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Project Management Toolkit

Achieving Results That Endure In Transition Societies

South East Europe Regional Infrastructure Program (RIP) for Water and Transport

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PMTOOLKIT – TEMPLATES AND TOOLS BY CHAPTER

| PMTOOLKIT CHAPTER | TEMPLATE | TOOLS |
|--|----------------------------------|--|
| INTRODUCTION Chapter I | | |
| HOW TO USE THE TOOLKIT Chapter II | | |
| STRATEGIC CONSIDERATIONS Chapter III | | <ul style="list-style-type: none"> • Environmental Scanning • SWOT • Best Practices Form |
| PEOPLE Chapter IV | | <ul style="list-style-type: none"> • Personal Qualities Self-Assessment • Developing Relationships • Team Building • Principled Negotiation • Leadership Sociogram • Investing in Social Capital • Participation Choice |
| PROJECT IDENTIFICATION Chapter V | Project Proposal Document (PPD) | <ul style="list-style-type: none"> • Problem Tree • Alternatives Tree • Cost Effectiveness Analysis • Objective Tree • Stakeholder Analysis • Logical Framework • PPP Analysis • Pre-Feasibility Requirements • Cost Estimation |
| PROJECT PREPARATION Chapter VI | Project Appraisal Document (PAD) | <ul style="list-style-type: none"> • Indicators and Measurement • Work Breakdown Structure (WBS) • Feasibility Analysis Checklist • Feasibility Study • Risk Analysis and Mitigation Plan • Communication of a Project |

| PMTOOLKIT CHAPTER | TEMPLATE | TOOLS |
|---|---|---|
| IMPLEMENTATION PLANNING Chapter VII | Project Implementation Plan (PIP) | <ul style="list-style-type: none"> • Requirements and Deliverables Specification • Financing Plan • Network Scheduling • Resource and Cost Estimating • Procurement Arrangements • Procurement Plan • Disbursement Plan • Monitoring, Reporting and Evaluation Plan • Terms of Reference (ToR) |
| PROJECT START-UP Chapter VIII | Inception Report (IR) | <ul style="list-style-type: none"> • Project Flyer • Project Organization Chart • Bar Charts • Responsibility Charts • Procurement Management Checklist • Project Information System Diagram • Launch Workshop |
| PROJECT EXECUTION Chapter IX | Final Implementation Report (FIR) | <ul style="list-style-type: none"> • Contract Management Checklist • Claims Management Procedure • Periodic Monitoring and Control Report • Annual Review and Planning Workshops • Mid-term and Final Evaluation Cycle • Scope Change Procedure • Project Completion Checklist |
| PROJECT SUSTAINABILITY Chapter X | Project Sustainability Plan (PSP) | <ul style="list-style-type: none"> • Sustainability Assessment Scope of Work • Sustainability Objectives and Indicators • Operations and Maintenance Checklist • Sustainability Assessment |
| CONCLUSION Chapter XI | | |

PROJECT MANAGEMENT TOOLKIT

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PROJECT MANAGEMENT TOOLKIT

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PROJECT MANAGEMENT TOOLKIT

LIST OF ABBREVIATIONS

This list presents frequently used abbreviations in the PMToolkit:

| | |
|----------------|--|
| BOT | Build-Operate-Transfer |
| BOSS | Beginning of Sustainability Status |
| CBA | Cost Benefit Analysis |
| CPM | Critical Path Method |
| EBRD | European Bank for Reconstruction and Development |
| EEPA | EurLandia Environment Protection Agency |
| EIA | Environmental Impact Assessment |
| EIRR | Economic Internal Rate of Return |
| EU | European Union |
| EUR | Euro – European Union Currency |
| FIDIC | Federation Internationale des Ingenieurs-Conseils (International Federation of Consulting Engineers) |
| FIR | Final Implementation Report (PMTToolkit template) |
| FIRR | Financial Internal Rate of Return |
| FS | Feasibility Study |
| ICB | International Competitive Bidding |
| IFI | International Financial Institution |
| IPMA | International Project Management Association |
| IS | Information System |
| IR | Inception Report (PMTToolkit template) |
| IT | Information Technology |
| LF | Logical Framework (LogFrame) |
| LIB | Limited International Bidding |
| MOV | Means of Verification |
| NCB | National Competitive Bidding |
| NPV | Net Present Value |
| O&M | Operation and Maintenance |

| | |
|--------------|---|
| OVI | Objectively Verifiable Indicators |
| PAD | Project Appraisal Document (PMToolkit template) |
| PERT | Program Evaluation and Review Technique |
| PIP | Project Implementation Plan (PMToolkit template) |
| PM | Project Management |
| PMBOK | Project Management Institute Body of Knowledge |
| PMI | Project Management Institute |
| PMU | Project Management Unit |
| PPD | Project Proposal Document (PMToolkit template) |
| PPP | Public-Private Partnership |
| PSAR | Project Sustainability Assessment Report (PMToolkit template) |
| QR | Quickly Reform |
| RFP | Request for Proposal |
| RIP | Regional Infrastructure Program for Water and Transport |
| ROM | Rough Order of Magnitude |
| SA | Special Account |
| SoE | Statement of Expenditures |
| SOW | Scope of Work |
| SEE | South East Europe |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |
| ToR | Terms of Reference |
| TTT | Train the Trainer |
| USAID | United States Agency for International Development |
| WB | World Bank |
| WBS | Work Breakdown Structure |
| WWTP | Wastewater Treatment Plant |

PREFACE

"The Balkans lack experienced project managers who can get infrastructure projects moving, and ensure that the projects are completed on time and within budget while maintaining strict quality control."

*Ambassador Richard Sklar,
Special Representative of the U.S. for
the Southeast Europe Initiative*

In South East Europe the water and transport sectors are keys to economic growth, and the operation of each sector has important environmental implications. Both sectors have similar problems: deteriorating assets, a lack of investment capital, institutional weaknesses, and policy problems. The two sectors also share the opportunity of major grant capital investment from the European Union (EU) and other bilateral assistance throughout the region. In addition, International Financial Institutions (IFIs) will be continuing to extend significant loans to the region in both sectors.

Part of the institutional weakness in South East Europe (SEE) is a severe "management gap." Project management "practitioners" in the region, both in government and the private sector, lack some of the basic knowledge and simple tools required to bring large-scale infrastructure projects to fruition. Through the Regional Infrastructure Program (RIP) for Water and Transport, a USAID initiative under the Stability Pact for South East Europe, Booz Allen Hamilton, in partnership with multilateral partners and local project management organizations, is collaborating to facilitate project results and improve sustainable project management capacity.

The Project Manager's Toolkit (PMTToolkit) represents the results of RIP's two-year journey to identify "best practices" and make available practical tools for project managers everywhere. The toolkit captures RIP's accumulated project management experience from across SEE and presents this experience for use by others in a practical and easy to use format.

Project practitioners in SEE economies are typically caught in the middle of two opposing forces. Pulling from one direction are the forces of tradition and from the other are the forces of the modern world, of globalization, and of EU accession. RIP's development program for project management professionals operates on the premise that transition economy professionals need to be able to operate in a "mixed" context that balances and integrates the traditional and modern domains. Given the constraints to knowledge development and information sharing in the transitional economies of SEE, RIP is actively engaged in developing and making available international project management concepts and tools that can be readily disseminated and adapted in transitional economic conditions. USAID assistance is building the domestic capability in Stability Pact nations to ensure that the project requirements are completed within stipulated parameters of quality, cost, and time.

The PMToolkit is unique and relevant because of its focus and practical orientation. It recognizes that project management is a complex activity. Practitioners need a robust supply of pragmatic concepts and tools for accomplishing their various management tasks. Thus, the PMToolkit was developed with these requirements in mind. It is a resource that offers a full complement of easy-to-understand and easy-to-apply tools for the busy practitioners involved in the project life cycle.

While the PMToolkit is not a panacea for all project management issues in SEE countries, the authors hope it will facilitate the communication among professionals and boost infrastructure modernization – the primary basis for cross border prosperity in the region.



Carl Mitchell,
Environment Officer,
USAID Energy and Infrastructure Division,
Europe and Eurasia Bureau

CHAPTER I: INTRODUCTION

Budget overruns, major delays, and poor results often characterize the infrastructure projects of transitional societies. To deal with these common problems, the Project Management Toolkit (PMTToolkit) has been developed. It comprises a set of practical tools for management teams using clear guidelines, templates for different phases of a project and systematic incorporation of stakeholders. The simple premise behind the toolkit is that increasing the use of international standard concepts and tools for project management will reduce costs and delays and improve the overall quality of infrastructure projects.

This chapter describes the journey that led to the development of the PMToolkit and the ideas behind it. It introduces three core concepts depicted in the toolkit's "framework" for infrastructure project management. Finally, the chapter gives an overview of the structure of the PMToolkit.

The "Management Gap" in Infrastructure Projects

Throughout the transition societies of South East Europe (SEE), infrastructure projects in the water and transport sectors are suffering from a serious "management gap." Substantial technical and financial resources are routinely allocated to the design and the implementation of projects. However, many of these resources either are not productively used or are misused as a result of sub-standard project management.

Poor management in designing infrastructure projects contributes to many serious problems. These include low levels of stakeholder commitment; lost opportunities for financial support from governments, international institutions, donors and the private sector; and inadequate preparation. In turn, inadequately prepared projects increase the risks for the projects' failure. Poor management during implementation contributes to bottlenecks in procurement and contracting, lack of compliance with agreements and procedures and sub-standard performance. The final effect of this gap, therefore, is a portfolio of infrastructure projects characterized by substantial

budget overruns, major delays in completion and poor quality results, including obsolete, oversized and sub-standard water and transport infrastructure.

Purpose of the Project Management Toolkit

A major cause of the management gap throughout the rapidly transitioning societies of SEE is a shortage of professional project managers. As former U.S. Ambassador Richard Sklar put it, the region faces a lack of “experienced project managers who can get infrastructure projects moving, and ensure that the projects are completed on time and within budgets while maintaining strict quality control.” The PMToolkit addresses this shortage by providing a proven set of practical templates and tools for managing critical tasks throughout the infrastructure project’s cycle.

The overall purpose of the PMToolkit is to increase the use of international standard concepts for managing water and transport projects across SEE. The increased use of such concepts will enhance the professionalism of project staff. This in turn will contribute to more successful design, financing, implementation and sustainable operations of infrastructure projects (Ingle, 2002). The long-term objective of this effort is to contribute to quality water and transport infrastructure that can endure the rapid transitions occurring in SEE.

The PMToolkit accomplishes this through several specific components:

- A comprehensive set of 6 generic templates for the project cycle and more than 50 corresponding management tools related to a project’s strategic considerations, issues regarding the people involved and the project cycle
- Templates and tools presented in a standard and easy-to-use format so that they can be readily learned, adapted and applied in different contexts of infrastructure, financing institutions and cultures
- A sharing of successful experiences with the application of templates and tools between professionals in different countries throughout SEE and other regions.

The use of templates and tools for high-quality management can help practitioners take advantage of opportunities, prevent mistakes and errors and solve day-to-day

problems. It allows easier communication about problems by providing a common language for analyses as well as comparisons across countries and projects.

Several project-related audiences in transitional societies will find the PMToolkit applicable to their interests. These include managers and decision makers in infrastructure projects, government officials working with projects, staff of multilateral and bilateral financial institutions, consulting and design engineers, procurement and contract personnel, construction and supervision firm staff, management consultants and trainers. Additionally, standards associations such as the Project Management Institute (PMI), the International Project Management Association, and the International Federation of Consulting Engineers (FIDIC) can use the PMToolkit to augment their library resources and training materials.

The PMToolkit Journey

The PMToolkit emerged by chance rather than with a planned design. It was a serendipitous creation, forged by many concerned and dedicated individuals. Knowing its journey is instructive for appreciating its content and value.

On 10 June 1999, the Stability Pact for SEE was adopted in Cologne. In the founding document, more than 40 partner countries and organizations undertook to strengthen the countries of SEE “in their efforts to foster peace, democracy, respect for human rights and economic prosperity in order to achieve stability in the whole region.” As part of the U.S. contribution to the economic work of the Stability Pact program, the United States Agency for International Development (USAID) financed a Regional Infrastructure Program (RIP) for Water and Transport in South East Europe. RIP is a 3-year program running from 2000 to 2003. RIP works with a subset of countries with transition economies including Albania, Bulgaria, Croatia, Hungary, Macedonia, Romania and Serbia. All of these countries share a common geo-political position on the rim of the European Union (EU), and a common history of central economic planning during much of the 20th century.

RIP’s primary objective is to facilitate results in infrastructure projects while improving the region’s capabilities for sustainable water and transport services. This

dual approach guides the RIP's technical assistance and institutional improvement and training activities. At the same time, it supports the appropriate transfer of international knowledge and skills to involved stakeholders.

Booz Allen Hamilton, a global management and technology consulting firm, was selected by USAID as Prime Contractor for RIP in September 2000. Booz Allen is implementing this program in partnership with four international firms – The Louis Berger Group, Inc., the Urban Institute, the Institute for Public Private Partnerships, Inc., and Transportation Economic and Research Associates. Booz Allen is also working with local sub-contractors in six countries where RIP is active. Each of the sub-contractors was selected based on its interest in infrastructure and project management. Experts from each of the local sub-contractors, along with Booz Allen staff, were instrumental in initiating and crafting this PMToolkit.

When the RIP technical assistance team arrived in SEE in the fall of 2000 to start the program, the area of project management did not have specific priority. The RIP Statement of Work from USAID did indicate that the “program for water and transport infrastructure will include assistance in four areas: Project Preparation, Project Implementation, Project Investment and Financing and Policy Reform.” The Statement of Work also set forth the major challenges and the USAID mode of operation for the program:

“In SEE, both sectors (water and transport) have similar problems: deteriorating assets, a lack of investment capital, institutional weaknesses, and policy problems. The two sectors also share the opportunity of major grant capital investment from European Union (EU) and other bi-lateral assistance throughout the region. In addition, the International Financial Institutions (IFIs) will be extending significant loans to the region in both sectors. For these reasons the contracting for assistance to the sectors will be unified and the balance of assistance between the sectors each year will be opportunity driven, with flexible work plans developed in close consultation with USAID.”

The RIP technical assistance team developed its Year One Implementation Plan by assessing problems and opportunities in the existing infrastructure. The

“institutional weaknesses” mentioned in USAID’s Statement of Work were analyzed and quickly evolved into a cross-regional demand for more “local experts experienced in the financial, economic and technical aspects of infrastructure project development and management...” (Booz Allen Hamilton 2001).

This demand in turn became the focus of a RIP project called “Train the Trainer” (TTT) in 2001, from which many of the tools in the PMToolkit originated. The TTT project successfully increased adoption of best practice concepts and tools for project management in the water and transport sectors. Concurrently, it developed the knowledge and abilities of selected professionals and local institutions. Through a competitive bidding process local sub-contractors were selected to work with RIP in delivering project management training in six countries. Most of the TTT trainees worked collaboratively with the local sub-contractors.

During 2002, RIP continued its regional capacity building activities by focusing on (1) further strengthening the financial sustainability of the local infrastructure management service organizations; (2) forming a SEE regional network of infrastructure project management professionals (SEERIM-NET); and (3) preparing and disseminating the PMToolkit and related project management materials. In preparing the PMToolkit, each of the six local sub-contractors incorporated its experience and knowledge from RIP by drafting one or more of the chapters.

A summary of RIP’s projects during 2001 and 2002, upon which the PMToolkit is based, is presented in Table I.1.

Table I.1. Summary of RIP Projects during 2001 and 2002

| Summary of RIP Projects | | | | | |
|-------------------------|--------------------|-----------------------------------|----------------|----------------------------|-----------|
| Year | Country | Projects by Infrastructure Sector | | | |
| | | Water | Transportation | Institutional/ Training | Total |
| 2001 | Albania | 1 | 1 | 3 | 5 |
| | Bulgaria | | 1 | 2 | 3 |
| | Croatia | 2 | | 2 | 4 |
| | Macedonia | 1 | 1 | 1 | 3 |
| | Romania | 1 | 1 | 1 | 3 |
| | Regional | | | 2 | 2 |
| | 2001: Total | | 5 | 4 | 11 |
| 2002 | Albania | 1 | 4 | 1 | 6 |
| | Bulgaria | 2 | 1 | | 3 |
| | Croatia | 1 | 2 | | 3 |
| | Macedonia | | 2 | | 2 |
| | Romania | 4 | | | 4 |
| | Serbia | 1 | | | 1 |
| | Regional | 1 | 1 | 1 | 3 |
| | 2002: Total | | 10 | 10 | 2 |

Booz Allen and its local sub-contractors followed several principles in carrying out the regional and in-country institutional development and training activities:

- Improve management capacity based on previous local knowledge and successful project management experience
- Work as an integrated expatriate and local team – adapting international experience to local requirements
- Rediscover and sustain the local learning environment – accelerate the learning dynamics using a combination of local and globally successful practices and theories.

The application of these principles, augmented by the systematic use of the templates and tools contained in the PMToolkit, has allowed RIP's institutional

development and training activities to be well received and evaluated as highly effective across the region.

PMToolkit Concepts and the Project Management Framework

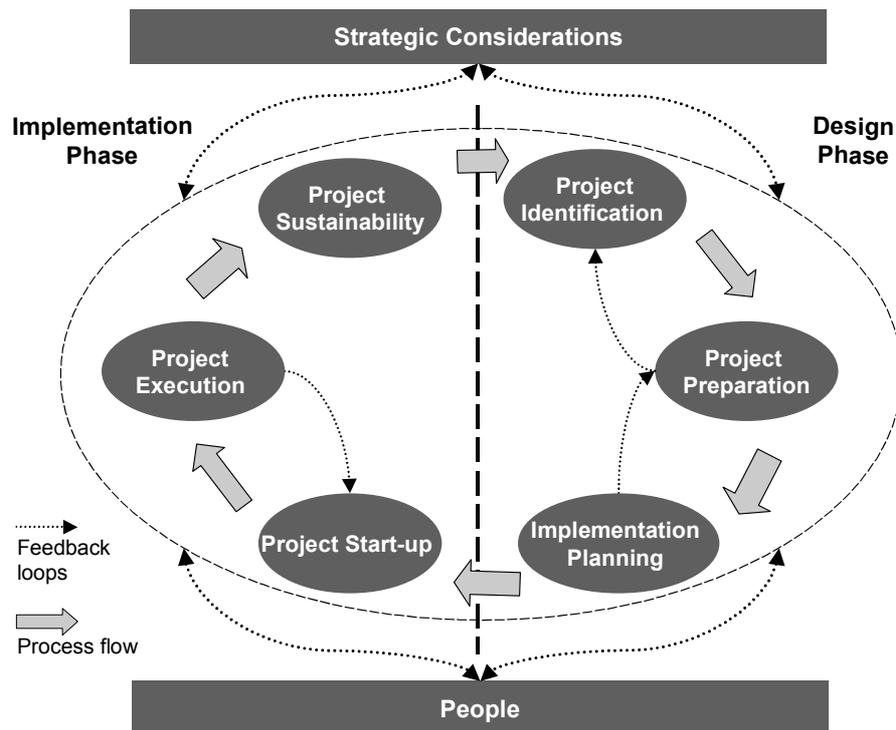
RIP uses three core project management concepts that provide the foundation for the PMToolkit's Project Management Framework. Together, these concepts give the PMToolkit a highly unique character:

- Concept 1: Flexible Management of a Project's Strategic Considerations
- Concept 2: The Centrality of People in Project Management
- Concept 3: Integration of Qualities of Success throughout the Project Cycle.

These concepts are related to key shortcomings in professional project management that the RIP identified during its work in 2001 and 2002.

Each of these core concepts is depicted in the Project Management Framework of the PMToolkit (Figure I.1). Concept 1 is covered under Strategic Considerations. Concept 2 is discussed under People. Readers should note that Concepts 1 and 2 apply to all of the phases and stages of the project cycle, as illustrated. Concept 3 applies to all of the stages of the project cycle during the Design and Implementation Phases. The framework also serves as the primary organizing scheme for Chapters III to X of the toolkit.

Figure I.1. PMToolkit Project Management Framework



Concept 1: Flexible Management of a Project's Strategic Considerations

Countries in SEE are undergoing rapid transitions toward more open market societies, in preparation for eventual integration into the EU. Infrastructure projects are being designed and implemented within the setting of these complex transitions, which include political, legal, economic, financial, technical, environmental, social, and other aspects. The setting of a project is referred to as the project's strategic or enabling context. Some elements of the strategic context include—

- The background and rationale of the project, including policies and strategies
- The trans-national, national or sector goals that a project contributes to
- Key issues linked to the project such as policy and regulatory concerns.

Given the importance of the strategic context with regard to a project's success, we refer to the elements in the strategic context as a project manager's "strategic considerations."

The PMToolkit devotes “Chapter III: Strategic Considerations” to this concept and provides several tools for adapting to changes in a flexible manner. Project professionals can use these tools to ensure that the project is positively aligned with the strategic context at every stage of the project cycle.

To illustrate further the dynamic nature of a project’s strategic context, the PMToolkit introduces and uses an infrastructure project case – called the MyCity Wastewater Infrastructure Project – from an SEE country. This case illustration is situated in a post-socialist country in the midst of transition. The case is first introduced in “Chapter III: Strategic Considerations.” The MyCity Project case follows the project cycle. In every chapter, the strategic context for the case is updated. The tool examples throughout the toolkit reflect the changes in the case project as it is designed, implemented and sustained. In addition to presenting a set of practical problems to be dealt with by the physical infrastructure, the MyCity Project involves other typical concerns including an inadequate legal and regulatory framework, environmental pollution, users unwilling to pay for water and a host of complex matters involving people and institutions. The project is of medium size and length. It involves multiple stakeholders, including entities at the local, national and trans-national levels, as well as several financial sources. These factors allow trainees to deal with a real infrastructure problem that has practical complexity. The case clearly documents how the strategic context of a project changes over time, and how the project’s actors need to remain flexible so that they can adapt to a context that is continuously changing.

Concept 2: The Centrality of People in Project Management

Transitional economies, by definition, are in a continuous state of flux and uncertainty. When dealing with projects in such situations, professionals have to respond to changing and uncertain forces, with some forces pulling in contradictory ways. Indeed, during the RIP’s workshops on project management, many of the professionals taking part verbalized a powerful overall sensation of being pulled in several directions at once. Project actors throughout SEE are typically, and precariously, caught in the middle of opposing forces. Pulling from one direction

are the forces of tradition. These forces are grounded in a proud and accomplished foundation of practical and widely used (even if neither is widely appreciated by outsiders or always desired) ways of getting things done – and surviving. Pulling from the other side are the forces of the modern world, of globalization and EU accession. These forces are tied to the lure of unlimited resources, frequent travel to the West and a prosperous and secure future. The effect of the forces of the modern world is most apparent in the younger generation of governmental and private sector staff that work closely with the EU, IFIs and bilateral donor agencies.

In any of the countries in SEE, project staff have to traverse the two often opposing domains of tradition and modernization. While doing this, staff always must deal with the common element of respectful and efficient interactions with people in formal and informal relationships. Thus, people are at the center of project management in SEE. In contrast, many western approaches to infrastructure management either neglect or de-emphasize the role of people in projects, typically focusing more on technical and financial issues. RIP's experience indicates that these approaches are flawed and lead to serious problems. Many recent projects in the SEE region have demonstrated that technical and financial considerations are necessary – but not sufficient – conditions for creating projects that perform well and have enduring benefits. For these reasons, the second core concept in the PMToolkit is the centrality of people to project management.

Chapter IV of the PMToolkit is focused on the people dimension in project management. One of the RIP's premises is that greater attention to one's values and behavior, to relationships with others, to team building, to negotiation, to leadership and to participation can improve the success of all infrastructure projects in SEE. It is the simple recognition that no project can be built without people, and that our integration of methods must be woven equally from the natural abilities and outlook of local people, and the experience of the international community.

Concept 3: Integration of Qualities of Success throughout the Project Cycle

The third core concept underlying the toolkit is the importance of integrating the “qualities of success” into every stage of the project cycle. The origin of this concept is that in the history of international projects, certain qualities in the management of the project have been found to be central to the ultimate success of the project. Thus, these qualities need to be systematically built in at every stage of the projects’ evolution.

The qualities of success derive from the evaluation of more than 2000 projects completed during the last several decades. In extensive studies of investment projects globally, the World Bank has identified a number of factors that directly influence the success of projects (World Bank, 1996). Working together with the World Bank staff, consultants from Booz Allen synthesized the research and isolated six qualities of success that are applicable to the management of infrastructure projects. RIP has adapted these qualities for use in selecting projects to be included in its annual work plan, and for developing the templates and tools included in the PMToolkit. The six qualities of success are ownership, relevance, effectiveness, efficiency, implementability and sustainability. Table I.2 provides operational definitions and criteria for each of these qualities.

Table I.2. Qualities of Success with Definitions and Criteria

| Success Qualities | Operational Definitions | Assessment Criteria |
|--------------------------|---|---|
| 1. Ownership | “The degree to which relevant stakeholders consider the project as their own in terms of commitment, participation, and allocation of resources.” | <ul style="list-style-type: none"> – Is commitment of key stakeholders apparent and strong? – Are related stakeholders involved and supportive? |
| 2. Relevance | “The degree of consistency between a project’s objectives and the objectives contained in official and financing institution strategies.” | <ul style="list-style-type: none"> – Is the project aligned with stakeholder strategies? – Are expected benefits explicit, and expected burdens acceptable? |
| 3. Effectiveness | “The power of a project and its components to produce its intended objectives within an acceptable level of risk.” | <ul style="list-style-type: none"> – Is the project technically feasible given resources and conditions? – Is the level of risk acceptable? |

| Success Qualities | Operational Definitions | Assessment Criteria |
|----------------------------|---|---|
| 4. Efficiency | “The degree to which a project represents the ‘optimal’ economic solution to an identified problem or opportunity as a ratio of expected benefits and costs.” | <ul style="list-style-type: none"> – Is there appropriate involvement of public and private sector entities? – Is the project structured for efficient use of resources? |
| 5. Implementability | “The degree to which a project is appropriately organized and budgeted to be started up, operated and maintained on time and in budget.” | <ul style="list-style-type: none"> – Are planned resources adequate including organization, staffing and financial disbursement schedules? – Are contracting and tendering arrangements in place? |
| 6. Sustainability | “The degree to which a project’s benefits continue for the intended economic life of the project period.” | <ul style="list-style-type: none"> – Are long-term financing arrangements for operations and maintenance in place? – Is the building of local knowledge and abilities included? |

These six core qualities are viewed as contributing to ultimate project success of being “within scope, on time and in budget” as defined by the Project Management Institute’s Body of Knowledge (PMBOK) (Duncan 1996). Moreover, these qualities can be directly influenced through the attitudes and behavior of the project manager and other actors.

Integrating qualities of success throughout the project cycle requires a clear understanding of project phases and stages. The infrastructure project cycle is divided into two phases (see Figure I.1):

- The **Design Phase** consists of three stages: Project Identification, Project Preparation and Implementation Planning. The Identification stage involves moving from a general project concept to an initial project plan. The Preparation stage encompasses further elaboration of the project plan including feasibility and risk assessments. Implementation Planning focuses on the detailed elaboration of the proposed project’s execution schedule, finances and contracting arrangements.
- The **Implementation Phase** also consists of three stages: Start-up, Execution and Sustainability. Start-up begins following project approvals and is concerned with getting the project up and running. The Execution stage includes carrying out all project tasks including phase down and completion. The Sustainability

stage formally begins following the completion of the project execution stage and continues for the remaining “economic life” of the project, e.g., the “return on investment period”.

A core premise of the RIP management framework is that successful projects are those having all six of the qualities described in Table I.2. Management professionals have the key role of ensuring that each of these qualities is continuously considered and built into a project at every stage of the project cycle. These qualities should be incorporated into every project and become an integral, dynamic part of its fabric.

The RIP considers these qualities along with their application throughout the project cycle to represent international best practices and standards in project management. Their integration is an essential concept in the PMToolkit. The templates and tools associated with these success qualities are included in Chapters V to X of the PMToolkit corresponding to the stages of the project cycle.

The PMToolkit Perspective

In practice, and depending on the stage of the infrastructure project cycle, practitioners have different perspectives of where a project begins and ends. For example, for an engineer conducting the feasibility study of an infrastructure facility, the project begins with a need identified by a government and ends with the decision about its feasibility. For the construction contractor, the project begins with the award of the contract and ends with the successful delivery of the facility to the client. Finally, for the infrastructure operations staff, the project begins with training to operate the facility and continues for the remainder of its economic life. Thus, in infrastructure programs, there are generally multiple perspectives of where a project begins and where it ends.

RIP’s concept of the infrastructure project cycle can be described as the process through which a project is brought from its initial conception through its implementation to its sustained operation. RIP’s definition of a project encompasses

the design and execution of work, as well as the sustainable operation of the facility for its intended purpose throughout its economic life.

Therefore, the core perspective of the PMToolkit is that of national and local government agencies and their infrastructure project managers in the water and transport sector. Nonetheless, the concepts, templates and tools presented in the PMToolkit will prove highly relevant and useful to many audiences.

Organization of the PMToolkit

The PMToolkit is organized in eleven chapters, as presented in Table I.3.

Table I.3. Organization of the PMToolkit

| Chapter Title | Description |
|--------------------------------------|--|
| I. Introduction | Explains the rationale for the PMToolkit and describes its development, objectives and structure. This chapter also introduces the concept of the Project Management Framework that serves as a basis for subsequent chapters. |
| II. How to Use | Provides guidance on how to follow the text of the PMToolkit and how to relate its structure to the elements in the Infrastructure Project Management Framework to find applicable tools. |
| III. Strategic Considerations | Introduces tools to understand and manage the strategic context of a project. Successfully managing the strategic environment and making timely decisions at every stage of the life cycle require the project manager to constantly monitor, understand and adapt to strategic external considerations. |
| IV. People | Discusses the importance of the people side of project management and presents tools that will assist the project manager in successfully managing one's self, interpersonal relationships, teams, the project organization and inter-organizational relationships. |
| V. Project Identification | These three chapters deal with the Design Phase of the project cycle. They discuss the Identification, Preparation and Implementation Planning stages of the project life cycle and introduce project management tools applicable to these stages. |
| VI. Project Preparation | |
| VII. Implementation Planning | |
| VIII. Project Start-Up | These three chapters deal with the Implementation Phase of the project cycle. They discuss the Start-Up, Execution and Sustainability stages of the project life cycle and introduce project management tools applicable to these stages. |
| IX. Project Execution | |
| X. Project Sustainability | |

| Chapter Title | Description |
|-----------------------|--|
| XI. Conclusion | Reviews the objectives of the PMToolkit comparing them to the issues affecting water and transport infrastructure project management. Finally, it reflects on the PMToolkit's relevance and value as a resource for infrastructure project managers in the rapidly transitioning societies of SEE. |

Chapters I and II are introductory chapters that present the background and basic concepts in the toolkit and describe its structure and use. Chapters III and IV introduce tools that can be used to manage the strategic environment and human factors that influence infrastructure projects at each stage of their life cycle. Chapters V through X discuss each stage of the project cycle and present generic templates and corresponding tools applicable to these stages. Finally, Chapter XI wraps up the PMToolkit with a conclusion.

The organization of the chapters is such that readers that find themselves at a particular stage of the infrastructure project cycle can refer directly to the chapter of the book dealing with that stage to find the most relevant template and tools.

CHAPTER II: HOW TO USE THE PMTOOLKIT

This chapter provides information that will afford the reader a better understanding of the structure of the PMToolkit and offers guidance on how to best use the project management templates and tools. The chapter begins with a definition of the PMToolkit's target audiences. Next, it explains what the PMToolkit explicitly is not. It then describes the different ways to use the PMToolkit. The next section explains the major features of the chapters in the PMToolkit, including the infrastructure project case illustration used throughout the PMToolkit. Finally, we include a summary matrix that shows the applicability of each tool related to the different elements of the PMToolkit project management framework.

Who is the target audience?

The PMToolkit has several project-related target audiences. The audiences who will find the PMToolkit most applicable to their work and professional interests include:

- Infrastructure project managers and other project actors in the water and transport sectors
- Government officials working with projects and programs
- Engineers from consulting and design firms
- Staff from procurement and contracting departments within different governmental bodies
- Construction and supervision firms bidding on and implementing projects
- Faculty and students in management and engineering degree programs
- Management consultants and trainers interested in project management
- Project and contract management professional associations
- Multilateral and bilateral financial institution representatives.

Both experienced and new staff will benefit from the PMToolkit's information. By applying the templates and tools, some audiences will gain new insights into how

projects can be better prepared to comply with different International Financing Institution (IFI) requirements, as well as with national standards. Others may use the tools to improve monitoring and control, or to ensure that sustainability considerations are integrated into their projects throughout the project cycle.

What the PMToolkit is not

The PMToolkit is not automated, nor is there any software provided with this volume. Rather, the toolkit is a means to introduce some foundational concepts of project management and provide a simple way to implement them. Technology may be used to supplement and ease the use of the tools presented. Most were created as straightforward Microsoft Word®, Microsoft Excel®, or Microsoft PowerPoint® documents. There are also several project management-specific software packages readily available, such as Microsoft Project® and Primavera®. Where such specific software might ease the use of a particular tool, it is noted in the appropriate chapter.

