Constraints (Compiled by the Author)

Objectives	Assumptions	Constraints
To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding needs.	The ministry currently needs a PMO.	The time requirement for this project was short three (3) months, thus making it one of the main constraints of the project. A lot more supporting areas for this research could have been covered if time allowed it.
To analyze the different PMO types in order to recommend the most suitable one for the ministry.	A PMO on the hierarchy of the ministry organizational structure will help it be more effective with its projects.	The scope of this project was to develop a project management office proposal for the ministry. The proposal required determining the maturity level of the ministry.

To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency.	Due to the size of the ministry, a non-complex PMO would be more appropriate.	The project scope started with proposing a PMO to implement a PMO plan and to determine the required sequence of implementation so this can be presented to the central government.
To determine the appropriate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure.	That the PMO should be effective relatively quickly to help persuade all stakeholder of its vitality on the organizational management of the ministry.	There were direct and indirect costs associated with gathering the information, and then processing it to extract what is relevant to apply to this research.

3.5 Deliverables

The Project Management Institute (PMI, 2017, P.537) defines a deliverable as a "unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project". Chart 6 below shows the deliverables of the Final Graduation Project.

The deliverables of this project are:

- A report of the level of maturity of the ministry
- Report detailing the roles and responsibilities assigned to the suitable PMO for the ministry
- Report detailing the suitable PMO proposal plan for the ministry
- Report of the appropriate methodology, tools and templates.

Chart 4. Deliverables (Compiled by the Author)

Objectives	**Deliverables**
To assess the maturity level of the ministry, in order to determine its project management strengths and ability to respond to improved opportunities and expanding needs.	A report of the level of maturity of the ministry.
To analyze the different PMO types in order to recommend the most suitable one for the ministry.	Report detailing the roles and responsibilities assigned to the suitable ministry. Report detailing the suitable PMO proposal plan for the ministry.

To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency	Report detailing the suitable PMO proposal plan for the ministry.
To determine the appropriate location of the proposed PMO within the existing management structure of the ministry, in order to prioritize its functions on the management structure.	A report of the location of the PMO on the ministry organizational management structure
To propose a PMO implementation plan for the ministry including the sequence of main steps required to achieve it, in order to measure and improve its performance.	Report of the appropriate methodology, tools and templates.

4. RESULTS

For the purposes of this research, a questionnaire was set out using Six Sigma methodology guidelines to identify the areas to be assessed for the determination of a maturity level for the ministry. There were twelve (12) questions of which, each question was rated on a scale of one (1) – five (5) with one (1) being the least favorable and five (5) being the optimum option to attain the highest maturity level.

A random selection of twelve (12) employees including the minister and the direction team were the respondents to the questionnaire. However, there were three (3) meetings and consultations with the personnel to get feedback based on the intent of this research. There was an average of 48 employees in each session of meetings and consultation. Based on the responses received from the questionnaire and the review and analysis of the responses, the following maturity assessment results were obtained:

In the category of “Leadership alignment”, the results of the maturity assessment indicated that leadership is somewhat aligned with the process improvements but, visible and active selection and review of projects were not in place. No trained and committed resources are available to support projects. (See results in appendix 2)

In the category of “Leadership towards Lean six sigma”, it was also recorded that the minister of the ministry demonstrated an understanding of the Lean six sigma approach to project management. However, nobody was sure how it could be applied to the ministry.

The results from the “Employee involvement category “showed that there was a split in responses where 25% of the respondents agreed that there was an involvement of people in the process improvement to some extent and that people were eager to work in teams. Whilst another 25% agreed that it is only when a

problem arises, that people from different sub directorates work together to solve problems.

The results from the category of “Training and Education” indicated that just a few team members may have heard of the concept of improvement methodology, however, some team members are trained in basic 5S concepts.

In the category of “approach to errors”, the results of the assessment showed that although errors do occur, some initial thought prevails to mitigate or implement a project free from error system.

The results from the analysis of the category of “methodology of continuous improvement” indicate that the ministry is an improvement reactive organization with actions only taken when a directive team demands it. There is no set system in place to monitor and guarantee continuous improvement.

In the area of “value stream mapping”, the survey shows that most respondents believe that the ministry does not use value stream mapping to plan its projects. They recommend it should be used for future projects’ improvements.

In the category of “Accounting”, the results from the assessment show that the current accounting system used by the ministry, only records the basic financial data based on cost accounting. There is little awareness of the greater impact of the role of accounting in support of a six sigma approach or initiative.

At the end of the assessment, the results demonstrated the strengths, weaknesses and improvement opportunities of the ministry. Moreover, it further deepened the “why” the ministry needs a PMO.

In order for a PMO to be selected as the second FGP objective, an analysis of the type of PMO is required. There are three (3) basic PMO types as previously cited.

Each PMO type is analyzed subsequently. The PMOs are; Supporting, Controlling and Directive type of Pmo. The criteria employed here to choose a PMO for the ministry was based on two (2) main defining aspects of a PMO.

The two (2) aspects are, first the PMO responsibility as a governance and standardization resource body. Secondly, the range of PMO authority or control it possesses.

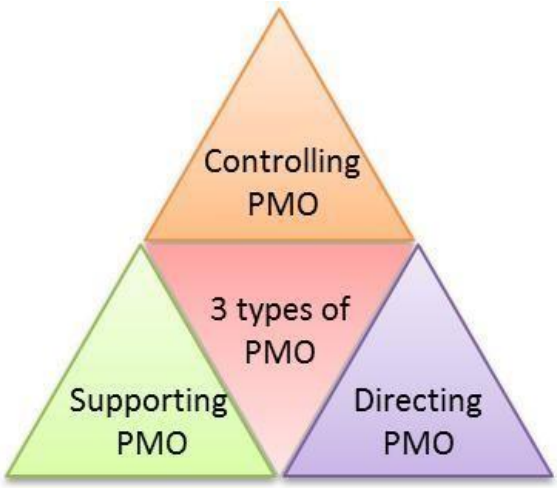

Figure 5. Three Types of Project management Office (Source: PMI - Google images)

After exposing the details of each PMO to the key stakeholders, an activity was generated. The responsibilities and levels of control of each PMO were distributed amongst seven (7) key stakeholders of the ministry. The seven (7) comprised the minister, the director, two (2) subdirectors and three (3) senior heads of departements. Each person was asked to put in a box, which responsibilities and level of authority they wanted the ministry PMO to have. The result of this exercise indicated that most stakeholders preferred to have a PMO with supporting characteristics, yet also have the benefits of project and processes governance.
In other words, a hybrid of PMO.

A greater awareness and impact of the role of the PMO in support of six sigma initiatives would require that the roles and responsibilities of the chosen PMO be established. Once the PMOs roles and responsibilities are established, then they will give autonomy to foster the much required awareness through the entire organization.

Similarly, it is important to note that the results from this questionnaire also indicated that for a possible improvement in the management structure to occur as been sought for the ministry, it has to happen sooner rather than later. This is because leadership is focused on the fact that the time for adjustment and improvement for the overall development goals is now. Furthermore, there are apparent project opportunities in the near future with foreign companies and organizations. Such anticipated alliance would require that the ministry is compliant with standard organizational processes and procedures. Hence the ministry is expected to act promptly to address its short falls in project attainment and all project management processes and procedures it needs.

However, it is not sufficient to merely identify the roles and responsibilities of the PMO, but rather, implement the systems and processes identified in the research as recommended. This leads to the last objective of determining a proposal for a PMO for the ministry.

Finally, the results of this research using the questionnaire, proved to be fruitful as they helped determine the need for a structured project management process.

4.1 Assessment of the Maturity of LVV

It is common knowledge that, one only solves a problem if one can identify what the problem is. Pointing back to the assumption that there is need for a PMO, it would be required that management of the ministry begins with an assessment of the status of the organization. This would be keeping in line with the management alignment and the willingness to embrace change.

Interviews with the key stakeholders for this research indicated their willingness and urgency to perform a maturity assessment as a prerequisite to any targeted improvement efforts. A maturity assessment would require a step-by-step analysis of its processes and organizational structure. The findings would enable leadership to determine the strengths and weaknesses of the ministry as well as its potential for future development.

In order to achieve the aforementioned, ministry leadership agreed to follow the six-sigma methodology by using the 3A Approach. These approaches as cited in the theoretical framework are, Assess, Analyze and Address.

Assess

This process involves the use of a scorecard through a series of interviews with both leadership and employees guided by the following set six sigma parameters:

1. Leadership alignment
2. Organizational structure
3. Leadership approach
4. Employee involvement
5. Training/ Education
6. Approach to errors
7. Problem solving using collected data
8. Methodologies for continuous improvements
9. Standard work
10. Value stream mapping

11. Accounting support
12. House keeping

This approach was the first, and it was based on the sample template as shown below.

As previously stated, the scorecard is filled through conducting interviews with the leadership and employees of the organization. The outcome of the scorecard tabulation was represented on radar charts. The chart reflects the ranking from one (1) – five (5), the Six sigma ranking based on the different Six Sigma parameters. Note, the lower the maturity level of the organization, the closer the score is towards to the center of the chart.

