PMD Pro

A Guide to the PMD Pro

Project Management for Development Professionals

PM4NGOs

PMD Pro

CONTENTS

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CHANGING THE WORLD THROUGH PROJECTS

"How do you dream of changing the world?"

Would you dig wells to provide potable water to villages? Establish micro-banks that raise women out of poverty? Protect an endangered eco-system? Rehabilitate a school? Install rural health clinics for underserved communities? Distribute food to the hungry?

Not surprisingly, few people answer "I would manage projects!"

And yet, while millions of development workers change the world every day though activities in agriculture, health care, microfinance, conservation, affordable housing, education, infrastructure and human rights, they all share one thing in common: *They change the world through projects!*

Development organizations manage their work through projects. Their offices are staffed by project officers who manage project teams. In turn, the project team writes project proposals, develops project plans, implements project activities, monitors project progress, and evaluates project impact. Then, most importantly, beneficiary communities invest their time, energy, and resources in the projects. They trust the projects to build upon their collective strengths, to reinforce their areas of comparative weakness, and to solve the challenges that otherwise might be considered out of their control.

Nevertheless, while the livelihoods of hundreds of millions of people depend on the ability of development organizations to deliver project results effectively and efficiently, project management is seldom identified as a strategic priority for these organizations. Generally, development organizations tend to focus on the technical programmatic areas of their projects. Organizations tend to hire programmatic specialists (agronomists, public health professionals, economists, etc.), who are then asked to manage projects and lead project teams.

These programmatic specialists tend to be very adept at identifying treatment protocols for illnesses, developing curricula for schools, designing improved agricultural systems, and analyzing the root causes of poverty. It is not as common, however, to find that they have extensive experience and skills in the area of project management. Are project estimates accurate? Have project risks been anticipated and are they thoroughly controlled? Are project plans comprehensive and detailed? Is project progress monitored at all levels? Are project challenges identified, tracked and addressed? And, are all aspects of the project proactively managed throughout the life of the project? Are the social changes the project wishes to address being achieved?

The purpose of the Guide to the PMD Pro is to improve development professionals' project management capacity. The Guide provides a contextualized, balanced, comprehensive, and adaptable resource to help increase the efficiency and effectiveness of projects in the development sector.

The Guide to the PMD Pro provides an introductory, independent exploration of Project Management within the context of the development sector. It is intended for an audience that includes:

- Project Managers and team members who are new to project management;
- Project Managers and team members who are new to the development sector;

- Development sector professionals who intend to pursue professional credentials in project management;
- Consultants/contract staff operating in the development sector.

HOW THE PMD PRO IS ORGANIZED

The Guide to the PMD Pro is organized into four sections:

Section One: Projects in the Development Sector
Projects pervade the culture of development organizations. As a result, project management is a critical competency for development professionals. Section One provides an introductory, high-level overview of projects in the sector, answering questions that include:

- Why do projects matter?
- How to define projects and project management?
- How do projects fit in the larger strategic culture of development organizations?
- What are the roles/responsibilities of the project manager and the project team?
- What competencies are required to be a successful project manager?

Section Two: Phases in the Life of a Development Project
In project management, as in much of life, a secret to success is balance. Section Two of the Guide explores the importance of balanced project management through the entire life of the project. Following a brief introduction that introduces the concept of the phases in the life of the project, Section Two of the Guide explores each of the six phases in the life of the project, including:

- Project Identification and Design

- Project Set Up

- Project Planning

- Project Implementation

- Project Monitoring, Evaluation and Control

- End of Project Transition

Section Three: Project Management Disciplines
To succeed, project managers in the development sector need to develop an array of project management disciplines that must be applied through the entire life of the project. Section Three explores six discipline areas of project managers in the development sector, including:

- Scope Management
- Time Management
- Project Resource Management
- Risk Management
- Project Justification Management
- Stakeholder Management

Section 4: Adapting the PMD Pro

The Guide to the PMD Pro is NOT a template to be applied indiscriminately to all projects and by all organizations.   It is important to remember that each development organization is unique. Furthermore, within a single organization, projects will vary considerably in terms of value, complexity and risk. Even in situations where two projects seem to be similar, the environments in which projects are implemented are unpredictable and field realities can vary significantly from the scenarios anticipated in plans made just months earlier. Recognizing that development organizations and their projects are unique, Section 4 examines approaches project managers can employ to adapt the PMD Pro project management approaches to the context in which their projects work.

THE FIVE PRINCIPLES OF PROJECT MANAGEMENT IN THE DEVELOPMENT SECTOR

As readers progress through the Guide to the PMD Pro, they will find text boxes that refer to key concepts that the PMD Pro identifies as the "Five Principles of Project Management in the Development Sector.   Each text box provides a brief anecdote, case study or observation that highlights the importance of incorporating the principles in the design, planning and implementation of development projects. Figure 1 provides a brief summary of each of the PMD Pro's five principles of project management.

Figure 1: The PMD Pro's Five Principles of Project Management

> ### The Five Principles of Project Management in the Development Sector
>
> **Project Management is Balanced!** – Projects should be managed in a balanced way, applying equal rigor through all of the *phases* of the life of the project.
>
> **Project Management is Comprehensive!** - Project management *disciplines* should be applied to manage consistently and deliberately **all** the work of the project through the entire life of the project.
>
> **Project Management is Integrated!** - All aspects of project management should be aligned and coordinated as a means to ensure that all elements of project design, planning. monitoring and implementation run smoothly.
>
> **Project Management is Participatory!** – Include a variety of stakeholders in the identification, design, planning, implementation and monitoring of the project helps to ensure transparency, improve quality, increase human capacity and strengthen buy-in at all levels.
>
> **Project Management is Iterative! –** Revisit and repeat project management processes through the life of the project to confirm that the project designs, project plans and intended results are still relevant. This practice also provides the opportunity to improve their accuracy of existing project estimates and to plan for the next steps in the project.

THE PMD PRO CERTIFICATION PROGRAM
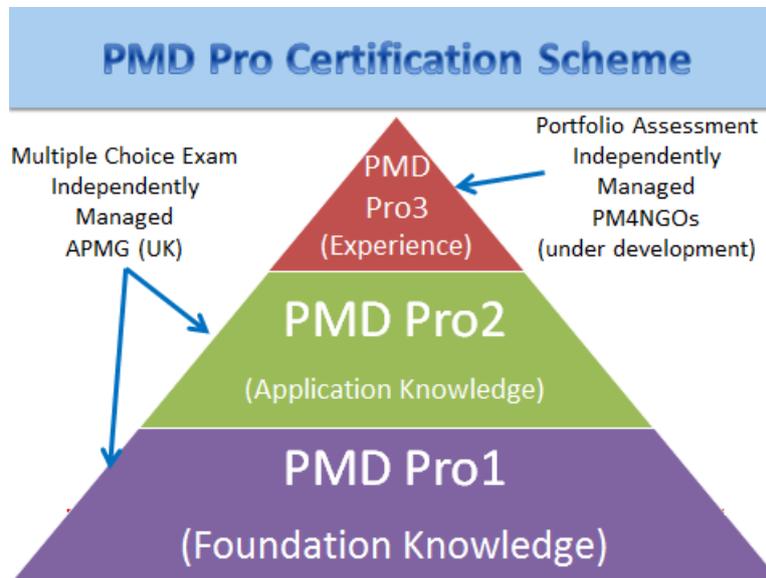
Figure 2: PMD Pro is the PM4NGOs Certification Program

In an industry that relies upon projects to complete its work, a certification helps ensure that project managers are ready to effectively manage their projects around the world. PM4NGOs, the publisher of the Guide to the PMD Pro, offers a three level certification program for project practitioners working in the development sector. The three certification levels in the PM4NGOs Certification Program are:

- The Level 1 certification requires the project practitioner to successfully complete the PMD Pro1 certification examination. This 75-question multiple-choice examination is taken on-line and requires candidates to demonstrate that they **know** and **understand** the content of the Guide to the PMD Pro. The learning objectives for the PMD Pro1 examination are found in **Appendix 2** of the Guide to the PMD Pro.

- Candidates for Level 2 Certification are expected to complete **the PMD Pro2 Certification.** The PMD Pro2 examination is taken on-line and requires candidates to demonstrate their ability to **apply** and **analyze** the contents of the Guide to the PMD Pro. Each of the questions in the PMD Pro2 examination is based on development project scenarios and is designed to test the PMD Pro2 learning objectives found in **Appendix 2** of the Guide to the PMD Pro

- The level 3 certification is under development and will assess the extent to which the PMD Pro3 candidate applies the content of the Guide to the PMD Pro to their development projects. In addition to completing their contextualized PMD Pro3 certification, Level 3 candidates are also expected to continue developing their professional career development through the pursuit of an advanced qualification from an independent, internationally-recognized certification body. These include, but, are not limited to, the Project Management Institute's PMP, IPMA's Level C certification, or the Prince2 Practitioner and Professional certifications.

1.1 MANAGING PROJECTS IS CHALLENGING!

Managing projects in the development sector is anything but simple. The operating environments are complex. The challenges are numerous. The project relationships are complicated. And, the cost of failure is high. In short, there is a lot that could go wrong!

This graphic serves as an illustration of just some of the many challenges that could threaten the success of development projects. Each image identifies just one of many scenarios that could result if the design, planning, or implementation of the project is poorly conceived or implemented.

Unfortunately, the list of challenges presented in Figure 3 is not comprehensive. There are many, many more things that "could go wrong" in development projects. For example, "Are exchange rates stable?" "Are the team dynamics functional?" "Do the monitoring systems provide useful, accurate and timely information?" "Are project suppliers reliable?" "Is there political instability?" "Are there stakeholders who are undermining the project?"

To succeed, the project manager must proactively and decisively manage these challenges. Too often, failed projects are chalked up as the victims of circumstances that were "out of our control." While this explanation might be valid *at times*, too often it is used as an excuse and fails to acknowledge that risks could have been better anticipated, analyzed, and actively managed.

Figure 3: Project Risks in the Development Sector

www.projectcartoon.com

To retain control of their projects – and thereby promote project success – project managers need to develop the skills required to proactively identify the challenges that could impact their project, and to effectively manage their projects even when these challenges occur.   These are also the skills we will explore in the Guide to the PMD Pro.

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While the challenges confronting development projects are extensive and complex, they are by no means exclusive to projects managed in the development sector.

Take, for example, the information provided in this graph and its accompanying table (Figure 4). Each year the Standish Group conducts a survey entitled the Chaos Report, collecting responses from over 10,000 Information Technology (IT) projects. The report identifies the percentage of IT projects evaluated as "succeeded", "challenged" or "failed." [1]

Year after year, the Chaos Report results indicate that the majority of IT projects surveyed by the Standish Group are assessed as "challenged" or "failed" and only a relatively small percentage are considered to have

Figure 4: Chaos Report Project Results

"succeeded." In 2008, for example, the percentage of unqualified project successes was 32%; failures (defined as projects abandoned midstream) were 24%, and the remaining 44% of projects were completed but "challenged" by cost overruns, calendar delays, and/or failed to deliver all the project products or services.

It is important to acknowledge that the Chaos Report does not address development projects. The survey was designed and implemented by a project management services firm to study the results of IT projects. However, the results of the report are helpful in that they underscore the challenges of delivering successful projects and they provide data that help us answer the key question, "What are the key issues that result in project challenges and failures?"

According to the analysis of the 2009 Chaos Report, there are three issues that most frequently result in challenged projects.[2]

1. Incomplete requirements and specifications;

2. Lack of contingency planning for managing risks; and

3. Failure to learn from mistakes.

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[1] "Succeeded" – Projects arrive on scope, on budget and on time.
 "Challenged" – Projects are completed but fail to meet the original scope, budget or calendar.
 "Failed" – Projects are terminated early.

[2] Conversely, the Chaos Report indicates that the most likely determinates of project success were user involvement, executive management support, and a clear statement of requirements.

Does this sound familiar? What is striking about the analysis of challenged projects in the IT sector is how similar the issues are to those in development sector.

In the end, despite the multiple differences between the sectors that manage their work primarily through the project (for example, construction, telecommunications, information technology, software development and more), they also share similar challenges, including:

1. Delivering project results in the context of time, budget, quality, scope, risk and benefit constraints;
2. Developing comprehensive and detailed project plans and managing them through the entire life of the project;
3. Managing projects that are often implemented via contractors, sub-contractors and suppliers; and
4. Identifying potential risks and establishing processes to avoid and address these risks and ensuring that the intended project benefits are delivered.

However, while there are similarities that exist between these sectors, there are some characteristics that make managing projects in the development sector unique and, at times, especially challenging. Some of these unique characteristics include:

- Development projects are responsible not only for delivering tangible outputs, but also for delivering less tangible outcomes related to promoting social change and/or behavior change. Development projects are less likely to focus on delivering concrete products as the ultimate goal of the project. Instead, they consider these products as a means that leads to improvements in the well-being of the project's target populations.
- Development projects aim to address complex problems of poverty, inequality and injustice.
- Development projects tend to operate in exceptionally challenging contexts (limited resources, high risks, complex procurement networks, unstable political/financial environments, unsafe conditions).
- Project implementation is often managed through a complex array of stakeholder relationships (partner agencies, government ministries, community-based organizations, contractors, global consortia).
- The project approach is often as important as the outcomes themselves (including a high priority placed on participation, rights-based approaches).
- Transferring knowledge and learning to the target population is a priority during each and every phase of the project.

1.3 DEFINING TERMS

But, we are getting ahead of ourselves. Before any further discussion of the challenges related to managing projects in the development sector, it is important to first define some key terms.[3]

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[3] Refer to the Glossary of Terms for a more extensive set of definitions of terms used in the Guide to the PMD Pro.

A **project** is a temporary endeavor undertaken to create a unique product, service, or result.[4] Based on this definition, the purpose **of project management** is to plan, organize and manage resources to bring about the successful completion of specific project goals, outcomes and outputs.

High-quality, comprehensive project management practices are indispensable to helping organizations manage focused, effective and efficient projects.

Within the context of project management, the **project manager** is responsible for ensuring the overall success of the project.

And yet, while the project manager is responsible for project success, this does not mean, however, that the project manager is personally responsible for completing the project work. In fact, this is seldom the case in the development sector. Instead, the responsibility of the project manager is to work closely with an array of stakeholders to complete the work of the project. These stakeholders - including members of the project team, implementing organizations, contractors, community groups and others - must work together to design, implement and control all aspects of the project. Like many sectors, project managers in the development sector often are required to manage stakeholders with whom they have no formal hierarchical relationship. It is not unusual for stakeholders within a single project to have different ethnicities, languages, cultures and even nationalities. The challenge of managing groups within this context can be especially difficult.

In practice, the project manager's challenge to successfully deliver project results will always take place within the context of project constraints. Historically, there have been three principle elements that constrain a project, which are collectively referred to as the Triple Constraint.

To understand the triple constraint, picture a triangle where each side is labeled as follows:

Scope/Quality – What are the products/services that the project will produce and what is the work required to produce these deliverables?

Cost/Resources – What money, materials and effort are available to deliver the project product/services and to complete the comprehensive work of the project?

Time/Schedule – What is the amount of time required to complete the components of the project?
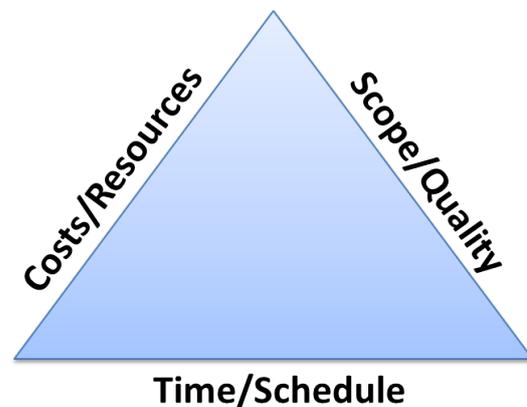
Figure 5: The Project Constraint Triangle

The job of the project manager is to ensure that the triple constraint triangle stays in balance. Each of the constraints is connected to the others. Whenever one of these constraints is restricted or extended, the other constraints will also need to be extended/increased or restricted/reduced.

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[4] *A Guide to the* Project Management Body of Knowledge (PMBOK Guide), Third Edition, Project Management Institute.

The project manager needs to understand the relationships and trade-offs that exist between each of the constraints. The three basic classifications for the constraints are:

Inflexible – indicating that the constraint is critical and must be constrained

Adaptable – indicating that the constraint is negotiable, but should be optimized as much as possible

May concede – indicates a constraint where trade-offs can be made in order to manage the inflexible constraint or optimize the adaptable constraint

By clarifying the classification of each of the constraints, the project manager can enter into discussions with project stakeholders to frame a dialog and to drive a discussion on setting priorities. It is important to get this priority trade-off established and agreed to by all stakeholders early in the project. Trying to negotiate this trade-off after the project is launched is often difficult or impossible. Once people solidify their view of the trade-off with scheduled tasks and named resources, the effort to change these trade-offs becomes much more difficult.

1.4   PROJECTS, PROGRAMS AND PORTFOLIOS

Within the development lexicon, the terms 'projects, programs and portfolio' are used frequently but not always with rigor or precision. Sometimes the terms are even used interchangeably. In the absence of a consistent, precise definition for these terms, the roles and responsibilities of the project manager as they relate to each of these levels of management can be unclear and subject to misinterpretation.

Project management is the discipline of planning, organizing and managing resources to bring about the successful delivery of specific project goals, outcomes and outputs. The primary challenge of project management is to achieve all of the project's goals, outcomes and outputs, while honoring the preconceived project constraints related to scope, budget, schedule and quality.

Program management is the process of managing a group of related projects in a coordinated way to obtain benefits and control not available through managing them individually. Programs, unlike projects, are often managed via centralized management which aims to coordinate a group of projects to achieve the program's strategic objectives and benefits.

Program management is especially important within the development sector because projects managed via a coordinated program have the potential to realize change (or benefits) that would be impossible if they were managed separately. Some areas of potential program alignment include:

- **Geographic Area –** Projects often work side by side in the same region or throughout the country, and one of the central concerns of a program manager will be how the resources of multiple projects working in the same geographic area can be leveraged to have a greater impact than each would have in isolation. Most frequently, programs work in a single country, although it is increasingly common to find programs that are multi-country or global in scope.
- **Sector Intervention Areas –** While projects generally tend to work in a single sector within a shorter time frame, programs often encompass multiple sectors and work within a longer time frame.

- **Objectives –** By coordinating the goals and objectives of multiple projects through a coordinated program, an organization has greater potential to achieve its higher level goals.
- **Funding –** Often a single organization can manage multiple projects with funds from the same institutional donor. In this scenario, the opportunity exists to coordinate these projects within the context of a single program, which can result in economies of scale.
- **Target populations –** Organizations often overlap between targeted populations for projects in different sector areas (health, water, education, etc.) Coordinating these projects through a program-based approach allows the organization to link them via common indicators, shared resources and processes that help the communities continuously assess whether organizations are conducting the "right" interventions.
- **Management –** While the staff of individual projects will focus on implementing the activities that contribute directly to the outputs and outcomes within their scope, at the program level, managers will focus on the challenge of coordinating projects, best leveraging resources of multiple projects, and increasing the impact of the program.

Portfolio management oversees the performance of the organization's collection of project and programs. Portfolios are generally managed by a senior team at the highest level of an organization or by a specific unit of an organization (regional office or headquarters). Portfolio management is not concerned with day-to-day project tasks; but focuses instead on selecting, initiating and managing the overall collection of projects in a way that addresses the strategic objectives of the organization.[5] Portfolio management often includes choosing which projects not to do, which to start earlier, or which to stop doing in order to optimize the strategic fit of the projects being undertaken to fulfill the organization's mission.

Most often, portfolio is not the responsibility of the project manager. However, this does not mean that project teams do not need to concern themselves with issues related to portfolio management. The resources available to invest in projects are often limited or scarce, and various parts of the organization may be in competition for those resources. The portfolio management process therefore attempts to prioritize and balance opportunities and risks against demand and supply for resources in such a way that the organization's objectives will be met. Given this competition for limited resources, project managers and their teams should be able to articulate where their projects:

- Support the strategy of their organization
- Contribute value to the organization's programs and/or portfolio.

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[5] A portfolio, in turn, has the option to include sub-portfolios of initiatives and activities that are grouped and managed together. These sub-portfolios can be grouped by programmatic area (health, education, agriculture, etc.) or according to the geographic region in which they operate.
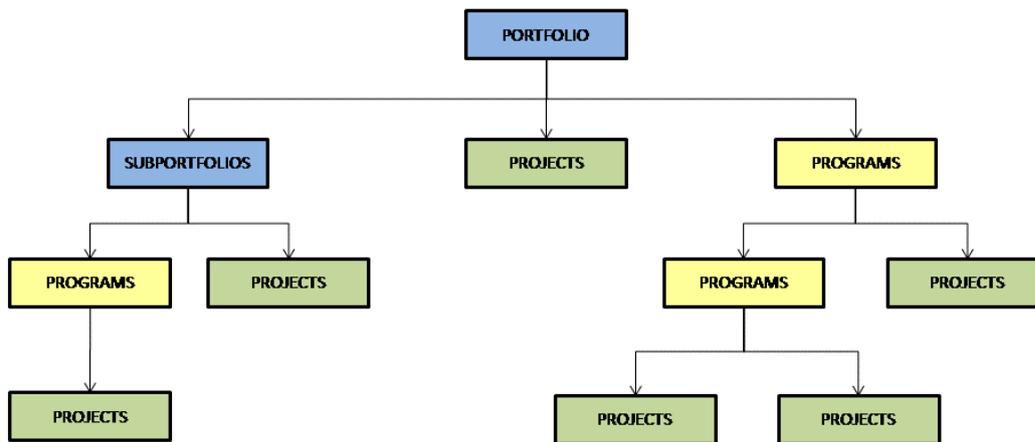
Figure 6: Relationships between Projects, Programs and Portfolios

1.5 THE ART AND SCIENCE OF PROJECT MANAGEMENT

How many of us know a project manager who is not well rounded? This is often the manager who is great at the hard skills of project management, but is afraid or unable to collaborate with a team or with project stakeholders. For example, this project manager might be a whiz with spreadsheets, deftly organizing the work and planning future scenarios, but is uncomfortable communicating. As a result the project team is lost and stakeholders hunger for leadership and communication.

This scenario naturally raises the question "What is strong project management? Is it an art or a science? Does it require softer "art" skills relating to human behavior and interactions, or is it a collection of harder "science" skills that focus on the technical management of inputs and outputs? "

The answer, not surprisingly, is "both." In project management, as in much of life, a secret to success is balance.

The art of project management focuses on the people elements of a project. The art of project management requires skills that enable project managers to lead, enable, motivate and communicate. The artistic project manager can direct the team when work challenges shift, realign priorities when the field realities change resolve conflicts when they arise, and determine which information to communicate when and to whom.

The science of project management focuses on the planning, estimating, measuring and controlling of work. The science encompasses the who-does-what-when questions?

- Where are we with the project?
- What is the forecast cost of the project?
- What resources need to be actively managed?
- Are there risks that threaten the project?
- When will the project be completed?

A key to a successful project is identifying a balanced project manager who is comfortable with both the art and science of project management.

1.6 THE PMD PRO PROJECT MANAGEMENT COMPETENCY MODEL

While the classification of project management skills into the categories of "art" and "science" is helpful, it is only a first step in identifying the characteristics of a successful project manager.

A more comprehensive project management competency model will help identify the requisite skills of project managers and can then serve as a tool to assess skill levels, identify areas for improvement, and to map areas for career development. While multiple competency models exist for project managers, the PMD Pro model organizes project management competencies into four areas:

- **Technical –** these are often referred to collectively as the 'science' behind project management. Can the project manager identify, select and employ the right tools and processes to ensure project management success?

- **Leadership/Interpersonal –** often referred to collectively as the 'art' of project management. For example, how does the project manager communicate, inspire, and resolve conflict?

- **Personal/Self-Management –** the project manager's ability to self-manage. For example, can the project manager effectively prioritize, manage time and organize work?

- **Development Sector Specific –** the ability to apply the technical, leadership/interpersonal and personal/self-management competencies in the context of development projects. For example, can the project manager identify, select and employ the right tools and processes that are unique and specific to the development sector?

In addition to these four general competency areas, project managers should also possess the competency to work effectively within the culture of their own organization. Can the project manager navigate his/her specific organization's management framework, organizational culture, business processes/systems and human resources networks? The organization's culture defines its identify (brand) and distinguishes it from other organizations managing similar projects.

Figure 7: Illustrative Elements of the Four Competency Areas

Competency	Illustrative Elements
Technical	✓ Proactively manage scope ✓ Comprehensively identify the activities required for project success ✓ Manage the overall schedule to ensure work is on time ✓ Define and collect metrics to measure project progress ✓ Identify, track, manage and resolve project issues ✓ Proactively disseminate project information to all stakeholders ✓ Identify, manage and mitigate project risk ✓ Establish logistics systems ✓ Ensure that project deliverables are of acceptable quality
Leadership/Inter-Personal	✓ Vision the 'big picture' of a project within an organization portfolio ✓ Champion the project (promoting buy-in) ✓ Communicate vision – setting reasonable, challenging expectations ✓ Provide timely and helpful performance feedback to team members ✓ Facilitate a productive team environment ✓ Communicate proactively (verbal and written), including active listening ✓ Motivate team members to willingly follow direction and achieve goals
Personal/Self-Management	✓ Organizational skills ✓ Attention to detail ✓ Ability to multi-task ✓ Logical thinking ✓ Analytical thinking ✓ Self-discipline ✓ Time management
Development-Specific	✓ Understand development sector values and paradigms ✓ Understand the different stakeholders involved in development projects ✓ Understand and navigate complex development environments ✓ Work effectively with an array of implementing partners ✓ Cope with the unique pressures of development environments ✓ Exhibit cultural sensitivity

As one would expect, the skill level a project manager needs in each of these competency areas will vary in accordance to the **s**ize, complexity and risk of the project. However, despite their differences, all projects would benefit from a project-based approach in order to ensure that:

- the activities are comprehensively identified, prioritized and sequenced;
- the time schedule is thorough and identifies the inter-related elements of the project plan;
- procurement processes (for both materials and contractors) are identified and implemented;
- communications norms for appropriate stakeholders are in place and executed;
- personnel systems exist for staff, volunteers, and implementing partners;
- risks are anticipated and monitored;
- a system is in place to ensure that the projects meet acceptable quality standards; and
- a change management process is in place and managed.

As project managers' responsibilities increase from relatively simple projects to more complex projects, the requisite knowledge, skills and behaviors in each of these competency areas will need to increase commensurately. Furthermore, one of the most nuanced abilities that project managers

develop over time is the art of knowing what alternatives exist to address a challenge (budget over-runs, team conflicts, ambiguous roles, shifting schedules, unanticipated risks) and identifying which competency (tool/skill/process) would be most appropriate to address the unique needs of each *situation.*

While all four competency areas of project management are critical to ensuring project success, the scope of the Guide to the PMD Pro specifically focuses on the Technical Competency Area of project managers. Sections 2-4 of the Guide focus on the processes, tools and mechanisms that can be used to strengthen the design, planning, implementation, monitoring, control and closure of projects. It is undisputable that project managers should also work to strengthen their personal, interpersonal and development sector-specific competencies; however, it is not the goal of this document to elaborate extensively on those areas of professional development.

SECTION 2: PHASES IN THE LIFE OF A DEVELOPMENT PROJECT

2.1 BALANCED PROJECT MANAGEMENT THROUGH THE PROJECT LIFE

For development projects to succeed, it is critical that the full array of project management competencies be applied in a balanced way through the entire life of the project. To this end, many development organizations have developed Project Life Cycle diagrams which they use to identify the phases through which their projects pass from beginning to end. Together, these project life cycle phases identify the logical sequence of activities that accomplish the project's goals or objectives.

Figure 8, for example, represents the life cycle design for the Food and Agriculture Organization (FAO). In this case, the project

Figure 8: FAO Project Life Cycle

life cycle is represented by a series of interconnected loops. It is, however, just one approach that development organizations employ to communicate their project life cycle designs.

Other development organizations have adopted project life cycles that are represented by other designs, including circular models, linear models, or modified spiral models. The exact sequence and wording of project life cycle diagrams can vary considerably between industries and organizations; however, their objectives are the same. By grouping activities into a project life cycle sequence, the project manager and the core team can:

- Define the phases that connect the beginning of a project to its end

- Identify the processes that project teams must implement as they move through the phases of the project life cycle

- Illustrate how the project management life cycle can be used to model the management of projects

- Model how projects work within an environment of 'constraints', where changes to any one constraint will result in consequential changes to the other project parameters.

2.2 THE PMD PRO PROJECT PHASE MODEL

While recognizing that numerous project life cycle diagrams exist among organizations in the development sector, the PMD Pro subscribes to its own six-step project phase model (Figure 9). The PMD Pro's Project Phase Model is not meant to replace any specific project life cycle model, nor is it intended to serve as a standard for the sector. Instead, its purpose is to provide a balanced and comprehensive project phase model that covers the entire life of the project.
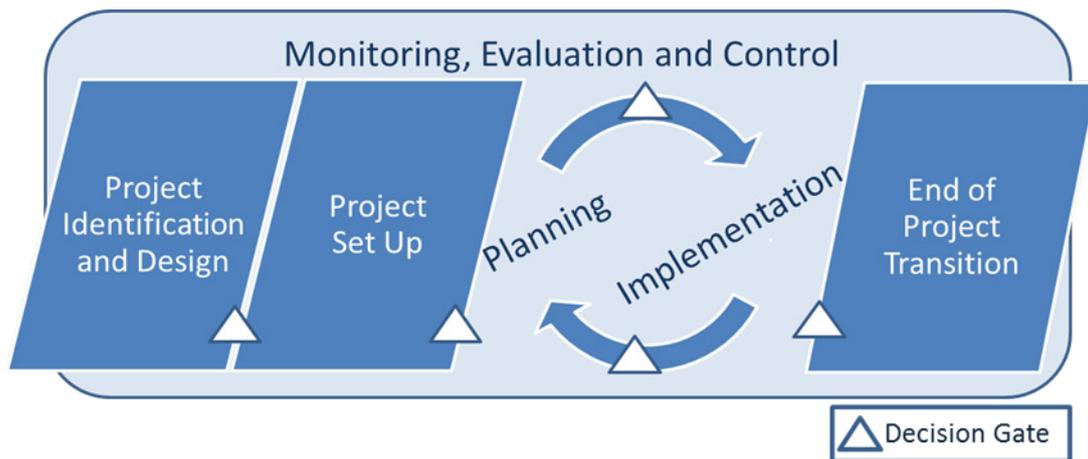
Figure 9: The PMD Pro Project Phase Model

The PMD Pro Project Phase Model was designed with the express intent of ensuring that the model is balanced and comprehensive. Balance and comprehensiveness in the project model are especially important within the context of the development sector. Too often, development organizations have placed an especially strong emphasis on project Design, Monitoring and Evaluation (DM&E); but this emphasis has sometimes overshadowed the importance of other phases in the life of the project.

Clearly, strong DM&E is necessary. However, it is not sufficient to guarantee project success. A project must not only invest in strong, coherent project DM&E, but must also commit to investing similar levels of resources and effort in all the phases in the life of the project.

In the PMD Pro Project Phase Model, for example, the Project Monitoring, Evaluation and Control activities are continually present in the background of the project. However, they are only one component of the six phases Project Phase Model which includes:

Project Identification and Design - It is during this phase that the project teams define needs, explore opportunities, analyze the project environment, and design alternatives for project design. The decisions made during the Project Identification and Design Phase set the strategic and operational framework within which the project will subsequently operate.

Project Set Up - It is during this phase that the project is officially authorized and its overall parameters are defined and communicated to the main project stakeholders. It is also during this phase that the project team establishes the high-level project governance structure.

Project Planning – Starting from the documents developed in earlier phases of the project, during the planning phase the team develops a comprehensive and detailed implementation plan that provides a model for all the work of the project. This plan is revisited throughout the life of the project and updated (if necessary) to reflect the changing contexts of the project.

Project Implementation – The day-to-day work of project implementation is to lead and manage the application of the project implementation plan: Leading the team, dealing with issues, managing the project team and creatively integrating the different elements of the project plan.

Project Monitoring, Evaluation and Control – This phase extends through the entire life of the project and continually measures the project's progress and identifies appropriate corrective actions in situations where the project's performance deviates significantly from the plan.

End of Project Transition – This phase includes implementing all the transition activities that need to occur at the end of a project, including (but not limited to) confirming the deliverables with beneficiaries, collecting lessons learned, and completing the administrative, financial and contractual closure activities.

While the PMD Pro Project Phase Model gives the impression that the phases are discrete and sequential, in practice they interact and overlap. For example:

- Already in the Project Identification and Design phase, extensive work is being completed on to prepare elements of the planning for the implementation of the project;

- During the Project Set Up Phase, systems will be established that will guide the activities of the Monitoring, Evaluation and Control Phase;

- Throughout the Implementation phase, activities will take place that will position the project for efficient closeout when the End of Project Transition Phase arrives.

While it is generally true that certain phases of the project will take place only after others are complete – most obviously, for example, end of project transition will take place after the project is designed – some phases take place concurrently. For example, as the graph in Figure 10 illustrates, considerable work is invested into project planning even before the project is formally set up. Similarly, end of project transition activities start some time before the project implementation is complete.

Decision Gates

Project Management is Iterative

As projects progress through the six phases, it is recommended that the project team revisit the justification and planning of the project through a series of formal decision gates (represented by triangles in the PMD Pro project phase model).

At each decision gate, the project team has the opportunity to decide whether the initial justification for the project is valid, whether any major changes are required, or whether project investments need to be halted altogether.

Every project and organization will have a different approach to decision gates. The most frequently used decision gates tend to be those that are found in the early phases of the project. These include the concept papers and project proposals that comprise the input documents to decide whether to move forward with potential projects. It is advisable, however, to also include decision gates in later phases of the project.

During the implementation phase, for example, it is helpful to formally check in on an occasional basis to ensure that the need the project is intended to address still exists, that the logic of the intervention is still valid, and that implementation plans are still accurate.

Figure 10: Project Phase Interactions
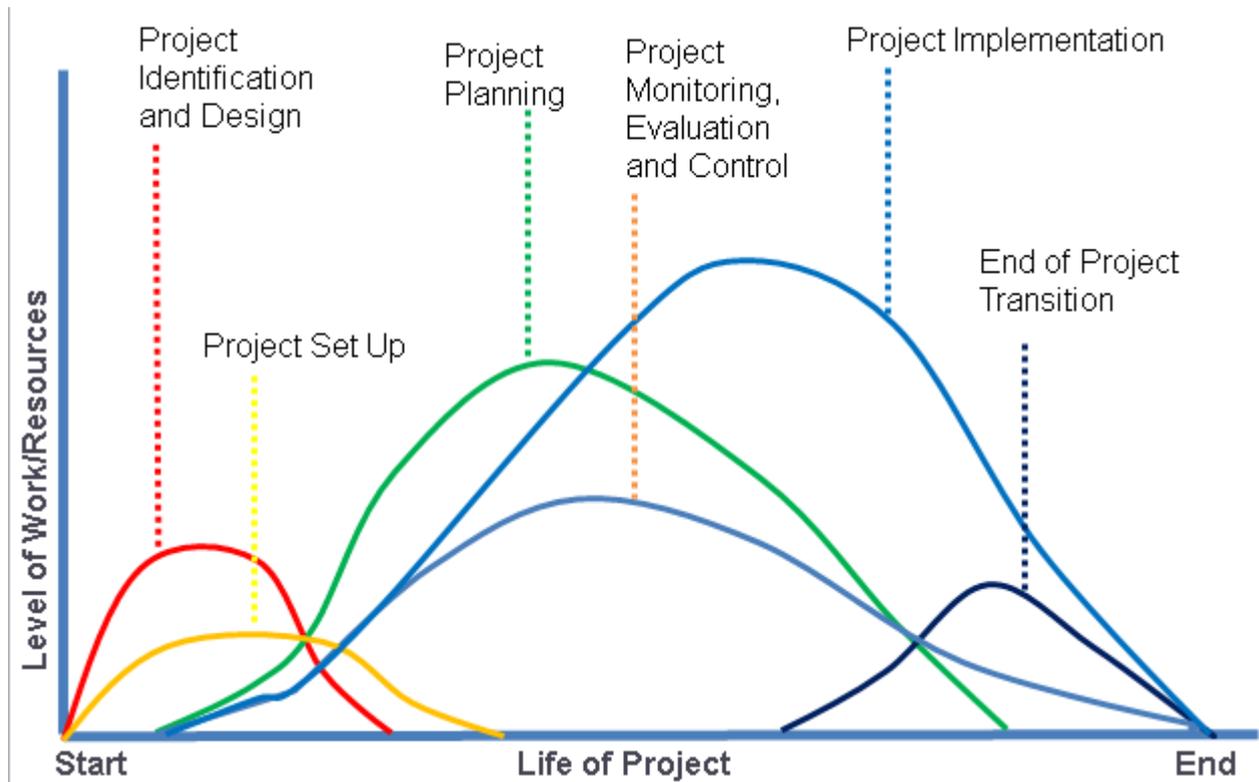
2.2.1 PHASE 1: PROJECT IDENTIFICATION AND DESIGN
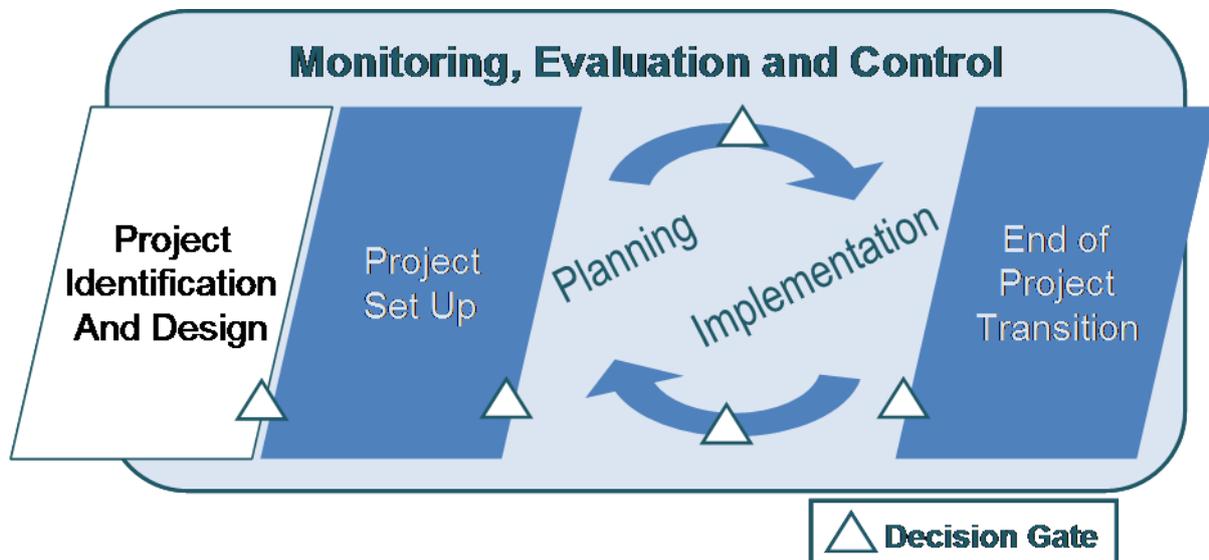
Figure 11: The Project Identification and Design Phase

All projects begin as an idea – a need or opportunity that is assessed, analyzed, and ultimately developed into a project which is managed through the project life cycle. It is during this process that we begin answering the critical question 'Are we doing the right project?' Get it wrong here, and the project will be wrong for a long time – even if all of the work of the project is planned and implemented well. Get it right, and you may be half way there.

