CGIAR
Science for a food-secure future

PROJECT MANAGEMENT
Good Practice Note

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FOREWORD

What is a GPN

A Good Practice Note (GPN) is a document themed around a specific risk or control-related area.

It is developed by the CGIAR IAU with contributions of subject-matter specialists, leveraging knowledge accumulated within the CGIAR System and reflecting good practices suggested by professional bodies or standard setters, and implemented by Centers and/or other external organizations.

GPNs aim to summarize, circulate and promote existing knowledge around the System and can be used to benchmark existing arrangements against good practices and to improve knowledge, processes and operations at Center and System levels.

What it is not

GPNs are not and should not be interpreted as minimum standards, policies, guidelines or requirements, as practices mentioned in the GPN may not be relevant to or applicable in all Centers.

1. INTRODUCTION

The core business of CGIAR Centers is to deliver agricultural research for development. Centers do it by conducting activities organized in projects that can include scientific research as well as scaling out activities. Such projects are initiated, conducted and implemented in the context of the CGIAR Strategy and Results Framework (SRF). Defined collectively as "CGIAR Research", they encompass the Portfolio of CGIAR Research Programs (CRPs), Platforms and other projects relevant to the SRF.

Other business activities take place to support the core business as defined above, such as the implementation of IT systems, change projects, re-organizations etc. i.e. activities which also have defined outputs and outcomes, and are constrained in time and budget. Each one of them can be considered and should be managed as a project.

At the moment, within the CGIAR system, each Center defines its project management approach and often embeds it within grant management processes. A common approach to managing projects at CGIAR has not yet been adopted. The Consolidated Report of CRP advisory audits, issued in October 2015 by the CGIAR Internal Audit Unit, recommended to *"Provide a common project management framework, define minimum knowledge required from Program Management Units and offer a related training program".*

The purpose of this GPN is to:
- provide reference materials to Center management, staff and internal audit teams as to existing good practices in project management
- raise awareness of the good practices available and support self-assessment against them
- provide suggestions on adaptation and adoption of the good practices in project management at a Centre level
- support improvements in the project management processes and controls.

This GPN however does not contain specific suggestions of managing complex programs such as a CRP.

1.1 What is a project?

The definition of the project as per Project Management Institute (PMI) is: "a project is a temporary endeavor undertaken to create a unique product, service, or result". As per ISO 21500:2012 "A project consists of a unique set of processes consisting of coordinated and controlled activities with start and end dates, performed to achieve project objectives." Projects are often the means to accomplish strategic goals.[1]

A program refers to a "group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually", and, "the portfolio is a collection of projects and other programs of work that are grouped together to facilitate effective management of that work to meet strategic business objectives".

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[1] ISO 21500:2012, p.4.
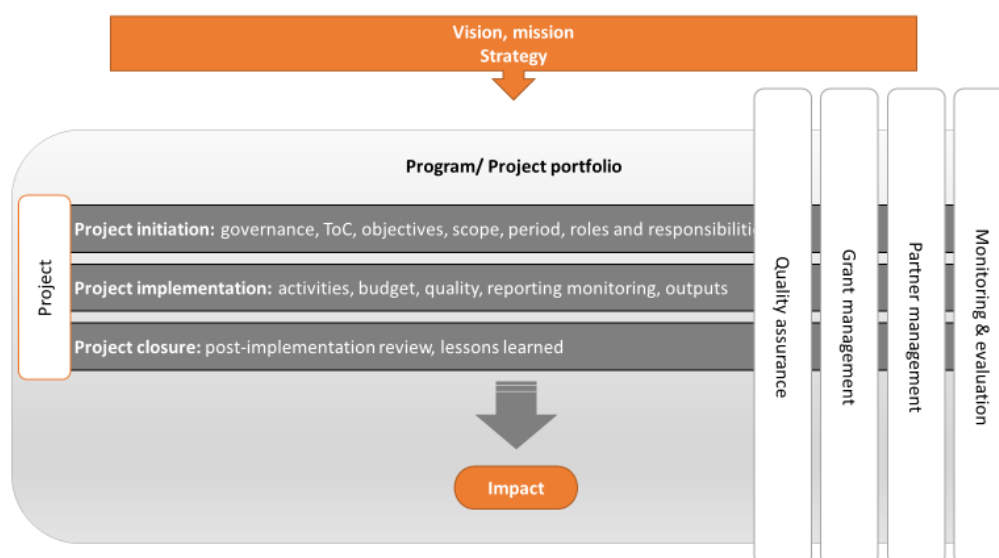
1.2 What is project management?

The Project Management Book of Knowledge (PMBOK) defines project management as "the application of knowledge, skills, tools, and techniques to project activities to meet project requirements." A stated beginning and conclusion to each project must be balanced against its scope and the budget by which the task as a whole is constrained.

The fact that there are project management methodologies and, organizations and teams use them to help achieve project objectives is a testimony to the benefits of using structured project management processes. Benefits are tangible and intangible, and the key ones are highlighted[2] as follows:

- Increased commitment to the objectives and outcomes,
- availability of information for decision making,
- quality improvement in results,
- increased integration between departments, and
- increased customer satisfaction (internal/external).

The use of structured project management methodologies is not a guarantee that project objectives will be met, however using them increases the chances of achieving the expected results. An unplanned approach in research can often lead to stress in members of a research team, crises management when deadlines are not effectively managed and the lack of time within the research to deliver effective outcomes.

In the development arena, where accountability and transparency requirements are at the forefront of the agenda of aid agencies, the use of clear and consistent project management frameworks is a "must have" rather than "good to have". Project management activities are implemented in conjunction with other processes such as grant management, monitoring and evaluation, partner engagement etc. These processes are sometimes closely intertwined with and affect project implementation, as illustrated in the chart below:

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[2] by Valle et al. (2010, p. 65)

Project management processes may also be supported by an IT system e.g. OCS and its project management module. For the purposes of this GPN the processes that cut across a Center's project portfolio such as quality assurance, grant management, OCS etc. will not be covered however where relevant references will be made to them. Projects where a Centre will be a project partner or a sub-contractor and have to subscribe to a contracting party's project management methodologies, are also not covered here.

As with any organizational activity there are risks associated with implementing projects. They include:

A	**Strategic Risks: Relates to science quality and delivery, governance, reputation, funding, communication, employee value, organizational culture and knowledge management**
1	Engaging in projects which do not add value or do not benefit the organization and its stakeholders
2	Insufficient, poor governance and oversight of the project implementation
3	Project objectives are not defined or are ambiguous
4	Expected outcomes and outputs (benefits) of a project are not delivered/achieved having direct effect on organization's ability to meet its objectives
5	Reputational damage, loss of credibility as the organization cannot demonstrate/evidence results
6	The organization does not learn from its successes and mistakes, missing an opportunity to improve
B	**Compliance risks: Compliance with internal policies and procedures and external laws/donor regulations**
1	Donor dissatisfaction with project delivery with consequent withdrawal of support
2	Non-compliance with laws and regulations governing specific aspects of project activities
C	**Fraud risks: Relates to scientific and operational fraud**
1	Reporting activities and expenses which did not occur or do no not relate to the project
2	Misuse of project resources leading to monetary losses and reputational damage
D	**Financial risks: Accuracy of financial reporting, financial sustainability and viability of the organization, and safeguarding of financial assets, procurement, credit and currency**
1	Budget overruns
2	Inaccurate financial information on the financial progress of the project is presented impairing effective decision-making
E	**Operational risks: Effectiveness in achieving organizational goals and objectives; efficiency of operations; service delivery, security, people and technology**
1	Engaging in activities which do not contribute to the project's objectives
2	Significant project delays
3	Project outputs are of inferior quality
4	Lack of clarity of roles and responsibilities on project implementation
5	Inadequate human resources to implement a project

Apart from generic risks listed above, each project will face specific risks associated with project activities, locations, and project internal and external environments. Project management standards and methodologies that will be explored in this Good Practice Note, all include specific references to project risk management processes. In the CGIAR, risks also should be considered in the context of the overall System risks and risks faced at the individual Center levels.

2. EXISTING STANDARDS AND APPROACHES TO PROJECT MANAGEMENT

2.1 Acknowledged well known standards, methodologies and tools

Some project management practitioners suggest to distinguish project management standards from project management methodologies, with standards being a set of principles within which users are able to use various methodologies and tools. PMBOK for example advocates that "… standard is a guide rather than a specific methodology. One can use different methodologies and tools (e.g., agile, waterfall, PRINCE2) to implement the project management framework." A methodology is a model, which project managers employ for the design, planning, implementation and achievement of their project objectives. While this GPN does not advocate for any specific interpretation, for easy reading we have separated project management standards from project management methodologies and approaches.

2.1.1   Project management standards

We consider two main standards frameworks for project management, PMBOK and ISO 21500:2012. Both are developed based on good practices as suggested by project management practitioners.