However, automating processes at the same time one is attempting to learn the concepts governing them has benefits and costs. The benefits include potential time savings and a clear presentation format. The costs, on the other hand, include the actual purchase price of the software package and any time or training required to actually use the package effectively. The RIP worked with a local service organization in each SEE country in addressing issues of automation of project management. Please feel free to contact any of the collaborating firms listed at the end of this chapter for further guidance in this area.

How should the PMToolkit be read?

The PMToolkit is user-friendly. The narrative text is brief, focusing primarily on an overview and contextual information. The heart of the PMToolkit's management-related content is captured in the template and tool materials.

The language is clear and minimizes the use of jargon. New terms are described as they are introduced to promote effective communications. The PMToolkit also

contains an “Abbreviations List,” a “Glossary of Terms,” and a “References” list where terms are further explained and elaborated.

There are several ways to use the PMToolkit to get the most out of it. We suggest that everyone begin by reviewing Chapter I, Introduction, and this chapter to become familiar with the PMToolkit's project management framework and organization. Beyond that, you can consider three optional approaches depending on your intent:

Project Management Element Approach: If you are interested in a particular project management framework element, proceed directly to the relevant chapter or chapters as elaborated in Table I.3. For example, if you are interested in the “people” element of the project management framework, then go directly to Chapter IV.

Template or Tool Approach: If you are interested in learning about and using a specific template or tool related to a stage in the project cycle, proceed directly to the location of that template or tool. Table II.1 provides detailed information on the location of the templates and tools. For example, if you are interested in the Project Proposal Document template, then as shown in Table II.1, proceed to Chapter V.

General Project Management Review Approach: If you are interested in project management templates and tools in general, proceed to Chapter III and read through the book in a sequential order.

Of course, you may want to use a combination of these approaches. After you have a general understanding the PMToolkit, we suggest you keep it nearby as a guide for helping you to identify specific templates and tools applicable at different stages of the project cycle. The PMToolkit provides an infrastructure project example for each tool. This aspect of the PMToolkit should prove valuable to readers who need to see how a tool is applied in an actual project situation.

Table II.1. Project Management Toolkit – Templates and Tools By Chapter

| PMTToolkit CHAPTER | TEMPLATE | TOOLS |
|--|----------------------------------|--|
| INTRODUCTION Chapter I | | |
| HOW TO USE THE TOOLKIT Chapter II | | |
| STRATEGIC CONSIDERATIONS Chapter III | | <ul style="list-style-type: none"> • Environmental Scanning • SWOT • Best Practices Form |
| PEOPLE Chapter IV | | <ul style="list-style-type: none"> • Personal Qualities Self-Assessment • Developing Relationships • Team Building • Principled Negotiation • Leadership Sociogram • Investing in Social Capital • Participation Choice |
| PROJECT IDENTIFICATION Chapter V | Project Proposal Document (PPD) | <ul style="list-style-type: none"> • Problem Tree • Alternatives Tree • Cost Effectiveness Analysis • Objective Tree • Stakeholder Analysis • Logical Framework • PPP Analysis • Pre-Feasibility Requirements • Cost Estimation |
| PROJECT PREPARATION Chapter VI | Project Appraisal Document (PAD) | <ul style="list-style-type: none"> • Indicators and Measurement • Work Breakdown Structure (WBS) • Feasibility Analysis Checklist • Feasibility Study • Risk Analysis and Mitigation Plan • Communication of a Project |

| PMTToolkit CHAPTER | TEMPLATE | TOOLS |
|---|---|---|
| IMPLEMENTATION PLANNING Chapter VII | Project Implementation Plan (PIP) | <ul style="list-style-type: none"> • Requirements and Deliverables Specification • Financing Plan • Network Scheduling • Resource and Cost Estimating • Procurement Arrangements • Procurement Plan • Disbursement Plan • Monitoring, Reporting and Evaluation Plan • Terms of Reference (ToR) |
| PROJECT START-UP Chapter VIII | Inception Report (IR) | <ul style="list-style-type: none"> • Project Flyer • Project Organization Chart • Bar Charts • Responsibility Charts • Procurement Management Checklist • Project Information System Diagram • Launch Workshop |
| PROJECT EXECUTION Chapter IX | Final Implementation Report (FIR) | <ul style="list-style-type: none"> • Contract Management Checklist • Claims Management Procedure • Periodic Monitoring and Control Report • Annual Review and Planning Workshops • Mid-term and Final Evaluation Cycle • Scope Change Procedure • Project Completion Checklist |
| PROJECT SUSTAINABILITY Chapter X | Project Sustainability Plan (PSP) | <ul style="list-style-type: none"> • Sustainability Assessment Scope of Work • Sustainability Objectives and Indicators • Operations and Maintenance Checklist • Sustainability Assessment |
| CONCLUSION Chapter XI | | |

How are the PMToolkit chapters structured?

Chapters III to X follow the same pattern. All of these chapters contain the following sections:

- *Overview:* This section introduces the chapter content and relates it to the PMToolkit project management framework. If the chapter focuses on a stage of the project cycle, the overview section provides information on the characteristics of the project stage.
- *Template:* The PMToolkit templates are generic outlines of a project document intended to provide project decision-makers with the necessary information to approve moving from one stage of the project cycle to the next. The PMToolkit provides a template for each stage of the project cycle—for Chapters V to X (the templates do not apply to Chapters III and IV because these chapters do not deal with stages of the project cycle). For example, the Project Proposal Document (PPD) described in the Project Identification stage (Chapter V) of a project contains the required information for deciding whether to proceed to the Project Preparation stage (Chapter VI). The template is the repository, or databank, for the summary information generated by the use of project management tools applicable at that stage of the project cycle.
- *Tools in Perspective:* This section presents the chapter's tools in relation to the chapter's content. Chapters III and IV describe the tools in relation to the Strategic Considerations and People concepts. Chapters V to X provide a schematic that shows how each tool is linked to the template introduced in that chapter.
- *MyCity Project Case Update:* This section contains updated information on the PMToolkit's infrastructure project case example. The case scenario is introduced in Chapter III. The purpose of the case is to supplement the usefulness of the tools. This case is based on a real-life water example from the SEE region. Subsequent chapters update the case study as appropriate to the content of the respective chapter.
- *Tool Descriptions:* In this section, the tools most applicable to the chapter's content are presented in detail. The PMToolkit presents each tool by providing a brief introductory content narrative followed by four figures. We have found

this four-figure format to be very practical in introducing a tool and aiding in its use. The four figures are as follows:

- Figure 1, *Description*, contains the purpose of the tool, the description, and application
- Figure 2, *Illustration*, contains the standard format of the tool (diagram, matrix, table, etc.)
- Figure 3, *How to Use*, contains, along with the introductory narrative text, the necessary information for using the tool
- Figure 4, *Example*, contains an actual example of how the tool is used in the context of the MyCity Project Case. The examples allow the tool user to better understand the interrelation among different tools. Examples also show how the information generated from the application of the tool can feed into the project management templates.

Each tool is introduced sequentially in the chapter where first applied, but many tools introduced in preceding chapters are useful and can be applied later.

Table II.2 shows where each tool is described and applicable in the PMToolkit project management framework, including each stage of the project cycle.

- *Conclusion*: This section briefly summarizes the important project management information from the chapter.

Table II.2. Project Management Tools by PMToolkit Chapter

| Project Management Tools | PMTToolkit Chapters | | | | | | | |
|---|---|----|---|----|-----|------|----|---|
| | Key: D = Tool Description; A = Tool Applicability | | | | | | | |
| | III | IV | V | VI | VII | VIII | IX | X |
| Environmental Scanning | D | A | A | A | A | A | A | A |
| SWOT Analysis | D | | A | A | A | A | A | A |
| Best Practices Form | D | A | A | A | A | A | A | A |
| Personal Qualities Self-Assessment | A | D | A | A | A | A | A | A |
| Developing Relationships | A | D | A | A | A | A | A | A |
| Team Building | A | D | A | A | A | A | A | A |
| Principled Negotiation | A | D | A | A | A | A | A | A |
| Leadership Sociogram | A | D | A | A | A | A | A | A |
| Investing in Social Capital | A | D | A | A | A | A | A | A |
| Participation Choice | A | D | A | A | A | A | A | A |
| Problem Tree | A | | D | A | | | | |
| Alternatives Tree | A | | D | A | | | | |

| Project Management Tools | PMTToolkit Chapters | | | | | | | |
|---|---|----|---|----|-----|------|----|---|
| | Key: D = Tool Description; A = Tool Applicability | | | | | | | |
| | III | IV | V | VI | VII | VIII | IX | X |
| Cost Effectiveness Analysis | | | D | A | | | | |
| Objective Tree | A | | D | A | | | | |
| Stakeholder Analysis | A | A | D | A | A | A | A | A |
| Logical Framework | | | D | A | A | A | A | A |
| PPP Analysis | A | | D | A | | | | |
| Pre-Feasibility Requirements | | | D | | | | | |
| Cost Estimation | | | D | A | | | | A |
| Indicators and Measurement | | | | D | A | A | A | A |
| Work Breakdown Structure | | | | D | A | A | A | A |
| Feasibility Analysis Checklist | | | | D | A | | | |
| Feasibility Study | | | | D | A | | | |
| Risk Analysis and Mitigation Plan | | | | D | A | A | A | A |
| Communication | | | A | D | A | A | A | A |
| Requirements and Deliverables Specification | | | | A | D | A | A | A |
| Financing Plan | | | A | A | D | A | A | A |
| Network Scheduling | | | | | D | A | A | A |
| Resource and Cost Estimating | | | | A | D | A | A | A |
| Procurement Arrangements | | | A | A | D | A | A | |
| Procurement Plan | | | A | A | D | A | A | |
| Disbursement Plan | | | | | D | A | A | |
| Monitoring, Reporting and Evaluation Plan | | | A | A | D | A | A | A |
| Terms of Reference (ToR) | | | A | A | D | A | A | A |
| Project Flyer | | | | A | A | D | A | A |
| Project Organization Chart | | | | A | A | D | A | A |
| Bar Charts | | | A | A | A | D | A | A |
| Responsibility Charts | | | A | A | A | D | A | A |
| Procurement Management Checklist | | | A | A | A | D | A | A |
| Project Information System Diagram | | | | | A | D | A | A |
| Launch Workshop | | | A | A | A | D | A | A |
| Contract Management Checklist | | | A | A | A | A | D | A |

| Project Management Tools | PMTToolkit Chapters | | | | | | | |
|---|---|----|---|----|-----|------|----|---|
| | Key: D = Tool Description; A = Tool Applicability | | | | | | | |
| | III | IV | V | VI | VII | VIII | IX | X |
| Claims Management Procedure | | | | | | | D | A |
| Periodic Monitoring and Control Report | | | A | A | A | A | D | A |
| Annual Review and Planning Workshops | | | | | | A | D | A |
| Mid-Term and Final Evaluation Cycle | | | | | | A | D | A |
| Scope Change Procedure | | | | | | A | D | |
| Project Completion Checklist | | | | | | | D | |
| Sustainability Assessment Scope of Work | | | | A | A | A | A | D |
| Sustainability Objectives and Indicators | | | | A | A | A | A | D |
| Operations and Maintenance Checklist | | | | | | | A | D |
| Sustainability Assessment | | | | A | A | A | A | D |

Conclusion

The editors and the many contributors to this volume believe that you will find useful project management information in the PMToolkit. We also think that applying the concepts, templates and tools embodied in the PMToolkit will contribute to your professional success as a project manager.

We are also highly conscious of what we were not able to include in the PMToolkit. In the RIP's infrastructure project technical assistance and institutional/training work, we conducted more than 30 project management workshops, prepared more than 200 different training presentations, and delivered sessions in several languages. Many lessons and materials were generated during this period. Unfortunately, we have been able to include only a representative sample of that knowledge in the PMToolkit. However, more detailed information is available from each local infrastructure service organization that cooperated with the RIP in generating and incorporating the concepts, templates and tools into the PMToolkit.

CHAPTER III: STRATEGIC CONSIDERATIONS

Overview

Project management professionals have traditionally measured success in terms of accomplishing a task on time, within budget, and according to technical specifications. The reality of implementing infrastructure projects in the transitioning economies of the SEE is much more complex. Time spent up front in defining stakeholder needs, exploring options, modeling, testing and examining different benefits is central to producing a successful project. The expanding viewpoint of project management is focused on meeting and exceeding client and citizen expectations, getting the best value for money, building sustainable capacity as you go, and shortening implementation schedules. In other words, the strategic context – those legal, economic, technical, environmental and social factors operating in the background – must be addressed.

A project manager's assessment of the impact of the strategic context (strategic considerations) is dynamic, not static. When the strategic context is aligned and supportive of a project's objectives, we call it an “enabling environment.” An enabling environment facilitates project success. When the strategic context is hostile or non-supportive of the project context, we call it a “non-conductive environment.” A non-conductive environment constrains the likelihood for project success (Brinkerhoff and Goldsmith 1990).

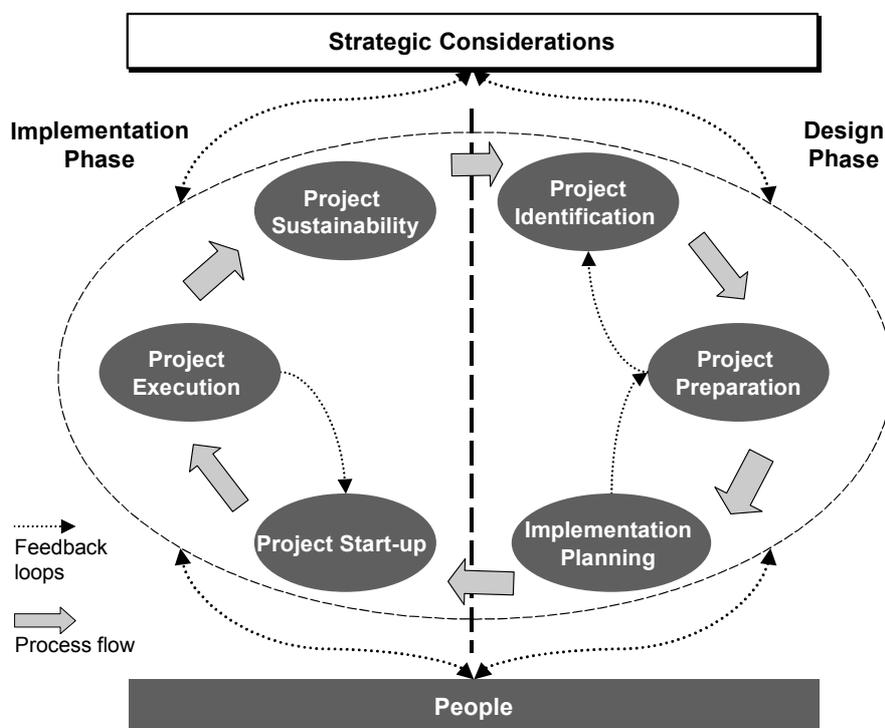
As changes occur in the strategic context, the manager's strategic considerations also change. A project context that is enabling at one point in time or one stage of the project cycle can become highly non-conductive at another. For example, when a senior official like a road agency executive director retires or is replaced, the level of support for a given road project may change. If the result is a lower level of ownership for and commitment to a project, this will likely have a negative impact on the ability to continue the project as planned.

Therefore, it is essential that project managers adopt a “flexible management” approach that will allow the project to remain relevant and responsive to the

strategic context over time. The project manager and other project staff need to be flexible in the sense of continuously monitoring the strategic considerations, and being prepared to adjust implementation in response to changing conditions, within the overall structure and objectives of the project.

Strategic Considerations are “issues” that influence, and are influenced by, the other elements of a project, including the phases and stages of the project cycle and the people involved in the project (see Figure III.1).

Figure III.1. PMToolkit Project Management Framework – Strategic Considerations



In this chapter, we introduce several tools for project managers and others to use in understanding, diagnosing and responding to the external context.

Tools in Perspective

We suggest the use of three Strategic Considerations tools. These are described in Table III.1. Each tool can assist project practitioners during the pre-identification stage of a project and recurrently throughout design and implementation.

Table III.1. List of Tools

| Strategic Considerations Tools | Description of Tools |
|---------------------------------------|--|
| Environmental Scanning | A matrix for listing the sources of information related to a project concept by institutional level and type of document |
| SWOT | A four-pane window table that summarizes a project concept's external opportunities and threats and internal strengths and weaknesses |
| Best Practices Framework | A cyclical process framework of the key steps involved in the transfer and adaptation of project-relevant, best practices knowledge from outside or inside the project setting |

MyCity Project Case: Strategic Considerations

The illustrative MyCity Wastewater Infrastructure Project case is introduced here. Readers will find the case updates in this location in subsequent chapters.

EurLandia is an illustrative country in SEE, with a population of about 5 million. Almost 50 percent of EurLanders live in urban areas. EurLandia's current top policy objectives include maintaining macroeconomic and political stability, decentralizing government, and commercializing public sector operations. Through a 5-year economic stabilization program, EurLandia has brought inflation to single-digit levels and has averaged a real gross domestic product (GDP) growth rate of 3 percent.

During its economic transition and because of the expected EU accession, one of the most important issues in EurLandia is environmental protection. The country has an environmental protection law that defines the institutional framework of environmental protection, and the tasks and competencies of different levels of government required to enforce that law. The law set up regional governmental bodies, which are the EurLandia Environment Protection Agencies (EEPA), that monitor the environmental quality indicators, give advice and training for local governments, and participate in local decision-making regarding environmental protection.

Despite recent economic achievements, EurLandia is still characterized by an inadequate and deteriorating physical infrastructure in the water, transport and energy sectors. The demand for public infrastructure and services is rapidly increasing while the supply of public funds from central and local resources is decreasing. The national government is attempting to encourage a wide range of public-private partnerships as means for accessing funds to finance critical infrastructure, improving efficiency of service delivery, and reducing costs.

MyCity, with a population of about 500,000, has a number of suburban communities developing in its metropolitan area. The main business sectors in the city are tourism, shipping, and shipbuilding. As a response to its citizen's demands for modernization, efficiency, and accountability, the local government of MyCity recently reformed its budgeting process. MyCity introduced a new type of budget that clearly tracks the operating costs and expenditures of different departments and local government institutions. It also developed a performance management system with objectives and indicators for each local government activity. Additionally, the city established a separate department for monitoring local government activities and service contracts.

The growing population of MyCity has raised concerns among citizens and the government about the accelerating degradation of the environment. The increasing growth of new suburbs without adequate sewage infrastructure has resulted in significant groundwater pollution. According to the EEPA of MyCity region, in the last 5 years, the quality of groundwater decreased significantly, and the biological oxygen demand (BOD) increased from 15 percent to 50 percent and now is close to the legal health threshold. Thus the EEPA began lobbying to the local government of MyCity to solve this problem. In response, the MyCity City Council is considering passing a decree that will regulate the disposal of domestic and industrial sludge. The decree would require all residential developments of more than 10,000 people to be connected to the city's main sewerage system and wastewater treatment facilities.

The Water and Sewage Company is 87 percent owned and controlled by MyCity with the remaining 13 percent ownership spread among eight small, nearby suburban communities. Funds generated by water and sanitation user fees provide enough revenues to cover the operating and maintenance costs and allow for some small capital improvements. Residential customers have a good record in paying bills for their water services, with a 90 percent rate of on-time payments. Arrears are only 5 percent.

MySuburb is one of the eight suburban communities of MyCity. With no public sewerage system, MySuburb residents are currently using poorly maintained septic tanks that discharge the wastewater underground. Water quality analyses have shown that the current sewerage system of MySuburb is already having a negative effect on the quality of the groundwater. The government of MyCity is considering the implementation of a MyCity groundwater protection project to solve this problem.

Tool Descriptions:

The Strategic Considerations tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project.

Environmental Scanning

Whenever the need for a project or a project concept emerges, it is necessary to collect relevant information. Different types of documents include legal rulings and decrees, policy statements, strategies and plans, and evaluation and research reports. Such documents typically contain information at several institutional (international, national, regional or local) levels. The most common, reliable sources of information are government agencies, central and local authorities, multi-lateral and bi-lateral institutions, and professional associations. The Environmental Scanning tool can assist project practitioners in tracking key sources of information related to a project's external context. The tool is described in the figures below.

Figure III.2. Environmental Scanning – Description

Environmental Scanning: Description

- **Purpose:**
 - To assist a project developer in scanning, identifying, and documenting key information relevant to an emerging project need or concept
- **Description:**
 - A matrix for listing the sources of information related to a project concept by institutional level and type of document
- **Application:**
 - This tool is useful as soon as sponsors recognize the need for the project or when a project concept has emerged

Figure III.3. Environmental Scanning – Illustration

Environmental Scanning: Illustration

Project need or concept:

| TYPES LEVEL | Law & Legal Documents | Strategy Documents | Policy Statements | Evaluations & Research Reports | Standards Documents | Other |
|-------------------------------|-----------------------|--------------------|-------------------|--------------------------------|---------------------|-------|
| International-Trans. National | | | | | | |
| National-Local | | | | | | |
| Sectoral | | | | | | |
| Ministry Program | | | | | | |
| Other | | | | | | |

Figure III.4. Environmental Scanning – How to Use

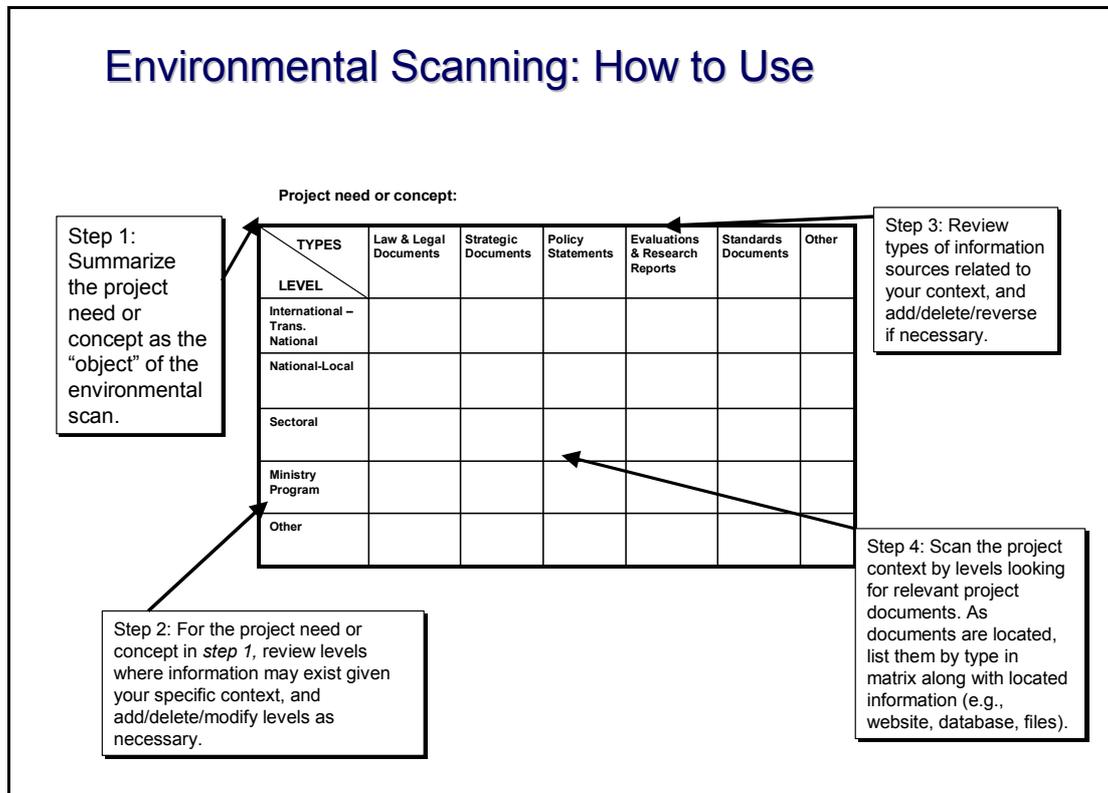


Figure III.5. Environmental Scanning – Example

Environmental Scanning: Example

Project need or concept: MyCity Wastewater Project Concept

| TYPES \ LEVEL | Law & Legal Documents | Strategy Documents | Policy Statements | Evaluations & research reports | Standards Documents | Other |
|-------------------------------|-----------------------|------------------------|---------------------------|--|------------------------------|-------|
| International-Trans. National | | Strategy for EurLandia | | | | |
| National-Local | Decentralization Law | | Decree on sludge disposal | Quality of groundwater | Database water users tariffs | |
| Sectoral | | | | Evaluation reports of completed projects in water sector | | |
| Other | | | | | | |

SWOT Analysis

The SWOT (strengths, weaknesses, opportunities, threats) Analysis tool helps in understanding the current situation related to a project concept by listing and ranking internal and external factors. SWOT analysis provides a broad overview of the internal strengths and weaknesses related to a specific project concept, along with opportunities and threats from the external environment.

Evaluating the internal strengths and weaknesses of a project concept generally includes gathering perceptions about the potential effectiveness or ineffectiveness of projected services based on previous experience. An evaluation would also explore issues of technical feasibility and management capacity to organize and carry out a proposed project. A quality SWOT analysis, including interviews and meetings, takes considerable time and resources to adequately prepare and complete.

External forces that can influence the opportunities and threats related to a project concept usually include political, economic, social, technological, demographic and legal trends, among others. The external forces that can help move a project concept forward are “opportunities.” Forces that can block the concept are “threats.”

SWOT analysis should rely on information from insiders and outsiders to provide an accurate picture of the current situation related to a project concept. Involving potentially interested stakeholders will provide them with a chance to have input into the project development process at an early stage, and increase their ownership in the project idea. It will also provide an opportunity for those considering the project concept to inform key stakeholders about the potential benefits associated with the new project, and to generate commitment and support for the idea among them.

The SWOT analysis tool is useful for understanding a project's strategic considerations but can also be used throughout the project cycle to assess the impact of external and internal changes. The SWOT tool is presented in the figures that follow.

Figure III.6. SWOT Analysis – Description

SWOT Analysis: Description

- **Purpose**
 - SWOT Analysis can assist practitioners in quickly forming a judgment on the overall external and internal viability -- strengths, weaknesses, opportunities and threats -- of a project concept
- **Description**
 - A four-pane window table that summarizes a project concept’s external opportunities and threats and internal strengths and weaknesses
- **Application**
 - The SWOT tool can be used during early project conception, and at every stage of the project cycle, to understand how a project relates to its external and internal context

Figure III.7. SWOT Analysis – Illustration

SWOT Analysis: Illustration

Project Concept: _____

| | |
|---|--|
| Perceived Strengths (Related to Internal Context) | Perceived Weaknesses (Related to Internal Context) |
| Perceived Opportunities (From External Context) | Perceived Threats (From External Context) |

Figure III.8. SWOT Analysis – How to Use

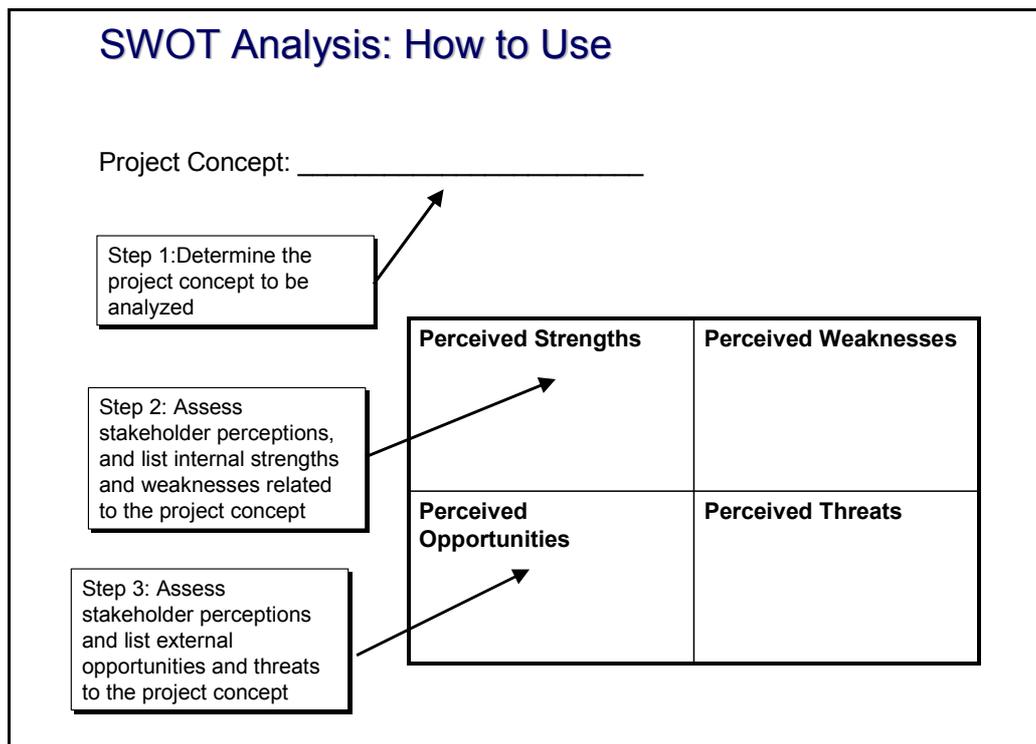


Figure III. 9. SWOT Analysis – Example

SWOT Analysis: Example

Project Concept: MyCity Wastewater Infrastructure Project

| | |
|--|--|
| <p>Perceived Strengths</p> <ul style="list-style-type: none"> ● Commitment of MyCity officials ● Support legal framework ● Operational cost covered by user fees ● Human resources | <p>Perceived Weaknesses</p> <ul style="list-style-type: none"> ● Poor efficiency of service delivery ● Lack of financial resources ● Deterioration of groundwater quality |
| <p>Perceived Opportunities</p> <ul style="list-style-type: none"> ● Increased economic activity ● Increased tariffs ● Reduction of O&M cost ● Options for Public-Private Partnerships (PPP) | <p>Perceived Threats</p> <ul style="list-style-type: none"> ● Lack of external financial resources for solving unexpected problems ● Delays in user fee payments ● Urban congestion as a result of growth in new suburbs |

Best Practices Framework

High-performance projects have some key common elements that can be defined as best practice features, such as the following:

- Clearly defined and commonly understood objectives, strategies and responsibilities;
- Increased use of information technology (IT) and systems supporting the organization;
- Competitive tendering of construction and maintenance with movement toward performance-based contracting;
- Increased accountability and transparency in contract and construction management; and,
- Human resources that meet the needs of the modern organization – professional, responsible, IT enriched, and management oriented.

The Best Practices Framework tool allows practitioners to adopt and use available global and local knowledge about the best techniques, procedures and approaches to successfully manage the design and implementation of a project. This tool is closely related to the Environmental Scanning tool, but it concentrates on the factors – or lessons learned – that have contributed to the success of previous, similar projects.

As decision-making requirements emerge during project design or implementation, the sources of information on best practices can be identified using the outputs of the Environmental Scanning tool. Once these information sources are identified, the Best Practices Framework tool can be used to identify, collect, adapt and apply lessons learned to the project at hand. The Best Practices Framework tool is described in the figures that follow.