In many sectors that rely on a culture of project management, the project officially begins with the official approval of the project. This is usually not the case in the development sector, where the project life more commonly begins with a Project Identification and Design Phase.

Consult Stakeholders Early (and Often)

Project Management is Participatory!

The Project Identification and Design Phase provides an opportunity early in the project life cycle to begin creating the norm of participation.

While participatory approaches to project design and development can require more time and resources, the ultimate results will benefit from the following advantages:

- Stakeholders have the opportunity to take control of their own development process;

- The ultimate project design will be stronger ; and

- Increases project ownership among stakeholders.

During the Project Identification and Design Phase, time/resources/effort are invested to define needs, explore opportunities, analyze the project environment, cultivate relationships, build trust, develop partnerships and design alternatives for project design. The decisions made during the Project Identification and Design Phase connect to existing strategies and determine the overall framework within which the project will subsequently evolve.

One of the reasons the Project Identification and Design Phase is of such great importance is because it provides the most cost-effective opportunity to answer fundamental questions about the project parameters.

As illustrated in Figure 12, the easiest time to make changes to a project is at the beginning of its life. If a project team wants to change the objectives, the calendar or the budget, it is easier to do this BEFORE the project is underway (spending money, using up the calendar and investing resources to complete its work).

As the project moves forward in its life cycle there will be other opportunities to revisit questions of scope/quality, budget/resources and time/calendar. However, once project implementation begins (staff are hired, activities begin, budgets are allocated, and deliverables start to become tangible) the cost of changing these project parameters increases and these changes, in turn, become much harder to manage. Therefore, it is important that the project manager gather and process data to inform these decisions during the Project Identification and Design Phase and that the general approach to this phase is one that is open to creative exploration, brainstorming, visioning and debating of strategy.
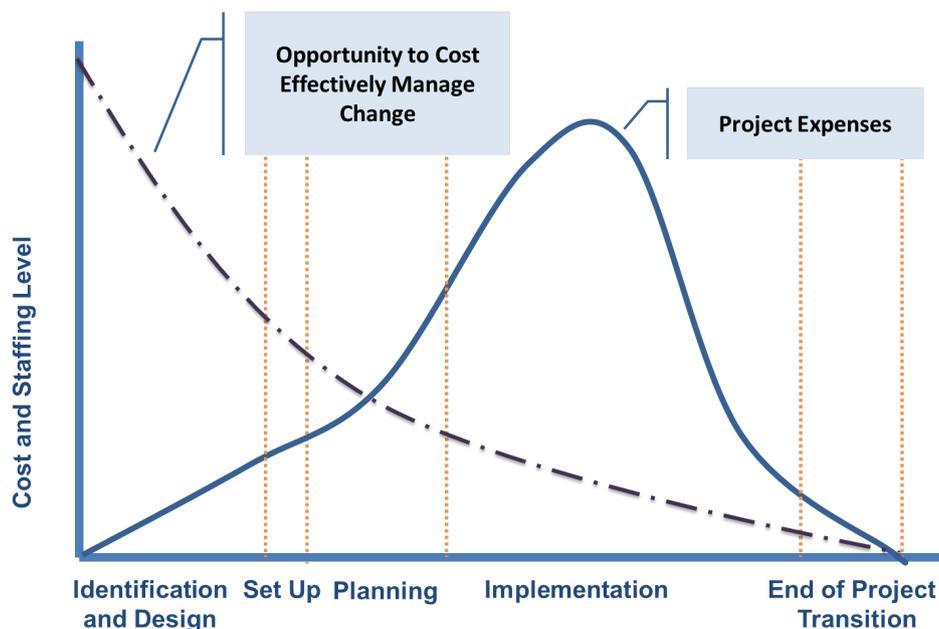
Figure 12: Opportunity to Cost Effectively Manage Change

While there are a variety of activities that can be completed during this phase, in general terms the work completed during this phase can be rolled up into three overarching categories:

1. Collecting data;
2. Analyzing data; and
3. Identifying the project intervention logic.

2.2.1.1 Collecting Data

The first step in determining whether you are "doing the right project" is to collect data. The purpose of this data collection is to **broadly explore** a wide number and variety of issues, providing

information which, when analyzed, will inform priorities and identify interventions that will address the challenges in a target area.

2.2.1.1.1 Identifying Project Needs

As part of this broad exploration process, the project team will need to collect data that identifies community needs in the potential intervention area. However, the data should not be limited solely to examining issues related to community needs. Other topics to explore should include the present state of service provision, the existing strengths within the community, an examination of stakeholders present in the intervention area and more.

One of the challenges when collecting data is that the process can be highly subjective. People (as individuals and as members of social and interest groups) can have radically different ideas about what should be defined as a 'need' and what should not. As a result, the need definition process in a single location can result in significantly different results depending on who is consulted and what approach is employed.

An approach to limit the subjectivity of problem definition and to work through differing perspectives of "real" needs is through the triangulation of assessment data. Triangulation is a powerful technique that facilitates validation of data through cross verification from more than two sources. For example, if a study uses only one data collection method/perspective, the temptation to believe in the findings is strong. If an investigator uses two methods/perspectives, the results may well clash. However, by using three methods/perspectives to answer a question, the hope is that the results of at least two of the three will reinforce each other. On the other hand, if three conflicting answers are produced, the investigator knows that the question needs to be reframed, methods reconsidered, or both.

At its core, triangulating approaches increases the confidence and validity of study results. By combining multiple perspectives and methods, researchers can hope to overcome the weakness or intrinsic biases and the problems that come from single method or a single observer perspective – thereby increasing the credibility and validity of results.

One way to triangulate the process of needs identification is to use an approach introduced by American sociologist, Jonathan Bradshaw, who believed that needs assessments should explore four types of need in a community and that the presence of all types of needs would indicate a "real" need.
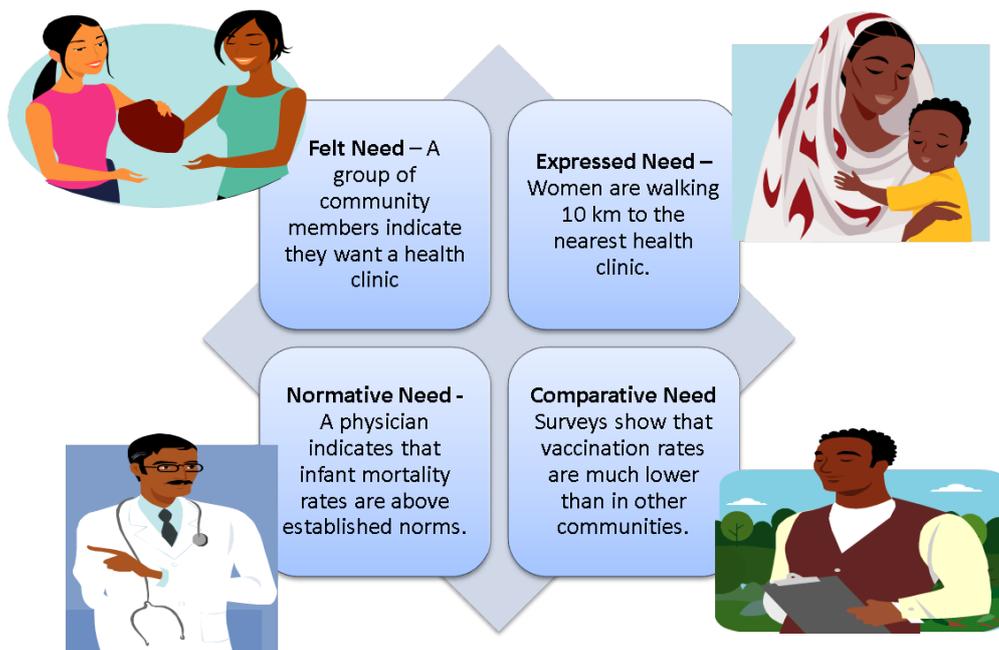
Figure 13: Triangulating Needs Using Bradshaw's Classification

As illustrated in Figure 13, Bradshaw's four categories of social need included:

- **Normative needs** - compare the current situation to a set of professional or expert standards. Often, these needs are identified by a professional or expert – physicians, engineers, public health professionals, etc. For example, a sanitation expert might indicate that rates of fecal matter in household water are above the standard established by the ministry of health.

- **Comparative needs –** compare the current situation with the situation of others. One of the most common uses of this approach has been the comparison of people's access to resources. This approach recognizes that need is a relative concept and so any debate about need must take place in the context of a comparison between people. For example, members of fishing cooperative may observe that the fish stocks are higher in a nearby town with sanitation facilities.

- **Felt needs –** focus on the thoughts and dreams of the community itself. What the people themselves believe should be the priority. A felt need is likely to be subjective and could be better described as a 'want'. Felt need is necessarily affected by the knowledge and expectations of the individual, which may be unrealistic and/or unaffordable. For example, mothers might express displeasure with the mess and sickly conditions that result from lack of hygienic sanitation – but might be unaware of alternatives that exist to change the current state.

- **Expressed needs –** are inferred by observation of the community's actions. For example, if there are long waiting lists for a service, then there is an indication that the community prioritizes that need. At times, the expressed needs are consistent with what the community has expressed (their felt need). However, at times, these needs might not be concretely identified publicly (as a felt need) as a result of political/cultural pressures or because nobody has ever asked. For example, families might not have expressed their displeasure with the

lack of hygienic sanitation verbally, but are now beginning to identify locations where they dispose of their household refuse (garbage pits).

As organizations explore a community's needs, the challenge will be to ensure that the needs' identification process is accurate and honest. Often individuals and groups already have an idea, based upon their observations and experiences, about what type of project or service is preferred by a particular development organization. Development organizations need to guard against dynamics where the incentives lead individuals and groups to present their needs in ways that are more likely to fit the development organization's priorities to ensure that they are selected for participation and benefit. For example, if a development organization is known to primarily support water projects, then project participants are more likely to express their problems and solutions in ways that they anticipate will fit the potential interventions preferred by that development organization – a water project.

2.2.1.1.2 Types of Data

The data collection process, however, is not limited solely to defining needs. To fully understand the project context, the project team will need to collect data regarding a number of areas related to the project environment, including, but not limited to data related to:

- Project stakeholders
- Community strengths, opportunities and vision
- Successes and capacity
- Biological/physical environment
- Organizational networks
- Infrastructure
- Legal, policy and political institutions
- Social and cultural conditions

In each of these areas, there are three types of data that may be collected:

- **Secondary data –** Information available through published and unpublished sources, including literature reviews, surveys, evaluations, assessments, reports from NGOs, UN agencies, international organizations and government offices. Secondary data can be very cost effective and should be the first sources accessed for assessment data. Unfortunately, access to secondary documents is often limited and care is needed when interpreting secondary data. Sometimes selective primary data collection will be necessary to verify the reliability and relevance of secondary data to the specific context, or to obtain deeper, more specific information.

- **Primary quantitative data –** In situations where secondary sources do not provide sufficient assessment information, organizations can collect data via quantitative assessment approaches (surveys, questionnaires, tests, standardized observation instruments) that focus on information that can be counted and subjected to statistical analysis. The strengths of quantitative data collection methods include:

  - **Scalability** - Processing results from a great number of subjects and permit a generalization of results;

- o **Objectivity and accuracy of results** - Less personal bias in the collection and interpretation of data;

- o **Standardization** – Data collectors use standard approaches whose results can be compared to other data.

The shortcomings of quantitative data are that this approach sometimes misses the depth of the situation and it can be difficult to collect essential contextual information.

- **Primary qualitative data –** In contrast to quantitative data approaches, qualitative approaches seek to capture participants' experiences using words, pictures and objects (and even non-verbal cues provided by data providers). The strengths of qualitative data collection include:

  - o **Depth and detail**: Qualitative data often provides detailed descriptions of situations, providing the richness of context that is missing from quantitative data.   If qualitative techniques are used alongside quantitative data collection, it can explain why a particular response was given;

  - o **Creates openness**: encouraging people to expand on their responses can open up new topic areas not initially considered;

  - o **Simulates people's individual experiences**: a detailed picture can be built up about why people act in certain ways and their feelings about these actions.

Qualitative data is most often collected as an open-ended narrative, unlike the typical question and answer format of surveys, questionnaires or tests.

Figure 14: Tools for Data Collection

Secondary Data	Primary Quantitative Data	Primary Qualitative Data
• Literature review • Records review • Existing statistics • Indices • Government documents • Other NGOs' Documents	• Knowledge, practice and coverage surveys • Household surveys • Standardized tests and surveys • Standardized observation instruments • Anthropometric measurements	• Brainstorming • Affinity diagrams • Focus groups • Historical narratives • Timelines • Empowerment circles • Visioning • Locality mapping • Semi-structured interviews • Key informant interviews Ranking exercises

Care should be used to select the most appropriate (and cost-effective) tools and approaches to collect information. Conventional wisdom sometimes indicates that some data collection approaches are better than others. For example, primary data is often perceived as preferable to secondary data. However, in practice it is clear that there is a place for multiple data sources and mixed methods in almost every assessment process.

While primary data collection can be specifically targeted to the precise needs of a proposed project, collecting primary data can also take a lot of time and money and involve many people. For this reason, many organizations recommend that the first round of assessment rely on secondary data,

and that subsequent rounds use primary data collection approaches to fill in the gaps which are not covered by secondary data.

Furthermore, while perceptions often suggest that qualitative data has less rigor than quantitative data, quantitative approaches often run the risk of raising expectations among local communities and partners, and can be especially costly. Qualitative data assessments, in turn, can be rigorous if planned and implemented with expertise, and can uncover revealing insights into the reasons behind the trends that are identified through secondary and quantitative approaches.

A combination of secondary and primary methods (including both qualitative and quantitative tools) in the same data collection process can provide a more comprehensive, integrated picture from which to make decisions. And, in the end, it is all about making decisions.

Before starting data collection, one needs to ask 'How will this data be used?' If there is no acceptable answer to the question, do not proceed. Time and resources are too valuable to be wasted in useless exercises. Regrettably, many assessment exercises have collected extensive data which have produced large documents that often sit on the shelf "collecting dust." These documents are a poor use of resources, can be an intrusion on the lives of stakeholders, and create false expectations that could damage important partner and/or beneficiary relationships.

2.2.1.2 Analyzing Data

While the purpose of data collection is to **broadly explore** a wide number and variety of issues, the purpose of data analysis is to **order and organize** the raw data so that useful information can be extracted from it. More specifically, development projects tend to focus on two broad categories of analysis:

1. Current State Analysis.

2. Future State Analysis.

2.2.1.2.1 Current State Analysis

Current state analysis is the starting point for good project design. It is the process of understanding the status, condition, trends and key issues affecting people and people's livelihoods, ecosystems or institutions in a given geographic context.

A variety of tools exist to conduct data analysis. Each is designed for a specific purpose and the project team should select their techniques/tools based on the intended objective of the analysis exercise.

Figure 15: Analysis Tools

Objective	Tool
Organize information	Vulnerability matrices
Prioritize assessment data	Mind mapping Affinity diagrams Ranking exercises and matrices
Identify current state of service provision	Gap assessment analysis Mapping
Promote critical thinking by project stakeholders	Group discussions Focus Groups Workshops
Investigate cause and effect relationships	Force field analysis Problem trees

Each of the analysis tools in Figure 15 is important and all of them can be used to process the information gathered through data collection process. For example, if the task at hand aims to organize or classify assessment information, a different analysis tool will be required than would be the case if the objective were to promote more critical thinking by project stakeholders.

In practice, however, it is unlikely that a project team will use all of the analysis tools in each and every project it implements. While it is not within the scope of the PMD Pro to examine all of the analysis techniques and tools in depth, project managers should feel comfortable:

- Identifying the different tools that exist that can be used to accomplish the different objectives that are a part of problem analysis;
- Choosing the best tool for each problem analysis objective;
- Developing (over time) the skills and behaviors needed to use the different problem analysis tools with a variety of groups.

2.2.1.2.2 Future State Analysis

Once current state analysis is complete, the next step will be to analyze the future state of the project. This involves asking questions about how the project will improve the livelihoods, ecosystems or institutions of the project participants. Future state analysis helps to develop a picture or description of where the project will lead:

- What will be different in the future if this project is successful at meeting expectations?
- What will project beneficiaries be able to do that you can't do now?
- What social change will be enabled?

In practice, future state analysis is seldom simple. While a future state analysis might identify a broad array of potential interventions for a project, it is seldom the case that an organization can implement all the activities outlined in the future state analysis. At this point, the development organization should consider three critical strategic questions:

- Which elements will be included in the project intervention?
- Which elements will not be included in the scope of the project?
- What are the criteria which will be used to make these decisions?

These questions will inevitably prove difficult and organizations will be confronted with numerous alternatives. They will need to make concrete decisions regarding the scope of the project. Where will the project intervene? What services will be provided? Who will be served?

Consensus on these questions may be elusive and the decision-making process has the potential to become quite complex and contentious. Consequently, it is important that the project team clearly identify and prioritize the multiple considerations that come into play when deciding what will be included in the eventual project, and what will be left out.

Figure 16: Criteria for Determining what is Included in Project Interventions

Category	Illustrative Criteria
Needs Prioritization	What needs received the highest level of emphasis during the assessment/analysis? Addressing which needs would appear to have the highest potential for impact?
External Program Considerations	Who else is working in the proposed area of intervention? What are their program strengths? What existing activities complement the objectives tree analysis?
Appropriateness	Is the proposed approach acceptable to the target population and key stakeholder groups? For example, would a reproductive health program be appropriate and consistent with religious and cultural norms?
Institutional Capacity	What are your organization's strengths? What are your implementing partner capacity levels?
Resource Availability	Is funding available? Is there potential for growth? What opportunities exist to leverage resources?
Financial/Economic Feasibility	Is the rate of return for the investment acceptable?
Technical Feasibility and Sustainability	Can the proposed work be realistically accomplished? Can the work of the project be sustained and maintained over time?
Internal Program Considerations	What are the strategic priorities for your organization in the region? Country? Other? What are the program strengths of your organization? What priorities does your organization have with regard to geography? Beneficiaries? Other?
Portfolio Considerations	Does the project 'fit' within the larger portfolio of projects in the organization?

Note that the categories above can be organized into two groups. The first group of categories (needs prioritization, external program considerations, appropriateness, institutional capacity) uses the information collected through the needs assessment and analysis activities to decide whether/how an organization will intervene. These categories examine whether there are priority needs that must be addressed; whether there are other programs providing complementary services; whether there are implementing partners who have the capacity to execute the project; and whether the proposed activities are appropriate.

The second group of categories (resource availability, financial/economic feasibility, technical feasibility, internal program considerations) focuses less on the results of the needs assessment and more on criteria related to organizational considerations. For example, are there donors interested in financing the project? Are resources available? Does the organization have capacity in the proposed program area? Does the project fit within the organization's project portfolio?

Once it is clear which potential project objectives meet the criteria in the previous table, the high- level project design can be put in place. As indicated previously, not all the potential project objectives can be addressed in a single project. Those areas that do not meet the criteria will fall out of the intervention mix.

Take as an example a case study based on a fictional community, the Delta River Municipality. A recent assessment in the municipality found that deterioration of water quality has resulted in depleted fish stocks; reduced catch and falling income among fishing families; and there is an increasingly high incidence of waterborne diseases and illnesses, particularly among poor families and children under

<table>
<tr><td rowspan="3">Project Management is Iterative!</td><td>**Collecting and Analyzing Data through the Life of the Project**</td></tr>
<tr><td>While collecting and analyzing data is normally associated with the Identification and Design Phase, these activities can/should be conducted in multiple phases of the project. For example, the collection and analysis tools are especially useful when:

- Expanding or changing the scope of an existing project;
- Conducting monitoring and evaluation activities;
- Completing learning activities during the End of Project Transition phase.</td></tr>
</table>

five.   There are high levels of fecal waste and household/business refuse in the river alongside the community; and some of the numerous factors that contribute to the problem include:

- Low public awareness of the dangers of dumping household waste;

- Low access and use of sanitation facilities for the disposal of fecal waste;

- Weak oversight (both ineffective and corrupted) by the Environment Protection Agency over the local textile industry; and

- Inadequate government budgets result in the ineffective treatment of business waste (where services exist) and wastewater does not meet environmental standards.

It is obvious in this scenario that there are **many** potential areas where a project could intervene (consciousness raising, waste disposal, business waste treatment, advocacy for increased budgets, fecal waste disposal systems, etc.) Realistically, however, a project must concretely identify where it **WILL** intervene, and where it **WILL NOT.** Ultimately, these are decisions about strategy and resource allocation that must be made by identifying highest-priority intervention criteria. In this case study, those criteria are:

- **Needs Prioritization** – Households indicate that a need requires urgent intervention.
- **External Program Considerations** – Working on sanitation facilities suits the policy of both the local government and the implementing agency.

- **Existing Capacity Considerations** – The implementing organization lacks capacity in the area of waste water treatment engineering but has extensive experience in behavior change as it relates to disposing of household waste.
- **Resource Availability** – A major international donor's five-year plan for the region included resources for improving health in the region.

Based on these considerations, the decision was made for the project design to focus on hygienic sanitation facilities and increased awareness of the dangers of waste dumping.

2.2.1.3 *Identifying the Project Intervention Logic*

Now that the data collection and data analysis processes are complete, the next step is to begin to identify the project logic. One of the principle tools used to establish the logic of development projects is the logical framework (logframe) matrix. The logical framework is an analytical tool used to plan, monitor and evaluate projects. It derives its name from the logical linkages set out by the planner(s) to connect a project's means with its ends.

2.2.1.3.1 Project Logical Framework Variations

There are a number of variations of logical framework models that are used in the development sector. Many of these models use different terms to identify the project deliverables. Some identify goals and objectives, others identify Results and Outcomes. Similarly, there is no consensus on the number of levels in a logical framework matrix. Some organizations subscribe to a four-level matrix, others have five.

The table in Figure 17 can serve as a resource for comparing the logical framework models of several international donors and development organizations. What becomes immediately apparent when reviewing the table are differences in the number of levels in each model, and variances in the use of terminology. Nevertheless, while there are variations between logical framework models with regard to the terms they use and their structure, they are all intended to serve the same underlying objectives, serving as:

- A systematic tool for organizing the project thinking and identifying relationships between resources, activities, and project results;

- A visual way of presenting and sharing the project intervention logic;

- A tool to identify and assess risks inherent in the proposed project design;

- A tool for measuring progress through indicators and means of verification.

Figure 17: Logical Framework Terminology from a Cross-Section of Development Organizations

	Ultimate Change	Intermediate Change		Tangible Change	Specific Interventions	
AusAid	Goal/Impact	Purpose/ Outcome	Component Objective	Output	Work Program/Task	
CARE	Program Goal	Project Final Goal	Intermediate Objective	Output	Activity	Input
EU	Overall Objective	Project Purpose	Specific Objective	Expected Result	Activity	Input
FAO	Overall Goal	Intermediate Goal	Purpose	Output	Activity	Input
NORAD	Goal		Purpose	Output	Activity	Input
USAID	Strategic Objective	Intermediate Result		Output	Activity	Input
World Bank	Impact/Goal/Development Objective		Outcome/ Purpose	Output	Process/ Activity	Input
World Vision	Program Goal	Project Goal	Outcome	Output	Activity	Input

2.2.1.3.2 Interpreting the Logical Framework Matrix

The logical framework matrix identifies and communicates the logical relationships in a project by tracking the vertical and horizontal reasoning that connects the levels of the matrix. The relationship between the elements on each level of the logical framework illustrates the vertical logic that will result in the achievement of the project's ultimate goal.

While there are many versions of project logical frameworks, the PMD Pro subscribes to a four-level logical framework model that includes the following deliverables:

1. *Activities* are actions taken through which inputs (financial, human, technical, material and time resources) are mobilized to produce the deliverables (training, constructing, etc.) of a project for which staff can be held accountable and which, when aggregated, produce outputs.

2. *Outputs* are tangible deliverables resulting from project activities. They include products, goods, services and changes (e.g. people trained with increased knowledge and skill; quality roads built) that aggregate *and* contribute to outcomes.

3. *Outcomes* are what the project expects to accomplish at the beneficiary level (e.g. use of knowledge and skills in actual practice over time; transportation of goods on constructed roads over time) and contribute to population-level changes (reduced malnutrition, improved incomes, improved yields, etc.) that aggregate and help bring about accomplishment of goals and impact over time.

4. *Goals* are the highest level desired end results or impacts (transformation, sustainability, livelihood, well-being etc.) to which the project contributes (the ultimate objective in many logical frameworks).

Figure 18: Vertical Logic of the LogFrame

Project Description	Indicators	Means of Verification	Assumptions
Goal	If the OUTCOMES occur; Then this should contribute to the overall GOAL		
Outcome(s)	If the OUTPUTS are produced; Then the OUTCOMES can occur		
Outputs	If the ACTIVITIES are conducted; Then OUPUTS can be produced		
Activities	If adequate RESOURCES/INPUTS are provided; Then the ACTIVITIES can be conducted		

Having defined the project goal, outcomes, outputs and activities the next question posed is 'What external risks (outside the project's control) could potentially interfere with the project's vertical logic?' At each level of the logical framework, there are external factors that may affect the success of the project. For example, if there is another year of drought, the seeds may not germinate and so the output (a harvest) may not be realized. Or, if children are getting diarrhea because of poor drinking water, they may eat more, but they will remain malnourished.

These important external factors should be noted under the **Assumptions** column. You may not be able to do anything about some of the risks (it is unlikely that a local NGO could stop a war from breaking out), but it is important to anticipate possible problems. The list of risks and assumptions may also help to explain why a project did not achieve all of its objectives.

The assumptions define the horizontal logic of the matrix, creating an 'if-then' relationship that maintains that if the assumptions in each level of the framework hold true then the project's vertical development pathway is likely to succeed, as illustrated in the following graphic.

Figure 19: Horizontal Logic of the Logframe
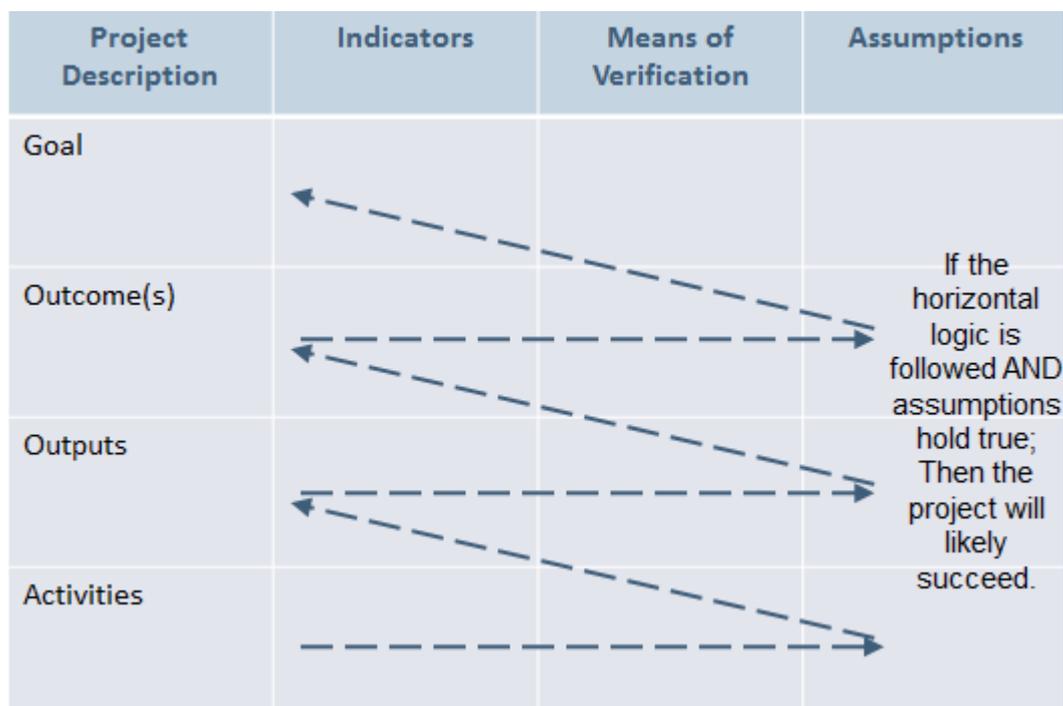
It is especially important to focus on the assumptions found in the right hand cell of the Outputs level of the Logical Framework. The assumptions found in this cell form the crux of the logic of the project intervention. It is here that the connection is made between the tangible outcomes produced at the Output level and the social change that is desired at the Outcome level. For example, if the Outputs of the project are to:

1. Construct latrines.

2. Conduct an awareness campaign to increase the use of latrines.

Then the assumption at the Outputs level is that increased availability of latrines and increased awareness of latrines will significantly increase the use of latrines – thereby improving the water quality and health of the community.

After objectives have been established and associated risks and assumptions identified, the final element of the logical framework are the **indicators** of achievement and **means of verification** for each level of the logical framework.

An indicator is a quantitative measure or qualitative observation used to describe change. For the indicator to measure change it must have a baseline (a measure or description of current performance of the entity and/or a comparator) as an initial reference point. Baselines must be defined at or near the beginning of a project. Performance during project implementation is measured against a target (the improvements, change or achievement expected to happen during project implementation), taking into account the baseline.

Indicators depict the extent to which a project is accomplishing its planned inputs, outputs, outcomes and goals. They communicate in specific, measurable terms the performance to be achieved at each

level of change. Indicators also help to remove vague and imprecise statements about what can be expected from project interventions.

Figure 20 provides guidelines for indicator development at each of the logical framework levels.

Figure 20: Indicator Guidelines by Logical Framework Level

Elements	Indicator Guidelines
Goal – The ultimate objective or highest end result or impact to which the project contributes	Indicators are longer-term impacts that are not specific to a single project. Rather, they are program, sub-sector, or sector objectives to which several other projects and variables will also contribute. Examples: transformation, sustainability, livelihood, and well-being.
Outcomes – What the project expects to accomplish at the beneficiary level that aggregate and help bring about accomplishment of goals and impact over time	Indicators at this level are crucial but can be more difficult to determine. Change is sought among extended beneficiaries, target populations, collaborating institutions and local partners. Examples: use of knowledge and skills in actual practice over time; transportation of goods on constructed roads over time, reduced malnutrition, improved incomes, and improved yields.
Outputs – The tangible deliverables resulting from project activities and which are largely under project managements control – that aggregate and contribute to outcomes	Indicators at this level are easier to specify than at the outcome level because they represent tangible goods and services to be delivered by the project. All outputs have to be accomplished by the end of the project's implementation period and according to the time schedule included in the project plan. Examples: people trained with increased knowledge and skill; quality roads built, goods delivered and services performed.
Activities – The actions taken through which inputs are mobilized to produce deliverables for which staff can be held accountable – and which, when aggregated, produce outputs	Not all development organizations develop indicators at the activity level. Indicators at this level are almost directly related to the description of the activity itself. Examples include: staff activities, actual expenditures compared to budget, use of equipment, training components and construction components.

When developing indicators, the norm is to use SMART criteria to guide performance indicator conceptualization. SMART is an acronym with the following meaning:

- **S**pecific – Indicators must be quantifiable and measurable? What does the project intend to change? Do the indicators provide detailed parameters regarding:
  - o **Quantity** – the expected numerical representations of what is to be achieved;
  - o **Quality** – the narrative or pictorial description of the expected achievements;
  - o **Location** – the geographic boundary of the expected achievements.

- **M**easureable – The indicator must be quantifiable and measurable. Can the indicator be assessed objectively and independently?

- **A**chievable – Indicators must be attainable within the constraints of the project triangle (budget/resources, time/budget, and scope/quality).

- **R**elevant – Indicators must accurately measure the change the project aspires to generate. Does the indicator practical and cost-effectively measure what the project team needs to know?

- **T**ime-bound – The indicator should identify a specific time and date. By when will the indicator be achieved? Can the indicator be achieved within the established timeframe?

The table in **Figure 21** illustrates a partial build out of the project logical framework related to the Delta River Project case study introduced previously. The contents of this logical framework provide examples of the vertical and horizontal logic of the project and also provide examples of the assumptions and indicators found at each level of the logical framework.

Figure 21: The Delta River Project Logical Framework

	Description	Indicators	Means of Verification	Assumptions
Goal	Improved health of under-fives, specifically among low-income families who live by the river.	Incidence of water-borne diseases among children under 5 reduced by 30% by 2012.	Municipal hospital and clinic records collected by mobile health teams	
Outcomes	Reduced volume of fecal waste discharged into river	Concentration of E. coli reduced by 20% (compared to levels in + 2003) and meets national health and sanitation standards by 2012

60% of household fecal waste is disposed of via latrines or sewage connections | Monthly water quality surveys conducted by the EPA and the River Authority

Annual sample survey conducted by the municipality between 2009 and 2012 | Up river water quality remains unchanged

Clean river water is a key determinant of the health status of children < 5 years. |
| **Outputs** | Quality latrines constructed and being used by community members

Etc. | Number of latrines completed
Number of latrines passing quality check
Number of women, men, girls & boys using latrines regularly

Etc. | Inventory data from form used by the community sanitation volunteers
Key informant interviews

Etc. | Raised awareness will ensure latrine adoption and continued usage
Use of latrines will adequately reduce volume of waste discharge into river Etc. |
| **Activities** | Deliver public sanitation awareness campaign
Mobilize communities for latrine construction
Prepare engineering specifications
Locate optimal sites for latrine construction
Etc. | Number of public meetings
Number of people received information
Number of people in awareness meetings
Engineering plans completed
Plans approved by Ministry of Public Works
Number of sites identified
Client satisfaction with proposed latrine sites
Etc. | Staff and volunteer activity journal
Event attendance records
Copy of plan verified
Ministry of Public Works approval form
Map of sites with rationale statements documenting client inputs
Etc. | |

2.2.1.4 Managing Project Decision Gates

Wait! At this point, the astute reader will raise the following question:

"At this point we have already invested considerable amounts of time/money/effort into the identification and design of the project without having any assurance that our project will receive funding. Isn't this a significant risk?"

This question is appropriate and its underlying concerns are 100% valid.

There is always a risk that an organization will invest extensive resources in the Project Identification and Design Phase and then find out the project is not officially approved.

In an ideal world, the project team would want to set up a system through which they can receive a clear indication of whether a project will (or will not) receive support **BEFORE** considerable resources are invested in the identification and design of the project.

> **Project Management is Participatory!**
>
> ## Consulting Stakeholders
>
> As the team develops the documents associated with each decision gate (i.e. a business case document, concept paper, letter of interest, project proposal, etc.), it will need to engage stakeholders to explore the central questions related to the potential project. These questions include (but are not limited to) the following:
>
> - Has the project scope been reviewed and accepted by the project's ultimate beneficiaries?
>
> - Is the high-level project schedule consistent with the expectations and constraints of stakeholders?
>
> - Have stakeholders agreed on a minimum level quality requirement?
>
> - Has the high-level project scope, schedule and budget been reviewed with the implementing organizations who will conduct project activities?
>
> These questions, and others like them, provide check-in points early on in the project design process that help to ensure that the official project proposal is feasible and appropriate.