2.1.1.1 The PMI/PMBOK

The Project Management Institute (PMI) is the most well-known project management organization in the United States. It was founded in 1969 as a non-profit dedicated to the practice, science, and profession of project management. PMI developed and published "A Guide to the Project Management Body of Knowledge" (PMBOK) as a white paper (5th edition issued in 2013).
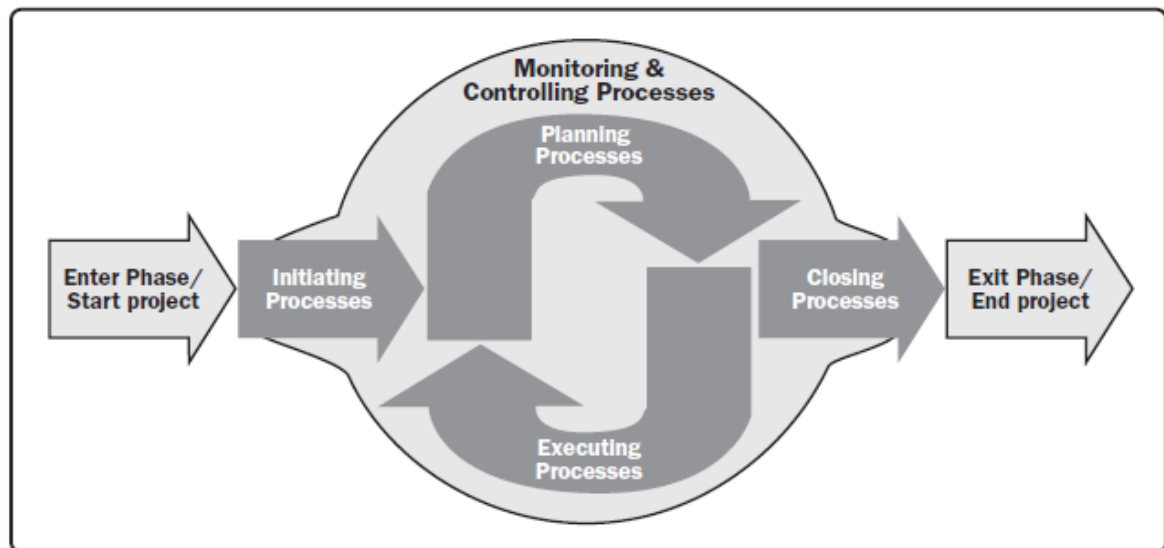The PMBOK is structured in two main elements, the Knowledge Areas and Process Groups.

The Knowledge Areas are processes that cut across the project implementation cycle. They include:
- **Project Integration**: activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management process groups.
- **Project Scope:** ensuring that the project includes all the work required, and only the work required, to complete the project successfully.
- **Project Time:** managing the timely completion of the project.
- **Project Cost:** planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget.
- **Project Quality:** determining quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken.
- **Project Human Resource:** organizing, managing, and leading the project team.
- **Project Communications**: ensuring timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.
- **Project Risk:** conducting risk management planning, identification, analysis, response planning, and controlling risk on a project.
- **Project Procurement:** purchasing or acquiring products, services, or results needed from outside the project team. Processes in this area include Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration, and Contract Closeout.
- **Project Stakeholder:** identifying all people or organizations impacted by the project, analyzing stakeholder expectations and impact on the project, and developing appropriate management strategies for effectively engaging stakeholders in project decisions and execution.

These areas of knowledge provide the bases of the execution of the project processes. The process groups based on a project cycle approach as defined by PMBOK are:

- **Initiating**: processes to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
- **Planning:** processes to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
- **Executing:** processes to complete the work defined in the project management plan to satisfy the project specifications
- **Monitoring and Controlling:** processes to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
- **Closing:** processes to finalize all activities across all Process Groups to formally close the project or phase.

These process groups are responsible for the grouping of forty-seven processes established in the framework.

The relationships matrix between each of the knowledge areas and the process groups is described below in a tabular format.

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

2.1.1.2 ISO 21500:2012 Guidance on Project Management

The ISO 21500:2012 standard to a large extent follows the principles laid out in PMBOK. It refers to Subject Groups as opposed to Knowledge Areas of the PMBOK, however these are almost identical. Process groups in the ISO 21500:2012 are the same as in the PMBOK, however processes within process groups differ slightly but not materially. Some processes in the PMBOK are set out in more detail e.g. two processes of performing qualitative and quantitative risk analysis in PMBOK are combined into one process of risk assessment in ISO 21500:2012. ISO standards also include an important additional process of collecting lessons learned under the Integration group of processes. The advantage of ISO 21500:2012 is that it is much shorter read than the PMBOK and it incorporates knowledge already documented in other ISO standards e.g. on risk management.

2.1.2 Project management methodologies

There are a number of recognized project management methodologies that can be used within a standard framework and that can be referred to and utilized in designing project management processes.

2.1.2.1 Traditional sequential methodologies

These include methodologies such as **Waterfall** whereby tasks that lead to a final deliverable are sequenced and are worked on in order. This is an ideal methodology for projects that result in physical objects e.g. buildings, computers, and the project plans can be easily replicated for future use. The downside of the methodology is that if the project's needs and priorities change, it will disrupt the sequence of tasks, making it very difficult to manage. **Critical Path Method (CPM)** and **Critical Chain Project Management (CCPM)** also belong to this group of project management methodologies. Critical chain project management is a methodology that puts a primary focus on the resources needed to complete the project's tasks. It begins by building a project schedule and identifying the most crucial tasks that need to be done — the "Critical Chain" — and reserving resource for those high-priority tasks. It also builds buffers of time around these tasks into the project's schedule, which helps ensure that the project meets its deadlines. This approach can be useful when funding scenarios are volatile as it sometimes happens in the context of international development.

2.1.2.2 The Agile family

In February 2001, seventeen software development thought leaders met at The Lodge resort in Snowbird, Utah to discuss their frustrations with traditional project development methodologies and frameworks. From this meeting came the Manifesto for Agile Software Development. Agile is generally referred to as a "movement" rather than a methodology and is embodied in four values and twelve principles.

A) The four values are:
- Value 1: Individuals and interactions over processes and tools
- Value 2: Working software over comprehensive documentation
- Value 3: Customer collaboration over contract negotiation
- Value 4: Responding to change over following a plan.

B) The twelve principles are:
- Principle 1: Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Principle 2: Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- Principle 3: Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Principle 4: Business people and developers must work together daily throughout the project.
- Principle 5: Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- Principle 6: The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Principle 7: Working software is the primary measure of progress. Agile processes promote sustainable development.

- Principle 8: The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Principle 9: Continuous attention to technical excellence and good design enhances agility.
- Principle 10: Simplicity--the art of maximizing the amount of work not done--is essential.
- Principle 11: The best architectures, requirements, and designs emerge from self-organizing teams.
- Principle 12: At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

A variety of methodologies have grown out of the Agile Manifesto or fall under the same principles, including Scrum, Kanban, eXtreme Programming, and more. What is common among the various flavors of Agile is that project objectives are made clear by the customer while the final deliverable can change. The project team works in iterative cycles, always evaluating results at the end. Depending on the results of these evaluations, the final deliverable may be modified in order to better answer the customer's needs. Continuous collaboration is key, both within the project team members and with project stakeholders.

2.1.2.3 PRINCE2

PRINCE2 stands for Projects In Controlled Environments. It's a method for managing projects used by the UK government. In PRINCE2, high level activities such as setting the business justification and resource allocation are owned by a structured project board while a project manager takes care of the lower level, day-to-day activities such as scheduling. This methodology gives teams greater control of resources and the ability to mitigate risks effectively.

Being a process-based approach, PRINCE2 focuses on organization and control over the entire project, from start to finish. That means projects are thoroughly planned before kick-off, each stage of the process is clearly structured, and all loose ends are neatly tied up after the project ends. The PRINCE2 method is built on these 7 principles, 7 themes and 7 processes.

A) PRINCE2 principles are:
- Principle 1: Projects must have **business justification**. Each project must have a clear need, a defined customer, realistic benefits, and a detailed cost assessment.
- Principle 2: Teams should **learn** from every stage. Lessons are sought and recorded at every step in the process, and then used to improve future work.
- Principle 3: **Roles and responsibilities** are clearly defined. Everyone should know exactly what they're responsible for, and what their teammates are responsible for.
- Principle 4: Work is **planned** in stages. Projects are broken up into individual work phases, with periodic reviews to record lessons learned and confirm the project is still on track to meet requirements.
- Principle 5: Project boards "**manage by exception**". Since board members are typically senior executives and/or experts who don't have time to manage a project's daily activities, they establish baseline requirements for things like time, cost, risk, and scope, and then delegate daily oversight to a project manager. The project manager has the authority to get the project back on track if it's running late, going over budget, etc. But if issues arise that will impact the established requirements, that's an "exception," and the project board decides the best way to proceed.

- Principle 6: Teams keep a constant **focus on quality**. Deliverables are continually checked against requirements through the use of a quality register.

- Principle 7: The approach is **tailored** for each project. The PRINCE2 method itself should be adjusted to suit the needs of each project, changing the amount of oversight and planning to fit the size of the project, number of people involved, etc.

B) *The seven themes or performance targets are (this is what needs to be controlled):*
- Theme 1: **Business case** - What value would delivering the project bring to the organization?
- Theme 2: **Organization** - How will the project team's individual roles and responsibilities be defined in order for them to effectively manage the project?
- Theme 3: **Quality** – What are the quality requirements and measures and how the project will deliver them.
- Theme 3: **Plans** - The steps required to develop the plans and PRINCE2 techniques that should be used.
- Theme 4: **Risk** - How will the project management address the uncertainties in its plans and the project environment?
- Theme 5: **Change** - How will the project management assess and act on unforeseen issues or requests for change?
- Theme 6: **Progress** - The ongoing viability and performance of the plans and how/whether the project should proceed.