Figure III.10. Best Practices Framework – Description

Best Practices Framework: Description

- **Purpose:**
 - To allow a manager to systematically prepare for, collect, adapt and use available knowledge on the best ways of managing the design and implementation of projects
- **Description:**
 - A cyclical process framework of the key steps involved in the transfer and adaptation of project-relevant, best practices knowledge from outside or inside the project setting
- **Application:**
 - This framework can be used whenever a project manager wants to draw on project management experience about what does or doesn't work under similar conditions

Figure III.11. Best Practices Framework – Illustration

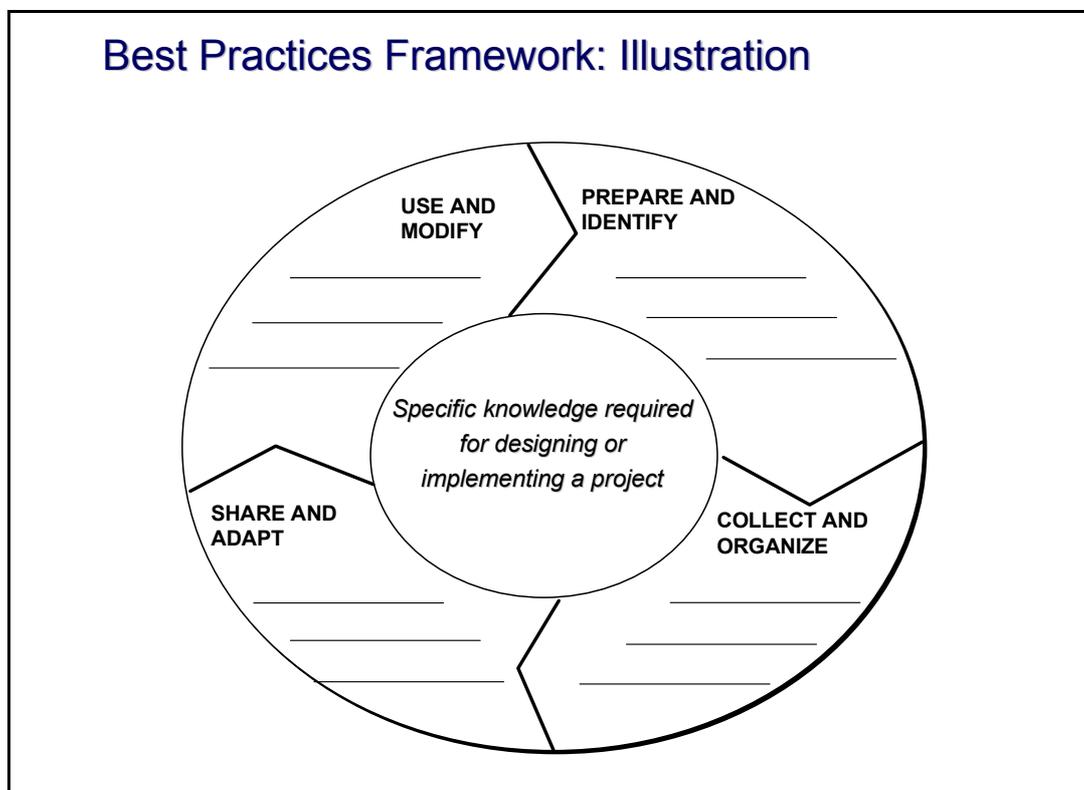


Figure III.12. Best Practices Framework – How to Use

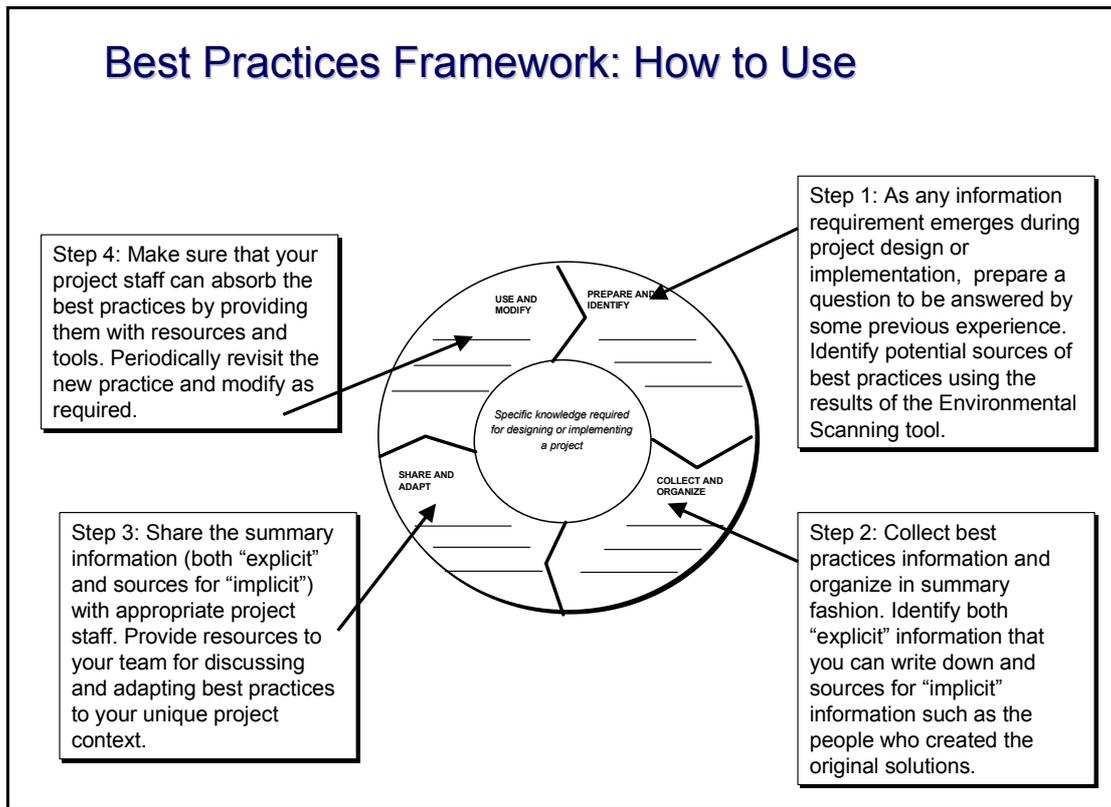
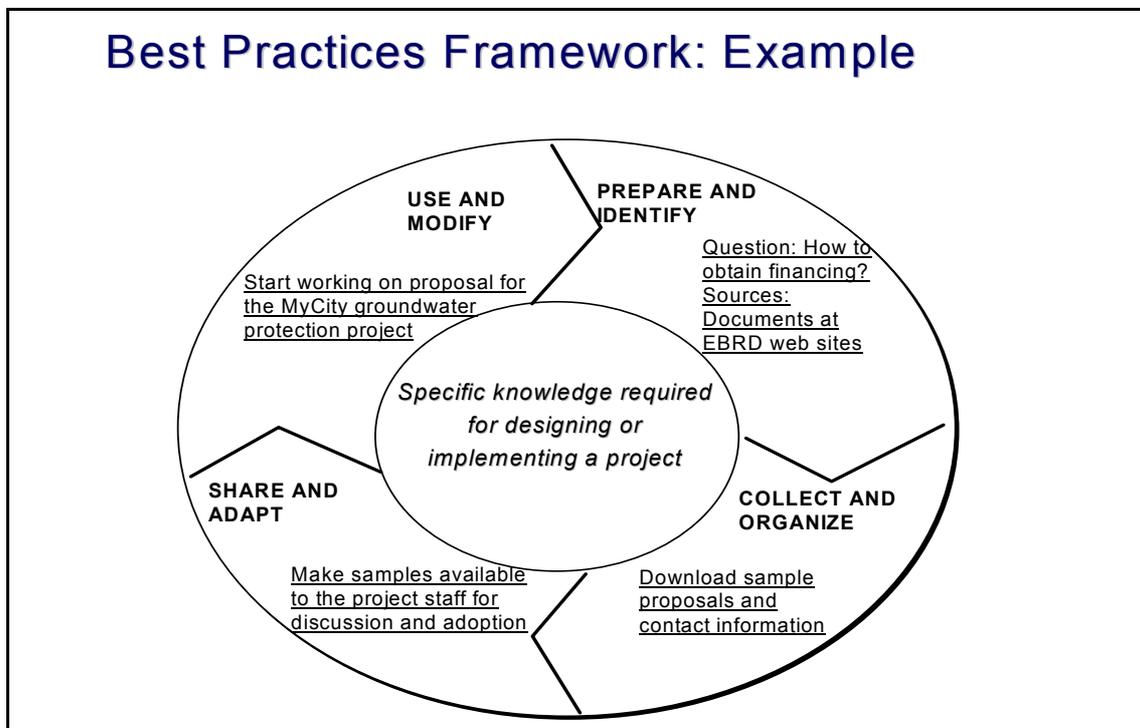


Figure III.13. Best Practices Framework – Example



Conclusion

This chapter introduced several practical tools for gaining an understanding of the strategic context of a project and then managing it. Successfully managing the strategic environment and making timely decisions at every stage of the cycle require the project manager to constantly monitor, understand, and adapt to strategic considerations – both external and internal. The Environmental Scanning, SWOT Analysis and Best Practices Framework tools can be used throughout the project cycle to ensure that projects and project practitioners remain responsive to their evolving external and internal contexts.

CHAPTER IV: PEOPLE

Overview

The “centrality of people in project management” is the second core concept of the PMToolkit. This concept places people at the center of project success. The project manager and supporting staff are those who choose the right things to do, make things happen, get things done, and achieve sustainable results.

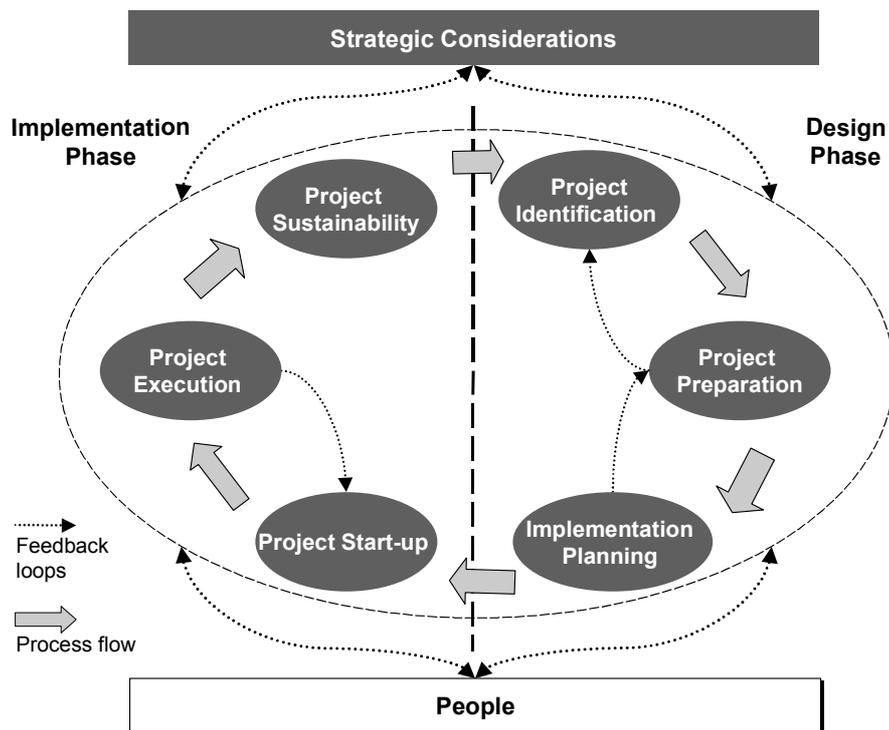
Project decisions affect the interests of staff, citizens, governments, and many other stakeholders. Managers need to understand the interplay of these interests, to interpret information about the circumstances they are facing and make appropriate decisions about who to interact with and how. Questions that managers ask frequently include:

- Who can help get this done (relationships)?
- Whom may I consult, in what sequence, and how (participation)?
- What information shall I make available (transparency)?
- How do I follow through on commitments (responsibility)?

Clearly, more than technical knowledge and skills are required to ensure success in this context. Managers also need to be adept at dealing with themselves and with others.

When dealing with people, project managers are confronted not only with selecting the appropriate staff, but also with developing formal and informal relationships, building the project team, negotiating conflicts, providing leadership to the project, keeping the team motivated and improving coordination with other organizations. This chapter provides some “people tools” for performing these tasks in an effective and efficient manner. These tools are applicable throughout the Project Management Framework (Figure IV.1).

Figure IV.1. PMToolkit Project Management Framework – People



People Levels in a Project Setting

The people dimension of a project setting encompasses five different levels – the individual, the interpersonal, the team, the organizational, and the inter-organizational (see Figure IV.2).

Project staff carry out key management roles in relation to each of these people levels: they act alone (individual level), work through relationships with others (interpersonal level), work in teams (team level), are members of the project (organizational level), and link to other projects and non-project entities (inter-organizational level). In our project management work in SEE, the RIP introduced one or more people tools applicable to each level to assist managers in becoming more effective in the people domain.

Tools in Perspective

Figure IV.3 shows the relationships between the people levels and the people tools. There are seven people tools, several of which are linked to and applicable for more

than one people level, as shown in the lines of Figure IV.3. For example, the Principled Negotiation tool is applicable at the interpersonal, team, organizational and inter-organizational levels.

Figure IV.2. People Levels



Figure IV.3. People Levels and People Tools

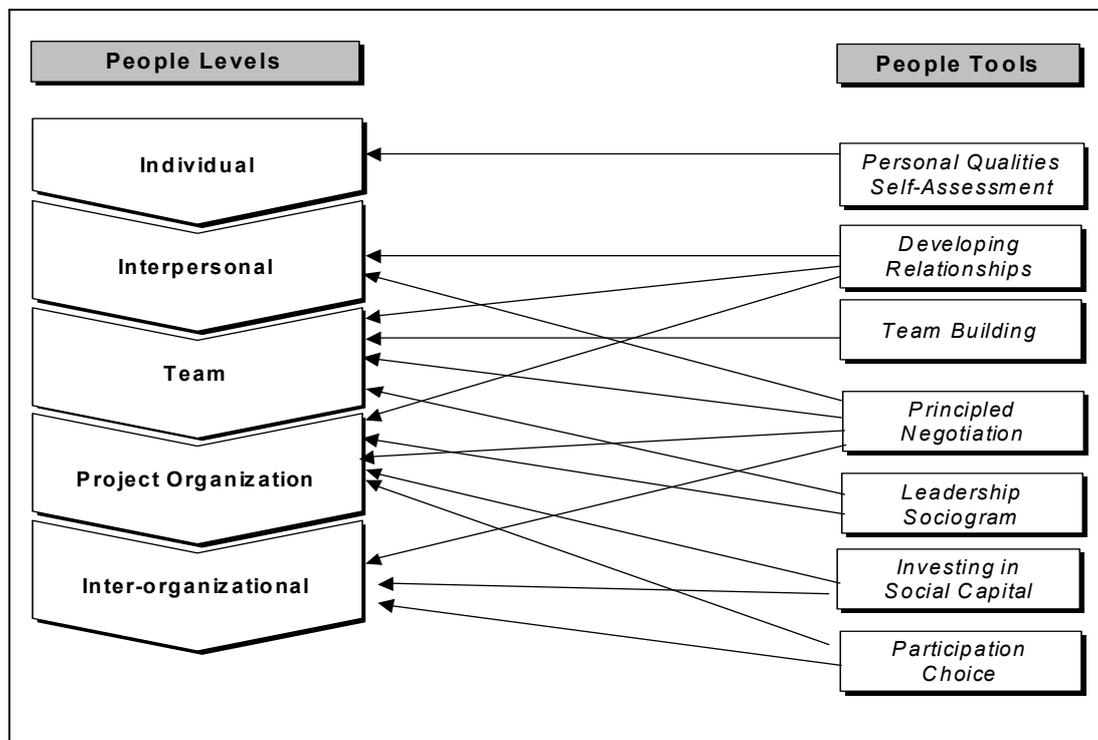


Table IV.1 describes the people tools.

Table IV.1. People Tools and Descriptions

| People Tools | Descriptions |
|---|--|
| Personal Qualities Self-Assessment | A self-assessment inventory, including 10 personal management qualities along with five behavioral options and three comparison categories |
| Developing Relationships | A two-staged relationship development model that provides guidance regarding the conditions for initiating and deepening a relationship |
| Team Building | A four-staged model of the team building cycle, including forming, storming, norming and performing, which identifies the key team-building tasks at each stage and provides a place for documenting team progress on each task |
| Principled Negotiation | A matrix of key ideas and tips to follow in carrying out a principled negotiation along with blank spaces for capturing notes during the process |
| Leadership Sociogram | A network map that graphically reveals the strengths and weaknesses in a project leader's network of relationships |
| Investing in Social Capital | A flow diagram, based on the leadership sociogram assessment, which details the steps a leader can follow to enhance his or her social capital through the development of new and existing professional and personal relationships |
| Participation Choice | A matrix that facilitates an assessment of the major benefits and costs associated with four types of participation, resulting in average cost-benefit rankings as an aid to decision making |

MyCity Project Case: People Tools

The MyCity Water Department assigned one of its mid-level staff, named “MyManager,” to take responsibility for this early development stage of the project. MyCity Mayor has authorized MyManager to guide the MyCity Wastewater Project from strategic considerations into the project identification stage of the project cycle.

MyManager, an engineer, was recently appointed as Chief of the Planning Unit. MyManager has water and wastewater infrastructure experience in the MyCity area but has not worked directly with MySuburb and its officials.

MyManager leads a small group of planners, including several engineers and an economist. The group's members are highly skilled in water and wastewater technical matters, but no one in the group has experience in further developing the project concept working in a multidisciplinary team setting. Under these conditions, MyManager requested and is now receiving the services of an external project development consultant/facilitator, named "ExtConsultant," who will be assisting MyManager.

The MyManager tasks in this early development stage of the project are varied. They may be listed as follows:

- Carry out an environmental scan related to the project concept, and gather relevant documents
- Complete a SWOT analysis for the MyCity Project
- Continue assessing MySuburb citizens' willingness to pay for sewage services
- Gather all information necessary for moving the project into the project identification stage
- Create the network and all necessary connections with external stakeholders for gaining ownership and support for the project.

MyManager realizes that successfully carrying out these project development tasks will require the following specific efforts:

- Assessing his or her personal management qualities to determine if he or she can be a successful leader for the project development team, and making personal improvements as needed
- Developing and deepening relationships with individuals and groups important at this stage

- Building the initial project team with the assistance of ExtConsultant
- Negotiating with project-related persons on a range of issues, including work schedules
- Identifying and strengthening networks of relationships required for obtaining approvals and getting the project under way
- Determining the types of participation needed in formulating and gaining support for the project concept
- Deciding how to coordinate most effectively with other key groups and organizations external to the project.

Tool Descriptions

This section presents seven people tools. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project update, are focused on the project's early development stage in which the project concept is being formulated. All people tools can also be used during every stage of the project cycle.

Personal Qualities Self-Assessment

What are the personal qualities (e.g., ethics and values) of a professional manager? What qualities enable managers to work with dignity and self-respect? What instrument can a manager use to perform a quick self-assessment of his or her personal qualities and to determine important areas for improvement? The Personal Qualities Self-Assessment tool can assist in answering these questions.

The premise of this self-assessment tool is that professional management of other people begins with good personal qualities. Managers need to be aware of their personal values, and improve on them where possible. It is very difficult to expect a project manager who is neither dependable nor trustworthy, for example, to effectively attract others to the project organization and lead them in a responsible manner.

This self-assessment tool identifies 10 personal qualities. The RIP project management team isolated these qualities during its technical assistance and training work in SEE, and consolidated the list for the purpose of this tool. These qualities, which will be familiar to project practitioners throughout the SEE region, are fairness, integrity, respect, trust, understanding, achievement oriented, good judgment, positive attitude, adaptability and humility. The RIP recognizes that other personal qualities also could be included, but these 10 are considered as the most essential.

The self-assessment tool allows project practitioners to quickly evaluate their own qualities along a five-point behavioral scale. The scale ranges from almost never demonstrating each quality in question to demonstrating the quality most of the time. Based on the self-assessment, the tool provides a basis for evaluating your score against a standard, and identifying improvement actions. In our project work, the RIP finds that the tool works best when individuals first complete the self-assessment alone with the intent of creating a realistic view of one's own personal values. Some of the RIP project management staff found it very useful to complete the self-assessment in pairs with trusted friends or colleagues. Then they compared the results. The areas of disagreement between the members of a pair were areas for useful discussion and reflection.

The figures that follow introduce the Personal Qualities Self-Assessment tool.

Figure IV.4. Personal Qualities Self-Assessment – Description

Personal Qualities Self-Assessment: Description

- **Purpose:**
 - To provide a practical way for project practitioners to quickly assess – both alone and with trusted others – their personal management qualities and to propose improvement actions
- **Description:**
 - A self-assessment inventory including 10 personal management qualities along with five behavioral options and three comparison categories
- **Application:**
 - This self-assessment is useful for existing and aspiring project staff for generating self-awareness of personal values at any stage of the project cycle

Figure IV.5. Personal Qualities Self-Assessment – Illustration

Personal Qualities Self-Assessment: Illustration

Name: _____ Position: _____

| QUALITIES | STATEMENTS | BEHAVIORAL OPTIONS | | | | |
|--------------------------------|--|--------------------|--------|----------------|-------|------------------------|
| | | Almost Never | Rarely | Some- times | Often | Most of the Time |
| 1. <i>Fairness</i> | I am equitable and consistent in my assessment and treatment of others. | 1 | 2 | 3 | 4 | 5 |
| 2. <i>Integrity</i> | I display high ethical standards including keeping promises and accurately representing the facts. | 1 | 2 | 3 | 4 | 5 |
| 3. <i>Respect</i> | I treat others with dignity including tolerance for people from diverse backgrounds. | 1 | 2 | 3 | 4 | 5 |
| 4. <i>Trust</i> | I am able to win and hold the confidence of others by being open and honest. | 1 | 2 | 3 | 4 | 5 |
| 5. <i>Understanding</i> | I actively listen and act on the basis of others' motivations and feelings. | 1 | 2 | 3 | 4 | 5 |
| 6. <i>Achievement-Oriented</i> | I set and accept responsibility for "realistic goals" that involve moderate, but achievable, levels of risk. | 1 | 2 | 3 | 4 | 5 |
| 7. <i>Good Judgment</i> | I make decisions based on clear reasons and objective information. | 1 | 2 | 3 | 4 | 5 |
| 8. <i>Positive Attitude</i> | I am positive, energetic and self-confident. | 1 | 2 | 3 | 4 | 5 |
| 9. <i>Adaptable</i> | I am flexible and creative when changes are needed. | 1 | 2 | 3 | 4 | 5 |
| 10. <i>Humility</i> | I have a realistic opinion of my own importance for the work. | 1 | 2 | 3 | 4 | 5 |

Total score: _____

Management Qualities Improvement Actions:

Figure IV.6. Personal Qualities Self-Assessment – How to Use

Personal Qualities Self-Assessment: How to Use

Step 1: Evaluate your personal qualities by considering and responding to the following statements. Circle the option closest to your behavior.

Name: _____
Position: _____

| QUALITIES | STATEMENTS | BEHAVIORAL OPTIONS | | | | |
|-------------------------|--|--------------------|--------|-----------|-------|------------------|
| | | Almost Never | Rarely | Sometimes | Often | Most of the time |
| 1. Fairness | I am equitable and consistent in my assessment and treatment of others. | 1 | 2 | 3 | 4 | 5 |
| 2. Integrity | I display high ethical standards including keeping promises and accurately representing the facts. | 1 | 2 | 3 | 4 | 5 |
| 3. Respect | I treat others with dignity including tolerance for people from diverse backgrounds. | 1 | 2 | 3 | 4 | 5 |
| 4. Trust | I am able to win and hold the confidence of others by being open and honest. | 1 | 2 | 3 | 4 | 5 |
| 5. Understanding | I actively listen and act on the basis of others' motivations and feelings. | 1 | 2 | 3 | 4 | 5 |
| 6. Achievement-Oriented | I set and accept responsibility for "realistic goals" that involve moderate, but achievable, levels of risk. | 1 | 2 | 3 | 4 | 5 |
| 7. Good Judgment | I make decisions based on clear reasons and objective information. | 1 | 2 | 3 | 4 | 5 |
| 8. Positive Attitude | I am positive, energetic and self-confident. | 1 | 2 | 3 | 4 | 5 |
| 9. Adaptable | I am flexible and creative when changes are needed. | 1 | 2 | 3 | 4 | 5 |
| 10. Humility | I have a realistic opinion of my own importance for the work. | 1 | 2 | 3 | 4 | 5 |

Step 4: Define improvement actions for the weakest areas

Step 2: Add up your total score

Management Qualities Improvement Actions: _____

Total score: _____

Step 3: Locate your total score in these categories:

10-30 Your personal qualities are not sufficiently well-developed to work effectively in a project; take steps to strengthen the qualities you almost never, rarely, or sometimes exhibit.

30-40 You have many good personal qualities for project management, yet improvement is needed; focus on weakest areas and define actions for improvement.

40-50 Your personal qualities are well-suited for project management; do not become complacent, and always be open to opportunities for further improvements.

roles, or functions. Relationships can be formal, informal or both; they can span professional and personal interests. Relationships are common in all types of organizations. However, as a result of a project's time-bound nature and constantly evolving character, every project requires a unique and changing constellation of project relationships.

Professional project managers are highly skilled at initiating and deepening project-related relationships. This section introduces a people tool for relationship development. In the RIP projects throughout SEE, we observed two stages of relationship development: "initiating" and "deepening." The Developing Relationships tool provides a diagnostic for assessing whether minimal conditions exist for either initiating a new relationship or deepening an existing relationship.

During the initiating stage of a relationship, a project manager seeks to link with another person for a project-related reason. At the early stage of any relationship, the involved persons typically reach an explicit or implicit agreement about the time and other resources required for the relationship, the exchange of services involved, the benefits to be gained by each person, and other expectations that either person in the relationship might have that are not immediately obvious. During this initiation stage, each person begins to speak about his or her own ideas and feelings and to understand the other's values and preferences.

Initiating an open and mutually beneficial project relationship involves honesty and trust. This does not imply probing into secrets, being disrespectful or involving personal privacy. But becoming more open does imply increasing exposure to different types of vulnerability, such as intellectual, emotional and professional. It will become difficult to state that you know something that you do not, to withhold information, or to undertake a self-serving action that undermines the integrity of the relationship.

The second stage of relationship development is "deepening." The fundamental characteristic of relationship deepening is the "sharing of project authority." By authority, we mean that both parties of the relationship have the right and power to

influence decisions. The sharing of authority thus signifies a mutual responsibility (or “ownership”) for some effect or result through shared creativity or authorship. “If you and I work together, we see ourselves as co-creators. We may continue making individual decisions, but we do so with full knowledge of our shared purpose, and of what each other thinks and feels” (Senge et al 1994). As the relationship deepens, so do the levels of honesty and trust. Finally, the relationship becomes more mutually beneficial, more reliable and more durable.

What does a manager need to know before proceeding with the initiation or deepening of a project relationship? RIP has identified the conditions that need to be considered for each stage of the relationship development process. These conditions are introduced in our Developing Relationships tool, as elaborated in Figures IV. 8 through IV.11.

Figure IV.8. Developing Relationships – Description

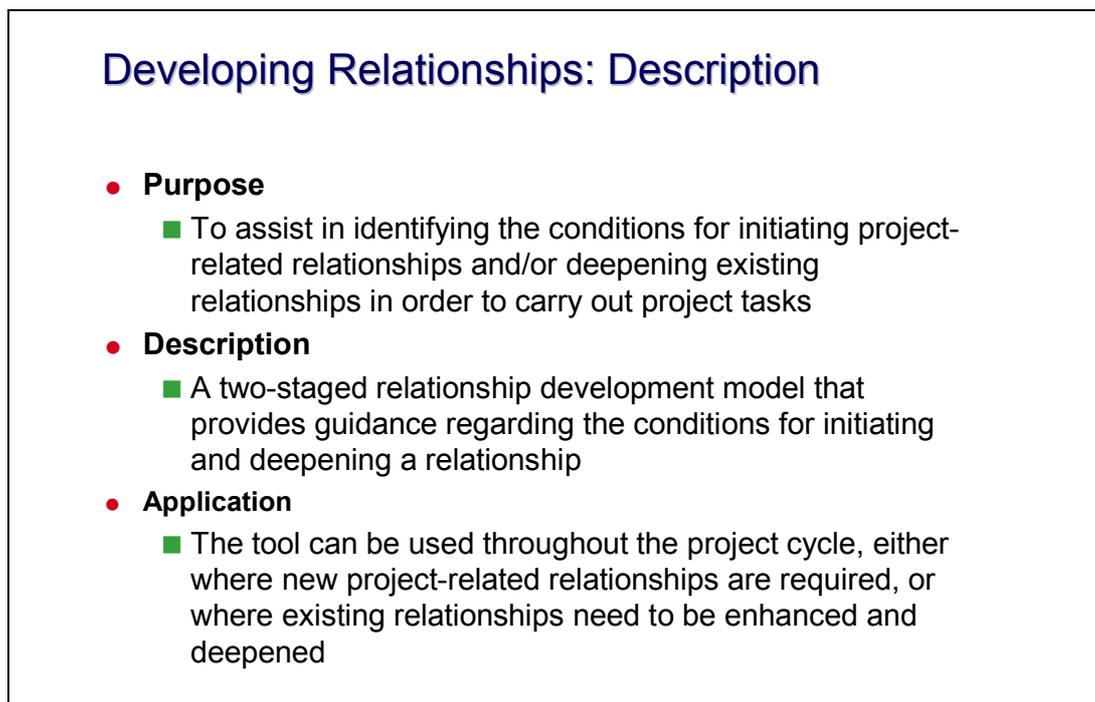


Figure IV.9. Developing Relationships – Illustration

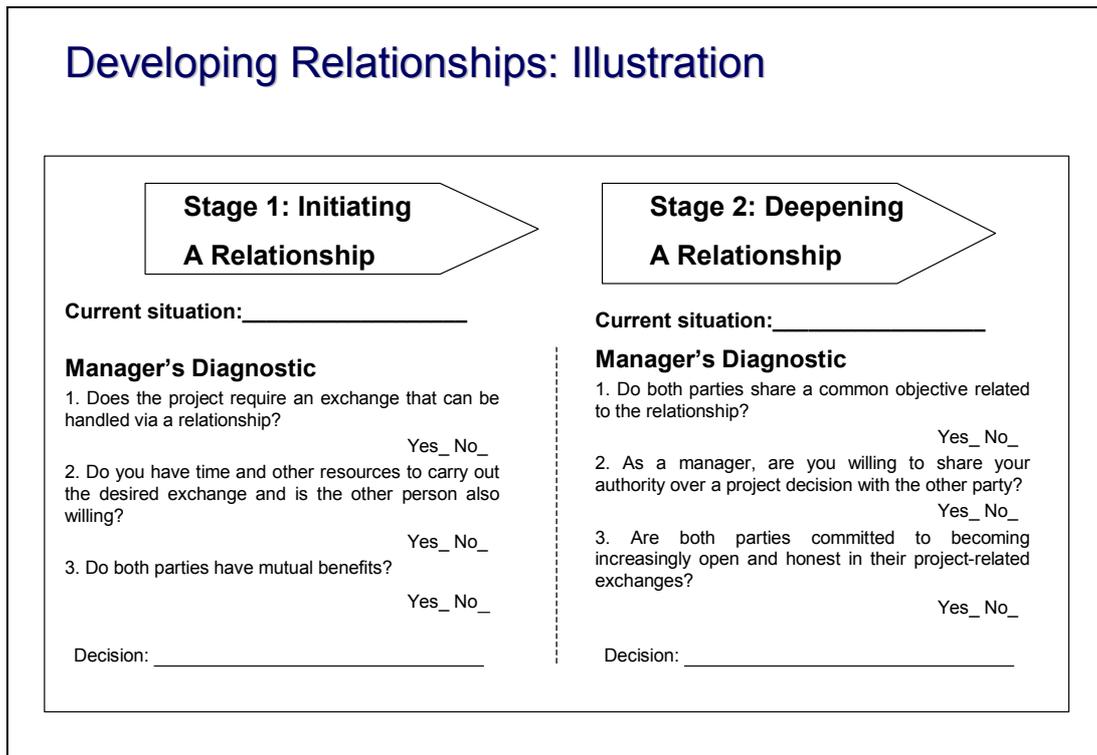


Figure IV.10. Developing Relationships – How to Use

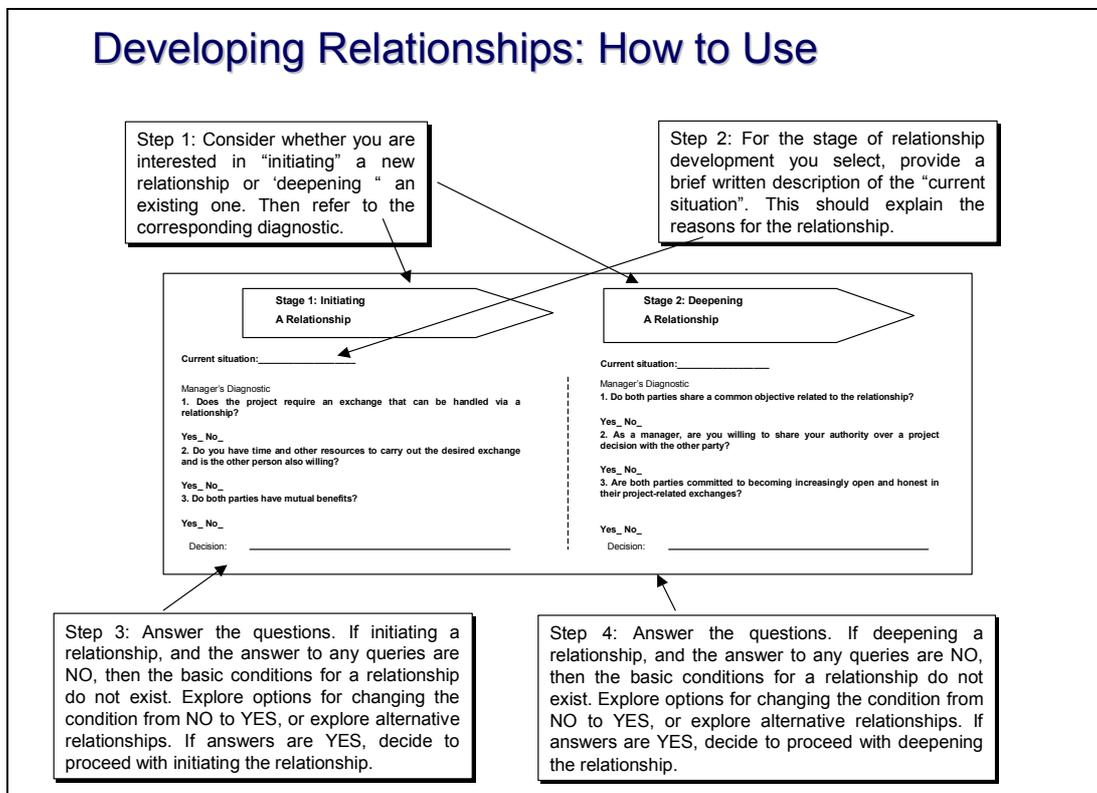
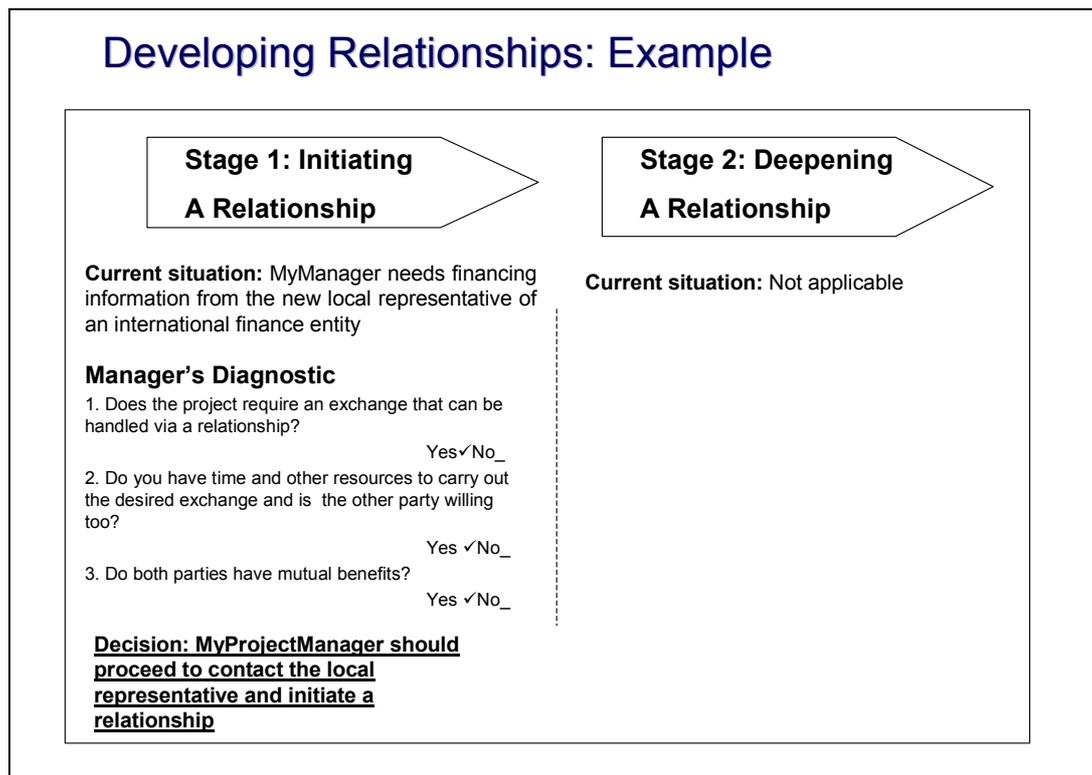


Figure IV.11. Developing Relationships – Example



Team Building

The third people level is “teams.” Teams are composed of two or more individuals who work together to accomplish a common objective. Teams are widely used in infrastructure and other types of projects because they are an effective way of accomplishing tasks with a variety of people across different functions or departments. “...Any team – if it focuses on performance regardless of where it is in an organization or what it does – will deliver results well beyond what individuals acting alone in non-team working situations could achieve” (Katzenbach and Smith 1994).