Project teams want to avoid the "perfected, but rejected" scenario, where organizations have already spent thousands (and even tens of thousands) of dollars on project identification and design activities, but the project ultimately lacks the support of key stakeholders (inside the organization, in the community, among government staff, or from the intended donors).

One of the "best practices" used to manage the risk of a 'perfected, but rejected' scenario, is by subscribing to a decision gate process that consists of a series of authorization points at various stages of the project. By using decision gates, organizations identify a series of points in the project that require a decision to either proceed with the next phase of the project, modify the Scope, Schedule or Budget of the project or end the project outright. Each successive decision gate builds on the work that was developed in the previous stage.

Managing a large group of stakeholders through a number of decision gates often takes considerable time and runs the risk of communications challenges. Despite this complexity and risk, however, the advantages of moving through progressive decision gates are the following:

- It helps ensure that the organization does not invest extensive amounts of time, money, personnel capacity and organizational capital in developing project proposals that lack commitment and support from key decision-makers (donors, implementing partners, decision-makers internal to the agency).
- It supports a robust analysis of the project concept, providing multiple perspectives and encouraging collective ownership for the project once it begins implementation. It maps out

the process through which a project needs to be vetted in order to ensure that it has the support (both internal and external) that is required for the project to ultimately be approved.

Within the context of the PMD Pro Project Phase Model, the decision gates are represented by the triangles located between the project phases.
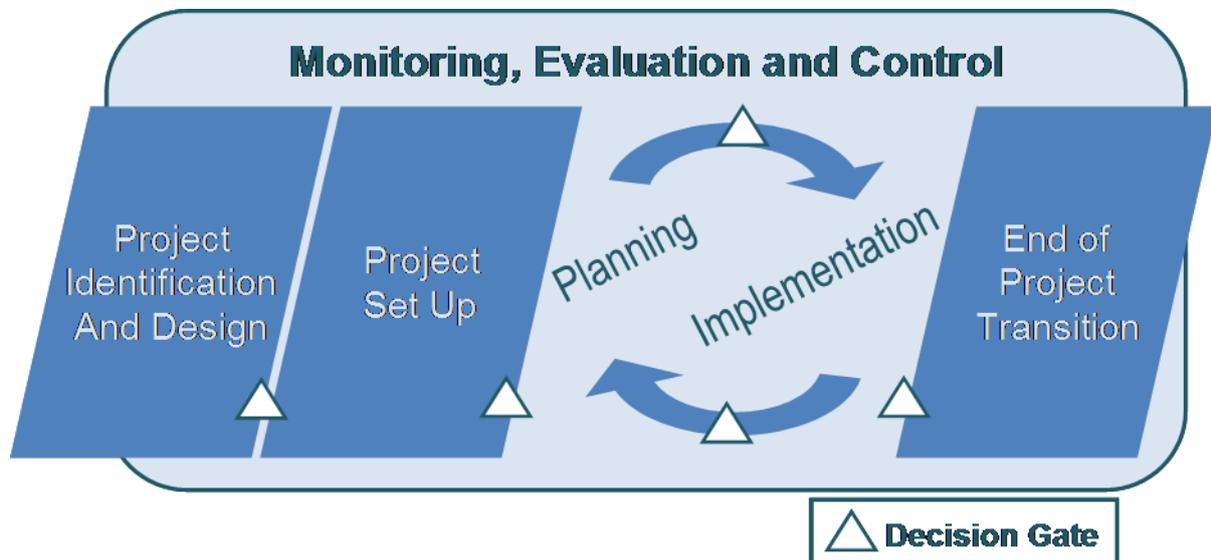
Figure 22: An Illustrative Example of Decision Gates in the Life of a Project

As acknowledged previously, the number of decision gates in a project will vary according to the project, its complexity, and the key stakeholders. For that reason, the Project Phase Model is intended to serve as an illustrative model of where decision gates might be placed. Some projects might have more decision gates, other might have less. What should be clear, however, is that a system of decision gates will help ensure that project investments are not made without the buy-in of key stakeholders.

Placing decision gates at regular intervals (for example, at the beginning of each year of the project's implementation) helps to:

- Keep the project focused on the need that the project was originally undertaken to address;

- Ensure that the context and assumptions that initially led to the approval of the project still exist;

- Provide an opportunity for the project team and key stakeholders to decide whether to:

    o Continue the project as it is presently conceived;

    o Modify the project plan;

    o Terminate a project (which is not necessarily a failure if the intervention is no longer appropriate, feasible, or necessary).

The example below identifies three decision gates that were established for the Delta River Project during the Project Identification and Design Phase. NOTE: It is important to recognize that the decision gate sequence for the Delta River Case Study represents just ONE of MANY sequences that could exist for a development project and this example only identifies the decision gates established during the Project Identification and Design Phase.

☑ Case: Decision Gates in the Delta River Project

The deliverables during the Project Identification and Design Phase in this case are the following:

Decision Gate 1: Project Concept Paper. This document is presented to internal stakeholders to internally authorize exploratory assessment and analysis activities and to receive feedback on potential proposal development.

Decision Gate 2: Expression of Interest. This document is submitted to potential donors to obtain a green light from key external stakeholders. This document is intended to be developed in a relatively short time period using limited resources, and is intended to generate a conversation about the high- level design of the project, and to receive feedback for the project BEFORE considerable resources are devoted to developing a more expansive project proposal.

Decision Gate 3: Project Proposal. In this step a formal document is developed to receive approval for a request for funding for a project. This document should be clear and more precise in describing the project's CSSQ (cost, scope, schedule and quality). The format of the project proposal development process can vary considerably, depending on the size of the project and the donor requirements.

2.2.2 PHASE 2: PROJECT SET UP
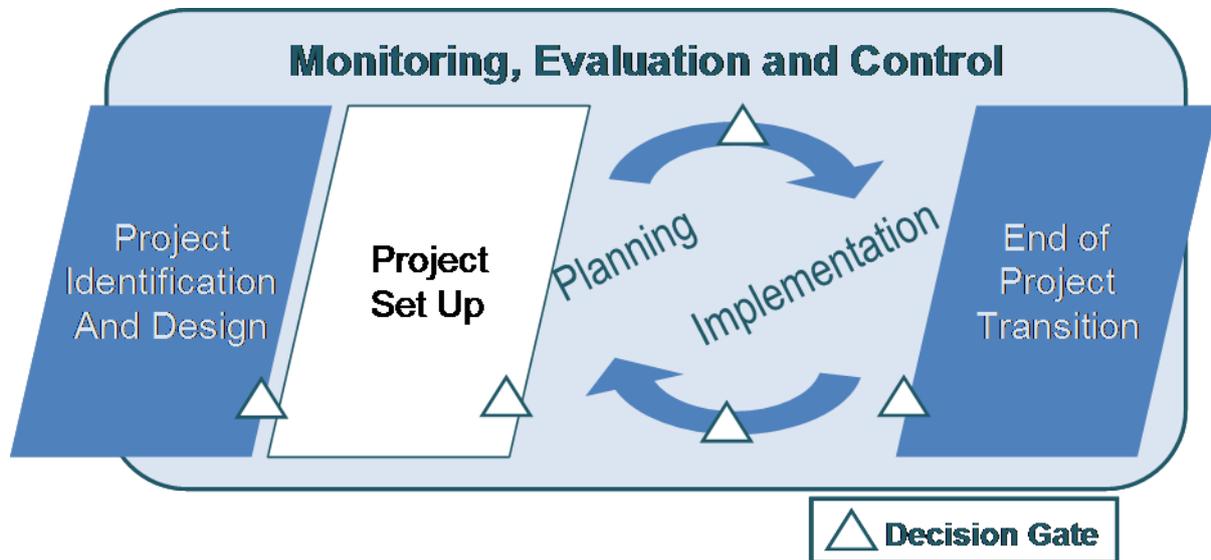
Figure 23: The Project Set Up Phase

2.2.2.1 Purpose

Every successful project begins with a thoroughly planned and implemented Set Up phase. The objectives of the Project Set Up Phase include:

1. Establishing the Project Governance Structure.
2. Officially authorizing the start of the project.
3. Communicating the project launch.

2.2.2.2 Establishing the Project Governance Structure

Unfortunately, the term "governance" often conjures images of bureaucratic processes and protocols. This is not the intent or purpose in the case of project governance.

In the context of project management, governance defines the management framework within which project decisions are made. A robust governance structure clarifies:

Authority: Who has the power to make decisions and within what tolerance levels;

Accountability: Who is accountable for the success of the project? With no clear accountability for project success, there is no one moving agendas to resolve project issues.

Governance structures can take many forms. In its simplest form, a governance structure comprised of a single individual – the Project Sponsor – might be sufficient. In this scenario, the responsibility of the Project Sponsor would be to:

- Ensure organizational commitment and accountability for the project;

- Decide on proposed project changes (scope, budget, calendar or others) that extend beyond the project manager's agreed tolerances;
- Oversee the project, providing resources, direction and insight as necessary;
- Monitor the ongoing viability of the project, making decisions to terminate the project if necessary;
- Support and advise the Project Manager on the management of the project, especially on issues that extend beyond the span of control of a project manager.
- Advocate for necessary organizational support and resources for the project; and
- Ensure that the organization "owns" the process and results of the project.

And yet, while a governance structure comprised of a single sponsor might be simple, it often fails to represent the multiple perspectives of development projects.

We all know, however, that development projects are seldom simple. The project team must manage agendas with multiple stakeholders, including (but not limited to) the project donor, the implementing organization(s), the beneficiary communities, and project suppliers. In these complex contexts, a single project sponsor will not provide the support the project team requires to succeed. Instead, a more effective governance structure would be a project board which includes representatives from multiple stakeholders involved in the project.

There is no single, definitive norm for establishing project boards. However, the following guidance provides insights into how they can be structured and managed:

Size	There is no standard size for project boards. At minimum, there should be two people and it is common to find boards comprised of three, four or five representatives. As mentioned previously, smaller group size facilitates efficient collaboration and decision-making. However, it is often helpful to expand the size of the Board when stakeholder management is complex. For example, if there are multiple donors, multiple beneficiaries groups, or multiple organizations working on the same project
Composition	Board members should represent the following distinct knowledge/ management/ experience perspectives:

- **An Executive perspective** - assessing whether the project is providing value as a whole, and providing the funding and resources necessary to obtain that value. There is only one representative with Executive Perspective on the Board.

- **A Senior User perspective** - establishing that the project is meeting the needs of the people who will be directly working with the project's outputs. There can be more than one representative with Senior User Perspective on the Board. Another alternative would be to establish a "senior user group" for the project, which in turn identifies a single representative on the board to represent the opinions of all group members.

- **A Senior Supplier perspective** - providing confidence that the project's

outputs (from which value will be derived) can be achieved with available resources, and at the required level of quality. There can be more than one representative with Senior Supplier Perspective on the Board. Another alternative would be to establish a "senior supplier group" for the project, which in turn identifies a single representative on the board to represent the opinions of all group members.

Each board member perspective reflects a different dimension of the project in terms of resources provided to the project; understanding of organizational, user, and developer needs (for decision-making on ongoing project viability); and weighing project results. Each has its own assessment of what "success" means - and all perspectives when taken together define project success.

Responsibilities   Collectively, the Project Board owns the project and its responsibilities include:

- Decide on proposed project changes (scope, budget, calendar or others) that extend beyond the project manager's agreed tolerances;
- Oversee the project, providing resources, direction and insight as necessary;
- Monitor the ongoing viability of the project, making decisions to terminate the project if necessary;
- Represent the interest of the perspective they represent;
- Support and advise the Project Manager on the management of the project, especially on issues that extend beyond the span of control of a project manager; and
- Advocate for necessary support and resources for the project.

Meetings   It is recommended that Project Boards conduct regularly scheduled meetings where the agenda is set by the Project Manager in cooperation with the Executive Perspective representative. Important items on the agenda include the review of the Risks Log and Issue Log to be discussed later. In addition, a Project Board meeting is also necessary at all decision gates.

One area of confusion that sometimes arises is whether the Project Board acts as a simple democracy wherein each board member has an equal voice when voting on major decisions. It is important to recognize that not all voices on the project board hold equal authority on all decisions. If, for example, there is a need to request a budget increase or a calendar extension for the project, it could be that all members of the Project Board are consulted but ultimate authority for the decision resides exclusively with a single board member (most likely in this example, the Executive perspective) or a small group of board members. Remember that the decision-making effectiveness of a group can be thought of as being inversely proportional to its size. Not only can large groups fail to make timely decisions, the quality of decisions can be impacted by the challenges of managing the group.

2.2.2.3 *Officially Authorizing the Start of the Project*

If a project has been following the decision gate model, a number of go/no-go decisions will have already have been made before entering the Project Set Up Phase – for example, when the concept paper was developed, when a statement of interest was presented, or when a project proposal was reviewed and approved. During the Project Set Up Phase it is important to ensure that the project is formally authorized by the project governing body (whether it is comprised of a project sponsor or a project board).

This approval should be documented through the development of a project charter, a document that provides a high-level description of the project and which is signed by the project governing body. The contents of the Project Charter can vary, but usually includes statements regarding the:

- **Project Purpose** – including a statement of the need the project will address.
- **Project Deliverables** – articulating the scope of the project, including the project goal, outcomes, and major outputs.
- **High-level Project Estimates** – including a high-level statement of:
  o The project activities;
  o The project schedule;
  o The project budget; and
  o A preliminary list of the roles and skills required to perform the necessary work.
- **Project Risks** – identifying potential problems/risks that the project might encounter.
- **Project Tolerances** – articulating project tolerances regarding project deliverables, schedule, cost and risk.
- **Project Change Control** – establishing an exception handling process for when the project exceeds a tolerance in any of these areas.

Once developed and signed, it is important that it not be put on a shelf and forgotten. The project charter is an extremely useful document that can be used to accomplish the following objectives:

- To officially authorize the start of project activities and the use of resources for project implementation;
- To ensure that there is shared understanding of the project parameters among key project stakeholders and sponsors (both internally and externally);
- To document a shared commitment to the objectives of the project and the resources/activities required for project success.

Furthermore, the project charter should be considered a living document. If the project governing body approves major changes to the project (scope, budget, calendar or otherwise), the project charter should be updated and signed to reflect the new project parameters.

In summary, the Project Charter serves as the project manager's ally, and in the absence of a project charter document, the project team runs the risk that:

- The project team will begin to expend time, money, materials, staff and organizational capital in executing a project that lacks commitment and support from key decision-makers (donors, implementing partners, decision-makers internal to the agency);
- Key stakeholders do not share a common understanding of the project (scope, budget, schedule, benefits, and risks).

-

2.2.2.4 Communicating the Project Launch

One of the principle objectives of the Project Set Up Phase is to communicate the launch of the project activities to the many stakeholders who have interests in the intervention. These stakeholders might include the beneficiary communities, NGOs working in the intervention area, representatives of government ministries, the general public and many more.

There are multiple communications tools that can be used to announce the project launch to the community of stakeholders. However, regardless of the mechanism employed, the purpose of the project launch communications activities remains unchanged:

- To formally acknowledge the beginning of project;
- To ensure that key stakeholders have a consistent understanding of the project;
- To introduce stakeholders to the project.

In many ways, the signed project charter is an ideal document, in which to officially communicate the launch of the project to the broad project audience. Because of its brief, concise format, the project charter is especially good for communicating the high-level parameters of the project. As a result, this document will frequently be very handy when dealing with some people who have short memories, unintentionally or otherwise. Sharing the project charter with the larger community of stakeholders is not only an effective communication practice, but is also a way to promote transparency and accountability in the project.

If, however, there are reasons that the project team prefers not to share all elements of the project charter with the larger community of stakeholders, other options for communications mechanisms exist. If there is sensitive information, it can be included in an amended version of the project charter that can be shared with the general public. Furthermore, articles in newspapers, press conferences, field visits, meetings, and launch party events can also be used to communicate with the larger community. The messages for these communications can vary, depending on the audience and their connection to the project. It is important, however, that at least the high-level parameters of the project be shared with stakeholders before project implementation begins.

2.2.3 PHASE 3: PROJECT PLANNING

Monitoring, Evaluation and Control

Project Identification And Design — Project Set Up — Planning — Implementation — End of Project Transition

△ Decision Gate
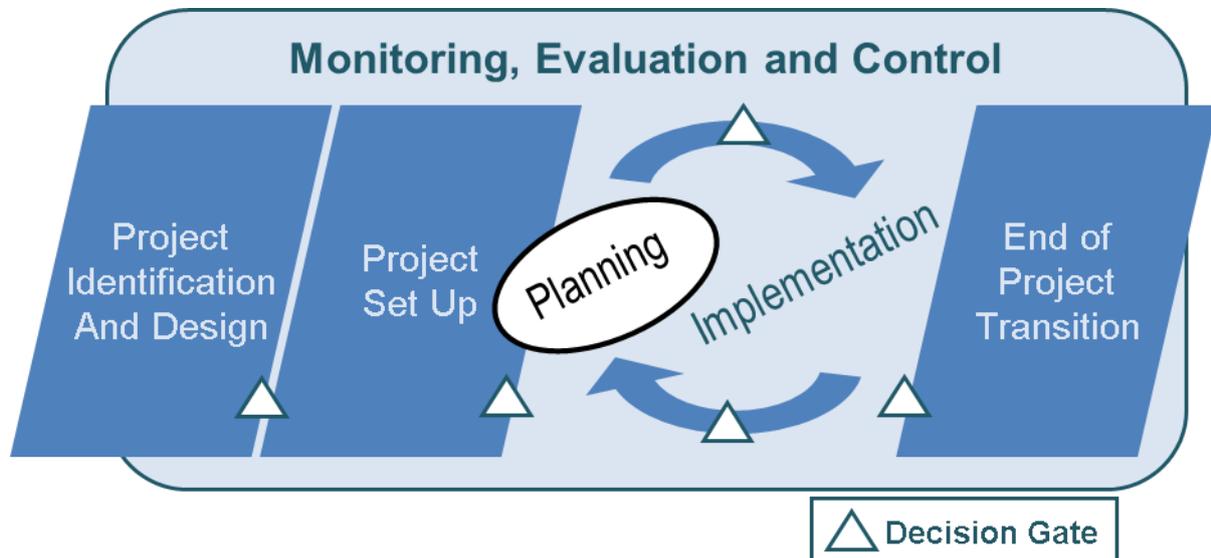
Figure 24: Project Planning Phase

2.2.3.1 Purpose

Usually by the time a project officially enters the Planning Phase, the project team has already developed a number of documents (i.e. the project logical framework, the project proposal, the project charter etc.) that contain an extensive level of detail related to the project:

- Goal, outcomes and outputs
- Scope and activities
- Indicators and means of verification
- Budget
- Schedule

It is important, however, not to confuse the project proposal, the project logical framework, or other documents developed during project identification and initiation phases with a project plan. The Project Plan differs significantly from these other documents in terms of the format, purpose, audience, level of detail, participation, timing, and schedule constraints.

While some argue that the project logical framework and/or the project proposals provide an acceptable amount of information to serve as a project plan, these documents seldom provide a sufficient level of detail required to implement a project. This is because those documents are written to serve different purposes altogether.

Take, for example, the project proposal in comparison with the project implementation plan. Figure 25 outlines differences between the two documents in terms of their purpose, format, and level of detail (note that a similar comparison could be made between the project logical framework and the project implementation plan).

Figure 25: Project Proposals vs. Project Implementation Plans

	Project Proposal	Project Implementation Plan
Purpose	To obtain approval and funding for the project, emphasizing clear, concise communication of ideas that 'sell' the project to funding stakeholders	To ensure that the project arrives on time, on scope and on budget, and according to established quality parameters; to emphasize comprehensive, logical planning and to model the project for review by the project team and other stakeholders
Format	Format is often determined by donor requirements or agency stakeholders responsible for investment decisions	Format is determined by the project team and key stakeholders
Level of Detail	Often limited in level of detail – due to the purpose, format, anticipation, schedule and timing of proposal	Level of detail is developed by the project team and key stakeholders
Participation	Often written by a small team as a result of time constraints that limit participation	Opportunity exists to expand participation to include an array of stakeholders, including experts and technical advisors
Audience	Focused on donors and stakeholders who distribute resources	Focused on the needs of the team implementing project activities
Timing and Schedule	Often written under tight time constraints, sometimes months (or even years) prior to implementation	The opportunity exists to revisit proposals to further develop/revise/update plans at the beginning of project implementation or at key benchmarks in the life cycle

Nevertheless, while there are considerable differences between the purpose, process and content of a project proposal and a project implementation plan, many development organizations use the project proposal as an implementing plan. This is especially the case where the proposal format is based on donor-driven requirements that result in proposals that approximate to project plans in terms of length and level of detail. **Beware** – even the most expansive project proposals (and many can exceed 100 pages in length) still have weaknesses that limit their effectiveness in planning for project implementation.

The format and elements of project implementation plans will vary according to the organization, donor and/or project. However, regardless of the format of the document, all project implementation plans (as compared to the initiation deliverables created during earlier phases) should be sure to address the PMD Pro's Principles of Project Management:
  - Implementation Planning is Balanced!
  - Implementation Planning is Comprehensive!
  - Implementation Planning is Integrated!
  - Project Management is Participatory!
  - Project Management is Iterative!

2.2.3.2 Implementation Planning is Balanced

Remember! There are six phases in the PMD Pro project life model! The management of projects should be balanced to ensure that **all** the activities, budget and calendar required to conduct the work associated to **each** of these phases is performed.

Obviously, the implementation plan will include the information required to complete the work in the implementation phase. It is also important, however, that the plan include the blueprint required to conduct the work necessary to manage the other phases of the project as well, including:

- *Planning for Project Set Up –* By the time the detailed implementation plan is developed, most of the set up activities are already complete. However, don't forget that the project governance activities that were initiated in the Set Up Phase need to be maintained through the life of the project. This could mean, for example, planning the calendar and budget for meetings of the project board.
- *Planning for Project Planning –* Project plans are not static. As a best practice, plans should be revisited on a regular basis and updated to reflect the most recent monitoring data available. If this is to happen, however, the practice of revisiting the project plan needs to include opportunities and resources for the project team and key stakeholders to revisit the plan to ensure it is appropriate, accurate and realistic.
- *Planning for Project Implementation –* Clearly the implementation planning will take up the majority of the planning document. The plan will need to provide a time-bound detailed implementation plan for each project component, including specific actions required to achieve the project's development impact objectives.
- *Planning for Project Monitoring and Evaluation –* Activities related to monitoring and evaluation are critical to project success. However, these activities need to be mapped out in the project plan to ensure that they occur. Critical questions the plan should address include "Who is responsible for collecting data, processing monitoring data, analyzing data, documenting results and communicating messages?" "When will these activities take place?" "How will data be used?" "Will there be an evaluation? If so, when and of what kind?" "What resources will be required to complete the evaluation?"
- *Planning for Project Transition Planning –* What steps need to be taken at the end of the project? What activities need to take place for administrative and contract closure? Will the project be phased over to other stakeholders? If so, what investments need to take place to ensure the handover is successful?

2.2.3.3 Implementation Planning is Comprehensive

In addition to being balanced, the project plan should comprehensively address *all* of the work required to ensure project success.

A comprehensive project plan will include all the planning elements required to deliver the **direct** project results (latrines built, health workers trained, agricultural techniques adopted, etc.), as well as the planning elements required to complete the **indirect** work related to the project.

More specifically, the comprehensive project plan will include details concerning each of the following elements of project management:
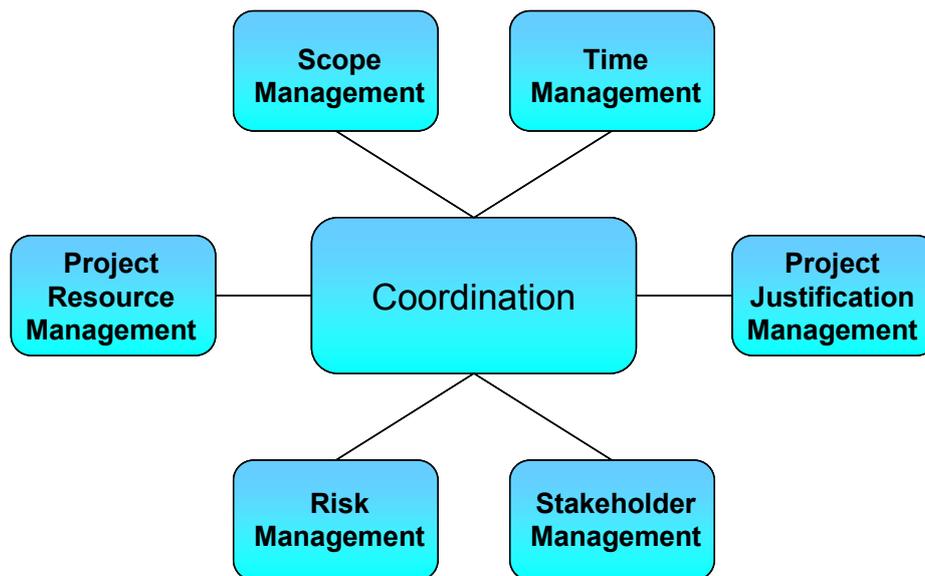
Figure 26: Elements of a Comprehensive Project

- ***Project Scope Management Planning –*** How will the project scope (its products, services and the work required to deliver these results) be managed and controlled throughout the life of the project?
- ***Project Time Management Planning –*** What processes and tools are to be used to estimate the time requirements of the project and how will project calendars be managed through the life of the project?
- ***Project Justification Management Planning –*** What is the need the project will address and are the resources consumed by the project (money, time, organizational reputation, effort) contributing effectively and efficiently to contributing to the realization of that benefit?
- ***Project Stakeholder Management Planning –*** Who are the individuals, groups and institutions whose interests might be positively or negatively affected by execution or completion of the project? How will these stakeholders be engaged through the life of the project?
- ***Project Risk Management Planning –*** How will the project identify, analyze, monitor and manage project risks?
- ***Project Resource Management Planning*** – What process and systems exist for acquiring and managing equipment and materials, for managing finances, and for managing human resources? What logistics benchmarks need to be met in order for the schedule to succeed?

Sitting in the center of these six elements of a comprehensive project is ***Project Coordination Planning.*** The project plan should also provide a blueprint of how the different stakeholders will work together. What are the norms for collaboration? Are roles and responsibilities clear? How will the project team update stakeholders? What communication mechanisms will be used? Who is responsible for communications?

The format of implementation plans will vary considerably. In some cases, the elements of a comprehensive plan are included in a single project implementation plan document. In other cases, the project implementation plan is made up of multiple documents. In scenarios, the core project plan

is complemented by separate plan(s) that provide a deeper level of detail on a specific area of project planning.   For example, a project might have both a core implementation plan AND a specific plan for Project Monitoring and Evaluation. Similarly, depending on the size, complexity and risk of a project, a team might choose to have separate documents that specifically address Project Procurement, Project Communications, Project Human Resource Management, etc. Each of these plans should be consistent with (and linked to) the other documents that make up the comprehensive project implementation plan.

The intention of the project implementation plan is to provide a model of the project. It provides the project team members a low-risk, low-cost environment in which to explore and test project alternatives; identify 'what if' scenarios; and consider alternative approaches – BEFORE project resources have been expended and before time has passed.

2.2.3.4   Implementation Planning is Integrated

Remember the Project Constraint Triangle? One of the principle messages of the triangle imagery is that the project constraints are connected, making it impossible to change one without impacting the others. This dynamic continues in the context of the project implementation plan. Each of the elements of the project implementation plan is connected to the others. This is apparent in the extensive connections that exist between the different elements of a comprehensive implementation plan, some of which include the following:

- Decisions related to the budget depend on choices that are to be made related to the scope.

- Decisions related to the calendar depend on choices that are to be made related to logistics.

- Decisions related to communications depend on choices that are to be made related to human resources.

- Decisions related to monitoring depend on choices made related to risk.

This list provides only a few examples of the many relationships that exist in a comprehensive project plan. What these examples underscore, however, is the importance of ensuring that all of these areas are integrated in the implementation plan.

2.2.3.5   Implementation Planning is Participatory

Participation and participatory processes are encouraged and prioritized during each phase of the project life cycle in the development sector. However, during the Project Identification and Design phases, it is not unusual to find situations where the project proposal development process only included a limited amount of stakeholder participation. While this is an undesirable scenario, it is often attributable to a number of reasons:

- **Project proposal development schedules are often accelerated due to time constraints.** Often, donors give organizations only a month or two between the release of a funding opportunity and the submission date of the proposal (in emergency contexts this timeframe can be as short as 24 hours). In such situations, organizations are pressed to complete all the steps involved in project assessment, analysis, and logical design; and to navigate the initiation decision gates required to develop and submit a project proposal submission. One of the many impacts of these time constraints is that they prevent organizations from

consulting and collaborating extensively with key project stakeholders during the Project Identification and Design Phase.

- **Project Proposals are often developed by small teams of people.** Given that the audience of project proposals is usually the stakeholders that have authority over funding decisions (external donors or groups internal to the organization), the project proposal development team is often more focused on how best to 'sell' the project – and is staffed by people who are best at writing and navigating the proposal submission process. This can result in a diminished focus on communication and collaboration with key stakeholders in the proposal development process.
- **Project Proposals are not intended to serve as comprehensive planning documents.** While a certain level of medium to high-level detail is included in the project proposal, often the details of the project are not worked through until the implementation plan is developed. At this point, the people closest to the project implementation can be invaluable with regard to making accurate estimates of the effort (time, money, resources, and staff) required to complete the work of the project.

For all these reasons, it is important that the project teams take advantage of the opportunity that the project implementation planning process offers to engage stakeholders more extensively and comprehensively than was possible during the Project Identification and Design Phase of the project.

The project planning process should involve all the members of the team and also appropriate stakeholders, depending upon their influence on the project and its outcomes. Participation in the planning process has multiple advantages, including:

1. Stakeholders have skills and knowledge that can be leveraged when developing accurate estimates regarding budgets, time requirements, levels of effort, and other resources required for completing the work of the project.

2. Project stakeholders are often in the best position to identify potential project risks and make plans to mitigate their impact.

3. New staff and/or partner staff can benefit from improved project orientation when they participate in planning activities. These activities help ensure a common understanding of the outcomes, outputs and of the project.

4. Stakeholders involved in the project planning process are more likely to assume leadership, ownership and buy-in of project implementation activities. While at the same time, stakeholders who oppose the project can be brought round by the project team by listening to their concerns and re-shaping the scope (or other elements of the project) to help overcome their concerns.

2.2.3.6 *Implementation Planning Is Iterative*

Throughout the project, it is important to treat the implementation plan as a 'living' document, not one that is static and unchangeable. The PMD Pro Project Phase Model expressly represents the Project Planning Phase as part of a loop with the Implementation Phase and the Monitoring Evaluation and Control Phase. Together, these three phases continually provide insights and learning that informs and updates the project implementation plan.

Over time, changes to the project implementation plan help provide greater detail on schedule, costs, and resources required to meet the defined project scope. This iterative process of providing increasing levels of detail to the project implementation plan over time is often called 'rolling wave planning.' Iteration, by definition, is the act of repeating a task a second, third or more times to achieve a desired result.

Rolling wave planning can be especially helpful in situations where project information is difficult to collect or is changing very rapidly (for example, operating in high risk or emergency contexts). In these situations, as new project information is collected, additional dependencies, requirements, risks, opportunities, assumptions, and constraints will be identified. Significant changes in any of these areas occurring throughout the project life cycle may trigger the need to change one or more elements of the implementation plan.

Rolling wave planning, however, is not limited exclusively to emergency contexts. One organization that employs a policy of rolling planning in its development projects is the Inter-American Development Bank. Each of its projects is approved through a multi-year proposal. Project recipients, however, are expected to present annual operating plans for each year of project activities. These annual plans serve not only to ensure that the project work estimates are accurate and relevant, but also serve as decision points to decide whether to continue with the project as conceived in the multi-year plan or whether to revisit that plan if necessary.   The review and approval process for the annual plans serves as an opportunity to verify that the assumptions which served as the foundation of the project design, as well as to confirm the availability of required resources, assess the external project context/risks, and monitor the vertical logic of the project.

2.2.4 PHASE 4: PROJECT IMPLEMENTATION
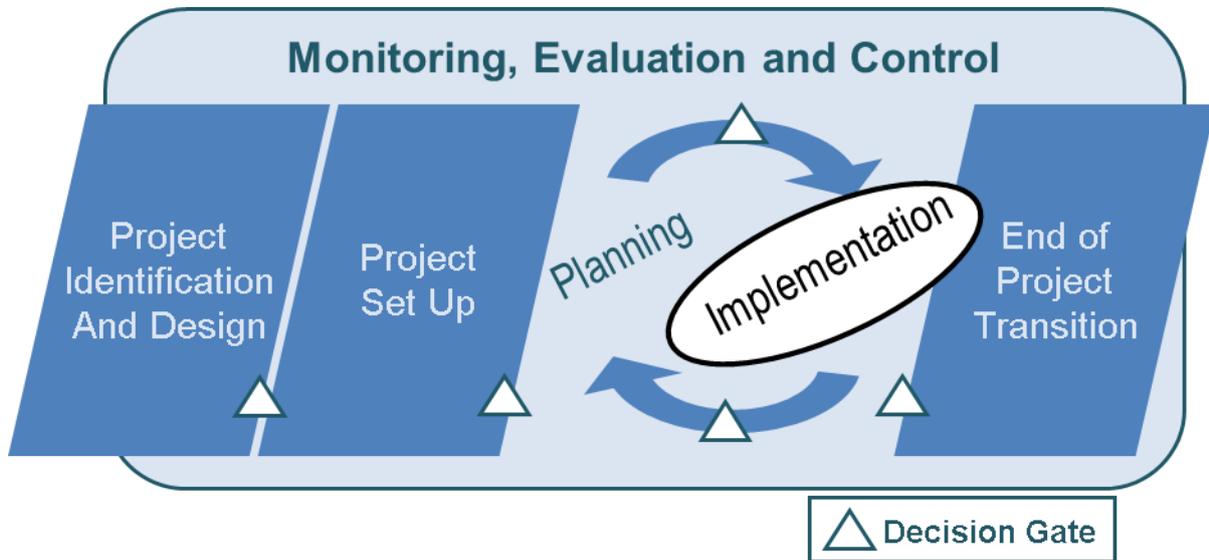
Figure 27: Project Implementation Phase

The day-to-day work of project implementation is to lead and manage the application of the project implementation plan. This task can be relatively simple, or can become extremely complex, depending on the nature of the project.

As in all project management, success during implementation is partially an art (managing people, leading teams, communicating with clarity), but it is also a science. In its simplest form, the responsibility of the project manager is to implement the project plan. However, upon closer inspection, it becomes clear that the project manager must apply a number of technical skills to succeed during implementation. These skills include:

- Managing Issues
- Managing People
- Managing Internal Controls

2.2.4.1 *Managing Issues*

In the boxing world, the saying goes that "Everybody has a plan... until you get hit." The same dynamic exists when managing a project. Just like a boxer in the ring, the life of a project manager is risky, complex, and sometimes just plain messy. Even with a comprehensive and detailed plan, there **will** be "punches" (issues) that challenge the project during its implementation.   Like any good boxer, the project manager must learn how to manage the issues, navigate the complexity, and adapt the plan to reflect the most recent reality.

An issue is an unresolved decision, situation or problem that will significantly impact the project and that the project team cannot immediately resolve. Issues management consists of having a process for identifying these problems and managing them until they are resolved. Resolving issues is frequently beyond the authority of the team. However, even if an issue needs to be escalated to the next level or delegated to another person to resolve, it still needs to be tracked by the project

manager. The project manager needs to be ready throughout the Project Implementation Phase to apply resources to address and resolve these issues.

Issues Management is a collaborative endeavor. Consequently, everyone on the project team is responsible for the following:

- Identifying project issues;
- Contributing to the resolution of project issues (<u>Note</u>: experience has shown that the people closest to the work usually know best how to resolve issues. Therefore, it is the job of the project manager to establish an environment in which each team member is in a position to resolve as many issues as possible at their level);
- Escalating important issues to the Project Manager as soon as possible.

Nevertheless, while issue management is a collaborative endeavor, the project manager is ultimately accountable for issue management (remember that in a RACI chart there is only one individual accountable for a given task/activity).

Having a well-documented issue management process is crucial to communicating and enforcing that process across the team. If issues are not resolved, the negative consequences can include the following:

- Inability to meet project timelines, cost, and schedule;
- Poor or unacceptable project quality;
- Poor reputation among communities, donors and others; and
- Post implementation disputes.

As an issue manager, the Project Manager needs to manage all issue management processes:

1. **Issue Identification and Tracking** – Identifying outstanding questions, decisions and other problems before they adversely affect the project. As such, the issue identification and tracking process is closely related to the topic of risk management (which is explored in the Monitoring, Evaluation and Control chapter of this document). Thus, the Implementation Phase and the Monitoring, Evaluation and Control Phase are tightly linked and normally work in parallel.