C) *The principles and themes come into play in the seven processes*:
- Process 1: **Starting up a project**

In this process the project team is appointed and a project brief is produced. In addition, the overall approach to be taken is decided and the next stage (initiation) of the project is planned. Once this work is done, the project board is asked to authorize that stage.

Key activities include: forming the project board; appointing an executive and a project manager (see the roles below); designing and appointing a project management team; preparing a project brief; defining the project approach; preparing an outline business case, consulting the Lessons Logs of previous projects; and planning the next stage (initiation).

- Process 2: **Initiating a project**

This process builds on the work of the start-up process, and the project brief is used to prepare other management documents that will be needed during the project. For example, the approach taken to ensure quality throughout the project is agreed together with the overall approach to controlling the project itself (project controls). Project files are also created, as is an overall plan for the project. The business case is completed. A plan for the next stage of the project is also created. The resultant information can be put before the project board for them to authorize the project itself.

Key activities include: planning quality; planning a project; refining the business case and risks; setting up project controls; setting up project files; and assembling a Project Initiation Documentation.

- Process 3**: Directing a project**

This process dictates when the Project Board (which comprises such roles as the executive or sponsor) should control the overall project. As mentioned above, the project board must authorize the initiation stage and also authorize the project. Directing a Project also dictates how the project board should authorize a stage plan, including any exception plan that replaces an existing stage plan due to slippage or other unforeseen circumstances. Also covered is the way in which the board can give ad hoc direction to a project and the way in which the project should be closed down.

Key activities include: authorizing initiation; authorizing a project; authorizing a stage or exception plan; giving ad hoc direction; and confirming project closure.

- Process 4: **Controlling a stage**

PRINCE2 suggests that projects should be broken down into stages and this process dictates how each individual stage should be controlled. Most fundamentally this includes the way in which work packages are authorized and received. It also specifies the way in which progress should be monitored and how the highlights of the progress should be reported to the project board. A means for capturing and assessing project issues is suggested together with the way in which corrective action should be taken. It also lays down the method by which certain project issues should be escalated to the project board.

Key activities include: authorizing work packages; assessing progress; capturing and examining project issues; monitoring and controlling risks; reviewing stage status; reporting highlights; taking corrective action; escalating project issues; and receiving completed work packages.

- Process 5: **Managing product delivery**

The Managing product delivery process has the purpose of controlling the link between the Project Manager and the Team Manager(s) by placing formal requirements on accepting, executing and delivering project work. The Objectives of the Managing Product Delivery process are:

- o To ensure that work on products allocated to the team is authorized and agreed, Team Manager(s), team members and suppliers are clear as to what is to be produced and what is the expected effort, cost, timescales and quality,
- o The planned products are delivered to expectations and within tolerance,
- o Accurate progress information is provided to the Project Manager at an agreed frequency to ensure that expectations are managed.

Key activities include: Accept a work package, execute a work package and deliver a work package.

- Process 6: **Managing stage boundaries**

Whereas the Controlling a Stage process dictates what should be done within a stage, Managing Stage Boundaries dictates what should be done towards the end of a stage. Most obviously, the next stage should be planned and the overall project plan, risk register and business case amended as necessary. The process also covers what should be done for a stage that has gone outside its tolerance levels. Finally, the process dictates how the end of the stage should be reported.

Key activities include: planning a stage; updating a project plan; updating a project business case; updating the risk register; reporting stage end; and producing an exception plan.
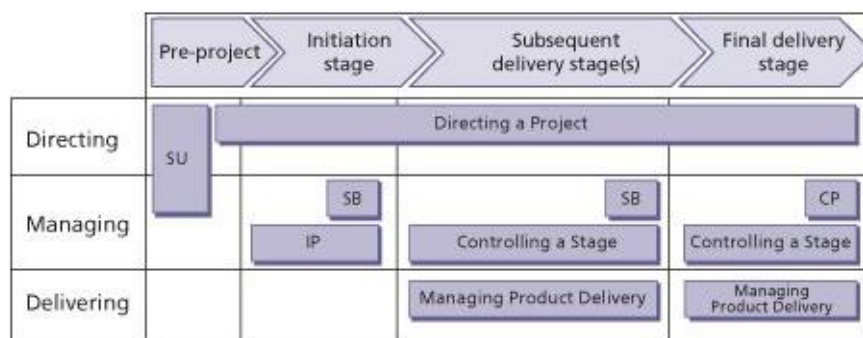
Best practice includes: the project board, including users, reviewing progress and approving any changes to the project plan at the boundary. This review can include team managers for valid experience based opinions; and the responsibility of the project manager includes presenting their area of work competently to the board.

- Process 7: **Closing a project**

This covers the things that should be done at the end of a project. The project should be formally de-commissioned (and resources freed up for allocation to other activities), follow-on actions should be identified and the project itself be formally evaluated.

Key activities include: decommissioning a project; identifying follow-on actions; preparing a benefits review plan and project evaluation review. The benefits review plan indicates a time when the benefits of the end product may be measured, how and what resources will be required.

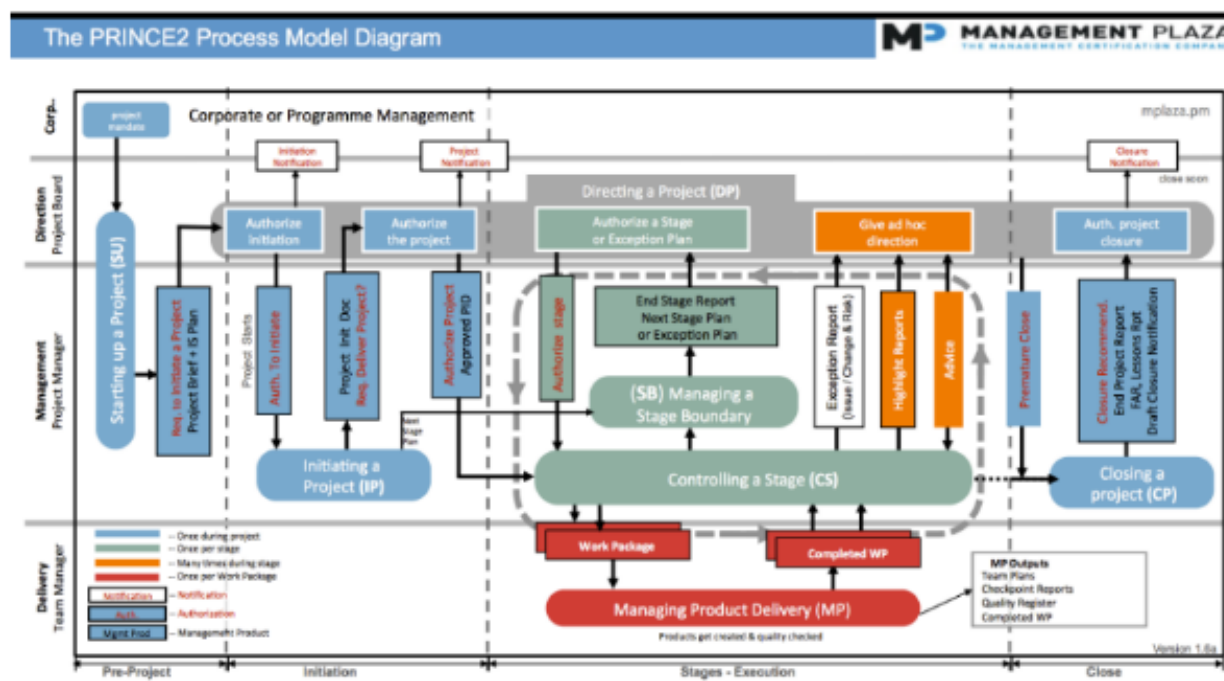## Use of the PRINCE2 processes through the project lifecycle

SU- Starting up a project
IP – Initiating a project
SB – Managing a stage boundary
CP – closing a project

D) *Roles and responsibilities*:

a) Project manager will be responsible for organizing and controlling a project.
The Project Manager will select people to do the work on the project and will be responsible for making sure that the work is done properly and on time. The Project Manager draws up the project plans that describe what the project team will actually be doing and when they expect to finish.

b) Customer, user and supplier.
The person who is paying for the project is called the customer or executive. The person who is going to use the results or outcome of the project, or who will be impacted by the outcome of a project, is called the user. On some projects, the customer and user may be the same person. The person who provides the expertise to do the actual work on the project (i.e. will be designing and building the outcome) is called the supplier or specialist.