Team building is a technique by which individuals learn to come together in a group around a performance objective, specify tasks to be carried out, and mobilize to accomplish the tasks and complete the work. Building and maintaining an effective team is a key to successful project management.

A pre-condition for building a high performance team is having the necessary functional and organizational skills represented among the team members. In many

infrastructure projects on which RIP worked in SEE, project managers were constrained in selecting the right team members related to the project's demands. Often, available staff did not possess adequate skills, for example, in the areas of market economics or environmental mitigation approaches. In other cases, team members were imposed through political decisions. Where skills gaps were a problem, it was possible to rapidly augment skills by adding other team members or providing "learning-by-doing" opportunities in the project work setting. When inappropriate staff was imposed from the outside, there was little recourse other than to recognize that the team performance would be negatively affected until these individuals were replaced.

The Team Building tool is based on a cycle composed of four major stages: forming, storming, norming and performing. Successful team building requires attention to several key team activities at each of these stages, as described below:

- *Forming.* Introduce team members to each other; share background information, skills and areas of expertise; and discuss team objectives and resources in terms of available time and materials.
- *Storming.* Raise questions or concerns about the team task; discuss any feelings or reservations about the team or team member abilities to complete the assigned tasks; work in the team to address these concerns and negotiate mutually acceptable resolutions.
- *Norming.* Jointly agree on the standards and operating guidelines that will govern the team's work, and each team member's behavior; establish the norms that will guide the team's behavior (this aspect is particularly important because team members most likely will come from different functional areas and departments, all of which have their own procedures and practices).
- *Performing.* Accomplish the project work by achieving the desired results; monitor the conformance of the work with established schedules and budgets; make changes to existing plans (as needed); and share information about project progress and issues with the appropriate people.

To maintain team performance, these four stages of the team-building cycle should be repeated each time a new member joins the team. Figure IV.12 introduces the Team Building tool.

Figure IV.12. Team Building – Description

Team Building: Description

- **Purpose:**
 - To assist project practitioners in building and maintaining high performance teams
- **Description:**
 - A four-staged model of the team building cycle, including forming, storming, norming and performing, which identifies the key team building tasks at each stage and provides a place for documenting team progress on each task
- **Application:**
 - The people levels where team building is most useful include team, project organization, and inter-organizational, and the tool is useful throughout the entire project cycle

Figure IV.13. Team Building – Illustration

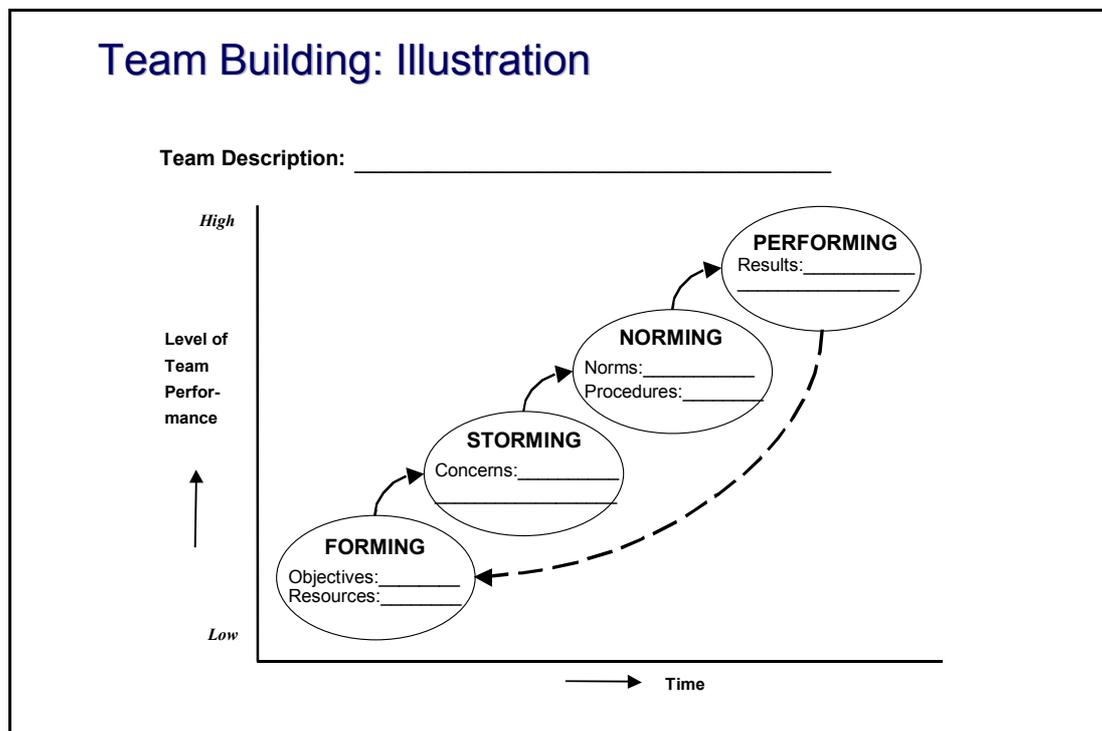


Figure IV.14. Team Building – How to Use

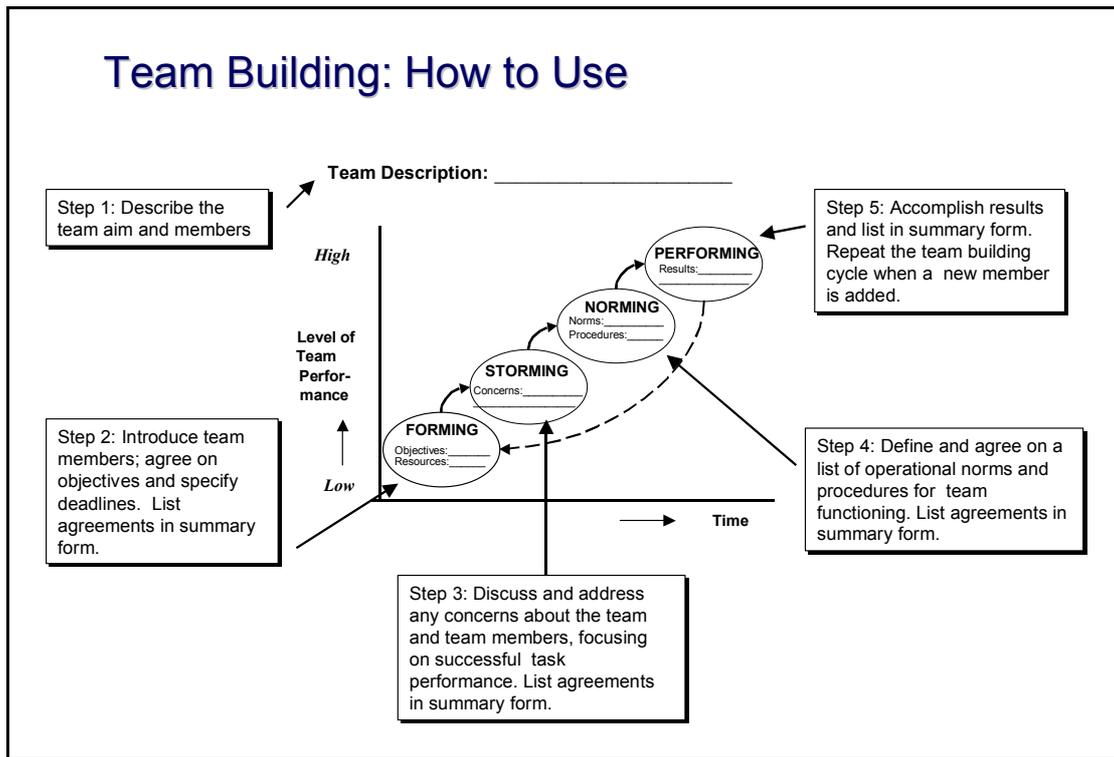
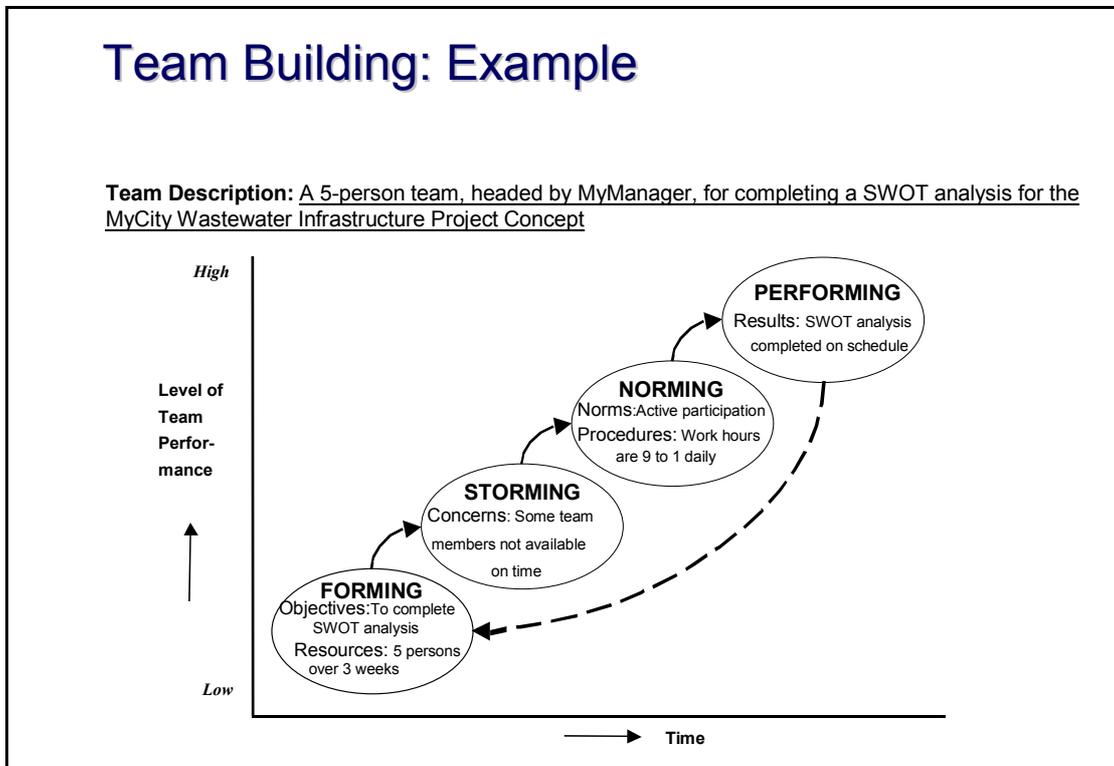


Figure IV.15. Team Building – Example



Principled Negotiation

Negotiation is a process of mutual discussion and satisfactory agreement related to a problem or concern. Negotiation involves dealing or bargaining with people with different interests or opinions. Negotiation in a project context occurs at several people levels: the interpersonal, the team, the organizational, and inter-organizational. As projects deal with many “give and take” situations between people where different interests are frequently involved, professional project managers are typically highly adept at the art of negotiation.

RIP uses a “principled negotiation” approach in its project management work (Fisher, Ury, and Patton 1991). Principled negotiation involves addressing common interests of the involved parties in the search for a mutually beneficial outcome that is founded on some objective standard. This approach to negotiation is characterized by acting with sincerity whether the other party is sincere or not; proceeding with reason; being open to the reasons of others; avoiding conflicts in handling conflicts among people; achieving results based on fair standards independent of the will and power of either party; and being soft on the people while being hard on the solution.

Principled negotiation has four main ideas: people, interests, options and criteria.

1. **People:** Separate the people from the problem
2. **Interests:** Focus on interests, not positions
3. **Options:** Generate a variety of possibilities for mutual gain
4. **Criteria:** Insist that the result be based on some objective standard.

These four ideas are applicable from the beginning to the end of any negotiation process.

In a project negotiation situation, RIP finds that it is useful to apply these ideas in three iterative stages. First, project managers or others initiating the negotiation process should *diagnosis the people and their interests* in the situation. One needs to

ensure that all the necessary people are included in the negotiation and that communication channels are open. It also involves listening to and understanding the other party's problems and constraints, including their emotions. This effort will allow both sides to present more reasonable alternatives for dealing with the situation.

In the second stage, project managers should *generate various alternatives that can lead to mutual benefits for both parties*. Here, it is useful to brainstorm potential alternatives. Seek out alternatives that have acceptable consequences for both parties. During the planning stage, you deal with the same four elements a second time by generating ideas and deciding what to do.

Finally, *seek an agreement based on a common standard* that both parties agree is necessary for achieving project results. At this stage, the project manager seeks out some objective result or principle that both parties agree is necessary for the project to be efficient and effective. For example, in the MyCity Project case, there was a difference of opinion regarding when team members should be in the office. One staff member wanted to come in late every day for family reasons. The objective standard that was agreed on by MyManager and the team members was that the team's work would not be sacrificed as a result of the staff member's tardiness. Once that agreement was reached, MyManager and the team could seek out alternatives that would have acceptable consequences for both parties without compromising the quality of the project team's work.

These three negotiation stages are captured in the RIP's Principled Negotiation tool as presented in Figures IV.16 through IV.19.

Figure IV.16. Principled Negotiation – Description

Principled Negotiation: Description

- **Purpose**
 - To assist project managers in reaching a satisfactory agreement, based on a common standard, between individuals with different interests by understanding the people involved, their interests, and options for mutual benefit
- **Description**
 - A matrix of key ideas and tips to follow in carrying out a principled negotiation along with blank spaces for capturing notes during the process
- **Application**
 - This tool can be used whenever individuals or groups take differing positions that affect a project’s design and implementation

Figure IV.17. Principled Negotiation – Illustration

Principled Negotiation: Illustration

Negotiation Situation: _____

| Principled Negotiation Ideas | Tips to Consider | Negotiation Notes |
|---|---|-------------------------------------|
| 1. <u>Separate The People From The Problem</u> | 1.1 Make sure that the other side is involved in the process 1.2 Communicate effectively by active listening and speaking with reason 1.3 Make your proposal consistent with other party’s values | 1.1 _____ 1.2 _____ 1.3 _____ |
| 2. <u>Focus On Interests Rather Than Positions</u> | 2.1 Reconcile interest, not position since interest defines the problem 2.2 Identify interest by asking why a particular position was taken and talk about it 2.3 Accept the legitimacy of the party’s position; accepting does not mean agreeing | 2.1 _____ 2.2 _____ 2.3 _____ |
| 3. <u>Generate A Variety Of Alternatives Before Deciding What To Do</u> | 3.1 Brainstorm potential options and alternatives 3.2 Broaden options by moving from general to specific and back 3.3 Create alternatives that can be easy to choose between and that have acceptable consequences | 3.1 _____ 3.2 _____ 3.3 _____ |
| 4. <u>Insist That The Result Be Based On Some Objective Standard</u> | 4.1 Frame each issue as a joint search for objective criteria 4.2 Never yield to pressure, only to principle 4.3 Avoid any pressure such as bribes, threats, or refusals to change positions. | 4.1 _____ 4.2 _____ 4.3 _____ |

Final Agreement: _____

Figure IV.18. Principled Negotiation – How to Use

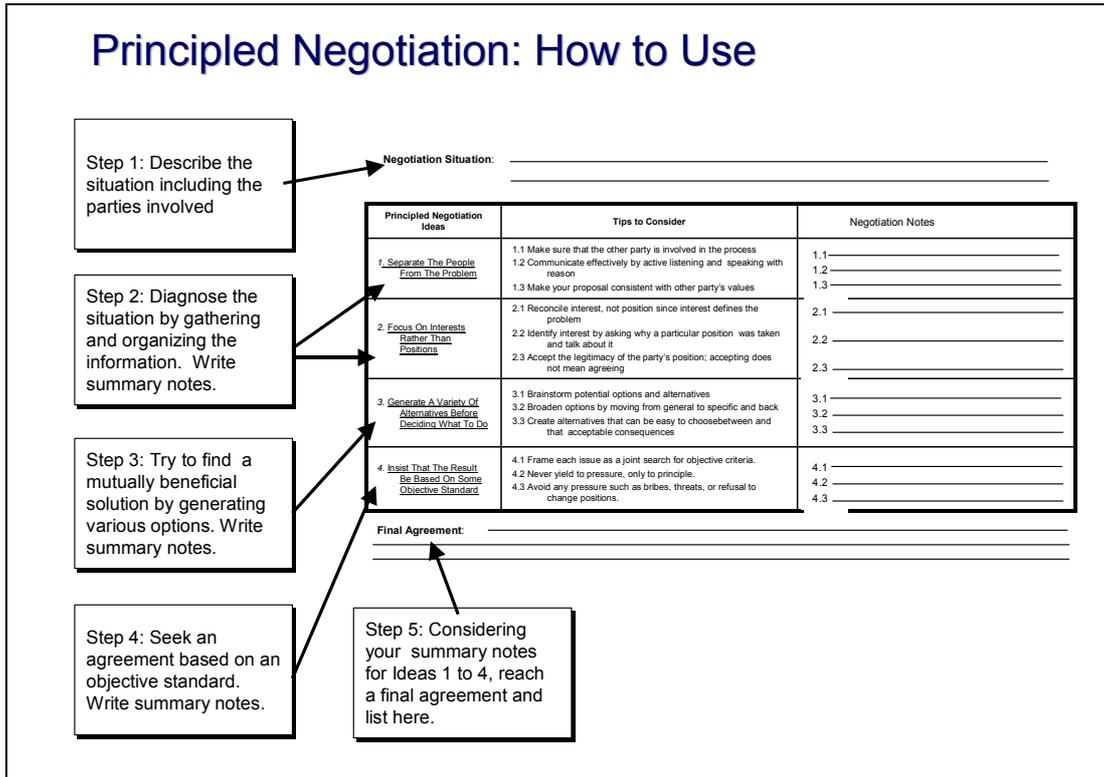
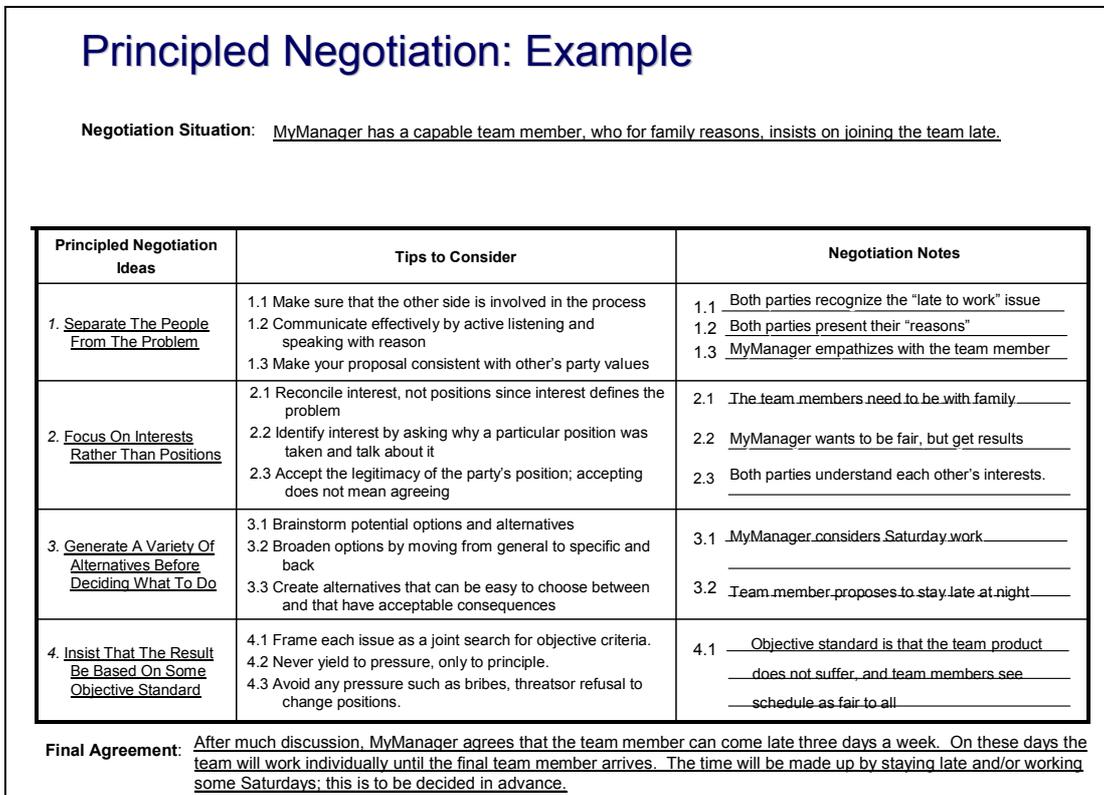


Figure IV.19. Principled Negotiation – Example



Leadership Sociogram

Leadership – the act or instance of guiding and directing – is not a lofty role reserved for elites “born” with “leadership genes” or for people with many years of education. Each person can be a leader at some point, or in some situations, provided he or she has a vision and the necessary skills to network effectively with others. Leadership deals with reflective learning, with assessing the actual situation and envisaging the future. In this sense, leadership helps people to stay adaptive in a continuously changing world. Leadership is not just about leaders; it is also about followers. Leadership relies on a unique and special trust between the leader and the followers. It is a reciprocal process that occurs between people. When at their best, leaders challenge the process, inspire a shared vision, enable others to act, model the way and encourage the heart (Kramer 2002).

In a project setting, leadership is important at several people levels: interpersonal, the team, organizational and inter-organizational. In our project management work in SEE, RIP has observed over and over again that managers and other project staff – when performing their leadership roles – are the people who have the greatest impact on project results. The RIP was curious about why this was the case and asked for professional guidance in understanding the dynamics of the leadership role. A RIP consultant, Dr. Robert Kramer of American University, suggested to us that the project leadership role is empowered by a leader’s “network of relationships.” If a leader’s network of direct and indirect relationships is extensive and deep, the leader will be highly effective in mobilizing the support and resources needed for designing and implementing a project.

The concept of a network of relationships contains several premises related to the two leadership tools – Leadership Sociogram and Investing in Social Capital – presented in this chapter. These premises include –

- *One person does not make a relationship.* If leadership is a relationship, it is not possible for leadership to equal a single person with no followers.

- *Only active people are followers.* Only people who are active in the leadership relationship are followers. Passive people have chosen not to participate in a relationship. Passive people are not followers. Passive people are non-players.
- *In the same relationship, followers can become leaders and leaders can become followers.* Sometimes we choose to lead and other times we choose to follow. People are not stuck in the same role all the time. In one situation, a person can be a leader, and in another situation, that person can be a follower.

In a project context, the leadership role is additive to the management role. Project managers take leadership roles when they are working through the networks of the relationships, or accessing their social capital.

Another term for a network of relationships is one's "social capital" (Baker 2000). If the human capital can be described as the sum of training, knowledge, skills and expertise represented by a group of people, social capital can be described as the network formed by these people, i.e., the size, diversity and nature of the relationships. The "social" in social capital emphasizes that these resources are not personal assets; no single person owns them. The resources reside in the network of relationships. "Capital" emphasizes that social capital is productive; it enables the project managers to create value, get things done and achieve project goals. In practice, "using" social capital means putting our networks into action and service for others. Social capital is analogous to financial capital. Social capital is a "fund of resources" available to draw on through one's personal and business networks. This fund includes resources such as goodwill, cooperation, trust, information, emotional support, and ultimately, even financial capital, power and influence.

Social capital is a key ingredient in the performance of a project manager's leadership role. Therefore, RIP set out to develop a tool for assessing the adequacy of the social capital in a project context. RIP also looked for a way to build or invest in social capital as a means of improving leadership performance.

RIP identified the "sociogram" diagram (2002) as an effective means of mapping, assessing and improving a leader's network of relationships. RIP calls the resulting

tool the “Leadership Sociogram.” Once constructed, the Leadership Sociogram illustrates one’s formal and informal network and depicts areas where a leader’s project network is adequate or inadequate. In RIP’s leadership exercises with project management staff from SEE, we found that most managers had extremely robust networks of relationships but had never thought about them as a “fund of resources for more effective leadership.” Similarly, most of the project management staff had not thought systematically about investing in the “social capital.” The next two tools, introduced in Figures IV.20 through IV.27, assist in both of these areas.

Figure IV.20. Leadership Sociogram – Description

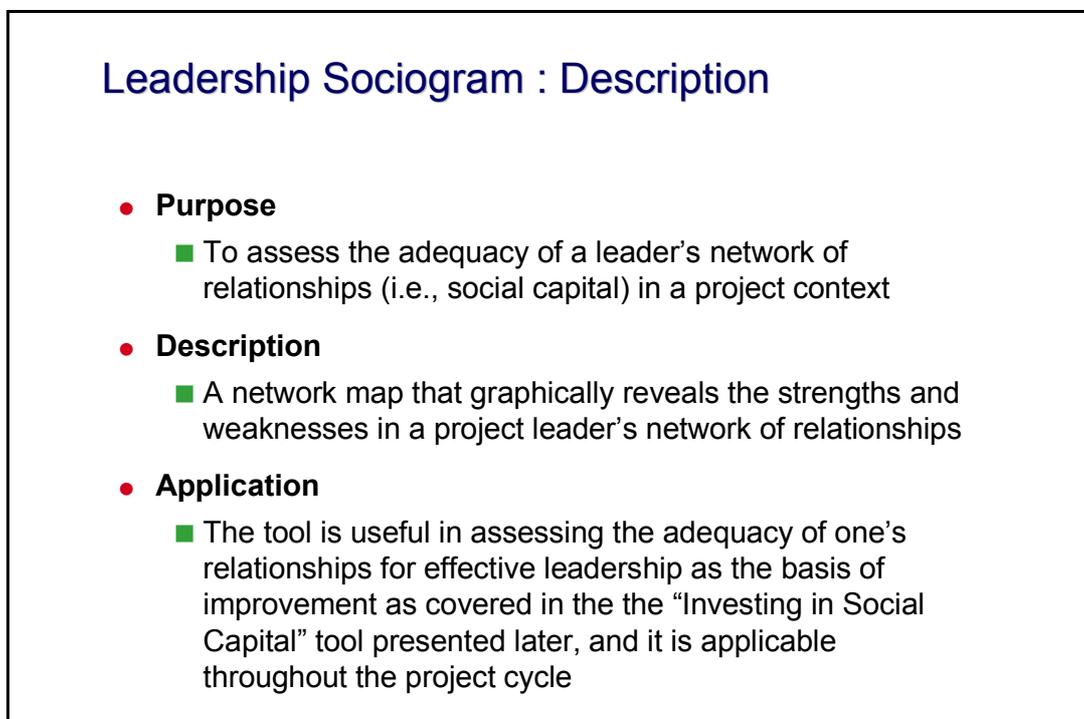


Figure IV.21. Leadership Sociogram – Illustration

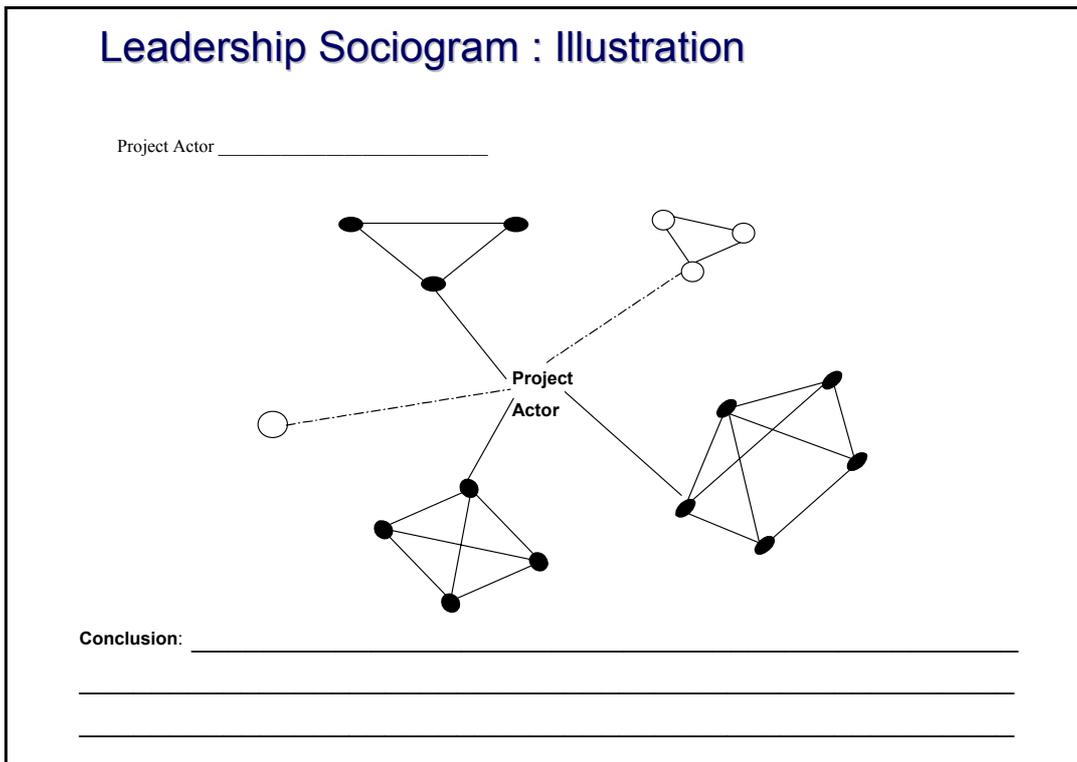


Figure IV.22. Leadership Sociogram – How to Use

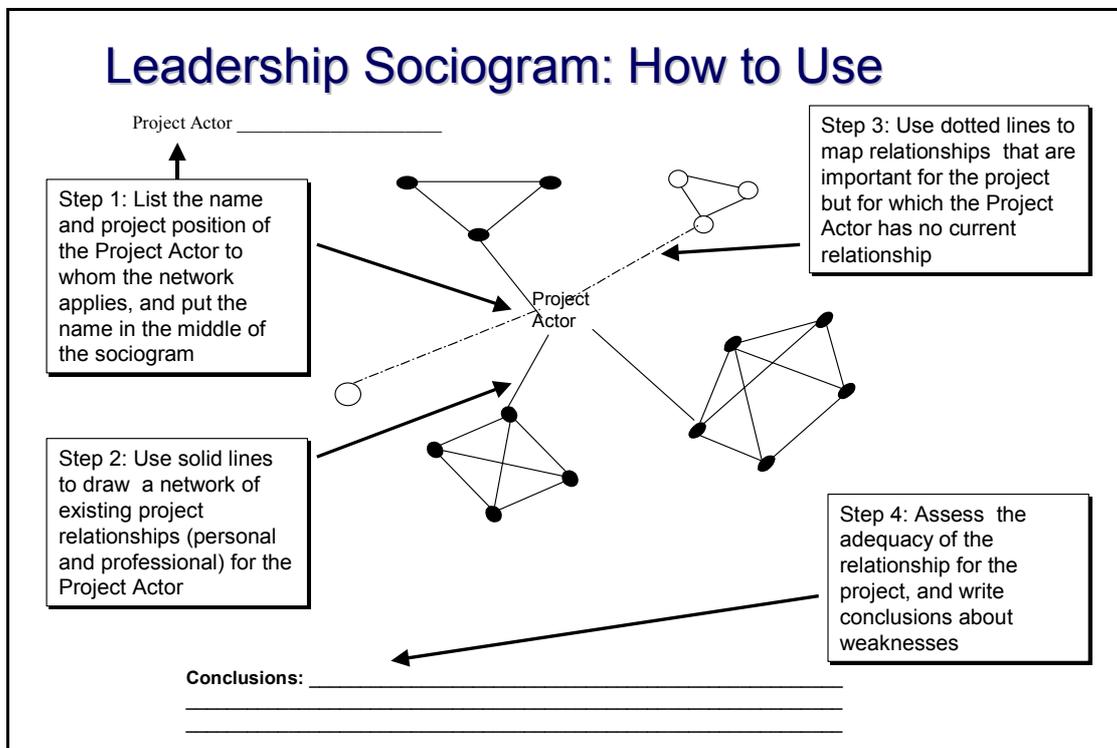
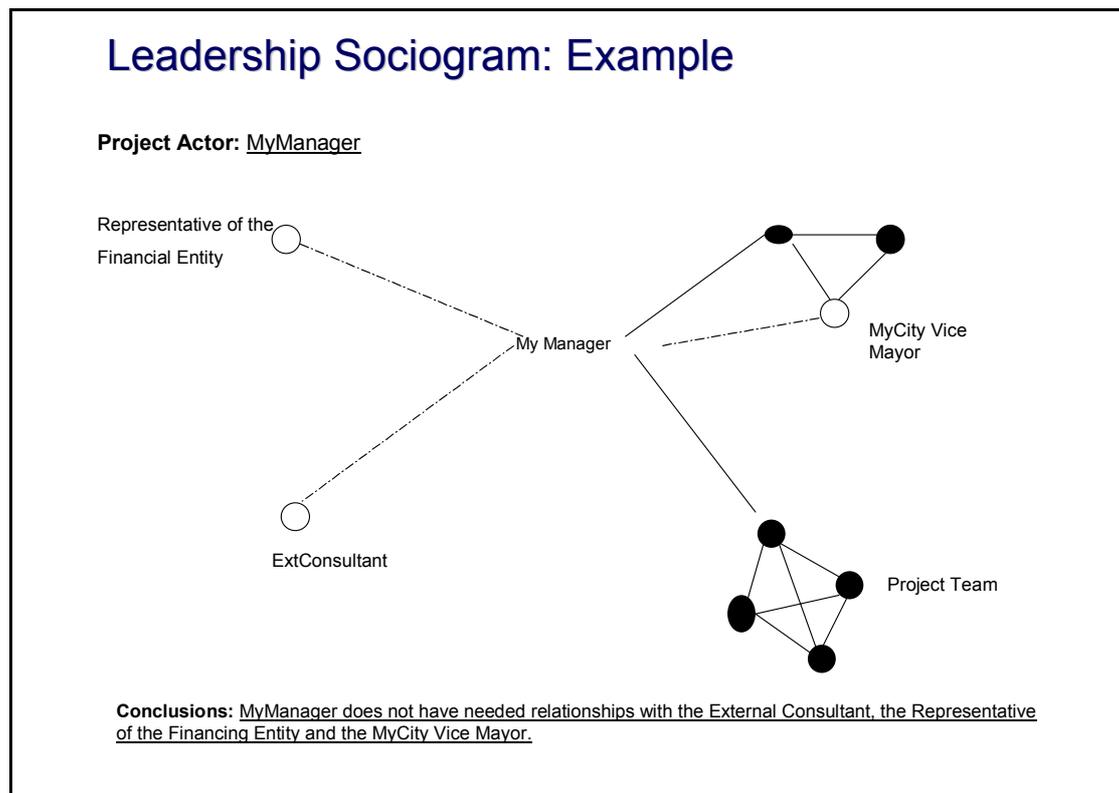