2. **Issue Analysis** – Understanding the issue sufficiently to consider future consequences of action plans designed to resolve it.

3. **Issue Communication** – Communicating issues to the right level of the organization to get them resolved. Furthermore, it is important to communicate when and how issues are resolved.

4. **Issue Control** – The project manager is responsible for establishing an environment where the project team and implementing partners can carry out actions to ensure issues are resolved in a timely and effective manner.

The issue control process is closely related to project monitoring, evaluation and control activities and should include establishing and tracking a plan for getting issues resolved. The most important control tool is the issues log, which summarizes the issues, describes their current status and

identifies who is responsible for addressing the issue. The issues log can take on a variety of technical forms from paper to a fully integrated database. A sample format can be found in the issue log table below.

Figure 28: Issue Log

Issue Reference	Reported By	Description	Date Reported	Assigned To	Date Assigned	Status	Status Date	Resolution

Bear in mind that a perfect issues management system will be expensive, if not impossible to achieve. It is normal to accept a reasonable level of imperfection, based on calculations of the trade-offs between value versus cost, benefit, risk and time.

2.2.4.2 Managing People

The importance of strong people management cannot be overstated. Project managers work in teams and often are only able to achieve their goals as a result of the commitment, cooperation and contributions of the people on the project team. As a result, managing people can become the project manager's most important, and most difficult, job.

Most often, when we think of project managers who are especially talented at managing people, we tend to focus on their mastery of "soft skills" of people management. These are the project managers who are especially effective at motivating team members, communicating vision, empowering staff, recognizing achievements, listening, leading by example, resolving conflicts and building trust.

All of these "soft skills" are related to the inter-personal competency of the project manager and are extremely important to project success. Therefore, project managers should strive to enhance their capacity to lead, motivate, inspire, mediate, communicate and encourage.

This does not mean, however, that there are no "hard skills: involved in people management. A comprehensive project plan will not rely solely on the inter-personal sills of the project manager to ensure success in managing people. Instead, a comprehensive project plan will identify the concrete activities required to proactively manage all elements of the project team. These concrete activities will be implemented during the Project Implementation Phase and will include:

- **Acquiring Project Staff –** As part of the function of managing the team, the project team leader must be clear on the systems for identifying staff candidates, interviewing candidates, identifying selection criteria and making final selections of project staff.
- **Creating Staff Job Descriptions** – Staff job descriptions include the list of project duties, roles and responsibilities for team members. Job Descriptions are not only used to recruit, orient and manage staff, but are also use to evaluate individual team member performance.

- **Documenting Project Organization Charts** – Project charts represent the reporting relationships among the project team.
- **Developing Project Staff** – What skills are needed? What are the training needs? Are there certification requirements.
- **Conducting Performance Assessments** – Performance assessments are the documented formal or informal assessment of the project team members' performance. After analyzing the information, project managers can identify and resolve problems, reduce conflicts, and improve overall team work.
- **Establishing Team Communication Norms –** As the leader of the project team, the project manager must concretely plan the communications (via meetings, workshops, reports, memos, newsletters, blogs, etc.) that allow the project team to share information, actively work to identify issues and conflicts, and interact creatively to resolve these issues.

2.2.4.3 Managing Internal Controls

One of the challenges of the project manager is to oversee the valuable assets that have been allocated to conduct the work of the project. To assist with this challenge, internal control systems should be put in place to provide reasonable assurance regarding the responsible use of project assets.

Internal control processes should be designed with the objectives of:

- Promoting the effectiveness and efficiency of operations;
- Increasing the reliability of project outcomes;
- Promoting compliance with applicable laws and regulations;
- Protecting organization resources, both physical (e.g., machinery and property) and intangible (e.g., reputation, intellectual property);
- Reducing risk of fraud and corruption.

Internal controls include the processes through which an organization's resources are directed, monitored, and measured. It plays an important role in preventing and detecting fraud and protecting the organization's resources, both physical (e.g., machinery and property) and intangible (e.g., reputation or intellectual property such as trademarks). At the organizational level, internal control objectives relate to the reliability of financial reporting, timely feedback on the achievement of operational or strategic goals, and compliance with laws and regulations.

A key component of the organizational capacity of the project includes establishing internal controls that comprehensively address the entirety of the support, administrative and logistic systems required for successful implementation. Areas that benefit from internal controls include

- Human Resources Capacity and Systems
  - ✓ Are Human Resources policies documented and in compliance with local laws and organizational regulations?
  - ✓ Do systems exist for timesheets, performance reviews, and employee separation?
- Procurement
  - ✓ Do systems exist to select suppliers?
  - ✓ Do supplier selection criteria exist?
  - ✓ Do systems exist to manage suppliers?

- ✓ Do similar systems exist for consultants?
- Financial
  - ✓ Do systems exist for cash management? Expense management? Financial reporting?
  - ✓ Is there a segregation of duties for financial roles?
- Inventory
  - ✓ Do systems exist for the identification and tracking of inventory?
  - ✓ Do systems exist for the use/transfer/disposal of equipment following project closure?
- Contracts and Agreements
  - ✓ Do systems exist for grants management?
  - ✓ Do systems exist to manage relationships with implementing organizations?
- Infrastructure
  - ✓ What systems exist for communications? Telephones, internet, radio?
  - ✓ What systems exist to manage vehicles and transport?
- Security protocols
  - ✓ Is there need for special security arrangements? Travel guidance? Accompaniment programs? Other?
- Fleet Management
  - ✓ Are there mileage logs that control the use of service vehicles?
- Information Management
  - ✓ Is there a record keeping system (paper/electronic) in place?
  - ✓ Do policies and standards exist for information management?
  - ✓ Are documents, contracts and receipts accessible to meet the audit requirements of the project?

In summary, it is important to recognize that internal controls can provide only reasonable assurance - not absolute assurance - regarding the achievement of an organization's objectives. Furthermore, poor or excessive internal controls reduce productivity, increase the complexity of systems, increase the time required to complete processes and add no value to the activities. However, good internal controls are essential to ensuring the accomplishment of goals and objectives. They help ensure efficient and effective operations that accomplish the goals of the project and still protect employees and assets.

2.2.5 PHASE 5: PROJECT MONITORING, EVALUATION AND CONTROL
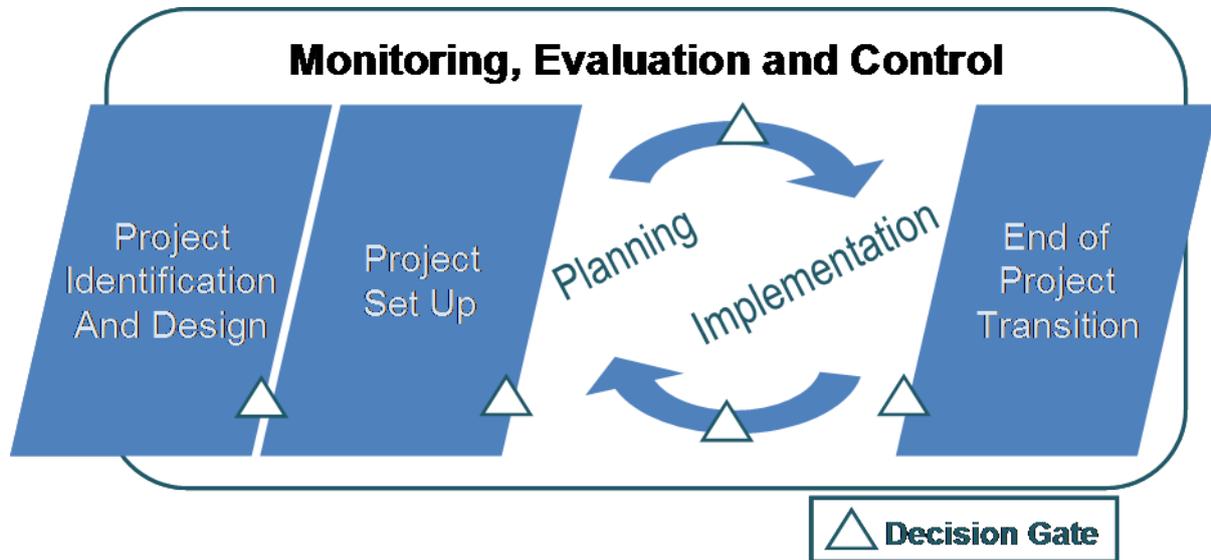
Figure 29: Project Monitoring, Evaluation and Control

Even projects that are well designed, comprehensively planned, fully resourced and meticulously executed will face challenges. These challenges can take place at any point in the life of the project and the project team must work to continually revisit the design, planning and implementation of the project to confirm they are valid and to determine whether corrective actions need to be taken when the project's performance deviates significantly from its design and its plan. This is the purpose of the Project Monitoring, Evaluation and Control Phase.

Not surprisingly, the three principle categories of activities taking place during the Monitoring, Evaluation and Control Phase are:

- Project Monitoring
- Project Evaluation
- Project Control

These activities are intended to occur continuously and continually, taking place through the entire life of the project (hence the design of the PMD Pro Project Phase Model includes the Monitoring, Evaluation and Control Phase as a background that extends from the earliest tasks of Project Identification and Design, all the way through the last tasks of the End of Project Transition Phase.

For example, the earliest iterations of the project indicators are already being developed during the Project Identification and Design Phase; the Monitoring Plan is developed during the Planning Phase; monitoring visits are conducted during the implementation phase, and many evaluation activities are undertaken during the End of Project Transition Phase.

2.2.5.1 Differentiating Monitoring, Evaluation and Control

Before examining each of the three categories of activities in the Project Monitoring, Evaluation and Control Phase in detail, it is first important to differentiate between them.

Progress Monitoring tracks the operational work of the project. It answers questions like "Have activities been completed as planned?" "Have outputs been produced as anticipated?" "Is the work of the project progressing as projected?" At a fundamental level it is a **passive process,** it changes nothing. Instead, it tells the project manager where the project performance is in terms of money, time, risk, quality, and other areas of project progress. At its core, the goal objectives, timing and activities of project progress monitoring are perhaps best identified via the following table:

Figure 30: The What, Why, When and How of Monitoring

What	A continuous review of project progress at the activity and outputs levels Identify necessary corrective action
Why	Analyze current situation Identify issues and find solutions Discover trends and patterns Keep project activities on schedule Measure progress against outputs Make decisions about human, financial and material resources
When	Continuous
How	Field Visits Records Reports

If you were to examine the indicators found in the project logical framework, progress monitoring activities primarily correspond to the lower two levels of the logframe (activities and outputs). The following table provides some potential monitoring indicators from three different programmatic areas of intervention (agriculture, microfinance, water).

Figure 31: Examples of Monitoring Indicators

	Agriculture Example	Microfinance Example	Water Example
Outputs – 'The tangible products or services'	Number of farmer groups created - competence of trainees	Number of clients receiving and correctly using credit Number of clients participating in savings programs	Number of new water systems installed and functioning properly
Activities – 'Tasks or actions taken to implement project interventions'	Number of staff visits to farming communities Number of training sessions organized	Number of staff visits to villages Number of bank training sessions - competence of trainees	Number of communities organized for water system installation

Project Evaluation tends to focus on tracking progress at the higher levels of the logical framework – i.e. project outcomes. Evaluations tend to explore questions like, "Is the project successful at achieving its outcomes?" "Is the project contributing to its ultimate goal?" Evaluation data is collected and analyzed less frequently and often requires a more formal intervention (often by technical advisors or external evaluators) to show project results.

Figure 32: Examples of Evaluation Indicators

	Agriculture Example	Microfinance Example	Water Example
Goals – 'Are the project outcomes contributing to a larger impact within the target communities?'	% of families who produce enough food to cover lean periods Decreased % of malnourished children	Increase in net household income Positive change in household consumption patterns	Reduced morbidity and mortality from water related diseases
Outcomes – 'Are the project outputs resulting in the desired project outcomes?'	% of families adopting improved techniques % of hectares covered with improved techniques	% of households with increased working capital	% of households using safe water supply Increase in per capita consumption of water

*Note – While projects are expected to contribute to the achievement of the goal level indicators, it is NOT the responsibility of the project to achieve (or to monitor) the goals.

Project Control involves establishing the systems and decision-making process to manage variances between the project plans (in terms of scope, cost, schedule, etc.) and the realities of project implementation. It also involves establishing how project variances and changes are managed, documented and communicated with stakeholders.

2.2.5.2 The Project Monitoring and Evaluation Plan

A crucial element of a comprehensive implementation plan is a monitoring and evaluation plan which identifies the system for tracking and measuring project progress, performance and impact. The appropriate time to develop the formal Monitoring and Evaluation plan is after the project is approved for funding but before the start-up of project activities. However, the preparatory work that contributes to that plan will start long before this point.

Strong project design makes it easier to create and align comprehensive monitoring and evaluation systems.   The Monitoring and Evaluation Plan expands on the initial progress indicators provided in the logical framework and the project proposal; and provides additional details

Project Management is Iterative!

Connecting the Logical Framework and the Monitoring and Evaluation Plan

As indicated in the PMD Pro Project Phase Model, the Monitoring, Evaluation and Control Phase extends through the entire life of the project.

The project logical framework is the first step in developing the full monitoring and evaluation plan for the project. The indicators and means of verification that are included for the logical framework will ultimately become the building blocks for the full monitoring and evaluation plan of the project.

for each of the levels of the project logical framework. While the format of project monitoring and evaluation plans varies, the plan usually includes the following information:

- What indicators are being monitored and evaluated?
- What information is needed to track the indicator?
- What are the sources of the information?

- What data collection methods are appropriate?
- Who will collect the information?
- How often will it be collected?
- Who will receive and use the results?

While there are many considerations (budget, resources, donor requirements, etc.) to keep in mind when identifying what data to collect in the Project Monitoring and Evaluation Plan, the most important consideration should be the usefulness of the data. When identifying indicators, the project team should always ask "What will this information tell us?" and "What are the expected improvements in decision-making resulting from this data?"

Figure 33: Example of a Project Monitoring and Evaluation Plan Format

Hierarchy	Indicators	Definition of Key Terms	Information Needed	Sources of Data	Methods of Data Collection	Who Collects	Frequency of Collection	Users
Goal								
Outcomes								
Outputs								
Activities								
Inputs*								

* Note that some monitoring and evaluation plans not only track the progress against the activities, outputs, outcomes and goals that are consistent with the project logical framework, but also monitor the inputs that are required to implement project activities.

The method of collecting indicator data will depend on multiple criteria, two of which include the following:

What type of data is the project trying to collect?

- ✓ **Quantitative** methods focus on the breadth of the intervention, providing objective and reliable information that allows for generalization of results to a wider population. The most commonly used quantitative method is a standardized questionnaire that is administered to a random sample of individuals or households within a target population.

- ✓ **Qualitative** methods focus on direct and in-depth interaction with participants, providing rich and detailed data. Commonly used qualitative methods include participatory rural appraisal techniques, focus groups, community or key informant interviews, and observation.

What is the acceptable level of cost and complexity for data collection?

- ✓ The cost and complexity of data collection can vary considerably based on the method of collection used to collect the information. The graph below provides a comparison of multiple data collection methods (quantitative and qualitative) in terms of cost and complexity.
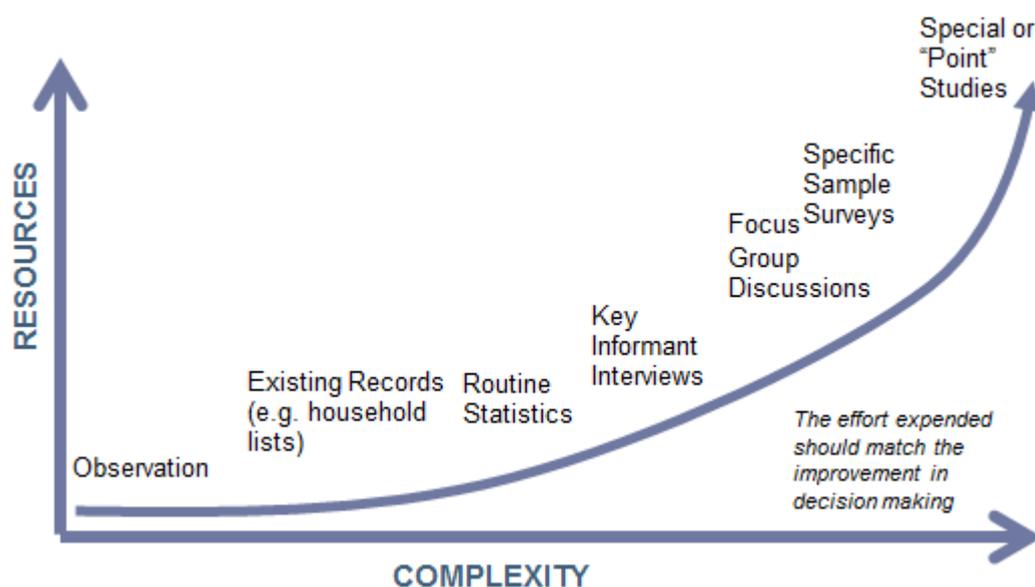
Figure 34: The Cost/Complexity Tradeoff of Monitoring Data

Regardless of the ultimate format a project employs to establish its plan for monitoring and evaluation, as a minimum standard, every progress monitoring system is encouraged to include six essential elements:

Figure 35: Six Elements of a Monitoring System

Indicators	Clearly defined Baselined Systematically measured
Schedule and budget	Time and money are allocated for monitoring tasks Schedule details processes for data collection, review, summary, analysis, and feedback
Staff/partners	Clearly identified monitoring responsibilities Competencies Plan monitoring activities with the community Build capacity of community members on community-based monitoring systems Use participatory monitoring techniques Gather and verify monitoring data Process monitoring data
A full data cycle	Including a full cycle for managing monitoring data: **1. Collection; 2. Review; 3. Summary; 4. Analysis; 5. Feedback**
Data management	Procedures exist and are used to ensure integrity of data and proper storage of data
Link to the next level	The project monitoring system is linked to the next level of the organization's program or portfolio.

> ### Monitoring Project Progress AND Project Risk
>
> **Project Management is Comprehensive!**
>
> While the attention of the monitoring and evaluation plan is focused on tracking the project's progress against the indicators at each of the levels of the project logframe, the project team must also track the project risk throughout the life of the project.
>
> Risk monitoring, in comparison to progress monitoring, involves continuously surveying the project horizon and anticipating the possibility that something may go wrong, or not turn out as planned.
>
> The project manager needs to continually and comprehensively survey the risks which have the potential to threaten project success and actively manage these threats throughout the life of the project. The practice of risk management is one of the six project management disciplines discussed at greater length in Section 3 of the Guide to the PMD Pro.

2.2.5.3 Project Evaluation Approaches

When planning for project evaluation activities to include in the Project Monitoring and Evaluation Plan, organizations should choose their evaluation approach based on their learning objectives. Three evaluation approaches that are extensively used in the development sector are the final evaluations, mid-term evaluation, and ex-post evaluations.

Final evaluations are often mandated by a funding agency or required by a development organization's own policy, would be conducted towards the end of project. Common questions might include:

- ✓ Did the project succeed at accomplishing the outcomes, goals and impact desired?
- ✓ Was the project relevant, effective and efficient?
- ✓ Does the project have the potential to be sustainable in its operations and impact?
- ✓ Is the theory expressed in the logical framework upheld?

Mid-term evaluations offer the advantage of answering many of the same questions posed through final evaluations, but also provide the opportunity to supply suggestions to improve the project efficiency and impact while the activities are still underway.

Ex-post evaluations examine project impact at a defined period of time after project completion, sometimes a year after the official close of the project. Sometimes called a sustainable impact evaluation, an ex-post evaluation measures the extent to which project outcomes and impacts have been realized through participant ownership. Ex-post evaluation findings can be an especially useful way of using evidence to advocate an improved development approach. For example, an ex-post report was used by one development organization to help convince a donor to support numeracy and literacy training within a microfinance program.

2.2.5.4 Project Control

When reflecting on evolution, Charles Darwin observed that 'it is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change.' Similarly, project managers must also acknowledge that change will frequently, or nearly always, be required for their projects to succeed.

These changes are normal, acceptable and (at times) even desirable. Project plans are not intended to be static documents and care must be taken to ensure they are not considered to be static, or excessively difficult to change. Project teams need to remember that an implementation plan is a "means to an end", it is not an end in itself! More specifically, the team needs to recognize the pitfalls that exist when project plans are treated as static documents, including:

- A failure to recognize that the original plans are flawed;
- A fear of acknowledging to external (and internal) donors that the original plan is no longer workable;
- An unwillingness to revisit the original documents to develop a new and more appropriate plan; and
- A lack of clarity with regard to what process needs to be followed to update project documents.

However, when it comes to managing change requests, the project manager must deftly balance two considerations. On the one hand, the project documents should not be considered to be unchangeable regardless of the changing project reality. On the other hand, care should be taken not to make changes heedlessly or without rigor.

To manage this balance, project managers need to establish norms that allow them to flexibly incorporate project changes when necessary, but they also need to make sure that proposed project changes are managed through a rigorous, integrated change control process that ensures that any project changes are:

a. **managed** through a formal change management process;
b. **analyzed** to ensure that implications of those changes are thoroughly thought through;
c. **documented to illustrated their complete impact on all the integrated elements of the project**
d. **communicated** to key project stakeholders.

2.2.5.5 Project Changes: Tolerances and Issue Escalation

A question that needs to be answered when managing issues is whether the proposed project change is within the span of authority of the project manager? If the issue and the proposed change are within the authority of the project manager, then the next step will be for the project manager to take action to resolve the issue. If the project manager does not have the authority to implement the proposed change, then it needs to be escalated to the next level.

The challenge will be to differentiate which issues and proposed responses are within the Project Manager's authority, and which are not. To answer this question, it is important to first explore the topic of tolerances and to identify what level of tolerances that have been set for the project.

Project tolerances define performance limits within which the project manager can retain autonomy. Positive tolerances (the amount by which you can go over) are the most common. However, negative tolerances are just as important. For example, coming in under budget means company funds are unnecessarily tied up for a length of time.

Tolerances are a key part of being able to work autonomously as a project manager. Having a tolerance means the project manager has a certain amount of flexibility with regard to project constraints. In practice, this means that the project can be over a bit or under a bit and not have to continually go back to project board (or sponsor) to request approval for project changes.

The two most frequently used tolerances are budget and time, although they can be in any of the following areas:

Time Tolerance - the amount of time by which the project completion can be later or earlier than the planned date.

Cost Tolerance - the percentage, or a cash amount, by which the project can be over or under the planned budget.

Scope Tolerance - is measured as an agreed variation from the product description, and any potential variation should be documented in the product breakdown structure.

Risk Tolerance - provide a benchmark for which risks you should be escalating to the Project Board.

Quality Tolerance - ranges that define acceptable performance for a product, documented in the product descriptions.

Benefits Tolerance – ranges of acceptable performance of the project at the outcomes level.

During the project Set Up Phase, tolerances should be established to identify the parameters within which project delivery will be acceptable - the overall project tolerance levels. The tolerances need to be established and approved by the governing structure of the project. This could be the project board; however, if no board exists, the tolerances will need to be established by the project sponsor or the donor. If at any point during the monitoring of the project the project manager perceives a tolerance level might be exceeded the project governance body should be consulted.

Mapping the Change Request Approval Process

Once it is clear what level of authority is required to make decisions on a project change request, the next step is to answer the following additional questions:

- Is the change request allowable under existing agreements?
- Have the impacts of the change request on schedule, resources, costs and quality been explored and approved?
- Have project stakeholders been consulted with regard to the proposed change?
- Have the comprehensive and integrated project plan been updated to document the implications of the proposed change?
- Are resources (time, materials, money, human resources) in place to implement the proposed change?

A change request map like the one presented in Figure 36 can provide a useful resources for identifying and controlling the process for managing changes to the project plan.

Figure 36: Illustrative Process Map for a Project Change Request
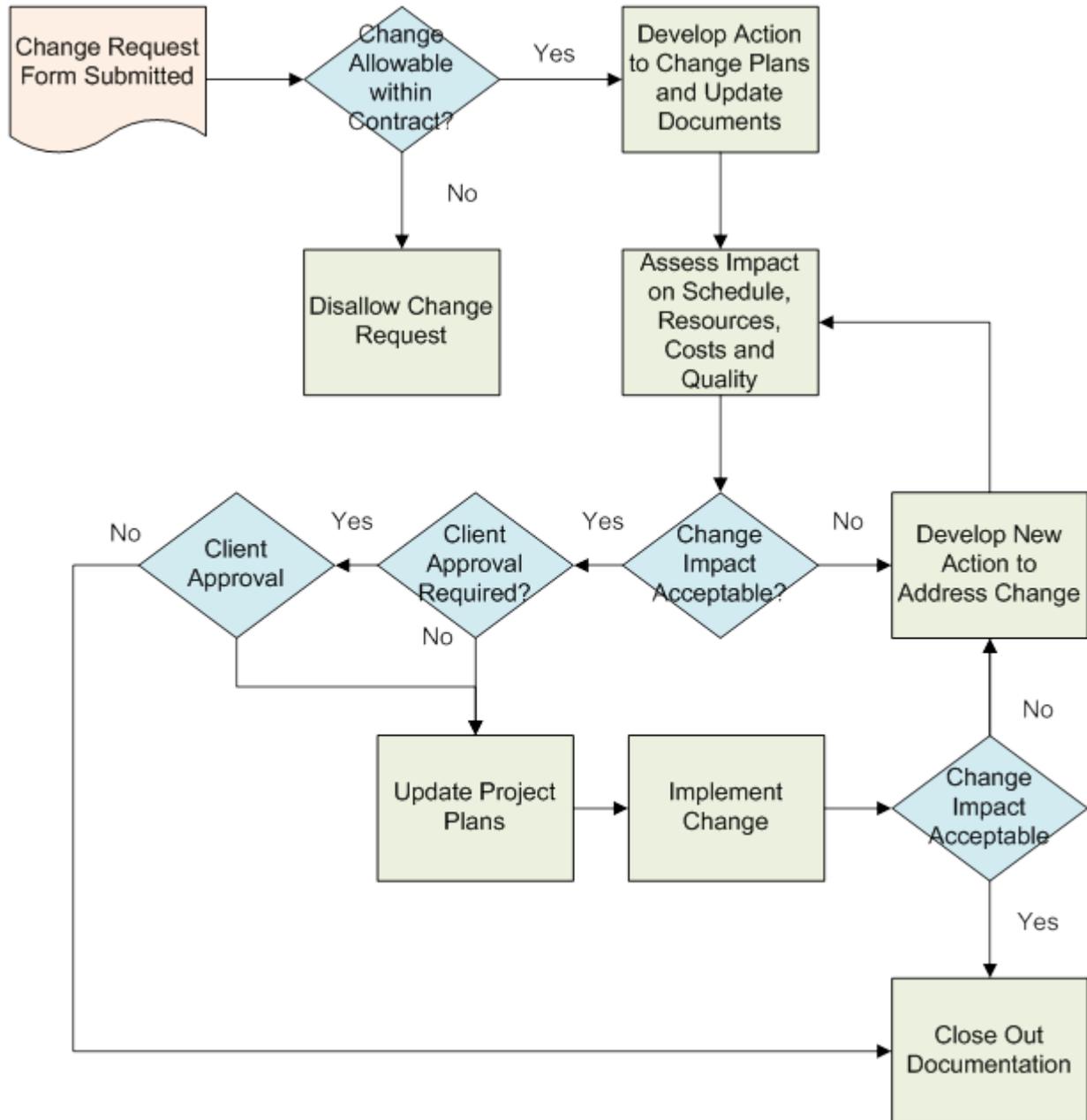
However, while a process map like the one in Figure 36 is helpful, it is extremely important to acknowledge that the process map for change requests will vary substantially depending on the project governance structure, donor relationships, contractual requirements, implementing partners and more. So, it is important to customize the process diagram to the reality of the projects' operating context.

Regardless of the specific process map for change requests, it is especially important that any changes be managed in an integrated way. That is to say, ensuring that any revisions to the project

plan clearly identify the implications the change may have on other sections of the project management plan. Persons familiar with each of the areas of the project plan (scope, cost, schedule, risk, procurement, quality etc.) will need to assess the impact of proposed changes on the **entire** project plan. When it is agreed that the proposed change will be beneficial and that the implications are acceptable, the change request can be approved. Once approved, the revised project plan should be communicated to the entire project team so that everyone now works to the updated plan.

Using Iterative Planning Models to Manage Change

Does this scenario sound familiar? A three-year project has entered year two of its implementation phase. In general, the project is going OK. The logic of the project intervention is still valid, and the deliverables are still viable. There is, however, a significant problem with the project plan. The field reality of year two implementation has little in common with what was predicted when the project plans were developed 20 months earlier. It is increasingly clear that certain budget estimates were significantly under-estimated, while other line items are no longer needed because of changes to the roles of implementing partners.

While these challenges can be addressed through a combination of issues management and change requests, some projects have addressed it through a strategy of iterative project planning.

In an iterative planning model, an initial project plan is established when the project is approved. However, recognizing that the field reality of project implementation can/will vary over time, the details of the project plan are not set out until later. Instead of establishing a single detailed implementation plan, the projects subscribe to a planning model that includes periodic updates of implementation plans. In development projects, these periodic plans are usually made on a yearly basis and are called Annual Operating plans. In an emergency response project, this time frame for updated plans might be significantly shorter. ECHO, the European Commission's Humanitarian Aid and Civil Protection group, for example, permits an adjustment to project proposals once every three months, based on an understanding about who needs to authorize changes for each of the levels of the logical framework.

By adopting an iterative project planning approach, organizations have more flexibility to accommodate change. The project team is able to revisit the project implementation plan at the beginning of each project period to:

1. Confirm the logic, risks, opportunities, assumptions and constraints.
2. Update and revise the activities, timelines and resources of the project.
3. Ensure that the project intervention activities are focused on addressing the risks and issues that pose the most immediate threats to project success.

2.2.6 PHASE 6: END OF PROJECT TRANSITION
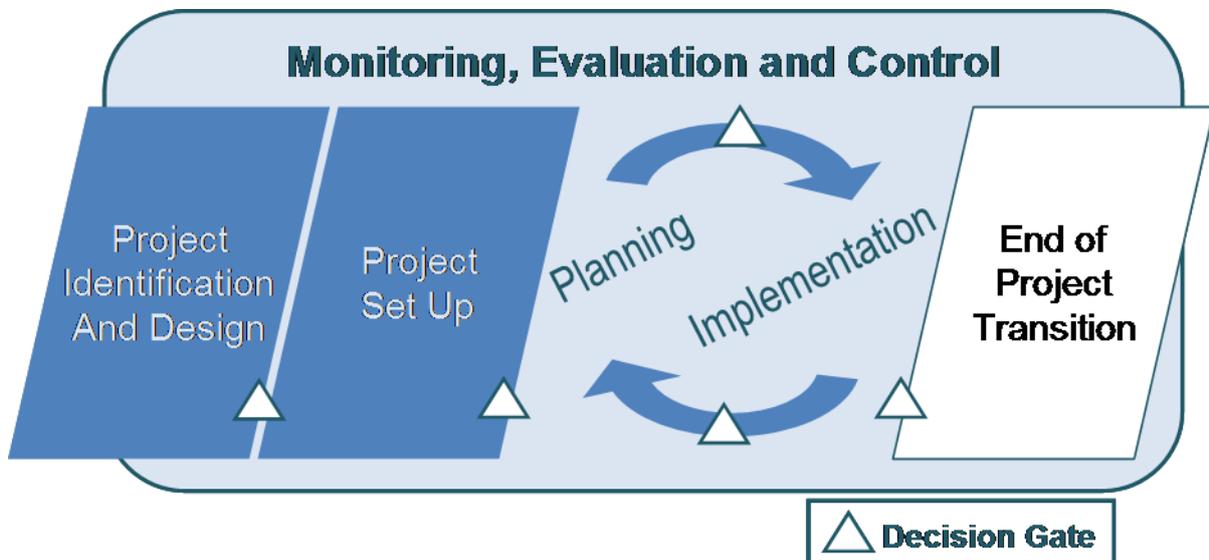
Figure 37: End of Project Transition

A project, by definition, is a temporary endeavor, having a defined beginning and end (usually constrained by date, but possibly by funding or deliverables). The temporary nature of projects differentiates them from normal business operations of an organization (or 'on-going operations', which is repetitive, permanent or semi-permanent functional work producing products or services). In the development field, however, one often finds projects that have been in operation for years – with one phase of the project continuing the work of the previous phases. This observation underscores the reality that the end of a project in the development sector is often more accurately characterized as a transition phase rather than as a strictly defined project closure. In practice, there are four end of project transition scenarios that exist for development projects. These four scenarios are presented in the table below:

Termination*	Extension	Expansion	Redesign
• The project is formally ended and all project closure activities completed	• Negotiation of added time to finish the project (could be at additional or 'no' cost)	• Identification of elements for replication with a new target area or population	• Continuation via a new phase with modified interventions or activities

*Termination could also include 'phasing over' or transferring the project activities to a local partner, institution or community.

Unfortunately, while project transition is of great importance, it is often overlooked and/or under-resourced. With pressures to move on to new projects and reassign staff members to other activities, the most practical way to ensure a complete project closure is to include it in the project plan.

2.2.6.1 Manage the End–of-Project Transition Strategy

As mentioned in the discussion of the Project Planning Phase, comprehensive project plans need to include an end of project transition plan which describes how a project intends to evolve upon completion of the project calendar, while ensuring that progress towards goals will continue. A transition plan may include several scenarios or contingencies that address risks and may also allocate additional resources when it may not be possible to exit entirely. The development sector considers transition especially important because of their concern that impacts be sustained after the project has ended.

One tool used to plan for the ongoing sustainability of the project is the Transition Planning Matrix as detailed below.

Figure 38: Transition Planning Matrix

Component	Key Questions	Guiding Principles	Challenges
1. Plan for transition from earliest project phases	✓ What type of transition is envisioned? ✓ What is the timeline and what are benchmarks?	➢ Ongoing project review and revision ➢ Transparency; especially funding	❖ Balancing firm commitments with flexibility ❖ Allowing adequate time to develop capacity
2. Develop partnerships and local linkages	✓ Selecting the right partners? ✓ What do partners bring? ✓	➢ Diversity: may need other project inputs ➢ Clear and common goals	❖ Aligning needs and objectives of diverse stakeholders ❖ Supporting local partners
3. Build local organizational and human capacity	✓ What capacities are needed? ✓ What capacities exist?	➢ Build on existing capacity if possible ➢ Create environments to support capacities	❖ Designing monitoring to track capacity building ❖ Providing incentives and retaining experienced staff
4. Mobilize local and external resources	✓ What inputs are needed to maintain services? ✓ Can benefits be sustained without ongoing inputs?	➢ Procure resources locally where possible ➢ Increasingly bring external resources under local control	❖ Difficulty finding adequate or available local resources ❖ Other funders not 'buying-in' to original objectives
5. Stagger phase out of various activities	✓ What are key project elements? ✓ Which elements are dependent on others?	➢ Flexibility; staggering sequence may change upon implementation	❖ Sufficient time allowed in the project cycle to start seeing the intended impact and outcomes
6. Allow roles and relationships to evolve after transition	✓ What types of ongoing support (advice, mentoring, Technical Assistance, etc.)? ✓ How will ongoing support be funded?	➢ Prevent slippage of project's intended results by including in extended, expanded or redesigned project	❖ Availability of funding for ongoing support ❖ Availability of staff who can focus sufficient time and energy on ongoing support

2.2.6.2 Verify the Project Scope and the Accept Deliverables

As a project enters the End of Project Transition Phase, the project manager should contact the internal and external stakeholders (including the Project Board or the Project Sponsor) to verify that the scope of the project has been accomplished and that the deliverables are accepted. Often, the verification of scope is measured in any final evaluation that is conducted for the project. However, in

situations where a final evaluation is not conducted, the verification of deliverables should still be conducted. This usually takes place in a two-step process.

- The project implementation team meets to crosscheck work completed against the project implementation plan. There may be, for example, activities that were delayed early in the project and never performed later.
- Meet with the key stakeholders (donors, community groups) to:
  - ✓ Review accomplishments against the project plan, and then get their acceptance documented by some kind of formal acknowledgement or acceptance.
  - ✓ Make sure they are satisfied, not just with the technical aspects of the project, but also with the overall outcomes (this is often as much about perception as it is about the existence of outputs and achievement of outcomes).

2.2.6.3 Complete Administrative, Financial and Contractual Closure

If the project were to be audited two years following closure, what would happen? Do systems exist to ensure that the administrative, financial and contractual elements of project closure are complete? These systems are critical not only because they help avoid problems with project audits, but they also reduce the risk that there will be disputes with suppliers, employees, and donors regarding the status of accounts. Systems should be identified to assist with each of the following three activity areas:

Contract closure
- Are all contracts closed out? Suppliers? Sub-contractors? Donors? Others? Implementing organizations?
- Has the donor reviewed and accepted project deliverables?

Financial Closure
- Has all permitted funding been received from the donor?
- Have all receivables (project advances, travel advances, and advances to suppliers) been liquidated or transferred to another project number or accounting code?
- Have all payables been paid?

Administrative Closure
- Have project personnel been released or reassigned?
- Have the project equipment, vehicles, offices been reallocated? Sold? Transferred?
- Are project reports and closure documents complete?
- Are project archives and/or files up to date?