Chart 5. Maturity Assessment Template (Source: Lean Sixgma)

Parameters	1	2	3	4	5	Score (1-5)
Leadership Alignment	No leadership alignment for Process Improvements	Leadership somewhat aligned with process improvements, but visible and active selection and review of projects are not in place. No trained and committed resources available to support projects.	Leadership aligned with process improvements, visible and active selection and review of projects. No resources available to support projects.	Leadership is aligned with vital few metrics visible selection and review of project. Some trained resources available.	Trained and committed resources supporting projects	
Leadership approach toward Lean	Company executives demonstrate no understanding of the Lean approach	Executives demonstrate an understanding of Lean approach	Executives demonstrate an understanding of Lean but do not have full faith.	Executives demonstrate good understanding and have faith in Lean. Leadership committed but not prepared for accelerated biz improvement	Sr. Executives have full understanding and faith in Lean: leadership prepared for accelerated biz improvement.	
Employee involvement	Little or no involvement in process improvements	Involvement of people in process improvements to some extent and people are eager to work in teams	People from cross-functional teams whenever a problem arises.	Quality improvements problem solving and corrective action teams in place. 25 to 50% of employees involved in teams	50% or more involved in teams; open access to top management; empowered to stop the process for quality	

Parameters	1	2	3	4	5	Score (1-5)
Training/Education	No training on Lean tools or quality improvement tools methodologies or even concepts.	Few team members have heard about different concepts of improvement methodology but not formally trained.	Team members are trained in some basic concepts like 5s, Lean overview, 7 QC tools.	Team members have good understanding of process improvement methodologies.	More than 5% of employee time devoted to training and implementing improvements.	
Process capability	The area of assessment has sigma level less than or equal to 1, for its most critical process.	The area has sigma level greater than 1 but less than or equal to 2.	The area has sigma level greater than 2 but less than or equal to 4.	The area has sigma level greater than 4 but less than 6.	The area has sigma level greater or equal 6. Cpk is greater than or equal to 2	
Approach to errors	Errors will happen; inspect them out; accept cost of scrap and rework; deal with customer complaint.	Although errors happen but some initial thought prevails to implement or design error free systems using Lean.	Inspection and Control only; some data collection to regulate variance.	Inspection, control and improve; data collected to regulate variance.	Zero- defect quality mindset.	
Standard work	No standard work procedures exist. No understanding of the connection between CI and work standards.	Some standard work procedures exist to show how the process made, materials flow and administrative process function but are current nor displayed. Thinking of internal	All standard work procedures can be seen in most areas. Process owners know the what, why, and how of their areas. Ownership taken to use standards and keep them current.	Standard procedures are current and posted in appropriate areas.	Employees have a quick and free access to all standard work CI to operations reflected in procedures.	

Parameters	1	2	3	4	5	Score (1-5)
		customers begins.				
Value stream Mapping.	No process is mapped according to the value stream.	An understanding of VSM is evident. Some attempts have been made to map a simple process.	A number of people have been trained in VSM, some processes mapped. No improvement.	Most understand value of VSM. Mapping has uncovered opportunities for improvement. Action plans are in place. Rapid improvement blitzes preceded by VSM	Most processes mapped with results of action plans recorded.	
5S House keeping	Disruptive and messy, no formal workplace organization standards in place. No order, area untidy.	Company aware of 5S principles but no training underway. Non-routine cleaning takes place.	Most areas have begun 5S. Materials have permanent positions, cleaning schedule followed. Team investigation root causes of disorder. Employees participate, support understand and do most cleaning.	Audit teams assess 5S standards. All areas working on standardizing processes. Evidence of employee pride.	Clean, orderly, self-maintained; always" tour ready"	

Analysis

This next phase of the maturity assessment starts when the minister and director receives all the scorecards of the questionnaires from the different respondents and these are mapped in a radar chart. At this point the most important outcome is to determine which parameters are the most important to start working on.

To achieve this, a bar graph with the scores of each of the parameters is represented and an average of all the scores taken. This is a six sigma technique which permits the average of all the individual scores from the questionnaire to be calculated. The result is compared to a Lean Six Sigma maturity Index. The parameters that receive the lower scores indicate those that require immediate attention.

The determination of the "maturity gap" which is the difference between the Lean Six Sigma Maturity index and the maximum score of 5, concludes this analysis

phase and the address phase begins. The maturity gap obtained from this work was three (3).

Address

This phase of the maturity assessment starts when the maturity gap analysis is completed, and the key parameters for improvement are determined based on the gap analysis. This last phase consists of gathering all involved personnel to discuss the weaknesses of the ministry and begin the process of addressing them.

One of the better recommended techniques to employ at this stage is the brain-writing technique. This technique involves involved personnel writing down their ideas to address the weaknesses identified. This technique is different from the traditional brain storming technique in that, the ideas are written individually and then sorted later for their commonality and hierarchy as opposed to sharing in the open, each idea. After the written ideas are compiled, then a decision tree diagram is drawn. Thereafter, actions deemed attainable are then to be represented in a Gantt chart and pursued as planned.

4.2 Analysis of the different types of PMO

Information reviewed both from the PMBOK and other project management offices all concur, that there are three (3) basic types of Pmo based on their degree of influence and control over the projects within the organization: Supportive PMO, Controlling PMO, and the Directive PMO.

4.2.1 Supportive PMO:

This PMO is primarily one that provides on-demand expertise to the organization using its templates, access to information, best practices, and sharing of data collected from other projects. This type of PMO is quite suitable for organizations or companies where projects are done successfully, yet not with firm control

systems, and there is the need for additional control. The degree of control with this type of PMO is low. (Reiling, J. 2014).

4.2.2 Controlling PMO

This type of PMO provides support and compliance through various means. It also requires that the support be used.by adopting specific project management frameworks, methodologies; templates, forms tools, and PMO controlled set of rules. It ensures conformance to governance among others. The degree of control from this type of PMO is moderate. (Reiling, J. 2014).

4.2.3 Directive PMO

This is perhaps the PMO type with the highest control of all three (3) Pmo. This PMO essentially “takes over” the project by providing project management experience and resources to manage the projects. As the organizations undertake projects, the PMO assigns a professional Project manager for each of the projects, creating a consistency of reporting from each project manager back to the directive PMO. By this is meant that a higher level of professionalism is implemented with each project. This type of PMO is more effective for large organizations that run various projects concurrently. (Reiling, J. 2014).

In the analysis of all three Pmo it was realized that, each type of PMO has its function and impact based on the type of organization, its structure, its culture and most importantly, what its objectives are for the overall success of that organization. It is only when an organization is carefully identified, and its peculiarities researched and understood that, one can propose a suitable PMO for that organization.

In this case study, the ministry structure and culture undeniably requires a PMO. This is based on the results from the respondents as highlighted in the results

chapter. The PMO that was chosen based on the results and the analysis of different PMO types based on the current status and culture of the ministry is that of a hybrid of two Pmo (Supporting & Controlling Pmo). The general inclination from stakeholders was that they were more comfortable with a medium where by the ministry enjoyed the full characteristics of a traditional Supporting PMO with a strong compliance governance characteristic of a Controlling PMO.

For example, the results of the interviews conducted for this research showed that lack of personnel to implement processes and procedures even when these are unanimously agreed to, is a major setback for the ministry. There is also the resistance from senior management to directly take up the mantle, making it necessary that an independent body or process is set up to administer and evaluate any project management processes and methodologies introduced to the organization. Notwithstanding the previously mentioned, the leadership is unwilling to relinquish control to an independent body to manage it affairs.

It is important to note that choosing a type of PMO, is directly linked to the results of the assessment conducted. The weaknesses identified from the maturity assessment via the use of questionnaire further add up to the argument of which PMO to choose at this time.

For example, employee involvement in decision making, the approach to error correction, training and education and the use of methodology for continuous improvement. Each of these parameters helped in determining which PMO was better suited for the ministry. The analysis of the different types of PMO revealed that the ministry at this point of it is maturity could not embark on a Directive PMO. The reason was that the maturity level of the ministry is still very much in an infancy state. This means that a Directive PMO which essentially controls the entire project, might be too drastic. It was assumed that a Directive PMO might be required when the ministry obtains at most a maturity level of 4 or 5 (with 5 being the highest maturity level). At that level (4-5), the ministry would be expected to be

quite familiar with most project management process templates. Currently, the ministry is unaware of many of the basic project management processes according to findings of this research.

On the other hand, using the same results of the maturity assessment and the current operational culture of the ministry, together with the analysis of the functions of the other two types of Pmo, thus Controlling PMO and Supporting PMO, it was realized that a marriage of both would be most suitable. Based on the consultation exercise with the direction of the ministry, it was realized that the organization did not want to relinquish total control of its current modus operandi, therefore a Directive structure PMO would not be suitable. The consensus expressed was that the organization preferred to be supported by the provision of an on-demand expertise to the organization. The use of its templates, and the sharing of data collected from other projects, constitute the inherent characteristics of a Supportive PMO. However, the direction also wanted the organization to observe a culture of governance and best project management practices. For these, it was determined that a Controlling structure PMO would be best suitable. The objectives the PMO needs to satisfy are:

1. Implement a common methodology
2. Standardize terminology
3. Introduce effective repeatable project management processes
4. Provide common supporting tools
5. Ultimately, to improve levels of project success within the organization

Once the PMO satisfies these objectives, then it should be a starting point for the ministries PMO. These analysis and results above described led to the choice of a hybrid of both PMOs.

A key Performance Indicator is an index reflecting the success, or rather the performance of an organizational unit such as a PMO.