All of these people need to be organized and coordinated so that the project delivers the required outcome within budget, on time and to the appropriate quality.
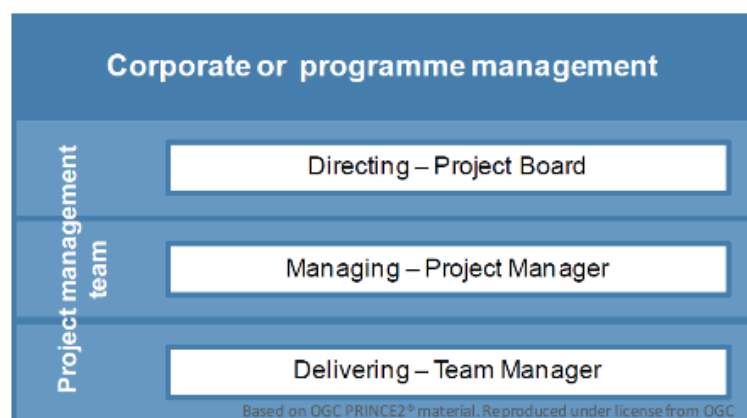
c) Project Board.
Each PRINCE2 project will have a project board made up of the customer (or executive), someone representing the user side, and someone representing the supplier or specialist input. In PRINCE2, these people are called customer, senior user and senior supplier respectively.
The Project Manager reports regularly to the project board, keeping them informed of progress and highlighting any problems he/she can foresee.
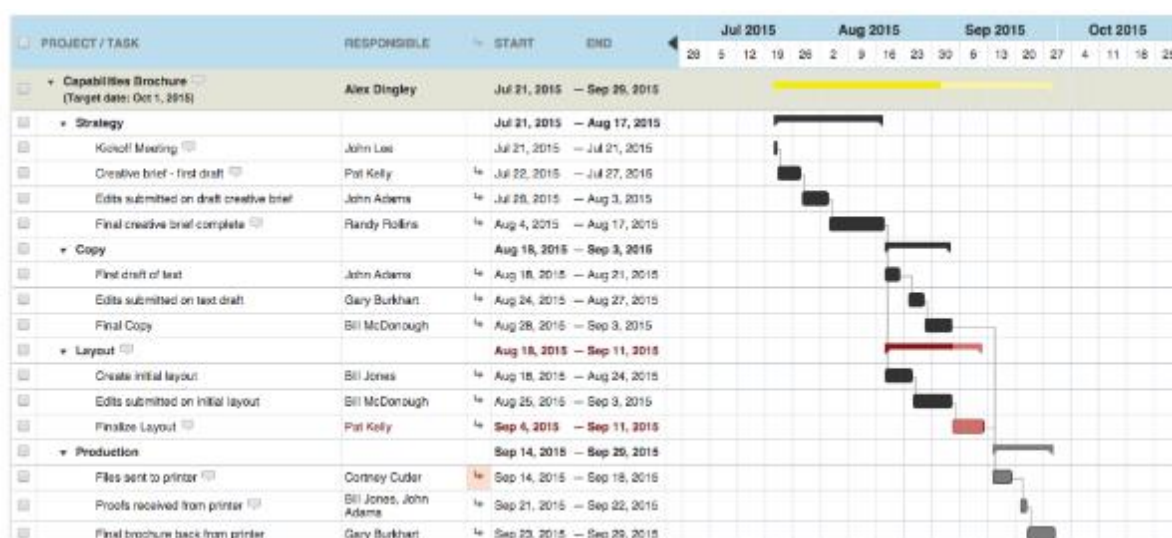The project board is responsible for providing the Project Manager with the necessary decisions for the project to proceed and to overcome any problems.
The latest development in the world of PRINCE2 is PRINCE2 Agile, a methodology that seeks to integrate the flexibility, change management and emphasis on quality from the Agile methodologies.

2.1.3 A tool to assist in managing projects: the Gantt chart

The Gantt Chart, with its combination of times and tasks, provides a formal method for documenting and displaying the project lifecycle stages (Initiating, Planning, Executing, Monitoring, Controlling, and Closing). With the evolution of the Gantt chart, these could all be described in a simple chart that allows a project manager to see the status of the project. The Gantt Chart was used in the development of the Hoover Dam in 1931. An example of a Gantt chart is presented below:

2.1.4 Pros and Cons of project management methodologies

Each framework has its own strengths and weaknesses, but more importantly, projects have their own needs and resources. Some elements that may determine which framework to employ are the type of business (big vs. small), the unique nature of the projects (research vs IT, experimental vs. policy research), or the different departments using the method.

For example, the PRINCE2 framework might be used to control costs in an environment where cost overruns have been common and management is seeking to slow them down. CCPM might be introduced in an environment where there are many obstacles to completing a project on time, such as changing project priorities and stakeholder expectations that are outside the initial scope of the project. In that particular scenario, an Agile framework might be introduced in order to accommodate change rather than a method to overcome change.

With so many frameworks, choosing the right framework for a project is critical to success. Here are some of the things to consider:

Methodology	Pros	Cons	Potential use within CGIAR context
Waterfall	Extensive planning goes into this approach, and this thoroughness often results in more accurate timelines and budgets.	It's difficult to adapt to any project changes — or modify and correct previous steps (water can't run backwards!) — so the project team will need to be proactive in anticipating problems before they can affect the flow.	The methodology can be used for simple sequential projects such as office move or refurbishment of Centre facilities.
CCPM	Tasks will be implemented as resources are reserved for them.	This approach may not be effective for projects with short deadlines, since CCPM	The approach can be used when there are constraints in resources, monetary, time or human. For example, a change project that

Methodology	Pros	Cons	Potential use within CGIAR context
		plans build in extra time buffers along the critical chain.	needs to be implemented within very short period of time. The attention will be paid to the most important tasks to be completed to successfully implement the change.
Agile	This approach is beneficial for creative projects with goals that are flexible and can be modified midway.	Timelines and budgets are difficult to define, and stakeholders must have the time and desire to be actively involved in the day-to-day work.	This methodology might be better suited to "blue sky" exploratory research projects within a dynamic context and loosely defined deliverables.
Prince2	The extensive documentation involved in PRINCE2 projects can be very helpful with corporate planning and performance tracking. It is also useful in managing complex projects with clear expectations as a lot of time is devoted to planning so it also helps to control cost and time budgets.	It can be difficult to adapt to project changes, since a lot of effort goes into creating and maintaining those documents and logs at each stage of the process. For simple projects or in the context of limited resources this methodology can be overwhelming and seem overly bureaucratic.	Project requiring cost and time control will benefit from using PRINCE2 methodology especially complex IT projects where cost overruns are highly probable.

2.2 Recognized practices used by other similar organizations

Development organizations whose core activities are organized in projects, develop specific frameworks and methodologies to aid consistency and quality of their project management processes. We have included three examples of such frameworks in the Appendix A.

2.3 CGIAR System requirements

At the CGIAR level although expectations as to project management are not formally established, there were a number of reviews that covered project management aspects of CRP implementation. The reviews have resulted in recommendations for improvements. They include:
- IEA report on CRP governance and management
- IAU Phase 1 advisory CRP audit consolidation.

2.3.1 IEA report on CRP governance and management

The relevant recommendations made are:

1. Create a single, balanced governing body for each CRP that reports directly to the lead Center board on the performance of the program. The CRP governance body should bring together appropriate expertise, include a majority of independent expert members, and accommodate lead Center and partner representation.
2. Assure transparency in the work of CRP governance bodies by making available on CRP websites the names of members and their qualifications, posting meeting agendas and minutes, and otherwise sharing information that builds confidence in the basis and quality of decision making.
3. Institute policy and decision-making mechanisms for managing conflicts of interest at the governance and management levels of CRPs.
4. Strengthen the authority of the CRP leader to manage for results:
   - place the reporting line and accountability for performance with the CRP governing body included in the recommendation 1,
   - give CRP leaders the authority to establish appropriate management and program advisory arrangements,
   - institute a formal role in the performance evaluation of CRP program managers and coordinators employed by Centers.
5. Establish uniform guidelines that harmonize CRP management budgets, including staff costs attributed to program administration, coordination of key functions, and research management, to reflect the legitimate costs of program management and to better assess management efficiency and effectiveness.

2.3.2 IAU Phase 1 advisory CRP audit consolidation

Relevant recommendations made include:

6. Oversight Committees:
   - Ensure full effectiveness (through composition, attendance, resources provided, clear definition of role and authority);
   - Foster transparency of the decision making process (professional documentation of information provided, content of deliberation and decisions);
   - Clarify the role(s) of science and partnership committees.
7. Set clear and standard roles for the different participants in the CRP, using a RACI Chart (Responsible, Accountable, Consulted, Informed). Define guidelines for resolution of conflicts between the Lead Centers and CRP management
8. Require the Program Management Unit to monitor and report project progress and levels of expenditure using similar classification and perform reconciliations between both sets of data
9. Guidance should clarify the process for validating scientific delivery and make this process independent from Center line management
10. Perform analyses of actual expenditure vs. budget and linkage with technical work, for the analysis of the implementation of PPAs
11. Provide guidance on the documentation of proposals and approvals of annual budgets per Participating Center
12. Define the role of PMU in:
    - tracking utilization of funds for its CRP (expenditure and assets),
    - linking fund utilization with deliverables expected and received
    - enforcing by default the PIA clause on mandatory full cost recovery in bilateral grants.

The recommendations made by IEA and IAU can be mapped to the essential process groups as per the standards laid out in the PMBOK as below:

Area	Initiation	Planning	Execution	Monitoring	Closing
Integration					
Scope				A process of controlling scope. **#9**	
Time				A process of regular monitoring of project progress. **#8**	
Cost		A process whereby the financial policies and parameters will be decided.**#5** Estimation of costs.**#11**		A process of regular monitoring of project budget. **##8, 10**	
Quality					
HR		A process where roles and responsibilities will be set.**##3, 4**			
Communications			A process of communicating roles and responsibilities. **#2**		
Risk					
Procurement					
Stakeholders	A process of establishing a project governing body. **##1, 6, 7, 12.**				

2.4 Center requirements – overview of standards from CGIAR Centers

CGIAR or the CGIAR Centers have not signed up to a project management standard and/or methodology yet, however there are frameworks used by the CGIAR Centers that incorporate elements of project management controls.
With the permission of the Centers we have included them in the Appendix B.