2.2.6.4 Complete End of Project Learning

Lessons learned are the organization's memory bank. Ideally, the project team will develop a lessons learned log as part of the Project Set Up Phase that track lessons learned as they occur, or at least at major evaluation points or milestones throughout the project. As the project enters the End of Project Transition Phase, it is important to ensure that the lessons learned related to the project are adequately detailed, and are filed and easily accessible. Furthermore, it is critical that the project manager distribute the lessons learned to those who can benefit from them.   Without a system to capture end of project learning, the organization will perennially reinvent the wheel each time a decision is made to pursue a similar project. Donors are often interested in ensuring that learning is disseminated throughout the sector to ensure that new projects benefit from learning generated by other projects they have funded. Nowadays, NGOs often publish evaluation reports, and databases exist which include thousands of evaluation reports from many different organizations.

A learning review, also called an 'After Action Review', is a simple, quick and versatile learning activity that can be used to identify and record lessons and knowledge arising out of a project. Learning reviews are relatively straightforward to organize and implement. During the review, questions are asked that help participants understand what was planned versus what actually happened:

- What did we set out to do?
- What did we achieve? Focus more on facts than opinions;
- What went really well? Again, look at the facts. Why did it go well? Compare the plan to reality.
- What could have gone better? Compare the plan to reality. What prevented us from doing more?
- What can we learn from this?

The advantage of a learning review is that it can collect useful information relatively quickly and without expending extensive resources. The facilitation of the review is intended to be quick, open and not focused on deep thinking and discussion. The primary intent is to inform decisions on operations, policy, or strategy related to ongoing or future program interventions.

2.2.6.5 Celebrate Accomplishments

Just as it is important to acknowledge the beginning of a project through launch activities, a project manager should also appropriately celebrate and formally acknowledge the end of project transition by:

- recognizing the efforts of team members;
- acknowledging the contributions of key stakeholders to the project; and
- expressing appreciation to individuals and groups who were critical to the project success.

Recognition of the project accomplishments within the organization and to the outside world may also help facilitate positive public relations and prepare the way for future business opportunities.
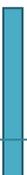
SECTION 3: PROJECT MANAGEMENT DISCIPLINES

There is no single road map to managing projects. Each project is unique with its own objectives, context; resources; relationships; and challenges.

And yet, while no two projects are the same, successful project management demands that all project teams comprehensively and actively apply a diverse set of project management disciplines through the entire life of the project. The PMD Pro identifies six project management disciplines that are especially important when managing projects in the development sector. They include:

- Scope Management
- Time Management
- Project Resource Management
- Risk Management
- Project Justification Management
- Stakeholder Management

Section Three of the Guide explores each of these project management discipline areas, providing details on the tools and mechanisms that are especially helpful when managing each discipline. Furthermore, recognizing that each discipline interacts with the others, the Guide also explores approaches to managing disciplines in an integrated way, with each discipline appropriately aligned and connected with the others.
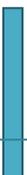
3.1   DISCIPLINE 1: SCOPE MANAGEMENT

The American baseball legend, Yogi Berra, famously said, "If you don't know where you are going, you will wind up somewhere else."   That is why scope management is so important to successful projects. A well-defined project scope will not only tell the project team where it is going, but it will also explain how the project intends to get there.

At its core, scope management has two components:

Product scope – Includes all of the required deliverables of the project, meeting the agreed specification. (What is going to be delivered?)

Project scope – Includes all of the work required to deliver the product scope. (How will deliverables will be created and delivered?)

Both of these components are critical to project success and need to be managed diligently. In the absence of a clear scope definition, the following problems may arise:

- **Unclear Expectations:** Ambiguity in scope leads to confusion among project stakeholders with regard to what to expect - and what not to expect - from the project. A clearly identified scope helps stakeholders share a common understanding of the benefits of the project and the work required to successfully deliver project outcomes and outputs. Stakeholders need to be 100% clear about the scope so as to ensure that they do not have incorrect or unrealistic expectations about what products/services will be delivered.

- **Inaccurate Estimates:** Errors in scope definition often result in

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A Cautionary Note about Scope Definition

Project Management is Comprehensive (and Detailed)!

While the project manager may be tempted to think that the documents developed during the Identification and Design Phase (logical framework, project proposal, etc.) are sufficient to define the scope of the project, this is seldom the case!

Remember, the logical framework and the project proposal were written for very distinct purposes. While they are especially strong at outlining the high-level logic of the project and selling the project to donors, **they are not designed to guide a team in the implementation of the project.**

Before the actual work of the project begins, the project manager needs to confirm that the scope of the project is comprehensive and detailed. Special care should be taken to ensure that information about the indirect work of the project is included in the scope, for example, details related to procurement, coordination, communications, human resources and risk management.

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projects that have failed to identify all the work required to complete the project (conversely, poorly developed scope can result in unnecessary work being included in the project). These scoping errors can cascade, resulting in errors in budget and time estimates. These estimate failures can result in schedule slips and hence finally cost overruns.

- **Scope Creep –** The purpose of defining scope is to clearly describe and gain agreement on the boundaries of the project deliverables and the project work. Failure to control these boundaries leads to a scope creep– a principle cause of project delays and potentially "never ending" projects. To avoid creep, the scope needs to be documented and managed for the duration of the project through a formal change process.

3.1.1 DEFINING PRODUCT AND PROJECT SCOPE

Recognizing the subtle yet significant difference between two elements of the scope of the project, let's examine those two definitions more closely:

- **PRODUCT SCOPE describes the deliverables of the project.** A complete definition of *product scope* will be an unambiguous and comprehensive description and specification of the products/services which are to be delivered. The level of detail provided in the product scope should be sufficient to counter any potential future disagreement about what was intended. Product scope is customer-oriented, meaning that its definition must be agreed to by the customer (the funders and users) of the project's deliverables.

- **PROJECT SCOPE describes the work of the project.** A complete definition of *project scope* provides a comprehensive and detailed description of the work that must be completed to deliver the project deliverables. Project scope is provider-oriented, meaning it depends upon what the project team decides will be the most appropriate way to deliver the product scope.

Once the project team has defined the product and project scope, the project manager should review the definition of scope for the following:

- Completeness – does the team know exactly what it is being asked to deliver?

- Ambiguity – will different stakeholders have the same understanding of what is being asked for?

- Resources – are the resource requirements understood and defined?

- Agreement – has the team agreed the deliverables?

- Viability – is the team capable of producing the agreed deliverable?

- Acceptance – has everyone (team and stakeholders) agreed what constitutes an acceptable product?

3.1.2 TOOLS FOR DEFINING PROJECT SCOPE

The Work Breakdown Structure is the principle tool that project managers use to define project scope. The WBS is a hierarchical decomposition of the work of a project. Put simply, the WBS arranges the project scope in an outline or hierarchy of 'work packages.'

The format of the WBS normally takes assumes one of two styles:

The graphic format provides an easy-to-read visual layout of the relative levels of the work of a project. This image allows partners and staff to see the relationships between elements of the WBS and how smaller components of the project roll up into larger ones. Furthermore, the graphic format

can be easily developed in a group setting using sticky note papers that are easy to move from place to place. For presentation purposes, this format also facilitates adjusting the depth of detail that is appropriate for various audiences.

Figure 39: Delta Project WBS (partial build out in graphic format)
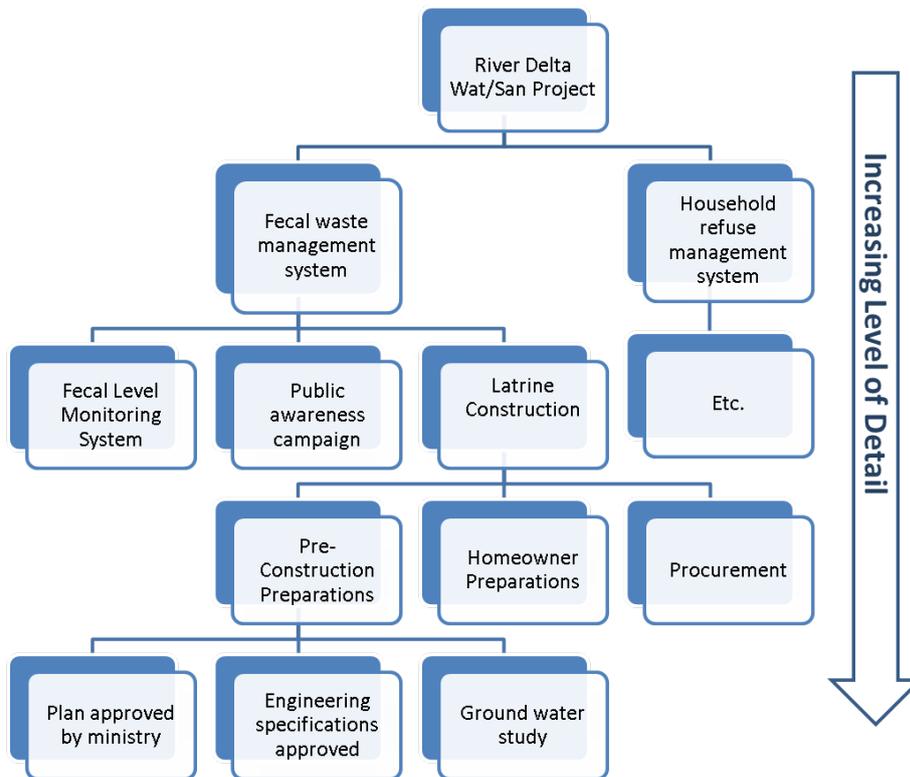
The indented format has the advantage of being easier to create and edit on a computer. It is also an easier format to load into project management software tools such as Microsoft Project, as well as for printing reports and computerized monitoring.

Starting from the graphic format in Figure 39, the WBS in Figure 40 provides an example of what the partial build out of the WBS for the Delta River Project would look like in an indented WBS format.

Figure 40: Delta Project WBS (partial build out in indented format)

1. Fecal waste management system
   1.1. Fecal level monitoring system
   1.2. Public awareness campaigns
   1.3. Latrine construction
       1.3.1. Pre-construction preparations
           1.3.1.1. Plan approved by ministry
           1.3.1.2. Engineering specification approved
           1.3.1.3. Ground water study
       1.3.2. Homeowner preparations
       1.3.3. Procurement

2.   Household refuse management system

    2.1. etc.

While the WBS is a central tool of project managers in most sectors, it is relatively unknown in the development sector. As project managers begin to adopt the WBS as a tool to identify the products/services and work of the project, there will be a number of questions that will inevitably arise.

What Format? In the end, preferences that the project team and the stakeholders have for interpreting information are most likely to influence the WBS format. Some people can process data more easily when they view it graphically; others prefer lists. It is sometimes a good idea to

> **Connecting the LogFrame to the WBS**
>
> *Project Management is Integrated*
>
> Notice that the major categories of work in the WBS are consistent with the contents of the project logical framework.
>
> However, the WBS will include a level of comprehensiveness and detail that is often absent from the logical framework. There might be additional categories of work included in the WBS that were not included in the logical framework. The WBS is also intended to provide the level of specific detail that is often missing in the logical framework.

create both. Often the graphic format is developed first as a group facilitated exercise.   An indented format is then developed to manage through the implementation of the project plan.

Who should be Involved? Participation of the entire project team and key stakeholders is important during the WBS process. No one person or small group of people can know enough to provide the level of comprehensiveness and detail required in the WBS. For example, it is recommended that team members responsible for the financial management and procurement activities of the project be involved not only to inform the quality of the WBS, but also to help ensure that they will understand the activities for which they are responsible.

How Many Levels? WBSs can also differ significantly in the number of levels they have. While there are no rules that stipulate an exact number of levels, the WBS must be detailed enough so that the sub-deliverables can be successfully controlled and monitored.

What should be Included in the WBS? It is critical that the WBS be comprehensive, comprising all activities required for project success. This includes the management activities that are frequently omitted in project proposals and logical frameworks (project planning and control, stakeholder training, communications, reporting, procurement and end of project transition activities).

Verbs or Nouns? Most commonly, the WBS is defined as a product-oriented diagram, meaning that the statements in the WBS are written in the form of nouns. However, some definitions of the WBS allow for its statements to be process-oriented, or stated in the form of verbs. From the perspective of the PMD Pro, the WBS statements can be written in the form of either nouns or verbs. What is important is to ensure that the contents of the WBS are both comprehensive and detailed.

A well-constructed WBS can be used to:

- Guide the process of activity identification and sequencing;
- Provide a basis for:
  - accurate estimates of project duration;

- o   accurate estimates of project cost;
- o   accurate resource estimates (vehicles, people, supplies, building materials);
- Identify required departmental, subcontracting, supplier services;
- Communicate and agree the product and project scope with the project's stakeholders;
- Show the hierarchy of work needed to complete a project and indicate the interfaces between them;
- Delegate the work packages to project team members, implementing partners or suppliers.
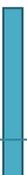
3.2   DISCIPLINE 2: TIME MANAGEMENT

Picture a project with schedule challenges. What was the problem? Did the project allocate insufficient time to complete the deliverables? Were key project tasks delivered late? Was the project schedule based on estimates of resources (manpower, machinery, other?) that weren't realistic?

Delivering projects on time is one of the biggest challenges faced in project management.   To successfully manage time, project managers require the ability to develop accurate schedules and to implement them through the life of the project.

The first step in successful time management is schedule planning. The steps in the schedule planning process include:

Project Management is Integrated!

Time Management Doesn't Take Place in a Vacuum!

Remember the Project Constraint Triangle? The sides of that triangle are all connected and it is impossible to manage one of the key project constraints (time/calendar, cost/resources, scope/quality) without taking the others into consideration.

For example, if your project has an inflexible time constraint for your project – "It MUST be done in one year!" – then make sure that the scope requirements and the resources (money, people and materials) are planned to ensure that the schedule is realistic.

Conversely, if one of the other key project constraints is fixed (Budget? Scope? Both?) then recognize it is likely these limitations will impact the calendar of the project.

Activity Definition –Comprehensively identifying the activities that need to be performed to produce the project deliverables.

Activity Sequencing – Identifying the relationships that exist among the various schedule activities.

Activity Resource Estimating – Allocating the type and quantity of resources available/required to perform each schedule activity.

Activity Duration Estimating – Estimating the time required to complete project activities.

Schedule Development – Creating a project schedule based on activities, sequences, durations, resources and schedule constraints.

3.2.1 ACTIVITY DEFINITION AND SEQUENCING

Starting from the WBS, the project team develops an activity list which comprehensively records all of the activities within the scope of the project (or within the scope of a specific work package of the project). Next, the project team develops a network diagram which graphically represents the sequences, relationships and dependencies between the WBS's activities.

Returning to the Delta River Project case study, Figure 41 provides a partial build out of a network diagram for the latrine construction component of the project. Note, that the diagram in Figure 41 is incomplete, because units of time still need to be inserted below each of the project activities.

Each of the boxes in the network diagram identifies an activity in the scope of the project. These boxes are connected by arrows that indicate their dependencies. These dependencies identify how

project activities relate to each other within the context of the calendar and the sequence through which the activities need to be completed. In some cases the sequence of activities boxes is linear, implying a precedence relationship which requires that one activity be completed before another can begin. Other boxes are on parallel paths and can be sequenced independently of each other.

Figure 41: Using a Network Diagram to Sequence Latrine Construction Activities
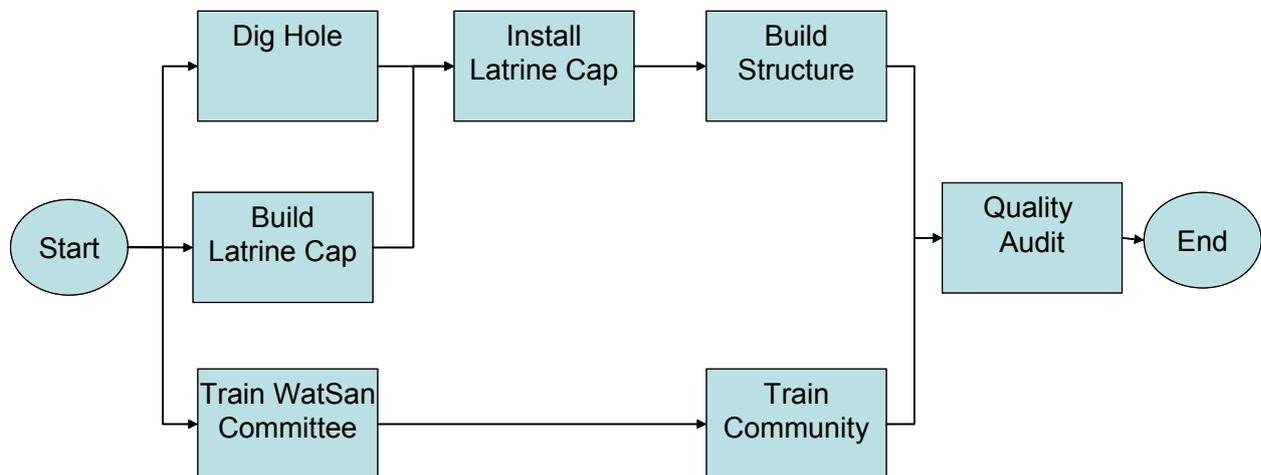
Some of the messages that can be interpreted from the design of the latrine project network diagram include:

- The project team must wait for the latrine cap to be built before it can be installed.

- The project team does not need to await completion of the latrine cap before digging the latrine hole.

- The training activities can be completed independently of the latrine construction activities. NOTE: If training was required as a prerequisite for participating in construction activities, then the TRAIN COMMUNITY BOX would need to be placed on a different path than to where it is currently located.

3.2.2 ACTIVITY RESOURCE ESTIMATING

Once the sequence of activities is identified, it is tempting to move straight to activity duration estimating. First, however, the important step of estimating resources must be completed. At its core, the relationship between resource estimating and duration estimates is intuitive. Everyone knows that it will take one person longer to dig a hole than it will take a team of five people to dig a hole. Furthermore, duration estimates will vary considerably depending on whether the excavation team plans to use a single shovel, a pneumatic drill or dynamite to make the hole.

In short, resources matter. They are one of the central factors influencing the project duration estimates. Therefore, resource decisions need to be made before duration estimates can be made. Decisions relating to the number and quality of resources committed to an activity, in turn, are contingent on a number of factors, including (but not limited to) the following:

Time – If there is a very tight timeframe, the project may choose to dedicate high levels of staff, materials and capital equipment to meet time constraints. Conversely, if the timeframe is loose, the project may choose to dedicate lower levels of resources allocated to an activity.

Budget – If money is in short supply, the project might choose to invest in a 'low cost' resource mix. For example, more manual workers and less machinery are a preferable low-cost alternative. This resource decision, however, will extend the duration of the latrine excavation activities.

Regulations and Organizational Policies – Often projects are constrained by labor laws and/or internal organizational policies that limit work schedules (hours per day, days per week, holidays per year, family leave policies). These constraints influence resource availability and consequently duration estimates.

Other Factors that Influence Resource Availability – A number of other factors influence resource availability, and thereby will influence activity duration estimates. Some examples of these factors include:

Weather Constraints impede an agricultural project where community participation is impossible during harvest season.

Material Constraints impede a housing project which requires scarce construction materials, making it necessary to adopt an alternative strategy that is more time consuming.

Logistics Constraints impede an emergency relief project from accessing transport, extending the time required to fill food warehouses.

Human Resources Constraints impede a health project from accessing qualified labor, extending duration estimates for technically complex activities.

3.2.3 ACTIVITY DURATION ESTIMATING

Once resource estimates are complete, the network diagram should be revisited and duration estimates will be added to all the activities. Returning to the Delta River Project case study, Figure 42 provides the finalized network diagram for the latrine construction component of that project.

Figure 42: Network Diagram for the Delta River Project Latrines Component
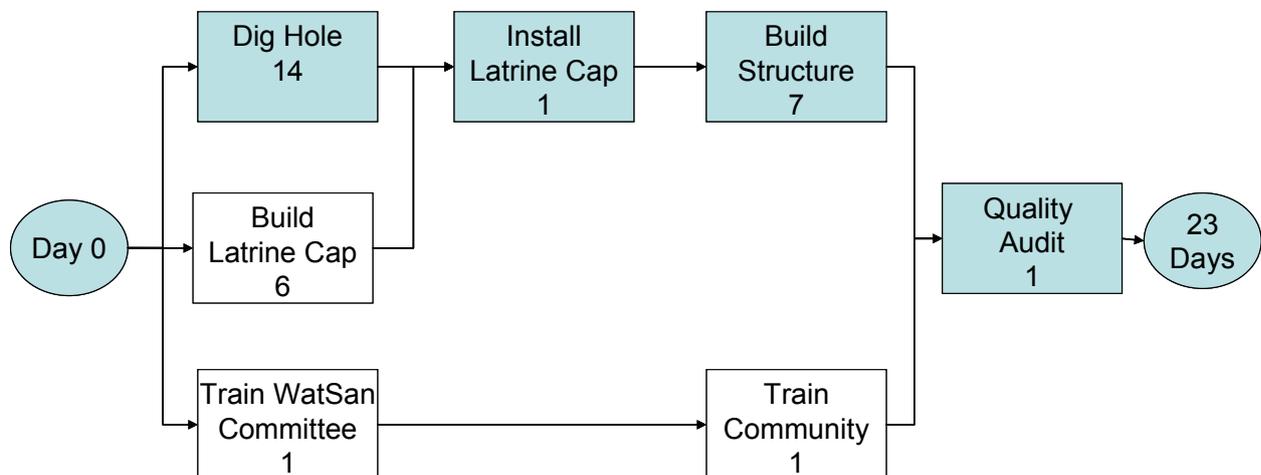
Now the network diagram is complete and can be used to help the project team identify:

The Project's Critical Path – The critical path is the series of tasks that determines the minimum amount of time required to complete project activities. In Figure 42, the critical path is the series of darkly shaded tasks. Why this sequence of activities? Because this sequence of tasks represents the longest path between the project's start and its end - in this case 23 days. In this example, the critical path is telling us that it is impossible to complete the project in less time than 23 days UNLESS the other constraints in the project constraint triangle are changed (money/resources or scope/quality).

The Project Float (or Slack) – In project management, float or slack is the amount of time that a task in a project network diagram can be delayed by without causing a delay to the project completion date. In the latrine example, there is zero float on the critical path. However, the 'Build Latrine Cap' activity could be delayed by up to eight days without impacting the project schedule. Similarly, the training activities could be delayed by up to 20 days without impacting the project schedule. If a project activity that is not on the critical path is delayed beyond the late start date, this could mean that the critical path determined in the project plan is no longer the critical path.

3.2.4 SCHEDULE DEVELOPMENT

Based on the estimates generated through the previous steps, the project team can now develop a project schedule. Within the development sector, the preferred tool for project schedule development is the Gantt Chart. Planning and implementing projects is made easier if it is viewed as small manageable items where the dependencies are visually illustrated, parallel processes are apparent, and the overall schedule is portrayed graphically. A Gantt chart uses bars to graphically represent the schedule of project activities, including their start date, end date, and their expected durations.

The complexity and comprehensiveness of the Gantt chart will vary. At its core, the Gantt chart tool has the advantage of being relatively easy to prepare, read and to use. However, it is important to recognize that the tasks of a project can be quite complex and many dependencies can exist between them.

One way to retain simplicity in the Gantt chart even when tasks and dependencies are complex, involves rolling up the broader, more comprehensive activities of a project into a summary Gantt Chart, with details being further elaborated on a detailed schedule.

The Summary Gantt Chart will not only differ from the detailed Gantt Chart with regard to the level of detail, but also with regard to its purpose. The summary Gantt Chart will be especially helpful when discussing the high-level progress of the project with stakeholders (project board members, key stakeholders, donors, etc.) The purpose of the detailed Gantt chart, however, will be less focused on high-level communication and much more focused on the operational planning, implementation and monitoring of activities. Here, the audience will focus on the project team and the implementing partners and suppliers responsible for completing project work packages and tasks.

Figure 43: Gantt Chart for Latrines Project (limited build out)
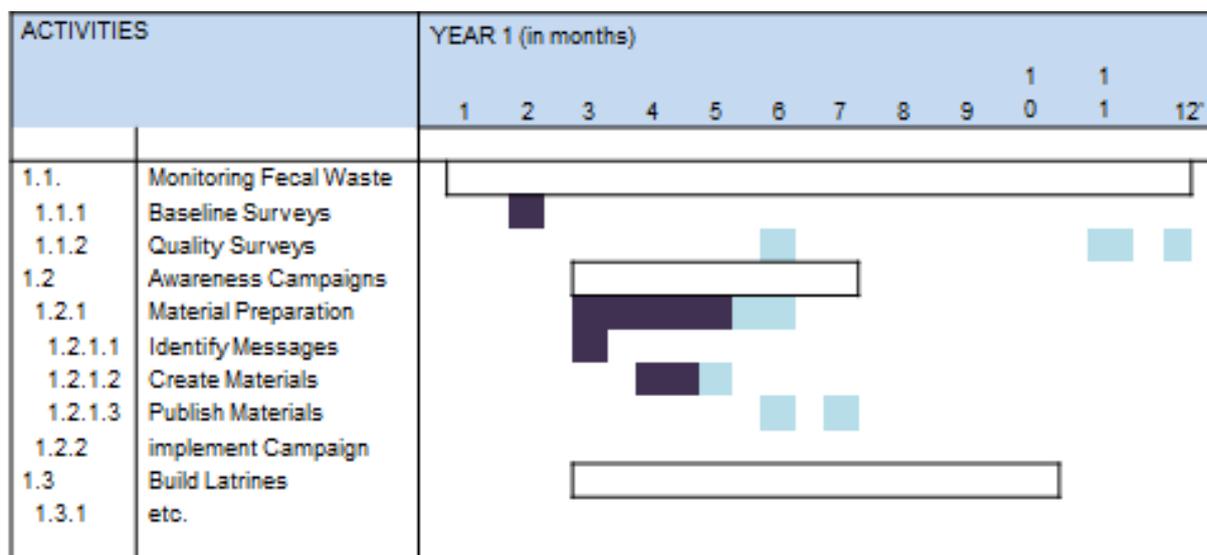
In this example, the work packages, tasks and subtasks are on the y-axis, and the time line is on the x-axis. The bars show when a task should start and when it will be finished. The outlined boxes provide the summary roll up schedule for the work package. Darker bars show tasks which have been completed. Light cell bars show work which still must be done. Note that this Gantt chart is designed to be updated, providing the project team with a tool not only to indicate what activities are planned for which months, but also providing a visual tool to track which project activities are completed (and which are not).

In the Latrine Project Gantt Chart, the table was built using a computer program. While this is frequently the case in development project, other tools could also be used. For example, often Gantt Charts are drawn by hand, either on paper or on white boards that are retained in the project office. Another option for developing and managing Gantt Charts is employing project management software programs like Microsoft Project or any of dozens of other programs on the commercial market.

There are many factors that should be considered when deciding which tool to use to develop the Gantt Chart. Some of these criteria include:

- Access to computer software;
- Computer and software skills ;
- The value and complexity of the project;
- Feature richness ;
- Strength/Flexibility for managing project changes and updating project plans.

Often, the overriding criteria that development organizations consider when making decisions are points one and two in the list above. The reality is that project teams in the development sector tend to lack access to project management software or the skills to use these software programs. For this reason, project teams tend to manage their projects by hand or by using word processing and spreadsheet programs.

This decision is reasonable; however, it is important to acknowledge that as projects increase in their level of complexity and risk, the commercial project management software programs include advanced features that are especially helpful. For example, Gantt Charts made in project management software programs include features that allow project teams to:

- **Identify linkages between project dependencies –** automatically identifying what tasks must be completed before others can be started. Furthermore, identifying when changes to the completion of one task will lead to delays in the initiation of other activities.

- **Track activities along the critical path –** automatically flagging when delays in activities along the critical path threaten to delay the overall timeline of the project schedule.

- **Link the project Gantt Chart to other critical project management document –** automatically identifying when changes to the project Gantt Chart require that integrated changes be made to other project documents like the project Budget and the project Work Breakdown Structure.

3.2.5 MANAGING THE PROJECT SCHEDULE

Project managers should monitor their schedules regularly to ensure the project calendar remains on track. If the project schedule begins to vary, the project team will have a number of options through which the project can get back on track. For example, deadlines can be delayed, or the scope of the project can be reduced.

However, if the project deadlines are fixed and the project scope cannot be changed, it may not be possible for the project to get back on track through the typical schedule management techniques. As an alternative, in scenarios where the scope and calendar are inflexible, two alternative techniques to consider are fast tracking and crashing.

"Fast tracking" a project schedule involves taking activities that would normally be completed in sequence and instead completing them in parallel. To make the most of fast-tracking, project teams should target the tasks on the critical path first as the activities on the critical path provide the greatest potential to accelerate the overall project schedule.

For instance, in the network diagram for the latrine construction project, the original plan was for the construction of the latrine structure to take place AFTER the latrine pit was excavated. In the fast tracking scenario (Figure 44), the network diagram (and hence the Gantt Chart) has changed so that the latrine structure is now constructed at the same time as the pit is being excavated. By completing activities in parallel, the critical path of the project is reduced from the original 23 days to 17 days, thereby allowing the project to make up for lost time.

Figure 44: Fast Tracking the Latrine Project Schedule

Fast-Tracked Project – Critical Path reduced
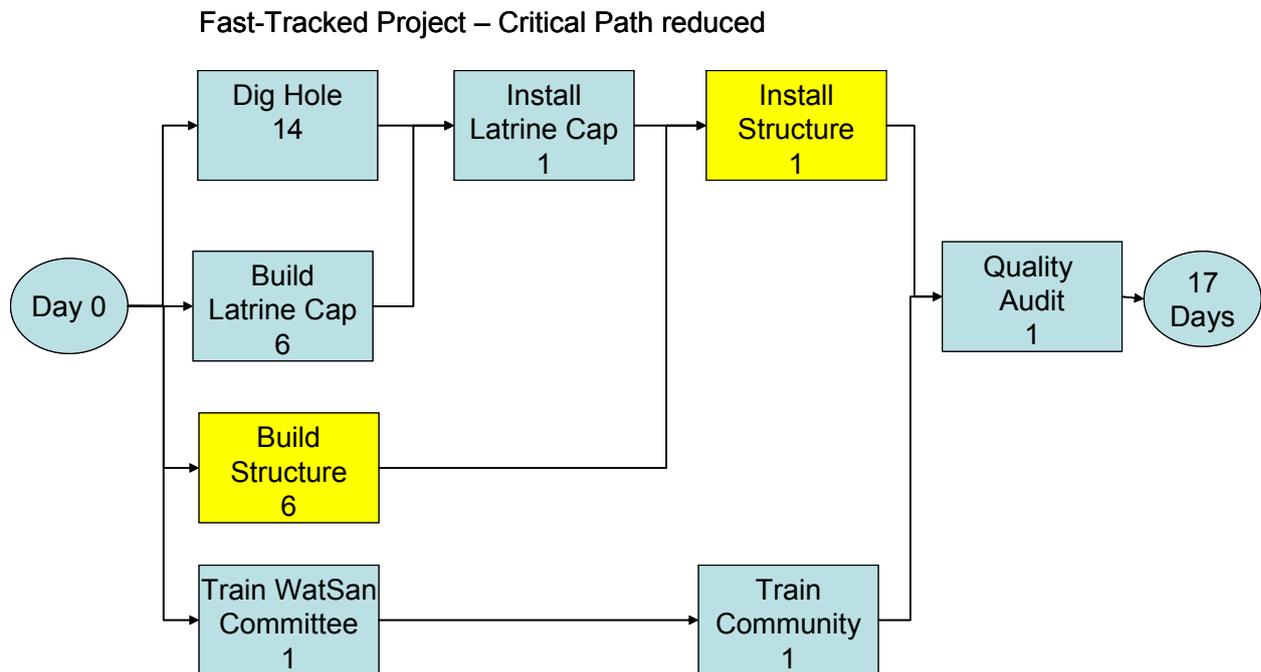
"Crashing" the schedule means adding additional resources to the critical path to accelerate progress, however, without necessarily getting the highest level of efficiency. For instance, let's say that the original plan for the latrine project had one person working 14 days to dig a hole.   To crash this timeframe, one option would be to add a second person to the DIG HOLE activity. This will most probably increase the speed at which the DIG HOLE activity is completed. However, don't assume that doubling resources will double productivity. Often, the additional productivity of the second resource is lower. The lower productivity of marginal resources can result from a variety of reasons. For example, there might not be enough room in the hole for two people to work efficiently or the project might not have the excavation materials (shovels, buckets, picks, rope, etc.) to support the work of two diggers.

In the case of the latrine project, adding a second digger to the excavation team reduces the time spent on the DIG HOLE activity from 14 days to 10 days. Therefore, as a result of crashing the project, the critical path is reduced from 23 days to 19 days

Figure 45: Crashing the Latrine Project Schedule

Crashed Project – Critical Path reduced
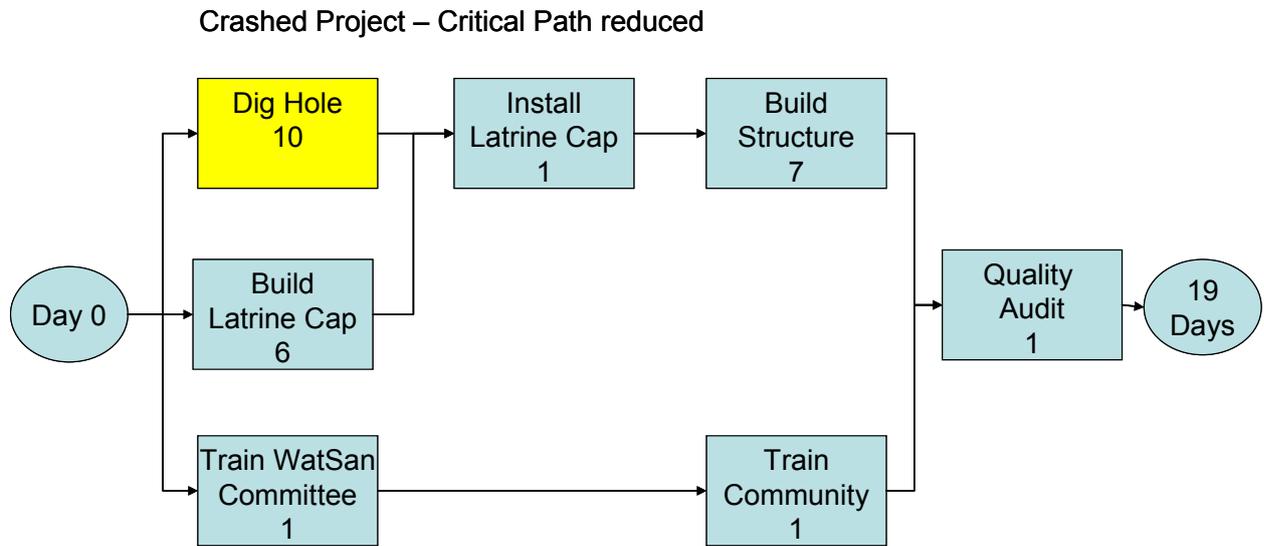
3.3 DISCIPLINE 3: PROJECT RESOURCE MANAGEMENT

As the name suggests, project resource management is the arrangement and deployment of resources available to a project. Project resources typically include finances, supplies and inventory, human time, skills and input, equipment, and information technology.

3.3.1 WHY IS EFFECTIVE RESOURCE MANAGEMENT IMPORTANT?

One of the most important and most challenging jobs of a Project Manager is to effectually and efficiently organize all the resources involved in a project. It goes without saying that the complexity of this task will depend heavily on the scope and nature of the project at hand. But in all cases, it is A CRITICAL FACTOR BEHIND SUCCESS OR FAILURE.

At any given time, a Project Manager must know how to effectively juggle numerous project resources. The manager must know how to create and stick to a budget so that funds are allocated where they are needed and effectively organize workers and project personnel so that the right people are assigned appropriate tasks. In addition, it is necessary to have an effective deployment and flow of services, supplies and inventory so that the project has access to what it needs, when and where it needs it and at the most appropriate price.

Effective and fluid communications with support services is vital for project success. It is often stated that "project management is too important to leave to the project staff alone". Support staff members have critical skills and

Project Management is Integrated!

Collaborating with the Support Staff

One of the most important challenges in project resource management is ensuring that the Project Manager along with the project support staff (i.e. finance, HR, IT, and supply chain) and their managers are closely aligned and integrated. This relationship building should begin during the Identification and Design phase. As the initial project design is formulated, the appropriate support staff should be involved in establishing high-level budget parameters, identifying skills and specifying supply needs.

As a project enters the Planning phase, the support staff can be especially helpful in ensuring that budget formats are correct, that estimates are accurate, that the budget item list is comprehensive and that the budget is detailed. They will ensure that supply chain plans are accurate and that recruitment and skills development planning is incorporated into project plans.

Later, as a project enters the Monitoring, Evaluation and Control phase, support staff will be critical to ensuring that project financial reports are accurate, timely and useful. Only with this information, will the project team be able to gain a full understanding of where the project stands with regard to its progress.

experience. They need to be engaged in the project as early as possible. Failure to involve them will usually result in inaccurate and/or incomplete planning and, as a result, poor implementation and delivery.