The key indicators of the PMO:

1. Proffesional training for personnel of the ministry
2. Completeness of list of active projects, project documentation, scope satus reports, etc
3. Statified stakeholders
4. 80% of projects are deliverd on budget and within timeframe

Chart 6. LVV Maturity Assessment Template (source: author)

PMO Types	**Characteristics**	**Lvv Needs**	**Suitable Maturity Level**
Supporting	- Provide templates - Provide Best practices - Provide Training - Share resources	Support with tools & templates and sharing of resources from other projects	1 - 2
Controlling	-Provide governance and conformance	Encourage the following of best practices and conformance to industry standards	2- 3
Directive	-Directly manage projects -Provide strong governance frameworks		4 - 5

Chart 7. Types of PMO & Level of control (source: Author)

PMO TYPES	RESPONSIBILITY	LEVEL OF CONTROL	SIZE IT BEST FITS (ORGANIZATION)
Supporting	• Provide templates • Provide Best practices • Provide Training • Share resources	Low level of control	• Small size organizations • Medium size

Controlling	• Provide governance and conformance	Moderate level of Control	• Small size organizations • Medium size
Directive	• Directly manage projects • Provide strong governance frameworks	Top level control	Large organizations

4.3 Roles and Responsibilities assigned to LVVs PMO

Based on the maturity assessment and the recommended PMO type, these series of roles and responsibilities are proposed for the hybrid PMO for the ministry. These roles and responsibilities are from the needs assessment and improvement potentials envisaged for the ministry. It is critical at this juncture not to be overly academic with the assignment of the roles and responsibilities to a new PMO. Often, the simpler and more realistic these roles and responsibilities are, the easier and better, they are carried out. One needs to be cognizant of the human resource limitations at the ministry at this moment of its development, and slowly assign bigger responsibilities as it matures into the use and management of its project management processes. The basic responsibilities according to research into PMOs are as follows:

4.3.1 Establishing Project Methodologies

Establishing the methodology to execute a project successfully is a key role of a PMO. This is the foundation of the processes and procedures upon which the organization is to rely at most, of course with constant reviews and updates of its processes to attain the desired goal. The review of ministry status reveals that it would be best to start with a non- complex methodology for its operation. Bearing in mind that the organization has never had any structured methodology of doing

things. Project management methodologies can be rather complex, demand sophisticated set up, and are often very costly.

Hence, the recommended methodology comprises a non-complex, basic project management process of developing or creating:

- Project Charter: This would outline very clearly the overall vision of the project in question, as well as articulate the objectives and goals of the project to all its stakeholders.
- Work Plan: would set out detailed schedules of activities, resources, time frames and the deliverables of the project to the project team.
- Governance Plan: This outlines the roles and responsibilities to be assigned to each member of the project team.
- WBS: This would define the specific deliverables due from each team member at each stage of the project.
- Risk Analysis identification: This would allow the team to list as many as possible the potential problems or deviances that have a probability of occurrence create impact, and their possible solution or mitigation.
- Communication Plan: Establishes the protocol, procedure, and the methods to communicate project information and issues among members of the team.
- Forms and Templates: This would establish the list of simplified tools, (forms and templates) that the project team would use to effectively communicate, report and do record keeping as per industry best practices. Templates such as Project Scheduling (Gant Timeline), Project budget, Simple project tracking template, Daily task manager, Assumptions, and risk managements templates.

4.3.2 Project Tracking

The responsibility of project tracking in a PMO is paramount. This is one of the roles of the Project manager. The lack thereof of any progress or delays and their

possible impact on the deliverables of a project, can be traced to its tracking. This is very critical to every project. Based on researched cases, a PMO of the size anticipated for the ministry, normally should track its project in three (3) steps:

- Collecting project status information: This would entail the routine gathering from all project team leaders, updated work plans, issues, change orders and any other relevantly recorded project data.
- Consolidation and analysis of the data collected: This mechanism would allow all data collected to be analyzed and the results compared to a benchmark set using the six-sigma guidelines, and then communicated to the direction for their review and possible action.
- Corrective Action: This process allows for an official endorsement of the corrective decisions decided by the management team through a process of change management.

The PMO has the responsibility of gathering and archiving project experience and reusable data for future projects. This would form part of its methodology to close the project. The Project manager is charged with this responsibility.

4.3.3 Project Support

One of the responsibilities of a PMO is to serve as Project Support. This is a huge and widely encompassing responsibility that often requires multiplicity of inputs and efforts from both internal and external resources. Hence it is coordinated by the PMO Project Executive. Research into the current status of the ministry clearly indicates that organization needs to be provided with a support mechanism so as to maximize its full potential with regards to delivery of projects. When a PMO serves as a project support, it embodies the following responsibilities:

The PMO provides a centralized location for planning, analyzing, negotiating, re-orienting project direction and concerns in line with the project baseline to the client and stakeholders.

One important support system a PMO provides is the training to team members of relevant project management tools and techniques applied to the project in question.

The PMO in its support role would formulate some in-house consultancy services geared at specific project issues that would be administered to the project team from time to time.

The PMO also supports the organization by developing a cadet of competent project managers through its continuous training sessions. These project managers would then ensure that the implementation of a project is done effectively following the established methodologies set out by the PMO through consultation with its stakeholders.

Chart 8. PMO Roles & Responsibility Chart (source: Author)

No.	Responsibility	Role/SME	Owner	Creator	Approver
1	Establishing project methodologies • Create project charter	Project Executive & Project manager	PMO	Project Executive(PE)	Project sponsor
	• Create work Plan	Project manager	PMO	Project manager	Project Executive
	• Governance plans	Project manager	PMO	Project manager	Project Executive
	• Work Break down structure	Project manager	PMO	Project manager	Project Executive
	• Create Communication Plan	Project manager	PMO	Project manager	Project Executive
	• Create forms and Templates	Project manager	PMO	Project manager	Project Executive
	• Prepare Risk Analysis Plan	Project manager	PMO	Project manager	Project Executive
2	Project tracking • Collecting project status information • Consolidation & Analysis of data collected. • Implementation of corrective action, if required	Project manager	PMO	Project Manager	PMO-Project Executive

3	Project Support • Provide a centralized location for all project data, for sharing and analyzing project development. • Develop competent project managers through training & mentoring	PMO-Project Executive	PMO	Project Executive	Project Executive

4.4 Organizational structure of the proposed PMO

Since in the 90s when Project management became a household name in the productive sectors of society, it equally became apparent that lots of business models and organizational structures had to endure the undesirable state of change. These changes while not easily attainable, they have demonstrated in their majority to have solved problems that organizations faced with misalignment between projects and strategic management. Changes can be costly and often uncertain, mostly due to the size, culture and organizational complexities. The appropriate positioning of a PMO on an organizational management structure can only do it well if not better (Rodriguez, R. 2015)

Based on all the maturity assessment results as well as the analysis and selection of a suitable PMO, the ministry could begin solving its maturity problems by locating the PMO in a strategic position on its organizational structure. This will allow speedy implementation of processes and procedures and the PMO can harness considerable momentum to tackle the most urgent project related matters. Based on what has been determined this far with this research, the ministry stakeholders' input into the location of its PMO is apparent. While the questionnaire did not directly deal with the location of PMO on its current organizational structure, however, during stakeholders meetings the subject was given consideration. The awareness generated as a result of a low rated maturity level also serves to strategically look at the merits of placing ministries' PMO very high on its organizational structure. For best results it was decided that a PMO placement

directly under the mandate of the minister, would provide the control characteristics it deserves to be functional and apt for its intended purpose.

4.5 Implementation Plan for LVV PMO

The maturity assessment results allowed the determination of the most fitting PMO for the ministry. However, now that the role, scope and outcomes of the ministries' PMO have been identified, it would be timely to implement the new organizational structure.

The implementation plan is directly linked to the results of the assessment in that, the lack of consensus through the organization and the result of insufficient employee involvement in decision-making amongst other results analysis, help determine the structure of this implementation plan.

The first requirement is to present a new organizational structure to the central goverment for approval. This is very important and has to be done together with the proposal for implementing an PMO for the ministry.

The history of the organization's performance is analyzed so as to establish what the new PMO is to prioritize and target for the immediate, or long time improvement. All these are to be measured with the organizations' strategic plans and baselines.

Once the skills have been successfully identified and the proposal approved, the processes and procedures that are required to implement the methodologies set out for this PMO can be established. These processes and procedures are carried out using the processes' templates developed specifically for the organization. Communication templates as well as reporting templates are very important tools that all team leaders should be trained to use and understand. Finally, a check and balance system through a constant review of the performance and adherence to methodologies set out for the effective operations of this PMO is to be

implemented. This would allow for growth inherent changes to the PMO to be reviewed by the executives of the organization as required, so as to make the PMO current and relevant to the organization.

Chart 9. PMO Implementation Template – Phase one (1)

PHASE	STEP	TASK	DETAILS	OUTCOMES
One	1	Project planning and Initiation		Project plan and schedule
	2	Assess current environment	Resources (Staff, skills set, Funding and Project Tools Organizational Readiness (Culture, Organizational support) Governance and Escalation mode	Strengths, Weaknesses, Opportunities, Threat Analysis
	3	Establish Vision & Mission	PMO mandates PMO Policy & Direction Critical Success Factors PMO Models	Consensus, PMO Vision & Mission
	4	Establish Goals & Objectives		Consensus, PMO Goals & Objectives
	5	Develop Business case	High Level PMO Requirements Implementation Strategies & Schedule Cost Estimates	Business Case Document

(Source: Author-Adapted from PMMajik)

Chart 10. PMO Implementation template – Phase two (2)

PHASE	STEP	TASK	DETAILS	OUTCOMES
Two	1	Define Organizational Structure Staffing Requirement	Roles & Responsibilities Identify PMO Life Cycle Framework Identify PMO Process Domains	Organizational Structure & Staffing Requirements
	2	Facilitate Supporting Governance & Escalation Structure	Integrate PMO with current Governance processes if any Facilitate Buy-in consensus	Updated Governance & Escalation Structure
	3	Define Project management Methodology Framework	Define PMO Lifecycle	Project management Methodology Framework
	4	Establish Goals & Objectives		PMO Processes & supporting documentation
	5	Establish Review processes & performance metrics	Balance scorecard, # of feedback, etc.	PMO Review Metrics
	6	Develop Training Requirements	Project Management Training or certification	Training requirements

			Coaching or mentoring skills development Sourcing & relationship management skills	

(Source: Author- Adapted from PMMajik)

Chart 11. PMO Implementation Template – Phase three (3)

PHASE	STEP	TASK	DETAILS	OUTCOMES
Three	1	Develop deployment plan	Schedule Resources Costs	PMO deployment Plan
	2	Deploy PMO	Acquire/ Develop PM Methodology Add PMO Staff Pilot PMO	Program assessments Semi-Annual PMO Review

(Source: Author- Adapted from PMMajik)

4.6 Project Scope Management plan

Introduction

Scope Management is the collection of processes which ensure that the project includes all the work required to complete it. It also details all the work that is excluded from the project. The Scope Management Plan details how the project scope will be defined, developed, and verified. It defines who is responsible for managing the projects' scope and acts as a guide for managing and controlling the scope. The Scope Management Plan provides the scope framework for this project. This plan documents the scope management approach; assessing the maturity level and finding the most suitable PMO; roles and responsibilities; determine the place of the PMO on the organization structure; scope definition; verification and control measures; scope change control.