3. RECOMMENDED PRACTICE

Constraints on resources imposed by external factors put increasing pressure on the Centers to achieve efficiencies as well as to be able demonstrate that reasonable efforts are being taken to maximize the available capabilities. Use of structured project management approaches will help to accomplish that. In this section, we put forward our suggestions of how the Centers can utilize the existing recognized methodologies and practices of managing projects.

3.1 Managing non-research projects

Centers go through changes, implement new structures stemming from strategic development, acquire and introduce new systems e.g. OCS, change their geographic focus. For the purposes of this document, we will call them organizational projects. These activities which are limited in time but seek to achieve certain benefits should be implemented in a structured way to ensure that their objectives are being reached.

The organizational projects vary in nature, scope and scale. Whilst recognizing that a single methodology that would be suitable for all cannot be mandated, certain standards and expectations can be established at an organizational level. A suggested approach using PMBOK is laid out below:

Process	Initiation	Planning	Execution	Monitoring	Closing
Integration	• Establish project objectives, scope and preliminary implementation period • Develop business case and/or project charter • Get authorization to develop the project	• Develop a timed project implementation plan based on the defined scope, timelines, cost and quality • Identify input/support required from the rest of the organization • Determine closure activities and incorporate into the plan	Execute the project activities	Monitor project implementation against the project plan	• Implement closure activities • Obtain project acceptance of final results • Document lessons learned
Scope		• Define the scope, outputs and outcomes vis-à-vis the project objectives by understanding stakeholder and legal requirements • Define how project scope, outputs and outcomes will be		Monitor scope	

Process	Initiation	Planning	Execution	Monitoring	Closing
		monitored throughout the project			
Time		• Define project period • Define project activities based on scope, outputs and outcomes • Establish the sequence of the activities to fit into the project period • Determine how activities and time budget will be monitored		Monitor time	
Cost		• Estimate activity costs • Determine project budget • Determine how budget will be monitored		Monitor budget	
Quality		• Establish quality requirements • Determine how quality will be monitored		Monitor quality	
HR		Determine human resources required to implement the project: skills, headcount, structure	Establish project management team		
Communications		Develop project communication plan	• Project kick off • Implement communications plan	Monitor against communications plan	

Process	Initiation	Planning	Execution	Monitoring	Closing
Risk		Assess and document risks against project objectives	Implement risk mitigating activities	Review risks	
Procurement		Develop procurement plan if appropriate			
Stakeholders	Identify stakeholders who should be involved in the project either to be informed of it, get approvals from, get input from or support.	• Determine governing structures of the project • Define roles and responsibilities of the governing bodies • Develop a RACI chart to document responsibilities of the project team and governing bodies • Get approval of the project plan and RACI chart	Engage with stakeholders	Monitor stakeholder engagements	

The table does not specify a chronological order. Its purpose is to map tasks against project cycle and process groups.

IT projects perhaps fall into a special category. Their objectives can be very complex; their implementation requires very specific technical skills. Tried and tested methodologies such as PRINCE2 or Agile should be applied to manage them. However, generic standard expectations such as laid out above may still apply.

3.2 Managing research projects

Susan L Singer, SCPM in her article 'Project management in the research environment' argues that there are a number of challenges in using conventional project management methods for research. In her views the challenges include:

- *The conventional project management methods are used in rational settings linear or formulaic in their execution; goal setting is an integral part of the methods. Research outcomes are less predictable.*
- *A research may be perceived to have either ill-defined or excessively broad scope.*
- *There may not be a predictable start or an end to a scientific project.*
- *Exhausting of a grant does not mean an end of a project. Funding can be conditional or its source unstable.*
- *There are variables to contend with at each of the multiple steps throughout the project. Much of the work is dependent on the kinds of if/then decision trees cited above. The higher levels of uncertainty that – while customary, accepted and even embraced in the scientific setting – would constitute unacceptable risk in most business settings.*
- *Whilst in a project team collaboration is essential, in the scientific context there often exists an ambivalence between colleagues who have competing needs for credit and recognition for their accomplishments, as well as maintenance of their positions at respected institutions.*

- *The ability to verify findings demands a stringent system of checks and balances not required in many of the other project management environments.*

Hence the author suggests that the conventional project management methodologies should be adapted to cater to the specific nature of a scientific project. A number of universities and research institutions prescribe and provide training on project management methodologies to be used by students and researchers. This is because of:

- Restrictions imposed by external stakeholders such as funders. The restrictions may include money and budgets, specific terms and conditions
- Business needs may dictate specific timelines of delivering project results e.g. in the development context this may include delivery against SDGs
- In an organizational environment, the need to measure performance of researchers and staff can also be fulfilled by metrics produced as part of project management processes.

One of the complicating features of the CGIAR research is that, the CGIAR research projects also contain and aim for development outcomes and impacts. The funders that support CGIAR are mostly development agencies that seek to further their government's development agendas. This means that the research projects not only have to contribute to the body of knowledge but also directly and indirectly effect positive changes in people's lives. Projects are hence expected to be based on robust theories of change and be supported by strong monitoring and evaluation processes to be able to demonstrate the development outcomes that the funders seek.

The suggested here approach takes into account the specific nature of research projects within CGIAR and builds on conventional project management standards and methodologies, project management frameworks used by UN and other development organizations, and research institutions including CGIAR Centers.

The matrix presented earlier to outline components of project management processes for non-research projects still applies to research projects. There will be a need in some specific adjustments to be done to reflect the specific nature of the research activities.

Each table below reflects on a stage in a project cycle with specific tasks against process groups. The third column then seeks to clarify how specific tasks might be interpreted in the research project management context. The table also highlights where the tasks overlap and might be handled by other organizational processes (last column).

3.2.1 Project initiation

Process	Initiation	Research project adjustments	Links to other processes/tools
Integration	• Establish project objectives, scope and preliminary implementation period • Develop business case and/or project charter	• Before a research idea can be developed into a fully pledged project proposal (or what some research organizations call project protocol) it will need to be approved to ensure strategic alignment with a Center's priorities and it is scientifically sound. A research idea document would cover:	• Grant management: proposal development, grant management system • Science quality assurance:

Process	Initiation	Research project adjustments	Links to other processes/tools
	• Get authorization to develop the project	○ An abstract that contains the hypothesis and research objectives and methods ○ The statement of the problem– the scientific justification, the aims, objectives and basis of the need for research and its potential contribution to the Center's mission/strategy. ○ Grounds that support seeking evidence for the central question. ○ Objectives articulating the intellectual activities that the Principal Investigator (PI) will pursue in the course of research. ○ Anticipated resources that will be required to see the research to some logical conclusion. • Once research idea is approved, Centers use a concept note or project proposals to expand on the research topic and project objectives in lieu of a project charter or a business case. It should also contain: ○ Methodology detailing the design and execution of the study and how the objectives will be met. ○ The metrics that will be employed as well as means and models for data analysis. ○ Clearly articulated ToC with considerations of who the beneficiaries are to be impacted on and sustainability measures. • At this stage, any lesson learned from previous similar projects will need to be reviewed and incorporated in the thinking.	quality standards • OCS/other application
Scope			
Time			
Cost			
Quality			
HR			
Communications			
Risk			
Procurement			

Process	Initiation	Research project adjustments	Links to other processes/tools
Stakeholders	• Identify stakeholders who should be involved in the project either to be informed of it, get approvals, input from or support.	• Using the best talent is important in the CGIAR context. The best talent can be recruited or be acquired through partner organizations/other CGIAR Centers. Those stakeholders should be mapped out as well. • As most of CGIAR projects are donor funded, there is a need to understand expectations from donors and their requirements e.g. procurement rules, requirements for scope/budget adjustments etc.	• Partner management: selection of partners • Grant management: donor compliance • OCS/other application

3.2.2 Project planning

Process	Planning	Research project adjustments	Links to other processes/tools
Integration	• Develop a timed project implementation plan based on the defined scope, timelines, cost and quality • Identify input/support required from the rest of the organization • Determine closure activities and incorporate them into the plan	• An overall project plan will incorporate work done under each process of Scope, Time, Cost, Quality, Risk, Procurement, HR, Communication and Stakeholders • As is in any other project determining boundaries of a research project is important. A project implementation plan's role is to communicate the project activities, milestones and, roles and responsibilities to the project team and other stakeholders. Monitoring progress of a project is also made easier using the project implementation plan. • The plan also should include activities to publish research results. This can be shared with the communications team so that they can plan their activities accordingly.	• Grant management: proposal development, grant execution, closure • OCS/other application
Scope	• Define the scope, outputs and outcomes vis-à-vis the project objectives by understanding stakeholder and legal requirements. • Define how project scope, outputs and outcomes will be monitored throughout the project	• A research may involve regulated activities. Any legal or donor expectations in relation to how the research is conducted should be understood, documented and incorporated in the research implementation plan/activities. • Potential issues around IP should be also understood and planned for. • Research projects generate data which becomes the main source of the research conclusions. Data management should be planned at the outset. A data management protocol will normally include: roles and responsibilities for	Grant management: donor compliance