The PMD Pro focuses on three of the Project Resource Management areas: finance management, supply chain management and human resources management. These three form the core of project support services.

It is important to be clear that ultimate responsibility for project finance, supply chain and Human Resource Management rests with the Project Manager. This is true even though the Project Manager may not have direct line management responsibility for finance, supply chain and staff. It is the Project Manager's job to make sure that project finances are well managed; that goods, services and materials are managed effectively and efficiently; and that project staff have all skills necessary to achieve success.

3.3.2 MANAGING PROJECT FINANCES

Development sector organizations usually rely on individual or organizational donors to fund programs – and they expect donations to be well managed. Development organizations also have an obligation to the communities and partners they serve, being responsible to ensure that resources obtained on their behalf are used in an optimal manner in order to maximize impact.

To exercise prudent financial management of the project, the Project Manager will need to develop skills in these three areas:

- Developing Budgets
- Identifying Cost Estimates
- Monitoring Budgets and Expenditures

It is the practical reality of most projects that a manager will not be given full control over all financial processes. To be successful, a Project Manager will need to collaborate and coordinate closely with a Finance Manager plus an array of other people in all steps of the finance management process. Nonetheless, even though there will be elements of financial management where the manager lacks full authority and control over processes, the Project Manager is still accountable. These six areas of coordination and collaboration in finance are especially critical:

- Accessing historical data for financial reports
- Explaining budget variances
- Issuing checks
- Authorizing expenditures
- Managing cash balances
- Implementing purchasing policies

As discussed previously, the mandate of the Project Manager is to assume responsibility for ensuring overall success of the project. In the case of the financial elements, a Project Manager must ensure that roles and responsibilities of all individuals involved in financial processes are clear AND that individuals are living up to their commitments.

3.3.3 DEVELOPING BUDGETS

A budget is a description of the project's financial plan that includes a list of project cost estimates. As is the case for all components of the project plan, the key to accurate budgets is assuring that they are comprehensive and detailed.

Comprehensive Budgets – All budget items required to deliver the products and services must be included. As a first step, the project team needs to identify expenses required to deliver project products and services. These are expenses related to the direct work of the project; including salaries, vehicles, materials, supplies, equipment, etc. However, it is important not to stop there but to remember that a comprehensive budget must anticipate expenses related to the indirect work of the project. A Project Manager must ask an important question: "what resources will be required for the supporting processes that are vital to project success?" These include resources required for communications, risk management, monitoring, evaluation, project management services, human resource management, procurement processes, project integration and general overhead of the project.

Detailed Budgets – Just as the project scope should drill down to identify specific activities required to successfully implement a project, so should the project budget. While high-level budgets are helpful to communicate the general parameters of the project to various stakeholders, the project team requires a more accurate and specific identification of project costs in order to implement activities successfully.

Some examples of the level of detail that needs to be included in the project include:

> **Transaction Costs:** For instance, when identifying the cost of procurement, the team budget should not only identify the cost of the service or product but also the cost of managing the procurement process. The level of budget detail might include expenses required to start up a project (establishing internal controls, accounting systems, hiring processes, etc.) and the cost of terminating projects (closing out contracts, terminating staff, etc.)

> **Shared Services:** Another level of detail often missing in project budgets is the cost of services allocated to the project by the development organization itself. For example, does the budget need to include expenses for the percentage of time allocated to the project by the financial manager, a driver, an information technology staff or others? If the project fails to include a sufficient level of budget detail, it runs the risk of being unable to access the full range of services and oversight needed for successful project implementation.

Design and structure of a budget document often depends on the source of the project funding. For example, in situations where development projects receive money from external donors, the budget parameters most frequently follow donor guidelines. As a result, project budgets vary considerably with regard the chart of accounts and timing.

> **Chart of Accounts** – Project budget items are grouped in cost categories that help project teams capture and analyze transactions by program area, funding source, location, department, etc. In turn, these cost categories are grouped in sub-elements that are provided with line-item codes. While it is a common practice for budgets to employ a chart of accounts approach that identifies all accounts in the project, the cost categories and line items are not standardized and vary between donors, implementing organizations, and/or project partners.

> **Timing:** All budgets must define the time period to which they apply. There are multiple approaches to managing budget time schedules:

Life-of-project budget (or multi-year budget) – Here the global budget for the entire life of the project is developed and serves as the official financial document that accompanies the project plan.

Annual project budgets – Some projects adopt the norm of revisiting the life-of-project budget on a regular basis and requiring that a project team submit a one-year budget upon the completion of each project year. While multi-year budgets tend to be the standard in the development sector, requiring an annual project budget lowers the risk that budget estimates based on multi-year horizons will be inaccurate, will suffer from price variability, or will not be flexible enough to adjust to shifts in the field operating environment.

3.3.4 ACTIVITY BASED BUDGETING

Activity based budgeting focuses on identifying costs of activities that take place in every area of a project and determining how those activities relate to one another – including direct and indirect work.

Proponents see activity based budgeting as more realistic than other budgeting approaches, as it involves understanding how much activities will actually cost. If a Project Manager is able to develop a complete (both comprehensive and decomposed) list of activities along with cost estimates for activities, then a budget will prove accurate. Activity based budgeting also offers more opportunity for line staff to get involved, making it more likely that a budget will be accurate.

While there are a number of possible activity based budget formats that add details such as account codes, donor codes, and unit costs -- they all have two similar requirements:.

1) Develop a complete list of activities during scope planning.

2) Work out what will be needed to achieve each activity and estimate how much each will cost.

By meeting these two requirements, the budget will provide details for each activity and show associated costs that can, in turn, be monitored. If monitoring shows that actual expenditures have exceeded cost estimates, then a Project Manager will know that the project is unlikely to deliver the complete project scope. Re-planning of work must be done to find more efficient ways of implementing remaining activities. Alternatively, the manager can request a Project Board, or other Project Governance structure, to adjust scope.

Figure 46: Simple Activity Based Budget Example

Activities			Costs per quarter					Activity
			Q1	Q2	Q3	Q4	Total	Total
1.1	Establish Plannning Unit							
	EQUIPMENT							
		1. Computers	2000	2000			4000	
		2. Fax modems	500				500	
		3. Office furniture	3000				3000	
	RECRUITMENT							
		1. Counterparts	800	800	800	800	3200	
		2. Office staff	200	300	300	300	1100	
								11800
1.2	Establish link with Government							
	LIAISON MEETINGS							
		1. Prepare written presentation materials		5000			5000	
		2. Prepare video	1000	1000	4000		6000	
		2. Stationery			200	200	400	
		3. Refreshments			100	100	200	
								11600

3.3.5 IDENTIFYING COST ESTIMATES

Regardless of the project or the format of the project budget, a financial plan is only as good as the estimates upon which it is based. To an extent, there is always going to be risk associated with project estimates. Estimating will never be a precise science that produces 100% accurate results. Project Managers can't predict the future. There will always be project variables that will lie outside the control of the project team.

And yet, while there are abundant reasons why making accurate estimates is a challenge, estimates can be sufficiently accurate to support good project decisions. Furthermore, there are best practices that help Project Managers improve the accuracy of their budget estimates:

1. **Choose the right approach to make the estimate** – Estimates are normally developed through a combination of the following three techniques:

    Top-Down Estimates start with a global estimate for the cost of a project and then assign a percentage for that total to different phases or work packages of the project. The percentages assigned to the components are generally identified by individual(s) who have previous experience on similar projects. This approach to estimating tends to be more exclusive and involves a relatively small group of people who are considered to be "experts", based on their past experience.

    Bottom-Up Estimates do not start with a global estimate of the cost of the project. Instead, tasks are estimated and "rolled up". In this model, the estimates are solicited from the people who have knowledge of the field reality of the project, and who are often the same people who will be responsible for implementing project activities (including partners, suppliers, community members, etc.) Bottom-Up estimating tends to involve a larger number of participants and requires more effort to manage. Bottom-up estimates are more likely to be

accurate as field staff will probably have a better awareness of the resource constraints that impinge on cost estimates. As an example, they may know exactly how much resource different communities can provide to help with latrine digging – giving a much better estimate than assuming that all communities can provide the same resource.

Parametric Estimates rely less on people and instead uses a statistical relationship between historical data and other variables (for example, square footage in construction, meters of road, etc.) Parametric estimates tend to be used for projects and project components that produce concrete outputs (for example, infrastructure building, road construction translation services, etc.) Here the estimate is made by identifying historical data from projects that delivered similar outputs (for example, miles of road, square footage in construction, lines of text) and using it to calculate estimates for scope/quality, cost/resources, and/or time/calendar. This technique can produce higher levels of accuracy, but depends on the quality of the underlying data built into the model.

2. **Develop phase estimates (when possible)** – At the beginning of project implementation, donors often require a firm commitment to a life of project budget. While this practice is often considered a good strategy to manage runaway budgets, the strategy only works to the extent that the project budgets are realistic. Often it is difficult to develop accurate budgets during the early stages of the project life. The field reality often changes during implementation. Unforeseen costs will arise. The field reality will evolve. Prices and inflation will change. For that reason, project teams often prefer to work through a process of phased estimating which allows the possibility of developing a series of budgets at different points along the project calendar (this could, for example, be a string of annual budgets). This strategy helps ensure that project budgets are accurate as they enter the next phase of the project. It also provides a logical point for the project governance body to check in on the justification of the project and ensure that it still "makes sense" before devoting additional funds.

3.3.6 MONITORING PROJECT FINANCIAL PERFORMANCE

When monitoring project financial performance, the first question is usually, "Is the project over or under budget?"   To answer this question, most project teams pull out the most recent budget data and compare the Cumulative Planned Costs to the Cumulative Actual Costs for the project up to a certain date. Unfortunately, this calculation is often limited in its usefulness. While it might provide a snapshot of whether a project has spent more or less money than was estimated over a given time period, it provides no data to explain why any variance might exist.

Take, for example, the data provided in Figure 47. The initial analysis of the data from month three of this project would indicate that this project is over budget. This is because the Planned Cumulative Cost at the end of month three (1100) is lower than the Actual Cumulative Cost (1300).

Figure 47: Illustrative Budget for a Six Month Project (including actual costs through Month 3)

Task	Planned Cost	Month One	Month Two	Month Three	Month Four	Month Five	Month Six
A	100	100					
B	200		200				
C	100		100				
D	400			400			
E	100			100			
F	200			200			
G	200				200		
H	100				100		
I	300					300	
J	100						100
Planned total cost per month		100	300	700	300	300	100
Planned cumulative cost		100	400	1100	1400	1700	1800
Actual total cost per month		150	350	800			
Actual cumulative cost		150	500	1300			

Unfortunately, this quick calculation doesn't give the whole picture of the financial status of the project. Yes, the project has spent 200 (11%) more than was budgeted for the first three months of the project. However, while it is tempting to assume that the cost variance at the end of month three means that the project is "over budget"; be careful not to jump to assumptions! The higher than expected costs could be attributable to one of two reasons:

- **Scenario A:** On the one hand, the project could be more expensive than was originally estimated. In this case, project activities are on schedule, but they cost more than anticipated in the budget. *Analysis:* Scenario A is definitely problematic. It points to a trend that, if continued, will result in a project that will be over budget. In this situation, corrective action will need to take place to ensure that the project avoids budget shortfalls.

- **Scenario B:** On the other hand, the project might be spending more than it expected because the project is ahead of schedule. As a result, the project is spending more than they anticipated in the first three months of the project. *Analysis:* Scenario B is not *necessarily* problematic. Yes, the project in Scenario B is spending more money per month than was originally planned; however, it is also completing more work than it had planned.   In this

scenario, the project needs to collect more information to decide whether the project is spending more money than it had anticipated **for the amount of work it is completing**.

Note - In both scenarios, the project will need to ensure it has enough cash on hand (cash flow) to continue operations because it is spending more money per month than was originally anticipated.

Scenario B provides an interesting challenge to a project team. This scenario underscores the important message that it is not enough to look only at whether a budget has spent more or less money than was estimated over a given time period. Instead, monitoring financial performance must also watch two separate but related indicators: monitoring cash flow and monitoring costs through earned value analysis.

3.3.6.1 Monitoring Project Costs through Earned Value Analysis

To best monitor project costs, it is preferable to monitor the cost *of the work* completed during a time period. Earned Value Analysis is a tool that compares the planned and actual cost for each task that has been performed and ALSO compares the rate of progress on each task to what was scheduled in the project plan. This means that in order to conduct Earned Value Analysis the Project Manager will need a more complete set of data that combines elements of both the project budget AND the project calendar.

Figure 48 provides an updated view of the six month project introduced earlier, but now includes two new columns that provide the actual cost of each task and the percentage of work completed for each task.

Figure 48: Example of a 6 Month Project Budget (including data for Earned Value Analysis)

Task	Planned Cost	Actual Cost	% Done	Month One	Month Two	Month Three	Month Four	Month Five	Month Six
A	100	150	100%	100					
B	200	200	100%		200				
C	100	100	100%		100				
D	400	400	100%			400			
E	100		0%			100			
F	200	100	50%			200			
G	200	200	100%				200		
H	100	50	50%				100		
I	300	100	50%					300	
J	100		0%						100
Planned total cost per month				100	300	700	300	300	100
Planned cumulative cost				100	400	1100	1400	1700	1800
Actual total cost per month				150	350	800			
Actual cumulative cost				150	500	1300			

When analyzing the information in Figure 48, there are two important conclusions to be drawn from the data:

- After three months the project has either fully or partially completed eight tasks. By comparing the planned costs of each of these tasks with the actual cost of performance of these tasks, it can be shown that the project is EXACTLY on budget when compared to the work performed ((The project spent 1300 to get 1300 worth of work done.)

- The project plan calls for 1100 worth of work to be accomplished in three months. Instead, 1300 was accomplished. That means the project is 18% ahead of schedule.

So what conclusions can be derived from this analysis?

- If the project continues at the current rate work, it will complete early;

- If the project trends continue unchanged, the project will complete on budget.

Note that the conclusions of the Earned Value Analysis differ from the conclusions of the cumulative cost variance analysis in the previous section. This is because the Earned Value Analysis is providing richer data that integrates scope, budget and calendar data at the activity level of the project.

As a result, Earned Value Analysis helps underscore that not all scenarios where the cumulative costs exceed the project budget are "bad."   Conversely, not all scenarios where a project's cumulative costs are under budget are "good."   The Project Manager should explore further to get a clearer understanding of the budget situation in comparison to the scheduled completion of project deliverables.

Figure 49 provides an overview of the combinations of results that can occur when conducting Earned Value Analysis and identifies the implication of the different scenarios. Note that the cells of the table provide some budget/schedule combinations that are "good", others that are "bad" and some that require more data to understand the project status.

Figure 49: Results Combinations for Earned Value Analysis

	Behind Schedule	On Schedule	Ahead of Schedule
Under Budget	Need more data	Good	Good
On Budget	Bad	Good	Good
Over Budget	Bad	Bad	Need more data

While the status classifications in Figure 49 are helpful, regardless of the classification Project Managers should use the status classification to begin a deeper exploration of "Why is our current Earned Value Analysis status what it is? Is our current status a result of decisions the project has made regarding quality management, risk management, stakeholder management or any of the many other topics that influence the budget and the calendar?"

As we conclude this exploration of Financial Monitoring, there is one final observation that is important to highlight. While Earned Value Analysis can provide rich data that helps better monitor the financial status of the project, it also requires an accurate project accounting system that integrates activity based cost and schedule data. Together, this data can be used to calculate earned value measurements for the project's overall cost and schedule performance. The accounting system will need to be founded upon a practical, activity-driven work breakdown structure and will need to include timely cost information. Any delay in cost reporting is a delay in the ability to assess the current cost and schedule status of the project. These prerequisites are often absent from the systems of development organizations, making it difficult to adopt this management tool within the context of development projects.

3.3.7 MANAGING THE SUPPLY CHAIN

Imagine you are building a house. How would you address the complex challenges related to managing the flow of the goods, and services between their point of origin and their eventual use in the construction of the house? How do you plan the purchase of materials, establish delivery schedules, purchase equipment, identify storage facilities for materials, obtain permits, track the status of all the materials...the list goes on!

Now imagine building the same house in a remote, resource-poor community. As a Project Manager, you will now need to manage all of the complex supply management challenges listed above, but you will also need to manage an array of risks that are unique to the development context. Are suppliers reliable? Is there corruption in the procurement system? Are there any existing mechanisms for transporting materials? Are there security issues? Is staff safety a concern? What are the resource constraints?

Even this short list of risks provides insight into the challenge of managing supplies in development projects. Delays caused by faulty supply line management lead to not just loss of project control, but also to the loss of reputation and beneficiary satisfaction. These are priceless assets, which are almost impossible to recoup once lost. What's more, due to the critical nature of the services development organizations provide, shortcomings and oversights can result in serious consequences for the beneficiaries that could literally mean the difference between life and death.

In addition, supply chain management can account for a significant percentage of a project budget. This is why it is important for project supply to be managed as efficiently and effectively as possible.

It is likely that the Project Manager will not hold line management responsibility for the supply chain function. There may be a team of logisticians who provide procurement and logistics support to a range of projects. Despite this, the Project Manager is responsible for making sure that the project has access to the right goods and services at the right time and, as a result, needs to collaborate and coordinate closely with the supply chain support function to ensure success.

The PMD Pro defines three components in supply chain management:

Procurement Management – including the identification of what materials and services are needed, when they needed, and identifying how it will be acquired and by whom. The procured plan also needs to be integrated with all of the other elements of the project plan to ensure that all procurement decisions are aligned with the project's budget, calendar, quality and risk parameters.

Logistics Management – including planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.

Asset Management – including the systems whereby things that are of value to a project are monitored, maintained and disposed.

The Project Manager is responsible for making sure that these components are being well managed.

3.3.7.1 Procurement Management

Procurement includes the complete process of obtaining goods and services from preparation and processing of a requisition through to receipt and approval of the invoice for payment. The Project Manager may be responsible for the actual procurement of the services or products needed to develop and implement the project, or may be directing these activities through a contracting or procurement Team Leader. Regardless of the precise role and responsibility of the Project Manager, these procurement activities may have a significant impact on the Project Budget and Schedule, so they must be integrated into the overall project plan, budget and schedule.

Examples of typical procurements associated with a project include:

- **Materials:** These may range from typical products such as furniture and personal computers, to highly specialized products for the project such as medical equipment, well-boring machinery, or road construction materials.   The Project Manager may be responsible for the actual procurement of the services or products needed to develop and implement the project, or may be directing these activities through a procurement specialist.
- **Consultants:** Frequently, while in-house resources are available to perform a significant amount of the project work, additional resources are needed to complete the project on time or to provide some needed skill. One strategy is to obtain outside resources, usually consultants, to augment the project staff.
- **Suppliers:** In this case, the supplier assumes responsibility for performing all aspects of a selected service, usually to specific standards and for a fixed cost. In this type of scenario, the project purchases the specific service. Examples might include demolition services, transportation services, security services, and construction services.

There are three steps in procurement management:

- Procurement planning

- Identification of providers

- Selection, negotiation and award.

3.3.7.1.1 Procurement Planning

It is advisable to create a Procurement Plan whenever the project requires that items are purchased from suppliers. A Logistics Plan defines the products and services that the project will receive from external suppliers. A good Procurement Plan will go one step further by describing the process you will go through to appoint those suppliers contractually. The steps in procurement planning include:

- Defining the items you need to procure;
- Defining the process for acquiring those items;
- Scheduling the timeframes for delivery.

3.3.7.1.2 Identification of Providers

Various procurement documents can be used to solicit information from potential providers of services and materials.

Estimates: An independent estimate of the time and cost to provide the service or materials are generally provided when the evaluation criteria for selecting the provider is relatively simple and going to be decided primarily/exclusively by price.

While price will be an especially important consideration when evaluating estimates, care should be taken to assess that the proposed cost is a realistic and not overly optimistic estimate that takes into consideration the technologies and skills involved in the project. If there are significant variations between cost and schedule estimates in submitted proposals, the lowest bid may not always be the best value. If the low bid is significantly lower than other estimates, it should be looked at very carefully. If the contract is not profitable it can generate many problems for the contractor and the agency.

Proposals: When the selection criteria for potential providers are more complex, estimate documents will not necessarily collect all the information required to make an informed decision. These types of procurements may collect additional information via an Invitation for Bid (IFB) or a Request for Proposal (RFP) process. The RFP should contain a comprehensive and concise statement of work (SOW) that clearly defines the products desired, their functional requirements, operating and performance characteristics and required interfaces with other agency systems and processes.

3.3.7.1.3 Selection, Negotiation and Award:

The procurement process should be designed to enable the organization to obtain and evaluate estimates/proposals from a number of different providers, using a variety of criteria that might be relevant to the decision.

Selection criteria can be limited to price and calendar if the material or service is readily available and relatively simple in its configuration. Generally, however, provider selection will be based on a combination of financial and technical considerations.

Whatever selection criteria are employed, the decision-making group should be clear about the criteria to be used to make decisions and their relative weights. This understanding will inform their ultimate choice so as to facilitate easy assessment of responses.

3.3.7.2   Logistics Management

Since many projects are dependent on the timely delivery of materials, proper logistics support is an important necessity. Logistics means having the right thing, at the right place, at the right time. In its most limited sense, logistics involves the transport of goods, but there is more to it than this. In a much wider sense, logistics includes all the activities required to deliver items accurately, efficiently and in a time bound manner to the place and person it is meant to be sent. This wider definition of effective logistics involves:

- Inventory management and warehousing
- Materials transport

3.3.7.2.1 Inventory Management and Warehousing

Depending on the project, inventory can represent a large cost of the total project value. This value is made up of the cost of the inventory itself, plus the cost of transporting the goods, cost of managing the goods (labor, packaging, etc.) and keeping the goods in warehouses. The project team needs to establish an inventory management that ensures that stock is available to meet the needs of the project as and when required.

To this end, the Project Manager must coordinate with the team members directly responsible for inventory management, constantly connecting the inventory requirements to the changing needs and priorities of the project. As part of this challenge, the project must establish a balance between supply and demand by establishing minimum holding stocks to cover lead-times.

As the project team establishes this balance, the Project Manager must ensure that appropriate policies are in place to establish the standards and controls for managing all elements of inventory control and warehousing.

3.3.7.2.2 Materials Transport

The aim of transport is to physically move supplies in a reliable and safe manner, on time, cost effectively and efficiently to its destination.

A transport strategy not only depends on the needs of the project; it can also vary from situation to situation.

3.3.7.3 Asset Management

All project equipment, supplies and other property financed or provided by the project should be considered a project asset. As such, the project should identify a policy of asset management whereby materials of value to the project are monitored, maintained and disposed of in a manner consistent with the requirements of the organization and/or the donor(s). This policy should include guidance on the following topics:

Definition of Assets: Each organization will need to set its own definition of value and useful life that defines what is an asset. This definition will vary depending on the organization, the donor and/or the project. The UNDP, for example, identifies the threshold for fixed assets as USD $1,000 or more, and a useful life of at least three years. The table below provides an overview of several of the major categories of assets it manages, and the lifespan for each of those asset categories.

Figure 50: UNDP Asset Categories

CATEGORY	LIFESPAN	OTHER FACTORS
Typical office items that run on electricity: (e.g., computers printers)	3 years	
Large machinery: (e.g., generators, air conditioners)	20 years	
Furniture	10 years	
Vehicles	5 years	OR 100,000 kilometres (62,000 miles),

Recording Assets: Projects should maintain complete and accurate records of all fixed asset acquisitions. All assets acquired for the project (via purchase, transfer or donation) should be recorded.

Labeling Assets – Project assets should be labeled to facilitate their oversight and control. Any suitable labeling convention may be used as long as it is applied consistently and serves the purpose of monitoring assets.

Monitoring and Asset Records – Asset information should be updated on a regular basis to account for acquisition, adjustment, transfer and disposal information. This will include a physical count and discrepancies need to be investigated, understood and documented in the project issue log.

Safeguarding Assets: Establish adequate controls are in place so that fixed assets are properly maintained and safeguarded. These controls will vary depending on the asset and the risk. For example, an organization might require that computer laptops be secured with an appropriate locking cable and securely placed in a locked drawer or filing cabinet when not in use. Another example would be a requirement that office equipment on loan to staff members should always be recorded in the equipment log/loan records.

Disposing of Assets - Clear processes for asset disposal should be established that include any requirements related to approvals, publicity, donor requirements, and reporting. If necessary, the policy should include any special requirements related to the value of the asset or the type of asset being managed (vehicle, computers, otherwise). Poor asset disposal can have a major impact on project finance as donors may refuse to allow expenditure for assets, which have not been correctly disposed of and they may require repayment or they may reduce monies from final contract payments.

3.3.8   HUMAN RESOURCES MANAGEMENT

Human resource management is both an art and a science. The art of human resources management depends on the interpersonal and leadership skills of the Project Manager. Can the

project manager motivate stakeholders? Inspire confidence? Manage conflict? Build team morale? The science of human resources management depends on effective planning. Human resources planning is an integral element of a comprehensive project implementation plan. The project's human resource management plan identifies the activities and resources required to manage the project team. Components of human resources management include:

Acquiring Project Staff – As part of the function of managing the team, the project team leader must be clear on the systems for identifying staff candidates, interviewing candidates, identifying selection criteria and making final selections of project staff.

Identifying Project Staff Assignments – Project staff assignments are the list of project duties, roles and responsibilities for team members. Staff assignments are often used during the monitoring and controlling process to evaluate individual team members.

Documenting Project Organization Charts – Project charts represent the reporting relationships among the project team.

Developing Project Staff – What skills are needed? What are the training needs? Are there certification requirements? What are the compliance issues?

Conducting Performance Assessments – Performance assessments are the documented formal or informal assessment of the project team members' performance. After analyzing the information, Project Managers can identify and resolve problems, reduce conflicts, and improve overall team work.

Promoting a Highly Productive Team Environment – As the leader of the project team, the Project Manager must actively work to identify issues and conflicts and work creatively to resolve these issues.

Many of the activities involved in managing the project team (implementing the project staffing plan, acquiring staff, identifying staff assignments, documenting organizational charts) are technical in nature – often described as the 'science' of managing the project team. The skills, attitudes and behaviors required to promote a highly productive team environment, however, depend on the Project Manager's ability to move beyond the 'science' of project management and engage in the 'art' of the discipline. In order to promote a highly productive team environment, the Project Manager must be skilled in communicating vision, encouraging shared ownership, moving agendas within and outside the organization, and managing situations where there is no direct hierarchical authority.

3.4 DISCIPLINE 4: RISK MANAGEMENT

When exploring the "essential" elements of strong project management, most discussions quickly converge on the topic of risk.

But what is risk? The term is often used loosely, without consistency and sometimes incorrectly. In the context of the PMD Pro, risk is the potential effect of uncertainty on project objectives.

When considering the definition of risk, there are two key ideas that need to be explored further:

> **Probability –** Risk can be seen as relating to the probability of uncertain future events (as compared to issues which deal with current ones that must be immediately addressed). Remember, as discussed in the discussion of Section Two's Project Implementation Phase, that project issues are risks that have become a reality.

> **Impact –** Risk has the potential to impact the project. Most project teams focus on negative risk that has the potential to harm the project (time/calendar, cost/resources, quality, scope, etc.) In general, negative risks are to be avoided. Positive risk, on the other hand, is less widely acknowledged and understood. Project teams can assume positive risks if they see a potential opportunity, along with a potential for failure. This is referred to as intelligent risk taking.

Risk management, however, is a core discipline of project management and the goal of this chapter is to provide a concise guide to risk management in the development sector. A risk event is something that may happen and could affect the project. Note that the wording "may happen" indicates a probability of less than 100%. If an event has a probability of 100% - in other words it will happen – the event has now become an issue (see the discussion of issues management in Section Two).

During the earliest stages of project identification and design, the team will start to gain an initial understanding of the potential risks that could confront the project. For example, in an agriculture project the initial interviews with farm families might identify problems in the marketing and distribution channels for their produce.

As the project evolves, some risks will be resolved or diminished, while others may surface and thus be added. It is important, however, to continually revisit the question of risk from the earliest stages of the project through the entire implementation phase.

Risks are managed through a four-step process:

- **Risk identification** - identifying and documenting all the risks that can affect the project.

- **Risk assessment -** determining the probability that risks will occur and estimating their potential impact, and prioritizing risks.

- **Risk response planning** - deciding what actions are needed to reduce or remove threats, particularly those with high-probability and high-impact.

- **Risk monitoring and control** - responding to risks as they occur and ensuring proper risk management procedures are being followed.

3.4.1 RISK IDENTIFICATION

There are two steps within risk identification process:

1. Define project risk categories.

2. Identify specific risks that fit into each of the risk categories.

3.4.1.1 Define Risk Categories

Risk categorization can be compared to an effective medical evaluation. If the doctor asks: "How do you feel?" the patient might say, "Fine." But the examination is much more revealing if the doctor asks: "How do your knees feel? How about your lungs? Any back pain?" With these questions, the patient will begin to think specifically about specific areas of the body.

Categories, however, shouldn't be too broad or too specific. If, in the example above, the doctor asked only about the

> **Project Management is Comprehensive!**
>
> ### Negative and Positive Risks
>
> Comprehensive risk management will focus both on negative risks and positive ones.
>
> Negative risk is represented by potential events that could harm the project. In general, these risks are to be avoided. Positive risk, on the other hand, refers to risk that we initiate ourselves because we see a potential opportunity, along with a potential for failure.
>
> Take, for example, an agriculture project that is estimated will take six months to complete. The project team realizes if you add a number of new implementing partners, the project might be completed in half the time. Of course, new partners mean new risks. What if their capacity is low? What if there are delays adopting new systems? Etc. There is your dilemma: do you take a chance and introduce risk for positive gain? Or do you go with traditional partners and settle for a six-month delivery date?

patient's upper and lower body, it wouldn't help much. Conversely, if the doctor asked about every bone, joint, and organ, the patient would quickly get frustrated with the time-wasting exercise. Instead, the doctor should identify an appropriate number of meaningful categories that help the patient identify problems.

When developing categories for development project risks, it is important to acknowledge that each project is unique, and it isn't possible to develop a single set of risk categories that would fit all organizations and project. Project teams must survey the context of their specific project develop a set of risk categories that is appropriate to their unique needs. Some potential categories of project risk include:

Strategic/commercial
- Failure of suppliers to meet contractual commitments
- Fraud/theft
- Implementing Partners failing to deliver the desired outcome

Economic/financial/market
- Exchange rate fluctuation

- Interest rate instability
- Inflation
- Market developments adversely affect plans.

Legal and regulatory
- New or changed legislation invalidates project assumptions
- Failure to obtain appropriate approval (e.g. planning, consent)
- Unsatisfactory contractual arrangements

Organizational/management/human factors
- Poor leadership
- Inadequate authority of key personnel to fulfill roles
- Poor staff selection procedures
- Lack of clarity over roles and responsibilities
- Personality clashes
- Lack of operational support

Political
- Change of government or government policies
- War and disorder
- Adverse public opinion/media intervention
- Interference by politicians in development decisions

Environmental
- Natural disasters
- Sudden changes in weather patterns

Technical/operational/infrastructure
- Inadequate design
- Scope creep
- Unclear expectations

Project Management Risk
- Lack of planning, risk analysis, contingencies
- Inadequate tracking and control response
- Unrealistic schedules
- Poorly managed logistics
- Delays in the approval of project documents

3.4.1.2 Identify Specific Risks from the Categories

 Once general risk categories are identified, the project team should collaborate with key stakeholders to identify specific risks from each of the risk categories. At a minimum, the team and key stakeholders should start by examining the project-specific and programmatic documents. Numerous techniques are available to facilitate risk. These include brainstorming, focus groups, scenario planning, and expert interviews.

 When identifying risks, care should be taken to write the risk in such a way that three factors are apparent to a future reader. These are:

- The cause, or the origin of the risk;
- The risk event or situation itself;
- The impact of the risk on the project.

For example, "Because transport of materials into this area can be affected by flooding, there is a risk that cement deliveries will not be made in a timely manner, which would mean that latrine bases would not be completed on schedule." Describing risks in this way allows for development of responses that address the cause, the risk itself, or the effect.

Many of the initial risks will be identified during the Project Identification and Design Phase. As the project team surveys the project context through assessments and analysis activities the outcomes of those exercises will begin to paint the picture of potential project risks. The risk identification process, however, needs to continue through the entire life of the project. This is because project risks will evolve over time. For example, during the earliest phases of a project, risks may be more centered on fund acquisition, or stakeholder management. As the project identification design enters implementation, the risks might become more operational in nature and be centered on questions of scheduling, cost estimating, and budgeting/controls.

All of this points to the importance of ensuring that risk identification is not a single activity that takes place once at the beginning of the project. Risks should be monitored through the entire life of the project to ensure that the project team is aware of potential threats to project success, which will inevitably arise.

3.4.2 RISK ASSESSMENT

Risk assessment is the process of quantifying the risks documented in the risk identification stage. Risk assessment addresses two especially difficult challenges when managing project risk:

- **Prioritizing Risks:** Using criteria agreed upon by the project team and key stakeholders, risks are ranked according to their probability and impact.

- **Identifying Risk Tolerances:** Next, the project team needs to work with key stakeholders to identify their risk tolerance levels to identify which risks are acceptable, and which fall outside of acceptable tolerance levels and need to be actively managed.

A helpful tool for assessing risk is the Risk Assessment Matrix. The table below provides an example of how the matrix can be used to assess risk in a development project.

Figure 51: Risk Assessment Matrix

	High			**Risk B**
	Medium	**Risk C**		
PROBABILITY risk will occur	Low			**Risk A**
		Low	**Medium**	**High**
Potential IMPACT on the Project				

In the example above, the process of developing the Risk Assessment Matrix followed a two-step process:

Rank the Priority of Risks: The project team and stakeholders prioritized three risks by ranking their probability and potential impact on a scale of Low, Medium or High.

Identify the Risk Tolerance Line: Risks are color classified (red, orange, yellow, no color). In this example, Risk B is a clear concern and will be actively managed. Risk A is in a shaded cell (yellow), but is a lower level concern and will only be monitored. Risk C is not in a shaded cell, so it does not exceed project risk tolerances.

In some ways, the Risk Assessment Matrix is a deceptively simple tool. While the matrix might be relatively simple, to use it productively the project team and the key stakeholders need to share a common understanding of the criteria that are used to prioritize risk and identify risk tolerance levels. To arrive at this common understanding, the project manager must work with key project stakeholders to complete the sometimes difficult process associated with answering the following questions:

- What criteria will be used to prioritize risks? Time? Scope? Cost? Other factors like value to project beneficiaries? Donor compliance regulations? Employee safety?

- What process will be used to identify risk tolerances?

3.4.3 RISK RESPONSE

Risk identification and assessment form the basis for sound risk response options. Once a risk has been identified as being above the project risk tolerance line, the project team must identify a strategy to best respond to the risk.

Remember! The goal of risk management is NOT TO ELIMINATE ALL project risk. Rather, the goal is to recognize when to respond if risk exceeds the project tolerance levels. For example, "risk intolerant" projects will actively attempt to manage risks regardless of where they fall in the matrix. On the other hand, "risk tolerant" projects might be willing to accept a great amount of risk without intervening to actively manage the situation.

If the project decides to actively manage a risk, response strategies include the following options (or a combination of options):

- **Risk Avoidance –** Do not do (or do in a different way) some portion of the scope that carries high-impact and/or a high probability of risk. For example, a project might choose not to work in a geographic area because there is too much insecurity.
- **Risk Transference** – Shift (or share) the risk for some aspect of the project to (or with) another party. The most common example of risk transference is insurance. For example, insurance policies transfer the risk of vehicle damage and loss to the insurance company.
- **Risk Reduction/Mitigation** – Act to reduce the probability and/or impact of a potential risk. Take, for example, a project that is concerned about the risk of commodity theft.
  - *The probability of potential theft can be reduced* by increasing the security systems for the building (guards, new doors, barred windows).
  - *The impact of potential theft can be reduced* by instituting a policy whereby only the commodities required for the next seven days are safeguarded in the warehouse.
- **Risk Acceptance** – If the perceived probability and impact risk is assessed as reasonable, an organization can choose not to take action. For example, a project may acknowledge that it faces the possibility of a late rainy season onset interrupting its agricultural cycle, but the team chooses to live with the risk, and does not act to avoid, transfer, or mitigate it.

Observe that "Ignore" is not an acceptable risk response strategy. Risk must not go unrecognized, unmanaged, or ignored. Even in situations where a risk is accepted, it is not being ignored. In those cases, the decision to accept the risk is based on a rationale process of risk identification, assessment and response, with the outcome resulting in a decision to accept the risk.

At this point, the project team will need to formulate a plan of action for the risk response activities it has selected. The risk management document will need to accomplish the following:

- Develop an organized and comprehensive risk management plan;

- Determine the methods to be used to implement the risk responses;

- Plan for adequate resources for risk response.

Each risk plan should be documented, but the level of detail will vary depending on the project. Large projects or projects with high levels of uncertainty will benefit from detailed and formal risk management plans that record all aspects of risk identification, risk assessment and risk response. Projects that are smaller or contain minimal uncertainties may require a red flag item list that can be updated at critical milestones throughout the project development and constructions.