This scope management plan is to look for the most applicable PMO for the ministry of Agriculture, Animal Husbandry and Fisheries.

4.6.1 Scope Management Approach

For this project, scope management will be the responsibility of the Project Manager. The scope for this project is defined by the Scope Statement and Work Breakdown Structure (WBS). The Project Manager, Project Owner and Stakeholders will establish and approve documentation for measuring project scope which includes deliverables. Changes to the scope may be proposed by the Project Manager, Stakeholders (central government) or any member of the project team. All change requests will be submitted to the Project Manager who will then evaluate the request. Upon acceptance of the scope change request, the Project Manager will submit the scope change request to the Stakeholders. The Project Manager is responsible for the approval of scope changes that are theoretical. Whereas, the Project Owner (the ministry of Agriculture, Animal Husbandry and Fisheries) is responsible for the approval of scope changes affecting time and costs. Upon approval of scope changes, the Project Manager will update all project

documents and communicate the scope change to all stakeholders through a change directive. Based on feedback and input from the Project Manager and Stakeholders, the Project Owner is responsible for the acceptance of the final project deliverables and project scope.

4.6.2 Roles and Responsibilities

The Project Manager, project owner, project team and central government will all play key roles in managing the scope of this project. The next table defines the roles and responsibilities for the scope management of this project.

Chart 12. Roles and responsibilities (source: author)

Name	Role	Responsibilities
Management of the ministry of Agriculture,	Project Owner	▪ Approve or deny scope change requests ▪ Evaluate need for scope change requests
Premcharan Ruwisha	Project Manager	▪ Measure and verify project scope ▪ Facilitate scope change requests ▪ Facilitate impact assessments of scope change requests
Project Team	Team Members	▪ Participate in defining change resolutions ▪ Evaluate the need for scope changes and communicate them to the project manager as
Stakeholders	Central government	▪ Can propose scope changes ▪ Approve project

Scope Definition

Usually the scope of a project is defined through a comprehensive requirements collection process, were a thorough analysis is done of all revised project contracts, building codes, owners' requirements and industry standards. The project manager uses all this information to develop the requirements management plan and the requirements documentation. For this project these steps where skipped, because this is a proposal for establishing a PMO for the ministry.

Project Scope Statement

The project scope statement provides a detailed description of the project, deliverables, constraints, exclusions, assumptions, and acceptance criteria.

Scope Description, Acceptance Criteria and Deliverables

The project mainly involves a proposal for establishing a PMO for the ministry. The needed preparation for sending the proposal to the central government for the approval of the PMO for the ministry of Agriculture, Animal Husbandry and Fisheries in Suriname, housing the following details:

a. The proposal for a suited PMO for the ministry;
b. The place of the PMO on the organizational structure of the ministry;
c. The roles and responsibilities of the personnel of the PMO

The assumptions:

- The ministry current operations need a PMO;
- A PMO on the hierarchy of the ministry organizational structure will help it be more effective with its projects;
- Due to ministry size, a non-complex PMO would be more appropriate;

The Constraints:

- Time

✓ The time requirement for this project was short three (3) months, thus making it one of the main constraints of the project. A lot more supporting areas for this research could have been covered if time allowed it.

✓ Also a time constraint is that the proposal needs to be approved by the central government of Suriname. The timeframe in which this will be done cannot be estimated because this totally depends on when the proposal will be put on the agenda of the central government.

- Cost

There were direct and indirect costs associate with gathering the information, and then processing it to extract what is relevant to apply to this research.

- Scope

✓ The scope of this project was to develop a project management office proposal for the ministry. The proposal required determining the maturity level of the ministry.

✓ The project scope started with proposing a PMO through to implementing a PMO plan and determining the required sequence of implementation so this can be presented to the central government.

Work Breakdown Structure

In order to effectively manage the work required to complete this project, it will be divided into steps before it gets approved by the central government before the establishment of the PMO. This will allow the Project Manager to more effectively manage the project's scope as the project team works on the tasks necessary for project completion. The project is broken down into three phases: the initiation

phase, pre-approval phase and the approval phase. Each of these phases is then subdivided further down to work packages (see WBS).

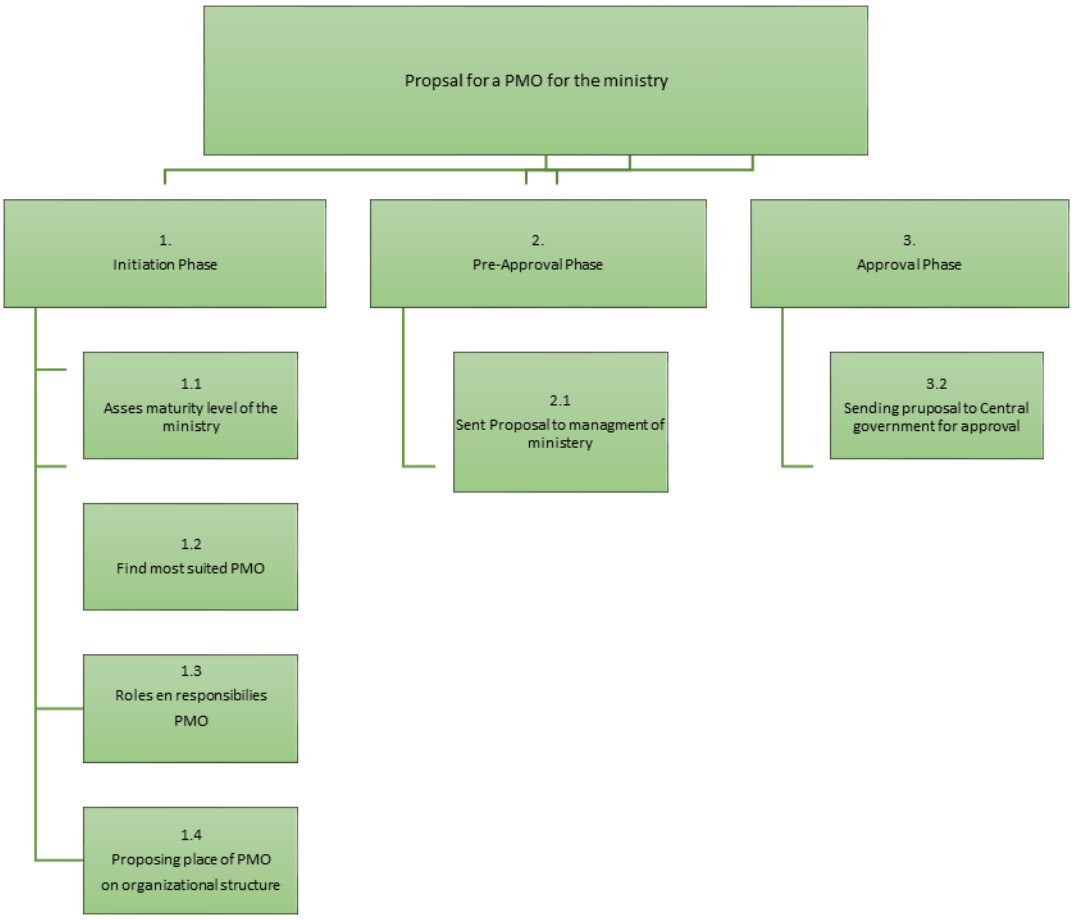

Figure 6. Work Breakdown Structure (Compiled by author)

Scope Verification

As the project progresses, the Project Manager will verify deliverables against the original scope as defined in the scope statement and the WBS.

Scope Control

The Project Manager and the project team will work together to control the scope of the project. He will oversee the project team and the progression of the project to ensure that the scope control process is followed.

4.6.3 Exclusion

1. Project Integration Management plan

   The development of a project charter for is the first process related to project integration management. The second process in this knowledge area is the development of the project management plan. The project charter is developed using facilitations techniques, analytical research methodology, GPM Guide and the PMBOK Guide 6th edition as references. The Project Charter consists of the following components; project's purpose, objectives, high-level requirements, assumptions and constraints, high level risks, milestones, overall project budget, stakeholder list, assigned project manager (PMI, 2017, p. 72).

   Because of the fact that this project is about the proposal of an PMO for the ministry of Agriculture, Animal Husbandry and fisheries, it is too soon and time consuming to present a project charter. This should be done after the approval of the central government.

2. Project Time Management plan

   According to the Project Management Institute, project time management includes "the processes required to manage the timely completion of the project", (PMI, 2017, p.141). Developing the Schedule Management Plan is the first process in project time management. The Schedule Management Plan will be used to guide the lifecycle of the project's schedule, whereas the Project Charter and the Scope Management Plan are used as inputs. The tools and techniques used are meetings, expert judgement and analytical techniques. The Schedule Management Plan also provides guidelines for the project team on analyzing, prioritizing, approving or rejecting all schedule- related changes to the approved schedule and how to manage them. The project schedule is the guide for how the project will be carried out from start to end and is a critical part of the project, because it

provides the project team and other stakeholders with a clear visual of the project's status.