Process	Planning	Research project adjustments	Links to other processes/tools
		data handling; expected data; data retention period; data format and dissemination; data storage and access; additional possible requirements to data handling.	
Time	• Define project period • Define project activities based on scope, outputs and outcomes • Establish the sequence of the activities to fit into the project period • Determine how activities and time budget will be monitored	A Gantt chart can be used for project stages to set out the activity schedule and to enable monitoring of the progress	OCS/other application
Cost	• Estimate activity costs • Determine project budget • Determine how budget will be monitored	It is critical to develop a realistic budget as part of the protocol process and adhere to it; there will be a duty to justify expenditures throughout the process.	• Grant management: Budgeting process • OCS/other application
Quality	• Establish quality requirements • Determine how quality will be monitored	Quality expectations applicable to scientific activities and deliverables should be established at the organizational level, however specific nature of activities of each research project may call for more detailed set of quality parameters that should be clearly established at the outset. This may also include linkages to CGIAR SRF, SLOs, IDOs.	Science quality assurance: quality standards
HR	Determine human resources required to implement the project: skills, headcount, structure	At this stage, any additional recruitment needed to take place will be planned and/or initiated.	HR: recruitment process
Communications	Develop project communication plan	Depending on the complexity and the number of stakeholders of a research project, a separate communication plan	Internal/external communications
Risk	Assess and document risks against project objectives	Risk is inherent in research, which regularly delves into the unknown. They should be assessed and managed. Normally, the risk assessment will be documented in the project concept note or proposal document.	• Grant management: project proposal • OCS/other application

Process	Planning	Research project adjustments	Links to other processes/tools
Procurement	Develop procurement plan if appropriate	• Research activities do not normally involve high volume of procurement transactions, however for some research activities use of high quality scientific technology, facilities and equipment are paramount. Project managers should plan how to obtain access to the required equipment or facilities i.e. whether they will be purchased or third party facilities can be used. This should be closely linked to the Centre's capital investment plan. • Partners' procurement plans will also need to be obtained and considered in the context of the overall project procurement activities. One of the questions to answer will be what will happen with assets purchased by partners and whether partners will have to be made aware of any specific rules applicable to purchases done by them.	• Procurement processes and policies • Capital investment plan
Stakeholders	• Determine governing structures of the project • Define roles and responsibilities of the governing bodies • Develop a RACI chart to document responsibilities of the project team and governing bodies • Get approval of the project plan and RACI chart	• A RACI chart will aid a clear and efficient allocation of responsibilities and their communication to relevant parties. It is possible to set a single generic RACI chart covering all projects in a Center or a country office if all projects have the same governance and team structures. For more complex and significant projects and programs a specific RACI chart might be required. • The governance structure of a project will also depend on how the programs and support functions are managed. E.g. if there is a Project Management Office (PMO), it will provide a significant portion of support. If there are normally project managers who provide operational support to projects, it is important that their work is coordinated.	• Grant management: roles and responsibilities • OCS/other application

3.2.3 Project execution

Process	Execution	Research project adjustments	Links to other processes
Integration	Execute the project activities	The project team should decide how any issues identified during the research activities should be logged and addressed.	
Scope			
Time			

Process	Execution	Research project adjustments	Links to other processes
Cost			
Quality			
HR	Establish project management team		
Communications	● Project kick off ● Implement communications plan	Project kick off meetings are a standard feature of CGIAR project management processes already. Apart from discussions around the project work plans, responsibilities etc. they also should include overview of donor and other regulatory requirements and quality expectations.	Grant management: grant kick off meeting
Risk	Implement risk mitigating activities		
Procurement			
Stakeholders	Engage with stakeholders	Project inception workshops would normally focus on the science part of a project (as opposed to a kick off meeting which concentrates on administrative side of project implementation). Partners and sometimes donors will be invited to make sure project activities and deliverables are well understood by all stakeholders.	

3.2.4 Project monitoring

Process	Monitoring	Research project adjustments	Links to other processes/tools
Integration	Monitor project implementation against the project plan	Externally imposed mechanisms for project monitoring are periodic donor reports. As donors have varied expectations for the reporting, their reporting structures cannot replace a systematic project monitoring framework. The latter may include internally produced and reviewed project dashboards, project review meetings and periodic updates for a Center's senior management team against project milestones.	● Grant management: donor reporting ● OCS/other application
Scope	Monitor scope	Project outputs and outcomes should be regularly reviewed against the initial ToC. The scope might be adjusted at this stage with the adjustments being appropriately approved.	M&E
Time	Monitor time	Review of the activities and actual time they took creates an opportunity for adjusting the schedule of activities and manage stakeholder expectations.	
Cost	Monitor budget	● Project budget is a key aspect of a project control structure. The best practice suggests that budgets should be reviewed	OCS/other application

Process	Monitoring	Research project adjustments	Links to other processes/tools
		monthly (depending on the size of a project). This is to avoid any unpleasant surprises and also to compare the budgetary performance against the project milestones. The two should be closely aligned. Any misalignment will have to be investigated.	
Quality	Monitor quality	• Science quality expectations established by the organization and at the planning stage will be monitored as part of this process. • Checking whether the data management protocol has been followed makes an important part of monitoring of quality.	Research data management
HR			
Communications	Monitor against communications plan		
Risk	Review risks		
Procurement			
Stakeholders	Monitor stakeholder engagements	One of the specific areas where additional monitoring is required is ensuring compliance with donor requirements. Whether the project activities and other operational activities around the research e.g. procurement are conducted in compliance with rules set out in grant contracts should be monitored.	• Grant management: Donor compliance • OCS/other application

3.2.5 Project closure

Process	Closure	Research project adjustments	Links to other processes/tools
Integration	• Implement closure activities • Obtain project acceptance of final results • Document lessons learned	• For the research, IP rights should be secured at the end of the project • Data generated during the project should be secured and retained in a central location with appropriate access rights • The results of final audits and evaluation reviews should be retained and disseminated.	• Grant management: grant closure • M&E: final evaluation • Research data management • OCS/other application
Scope			
Time			
Cost			
Quality			
HR		Review work plans and skill sets of the project team members against future activities.	HR: resource planning
Communications		• Normally at the end of a research project, the resultant conclusions will be written in a	Open Access policy

Process	Closure	Research project adjustments	Links to other processes/tools
		paper and published. This will follow an established protocol. • A project closure meeting 1-3 months before the project ends will help to plan project closure activities and allocate responsibilities for them	
Risk			
Procurement		Treat the project assets as per the initial plan i.e. dispose, transfer to partners or retain.	
Stakeholders		Review the completion of the delivery of project outputs and those of partners. Identify any gaps and plan to address them.	

4.   ROLES AND RESPONSIBILITIES

In order to fully understand project management frameworks, it is important to understand project management roles. There are a variety of roles that contribute to effective project management, with each person being responsible for their assigned tasks. Across the CGIAR, these roles maybe distributed in different ways and may have different titles.

A)   Project Manager (PM)

Project manager's role is critical to overall project success. S/he is responsible for the overall initiation, execution, and control of the project and is accountable for completing and closing it. The project manager applies the lessons learned from previous projects to the current project, defines team roles and jobs, leads project planning and monitoring, manages risk, looks for opportunities to implement best practices, communicates with the team and stakeholders, promotes client involvement, and performs any other tasks required to keep the project within the specified budget and delivery time. In the CGIAR System Organization, some of these roles will be assigned to PMO, or a business manager, or project manager or principal investigator or a team leader.

B)   Project Steering Committee (SC)

The project Steering Committee usually comprises of representatives from different departments within the larger organization, all of whom are stakeholders to a certain degree. The steering committee is responsible for approving deliverables and alterations to the scope of the project, as well as providing overall guidance for adhering to strategy. Other steering committee activities can include obtaining resources and communicating with senior executives. The Steering Committee's role is reasonably fluid in that additional duties can be added as needed.

In the CGIAR System Organization, steering committees are normally created for large and complex programs or projects such as CRPs. Business-as-usual research projects will not have Steering Committees explicitly established[3], however there is still a need to provide good oversight over a project implementation and this role can be played by a PMO, program leaders, Senior Management Team (SMT) and/or science committees.

C)   Executive Sponsor (ES)

The Executive Sponsor has a strong interest in project success because s/he is directly impacted by the outcome, and is often responsible for securing funding and resources for the project. The Executive Sponsor champions the project, stays informed of all major project activities (such as the status of deliverables), is the ultimate decision-maker, has final approval of scope changes, and signs off on approvals. Any major milestones or jeopardies should be communicated to the Executive Sponsor.

In the CGIAR System Organization, this role will be taken on by a program/thematic leader and/or DDGR or a DG.

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[3] Some funders have a requirement to have a Steering Committee with wide representation to oversee projects which they fund.

D) **Project Owner (PO)**

The Project Owner is often the project's key stakeholder, and must have a clear vision of what is to be built and communicate that vision to the rest of the team. The Project Owner understands users, the marketplace, the competition, and future trends.

In the CGIAR System Organization, this role tends to be played by a Principal Investigator (PI).

E) **Subject Matter Expert (SME)**

A Subject Matter Expert is an expert in a particular area or topic and provides guidance, usually to the Project Owner, when clarity is needed in understanding a feature and its development.

In the CGIAR System Organization, this could be a scientific institution, a consultant or a subject expert in the project team.