A red flag item list is created at the earliest stages of the project design and is maintained as a checklist through the life of the project. By listing the items that can potentially impact a project's cost, schedule, scope and quality (or other factors which the stakeholders have agreed are of specific priority), and by keeping the list current, the project team has a better perspective for setting proper contingencies and controlling risk.

For more complex projects and projects with more uncertainties, a risk register document provides a more formal and more detailed identification of risks and the plan for addressing them. Similar to a red flag list, the project register provides project managers with a list of significant risks. However, the risk register also contains information about the magnitude of probability and impact of risk occurrence. It may also include proposed mitigation responses, "owners" of the risk, and current status of the risk. The risk register can also include information about the cost and schedule impacts of these risks.

While the format of the risk register can vary by organization or by the project, an example of one format would include the information below.

Figure 52: Risk Register

Risk Category	Risk Name	Status	Probability	Impact	Risk Score	Response	Responsible	When
Strategy	Partner lacks capacity	Active – risk is being actively monitored	3/5	4/5	7	Mitigate – budget moneys for training in accounting	Marian	Q1
Nature	Rain delays activities	Retired – risk resolved	2/5	3/5	5	Avoid – delay activities until dry season	PM	Q1
Political	Insecurity threatens deliveries	Retired – risk has been resolved	2/5	5/5	7	Transfer – contract transporters to absorb risk of loss	MV	Q2
Etc.								

3.4.4 RISK MONITORING AND CONTROL

The final step in the risk management process is to continually monitor risks to identify any change in their status, or if they turn into an issue. It is best to hold regular risk reviews to identify actions outstanding, risk probability and impact, remove risks that have passed, and identify **new** risks.

It is recommended that the risk register be established as early in the life of the project as possible. If it has not yet already been developed during the Project Set Up Phase, then it should be set up at the same point that other elements of the internal control system are established. Then, the risk register should be maintained throughout the remainder of the project, because risks are dynamic. The list of risks and associated risk management strategies will likely change as the project matures and new risks develop or anticipated risks disappear. Regularly scheduled project risk reviews can be used to ensure that project risk is an agenda item at all project management meetings. If unanticipated risks emerge or a risk's impact is greater than expected, the planned response or risk allocation may not be adequate. At this point, the project team must perform additional response planning to control the risk.

3.5 DISCIPLINE 5: PROJECT JUSTIFICATION MANAGEMENT

Projects are undertaken for a variety of reasons, but, in the end, the investments are made because of the potential value the project will provide to the stakeholders involved. For example:

- The donor organization needs to be convinced that an investment in this activity will be a worthwhile investment;

- The community where the project will work needs to perceive that its participation will result in concrete benefits;

- The leadership of the development organization needs to be assured that the success of the project will contribute to its larger program (or portfolio) goals.

Strong project justification management helps demonstrate why a project makes solid sense to the organization, the donor and the beneficiary communities. Successful project managers need to have the skills and competencies to:

- Identify the justification for their projects;

- Communicate the justification to a larger audience;

- Track the project's progress in achieving the value that justified its existence.

3.5.1 PROBLEM-BASED OR ASSETS-BASED NEEDS IDENTIFICATION

In other sectors that rely heavily on a culture of projects (information technology, telecommunications, etc.), project justification is most frequently associated with Return on Investment (ROI) and business benefits. The questions most frequently asked by project sponsors revolve around the financial justification of the project "How long will it take for the company to recoup its investment in the project?" And yet, while ROI offers tremendous leverage and benefits in establishing a justification for a project, it is just one of several tools that can be used to support a project investment decision.

In the context of the development sector, project justification exercises usually start with an analysis of need. Furthermore, as the project team begins to collect data concerning the preliminary project design, one of the decisions that should be made is whether the project will define needs based upon a "problem-based" approach or an "assets-based" approach.

In a problem-based needs approach, the first question asked of the community is "What problems do you have?" This question is intended to identify gaps/shortcomings that can be solved. The challenge with this traditional approach is that if you look for problems, you will undoubtedly find them, and at times these might be problems that otherwise would not have been worrisome had they not been identified by the question.

An asset-based approach is more positive in focus and emphasizes opportunities instead of problems. Here the opening question looks for strengths and existing resources. For example, "What is going well?" "What areas or excellence would you like to share with others?" By identifying the

assets/resources that currently exist in a community, the focus of the needs definition becomes less focused on fixing what is broken, and more focused on replicating and reinforcing what is working.

Figure 53: Problem-based Versus Assets-based Approach

Problem-based Approach	Asset-based Approach
Define the problem	Search for solutions/assets that already exist
Fix what is broken	Reinforce what is working
Focus on the negative	Focus on the positive

3.5.2 MOVING FROM PROBLEMS TO AN INTERVENTION STRATEGY

Much of the work in justification management takes place during the first phase of project, Identification and Design. If at that point the project team chooses to pursue a problem-focused approach to defining needs, most frequently the next step in the justification process is the development of a problem tree. The problem tree provides a simplified but robust version of reality, identifying not only the core problem to be addressed, but also the effects of the core problem, and the underlying issues and root causes that contribute to the current state.

When developing a problem tree it is important to begin the process with the identification of the 'starter problem' that can be either identified via an open brainstorm process with stakeholders or pre-identified, based on preliminary analysis of existing information. Once the starter problem is identified, the process of elaborating the subsequent problem tree is completed (preferably via a participatory group process) using these instructions:

- Problems which are directly causing the starter problem are put below (causes);
- Problems which are direct effects of the starter problem are put above (effects).

The guiding question behind the logic of the problem tree is 'What causes that?' If there are two or more causes combining to produce an effect, they are placed at the same level in the diagram. Cause-effect arrows are used to connect the levels of the problem tree.

The graphic below illustrates a problem tree that was conducted in the Delta River community, examining the causes and effects of deteriorating river water quality in that area. Note that this diagram is a simplified representation of the situation – and it is not uncommon for problem trees to have multiple cause and effect levels surrounding the core problem. As a result, problem trees often become extremely complex.
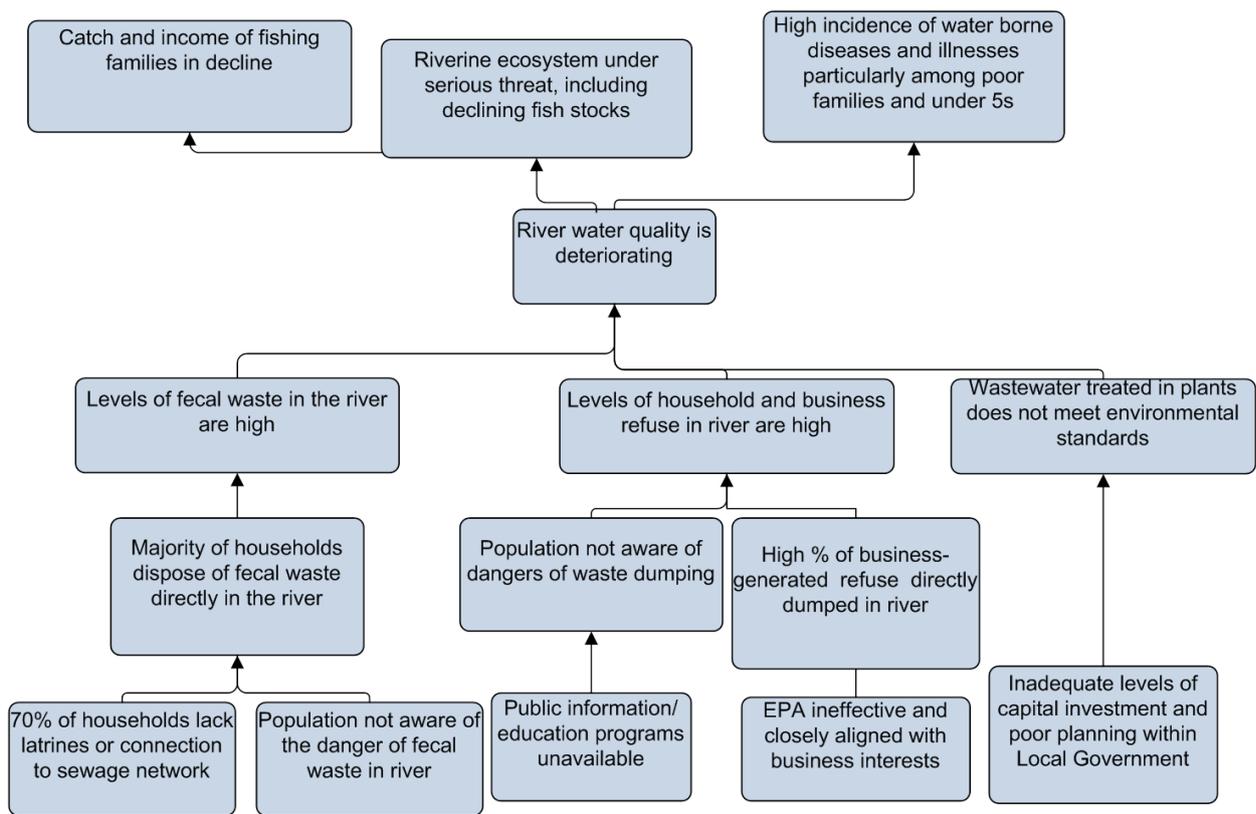
Figure 54: Delta River Problem Tree

Once a problem tree is completed, the most common next step is to develop an objectives tree that begins to identify the potential interventions that could take place to "fix" what is broken in the problem tree. In its simplest form, the objectives tree is a mirror image of the problem tree – where each statement in the problem tree is transformed into a positive objective statement. While the problem tree displays cause and effect relationships, the objective tree shows the 'means-to-end' relationships. Once again, using the example of deteriorating water quality, the problem tree would become an objectives tree that resembles the following:
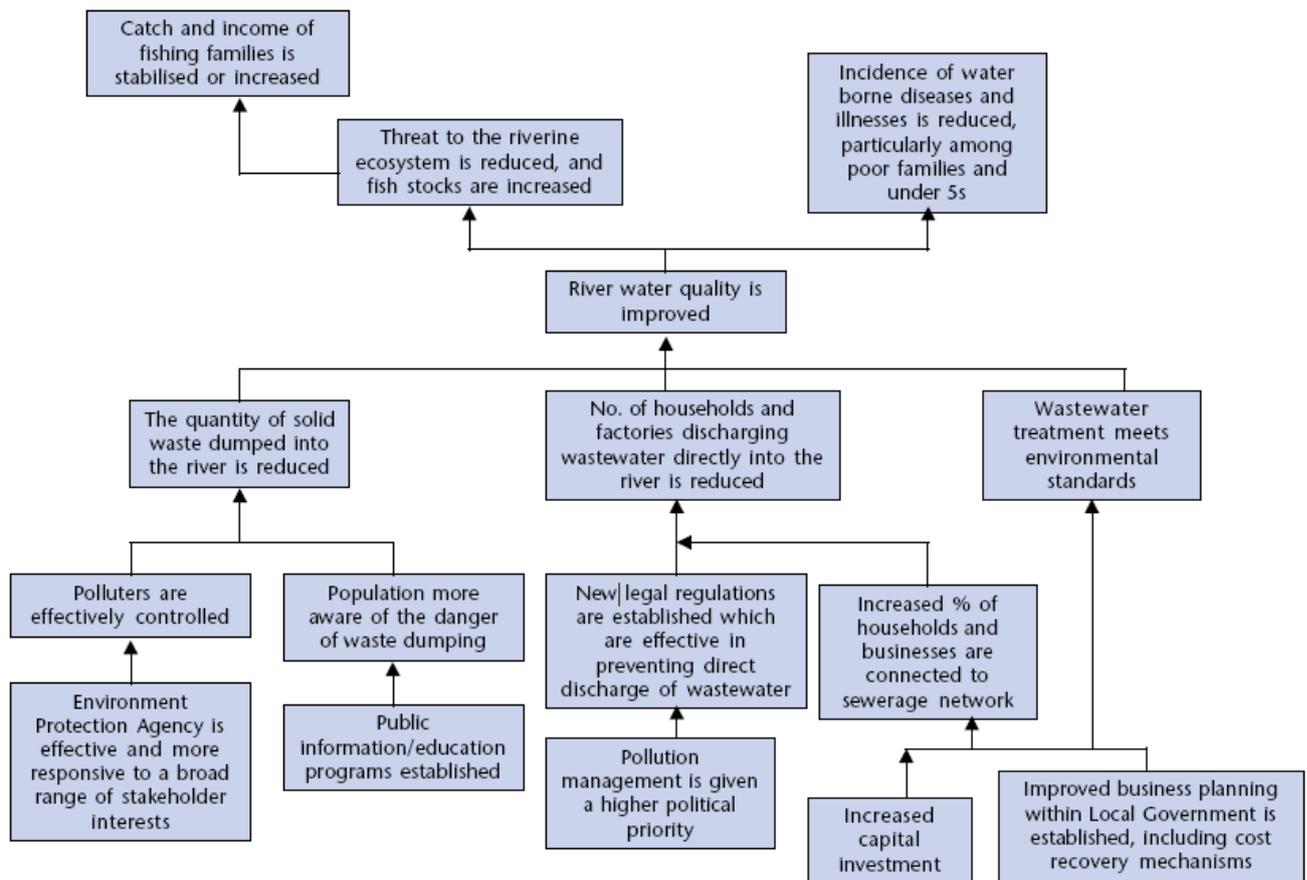
Figure 55: Delta River Project Objective Tree

Once the broad collection of needs are identified (either through problem analysis as we did with the problem tree example above, or via an asset-based process), the next challenge is to analyze the needs that were identified and to initially determine whether there is adequate justification for a project intervention.

At this point, the development organization should consider two critical strategic questions:

- Which elements of the objectives tree will be included in the project intervention?
- Which elements will not be included in the scope of the project?

Consensus on these questions may be elusive and the decision-making process has the potential to become quite complex and contentious. But don't forget the lessons learned in Section 2 of the Guide. In the discussion of the Project Identification and Design phase, a series of criteria were identified (Figure 16) which can be used to guide these decisions with regard to selecting the scope of the project.

These criteria will help the project team and stakeholders make concrete decisions regarding where the project intervenes, the services it provides, who will be served and how the services are provided.

Returning to the Delta River Project, the scope selection criteria included resource availability, implementing organization capacity, priorities of the local government, and household needs. Based on these criteria, the project team developed an alternatives tree which communicates the outcomes, objectives and goals (see the lighter colored boxes in the image below) which the organization intends to pursue. It is important to note that the alternatives tree also communicates which elements will not enter into the scope of the project (the darker colored boxes in the image).

Figure 56: Delta River Project Alternatives Tree
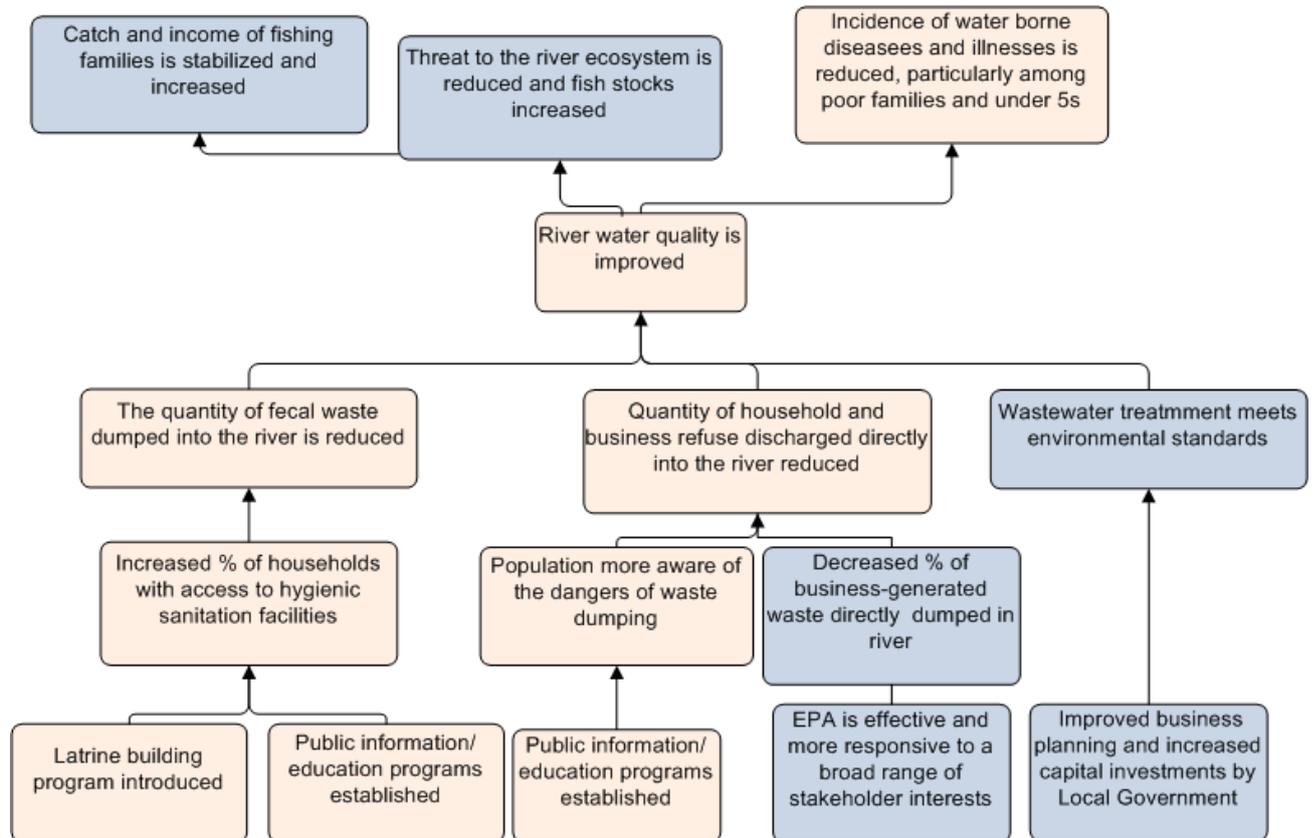
3.6 DISCIPLINE 6: STAKEHOLDER MANAGEMENT

Development projects are complex and impact an array of stakeholders - individuals, groups and organizations who are actively involved in a project, or whose interests might be positively or negatively affected by execution or completion of the project.

Experience shows that when stakeholders are overlooked or misunderstood in the project design, or their interests are poorly engaged or excluded during project planning and implementation, it can often result in unexpected and undesirable outcomes.   In contrast, those projects that take time to identify and understand stakeholders benefit from:

- A clearer understanding of the individuals, groups and institutions that will be affected by and should benefit from project activities;
- A better indication of the capacities of these stakeholders;
- A more informed understanding of who could influence and contribute to the planning and implementation of the project;
- An improved perspective on alternatives for designing project interventions and addressing project conflicts.

To succeed, the project team needs to develop the discipline to manage these stakeholder relationships. Team members need to understand the reality and the complexity of interests and relations; evaluate and predict project impacts (both positive and negative) on all stakeholder groups; and design and implement engagement plans that encourage project participation and strong communication.

Components of a strong stakeholder management system include:

- Stakeholder Identification
- Stakeholder Analysis
- Stakeholder Engagement
- Stakeholder Communications

3.6.1 STAKEHOLDER IDENTIFICATION

During the earliest phase of a project, Identification and Design, it is usually clear that the project will have numerous stakeholders. As a result, one of the first steps in the Project Identification and Design Phase is to identify the stakeholders.

To assist in this process, the PMD Pro recognizes six categories of stakeholders which provide a starting point for the identification of project stakeholders.

> **Users** are the people who will directly benefit from the products and/or services of the project. For example, in a watershed management project, users will undoubtedly include community members who benefit from improved soil quality and families with improved access to (and quality of) water.

Governance Stakeholders are the people or groups of people who have an interest in how things are managed on the project. For example, this category might include the following sub-groups:

- Project boards, steering groups or sponsors who manage the governance framework of the project;

- Auditors and regulators who establish the compliance requirements and regulatory context of the project;

- Funders (individuals or organizations) who provide financing of the project. These funders may be external (as when a donor organization provides financing) or internal (as when the project is financed with internal funds).

Providers are the individuals who actively participate in the work of the project. Managers, team members, implementing organizations, contractors and suppliers fall into this category.

Influencers are the people who have the ability to change the direction (positively or negatively) of the project. An example might be local media, government officials, business interests or community leaders.

Dependents are those who want something from the project other than the planned final product or service. Typically, dependents are other projects or functional units of the organization that need one of the project deliverables. Returning to a watershed development project, a low-income housing project working in the same community might be awaiting the completion of the watershed zoning plan in order to begin its construction activities.

Sustainers are groups responsible for supporting the product after the project is completed. Once again, using a watershed management project as an example, the ministry of public works and the ministry of agriculture might be expected to assume medium and long term ownership of the watershed management activities following the completion of the project's deliverables.

Some considerations to keep in mind when classifying stakeholders into categories include:

- **Recognize when user categories overlap.** There are many instances where an individual or a group would fall into more than one category. For example, communities could be both users and sustainers.

- **Consider breaking down the categories.** The categories can be broken down into sub-categories if helpful. The governance stakeholders category, for example is already broken into three sub-categories. Similarly, it might be especially useful to break down the user category into further sub-groups.

- **Recognize that project stakeholders change with time.** New stakeholders can enter the intervention area while others lose their influence or interest. Stakeholder identification is therefore an on-going process should be revisited at intervals throughout the life of the project.

-

3.6.2 STAKEHOLDER ANALYSIS

Once project stakeholders are identified, the next step is completing a stakeholder analysis. The stakeholder analysis process involves:

- **Exploring the stakeholders' interests.** What might they gain or lose through the project? What are the stakeholders' expectations (both positive and/or negative)? What resources can they commit? What are potential roles for stakeholders? What capacities do they hold? Are they supporters or blockers?

- **Mapping the stakeholders' influence.** Influence refers to the power that stakeholders have over a project such as their decision-making authority or their ability to influence project activities or stakeholders in a positive or negative way. What is the extent of co-operation or conflict in relationships between stakeholders? Who has the power to make change happen for immediate problems, underlying issues and root causes?

While there are many tools that can be used to conduct stakeholder analysis activities, this document will focus on two in particular

- Venn Diagrams
- Stakeholder Analysis Matrix

Venn diagrams are created to analyze and illustrate the nature of relationships between key stakeholder groups. A Venn diagram is developed through the perspective of a single project stakeholder (or a group of project stakeholders). Each circle in the diagram identifies a stakeholder involved in the project. The size of the circle used can help indicate the relative power/influence of each stakeholder, while the spatial separation is used to indicate the relative strength or weakness of the working relationship/interaction between different groups/organizations. Venn diagrams are commonly used as a participatory planning tool with target groups to help them profile their concept of such relationships.

The image below provides an example of the use of a Venn diagram to identify the power and influence of multiple stakeholders involved in fishery management in a community that borders a river. Note that the Venn diagram is portrayed through the perspective of one of the stakeholder groups, in this case, fishing families. The size and location of the Industry X circle indicates it is very influential but remote. Using the same logic, the Environmental Protection Agency is remote and clearly aligned to interests of the industry. Fishing cooperatives represent the interests of the fishermen and have a close relationship with retailers. The small size of the circle representing the Fisheries Department indicates it has little influence.
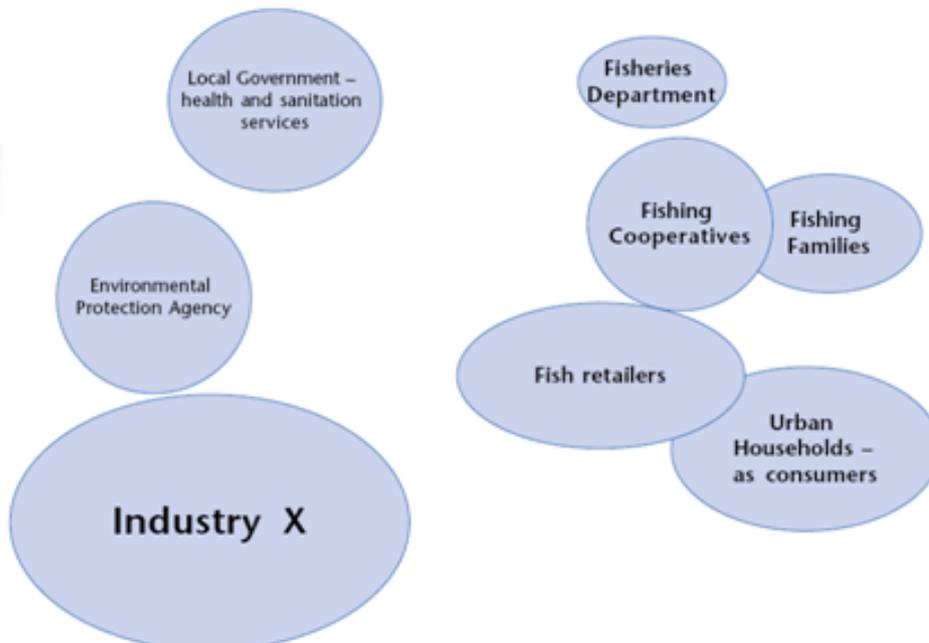
Figure 57: Delta River Project Stakeholders Venn Diagram

The Stakeholder Analysis Matrix uses the outcomes from the Venn diagram (or other stakeholder influence mapping tools) to further identify, elaborate and communicate the interests, capacity and potential actions of project stakeholders. Unlike the Venn diagram, the matrix allows a further narrative that provides additional data concerning stakeholders, their interests, their influence and potential actions to address the stakeholder interests.

The table below provides a stakeholder analysis matrix for the fishery management project introduced in the Venn diagram above. The matrix helps identify ways to engage stakeholders appropriately so that they can participate meaningfully at all stages of the project life cycle. For example, the table identifies potential risks to project success that comes from poorly regulated textile industries. Recognizing this possible threat, the project design team can take steps to better ensure project success – perhaps by meeting with textile industry leaders to negotiate solutions, or to identify ways to involve them in the project.

Figure 58: Stakeholder Analysis Matrix

Stakeholder and basic characteristics	Interests and how they are affected by the problem	Capacity and motivation to bring about change	Possible actions to address stakeholder interests
Fishing families 20,000 families, low-income earners, small-scale family businesses, organized into informal cooperatives. Women actively involved in fish processing	Maintain and improve the means of livelihood Pollution is affecting volume and quality of catch Family health is suffering, particularly children and mothers'	Keen interest in pollution-control measures Limited political influence, given weak organizational structure	Support capacity to organize and lobby Implement pollution Identify and develop alternative income sources
Textile Industry Medium-scale industrial operation, poorly regulated and no unions. Well connected with ruling party. Poor environmental record	Maintain/increase profits Some concern about public image Concern about costs of environmental regulations enforced	Have financial and technical resources to employ new cleaner technologies Limited current motivation to change	Raise their awareness of social and environmental impact Mobilize political pressure to influence industry behavior Strengthen and enforce environmental laws
Households 45,000 households discharge waste and waste water into river also used as source of drinking water and fishing	Aware of textile industry's pollution and impact on water quality Want to dispose of own waste away from household Want access to clean water	Limited understanding of the health impact of their own waste/waste water disposal Appear willing to pay for improved waste management services	Raise awareness among households of the implications of their own waste disposal practices Work with communities and government to address water and sanitation issues.
Environmental Protection Agency: Etc.	Etc.	Etc.	Etc.

3.6.3 STAKEHOLDER ENGAGEMENT

A project manager seldom works alone.   Even the smallest projects depend on networks of stakeholders. As the complexity of projects increases, the web of relationships expands until it could potentially include community groups, government ministries, suppliers, local non-governmental organizations, universities, faith-based organizations and others.

One of the challenges when managing a network of stakeholders is ensuring there is clarity regarding the roles, responsibilities, authority and communications of different project actors. One tool that helps with this challenge is the RACI chart – a matrix typically created with a vertical axis (left-hand column) of tasks or deliverables, and a horizontal axis (top row) of roles and which derives its name from an acronym of the four key roles most typically identified in the matrix:

Responsible   A *Responsible* includes those who do the work to achieve the task. For each task there is typically one role that is the lead in completing the work, although others can be delegated to assist **Accountable**   An *Accountable* must approve (sign off) the work that the *Responsible* person provides. There **must** be only one *Accountable* person specified for each task or deliverable.
Consulted   Those whose opinions are sought; and with whom there is two-way communication.
Informed   Those who are kept up-to-date on progress, often only on completion of a task or deliverable; and with whom there is just one-way communication.

The following chart provides an example of a simplified RACI matrix for the Delta River Project:

Figure 59: Delta River RACI Matrix

Type of participation →	Who is responsible?	Who is accountable?	Who needs to be consulted?	Who needs to be informed?
Project Task ↓	Who is getting things done? Doing the work associated with the task?	Who signs off on the deliverable associated with the task?	Who needs to be actively solicited for input?	Who needs to be kept abreast through copies of reports, e-mail, etc.
Concept Note	Lead Project Manager Assist Implementing organization	Project Manager	Technical Advisor for Sanitation	Ministry of Health (MOH) officials
Design Assessment Analysis Logical framework & M&E Planning	Lead Project Manager Assist Implementing NGO	Implementing NGO Technical Advisor Project Managers Local Employers	Project participants Local MOH officials Donor	MOH officials (national level)
Proposal Writing and Submission	Lead Project Manager Assist Implementing NGO	Implementing NGO Technical Advisor for AIDS Project Manager HQ Business Team	Local MOH officials Donor	Project Participants
Detailed Program Planning	Lead Project Manager Implementing NGO	Implementing NGO Project Manager Local employers	Project participants Local MOH officials Technical Advisor for Sanitation Donor	MOH officials (national level)
Implementation	Lead Project Manger Implementing NGO	Implementing NGO, Project participants, Project Manager	Program officer	Donor
Monitoring and Evaluation	Lead Program Officer Donor	Project participants Project officer	Regional Technical Advisor	MOH officials (national level)

Once developed, the RACI matrix can be shared among the project team and with project stakeholders to help ensure an understanding, and expectations, of project roles and responsibilities.

3.6.4 STAKEHOLDER COMMUNICATIONS

Once the roles and responsibilities of project stakeholders are established, the next implementation challenge is managing project communications with these groups. Good communication is both an art and a science. On the one hand, the art of successful communications depends on the interpersonal and leadership skills of the project manager. The science of communications, however, is about planning and execution.

Part of the science of good communication is to carefully identify the appropriate communication strategy in relation to the project's size and complexity. For example, in the context of a small project, overly formal communications practices can quickly become an administrative burden, interfering with other project activities. In the context of a large project, informal or ad hoc communication practices can quickly turn success into disaster if important issues and opportunities are missed through lax communication planning and implementation.

As a result, there needs to be clarity with regard to the "what", "why", "who", "how" and "when" of communications. This information can be identified in a communication with a plan format like the following:

Figure 60: Communications Plan

Communication	Purpose	Audience	Author	Assigned To	Communication Vehicle	Frequency

When identifying the vehicle for communications, the mechanism needs to match the project's messages and stakeholders. As a guide, here are several questions to ask when determining which mechanisms to use for project communication:

- Which mechanism or vehicle will increase the likelihood that the message will be actually received, understood and acted upon?
- How much information will be included and at what level of detail?
- Which mechanism is most appropriate for the type of message?
- Which mechanism does the stakeholder prefer?
- What level of interaction is required (one way or two ways)?

Furthermore, it is important to differentiate between regular, or ongoing, communications with project team members, sponsors, and other key stakeholders on a regular basis. Selected methods include status reports, scheduled meetings, monthly updates, event-driven communications, critical issues sessions, supplier meetings, training schedules and roll-out schedules.
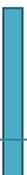
SECTION 4: ADAPTING THE PMD PRO

*"How do you make PMD Pro work for you?"*

Tools, techniques, methodologies and so on will not achieve anything if a project team cannot make them work in their actual project environment. This section looks at how to adapt various tools and techniques that have been presented in order to get them to work for the Project Manager and project implementation team.

4.1 FUNDAMENTALS OF ADAPTING

As mentioned earlier in this PMD Pro Guide, "there is no single road map to managing projects. Each project is unique – with its own specific objectives." Simply applying tools and techniques without thinking about context, resources, relationships and challenges will, at best, contribute to a robotic and "template-driven" project. Besides creating lots of unnecessary work, just adding tools and techniques without thinking through their justification and application is likely to confuse and demoralize project and implementing partner staff.

> Two Project Managers completed PMD Pro training and gained clear knowledge and understanding of the methodology. Neither of their organizations, unfortunately, had much appreciation or understanding of project management. Upon returning to the workplace one Project Manager was told: "those PMD Pro tools are OK, but we don't do it that way here". The other Project Manager was told by a superior: "you should decide what tools and techniques you want and implement them on your own".

While a project manager must be willing to take individual initiative despite organizational constraints, both of the scenarios described in the example above should be avoided whenever possible. Implementing PMD Pro should involve assessing available tools and techniques, deciding which will be most useful in a particular situation, and then thinking through how these tools can be integrated into organizational processes and systems. For example, the photograph below displays results of a simple mapping exercise that one project team brainstormed, following completion of a PMD Pro course, to attempt connecting the new PM tools to their existing tools.
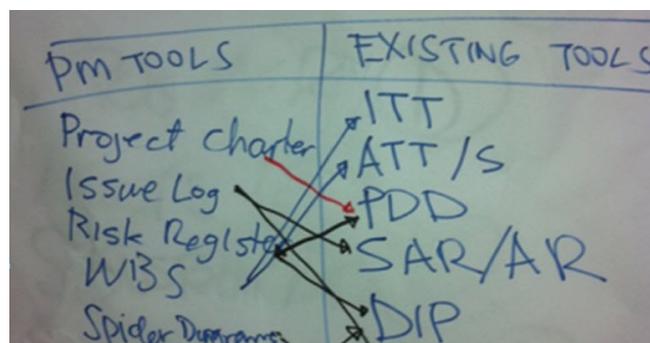
Whenever possible, Project Managers should engage with their organizations to discuss the following questions:

- Will a new tool compliment or replace an existing tool?
- How will information from a new tool fit into existing processes?
- Do we need to make changes to existing processes as a result of integrating a new tool or technique?

Even more practically, a Project Manager should look at all the tools and techniques and ask this question: "Can I implement this tool now – or do I want more organizational support"?

Figure 61 illustrates an example of a tools adaptation plan. It is filled with sample data that denotes status and indicates if organizational changes will still be needed to bring about successful tool implementation.

Figure 61: Example of Adapting Project Management Tools

Tool	Can I Implement now?	Do I want more Support?	What organizational changes must be made before we can properly adapt and use this tool?
WBS	Yes	No	Make sure my team and our collaborators contribute their specific expertise and detail
Network diagrams	Yes	No	Make sure my team understands both the purpose and processes.
Project Charter	No	Yes	Encourage our organization to agree to an approved format.
RACI diagram	Yes	No	Should be used to solicit inputs and share information with our stakeholders.
Change control	Yes	Yes	Must integrate and link with our project governance system

4.2   FACTORS TO CONSIDER WHEN ADAPTING THE PMD PRO

No project exists in a vacuum. Projects "live" within programs and portfolios. In addition, projects are managed within the context of organizational systems and donor structures. In one sense, these are the broader operating environment for projects. As a result, since all these factors impact the performance of projects, they should be taken into consideration when adapting the PMD Pro to projects.

PROGRAM CONSIDERATIONS - As stated earlier in this Guide, programs consist of a group of related projects that are managed in a coordinated way to obtain benefits and control not available through managing them individually. Program timescales are longer and the outcomes are usually more complex with each individual project designed to make a contribution to goals. Clearly, in a well-managed program, there will be consistency of tools, methods and approaches.

Some NGOs have a Program Management Unit or Office (PMU or PMO) whose role is to ensure consistency of approaches, standards, capacity building, toolkits, and operating manuals. In such situations, Project Managers and their teams need to align with program unit guidelines, tools and approaches.

Also, with regard to the connection between programs and projects, NGOs in the international development sector tend to design large and complex projects when it might be more advisable to construct a program containing a range of smaller and simpler projects.

SYSTEMS CONSIDERATIONS - A Project Manager rarely gets the opportunity to influence the choice of organizational systems. Regardless, the Project Manager must make sure that the flow of information from and to the organization meets the needs of the project team.

The two examples below illustrate how a Project Manager must examine and understand organizational systems in order to work out ways for them to work for the benefit of the project.

Budgeting/financial reporting: Budgets in donor proposals are commonly in the form of activity budgets. Many NGOs, in reality, do not have financial systems that can produce reports on an activity basis – but use line item/account code reports. Under such scenario, a Project Manager must assure that the work needed to translate financial information from one format to another is planned and implemented in a timely way.

Budget currency and exchange rates: It is not unusual for a Project Manager to be informed that, "a project has a US$20,000 exchange rate loss, so it needs to do less activity to compensate." While hedging strategies can be used by organizations to help reduce the impact, exchange rate variance cannot be eliminated. In spite of this, a Project Manager can select and use the most appropriate management approaches to minimize shortfalls. Because the task of choosing budget currency is often made by staff in the finance or fundraising department, they often select the contract currency. If expenditure is in a different currency, it immediately complicates life for the project staff – finding themselves with a budget in one currency and expenditure in another. While not always possible, a Project Manager should insist that the budget and expenditure be done in the same currency. Even if the choice of currency is non-negotiable, the Project Manager can insist on application of an actual exchange rate throughout the life of project -- rather than use of an easy-to-calculate book rate. While such management strategies won't mitigate currency fluctuations, they help reduce exchange rate variance.