This should also be done after the approval of the central government, because only when the project charter is being written the time frame can be suggested and a timeframe can be made.

3. Project Cost Management plan

   PMBOK defines project cost management as "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, p.193). The first process of Project Cost Management is Plan Cost Management, further described in paragraph 4.4.1.

   After the budget is determined this knowledge area can be addressed.

4. Project Quality Management

   Project Quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Project Quality Management works to ensure that the project requirements, including product requirements, are met and validated (PMI, 2017, p. 227).

   Plan Quality Management is the only Quality Management process used during project planning. The tools that will be used to ensure that quality standards are met or exceeded are meetings, cost-benefit analysis, cost of quality (COQ), seven basic quality tools and the PDCA Cycle.

   Also not yet applicable in this phase.

5. Project Human Resource Management

   This includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. (PMI,2017, p. 255). The roles and responsibilities for the PMO is already suggested, however after the approval this area will be further worked on.

6. The Communication Management plan

According to the PMBOK Guide 6th Edition; Plan Communications Management is the process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets. The key benefit of this process is that it identifies and documents the approach to communicate most effectively and efficiently with stakeholders. The communication management plan will be created based on information gathered during meetings with the project team and other stakeholders. The plan will describe how each stakeholder will receive information from other members of the project team, how the information will be communicated, the person responsible for it and the frequency of the communication process. This will be taken into consideration after the approval of the proposal.

7. Project Risk Management plan

   Project Risk Management is defined as "the processes of conducting risk management planning, identification, analysis, response planning and controlling risk on a project", (PMI, 2017, p.309). will be focused on after the approval by the central government.

8. Project Procurement Management plan

   This includes the processes necessary for ensuring the purchase or acquisition of required products. The purpose of the procurement management plan is to outline and define the procurement activities necessary for successful completion of the project objectives. This doesn't apply to this project.

9. Project Stakeholder Management plan

   Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution (PMI, 2017, p. 391). The Stakeholder Management Plan helps ensure that stakeholders are effectively involved throughout the lifecycle of the Project. Doing so helps to

gain support for the project and to anticipate resistance, conflict, or competing objectives among the project's stakeholders.

Stakeholders for this proposal are:

1. The direction of the ministry;
2. The minister of the ministery;
3. The central government.

5. CONCLUSIONS

A maturity assessment was conducted using a questionnaire modeled after the six sigma methodology. The aim of the maturity assessment was to determine the strengths, weaknesses and opportunities as well as needs of the ministry. The results of the assessment are to guide the selection of a suitable PMO for the ministry based on results obtained from the maturity assessment and therefore it was concluded that:

1. The ministry has strengths in certain project management areas even though these areas are not formally recognized as project management processes. The areas identified were, Leadership approach to Lean, approach to errors and partial training for employees. The ministry maturity assessment also reveals weaknesses in many of the other assessed areas. Problem areas include: inadequate employee involvement in decision-making, Low levels of continuous education geared towards process improvement. The poor collection and use of data in problem solving, non-implementation of standard work procedures, absence of value stream mapping and Lack of developmental programs to boost personnel confidence and pride.

2. The maturity level assessment exercise concluded an index of one (1) on a 5-point scale. The index of one (1) on six sigma reading corresponds to Maturity level 1 which is INITIATION LEVEL – This index reading can be somehow misleading due to the fact that one (1) is the lowest maturity level on the six sigma scale of maturity level classification. Whilst, this low rating - 1, might suggest that every category was poorly rated in this exercise, the reality is that certain individual categories rated highly as can be interpreted in the graphs in appendix 2.

The overall maturity index average of 1 – on a scale of 5 led to conclude that there are many project management improvement opportunities to be tapped into by the

ministry. The lowest rated categories show they are the most urgent categories to attend to. This means work must be started promptly to get these processes and procedures to standard so by the next evaluation, the company can aspire to the next higher level. What better way to start than tapping into the project management processes of using a PMO?

3. Based on the analysis of the maturity assessment, it was concluded that the ministry needs a PMO. This is a further confirmation of one of the assumptions established at the very beginning of this project.

The chosen PMO should fit within the current structure of the ministry and should use its structured organizational strengths to support the current status of the ministry rather than to start all over. This is in recognition of the culture, size and lack of trained and skilled personnel in the ministry at this time to manage the new PMO process.

4. As per the results of the maturity assessment, three (3) basic types of PMO were analyzed. The analysis of the capabilities and levels of control on an organization of each of the 3 – PMOs helped conclude that, the most suitable PMO type at this stage of ministry development should be a combination or hybrid of a Supporting and Controlling type of PMO.

The roles assigned to the chosen PMO, should start with the three basic and widely accepted project management responsibilities of, Establishing project methodologies, Project tracking and Project Support, for the ministry projects. These are the main responsibilities identified as critical for the ministry at this stage of its development. Other roles that may become necessary would then fall under these main roles and responsibilities herein identified.

5. As per the location of the PMO on the organizational structure of the ministry due to other important aspects such as organization’s size, culture and project

management maturity, the new PMO should be a central point of the organizations effort into shifting from Initiation to managed maturity. This means that the PMO should structurally be located immediately below the mandate of the minister of the ministry. In this way, the project manager can directly be in control of helping to formulate and implement the tools and templates required to get the company onto the path of project management best practices.

6. It is of little relevance to propose a PMO if there is no implementation of it. Therefore, an implementation plan has to be introduced very carefully, so as not to incite skepticism from some stakeholders and team members of the introduction of a new structure, which many consider to be just a waste of time and money.

The ministry maturity is in its infancy state, therefore, any implementation proposals for its PMO should be carefully and strategically weaved into the existing fabric of the organization. This would help galvanize support for its PMO.

Stakeholders' input into the implementation plan of the ministry PMO suggested, outlining the different stages of implementation of the PMO, from consultation with stakeholders, through training and determining the priorities areas for target by the PMO in the immediate and long term, and finally a check and balance system to monitor its relevance and growth.

7. Finally, the relevance of this research has proven to ascertain that "yes" the ministry does need a PMO to help it maximize its potential and to remain sustainable in the realization of its projects. As such, a PMO should be established to support and control the operations and project management process of the ministry.

6. RECOMMENDATIONS FOR THE MINISTRY

Based on the research and assessment conducted of the current status of the ministry maturity and the potential for growth, the following are recommended:

1. A maturity assessment should be conducted by the PMO through the project Executive and Project manager at least every two (2) years to update the status of the ministry and to further determine the project management strengths and needs. The PMO shall be responsible for this assessment.

2. Whenever a new PMO is set up, it establishes a routine review program preferably every six (6) months by the Project leadership to analyze the relevance of its existence so as to advice management and stakeholders if and when the ministry would be better served with another PMO type based on the projects it embarks on.

3. In order to streamline the roles and responsibilities of the PMO, and to establish clarity of responsibilities and their relevance to the particular projects, a review panel within the minister, director and staff structure be set up. It will be charged with the task of reviewing the existing role of the PMO and determine its adequacy or lack thereof.

4. A very systematic implementation plan of the PMO should be introduced early enough to all stakeholders by the project manager through various consultations, and group meetings. This would allow consensus building to agree on a smooth transition to the successful implementation of the PMO. The process should be carried out by the senior management.

6. It is highly recommended that the ministry adopts the use of a PMO for its organizational structure to optimize the results of its future projects. The simple reason is that; stakeholders generally show a lack of confidence in the status quo

yet are unaware of any processes that work. The proposal for setting up a PMO should be presented to the central government for accordance.

7. The Project Management Office (PMO) will be the centralized structure for all the projects of the ministry, ensuring standardization, reducing duplication and leveraging resources.

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7. APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
Date	**Project Name:**
May 20th , 2018	Proposal for a PMO For the Ministry of Agriculture, Animal husbandry and Fisheries- Suriname
Knowledge Areas / Processes	**Applicacion Area (Sector / Activity)**
Knowledge areas: Integration Management Project Scope Management Project Time Management Project Cost Management Project Quality Management Project Human Resource Management Project Communication Management Project Risk Management Project Procurement Management Project Stakeholder Management **Process groups:** Initiation Planning Executing Monitoring & Controlling Closing	Government- Ministery Agriculture , Animal Husbandry and Fisheries
Start date	**Finish date**
May 20th , 2018	November 9th ,2018
Project Objectives (general and specific)	
General objective: To develop a Project Management Office proposal a PMO for the ministery of Agriculture, Animal Husbandry and Fisheries in Suriname. Specific objectives: 1.To assess the maturity level of the ministery, in order to determine its project management strengths and ability to respond to improved opportunities and expanding need. 2 To analyze the different PMO types in order to recommend the most suitable one for the ministery 3 To propose the roles and responsibilities to be assigned to the PMO in order to evaluate its efficiency 4. To determine the appropiate location of the proposed PMO within the existing management structure of the ministery, in order to prioritize its functions on the management structure	

5. To propose a PMO implementation plan for the ministery including the sequence of main steps required to achieve it, in order to measure and improve its performance

Project purpose or justification (merit and expected results)

Within the ministery of Agriculture, Animal Husbandry and Fisheries there are multiple ongoing projects and projects that have to be started. However, there is no specific departement dedicated to manage all those projects. The result of this is that projects cost more, are managed inefficiently and often overlapse each other. Having a PMO to manage and control all projects centrally will solve this.