F) **Project Management Office or Portfolio Management Office (PMO)**

The Project Management Office is the group, team, or organization business unit that is responsible for setting the project management standards, providing tools, and acting as a point of contact for the project management team. Different levels of PMO exist, including, but not limited to Enterprise PMO, Project Support PMO, and Center of Excellence.

G) **Project Management Team (PMT)**

The Project Management Team executes tasks and produces deliverables as outlined in the Project Plan and as directed by the Project Manager.

Using the above roles an example of a RACI chart for a project's Integration processes may look as follows:

Area	Responsible[4]	Accountable	Support	Consulted	Informed
Integration					
Establish project objectives, scope and preliminary implementation period	PO	ES	SME PMO	Senior management Partners/ beneficiaries	Departments e.g. finance, procurement, legal

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[4] Responsible: Those who do the work to achieve the task. There is at least one role with a participation type of responsible, although others can be delegated to assist in the work required.

Accountable (final approving authority): The one ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those responsible. In other words, an accountable must sign off (approve) work that "responsible" provides. There must be only one "accountable" specified for each task or deliverable.

Support: Resources allocated to "responsible". Unlike "consulted", who may provide input to the task, "support" helps complete the task.

Consulted: Those whose opinions are sought, typically subject matter experts; and with whom there is two-way communication.

Informed: Those who are kept up-to-date on progress, often only on completion of the task or deliverable; and with whom there is just one-way communication.

Develop business case and/or project charter	PO	ES	PMO Department representatives	PM SME	Senior management
Get authorization to develop the project	PO or PMO	ES	PO or PMO	PM Departments	Senior management Departments
Identify stakeholders who should be involved in the project either to be informed of it, get approvals from, get input from or support.	PO		ES PMO	PM	Senior management

The Integration stage is a stage when initial project parameters are being discussed and agreed. A PM is not yet in fully charge of the project but should be involved in the development of the project as early as possible. In the CGIAR setting the roles of the PO and PM are sometimes combined.

It is important to establish roles and responsibilities of stakeholder groups and individuals involved in a project especially for large and complex endeavors. The OCS project may serve as an example of such a venture being an expensive, complex multi-entity, multi-layer, ERP system implementation activity. The project was fraught with challenges and setbacks. One of the underlying causes was attributed to the lack of clear project charter or a document establishing roles and responsibilities for driving, leading and implementing OCS across CGIAR.

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- Philippe Ellul, Senior Officer, Program Performance, System Management Office
- Malcolm Dickson, Country Director, WorldFish

It was based on the following materials:

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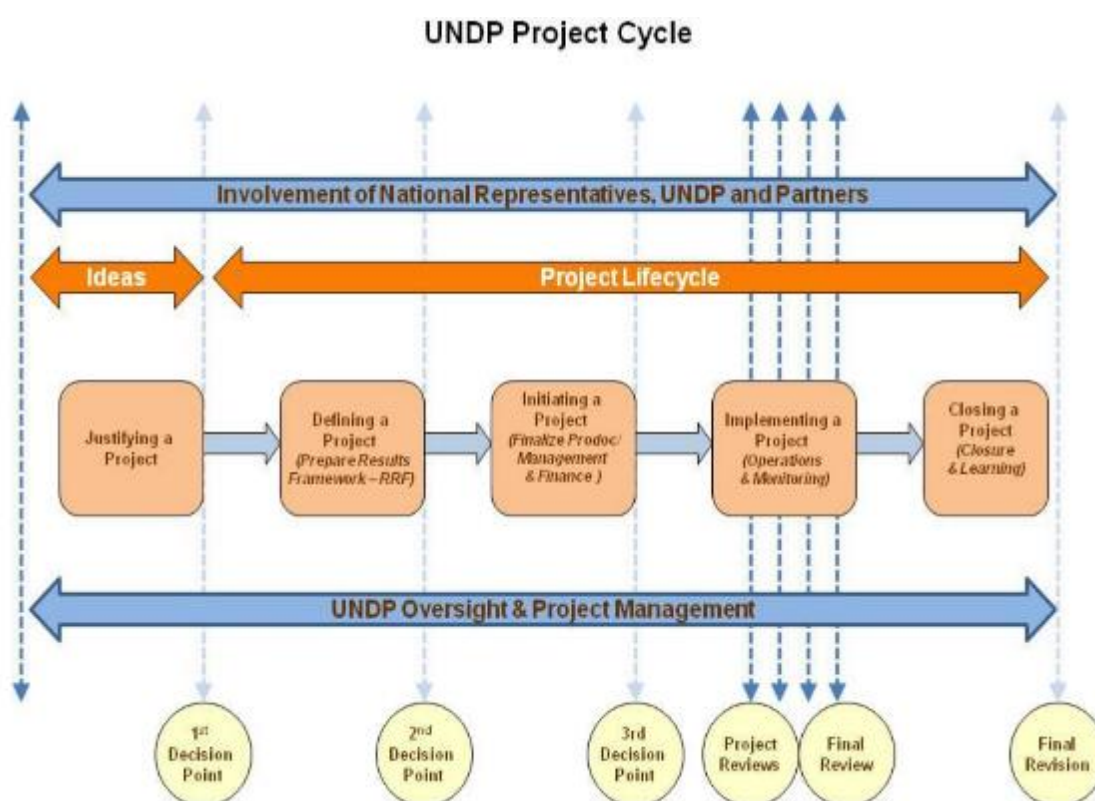## APPENDIX A: PROJECT MANAGEMENT PRACTICES OF UN AGENCIES

1. UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

UNDP works in nearly 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion.

UNDP has developed a policy titled "Programs and Projects" that describes the minimum requirements and processes used by UNDP to deliver development results. The policy outlines both program and project management required processes and controls. Here we reflect on the project management part of the policy.

UNDP defined stages in a project management cycle include (see also the chart below):

- Justifying
- Defining
- Initiating
- Implementing, and
- Closing a project.

UNDP Project Cycle

- The project **justification** stage's primary purpose is to assess the project idea's alignment with the overall country needs and country program and to evaluate whether it will contribute substantially to the results expected from the UNDP program. A concept note is developed which is then reviewed and a decision is made whether to develop it further into a more detailed project proposal. Its content will include:
    - o Output(s) and linkage to a Country Plan outcome(s);
    - o Approach, method and capacity development strategies;

- o Stakeholder analysis;
- o Potential Implementing Partner;
- o Potential main financing partner(s);
- o Indicative funding requirements.

- The purpose of '**defining** a project' stage is to assess the feasibility of the project scope in terms of the outputs and the specified time frame, whether the expected outputs can be effectively achieved, and whether the intended outputs contribute to related national outcomes. This will be done by a Project Appraisal Committee (PAC) that also will approve:
  - o a project initiation plan if required
  - o a Risk log for the project
  - o identification and selection of implementing partners
  - o an initial Monitoring and Evaluation framework for the project

- The work to be done at the **initiation** stage is to further develop project details, budgets, and plans based on the draft project document appraised in the previous process, to ensure the effective and efficient implementation of the project. Detailed ToRs of key project positions, detailed work plans and budgets, agreements with partners will be developed.

- The focus of the project **implementation** process is to achieve project outputs as defined in the approved project document/work plan through implementation and monitoring. Fundamental responsibilities for this process lie with the project manager. S/he will ensure that project activities are implemented as planned, updates the risk log and submits regular progress reports to the project board.

- The "**closing** a project" process formally ends a project, both operationally and financially. Therefore, the focus of this process will be placed on overall performance of the project, evidence of completion, lessons learned, and necessary hand-over to ensure sustainability. In this respect, a final project review report will be prepared and assessed by the project board during a formal meeting. Apart from final project review which will look at whether the project achieved expected outputs and outcomes, this stage will also include considerations around disposal of assets, capturing knowledge and lessons learned, and a project evaluation as appropriate.

2. GLOBAL FUND (GF)

GF project management handbook is based on PMBOK and a Deloitte Enterprise Value Delivery for Project Management approach. There is an explicit statement saying that [GF} "senior management acknowledges that adhering to project management methodologies and strategies reduced risks, cuts costs and improved success rates while enhancing operational excellence to deliver better results for impact".

The handbook sets out and considers six process phases:

The purpose of each phase is described as:

Ideation and Selection		Initiating		Planning	Executing	Monitoring and Controlling	Closing
Purpose:	Project Review Board *	Purpose:	Project Review Board **	Purpose:	Purpose:	Purpose:	Purpose:
Activities performed to create a process of submitting proposals for new projects and validate if the proposal will be accepted and the project will go to the next phase.		Activities performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.		Activities required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.	Activities performed to complete the work defined in the project management plan to satisfy the project specifications.	Activities required to rack, review, and regulate the progress and performance of the project; identify any areas which changes to the plan are required; and initiate the corresponding changes.	Activities performed to finalize all activities across all Process Groups to formally close the project or phase.