SIZE, COMPLEXITY AND RISK CONSIDERATIONS - Common sense dictates that a small, straightforward project does not require the same consideration as a million dollar, multi-location, multi-team project in a difficult, insecure environment with diverse stakeholders. Regardless of this knowledge, the factors associated with size, complexity and risk considerations are too often given insufficient attention by Project Managers and their organizations in the international development sector. Two important and related areas are cited below as examples:

Risk Planning and Management - A risk register is always useful. In a low-value, low-complexity project, a simple, qualitative risk register may be enough. In a project with a much higher risk profile, a manager will probably need a quantitative risk register. In addition, the project norms for using and modifying the risk register differ. Who can modify it? Who can suggest changes? When will the risk register be looked at? As with all the tools in PMD Pro, the Project Manager needs to think about how best to use the tools and ensure that they help the project team.

Project Governance - One key area that will need attention in more complex projects is governance. Smaller, simpler projects might share a governance structure with a number of

similar projects – perhaps under a Program Board or a Country Projects' Board or similar structure. A million dollar, multi-location, multi-team project will need its own Project Board with a Senior User, Senior Supplier and Project Executive representing their stakeholder voices and perspectives. The Project Board will need clear Terms of Reference and operating norms. Board Members must understand their roles and responsibilities. In addition, it may be necessary to change the profile of the Project Board over a longer project to ensure that the right perspectives are represented.

LEARNING AND COMPETENCY CONSIDERATIONS - While the Project Manager is responsible for ensuring that staff members and implementing partners have the right competencies, including knowledge, attitudes and skills, the manager shouldn't expect to build capacities in to address all weaknesses right away. A key part of adapting the PMD Pro will be assessing the current level of staff and implementing partner competencies and then promoting learning to increase capacities where gaps are identified. A tool called the spider diagram illustrates gaps between current (baseline) and desired (target) competencies over a period of time. **Figure 62** shows one way a spider diagram can be used – noting that there are numerous other spider diagram applications.

Figure 62: Spider Diagram showing baselines and targets for selected PMD Pro competencies
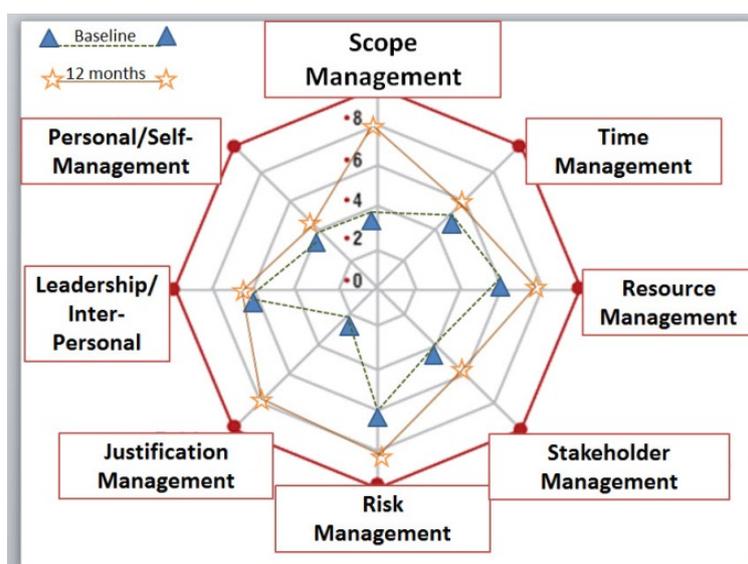
If, for example, a Project Manager tries to implement a Work Breakdown Structure (WBS) without making sure that each individual team member and implementing partner understands the basics, appreciates the value, and can actually use WBS in a real situation; then the implementation is likely headed for failure. For organizations implementing PMD Pro, many of the learning and competency needs will likely have already been considered. However, a Project Manager still needs to confirm that all project staff and partners can correctly use each of the chosen tools in actual practice. Gaps that are identified in performance need to be addressed through training or other management action.

PERFORMANCE CONSIDERATIONS – The Project Manager is not only responsible for ensuring that project staff become increasingly competent but, of ultimate importance, that on-the-job performance contributes to the organization's targeted impacts. It should be remembered that changes for organizations working in the International Development sector are usually targeted toward quality of life, wellbeing, sustainability, poverty reduction, empowerment social consciousness and/or environmental improvement areas. A PMD Pro course must not be seen as a "one-off" event but

should be the start of a dynamic process that transfers learning into improved performance and, most importantly, contributes to continuous project improvement. By linking PMD Pro to project outcomes and demanding that staff be accountable for putting their learning into practice, Project Managers increase the chances of seeing changes that really matter and are at the very core of project objectives.

> One NGO office, after piloting a few PMD Pro courses, decided that all PMD Pro learning event participants would be required to develop an individual (also involving a project team where possible) PMD Pro continued learning and implementation plan. Their plan template asked for the details of intended application of both PM knowledge and tools on-the-job over a 12-month period. A designated individual from the Project Management Unit has been assigned to communicate with each learner and his/her direct supervisor at 3-month intervals to gauge compliance, measure contribution to outcomes, and to collect/ share best practices. This NGO office is also offering ways for learners to gain virtual access (by telephone, email, social media etc.) to Project Management experts who can advise them on tool use/adaptation and other PMD Pro deployment issues that may arise. They also decided to start small by phasing-in the introduction of PM tools in a manner that allows for hands-on experimentation, adaptation and contextualized learning. They decided that their starter 'toolbox' would include four PM tools that were deemed most critical for initial improvement. They chose the RACI, Risk Register, WBS and Issues Log.

IN SUMMARY – Adapting PMD Pro, as detailed above, is indeed essential. However, one warning must be heeded: A project Manager's job should NOT be reduced to a set of rigid rules that are applied thoughtlessly across each and every project, program or portfolio. Remember, as stated earlier in this Guide, that Project Management is as much an 'art' as a 'science'. There will be circumstances where a PM tool or technique could be used but, for any number or good reasons, might NOT be the smartest choice. In other words, being too enthusiastic in requiring mandatory and uniform adoption of PM tools and techniques across all projects, programs or portfolios could be a huge mistake. Each and every Project Manager must learn to be disciplined and thoughtful -- becoming proficient at analyzing each individual project before carefully and collaboratively selecting and adopting the best from PMD Pro.

SECTION 5 : APPENDICES

5.1 APPENDIX 1: GLOSSARY OF TERMS

Activities	The actions taken through which inputs (financial, human, technical, material and time resources) are mobilized to produce deliverables (training, constructing, etc.) of a project for which staff can be held accountable and which, when aggregated, produce outputs
Asset-based	Methodology that seeks to uncover and highlight the strengths within communities as a means for sustainable development
After Action Review	A simple, quick and versatile learning activity that can be used to identify and record lessons and knowledge arising out of a project
Assumptions	Hypotheses about necessary conditions, both internal and external, identified in a design to ensure that the presumed cause-effect relationships function as expected and that planned activities will produce expected results
Baseline	A factual point of reference about the conditions or performance prior to the commencement of an intervention – necessary to serve as the basis for project monitoring, evaluation and control
Bloom's Taxonomy	A classification of knowledge/skill levels that provides a structure for learning design
Bottom-Up Estimating	This estimating technique starts by consulting the same people responsible for project tasks and aggregating their estimates into a comprehensive global budget.
Capacities	Abilities, skills, understandings, attitudes, values, relationships, behaviors, motivations, resources and conditions that enable individuals, organizations, networks/sectors and broader social systems to carry out functions and achieve objectives over time
Certificate	A document issued to a person upon successful completion of a course of study
Competencies	Integrated sets of skills, knowledge, attitudes and behaviors required to perform effectively in a given job, role or situation
Concept Note	A high-level overview of a project written to solicit feedback before committing resources to develop an expansive proposal
Crashing	Adding additional resources to the project to accelerate the progress of the schedule
Credential	Proof of qualification, competence or clearance that is attached to a person
Critical Path	The sequence of activities that represents the longest path between the start of the project and the project's end
Decision Gate	Major control points used to conclude and accept the products for a particular phase of the project and to move on to the next phase
Decompose	A technique to separate or break down project deliverables into smaller elements, components or parts
DM&E	Design, Monitoring and Evaluation
Development Organization	A spectrum of organizations that fall within a wide continuum of relief and development in their projects and practices: one end of the continuum facilitates long-term, participatory development programs in areas such as environment, health, education and agriculture; and the other end of the

	continuum involves more directly implementing quick and temporary relief projects for people facing starvation, homelessness or destitution because of sudden natural disasters or conflict
Fast Tracking	Accelerating the project schedule by performing activities that would normally be completed in sequence and instead completing them in parallel.
Float (or Slack)	The amount of time that a task in a project network diagram can be delayed by without causing a delay to the project completion date.
Gantt Chart	A bar chart that graphically represents the schedule of project activities
Goal	The highest level desired end result or impact (transformation, sustainability, livelihood, well-being etc.) to which the project contributes – the ultimate objective in many logical frameworks
Initiation	The process of describing and deciding to begin a project and authorizing the Project Manager to expend resources, effort and money
Impact	The significant effect or longer-term result (identified with the outcomes and goal levels in many logical frameworks)
Inputs	The resources the project must mobilize and apply to project activities (human and financial resources, equipment, etc.)
Issue	A risk that has now occurred. It can take the form of an unresolved decision, situation or problem that will significantly impact the project
Issue Control Log	An accessible document or database that summarizes the issues, their current status, and who is currently responsible for resolution
Iteration	The act of repeating a process for a second, third or more times to achieve the desired goal, target or result
Logistics	The process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.
Network Diagram	Pictorial summary of the decisions and flows that make up a procedure or process from beginning to end
Outcomes	What the project expects to accomplish at the beneficiary level (e.g. use of knowledge and skills in actual practice over time; transportation of goods on constructed roads over time) and contribute to population-level changes (reduced malnutrition, improved incomes, improved yields, etc.) that aggregate and help bring about accomplishment of goals and impact over time
Outputs	The tangible deliverables resulting from project activities, including products, goods, services and changes (e.g. people trained with increased knowledge and skill; quality roads built) that aggregate and contribute to enabling desired outcomes
Parametric Estimating	Using historical data from similar projects to establish estimates for project activities. This estimating technique relies less on people and more on statistical data.
Portfolio	A mix of active programs/projects, staffing and budget allocated to each
Portfolio Management	Initiating and managing the overall portfolio of programs/projects
Procurement	Planning and implementing all aspects of resource acquisition, including specifications development, supplier market research, negotiations, buying

	activities, contract administration and inventory control
Product Scope	All of the required deliverables of the project, meeting the agreed specification. (What is going to be delivered)
Program	A group of related projects managed in a coordinated way to obtain benefits and control not available through managing them individually
Project	A set of activities meeting agreed objectives in a specific period of time with an agreed set of resources
Project Charter	A document that describes the project at a high level of detail and which is used to authorize the Project Manager to begin work
Project Control	The process of measuring and reporting on progress and taking corrective action to ensure project objectives are met
Project Implementation Plan	A comprehensive and logical presentation of the detailed project model to help ensure it will arrive on time, on scope, on budget
Project Management	Planning, organizing and managing resources to bring about the successful completion of specific project goals, outcomes and outputs
Project Manager	A professional in the field of project management who has the responsibility to plan, implement and close projects to bring about the successful completion of specific project goals, outcomes and outputs
Project Proposal	A clear and concise offer that seeks approval from a potential funder for delivery of products and/or services in response to donor requests or anticipated needs
Project Scope	All of the work required to deliver the product scope. (How the deliverables will be created and delivered)
Risk	The potential effect of uncertainty on project objectives
Rolling Wave Planning	Iterative process of providing increasing levels of detail to the project. Preparation for implementation over time
Top-Down Estimating	This estimating technique relies on a relatively small group of "experts", who work to establish a global project estimate that is then decomposed into smaller work packages.
Work Breakdown Structure (WBS)	A hierarchical task list created by decomposing the project into components and the breakdown of the project process into increasingly detailed tasks

5.2 APPENDIX 2: PMD PRO LEARNING OUTCOMES

The objective Appendix 2 is to identify the learning outcomes associated to the Guide to the PMD Pro. These learning outcomes, in turn, provide PMD Pro examination candidates (and training organizations) a detailed breakdown of what the PMD Pro1 and PMD Pro2 exams will assess.

The PMD Pro Learning Outcome Assessment Model identifies four levels of learning outcomes. The PMD Pro1 Examination measures the Levels 1 and 2 outcomes; while the PMD Pro2 Examination measures the Levels 3 and 4 outcomes.

Figure 63: The PMD Pro Learning Outcomes Assessment Model

PMD Pro Learning Outcomes Assessment Model				
	1.Knowledge	**2. Comprehension**	**3. Application**	**4. Analysis**
Generic Definition from APMG Learning Outcomes Assessment Model	Know key facts, terms and concepts from the manual/guidance	Understand key concepts from the manual/guidance	Be able to apply key concepts relating to the syllabus area for a given scenario	Be able to identify, analyze and distinguish between appropriate and inappropriate use of the PMD Pro

Figure 64: Learning Outcomes for the Guide to the PMD Pro

Syllabus Area Code PR		Syllabus Area : Projects in the Development Sector	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the Projects in the Development Sector topic.					
01	01	Define project management terms in the context of the international development context, including projects, programs, portfolios and project management.	☐		1.3, 1.4
01	02	Identify the three sides of the triple constraint triangle as defined in the PMD Pro	☐		1.3
01	03	Recall the competencies of project managers in the development sector	☐		1.6
01	04	Recall the responsibilities of project managers in the development sector	☐		1.3
Understand the Projects in the Development Sector topic					
02	01	Explain how the culture of projects in the development sector differs from that in other sectors.	☐		1.2
02	02	Map the skills and responsibilities of project managers in the development sector	☐		1.6
02	03	Explain the relationship between the sides of a triple constraint triangle and its implications on project management.	☐		1.3
Be able to apply *and tailor* the Projects in the Development Sector to a scenario					

				PMD Pro2	
03	01	Manage the performance of staff who have varying levels of competency levels in project management		☐	1.6
03	02	Identify the advantages of managing a group of projects within the context of a program		☐	1.4
03	03	Identify the skills development required as a project team member progresses from entry-level project manager to program manager.		☐	1.6
03	04	Given a scenario in which project constraints are in flux, identify alternatives to manage the triple constraint triangle.		☐	1.3
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the Projects in the Development Sector syllabus area to a scenario					
04	01	Identify the differences in project management competencies required as the size, complexity and risk of a project scenario expands		☐	1.6
04	02	Compare and contrast the content, purpose and process of projects, programs and portfolios in the international		☐	1.4
04	03	Identify the implications of changes in project constraints on the management of the triple constraint triangle.		☐	1.3

Syllabus Area Code PM		Syllabus Area : The PMD Pro Project Phase Model	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic		☐		
Know fact, terms and concepts related to the *PMD Project Phase Model*.			☐		
01	01	Identify the six phases in the PMD Pro Project Phase Model.	☐		2.2
01	02	Recall terms, facts and concepts related to the six phases of the generic project life cycle in the international development sector	☐		2.2
Understand the *PMD Pro Project Phase Model*					
02	01	Explain the ways that project phases in the PMD Pro Project Phase Model interact with each other.	☐		2.2
02	02	Explain the difference between Project Design, Monitoring and Evaluation and Project Management in the context of the international development sector.	☐		2.2
02	03	Understand the purpose and benefits of managing decision gates through the PMD Pro Project Life Cycle.	☐		2.2
02	04	Explain the importance of incorporating the principles of project management throughout the entire life of a project.	☐		2.2
Be able to apply *and tailor the PMD Pro Project Phase Model* to a scenario					
03	01	Ability to apply the six phases, tailoring the recommended activities and actions where appropriate, to a given project scenario		☐	2.2
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area the *PMD Pro Project Phase Model* to a scenario.					

04	01	Ability to evaluate the application of the six phases to a given project scenario, by assessing whether the relevant activities of the process were correctly applied		☐	2.2

Syllabus Area Code ID		Syllabus Area : Project Identification and Design	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Project Identification and Design area.*					
01	01	Recall the three overarching categories of work in the Project Identification and Design Phase	☐		2.2.1
01	02	Identify the purposes of data collection and data analysis	☐		2.2.1.1, 2.2.2.2
01	03	Identify methodologies, approaches and tools for data collection	☐		2.2.1.2
01	04	Identify methodologies, approaches and tools for data analysis	☐		2.2.1.2
01	05	Identify the purposes of the logical framework	☐		2.2.1.3
01	06	Define the 5 characteristics of a SMART indicator	☐		2.2.1.3
01	07	Recall key project parameters described in the logical framework	☐		2.2.1.3
01	08	Recall examples of decision gates in the life of a project	☐		2.2.1.4
Understand the *Project Identification and Design Phase*					
02	01	Explain the concept of diminishing opportunities to cost effectively manage change over the life of the project.	☐		2.2.1
02	02	Identify differences between the four categories of social needs	☐		2.2.1.1
02	03	Explain the importance of triangulation in the project identification and design phase	☐		2.2.1.1
02	04	Identify differences between primary data (qualitative and quantitative) and secondary data.	☐		2.2.1.1
02	05	Explain the categories of criteria that determine what is included in project interventions	☐		2.2.1.2
02	06	Understand the vertical and horizontal logic of the project Logframe	☐		2.2.1.3
02	07	Explain the benefits of managing decision gates in the context of project management.	☐		2.2.1.4
Be able to apply *and tailor Project Identification and Design Phase* to a scenario					
03	01	Select the most appropriate tool for the intended objectives of data collection and analysis		☐	2.2.1.1, 2.2.1.2
03	02	Identify elements to include in project interventions based on clearly identified categories of decision criteria.		☐	2.2.1.2
03	03	Given a scenario, use "go"/"no go" decision criteria to identify whether projects should be approved?		☐	2.2.1.4

		Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area *Project Identification and Design Phase* to a scenario Specifically to:			
04	01	Differentiate the advantages of each of the types of data collection		☐	2.2.1.1
04	02	Compare and contrast the PMD Pro Logframe deliverables and indicators at each of the four levels.		☐	2.2.1.3
04	03	Explain the variations in the opportunity to cost-effectively manage change through the life of a project		☐	2.2.1
04	04	Given a project scenario, differentiate between the 4 categories of project need.		☐	2.2.1.1
04	05	Interpret the vertical and horizontal logic of a logframe.		☐	2.2.1.3
04	06	Assess the quality of project indicators based on the use of SMART criteria		☐	2.2.1.3

Syllabus Area Code SU		Syllabus Area : *Project Set Up*	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Project Set Up area.*					
01	01	Know the objectives of the Project Set Up phase	☐		2.2.2.1
01	02	Identify the three perspectives that should be represented in a project board.	☐		2.2.2.2
01	03	Identify the purposes of project launch communications	☐		2.2.2.4
Understand *Project Set Up*					
02	01	Understand the purpose of the Project Charter	☐		2.2.2.3
02	02	Explain the importance of establishing a project governance structure	☐		2.2.2.2
02	03	Explain the connection between project tolerances and project governance	☐		2.2.2.1
02	04	Explain the responsibilities of a project sponsor and a project board	☐		2.2.2.2
Be able to apply *and tailor Project Set Up* to a scenario					
03	01	Based on a project scenario, create or update a Project Charter.		☐	2.2.2.3
03	02	Based on a project scenario, identify strategies to improve project performance through improved project governance processes.		☐	2.2.2.2
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area *Project Set Up*] to a scenario					
04	01	Ability to evaluate the application of the Project Set Up Phase actions when provided a project scenario		☐	2.2.2

PMD Pro

Syllabus Area Code PP		Syllabus Area Project Planning	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Project Planning area.*					
01	01	Recall facts terms and concepts related to the importance and timing of the project implementation plan.	☐		**2.2.3**
01	02	Identify the eight components of a comprehensive project plan.	☐		**2.2.3.3**
01	03	Identify the advantages of developing project plans through a participatory process	☐		**2.2.3.5**
Understand the *Project Planning Phase* Specifically to:					
02	01	Explain the importance of incorporating each of the PMD Pro project management principles into the project planning process	☐		**2.2.3.2 -2.2.3.6**
02	02	Understand the advantages of rolling wave planning	☐		**2.2.3.6**
02	03	Compare and contrast project logframes, proposals and implementation plans	☐		**2.2.3**
Be able to apply *and tailor Project Planning Phase* to a scenario Specifically to:					
03	01	Identify scenarios where a rolling wave approach to project planning should be used.		☐	**2.2.3.6**
03	02	Based on project scenarios, identify the strengths and weaknesses of project plan in terms of balance, comprehensiveness, integration, participation and iteration.		☐	**2.2.3.2 – 2.2.3.6**
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area of Project Planning to a scenario Specifically to:					
04	01	Compare and contrast the purpose of the Logical Framework, the Project Proposal and the Project Implementation Plan in terms of purpose, content, audience and process.		☐	**2.2.3.3**
04	02	Explain the relationship between the project discipline areas and a comprehensive project plan.		☐	**2.2.3.3**
04	03	Explain the relationship between the project constraint triangle and an integrated project plan.		☐	**2.2.3.4**

Syllabus Area Code PI		Syllabus Area : Project Implementation	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Project Implementation Phase area.*					
01	01	Define terms related to project implementation, including Issues, Issues logs, and internal controls	☐		2.2.4.1 – 2.2.4.3
01	02	Identify the four basic processes In the issue management process	☐		2.2.4.1
01	03	Identify the activities conducted to manage people during project implementation	☐		2.2.4.2
Understand *Project Implementation Phase*					
02	01	Understand the importance of issue management in the implementation of development projects.	☐		2.2.4.1
02	02	Explain the sequence and relationship between the four basic processes of issues management	☐		2.2.4.1
02	03	Identify the benefits of well-managed internal control systems			2.2.4.3
Be able to apply *and tailor the Project Planning Phase* to a scenario					
03	01	Develop an issues log based on a project scenario		☐	2.2.4.1
03	02	Apply a four-step process to issue management in a project scenario		☐	2.2.4.1
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area of *Project Planning* to a scenario					
04	01	Identify alternatives for internal control systems based on categories of administrative, financial and logistic systems		☐	2.2.4.3

Syllabus Area Code ME		Syllabus Area : Project Monitoring, Evaluation and Control	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Project Monitoring, Evaluation and Control Phase area.*					
01	01	Recall the facts, terms and concepts related to the levels of project monitoring/evaluation and their connection to the project logical framework.	☐		2.2.5.1 – 2.2.5.3
01	02	Recall facts terms and concepts related to different evaluation approaches	☐		2.25.2
01	03	Recall facts, terms and concepts related to the project monitoring and evaluation plan	☐		
01	04	Recall facts, terms and concepts related to change control management	☐		2.2.5.2
Understand *the Project Monitoring, Evaluation and Control Phase.*					
02	01	Identify the six elements of a project monitoring system	☐		2.25.2

02	02	Identify the six areas of project tolerances	☐		2.2.5.5
02	03	Explain the tradeoff between cost and complexity when collecting monitoring data	☐		2.2..5.2
Be able to apply *and tailor Project Monitoring, Evaluation and Control Phase* to a scenario					
03	01	Explain the importance of the project monitoring plan and how its content differs from that contained in the project log frame and project plan.		☐	2.2.5.2
03	02	Understand the elements that should inform the project monitoring and evaluation plan		☐	2.2.5.2
03	03	Explain the reasons to evaluate projects		☐	2.2.5.3
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the Project Monitoring, Evaluation and Control syllabus area					
04	01	Compare and contrast the content, process and purpose of quantitative and qualitative indicators		☐	2.2.5.2
04	02	Compare and contrast the cost and complexity of different monitoring approaches		☐	2.2.5.2
04	03	Compare differences between project monitoring, project evaluation and project control.		☐	2.2.5.1
04	04	Explain the relationship between project monitoring and evaluation and an iterative planning process.		☐	2.2.5.1
04	05	Differentiate between monitoring and evaluation indicators at different levels of the project logical framework		☐	2.2.5.1

Syllabus Area Code EP		Syllabus Area : End of Project Transition	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *End of Project Transition Phase area.*					
01	01	Recall the 4 options for project transition	☐		2.2.6.1
01	02	Recall activities related to the administrative, contract and financial closure of projects	☐		2.2.6.3
01	03	Identify the two-step process for verifying project deliverables.	☐		2.2.6.2
Understand the *End of Project Transition Phase*					
02	01	Differentiate between project After Action Reviews and end of project evaluations	☐		2.2.6.4
02	02	Explain the purpose and contents of a Project Transition Planning Matrix	☐		2.2.6.1
Be able to apply *and tailor the End of Project Transition Phase* to a scenario					
03	01	Develop an end of project transition strategy		☐	2.2.6.1

03	02	Choose between the best tools to collect end-of-project learning based on project constraints and learning objectives.		☐	2.2.6.4
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area of the *End of Project Transition Phase* to a scenario					
04	01	Distinguish between the appropriate and inappropriate application of administrative, contract and financial closure of a project.		☐	2.2.6.4
04	02	Compare and contrast the different options for end of project learning		☐	2.2.6.5
04	03	Distinguish between the appropriate and inappropriate application of administrative, contract and financial closure.		☐	3.3.6.4

Syllabus Area Code DO		Syllabus Area : Project Management Disciplines Overview	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *syllabus area.*					
01	01	Know the six project management disciplines.	☐		3.0
Understand the *Project Management Disciplines Overview topic.*					
02	01	Understand how the PMD Pro project cycle is supported by the six project management disciplines.	☐		3.0
02	02	Explain how the six disciplines can be applied within the PMD Pro project cycle.	☐		3.0
Be able to apply *and tailor* the *Project Management Disciplines Overview topic* to a scenario					
03	01	Ability to apply the six disciplines to a given project scenario.		☐	3.0
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the *Project Management Disciplines Overview topic* to a scenario					
04	01	Ability to evaluate the application of the six disciplines to a given project scenario.		☐	3.0

Syllabus Area Code SM		Syllabus Area : Scope Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to *Scope Management.*					
01	01	Recall the facts, terms and concepts related to scope management, including product scope, project scope, and WBS	☐		3.1.1 – 3.1.2
01	02	Identify the benefits of work breakdown structure	☐		3.1.2
Understand *Scope Management*					

			PMD Pro1	PMD Pro2	
02	01	Understand the difference between product scope and project scope.	☐		3.1.1
02	02	Understand that the scope of the project must be confirmed and must be comprehensive and detailed.	☐		3.1.1
02	03	Understand the three most common problems that arise from the absence of a clearly defined scope	☐		3.1.1
02	04	Understand the composition of a WBS (work breakdown structure).	☐		3.1.2
02	05	Explain the advantages of the two WBS formats.	☐		3.1.2
Be able to apply *and tailor Scope Management* to a scenario					
03	01	Produce a simple work breakdown structure to a given project scenario in an indented format.		☐	3.1.2
03	02	Ability to produce a simple work breakdown structure to a given project scenario in a graphic diagram format.		☐	3.1.2
Be able to identify, analyse and distinguish between appropriate and inappropriate application of *Scope Management* to a scenario					
04	01	Explain comprehensive and detailed product and project scope through the use of a given project scenario.		☐	3.1.1
04	02	Evaluate a work breakdown structure in terms of comprehensiveness and detail for a given project scenario.		☐	3.1.2

Syllabus Area Code TM		Syllabus Area : Time Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to *Time Management*					
01	01	Know the 5 steps in schedule planning.	☐		3.2.0
01	02	Define terms related to time management, including network diagrams, critical paths, Gantt chart, project float, fast tracking and crashing.	☐		3.2.1-3.2.5
Understand *Time Management*					
02	01	Understand the five steps to the schedule planning process:	☐		3.2.0
02	02	Explain the relationship between resource estimating and calendar development	☐		3.2.2 – 3.2.3
02	03	Understand the relationship between the project constraint triangle and schedule development	☐		3.2..0
02	04	Understand the purpose, structure and content of a Gantt chart.	☐		3.2.4
02	05	Understand the purpose, structure and content of a network diagram	☐		3.2.1
02	06	Explain the purpose and process of crashing and fast tracking		☐	3.2.5
Be able to apply *and tailor Time Management* to a scenario					
03	01	Ability to construct a simple network diagram, given a project scenario.		☐	3.2.1 – 3.2.4

Syllabus Area Code TM		Syllabus Area : Time Management	PMD Pro1	PMD Pro2	Primary Manual Reference
03	02	Ability to construct a simple Gantt chart, given a project scenario.		☐	3.2.4
03	03	Ability to identify potential project duration factors in a given project scenario.		☐	3.2.3
03	04	Ability to identify a project's critical path in a given network diagram for a given project scenario.		☐	3.2.3
Be able to identify, analyse and distinguish between appropriate and inappropriate application of *Time Management* to a scenario					
04	01	Discriminate which tasks from a given network diagram are part of a project's critical path versus those that are project float or slack		☐	3.2.3
04	02	Ability to explain when a Summary Gantt Chart is used versus a Gantt chart.		☐	3.2.4
04	03	Identify opportunities to manage late projects through crashing and fast tracking.		☐	3.2.5
04	03	Given budget data, analyze the cumulative cost variance of a project.		☐	3.3.3
04	03	Given budget and calendar data, analyze the earned value status of a project		☐	3.3.3

Syllabus Area Code FM		Syllabus Area : Resource Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to *Financial Management.*					
01	01	Define the terms related to financial management, including direct costs, indirect costs, transaction costs, shared services, chart of accounts, variance and earned value analysis	☐		3.3.1 – 3.3.3
01	02	Define the three approaches to making project estimates	☐		3.3.5
Understand *Financial Management*					
02	01	Explain the advantage of developing budget phase estimates.	☐		3.3.5
02	02	Understand the advantages and disadvantages of the three estimation techniques	☐		3.3.5
02	03	Explain the importance of monitoring cash flow	☐		3.3.6
02	04	Understand the meaning of earned value analysis		☐	3.3.6
Be able to apply *and tailor Financial Management* scenario					
03	01	Ability to construct a simple budget		☐	3.3.6
03	02	Explain the process of measuring Earned Value.		☐	3.3.6
03	03	Explain the purpose and construct of a Chart of Accounts		☐	3.3.3

			PMD Pro1	PMD Pro2	Primary Manual Reference
03	04	Given a project scenario, select between estimates based on Top-down, Bottom-up and parametric data		☐	3.3.5
Be able to identify, analyse and distinguish between appropriate and inappropriate application of *Financial Management* to a scenario					
04	01	Ability to evaluate the application of developing a budget for a given project scenario		☐	3.3.6
04	02	Identify the advantages of Earned Value Analysis		☐	3.3.6
04	03	Given budget data, analyze the cumulative cost variance of a project.		☐	3.3.6
04	03	Given budget and calendar data, analyze the earned value status of a project		☐	3.3.6
Know fact, terms and concepts related to the *Supply Chain Management.*					
01	01	Identify the 3 components that comprise supply chain management	☐		3.3.7
01	02	Identify the 3 steps in procurement management	☐		3.3.7.1
Understand *Supply Chain Management.*					
02	01	Explain the 2 elements of logistics management:	☐		3.3.7.2
02	02	Identify alternatives for identifying providers in the procurement process	☐		3.3.7.1
Be able to apply *and tailor Supply Chain Management* to a scenario					
03	01	Ability to apply the principles of Supply Chain Management to a given project scenario.		☐	3.3.7
Be able to identify, analyse and distinguish between appropriate and inappropriate application of Supply Chain Management to a scenario					
04	01	Ability to evaluate, using the recommended content, the use of the following supply chain processes in a given project scenario: procurement management; logistics management; asset management; and information management		☐	3.3.7

Syllabus Area Code RM		Syllabus Area : Risk Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to *Risk Management.*					
01	01	Identify the four-step risk management process	☐		3.4.0
01	02	Define terms related to risk management, including positive risks, negative risks, risk register, risk assessment matrix and risk tolerances	☐		3.4.1 - 3.4.4
01	03	Identify the four risk response strategies.	☐		3.4.3

Understand *Risk Management*					
02	01	Explain the significance of probability and impact in the context of risk management.	☐		3.4.2
02	02	Explain the iterative nature of risk management and its importance throughout the entire life of the project.	☐		3.4.4
02	03	Understand the content and structure of a risk register	☐		3.4.1
02	04	Explain the purpose, structure and content of a Risk Assessment Matrix	☐		3.4.2
Be able to apply *and tailor Risk Management* to a scenario					
03	01	Apply the Risk Assessment Matrix to a given project scenario.		☐	3.4.2
03	02	Organize project risks by risk category		☐	3.4.1
03	03	Ability to apply the four risk management strategies in case-based scenarios.		☐	3.4.1 – 3.4.4
Be able to identify, analyse and distinguish between appropriate and inappropriate application of Risk Management to a scenario					
04	01	Interpret a risk assessment matrix to differentiate risks that can be tolerated versus risks that can be eliminated in a given non-complex project scenario.		☐	3.4.2
04	02	Categorize risk response strategies		☐	3.4.3
04	03	Interpret the contents of a risk register		☐	3.4.1

Syllabus Area Code JM		Syllabus Area : Justification Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *syllabus area.*					
01	01	Define the terms related to project justification management:, including problem-based needs identification, asset-based needs identification, problem trees and objective trees	☐		3.5.1 – 3.5.2
Understand *Justification Management*					
02	01	Understand the importance of project justification to the project team as well as the project stakeholders	☐		3.5.0
02	02	Differentiate between "problem-based" approaches an "assets-based approaches" to needs identification	☐		3.5.1
02	03	Understand the relationship between a problem tree and an objective tree	☐		3.5.2
02	04	Identify and explain the levels of hierarchy in the problem tree process	☐		3.5.2
Be able to apply *and tailor Justification Management* to a scenario					
03	01	Create a basic problem tree given a project scenario		☐	3.5.2

03	02	Create an objectives tree based on a given problem tree		☐	3.5.2
03	03	Determine how proposed project intervention objectives meet the project justification criteria in a given project scenario		☐	3.5.2
Be able to identify, analyse and distinguish between appropriate and inappropriate application of Justification Management to a scenario					
04	01	Ability to evaluate if there is adequate justification for a project intervention based on a need-based approach to proposed problems to a project		☐	3.5.2
04	02	Interpret the cause and effect relationships in a problem tree		☐	3.5.2
		Compare and contrast the problem-based approaches to assets-based approaches to needs identification			3.5.1

Syllabus Area Code SM		Syllabus Area : Stakeholder Management	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to *Stakeholder Management*					
01	01	List the six categories of stakeholders	☐		3.6.1
01	02	Know the components of a RACI chart.	☐		3.6.3
01	03	Know that communication to the Stakeholders is essential and requires planning and execution.	☐		3.6.4
01	04	Recall tools used to identify stakeholders in terms of project dependency, risk and power	☐		3.6.2
Understand *Stakeholder Management*					
02	01	Understand the four key roles identified in a RACI chart:	☐		3.6.3
02	02	Understand the components of a communication plan.	☐		3.6.4
02	03	Explain the purpose and construct of stakeholder analysis tools, including RACI Charts, Venn diagrams, stakeholder analysis matrices and communications plans	☐		3.6.1 – 3.6.4
Be able to apply *and tailor Stakeholder Management* to a scenario					
03	01	Categorize groups of stakeholders in a given project scenario		☐	3.6.1
03	02	Construct a Venn diagram from a given project scenario		☐	3.6.2
03	03	Construct a RACI matrix from a given project scenario		☐	3.6.3
03	04	Construct a Stakeholder Analysis Matrix for a given project scenario		☐	2.6.2
03	05	Apply the recommended components to a communication plan in a given project scenario		☐	3.6.4
Be able to identify, analyse and distinguish between appropriate and inappropriate application of *Stakeholder Management* to a scenario **Specifically to:**					

Syllabus Area Code AD		Syllabus Area : Adapting the PMD Pro	PMD Pro1	PMD Pro2	Primary Manual Reference
Level	Topic				
Know fact, terms and concepts related to the *Adapting the PMD Pro syllabus area.*					
01	01	Recall the principles of adaptation	☐		4.1
Understand the *Adapting the PMD Pro syllabus area.*					
02	01	Understand factors to consideration when adapting PMD Pro to projects	☐		4.2
02	02	Understand the role of systems in adapting PMD Pro tools and techniques	☐		4.2
02	03	Understand the relationship between a project's risk profile and the choice of PMD Pro tools and techniques	☐		4.2
02	04	Appreciate the considerations needed when implementing projects using PMD Pro through implementing partners	☐		4.2
Be able to apply *and tailor the Adapting the PMD Pro area* to a scenario					
03	01	Adapt the PMD Pro Disciplines to individual project scenarios		☐	4
03	02	Make recommendations to apply PMD Pro principles to programs and the wider organization		☐	4
Be able to identify, analyse and distinguish between appropriate and inappropriate application of the syllabus area to a scenario					
04	01	Interpret applications of PMD Pro tools and techniques to specific project		☐	4
04	02	Link PMD Pro tools and techniques to business processes		☐	4

04	01	Interpret the content of the stakeholder management tools, including the RACI Chart, Venn Diagram, the Stakeholder Analysis Matrix and the Communications Plan		☐	3.6.1 – 3.6.4

5.3   **APPENDIX 3: REFERENCE LIST**

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5.4 FIGURES