Some of the expected benefits of a PMO will be;

1. Projects will be completed within the available timeframe
2. Resources availability will be managed efficiently
3. Better control of quality of products and resources
4. Projects will be completed within budget
5. Better anticipation on risks

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

Document with the most suitable PMO
Document with the roles and responsibilities assigned to the PMO
Document with the PMO implementation plan

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Assumptions

1. It is assumed that the project can be completed in 5.5 months
2. It is assumed that the Facilitator will provide expert judgement on time

Constraints

Time: 5.5 months.
Resources: 1 person

Preliminary risks

1. If internet connections fails, the student will miss the assignment submission deadline
2. If submissions are late, the student will not get the required grades
3. If feedback isn't received on time from the facilitators, the student can miss the submission deadline

Budget

The estimated budget is $200.00

Milestones and dates

Milestone	Start date	End date
Graduation Seminar	May 14th, 2018	June 15th, 2018
Tutoring Process	June18th, 2018	September14th, 2018
Reading by Reviewers	September 17th ,2018	October 5th ,2018
Adjustments	October 8th, 2018	November 2th, 2018
Presentation to Board of Examiners	November 5th, 2018	November 9th, 2018

Relevant historical information

The ministery of Agriculture, Animal Husbandry and Fisheries is a part of the government of Suriname.
Roles and responsibilities of the ministery include policy making for the Agriculture, Animal Husbandry and Fisheries sector in Suriname. To do so the ministery implements projects like managing the dry and wet infrastructure in agriculture areas.

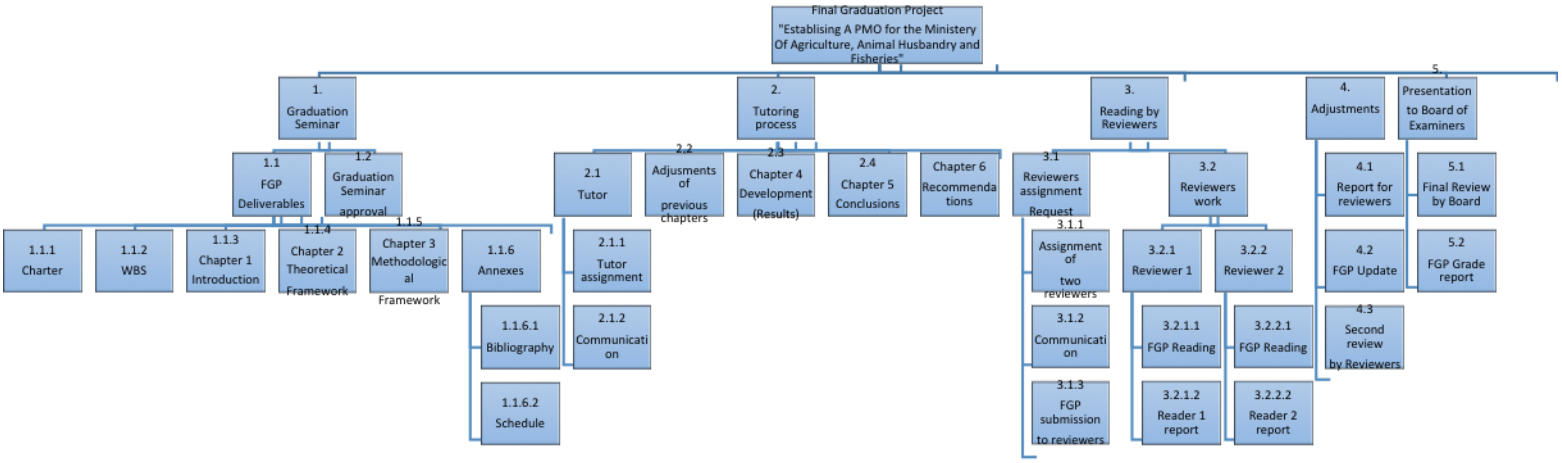
Stakeholders

Direct stakeholders:
Global School Of Project Management
Mr Brenes Carlos – Lecturer
Ministery of Agriculture, Animal Husbandry and Fisheries

Indirect stakeholders:
Friends and family
Academic assistent

Project Manager: Premcharan Ruwisha	**Signature:** **Premcharan R**
Authorized by: Ramdin Ashween Deputy Director of Agriculture	**Signature:**

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

Appendix 4: Level of Maturity assessment

questionnaire Leadership Alignment:

1. A strong and determined leadership is required for the process improvement of a company. In your opinion, do you think the ministry leadership has demonstrated an alignment to process improvement?

R1-□□ No leadership alignment for process improvements
R2-□□ Leadership is somewhat aligned with process improvements, but visible and active selection and review of projects are not in place. No trained and committed resources available to support projects.
R3-□□ Leadership aligned with process improvements, visible and active selection and review of projects. No resources available to support projects
R4-□□ Leadership is aligned with vital few metrics, visible selection and review of projects.
Some trained resources available
R5-□□ Trained and committed resources supporting projects

Leadership approach towards Lean:

2. Do you think the Leadership of the ministry has a good grasp or understanding of the Lean approach to maximizing productivity?

R1-□□ Organization executives demonstrate no understanding of the Lean approach
R2-□□ Executives demonstrate an understanding of the Lean approach
R3-□□ Executives demonstrate an understanding or Lean but do not have full faith
R4-□□ Executives demonstrate good understanding and have faith in Lean. Leadership committed but not prepared for accelerated biz improvement
5-□□ Sr. execs have full understanding and faith in Lean; leadership prepared for accelerated biz improvement

Employee involvement:

3. Are the ministry employees involved in the decision making for the process improvement of the company?

R1-□□ Little or no involvement of people in process improvements
R2-□□ Involvement of people in process improvements to some extent and people are eager to work in teams
R3-□□ People form different directorates team up whenever a problem arises
R4-□□ Quality improvement, problem solving and corrective action teams in place. 25 to 50% of employees involved in teams
R5-□□ 50% or more involved in teams; open access to top management; empowered to stop the process for quality

Training/Education:

1. Does the ministry provide training or any form of education geared towards process improvement or quality improvements

R1-□□ No training on Lean tools or quality improvement tools, methodologies or even concepts
R2-□□ Few team members have heard about different concepts of improvement methodology but not formally trained
R3-□□ Team members are trained in some basic concepts like 5S,

Lean overview, 7 QC tools
R4-□□ Team members have good understanding of process improvement methodologies
R5-□□ More than 5% of employee time devoted to training and implementing
improvements

Process Capability:

2. How does the ministry use the Sigma levels indices in its capability process assessment?
1-□□ The area of assessment has sigma level less than or equal to 1, for its most critical process.
2-□□ The area has sigma level greater than 1 but less than or equal to 2. 3-□□ The area has sigma level greater than 2 but less than or equal to 4. 4-□□ The area has sigma level greater than 4 but less than 6.
5-□□ The area has sigma level greater than or equal to 6. Cpk is greater than or equal to 2

Approach to Errors:

3. How does the ministry deal with errors on site generally?
R1-□□ Errors will happen; inspect them out; accept cost of scrap and rework; deal with customer complaints
R2-□□ Although errors happen but some initial thought prevails to implement or design error-free systems using Lean
R3-□□ Inspection and control only; some data collection to regulate variance R4-□□ Inspection, control and improve; data collected to regulate variance R5-□□ Zero-defect quality mindset

Data driven problem solving

4. How accurate and meticulous does the ministry collect and use data to improve its operations and future projects?
1-□□ Insufficient data available for key processes needing improvement
2-□□ Organization does not use data driven problem-solving methods to a great extent.
Data collection processes are not systematic and in place
3-□□ Organization uses data driven problem-solving methods. Data collection is systematic and efficient, although MSA not done extensively
4-□□ MSA is done extensively and people know the tools needed to analyze data
5-□□ Org uses data driven problem-solving methods across the spectrum

Methodologies of Continuous improvement (CI)

1. What methodologies are used in the organization to guarantee continuous improvements (CI)?
R1-□□ No formalized improvement methods exist. No evidence of employees, or managers concerned about CI
R2-□□ Improvements reactive – usually come from management, engineering, supervision or when a customer complaint is received. Some training started in problem solving
R3-□□ Some improvement methodology evident; teams sometimes used to develop solutions. CI training supported by management
R4-□□ CI used to advance company. All associates trained. Open documentation and dashboards used to track improvements tied to dollar savings
R5-□□ Methods such as PDCA are known and used by all employees;

CI is part of company culture

Standard work procedures

2. Does the ministry have and use standard work procedures to ensure the consistent quality delivery of projects?

R1-□□ No standard work procedures exist. No understanding of the connection between CI and work standards

R2-□□ Some standard work procedures exist to show how the process made, materials flow and administrative processes function but are not current nor displayed. Thinking of internal customers begins

R3-□□ All standard work procedures can be seen in most areas. Process owners know the what, when, where, why and how of their areas. Ownership taken to use standards and keep them current

R4-□□ Standard work procedures are current and posted in appropriate areas

R5-□□ Employees have quick and free access to all standard work. CI to operations reflected in procedures

Value Stream Mapping

3. Does the organization use value mapping to as a tool for future improvements?

R1-□□ No process is mapped according to the value stream

R2-□□ An understanding of VSM is evident. Some attempts have been made to map a simple process

R3-□□ A number of people have been trained in VSM, some processes mapped. No improvements

R4-□□ Most understand value of VSM. Mapping has uncovered opportunities for improvement. Action plans are in place. Rapid improvement blitzes preceded by VSM

R5-□□ Most processes mapped with results of action plans recorded

5. Accounting support to Lean Does the ministry accounting system support Lean?

R1-□□ Accounting system provides basic financial data based on cost accounting. There is little awareness of accounting's role in support Lean initiatives

R2-□□ There is awareness that accounting has a role in Lean. Some staff has been trained and initial analysis has been undertaken

R3-□□ All key staff has been trained. Pilot project has begun; department targeting waste in its processes

R4-□□ Key value streams are using Lean. Decisions are being made using Lean financial data. Some initial investigation to review current standard cost methods

R5-□□ Accounting system provides financial data based on measurements at the value stream level and provide support for Lean

5S House keeping

6. Is the current condition of the organization work place conducive for workers development and boost of workers confidence and pride?