Figure IV.23. Leadership Sociogram – Example



Investing in Social Capital

Good project leaders are social capitalists!

As mentioned in the introduction to the Leadership Sociogram tool, a leader's social capital is synonymous with the leader's network of interpersonal relationships. The size, the diversity and the nature of this network of relationships are indicators that differentiate between highly effective and less effective leaders.

The Investing in Social Capital tool is intended to help project managers and others – while performing their leadership role – to strengthen weak areas in the network, and invest in additional forms of social capital. The focus of this tool is to strengthen relationships related to the following project people – all of them necessary for project success:

- Persons or groups that need to provide inputs for the project
- Persons or groups that are important sources of information for the project

- Persons with formal or informal leadership roles in teams and organizations
- Persons or groups that have functional expertise in areas related to the project
- Other project stakeholders from whom the project needs political and financial support.

The following are commonly used practices that project leaders can use to increase or “invest in their social capital”:

- Reach beyond project organizations by becoming a key person in external networks of different organizations.
- Take advantage of training and educational opportunities with people from other organizations and related professions.
- Join multi-functional committees, task forces, teams or new associations.
- Sit in the “right place,” i.e., make as many relationships as possible with new people that may be important to your professional success in the future, during the project and beyond.

The Investing in Social Capital tool is presented in Figures IV.24 through IV.27.

Figure IV.24. Investing in Social Capital – Description

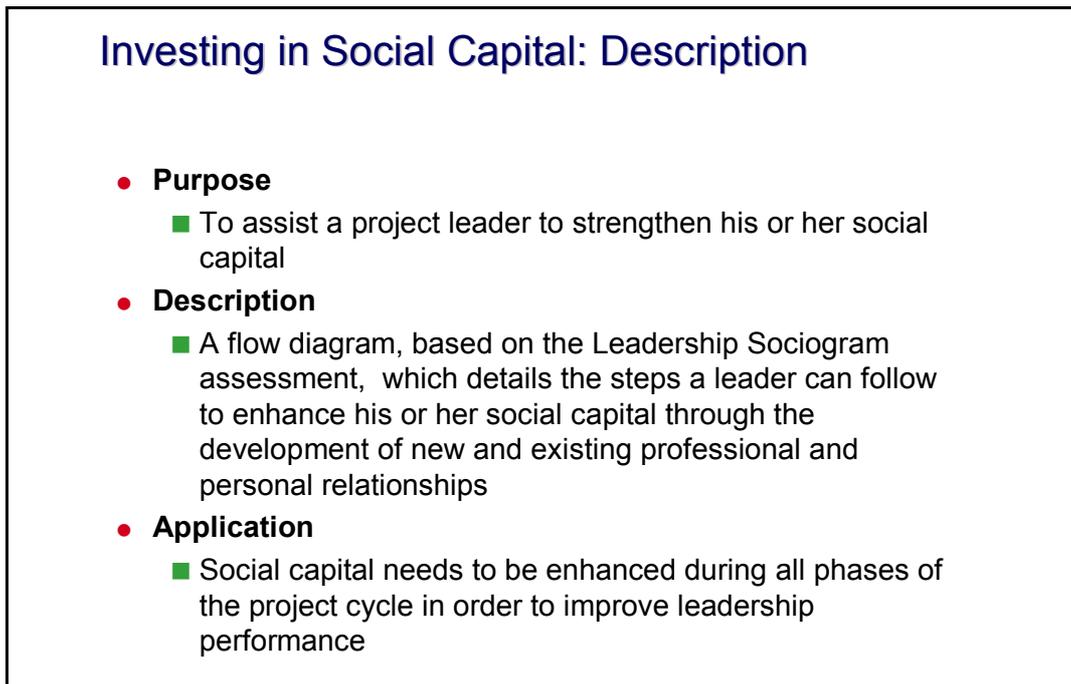


Figure IV.25. Investing in Social Capital – Illustration

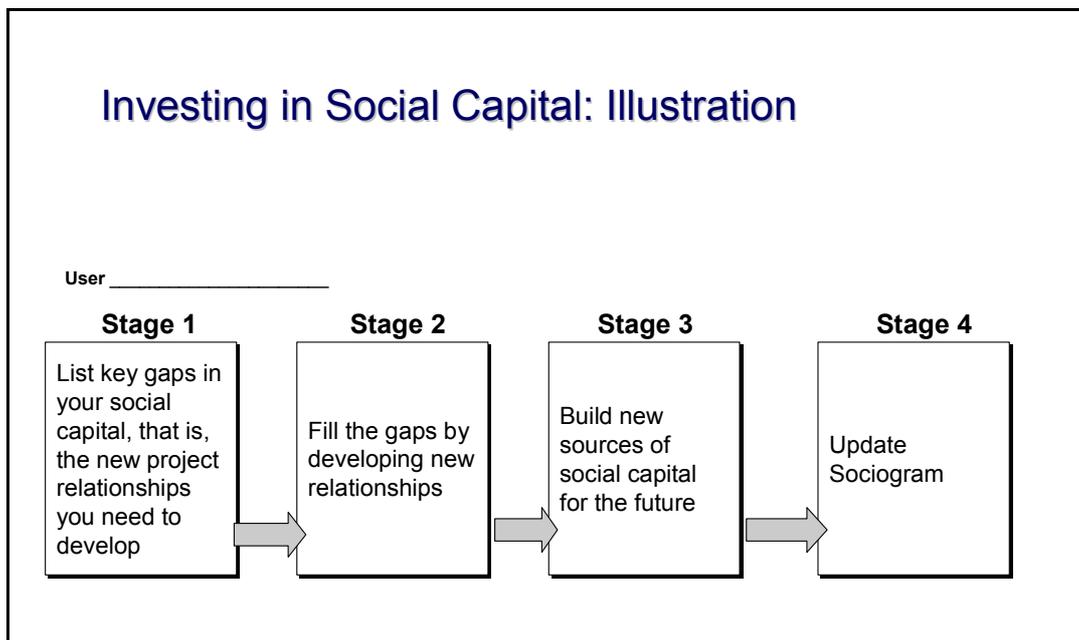


Figure IV.26. Investing in Social Capital – How to Use

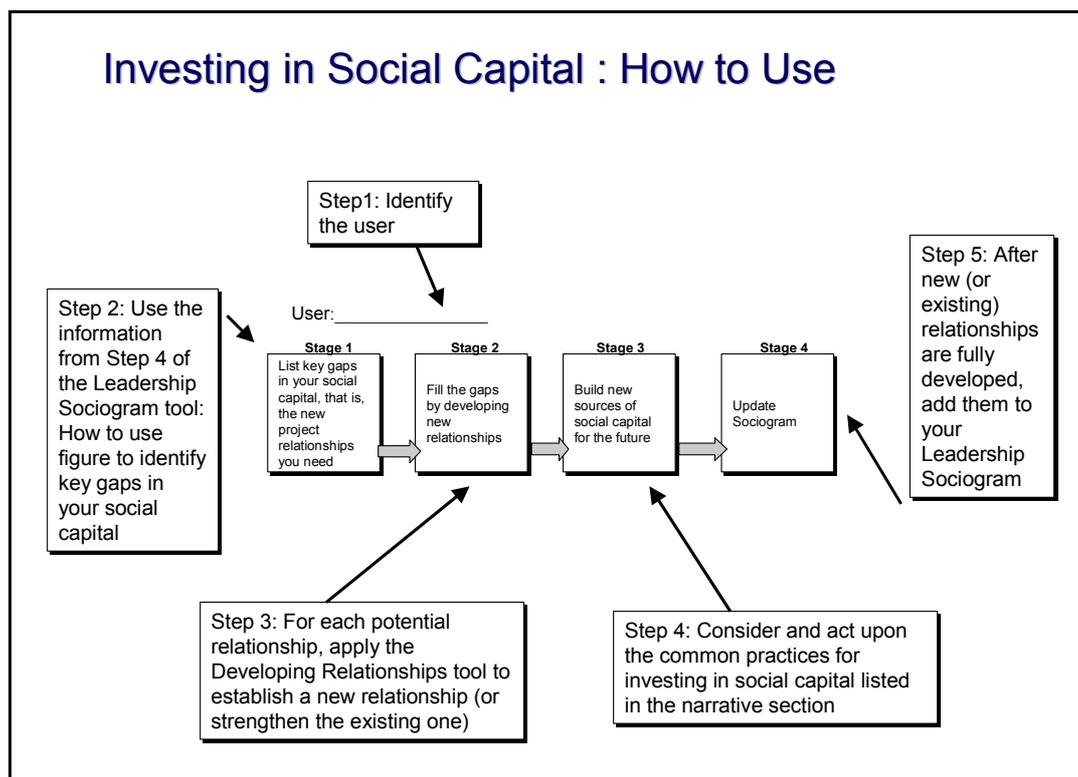
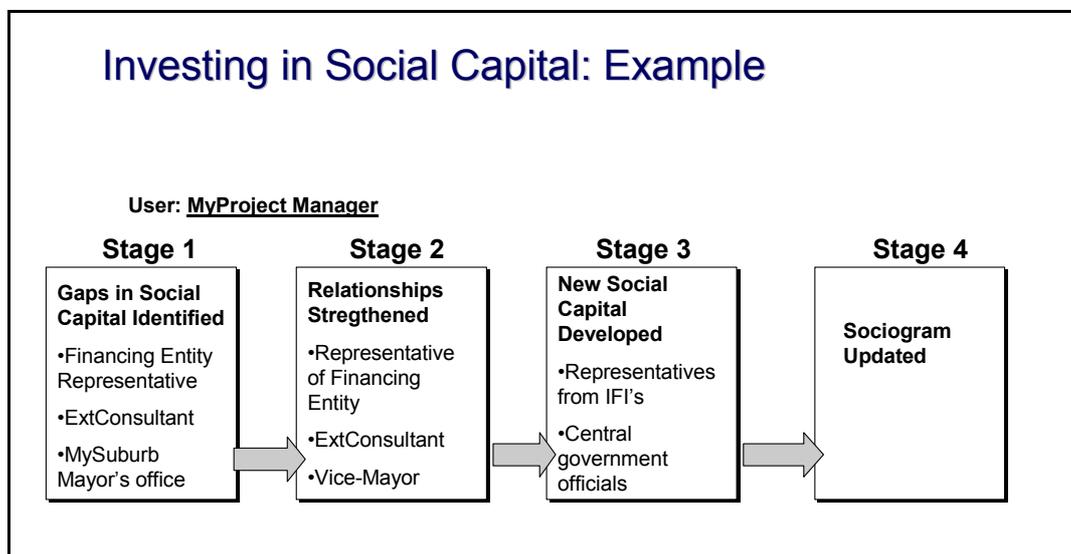


Figure IV.27. Investing in Social Capital – Example



Participation Choice

When projects are designed and implemented in a strategic and program context, they invariably encompass an “inter-organizational” people component. Project managers frequently work with managers or technical specialists in other projects or

organizations that directly or indirectly affect the project manager's ability to achieve project objectives. For example, the MyCity Wastewater project staff interact with officials in other infrastructure and environmental improvement projects in the MyCity region. Interests of other stakeholder groups at the regional, national and trans-national level also may require the project manager's attention.

This section introduces a management tool, *Participation Choice*, which helps a manager choose how to interact with people whose interests are affected by the project. It focuses on the "participation" role of the project manager. It assists a manager in determining what type of participation to promote in a given situation.

Participation is defined as "a process through which stakeholders influence and share control over development initiatives and the decisions and resources that affect them" (World Bank 1996b). Participation serves several main functions: information sharing, collaboration, joint decision making, and empowerment (Brinkerhoff and Crosby 2002). These functions can be adapted to a project context. *Information sharing* is a one- or two-way flow of information. In information sharing, participation might involve informing concerned groups about government policy decisions that have already been taken and their likely impact, or it might involve obtaining feedback on proposed project actions. In *collaboration*, participation might involve interactions with citizens or organizational representatives to discuss options related to a proposed project decision so the decision could be adapted to their needs and expectations. In *joint decision making*, concerned groups might directly participate in the decision-making process by giving representatives a voting position on determining project decision outcomes. Finally, in *delegated decision making*, participation involves the delegation of decision-making responsibility and control over one or more decision elements in a project to a group outside of the project.

How can a project practitioner select the most appropriate type of participation for a given situation? First, by becoming more familiar with the characteristics of the four different types of participation just introduced.

Information sharing. This type of participation is involved when it is important for certain groups to be informed of the project's status and potential impact so as to enhance the transparency and legitimacy of the project decision. It also is used to gain a better understanding of stakeholders' needs and to generate options for addressing them. This participation mode allows project managers and others to elicit opinions from various stakeholder groups as input to decisions being made by the project. The information-sharing method relies on traditional methods such as newsletters, town or municipality meetings, informational briefings and surveys as well as more modern methods such as Internet Web sites and e-government.

Collaboration. This mode, which involves external actors in problem solving, is appropriate when a stakeholder is a critical partner in the project, and when the project decision maker acting alone cannot make an effective decision. This type of participation includes working groups, joint implementing bodies, partnership initiatives between public and private bodies or NGO sectors, local development trusts, etc.

Joint decision making. This type is most useful when the stakeholders bring or control unique resources or provide particular added value to the project. In this case, the decision-making powers are shared between two or more parties. This type should be involved if the stakeholder group's input is likely to be critical to the project success. Examples of this type include planning teams, steering groups, joint government/stakeholders workshops, etc.

Delegated decision making. This method should be involved when it is important that stakeholders take ownership of and feel responsible for some part of the project. This type empowers other parties to decide totally or partially on some decision related to the project. This type includes narrow-range groups, such as neighborhood committees, and broader-range groups, such as professional associations.

The project manager will select from among these types of participation by considering benefits and costs associated with each type.

The Participation Choice tool incorporates three primary benefits related to participation including—

1. *Responsiveness*. The project becomes more responsive to stakeholders needs. This may result in a better project and savings in time and money.
2. *Resource Access*. Resources required by the project can be obtained, e.g., information, expertise. For example, a neighborhood group may have completed a survey with important information. However, the group may be unwilling to release that information unless they are involved in decisions regarding how it is used.
3. *Ownership*. Stakeholders develop sufficient levels of ownership or commitment to the project and its objectives. Project support grows. Strong advocates may emerge. Disputes may be avoided.

There are also costs of participation. The Participation Choice tool identifies three types of costs of participation:

1. *Complexity*. Decisions may become more complex and delayed as a result of additional participants and information.
2. *Resources Required*. Managing participation requires resources, such as materials, staff time and capacity to interact with stakeholders and follow through on commitments. Encouraging input into the decision process can lead to rising expectations and possible disillusionment if expectations are not met.
3. *Loss of Control*. Project decision makers may lose some control over project elements.

The benefits and costs vary across the four major types of participation and the participation situation. In addition, the perception of benefits and costs will vary between the project staff and the stakeholders.

Although participation can lead to better decision processes and outcomes, it is not a panacea for success. Participation has costs as well as benefits for both project

decision makers and participants. It should be managed accordingly (Brinkerhoff and Crosby 2002).

One of our RIP consultants, Pat A. Fn'Piere, emphasized that the critical question in participation choice is: Will the benefits of increased participation outweigh the costs? The Participation Choice tool addresses this question about benefits and costs. The tool is presented in Figures IV.28 through IV.31.

Figure IV.28. Participation Choice – Description

Participation Choice: Description

- **Purpose:**
 - To help decision makers in determining which type of participation is most appropriate for a given project context
- **Description:**
 - A matrix that facilitates an assessment of the major benefits and costs associated with four types of participation resulting in average cost-benefit rankings as an aid to decision making
- **Application:**
 - The tool can be used throughout the project cycle where project decision makers are considering a participatory approach

Figure IV.29. Participation Choice – Illustration

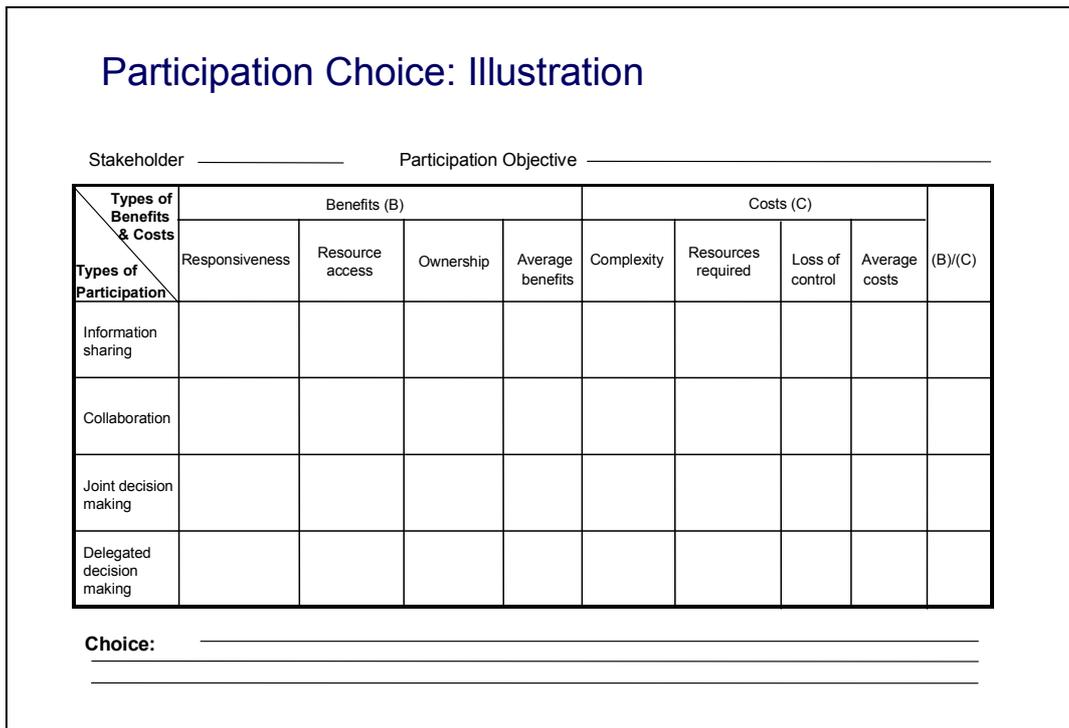


Figure IV.30. Participation Choice – How to Use

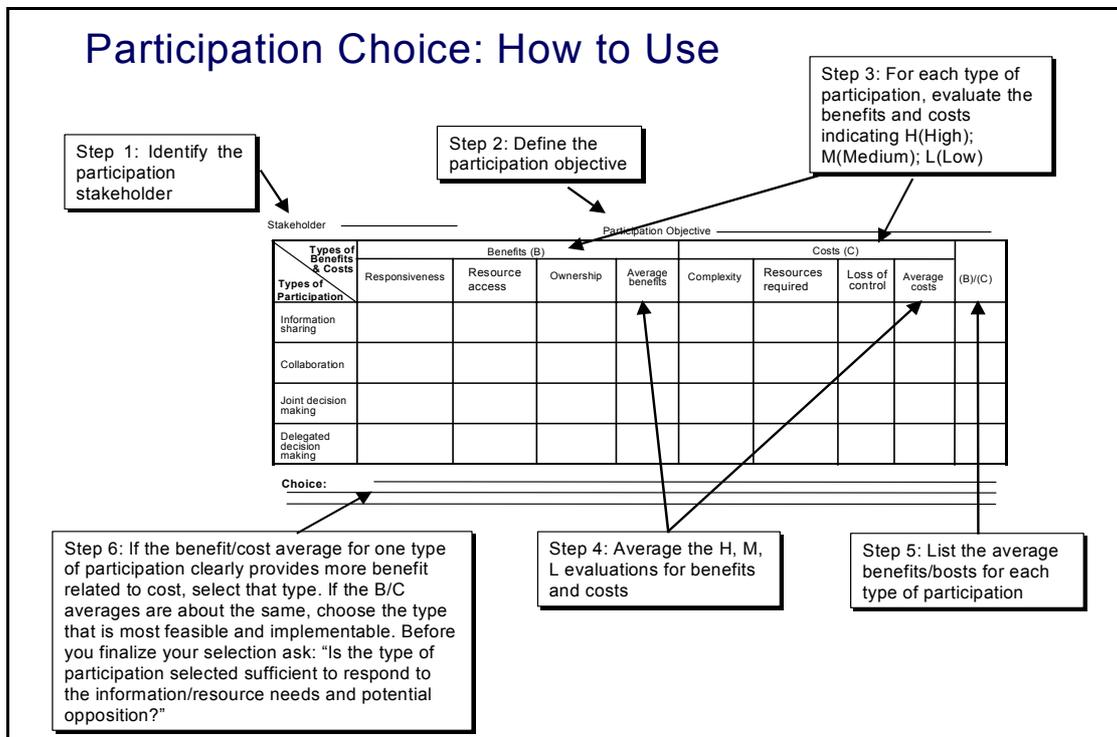
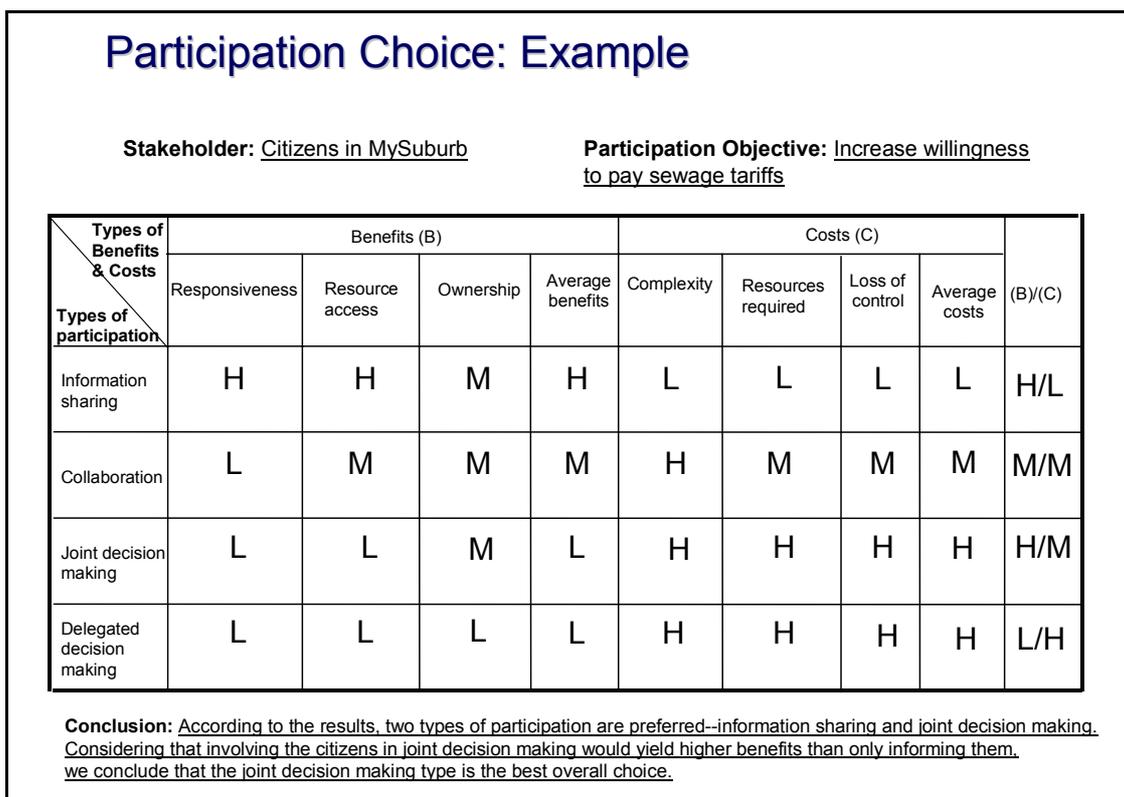


Figure IV.31. Participation Choice – Example



Conclusion

This chapter focuses on people in a project context. The people dimension is important at several levels – the personal, the interpersonal, the team, the organizational and the inter-organizational. Managing people effectively at each of these people levels is a central attribute of successful projects.

Project managers can use a variety of tools for managing their people relationships. The PMToolkit introduced seven people tools to assist project managers in the people management domain including –

- Personal Quality Self-Assessment
- Developing Relationships
- Team Building
- Principled Negotiation
- Leadership Sociogram

- Investing in Social Capital
- Participation Choice.

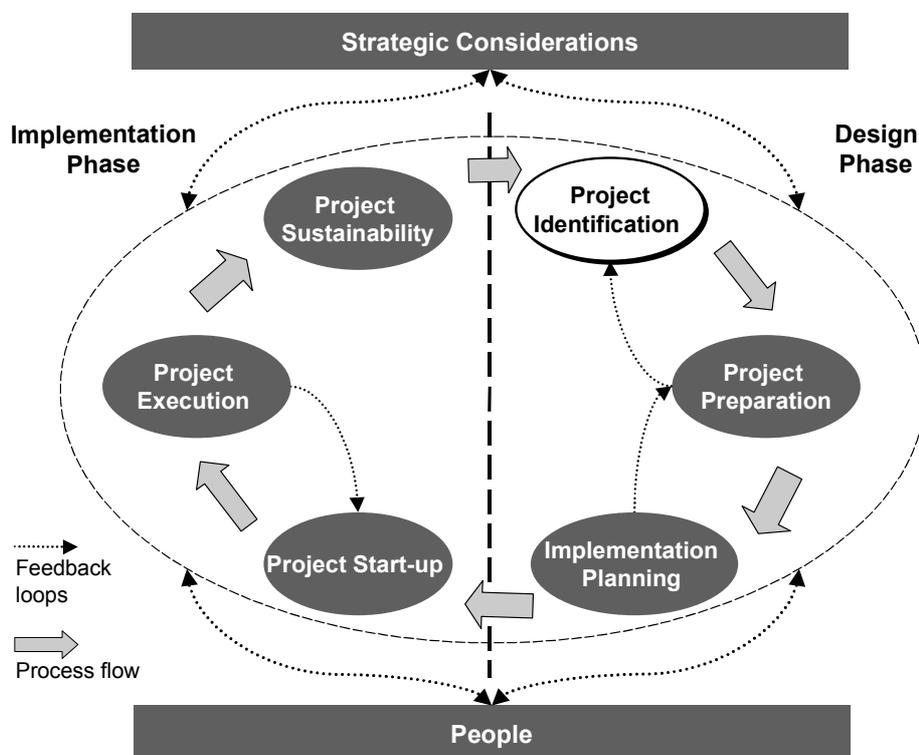
People are important in projects, and the people tools introduced here can assist managers in considering the needs of “whole persons” throughout all stages of the project life cycle. As noted in the *Fifth Discipline Field Book*, “Any organization hoping to attract the best (employees) to them has no choice but to permit the display of human feelings in the work place, with considerations, but also with full acknowledgment of the whole person at work, not just his role” (Senge 1994).

CHAPTER V: PROJECT IDENTIFICATION

Overview

During Project Identification, which is the first stage of Project Design, the project concept is analyzed and elaborated. Alternatives are explored, particularly when issues of stakeholder ownership, pre-feasibility and financing are surfaced during the Strategic Considerations assessments as discussed in Chapter III. The location of Project Identification in the RIP Project Management Framework is diagrammed in Figure V.1.

Figure V.1. PMToolkit Project Management Framework – Project Identification



During Project Identification, practitioners should ask themselves four questions:

1. What are the overall rationale and objectives for the project, and do the stakeholders pursuing or affected by the results of this effort truly “own” the project concept?

2. Is the project relevant? If so, for whom? The government? The potential beneficiaries? The potential financial institutions – international, donor, government or private sector?
3. Can the project be effective, efficient and implemented? What potential pre-feasibility impediments are presented, and how do these factors influence the potential for success of the effort?
4. All things considered, is it advisable to allocate additional resources to move forward with a more detailed project design effort – specifically to proceed to the Project Preparation stage?

Answering these questions encourages the practitioner to rigorously define and clearly state the intended “end results” of the project under consideration. Measures of ownership, relevance, effectiveness, efficiency, implementability and sustainability should be designed into the identified project to ensure that the project can accomplish its intended results within acceptable levels of risk to the public, the sponsors, and the project manager.