The handbook also refers to 9 knowledge areas (just like for PMI) as a way to assisting in clear understanding of activities, processes and deliverables when managing projects. The knowledge areas are:

  a. Integration Management
  b. Scope Management
  c. Time Management

    d.   Cost Management

    e.   Quality Management

    f.   Human Resource Management

    g.   Communication Management

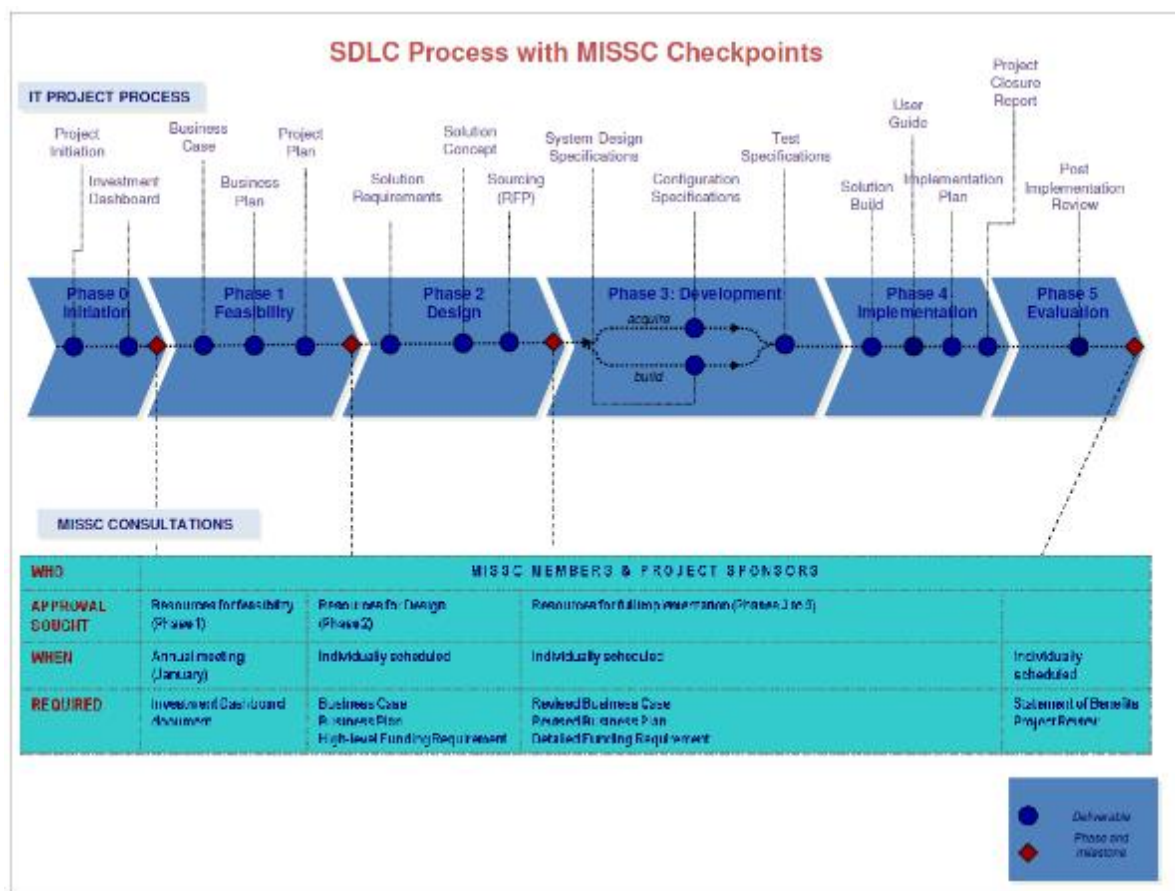   h.   Risk Management

    i.   Procurement Management

The document goes on to describe each knowledge area in detail breaking them down into sub-processes (similarly to the table under PMBOK section under 2.1 of this document). The roles and responsibilities of various parties are then described and tools required to be used at each phase are referred to with embedded documents for easy access.

Here is the list of documents required to be completed as part of the project management processes:

	Ideation and Selection	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Strongly Recommended	• Business Scope Definition • Initial Budget	• Project Charter • Project Charter Overview • Project Review Board (PRB) Template • Project organisation and Governance	• Project Plan / Critical Path • Deliverable Plan • RACI Matrix	• Risk Action Issue Decision (RAID) Log • Change Log • Escalation Matrix, Decision Making	• Status Report	
Recommended			• Milestone Plan • Kick-off Presentation	• Meeting Minutes		• Lessons Learned
Optional		• Resource Plan	• Meeting Plan • Contact List • On-Boarding Checklist • Availability Tracker • SharePoint structure		• Issue & Risk Report • Individual Timesheet (weekly) • Time and Expense Tracking • Budget and Cost Tracking • Change Request • Non-Disclosure Agreement	• Off-Boarding Checklist • Project Documentation

3. WORLD FOOD PROGRAMME (WFP)

WFP introduced a guidance for development of an IT solution to address a business need at WFP. It follows a project life cycle (SDLC) which is demonstrated in the chart below:

The six phases are:

Phase 0 – Initiation. Involves the initial requirements gathering and determination that the initiation of an IT Project is indeed necessary to structure an IT acquisition or development activity to meet the business requirements. Funding is sought to gain resources to develop the Feasibility Study and Business Case.

Phase 1 – Feasibility. Once it is clear that an IT project is necessary, feasibility and benefits are clarified in a Business Case. A Business Plan is made, which includes a high-level project plan and estimation of one-time and recurring funding required for two years is made. The process may proceed when funding is approved.

Phase 2 – Design. Detailed business requirements are gathered and agreed upon, initial high-level solution concepts defined and an implementation project designed. Previously stated funding requirements are either confirmed, or revised to reflect implementation project. The process goes to the next step once the final funding requirement has been approved.

Phase 3 – Development. Detailed design and development follows, by building a custom solution or by acquiring a Commercial Off-the-Shelf (COTS) solution.

Phase 4 – Implementation. Once the solution is developed, it is tested, accepted by the sponsoring unit, and then released into the Production environment. Organizational change management activities occur during this phase to ensure full utilization of the implemented solution.

Phase 5 – Evaluation. After the project has been implemented, the benefits initially identified in Phase I and the project process is reviewed. Sustainability issues in terms of maintenance, support and actual use are reviewed. Actual benefits are analyzed to see if the solution has achieved the benefits it aimed to accomplish. The guide provides further details of each phase as well as description of roles and responsibilities and a RACI chart.

APPENDIX B: PROJECT MANAGEMENT PRACTICES OF CGIAR CENTERS

1.   ILRI PROGRAM MANAGEMENT FRAMEWORK

The manual has been developed to "guide ILRI in delivering projects and programs". The document focusses on program/project phases such as:

- Strategy and programming
- Proposal development (pre-proposal, proposal creation, approval/submission, agreement)
- Planning a project (project planning, plan review)
- Executing (execution preparation, executing), and
- Closing (closing, final communication & approval).

In developing the manual, the consultants used PMI standards and Accenture's own leading practices for project and program management.

The manual describes roles and responsibilities of staff involved in a project implementation and those who support it.

The project phases are broken into 48 smaller sub-processes, similar to the processes in PMBOK. The sub-processes cover both the program (e.g. managing a pipeline) and project controls (e.g. develop concept note).

Strategy and programming		
Strategy	Programming	
0.1. Align programming to strategic vision	0.2. Assess ILRI & partner capacity	
	0.3. Determine operational direction	0.5. Identify new project opportunities
	0.4. Identify & cultivate donor relationships	
0.6. Monitor and control opportunities, projects, and program		

Proposal development				Planning	
1.1 Enter an opportunity into pipeline				2.1. Conduct risk assessment	
				2.2. Create or update staffing & procurement plans	
1.2 Assess ILRI/CRP strategic alignment	1.6. Develop concept note document			2.4. Create or update project workplan	2.10 Review & communicate project plans, status, reporting process & tools
				2.5. Create or update exit strategy / sustainability plan	
1.3 Estimate costs and assess alignment	1.7. Evaluate & approve concept	1.10. Gain internal approval & submit proposal	1.11. Finalize contract/ agreement	2.6. Update project budget	
				2.7. Conduct stakeholder analysis and create comms plan	

Proposal development				Planning	
1.4. Complete internal competition review	1.9. Develop proposal document			2.8. Apply for research compliance review and permits	
				2.9. Define M&E plan	
1.8. Manage stakeholder engagement				2.3. Confirm and engage partners	2.11. Manage stakeholder engagement
1.5. Define proposal dev. timeframe	1.12. Monitor & control proposal development progress & manage opportunity pipeline			2.0. Define project planning timeline	2.12. Monitor and control project planning process

Executing			Closing		
3.1. Organize & deploy project teams	3.3. Establish project M&E baseline		4.1. Manage physical assets/ equipment and material closure		
	3.4. Execute project activities		4.2. Demobilize project teams	4.8. Document & share lessons learned	
	3.5. Manage project team development		4.3. Manage financial closure activities	4.9. Produce final reports	
	3.6. Manage project financials		4.4. Manage research compliance & legal activities	4.10. gain internal approval & complete the closure	
	3.7. Produce project reports		4.5. Finalize document management activities	4.11. Complete audits.	
	3.8. Monitor & evaluate project outcomes & impact against M&E indicators		4.6. Conduct final M&E assessment and audit		
3.2. Procure project materials			4.7. Complete handover activities		
3.9. Execute stakeholder engagement and comms activities; manage stakeholder engagement			4.12. Manage stakeholder engagement		
3.10. Monitor and control project executing progress			4.13. Monitor and control project closing progress		

The sub-processes are then explained in detail with inputs and outputs related to each of them clearly defined.

The ILRI manual is a clear and structured guide to managing projects and it builds on best practice. Steps to be undertaken in OCS also make part of the manual.