R1-□□ Disruptive and messy, no formal workplace organization standard in place. No order, area untidy, materials have multiple locations

R2-□□ Company aware of 5S principles but no training underway. Non-routine cleaning takes place

R3-□□ Most areas have begun 5S. Materials have permanent positions, cleaning schedule followed. Teams investigate root causes of disorder. Employees participate, support, understand and do most

cleaning

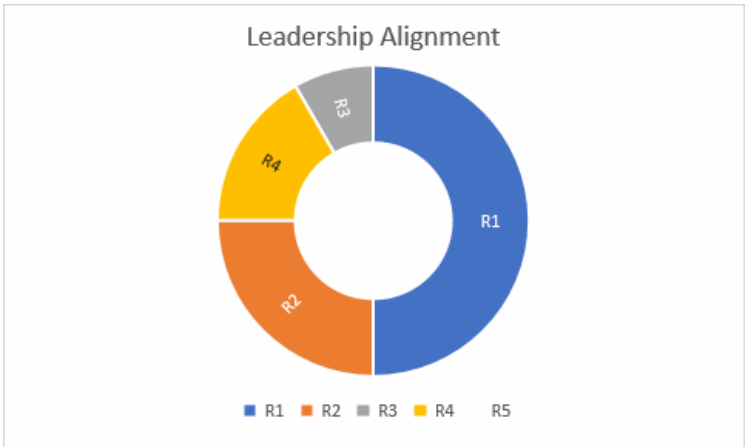
R4-□□ Audit teams assess 5S standards. All areas are working on standardizing processes.

Evidence of employee pride noticeable

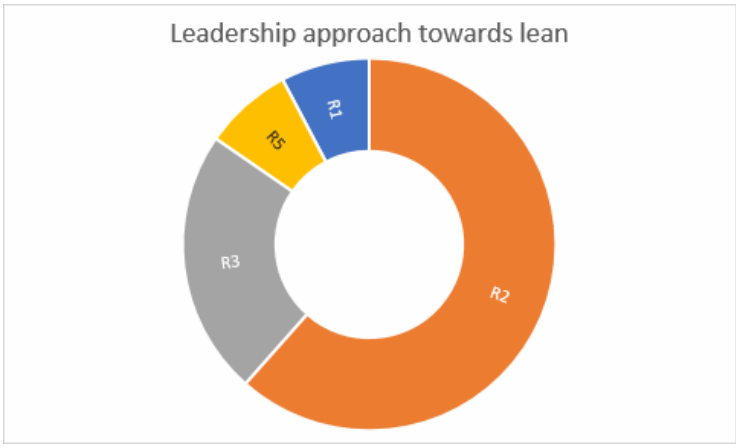
R5-□□ Clean, orderly, self-maintained; always “tour ready

Appendix 5: Maturity assessment responses per category

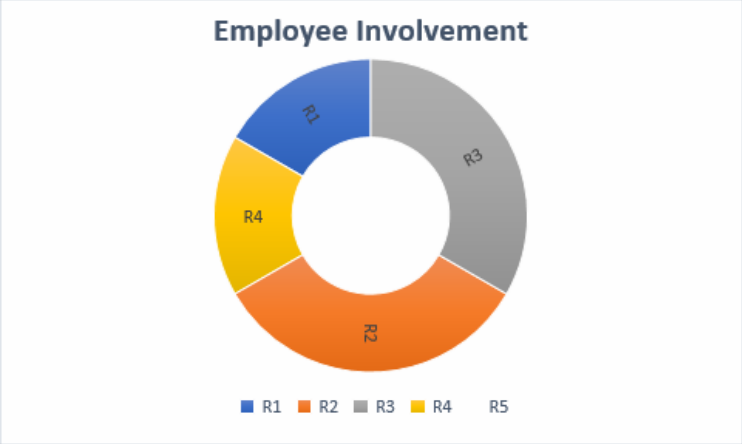
Question 1



Question 2



Question 3



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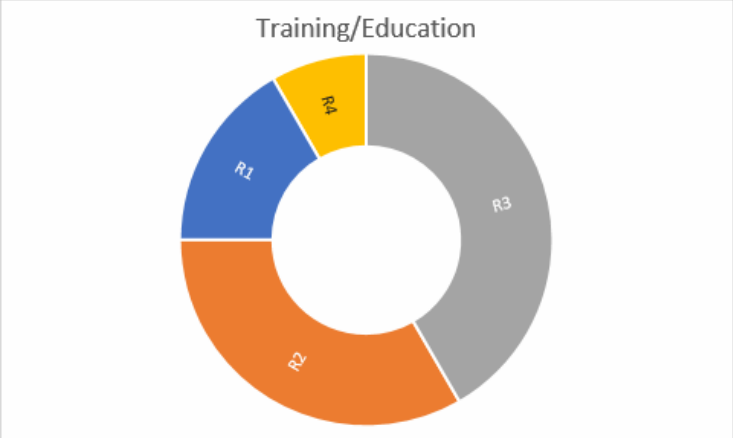
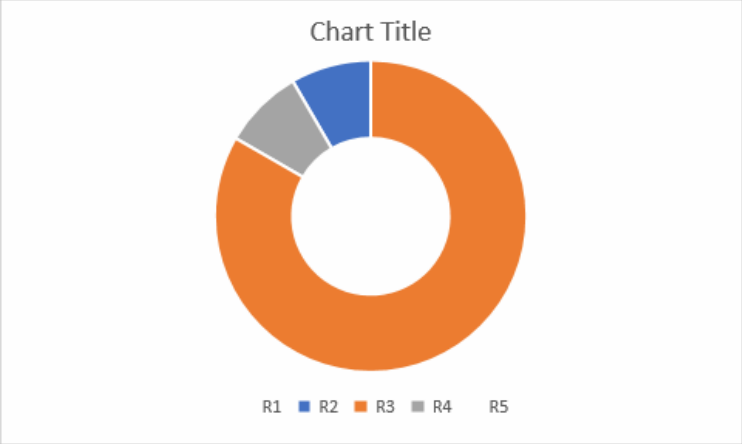
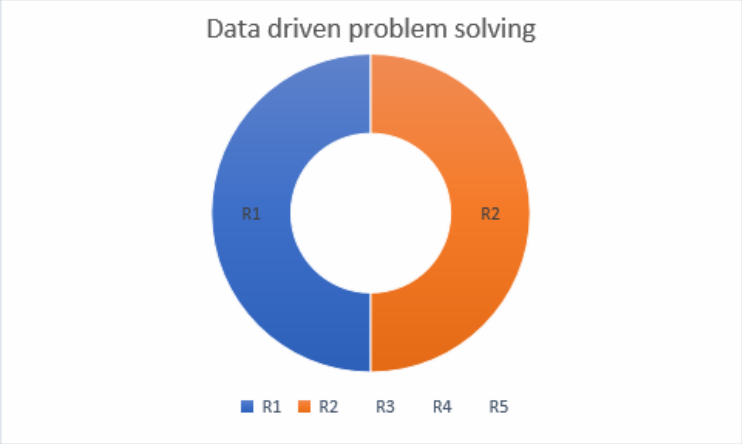