Template: Project Proposal Document (PPD)

The organizing template for the Project Identification stage is the Project Proposal Document (PPD). The PPD template contains all necessary elements for a “fundable” project, i.e., a project that a bank or other financing entity would agree to consider for investment financing following more detailed Feasibility Analysis and Appraisal. The version of a PPD presented in the PMToolkit was developed by the RIP team based upon extensive review of the various project identification proposal requirements of the IFIs and other entities actively funding infrastructure projects in SEE. The aim of the RIP review was to develop a template that would meet the requirements of most funding entities, thus freeing the practitioner from having to “recreate” a unique response for each new project proposal. The PPD template presented here has been successfully used in several RIP projects during 2002 for obtaining IFI and government commitments for project financing.

The PPD template is presented along with the instructions for its completion. The PPD template serves as a general guideline for developing a proposal for a “fundable” project. The template may be modified to fit the specific requirements of the proposing entity or financing institution. Such guidelines are generally found in the Request for Proposal (RFP), Request for Application (RFA), or Request for Quotation (RFQ) published by the funding entity.

Table V.1. The Project Proposal Document Template

| PROJECT TITLE Project Proposal Document | | | | |
|--|-------------------|---------------------------|-------------------|---------------|
| <i>A. Project Summary Sheet</i> | | | | |
| Proposal Date: | | Proposing Entity: | | |
| Proposed Project Start Date: | | Proposed Project End Date | | |
| Sponsor: | | Sector: | | |
| Implementing Entity: | | Beneficiary Groups: | | |
| Financing Entities | | Guarantors: | | |
| Summary Project Description | | | | |
| Financing Plan and Source | Type of Financing | Local (mil USD) | Foreign (mil USD) | Total mil USD |
| | | | | |
| | | | | |
| Project Financing Totals | | | | |
| Approval Timetable: | | Project Proposal Review: | | |
| | | Project Appraisal: | | |
| | | Final Approval: | | |
| Other Summary Information: | | | | |

B. Strategic Context

1. **Project background and context including regional and country policies and strategies**
[Note: Summarize assessments of key regional policies and the country’s strategy to address them, referencing sector and other relevant studies of sponsor and financing entities.]
2. **The broad national, program or sector goals that the project supports**
[Note: Copy from PPD, Annex 1: Logical Framework “Goals” and “Goal Indicators”]
3. **Key project issues**
[Note: Of the issues identified in B.1, specify those that are most critical for the proposed project, indicating the strategic options, e.g., private vs. public techniques, etc., as assessed in the sector and policy work related to the project.]

C. Project Rationale

1. **Problem or needs that the project will address**
[Note: Provide a brief (not to exceed 25 words) description of the key target population needs or problem to be addressed by the project]

2. Project alternatives considered and proposed solution/approach including a justification

[Note: Summarize the major project alternatives considered for resolving the project problem, and provide description of Participatory approach and **stakeholder** commitment trade-offs. If appropriate, include an alternative tree diagram that highlights selected project solution.]

[Note: List key players for project design, implementation and sustainability, and how they have participated along with their level of ownership and support for the project.]

| <u>Key Stakeholders/Beneficiaries:</u> | <u>How Involved?:</u> | <u>Commitment?:</u> |
|--|-----------------------|---------------------|
| | | |
| | | |
| | | |

3. Major related projects or activities and how they are linked

| <u>Related Projects (Planned or Ongoing):</u> | <u>Important Linkages:</u> |
|---|----------------------------|
| | |
| | |
| | |
| | |

4. Reflections in proposed project of lessons learned from relevant projects

| <u>Previous Projects:</u> | <u>Lessons Learned:</u> | <u>Implications:</u> |
|---------------------------|-------------------------|----------------------|
| | | |
| | | |
| | | |

D. Project Description Summary

1. Project purpose and indicators for monitoring and measuring impact

Annex 1: Logical Framework “Purpose” and “Purpose Indicators”

2. Quantified outputs/products the project will generate

Annex 1: Logical Framework “Outputs” and “Output Indicators”

3. Project components, activities and inputs with related costs

Annex 1: Logical Framework “Activities/Components” and “Inputs/Resources”

4. Implementation plan including schedule

Note: Summarize key features of project implementation plan. If appropriate, include bar chart diagram with responsibility listing

E. Results of pre-feasibility assessment

1. Economic

[Note: Indicate reasons why project is likely to be sound from an economic perspective, and issues requiring attention during preparation (e.g., cost-effectiveness, Internal Rate of Return (IRR), efficiency of technical approach)]

2. Financial

[Note: Indicate reasons why project is likely to be sound from a financial perspective, and issues requiring special attention during preparation (e.g., cost recovery, cost controls, accountability)]

3. Technical

[Note: Indicate reasons why project is likely to be sound from a technical perspective, and issues requiring special attention during preparation (e.g., appropriate technology, standards)]

4. Environmental

[Note: Indicate results of initial environmental screening, and issues requiring special attention during the EIA process]]

5. Institutional and managerial

[Note: Indicate reasons why project is likely to be sound from an institutional and managerial perspective, including ownership and commitment of stakeholders, the capacity of the project organization, and related issues]

6. Social

[Note: Indicate reasons why project is likely to be sound from a social perspective, and issues requiring special attention during preparation (e.g., gender issues, involuntary resettlement, impact on vulnerable groups)]

F. Risks and Sustainability

1. Critical Risks

| <u>Assumptions/Risks in the fourth column of PPD, Annex 1</u> | <u>Risk Rating</u> | <u>Risk Minimization Measure</u> |
|---|--------------------|----------------------------------|
| PPD Annex 1, cell "from Outputs to Purpose" | | |
| PPD Annex 1, cell "Inputs to Outputs" | | |
| Overall Risk Rating | | |

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

2. Factors critical for sustainability of project benefits

[Note: Flag the factors in the project that will contribute to the sustainability of project benefits.]

G. Project Preparation and Final Approvals

1. Project preparation activities, schedule and financing arrangements

- a. Define detailed project profile that includes background information, strategic context and linkages, work plan specifications and key milestones, general procurement and contracting strategy
 - Critical tool for also guiding stakeholder consultation and management
- b. Feasibility analysis and other financial, socio-economic, and institutional studies to determine viability and impact
 - Institutional analysis is important to determine capacity of administrative unit to design, manage, supervise, and monitor project, which will be important to investor confidence
- c. Stakeholder management plan that identifies primary and secondary stakeholders and analyzes key issues, opportunities for coalition building, constraints that could impede implementation, and strategies that capitalize or remedy issues
- d. Procurement and contracting strategy that is linked to study findings, local policy and regulations and type of project
 - Form working group to design RFP or define specifications for contracting RFP development to technical expertise
 - Prepare/modify model or sample contracts for inclusion in RFP
 - Procurement planning and key milestones
- e. Procurement implementation
 - Pre-qualification process
 - Competitive tendering process

2. Contracting requirements for project preparation and implementation

[Note: This section summarizes key contracting actions required during project preparation and implementation, and issues requiring attention during preparation. The following checklist can be used to define detailed contracting requirements.]

- a. Contract preparation
 - Standard terms and conditions
 - Design specifications and work plan implementation
 - Products, deliverables, and reporting
 - Performance and cost monitoring standards
 - Payment conditions
 - Dispute resolution
- b. Contract types
 - Preliminary analytical studies (i.e., pre-feasibility and detailed feasibility)
 - Technical design and final drawings
 - Construction works
 - Supervision of construction process and coordination of phased approvals
 - Operation and maintenance

3. Required final approvals and dates

[Note List approvals and dates, and any anticipated concerns.]

Annex 1: Logical Framework Summary Matrix

ANNEX 1: LOGICAL FRAMEWORK SUMMARY

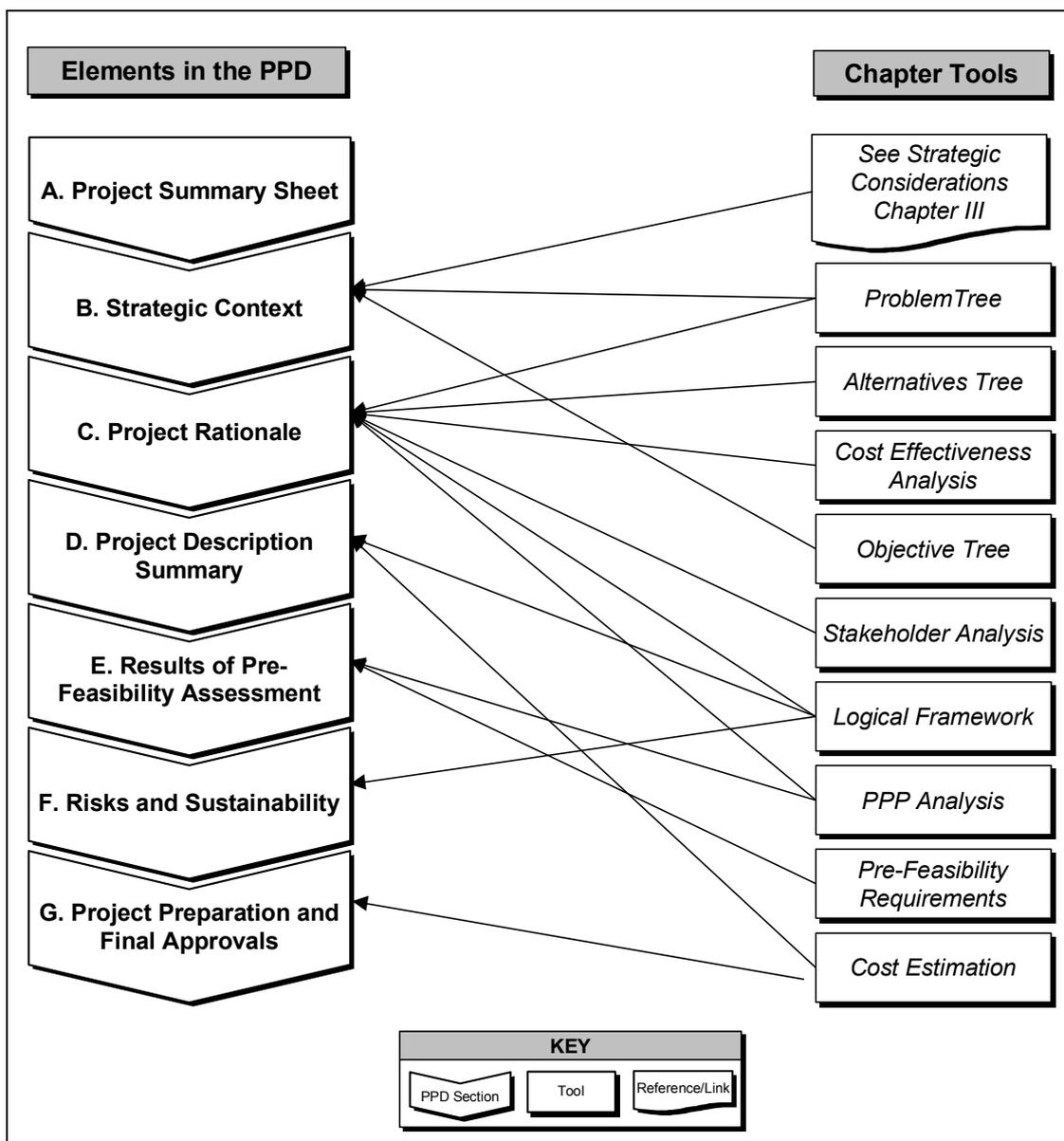
Project Title: _____ Date: _____

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|--|-----------------------------------|-----------------------|------------------------------------|
| <u>Goals:</u> | | | <u>Goals-to-Higher Objectives:</u> |
| <u>Purpose:</u> | | | <u>Purpose-to-Goals:</u> |
| <u>Outputs:</u> | | | <u>Outputs-to-Purpose:</u> |
| <u>Activities by Component (Inputs):</u> | <u>Inputs/Resources:</u> | | <u>Inputs-to-Outputs:</u> |

Tools in Perspective

Each stage of the project cycle has an appropriate set of project management tools aimed at completing the template related to that stage. Specific tools used in the Project Identification stage for completing the PPD template are listed below in Figure V.2. These tools will be described in detail during the remainder of this chapter. The tools are presented in the order recommended for use in elaborating elements of the PPD template.

Figure V.2. Using the Tools to Complete the PPD



Each Project Identification tool is described in Table V.2.

Table V.2. List of Tools

| Tools | Description |
|--------------------------|--|
| Problem Tree | An analytical technique for diagramming problems or issues in a hierarchical order using cause and effect logic |
| Alternatives Tree | An analytical method for generating and displaying alternative project solutions related to the project Purpose, and stakeholder Goals, in the form of cause and effect hypotheses |

| Tools | Description |
|--|---|
| Cost Effectiveness Analysis | A comparison matrix which lists project alternatives and allows for their ranking based upon estimates of cost, effectiveness and the probability of success |
| Objective Tree | An analytical method for defining the desired Outputs, Purpose and Goals of a project and the cause-effect relationships between them |
| Stakeholder Analysis | A matrix which lists key stakeholder groups, identifies their interest related to the project as either beneficiaries or losers, and identifies strategies for gaining stakeholder support |
| Logical Framework | A Summary 4 by 4 matrix which summarizes the key interlocking elements of a project; the Vertical Logic encompasses the Narrative Summary and Assumptions columns |
| Public-Private-Partnership (PPP) Analysis | A checklist for determining whether the necessary PPP requirements are in place as the basis for recommending an appropriate PPP arrangement |
| Pre-Feasibility Requirements | A required set of pre-feasibility questions that should be addressed during Project Identification to assess the initial soundness of the project and identify issues for more in-depth feasibility study |
| Cost Estimation | A narrative table for listing resources/inputs required to carry out project Activities along with their initial cost estimates |

MyCity Project Case: Project Identification

The Wastewater Infrastructure Project being considered by the MyCity Government to deal with groundwater pollution problems has both infrastructure and institutional components. The infrastructure component includes construction of 20.7 kilometers of wastewater collectors for the approximately 50,000 residents of MySuburb. These collectors will be linked to MyCity's sewerage system through a new 2-km hydrological tunnel. The institutional component consists of four elements: 1) the development of a local policy for environmental protection; 2) the introduction of a new tariff system; 3) the implementation of a public relations campaign; and, 4) the execution of related project management activities. The estimated cost of the project is EUR 12 million. MyCity would like to get all relevant permits in 2002, tender in 2003, begin construction in 2004, and complete the project by 2005.

Changes in the Project Context

The Water and Sewerage Company of MyCity, the citizens of MySuburb, the City Council, the EEPA and the EuroBank have demonstrated an interest in the proposed MyCity Wastewater Infrastructure project.

In January 2002, the City Council contracted through a competitive bidding process a local consultant firm, Quality Consult Ltd., to develop the PPD and appointed the Project Steering Committee to monitor and support this activity. A representative of the EEPA was nominated as government's representative in the Steering Committee. After the PPD was reviewed and accepted by the Steering Committee, the City Council and the Ministry of Water and Environment approved it. The proposed project has priority under the current national environmental standards of EurLandia as spelled out in the National Environmental Action Plan and the Local Environmental Action Plan. A Project Management Unit (PMU) was established under the Department of Infrastructure of the Mayor's Office.

According to the PPD, the national government and MyCity Government will co-finance the project with 8,3% (5,9% local and 2,4% central) of total investment. This co-financing arrangement reinforces the proposer's position relative to EuroBank's interest for this project.

SWOT Analysis Update

The co-financing arrangement of the central and local governments strengthens the project's prospects for securing international financing.

Setting up the PMU will increase the government's management capacity, thereby increasing the project's chances for successful implementation.

The project could be either strengthened or weakened by increasing the number of stakeholders involved in project identification. On one hand, it will increase the level of stakeholder understanding and commitment to the project, and on the other, their participation and coordination may impede the decision-making process.

A potential threat to the project is that political circles at local and national levels might not readily accept the PMU's autonomy.

Finally, the eventual erosion of the current amicable relations between the local and national governments could also be a potential threat.

Best Practices

The participation of the EEPA representative in the Project Steering Committee increases the trust and commitment of the national government.

Hiring an experienced professional consulting firm to produce a "fundable" PPD was deemed the most appropriate course of action to ensure project success at reasonable cost.

Concluding Statement

In this stage of the project, the Local Council of MyCity decided to launch the MyCity Wastewater Infrastructure Project. The Local Council of MyCity involved key stakeholders in the decision-making process to increase their commitment and ownership. However, there is still no formal commitment from the investor, EuroBank, to fund the activity. The Project Identification stage took place over a 3-month period and was completed in March 2002.

Tool Descriptions

Nine Project Identification tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project Case Update, are focused on the early design stage of the project while the project concept is being elaborated.

Problem Tree

A properly planned project addresses the needs of multiple stakeholders or constituencies. Project identification commences with the delineation of the key

problems that exist in a given context. A Problem Tree is a diagram that summarizes project problems in hierarchical order, establishing “cause and effect” relationships between them.

The first step in developing a Problem Tree is to identify perceived problems related to a project concept. The RIP teams find it useful to either interview various stakeholders to identify problems or bring stakeholders together in a problem brainstorming session. As various problems related to the project concept are identified, they are summarized on Post-It® notes and placed on a large piece of chart paper. Then, “cause and effect” logical thinking is used to identify and diagram the relationships between the various problems. The diagramming methodology is as follows:

- If the problem is a cause, it goes on the level below
- If the problem is an effect, it goes on the level above
- It is possible that one cause can lead to more than one effect, and that one effect can have more than one cause

Once problems are arranged in a hierarchical order, arrows are added to show the cause and effect relationships. Where multiple problem causes converge around one main problematic effect in the middle of the chart, it is possible to identify a “core problem” related to the project concept. The core problem becomes the focal problem for the project and can be addressed by various alternative solutions as demonstrated in the Alternatives Tree tool. In the MyCity Wastewater Project example, the core problem can be stated as “MySuburb households are not connected to a modern wastewater system.” The Problem Tree is presented below.

Figure V.3. Problem Tree – Description

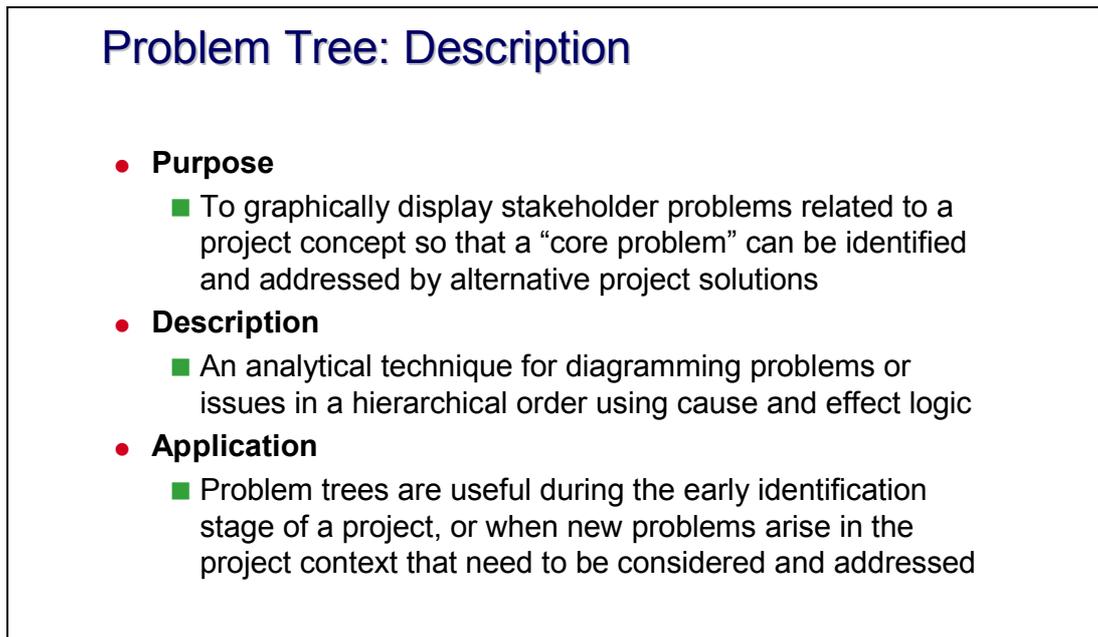


Figure V.4. Problem Tree – Illustration

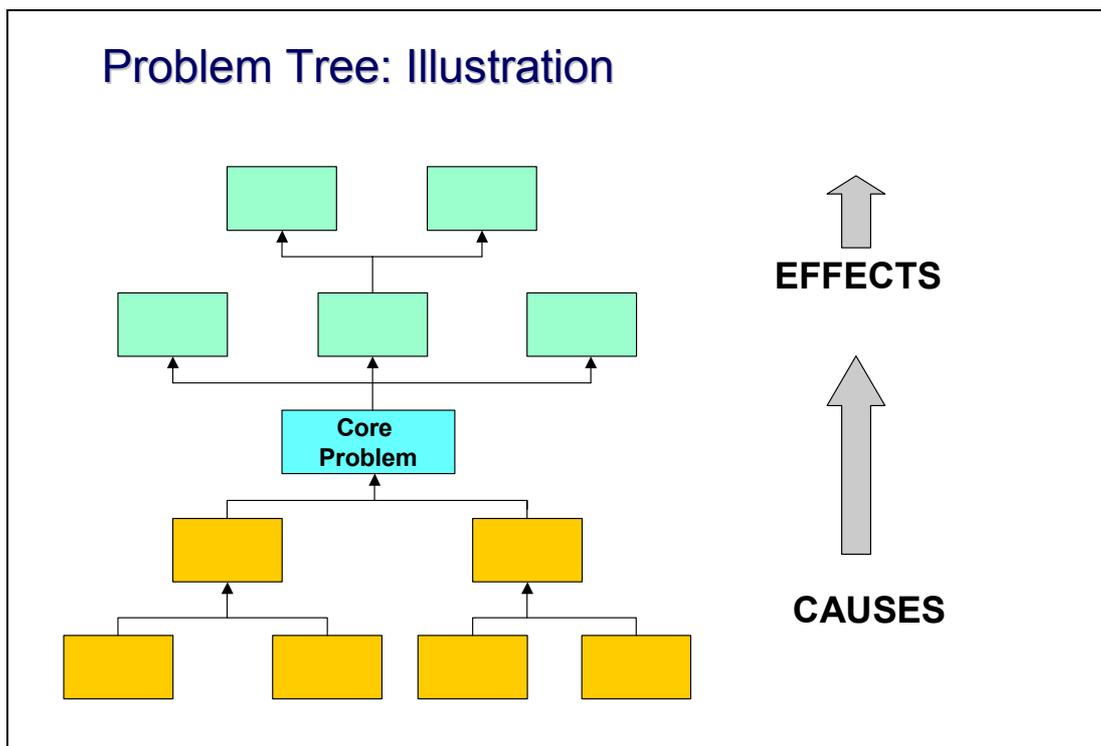


Figure V.5. Problem Tree – How to Use

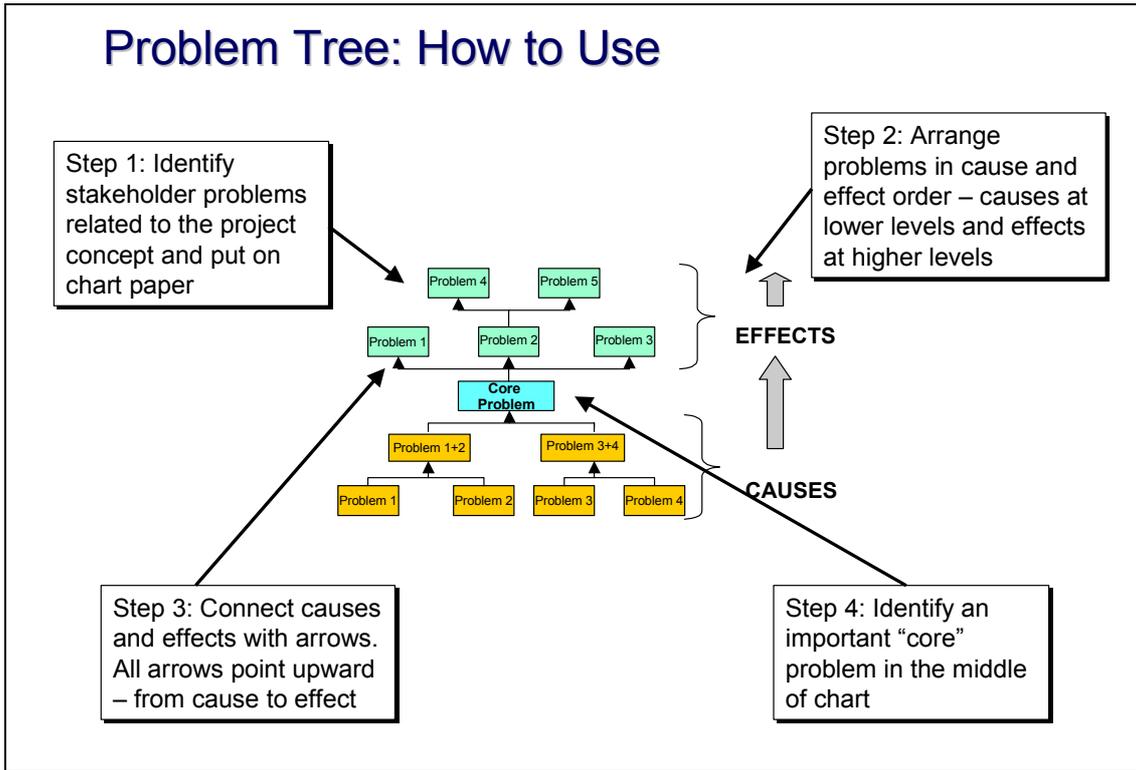
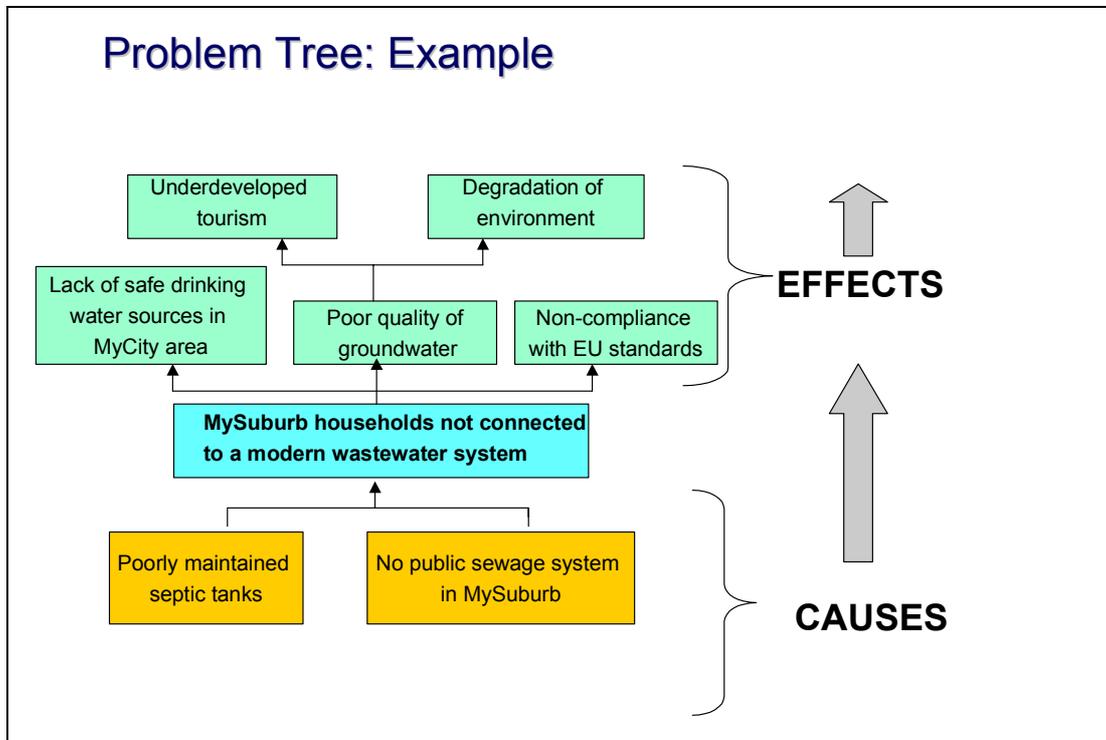


Figure V.6. Problem Tree – Example



Alternatives Tree

Through the Problem Tree process, key problems are identified while ancillary or spurious concerns are left to the side. There is typically more than one way to address a project's "core problem" and achieve a desired outcome. Carefully delineating alternative approaches to a problem can often result in finding a more timely and cost effective solution while still delivering the same or higher impact results. An appropriate tool for analysing various options for addressing a project's core problem is the Alternatives Tree. The Alternatives Tree is a tool that:

- Is targeted at providing alternative solutions to the "core problem" identified in a problem tree
- Relates alternative project "outputs" to a core problem solution or the "project purpose" in the form of "if-then" hypothesis statements
- Relates the "project purpose" to stakeholder interests or "project goals"
- Is based on strategic considerations of a project including stakeholder interests and problems
- Provides a basis for comparing, ranking and combining alternatives helping to choose the "most fundable" project.

An easy way to identify a project's purpose is to convert the core problem identified with the Problem Tree into a positive objective statement. This objective statement then forms the focal point for generating alternative solutions (or combinations of solutions) for accomplishing the purpose. In this manner, the Alternatives Tree identifies the range of potential solutions available to the project manager for addressing stakeholder problems and issues. Each alternative can then be further elaborated and discussed to assess its feasibility. The Cost Effectiveness tool (introduced later in this chapter) can be used to compare the various alternatives and select the best one – all things considered – that will define the overall scope of the project. The methodology for creating an Alternatives Tree is presented in the following four figures.