Question 5



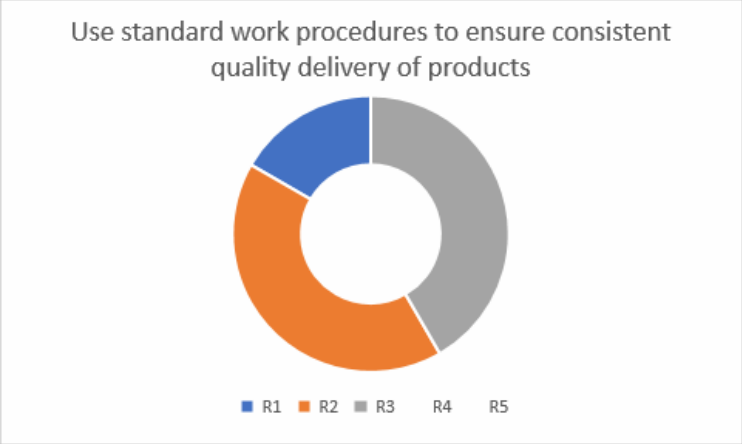
Question 6

Question 7

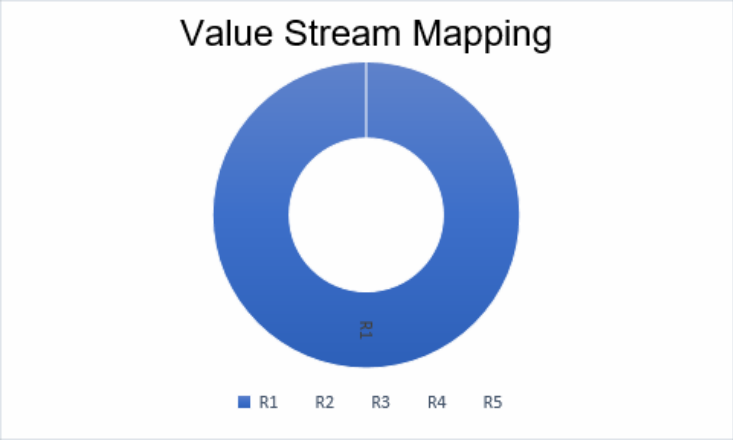


Question 8

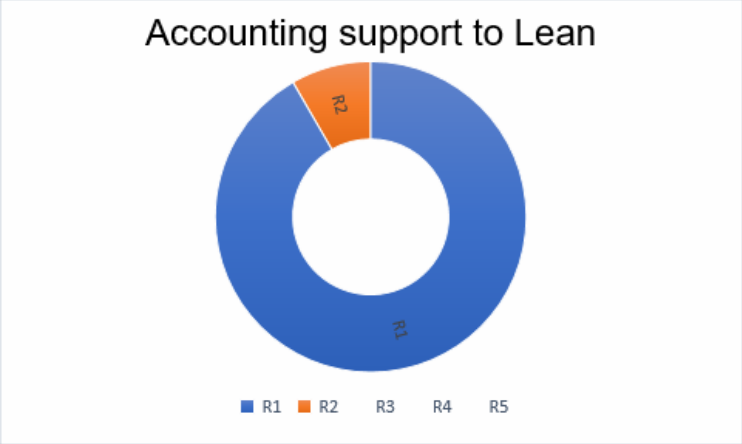
Question 9



Question 10

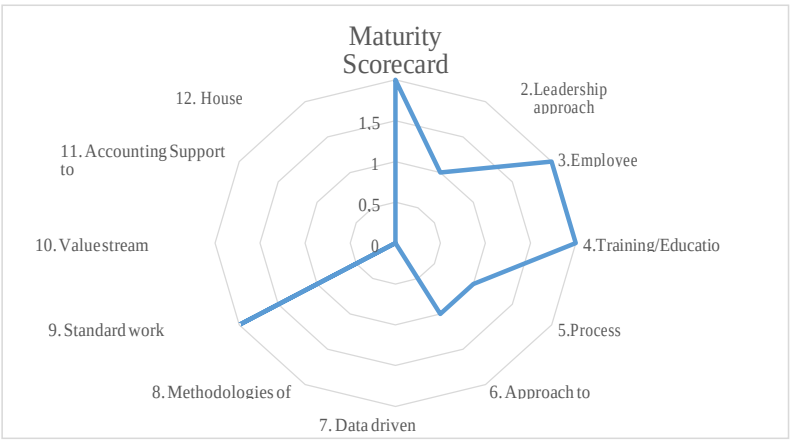


Question 11



Maturity index

Maturity Score Card per category	Median
Leadership Alignment	2
Leadership approach towards lean	1
Employee involvement	2
Training/Education	2
Process capability	1
Approach to errors	1
Data driven problem solving	0
Methodologies of CI	0
Standard work procedure	2
Value stream mapping	0
Accounting support to lean	0
House cleaning	0
TOTAL MATURITY INDEX	**1**



Appendix 6: CERTIFICATE OF ENGLISH LANGUAGE REVIEW

Ministry of Education, Community Development and Science

INSTITUUT VOOR DE OPLEIDING VAN LERAREN (I.O.L.)

TEACHERS TRAINING INSTITUTE,
DEPARTMENT OF ENGLISH

University Campus, Leysweg. Tel nr: (+597)530637 / Fax nr: (+ 597 437796

CERTIFICATE OF ENGLISH LANGUAGE REVIEW

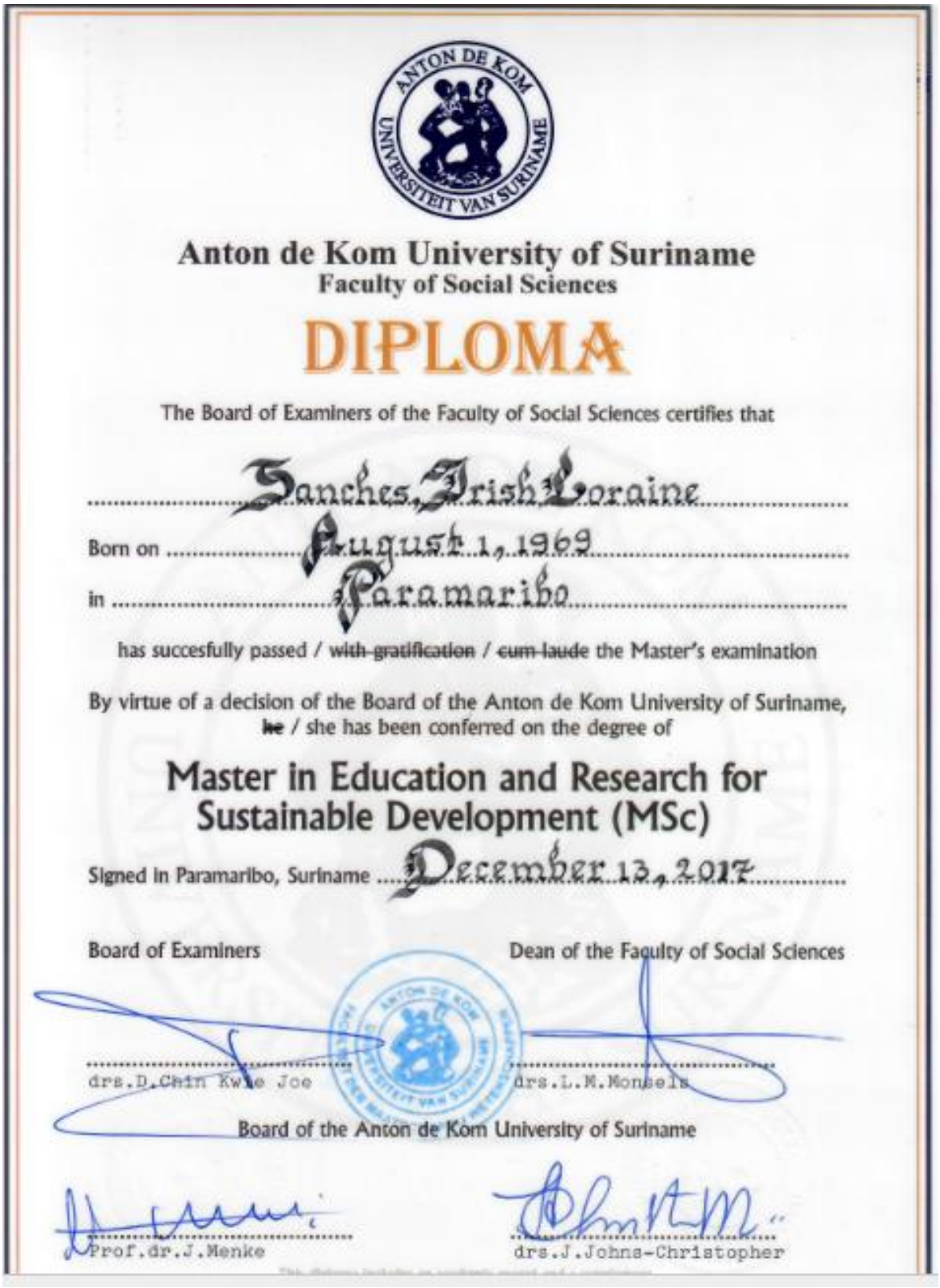
To whom it may concern:

With regard to the linguistic review of the Final Graduation Project (FGP) submitted by **RUWISHA RAMADHIN PREMCHARAN** in partial fulfillment for the Masters in Project Management (MPM) Degree from the Universidad para la Cooperation Internacional (UCI), I hereby confirm that I have worked closely with RUWISHA RAMADHIN PREMCHARAN for the purpose of reviewing and editing the FGP and that she has made all the necessary changes and edits to the document (spelling, grammar, punctuation, and other mechanics of the English language) as I have advised. In my professional estimation, the document meets the linguistic and stylistic standards expected for a degree at Masters level.

I am a lecturer and tutor at the English Department of the Teachers Training Institute, known in Suriname as the INSTITUUT VOOR DE OPLEIDING VAN LERAREN (I.O.L.) in the Dutch language and I have obtained my first and second degree in the English language at the said Educational Institute, after that I pursued an MSc Degree at the A.de Kom University of Suriname in the English course MERSD (Master of Education, Research in Sustainable Development).

Paramaribo, 19 November 2018

Ms. Irish Sanches, MSc
Lecturer and Tutor at the I.O.L.
Paramaribo, Suriname.



Anton de Kom University of Suriname
Faculty of Social Sciences

DIPLOMA

The Board of Examiners of the Faculty of Social Sciences certifies that

Sanches, Irish Loraine

Born on August 1, 1969

in Paramaribo

has succesfully passed / ~~with gratification~~ / ~~cum laude~~ the Master's examination

By virtue of a decision of the Board of the Anton de Kom University of Suriname, ~~he~~ / she has been conferred on the degree of

Master in Education and Research for Sustainable Development (MSc)

Signed in Paramaribo, Suriname December 13, 2017

Board of Examiners

Dean of the Faculty of Social Sciences

drs.D.Chin Kwie Joe

drs.L.M.Monsels

Board of the Anton de Kom University of Suriname

Prof.dr.J.Menke

drs.J.Johns-Christopher

CEB
PARAMARIBO

Centro
de Estudos
Brasileiros

DIPLOMA

O Centro de Estudos Brasileiros - CEB, da Embaixada do Brasil em Paramaribo, certifica

que o(a) Sr.(a) Sanches

concluiu, com aproveitamento, o curso de Língua Portuguesa
Nível 1

Paramaribo, 31 de julho de 1990

Embaixador do Brasil

Diretor do CEB

Assinatura do Aluno

INSTITUUT
VOOR DE OPLEIDING
VAN LERAREN

diploma

De examen-commissie verklaart dat

- SANCHES, IRISH LORAINE -

geboren te Paramaribo de 1 augustus

met goed gevolg heeft afgelegd het examen ter verkrijging v

MO - A - akte - ENGELS -

Paramaribo, 18 augustu

De examen-commissie voorm

VOORZITTER

SECRETARIS

DIRECTEUR VAN HET INSTITUUT
VOOR DE OPLEIDING VAN LERAREN

DE GEEXAMINEERDE

SECOND DEGREE IN
ENGLISH TEACHING