Figure V.7. Alternatives Tree – Description

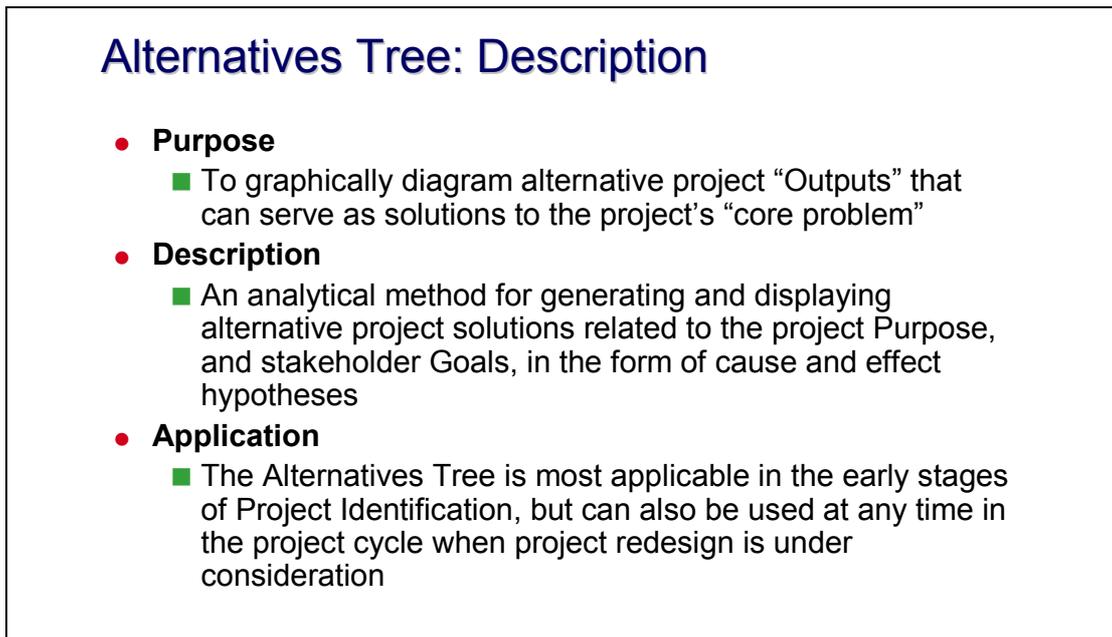


Figure V.8. Alternatives Tree – Illustration

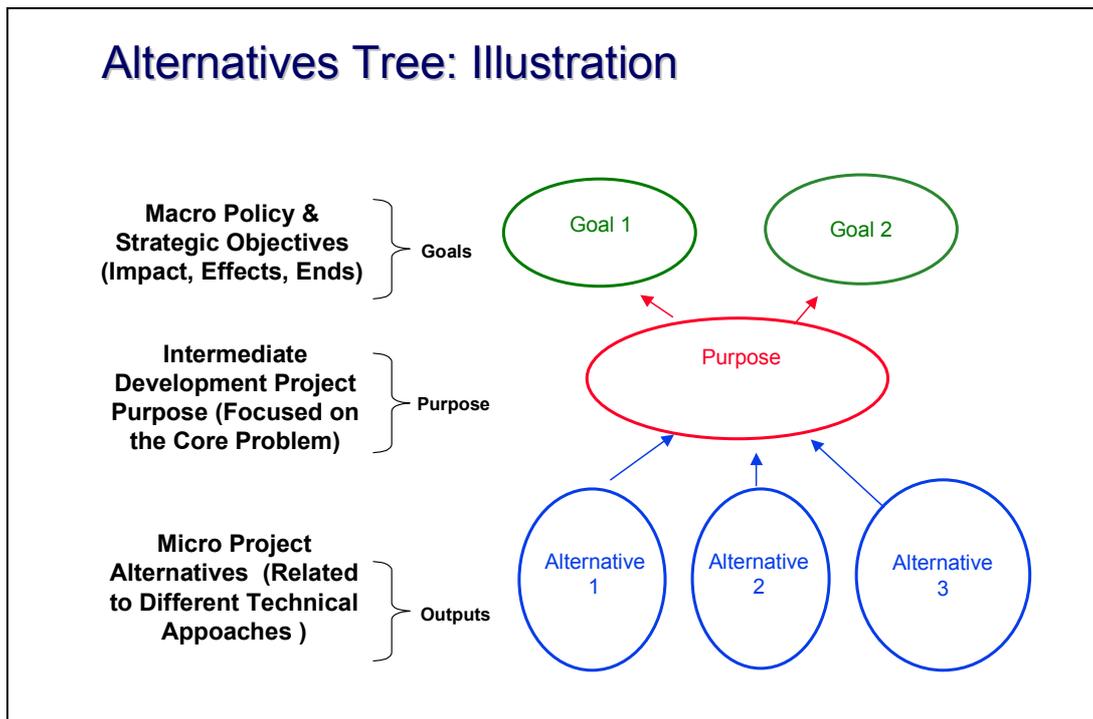


Figure V.9. Alternatives Tree – How to Use

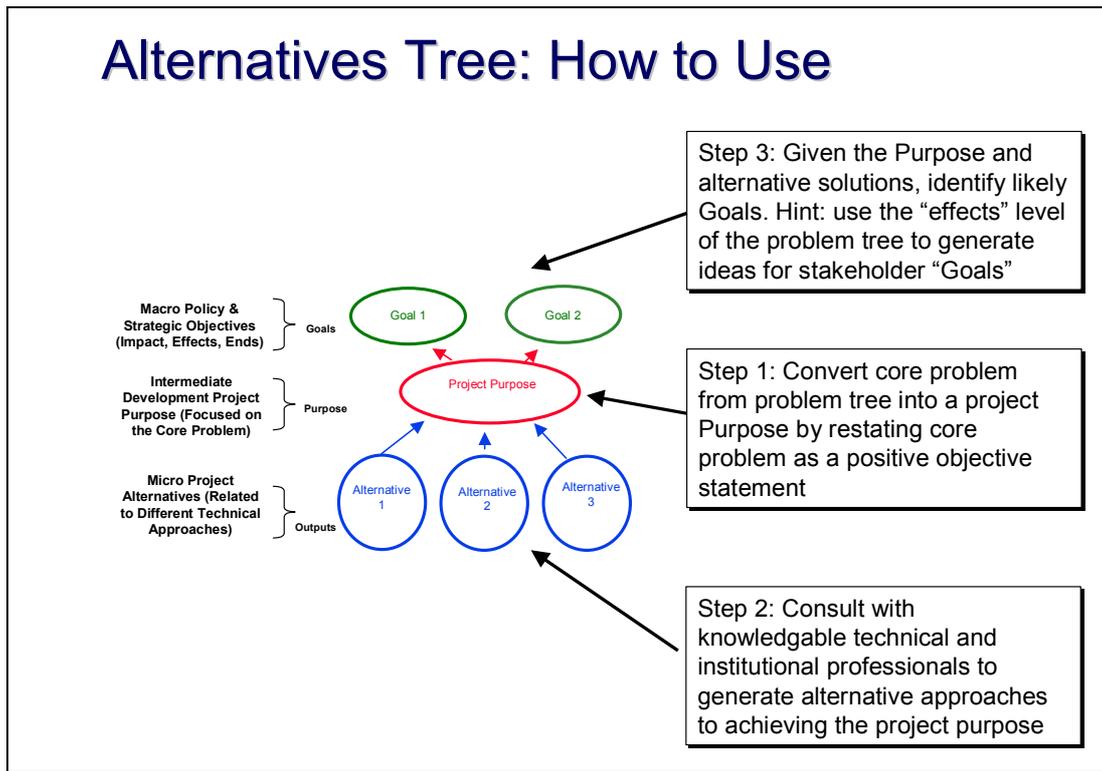
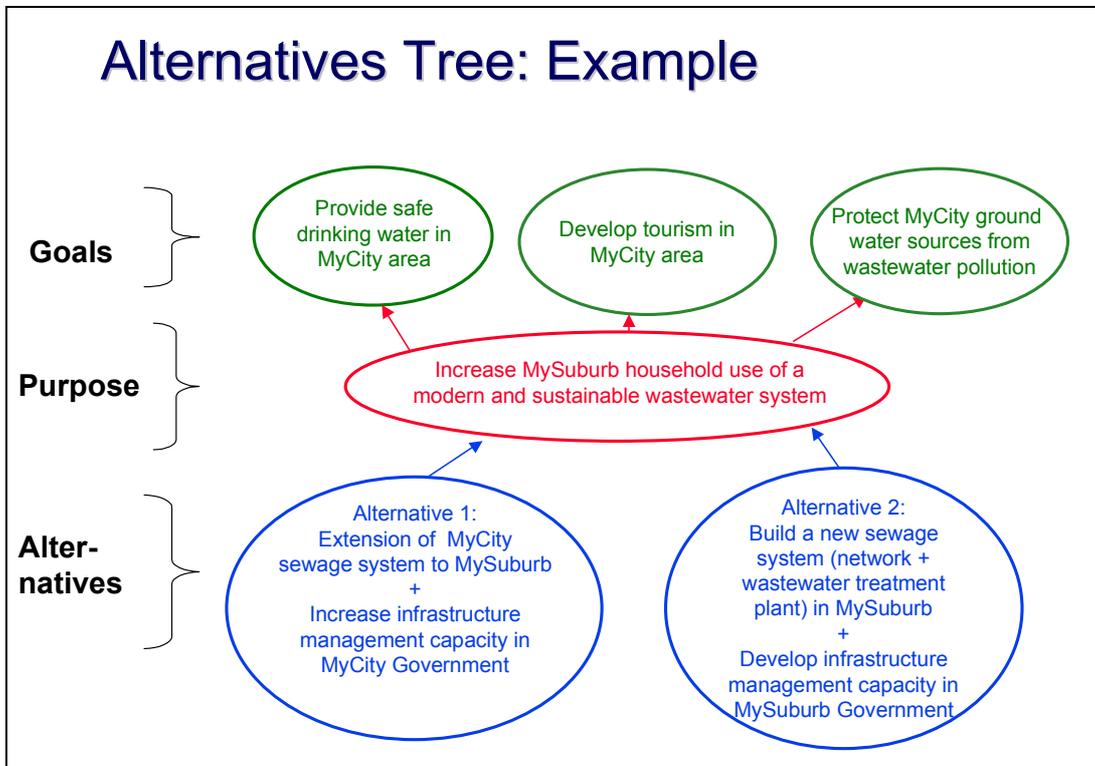


Figure V.10. Alternatives Tree – Example



Cost Effectiveness Analysis

Once project alternatives are established related to a purpose and goals, the selection of an optimal solution should follow. The Cost Effectiveness Analysis tool assists the management practitioner in structuring a comparison between alternative project approaches by assigning values to the estimated levels of costs and benefits along with the probability of success. The analysis can range from simple to highly complex depending on the size of the project and availability of potentially feasible alternatives. The analysis draws heavily upon the experience and knowledge of technical and other professional staff, as well as best practice lessons learned from similar projects. Cost Effectiveness Analysis is a powerful tool for displaying and ranking the various alternatives for achieving project results.

Cost Effectiveness Analysis relies upon a comparison matrix. The matrix rows list the various project alternatives. The columns are created to delineate primary cost and effectiveness factors to be assessed. One performs this assessment by assigning different “values” to the various factors being examined. The tool allows for the addition of multiple cost and effectiveness factors. The values given to each factor are determined in comparison to the various alternatives. On a scale of 1 to 5, the lower values correspond to lower costs or lower effectiveness, while the higher values correspond to higher costs or higher levels of effectiveness in terms of beneficial project impact. The ratio of the effectiveness to the costs (E/C) is expressed in column “A” on the chart. The probability of success, column “B,” is an initial, subjective estimate of the project’s feasibility. This estimate is recorded as a percentage to the tenths decimal place, i.e., if a practitioner considers the chance of success of a particular option to be 75 percent, then .75 is entered on the table. A ranking of alternatives is derived by multiplying the E/C ratio times the probability of success percentage. If the product is closer to 1 than 0, then the likelihood that the alternative will produce a desired result is considered high. Conversely, a project alternative closer to 0 would indicate a low likelihood of success. Alternatives with low rankings should be either rejected or revised.

Figure V.11. Cost Effectiveness Analysis – Description

Cost Effectiveness Analysis: Description

- **Purpose**
 - To assist the project practitioner in choosing the most fundable project among project alternatives
- **Description**
 - A comparison matrix which lists project alternatives and allows for their ranking based upon estimates of cost, effectiveness and the probability of success
- **Application**
 - Cost Effectiveness Analysis is most useful in the Identification stage of a project, but can also be applied in other stages where alternatives project actions are being considered

Figure V.12. Cost Effectiveness Analysis – Illustration

Cost Effectiveness Analysis: Illustration

| Project Alternatives | Effectiveness | | Costs | | EC (A) | Probability of Success (B) | Rank (A*B) |
|----------------------|---------------|-------|--------------------|-------|--------|----------------------------|------------|
| | Client | Other | Project investment | Other | | | |
| 1. | | | | | | | |
| 2. | | | | | | | |
| etc. | | | | | | | |

H (high) = M (medium) = L (low) =

Figure V.13. Cost Effectiveness Analysis – How to Use

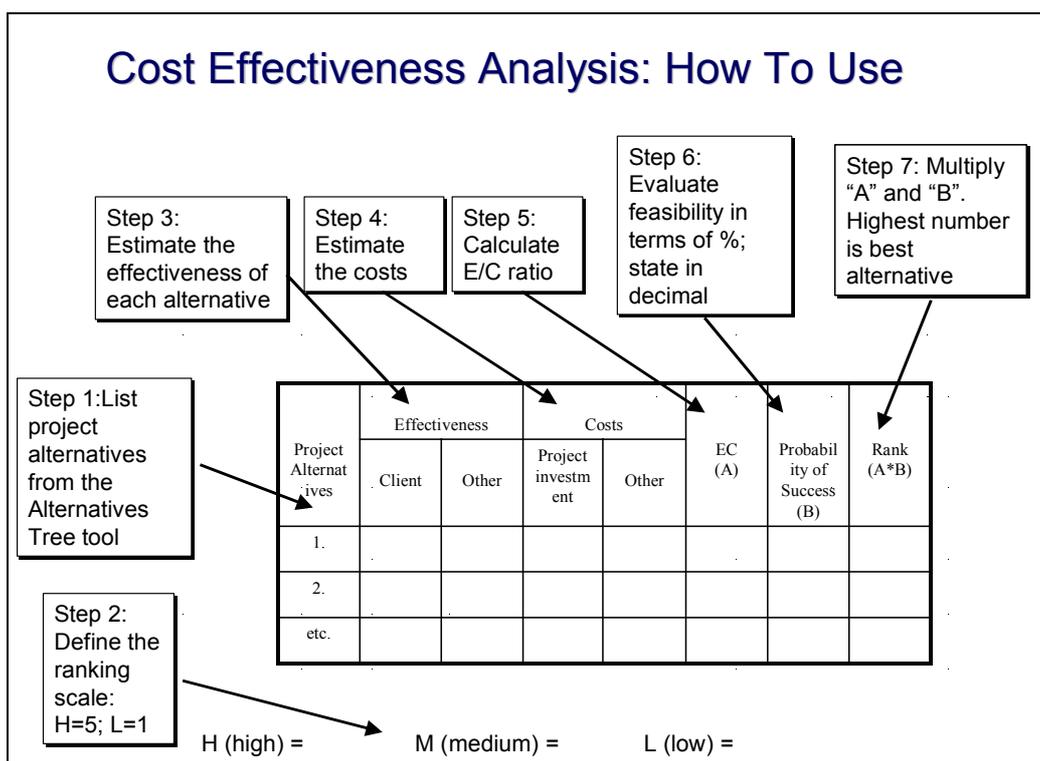


Figure V.14. Cost Effectiveness Analysis – Example

Cost Effectiveness Analysis: Example

| Project Alternatives | Effectiveness | | Costs | | E/C (A) | Probability of Success (B) | Rank A*B |
|--|---------------|-------|--------------------|-------|----------|----------------------------|----------|
| | Client | Other | Project Investment | Other | | | |
| 1. Extension of MyCity sewage system | 5 | | 3 | | 5/3=1.66 | 0.6 | 0.99 |
| 2. Build a new sewage system in MySuburb | 5 | | 5 | | 5/5=1.0 | 0.3 | 0.3 |
| 3. etc. | | | | | | | |

H (high) = 5 M (medium) = 3 L (low) = 1

Objective Tree

Once a project alternative has been selected using Cost Effectiveness Analysis, practitioners can develop an Objective Tree for the project. An Objective Tree is a diagram of all the objectives of a project linked together using cause and effect logic. Like the Alternatives Tree, the Objective Tree breaks a project down into three separate and distinct levels of objectives. The Outputs are at the lowest level. Outputs are the results that are directly accomplished by responsible management of the project resources or inputs. Yet the Outputs themselves are not valuable for their own sake and do not represent the sole justification for a project. What the project seeks to achieve through the accomplishment of the Outputs is a higher level objective – the Purpose. The Purpose is what the project designers hypothesize will result from the successful achievement of the Outputs, given the strategic setting of the proposed project. The Outputs are a set of interrelated objectives that collectively are aimed at achieving the Purpose. Goals form the highest level of objectives. Accomplishing the Purpose is one of the conditions for achieving the project Goals, but this condition is not sufficient by itself. For the Goals to be realized, other projects or related policy reforms will also be needed. Thus, the Objective Tree is a useful tool for validating and illustrating the cause and effect relationships that are hypothesized to exist between different levels of project objectives.

To develop an Objective Tree, the practitioner should begin with the project Goals and Purpose statements from the Alternatives Tree, and then further refine the project logic at the Outputs level. This is done by subdividing the selected project alternative into two or more components. Components are differentiated by their technical characteristics. For example, in infrastructure projects it is common to find one or more physical works components, and one or more policy or institutional components. A project design should contain the necessary components for the project to achieve the purpose given the project's strategic context as discussed in Chapter III. Each project component relates to a different project Output in the Objective Tree. The Objective Tree tool is further defined in the following figures.

Figure V.15. Objective Tree – Description

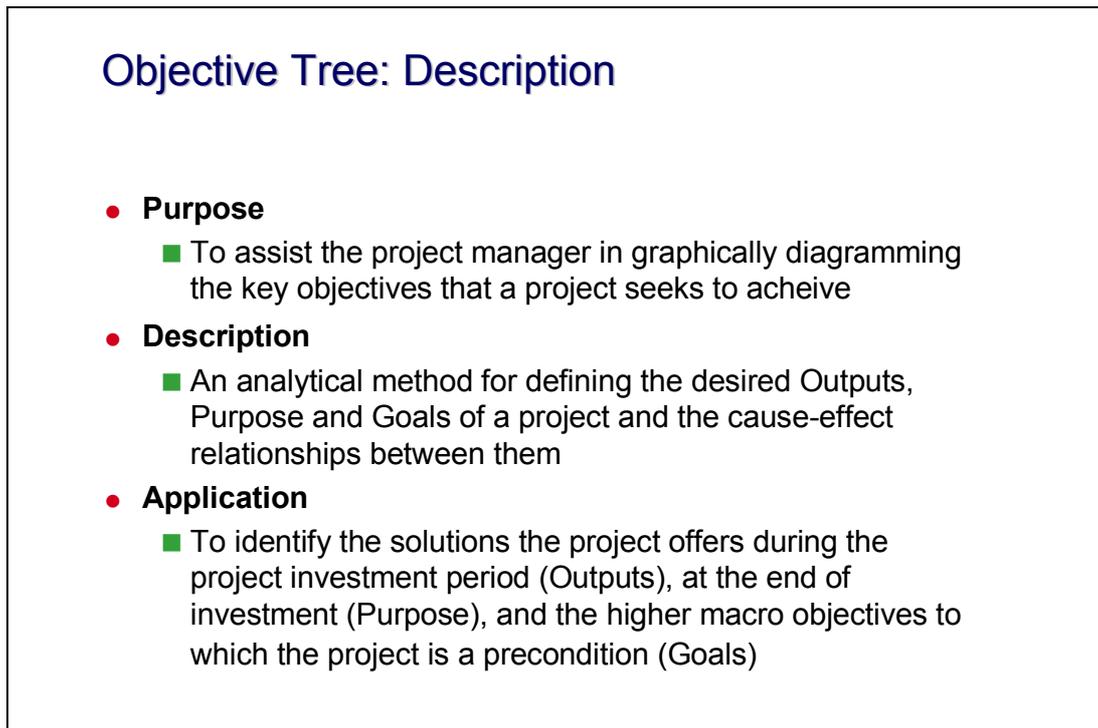


Figure V.16. Objective Tree – Illustration

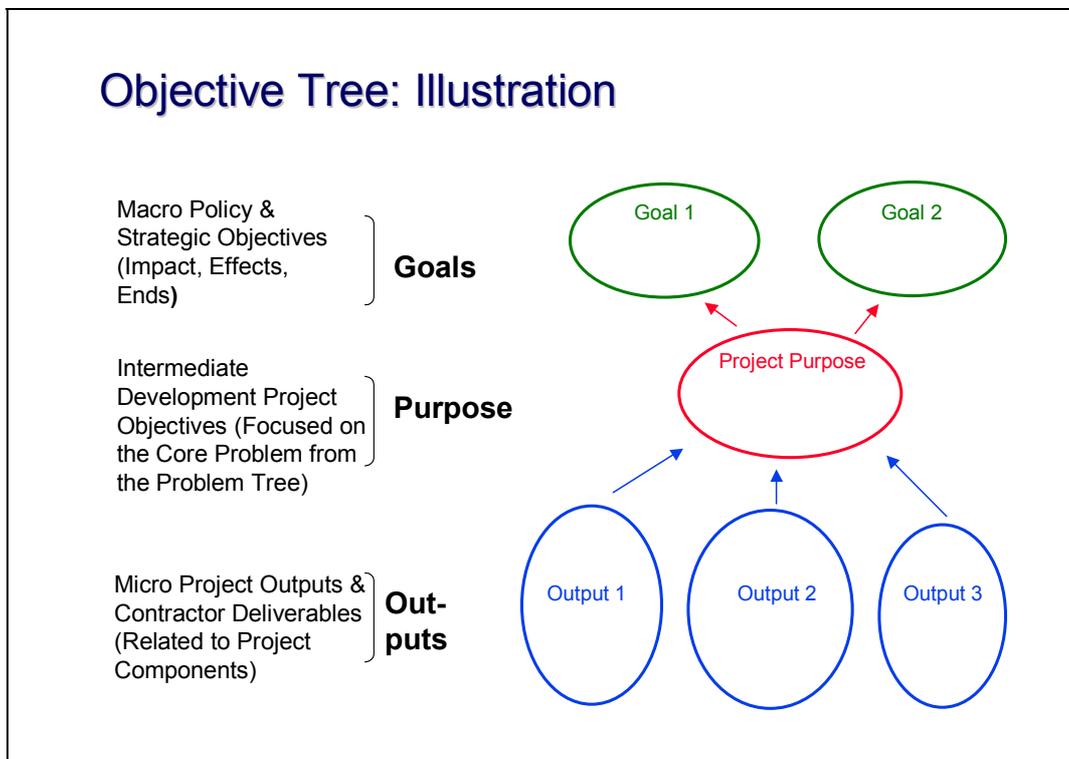


Figure V.17. Objective Tree – How to use

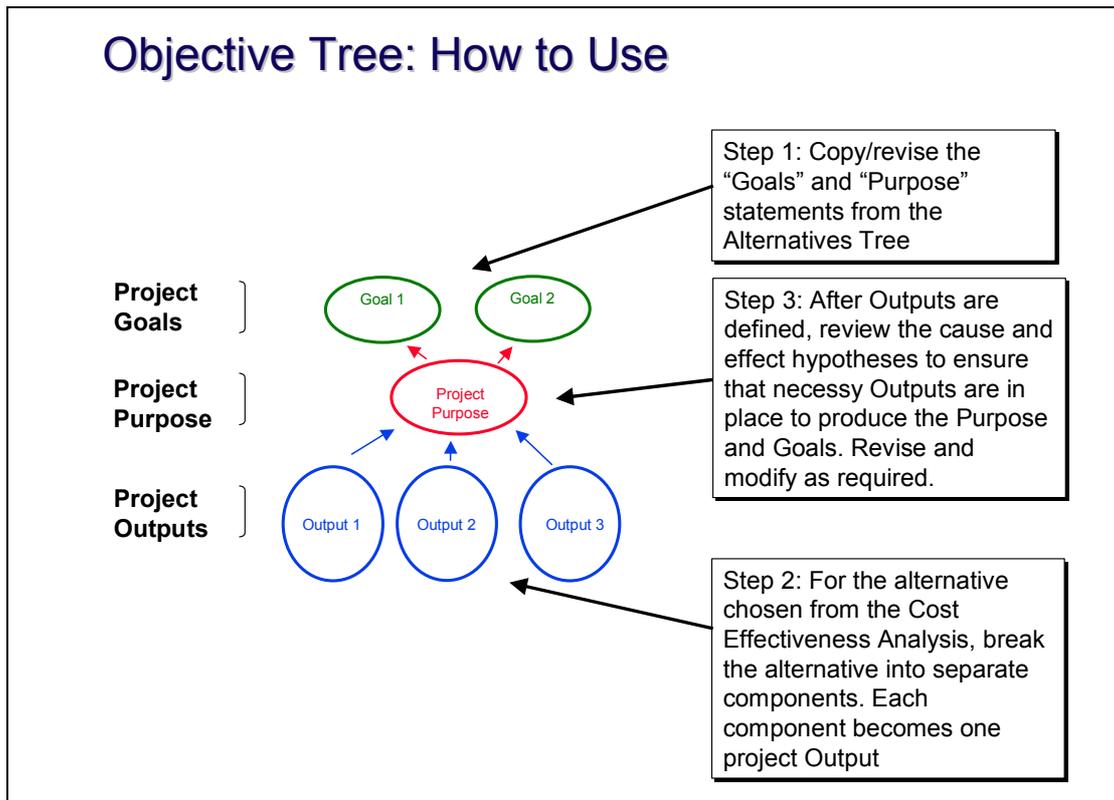
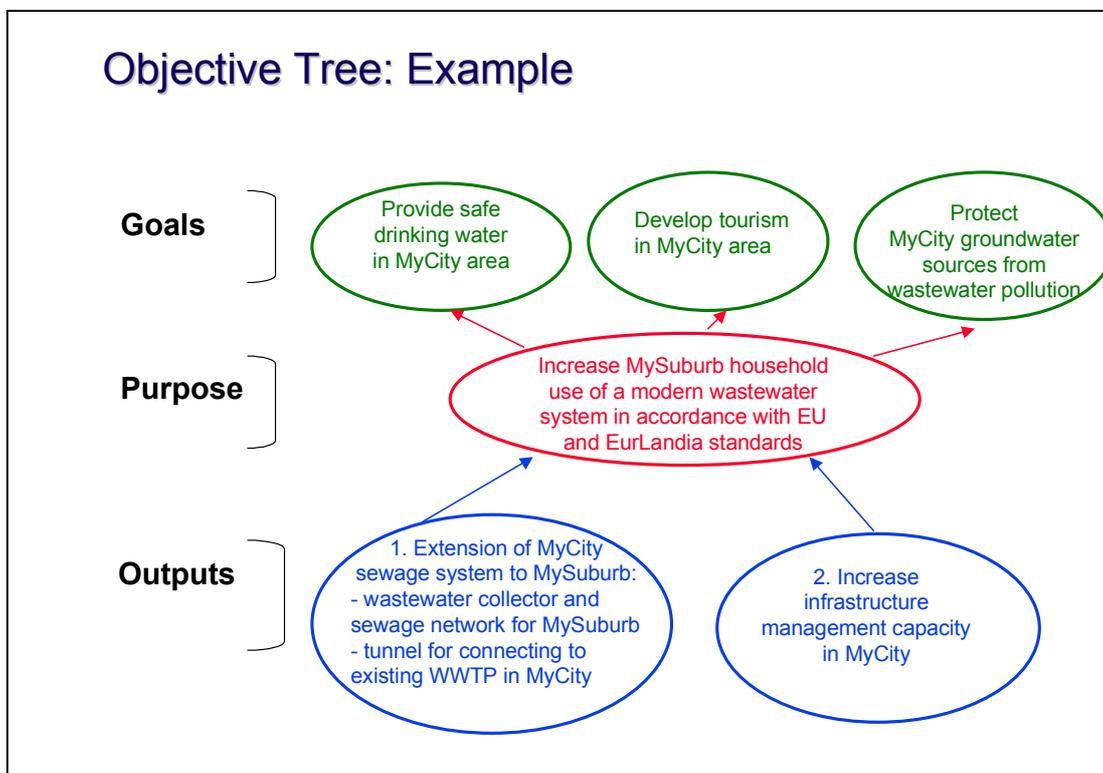


Figure V.18. Objective Tree – Example



Stakeholder Analysis

Stakeholder Analysis is employed to identify the interests or “stakes” of key constituents and to gain the ownership and commitment of stakeholders groups for a project concept. The purpose of stakeholder analysis is to indicate whose interests should be taken into account when making a decision (Crosby 1991). Stakeholders are organizations, groups, or individuals who exhibit qualities as follows:

- Have an interest in short- and long-term success (or failure) of a project
- Contribute to or are affected by some part of a project as gainers or losers, or
- Can directly or indirectly influence the design and implementation of a project.

During the Project Identification stage, stakeholders can play an important role by:

- Providing guidance on the problems and needs that a project should address
- Providing support for required information gathering and analysis
- Making resources available for proposal preparation and presentations
- Approving the project proposal document (PPD).

By ignoring stakeholder interests and needs, opposition can build against the proposed project. This can cause project design and implementation delays, cost overruns, and sub-standard performance. Satisfying stakeholders’ needs is paramount to gaining their commitment, in terms of rhetoric and resources.

In infrastructure projects, stakeholders commonly include the following:

- Proposer – the entity that proposes and prepares the project;
- Sponsor – the government entity at the national or sub-national level who approves the proposal and presents it for financing;
- Financing entity – the domestic or international entity that considers the proposal for financing and may provide assistance with preparation
- Guarantor – the entity that provides the guarantee to repay the loan

- Contractor – any entity contracted to assist with project design and/or implementation
- Implementer – the entity who is given the implementation responsibility after the project is designed, negotiated and approved
- User – citizens or clients who will have access to the project's outputs
- Beneficiary – target groups who will benefit from or be affected by the project.

The cast of key stakeholders varies from project to project. The main point is to be as rigorous as possible by employing the Stakeholder Analysis tool described in the following figures.

Figure V.19. Stakeholder Analysis – Description

Stakeholder Analysis: Description

- **Purpose**
 - To assist project practitioners in identifying key stakeholders, considering their interests, and developing strategies for securing their ownership and commitment during project design and implementation
- **Description**
 - A matrix which lists key stakeholder groups, identifies their interest related to the project as either beneficiaries or losers, and identifies strategies for gaining stakeholder support
- **Application**
 - The Stakeholder Analysis tool is applicable during Strategic Considerations and at every stage of the project cycle; the analysis should be updated periodically as the project evolves and new stakeholders become involved

Figure V.20. Stakeholder Analysis – Illustration

Stakeholder Analysis: Illustration

| Key Stakeholders | Expected Benefits | Anticipated Losses | Strategies for Gaining Commitment |
|-------------------------|-------------------|--------------------|-----------------------------------|
| <i>Sponsor</i> | | | |
| <i>Financing Entity</i> | | | |
| <i>Contractor</i> | | | |
| <i>Implementor</i> | | | |
| <i>Beneficiary</i> | | | |

Figure V.21. Stakeholder Analysis – How to Use

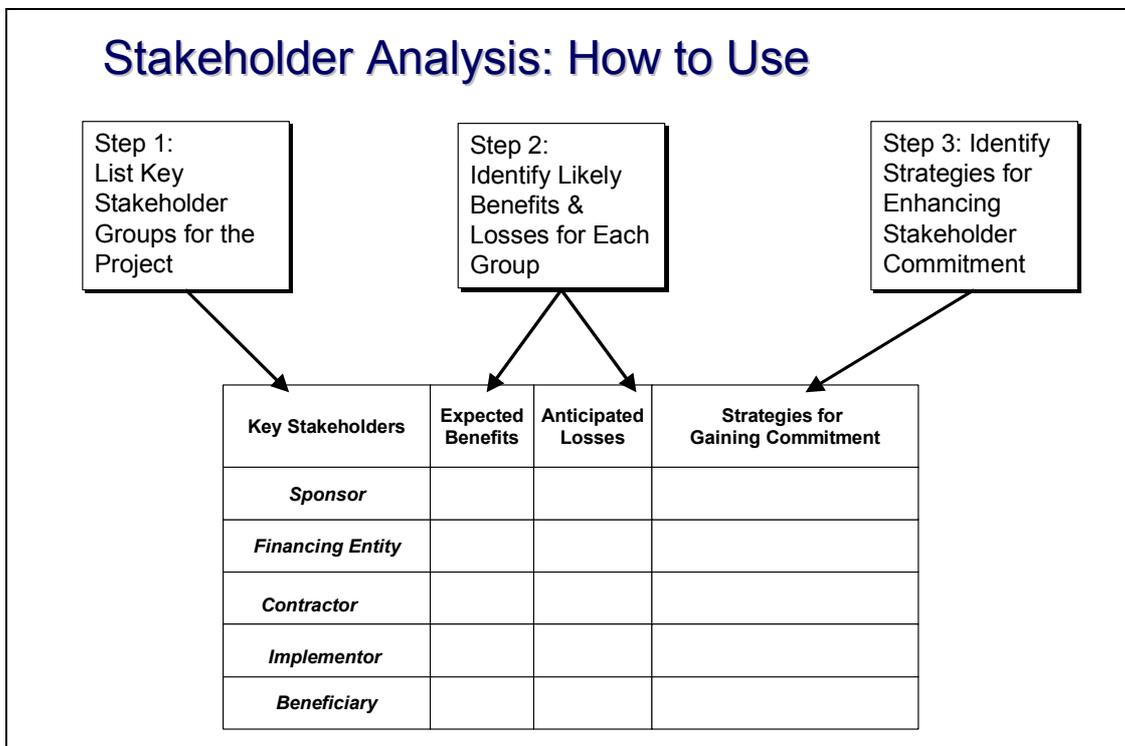


Figure V.22. Stakeholder Analysis – Example

| Stakeholder Analysis: Example | | | |
|---|------------------------------|---|--|
| Key Stakeholders | Expected Benefits | Anticipated Losses | Strategies for Gaining Commitment |
| Central Government (Sponsor) | Compliance with EU standards | Will lose power if political changes occur | Include Govt. representative and EEA staff in the monitoring body |
| Eurobank (Financing Entity) | Capital remuneration | Delays in repayment of the loan | Demonstration of commitment from beneficiary through a 3% local co-financing agreement |
| Quality Consult Ltd. (Contractor) | Increase in turnover | Lack of capacity to undertake another big contract | MyCity could provide an advance payment to contractor |
| WWTP (Implementor) | Increase in turnover | Decreased rate of collection in MySuburb | New tariff structure to be approved in MyCity Council |
| MySuburb citizens (Beneficiaries) | Clean Environment | Increases in water tariff; Land loss due to expropriation | Public Awareness Campaign with active citizen participation |

Logical Framework

The Logical Framework is an approach to the design and implementation developed by Practical Concepts Inc. in the late 1960s to assist USAID “discover where [their projects] were going and how to better get there” (Ingle 1999). The Logical Framework tool encourages collaboration and helps avoid adversarial relationships throughout the project cycle by:

- Fostering a clearly stated, explicit and measurable description of what will happen (e.g., the hierarchy of objectives) if a program is successful, along with the hypotheses underlying this hierarchy
- Clarifying what the manager and various team members should be responsible and accountable for accomplishing, and why, in unambiguous terms
- Displaying the key elements of a project, and their relationships to each other, in a way that facilitates good design, implementation and sustainable benefit flows

- Changing the focus of project evaluation from “who is to blame” to “what is the most realistic course of action for the future based on the best evidence available now.”

This approach makes the manager and management team the primary users of monitoring and evaluation results. Evaluation becomes a tool to help the manager rather than a threatening club.

The Logical Framework is displayed in the form of a summary matrix. It encompasses a set of interlocking concepts that must be used together in a dynamic fashion to develop a relevant, effective, efficient, implementable and sustainable project. Uncertainty and resistance to change within the project setting are made explicit, and planned for, through the Logical Framework tool. The Logical Framework matrix is **not just a form to be filled in**; instead, completing the matrix requires a step-by-step conceptualization of important project elements beginning with objectives related to a core problem, and encompassing all of the key factors of project success introduced in Chapter I. Appropriate use of the concepts embedded in the Logical Framework tool also facilitates clear communications and collaboration among all stakeholders involved in project management.

The Logical Framework tool is not difficult to understand, to use, or to explain to others. It does not require a degree in mathematics or the use of computers, but it can be aided by these factors (Team Technologies 1999). The tool relies on the user’s real-world experience and a sense of what constitutes good management and intuition. It does not provide answers or make decisions, rather it organizes information in such a way that important issues can be identified and so that managers can have increased insight and knowledge. The Logical Framework concepts need not be restricted to use in any particular technical sector or organizational configuration, and they have been productively applied in a wide variety of industrialized and developing country settings. Globally, the Logical Framework tool has been and is being used in designing, implementing and evaluating thousands of projects and programs.

The Logical Framework tool assists practitioners in better understanding the overall summary of a project and displaying this summary in a clear and systematic manner. The Logical Framework builds on the Objective Tree by incorporating the different levels of objectives. In addition, when fully developed the Logical Framework indicates: (1) how to verify whether the stated objectives have been achieved, (2) where to find sources of information for measuring the achievement of the objectives, and (3) the key assumptions outside the project's control that are hypothesized to be integral to project success at every level of the project's objectives.

The Logical Framework is one of the core tools used throughout each stage of the project cycle. While the Logical Framework is particularly important in the Project Identification and Project Preparation stages, it is also an efficient means to manage activities during the execution of other stages of the project cycle and evaluate project results. The Logical Framework can be applied in a dynamic manner that allows a project to remain flexible and adaptable as a project develops and the context changes.

The Logical Framework matrix consists of four content columns. The first and last columns labeled "Narrative Summary" and "Assumptions," respectively, refer to what is called the "vertical logic" of a project. This vertical logic – which deals with objectives and risks – is explained in this section. The second and third columns of the Logical Framework matrix, labeled "Objectively Verifiable Indicators" and "Means of Verification," respectively, refer to what is called the "horizontal logic" of a project. The horizontal logic deals with measurement. It is explained in Chapter VI as a part of detailed project preparation.

Narrative Summary

An Objective Tree (presented earlier) provides the information to populate the Narrative Summary column cells. The Objective Tree should relate project Outputs to higher order objectives (Purpose and Goals). The individual components of the Narrative Summary can be described as follows:

- Goals are the higher order or macro objectives to which the successful execution of the project is one logical precondition.
- Purpose is the specific “end-of-investment” period objective that the project is committed to achieving, including sustainable return on project investment operations.
- Outputs are the “during-investment” results (or deliverables) expected by responsible management.

In addition, the Logical Framework includes a cell for “Project Activities.” A set of activities needs to be developed for each output component.

Assumptions (Risks)

The Assumptions column of the Logical Framework lists external conditions that need to be in place at each level of the project in order for the higher level objectives to be accomplished. These are labeled as external conditions because they are “beyond the direct control” of the project manager. These assumptions are stated in positive terms because they represent “sufficient” conditions for the project to be successful along with the “necessary” internal conditions represented in the Narrative Summary column. From the perspective of the Project Proposal Document (the PPD), these assumptions represent potential project risks. If they do not occur as predicted, the accomplishment of the project’s objectives will be at risk. Thus, external risks need to be identified during Project Identification, and plans for mitigating them should be included in the PPD prior to its approval. The Logical Framework tool assists in this process.

The vertical logic elements of the Logical Framework tool are presented in the figures that follow.

Figure V.23. Logical Framework – Description

Logical Framework: Description

- **Purpose**
 - The aim of the Vertical Logic of the Logical Framework is to define the project objectives (Goals, Purpose, Outputs), the project activities proposed to meet these objectives, and the necessary external conditions (Assumptions) that need to be in place for the project to succeed but are beyond the project’s direct control
- **Description**
 - A 4 by 4 matrix which summarizes the key interlocking elements of a project; the Vertical Logic encompasses the Narrative Summary and Assumptions columns
- **Application**
 - The Logical Framework is an important project management summary tool which can be used at every stage of the project cycle - from identification through sustainability

Figure V.24. Logical Framework – Illustration

Logical Framework: Illustration

Application of the Vertical Logic

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Assumptions |
|-------------------|-----------------------------------|-----------------------|-------------|
| Goals: | | | |
| Purpose: | | | |
| Outputs: | | | |
| Activities: | | | |

Figure V.25. Logical Framework – How to use

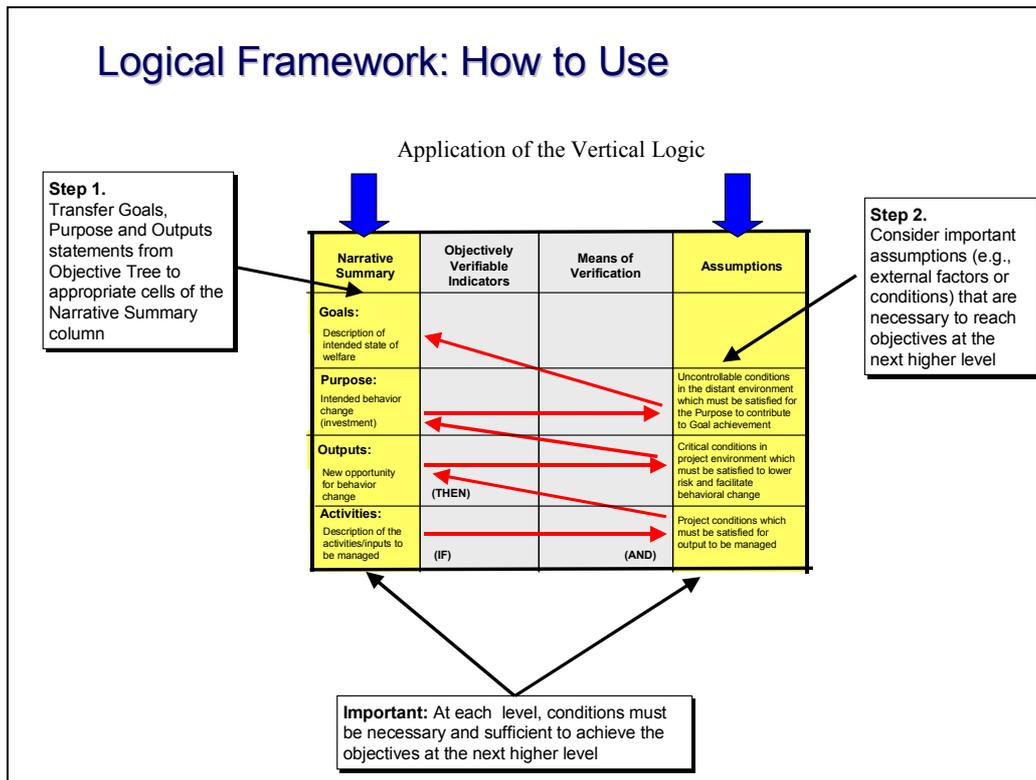


Figure V.26. Logical Framework – Example

Logical Framework: Example

Application of the Vertical Logic

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Assumptions |
|---|-----------------------------------|-----------------------|---|
| Goals: 1. To provide continuous safe drinking water resources for MyCity Metropolitan area 2. To develop tourism in MyCity area 3. To protect MyCity's groundwater sources from household wastewater pollution | | | 1. Other Cities Protect water sources and sea from pollution 2. Other accession countries reach EU standards requirements 3. EurLandia became an accession country to EU |
| Purpose: 1. To increase MySuburb household use of a modern wastewater system on a sustainable basis in accordance with EU and EurLandia standards | | | 1. Successful process of operations and maintenance as element of project sustainability 2. Project monitoring funded and implemented 3. Appropriate Ministry pay for preparing water basin management plan for MyCity region |
| Outputs: 1. <u>INFRASTRUCTURE COMPONENT</u> 1.1. Wastewater collector and sewerage network for MySuburb constructed and operational 1.2. Tunnel for connecting to existing WWTP in MyCity, constructed and operational 2. <u>INSTITUTIONAL COMPONENT</u> 2.1. Local policy for environmental protection carried out successfully 2.2 A new tariff structure has been approved by Council of MyCity 2.3. Public relations campaign implemented 2.4. Project Management activities completed | | | 1. EuroBank maintaining support and financing for project execution 2. Local Government maintaining support for project execution 3. Encourage Water Company for preparing project for sustainability of wastewater network in MyCity Metropolitan 4. Consumers willing to pay fees to wastewater collection 5. No sources of pollution added to MySuburb and MyCity area |
| Activities: 1. <u>INFRASTRUCTURE COMPONENT</u> 1.1 Construct wastewater sewer collector and sewerage network for MySuburb 1.2 Construct tunnel connecting servers to existing WWTP in MyCity 2. <u>INSTITUTIONAL COMPONENT</u> 2.1 Do policy implementation research and make recommendations 2.2 Do willingness to pay tariff research and submit recommendations for increasing tariffs 2.3 Design public relations campaign and hire contractor carry it out 2.4. Hire project staff and implement project management activities following best practices | | | 1. EuroBank receives appropriate documentation and transfers money on time 2. Implementation of new fee-for-service principle for MyCity citizens is on time 3. All construction equipment and materials are certified and with appropriate quality 4. Minimal unforeseen activities on site |

Public-Private Partnership (PPP) Analysis

PPP arrangements are formal, contractual agreements between a government (local, national, or international) and a private sector entity that call for the private partner to deliver a desired service under conditions of risk sharing (Institute for Public-Private Partnerships 2000). In return for agreeing to provide the service and assuming part or all of the associated risks, the private partner receives payment (in form of a fee, tariff, or user charge) according to certain performance standards and other criteria as specified by the parties. The government is relieved of the financial and administrative burden of providing services, but retains an important role in regulating and monitoring the performance of the private partner and shares part or all of the risk.

The potential benefits of PPP include access to private sector finance, managerial expertise, new markets, new technology, better project design and implementation, and more efficient use of resources. PPP arrangements improve accountability by clarifying the responsibilities of each party, establishing standards for the provision of services, and defining clear and transparent processes for dispute resolution. The benefits of PPP can accrue to all stakeholders, from government to the private partner and consumers, provided the contracts are competitively tendered and an adequate enabling environment (including a legal and regulatory framework) exists.

Typical PPP arrangements include:

- Service contracts
- Management contracts
- Leases
- Build-operate-transfer (BOT) contracts and variants
- Concessions.

Table V.3 presents the characteristics associated with each type of PPP arrangement.

Table V.3. Types of PPP Arrangements

| Type of contract | Duration | What the contractor usually receives | Nature of contractor performance | Examples |
|-------------------------------------|-------------------------|---|---|--|
| Service contract | Short-term (1-3 years) | A fee from the government for performing the service | A definitive, often technical type of service | Facility repairs and maintenance |
| Management contract | Medium-term (3-8 years) | A fee from the government for the service and a performance-based incentive | Manage the operation of a government service | Regional water supply management |
| Lease | Long-term (8-15 years) | All revenues, fees or charges from consumers for the provision of the service; the service provider pays the government rent for the facility | Manage, operate, repair and maintain (and maybe invest in) a municipal service to specified standards and outputs | Existing airport or port facilities |
| Build-Operate-Transfer (BOT) | Long-term (15-25 years) | The government mostly pays the service provider on a unit basis | Construct and operate, to specified standards and output, the facilities necessary to provide the service | Building, construction and maintenance |
| Concession | Long-term (15-30 years) | All revenues from consumers for the provision of the service; the service provider pays a concession fee to the government and may assume existing debt | Manage, operate, repair, maintain and invest in public service infrastructure to specific standards and outputs | New airport or seaport facilities, toll road or bridge |

The PPP Analysis tool is used to choose from these alternatives to provide for the most appropriate PPP option for a project as presented in the following figures.

Figure V.27. PPP Analysis – Description

PPP Analysis: Description

- **Purpose:**
 - To assist practitioners in selecting the most appropriate PPP arrangement within the context of a specific infrastructure project
- **Description:**
 - A checklist for determining whether the necessary PPP requirements are in place as the basis for recommending an appropriate PPP arrangement
- **Application:**
 - The PPP Checklist is most useful early in project design when decisions are required about the appropriate role for the private sector

Figure V.28. PPP Analysis – Illustration

PPP Analysis: Illustration

| PPP Arrangements and Checklist for Requirements Project or Component: _____ | Results of Checklist Analysis | | Recommended PPP Arrangement |
|---|--|-----------------------------|-----------------------------|
| | Indicate: Yes; Possible to Quickly Reform; or No | Conclusion : Yes, Maybe, No | |
| 1. Service Contract | | | |
| 1.1 Can you conduct competitive and transparent bidding? | | | |
| 1.2 Will private party offer lower costs or higher quality than current service provider? | | | |
| 1.3 Do you have the capacity to effectively monitor contractor and enforce performance? | | | |
| 2. Management Contract | | | |
| 2.1 Do you know the current operating costs and key performance indicators for each unit ? | | | |
| 2.2 Do you have specific operating performance goals and benchmarks that you want the contractor to achieve as basis for a performance fee? | | | |
| 2.3 Are you prepared to give authority for ALL daily operations and management decisions to the new contractor? | | | |
| 3. Lease | | | |
| 3.1 Is the public party prepared to carry out its role as owner and long-term planner & decision-maker? | | | |
| 3.2 Can the lease contractor realistically achieve net profits through operating efficiently? | | | |
| 3.3 Is the public party prepared to pass the right of price-setting over to the lease contractor? | | | |
| 4. Concession/BOT | | | |
| 4.1 Is the concession arrangement affordable for the public party? | | | |
| 4.2 Does the legal regulation (e.g. transfer of property) allow this type of arrangement? | | | |
| 4.3 Is there strong and widespread stakeholder support? | | | |

Figure V.29. PPP Analysis – How to use

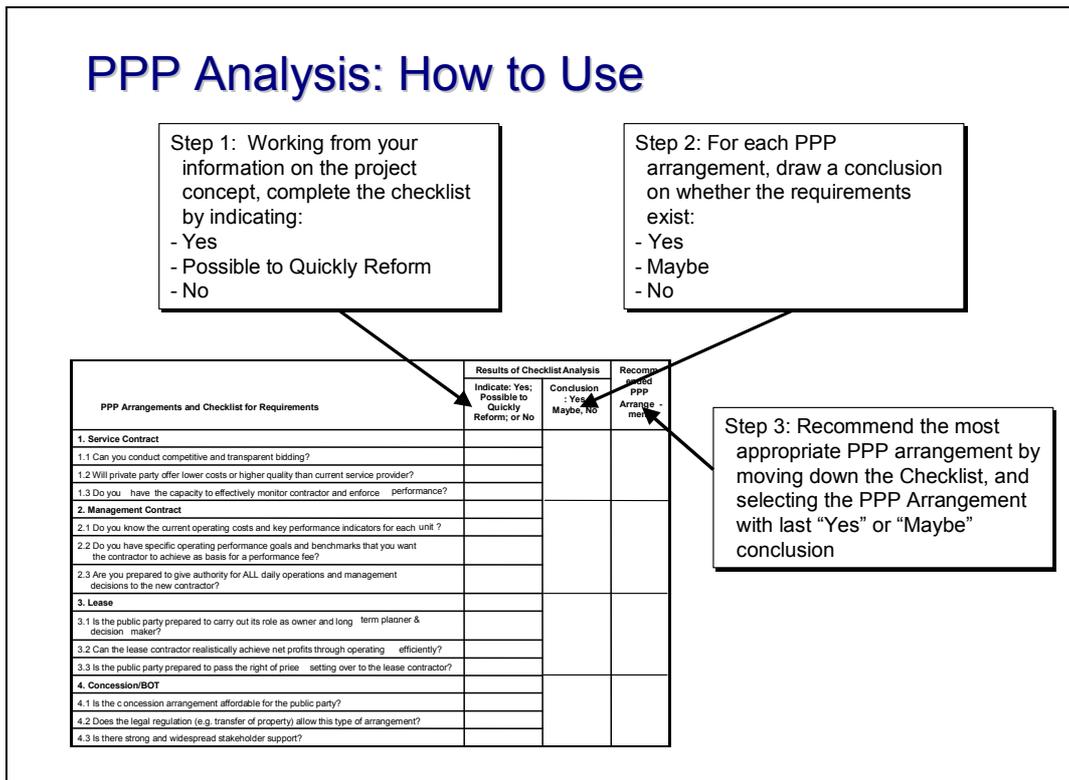


Figure V.30. PPP Analysis – Example

PPP Analysis: Example

| PPP Arrangements and Checklist for Requirements | Results of Checklist Analysis | | Recommended PPP Arrangement |
|---|--|----------------------------|-----------------------------|
| | Indicate: Yes; Possible to Quickly Reform; or No | Conclusion: Yes, Maybe, No | |
| Project or Component: <u>MyCity Wastewater Physical Works Component</u> | | | |
| 1. Service Contract | | | |
| 1.1 Can you conduct competitive and transparent bidding? | Yes | Yes | |
| 1.2 Will private party offer lower costs or higher quality than current service provider? | Yes | | |
| 1.3 Do you have the capacity to effectively monitor contractor and enforce performance? | QR | | |
| 2. Management Contract | | | |
| 2.1 Do you know the current operating costs and key performance indicators for each unit ? | Yes | Yes | ✔ |
| 2.2 Do you have specific operating performance goals and benchmarks that you want the contractor to achieve as basis for a performance fee? | Yes | | |
| 2.3 Are you prepared to give authority for ALL daily operations and management decisions to the new contractor? | QR | | |
| 3. Lease | | | |
| 3.1 Is the public party prepared to carry out its role as owner and long-term planner & decision-maker? | Yes | No | |
| 3.2 Can the lease contractor realistically achieve net profits through operating efficiently? | No | | |
| 3.3 Is the public party prepared to pass the right of price-setting over to the lease contractor? | No | | |
| 4. Concession/BOT | | | |
| 4.1 Is the concession arrangement affordable for the public party? | Yes | No | |
| 4.2 Does the legal regulation (e.g. transfer of property) allow this type of arrangement? | Yes | | |
| 4.3 Is there strong and widespread stakeholder support? | Yes | | |

Pre-Feasibility Requirements

Pre-feasibility analyses are completed as part of the PPD to assure sponsors and financing bodies that the project passes an “initial feasibility screening.” A pre-feasibility study involves an overview analysis of the project and its components to determine whether the project is feasible. It is also used to identify potential feasibility concerns – areas where more detailed feasibility studies are warranted during Project Preparation.

The Pre-Feasibility Requirements tool is a simple, yet powerful means to assess initial project feasibility. It facilitates the process of initial evaluation of each project component based on the proposed technical approach outlined in the Activities cell of the Narrative Summary column of the Logical Framework, the estimated resource requirements (see the Cost Estimation tool below), and an assessment of stakeholder support. The outcome of a Pre-Feasibility Requirements process provides the initial judgment as to the “soundness” of each project component. The intent is to elaborate further on this soundness in fully formed feasibility studies during the Project Preparation stage.

The Pre-Feasibility Requirements tool aggregates the information needed to complete Section E, Results of Pre-feasibility Assessment, of the PPD. There are six major pre-feasibility requirements:

1. Economic
2. Financial
3. Technical
4. Environmental
5. Institutional and managerial
6. Social.

The tool also provides the project manager with information needed to draft the Terms of Reference (ToR) for full feasibility studies that will need to be completed

during Project Preparation. The Pre-Feasibility Requirements tool is presented below.

Figure V.31. Pre-Feasibility Requirements – Description

Pre-Feasibility Requirements: Description

- **Purpose:**
 - Assist the project manager in ensuring that critical pre-feasibility issues are considered early in project identification and that they are reflected in the PPD
- **Description:**
 - A required set of pre-feasibility questions that should be addressed during Project Identification to assess the initial soundness of the project and identify issues for more in-depth feasibility study
- **Application**
 - Use the questions as a guide in preparing the PPD Pre-Feasibility section and in preparing ToR's for feasibility studies required during Project Preparation

Figure V.32. Pre-Feasibility Requirements – Illustration

Pre-Feasibility Requirements: Illustration

Project or Project Component: MyCity Wastewater Project Tunnel Work Component

| Pre-Feasibility Analysis Requirements | |
|---|--|
| <p>Economic</p> <ul style="list-style-type: none"> • The Tunnel is the most cost-effective solution • Willingness-to-pay survey indicates that proposed tariff structure is sound | <p>Institutional</p> <ul style="list-style-type: none"> • EurLandia’s legal and regulatory framework will support international competitive bidding for tunnel contractor • MyCity water company has adequate structure to implement project but will require additional project execution and contract management professional staff • Several key MyCity stakeholders are opposed to tunnel construction |
| <p>Financial</p> <ul style="list-style-type: none"> • Initial cost and revenue projections are promising; additional analysis required • EuroBank loan repayment terms are acceptable | |
| <p>Technical</p> <ul style="list-style-type: none"> • EurLandia has positive experience with tunnel works, and local contractor expertise • Initial geological analysis for tunnel are positive; more studies needed | |
| <p>Environmental</p> <ul style="list-style-type: none"> • MyCity treatment capacity sufficient for projected increase following project completion • Additional study required on how to mitigate environmental impacts during tunnel construction | <p>Social</p> <ul style="list-style-type: none"> • Tunnel construction will minimize long-term social and cultural disruption for area residents • MyCity is planning to provide tax relief program for depressed residents of MySuburb |

Figure V.33. Pre-Feasibility Requirements – How to Use

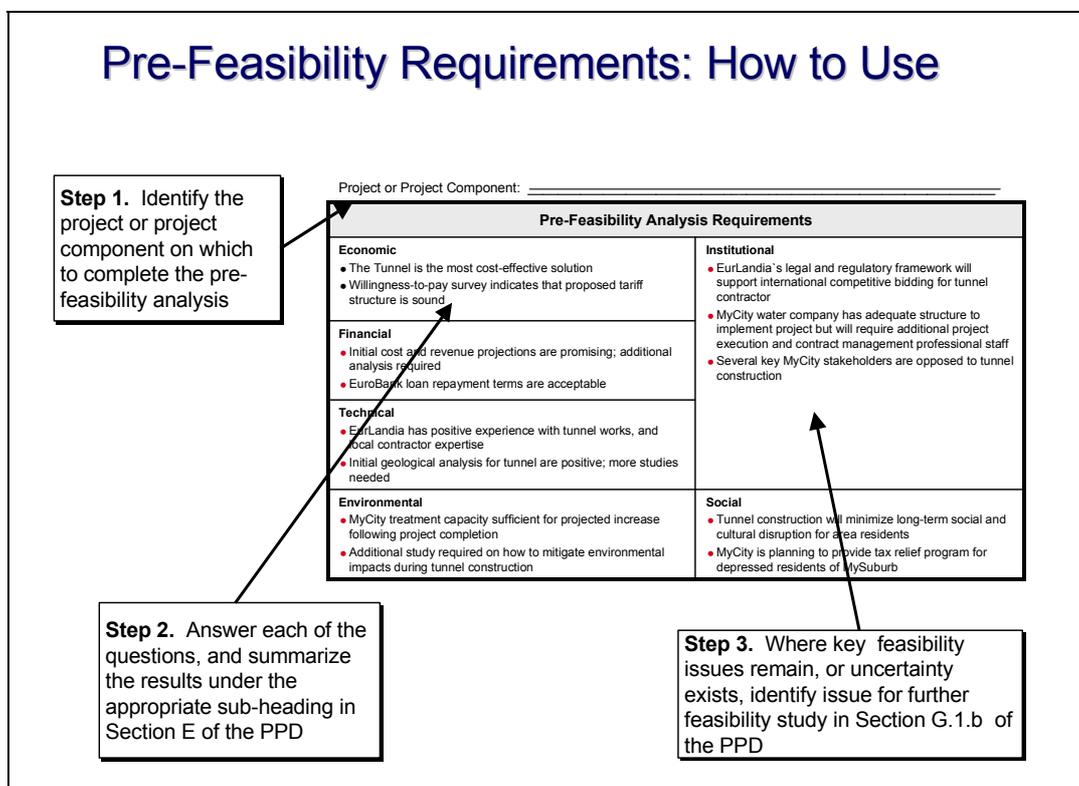


Figure V.34. Pre-Feasibility Requirements – Example

| Pre-Feasibility Analysis Requirements | |
|--|--|
| <p>Economic</p> <ul style="list-style-type: none"> • The Tunnel is the most cost-effective solution • Willingness-to-pay survey indicates that proposed tariff structure is sound | <p>Institutional</p> <ul style="list-style-type: none"> • EurLandia's legal and regulatory framework will support international competitive bidding for tunnel contractor • MyCity water company has an adequate structure to implement the project but will require additional project execution and contract management professional staff and training |
| <p>Financial</p> <ul style="list-style-type: none"> • Initial cost and revenue projections are promising; additional analysis required • EuroBank loan repayment terms are acceptable | |
| <p>Technical</p> <ul style="list-style-type: none"> • EurLandia has positive experience with tunnel works and local contractor expertise • Initial geological analyses for tunnel are positive; more studies needed | <ul style="list-style-type: none"> • Several key MyCity stakeholders are opposed to tunnel construction; public participation campaign will be required during project preparation |
| <p>Environmental</p> <ul style="list-style-type: none"> • MyCity treatment capacity sufficient for projected sewer flow increase following project completion • Additional study required on how to mitigate environmental impacts during tunnel construction | <p>Social</p> <ul style="list-style-type: none"> • Tunnel construction will minimize long-term social and cultural disruption for area residents • MyCity is planning to provide tax relief for low income residents of MySuburb |

Cost Estimation

In the Project Identification stage, an initial estimation of project costs should be created to sensitize stakeholders to the “rough order of magnitude” (ROM) of the proposed effort. Generally speaking, there is much less stakeholder resistance to a low-cost solution that merely satisfies minimal project objectives rather than a higher cost solution that achieves clearly superior results. The earlier in the project cycle that this ROM can be calculated, the greater the likelihood that stakeholder “buy in” can be achieved with less effort and that adequate funding sources can be secured. Similarly, this technique allows practitioners to explore lower cost alternatives that can potentially achieve the desired results when the level of funding available to support the project is limited. Initial cost estimates are also required for completing the Cost Effectiveness Analysis and the Pre-Feasibility Requirements.

All project costs should be taken into consideration during Project Identification, but at a fairly high level of abstraction. These costs are related to the initial set of planned activities identified for each component as listed in the Logical Framework

tool. Project costs are estimated based on the level of resources or inputs required to carry out the activities so that outputs are achieved. Project resources/inputs include such items as works contracts, materials, land, utilities, permits and licenses. Resources/inputs also include costs related to preparing studies, preparing technical documentation, completing engineering designs, staffing, and any other costs related to project preparation and implementation (such as indirect costs of fringe benefits, overhead, administration, and fees).

Rather than seeking detailed quotations or undertaking a time-consuming market analysis, a practitioner should rely upon his/her own knowledge and experience of the costs required to complete similar projects of similar size or of the general state of acceptable costs in the marketplace at that time. The Cost Estimation tool provides the practitioner a general framework for structuring the initial assessment of project costs, and is explained in the figures below.

Figure V.35. Cost Estimation – Description

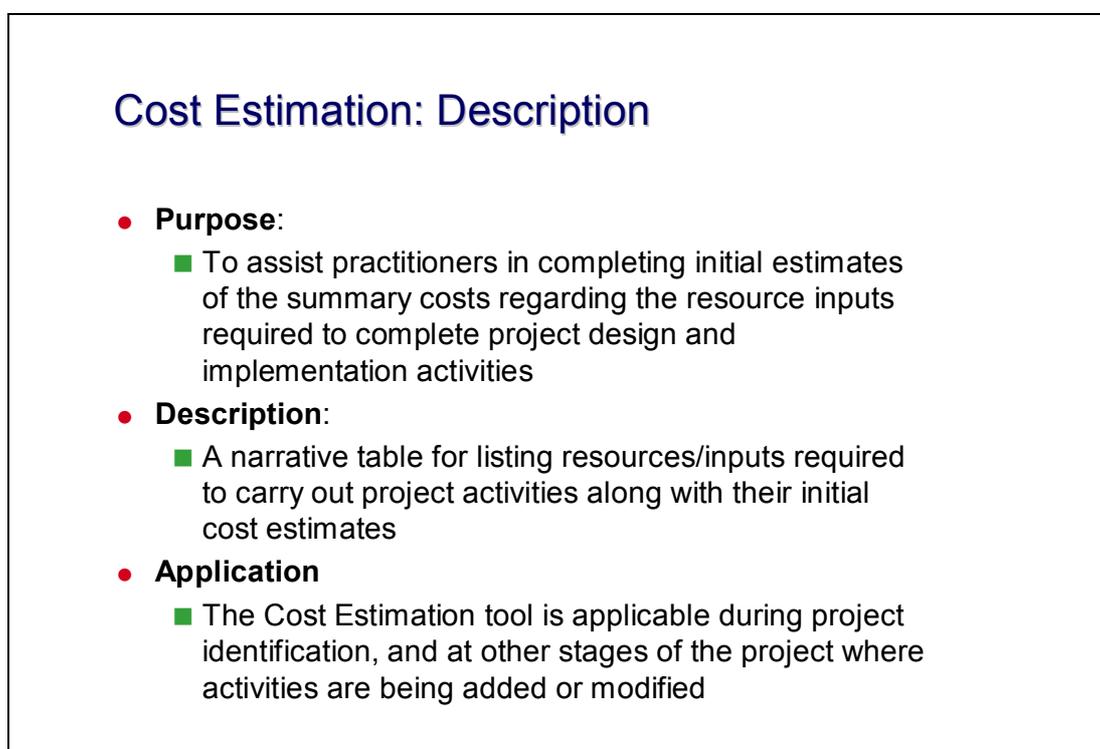


Figure V.36. Cost Estimation – Illustration

Cost Estimation: Illustration

Project or Project Component: _____

| Resources/Inputs | Estimated Cost |
|-------------------------|----------------|
| Construction works | |
| Materials | |
| Land | |
| Utilities | |
| Permits & Licences | |
| Pre-feasibility study | |
| Technical documentation | |
| Etc. | |
| Total Costs | |

Figure V.37. Cost Estimation – How to use

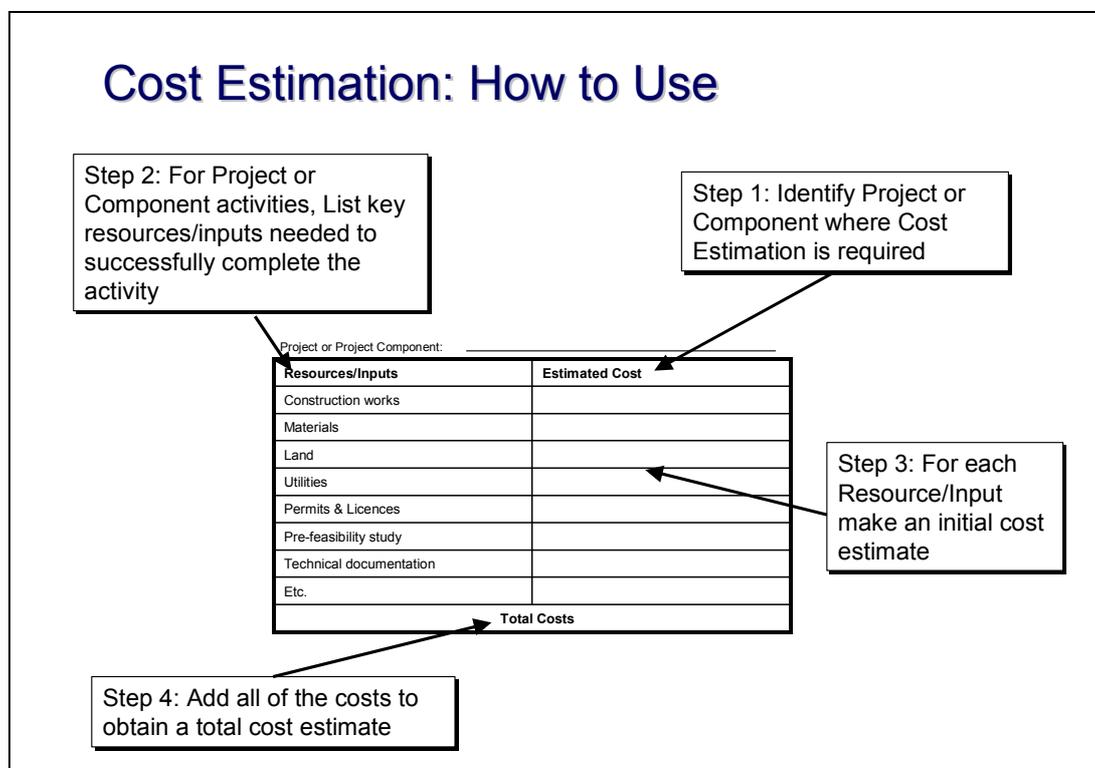


Figure V.38. Cost Estimation – Example

Cost Estimation: Example

Project Component: MyCity Wastewater Tunnel Works

| Resources/Inputs | Estimated Cost |
|-------------------------|-----------------------|
| Construction works | 6.92 M EUR |
| Materials | 2.60 M EUR |
| Land | 0.50 M EUR |
| Utilities | 0.70 M EUR |
| Permits & Licences | 0.20 M EUR |
| Pre-feasibility study | 0.18 M EUR |
| Technical documentation | 0.30 M EUR |
| Etc. | 0.60 M EUR |
| Total Costs: | 12.00 M EUR |

Conclusion

An old Asian saying states “success is in the opening time.” The “opening time” for a project is the Project Identification stage. It is here that all of the key factors of project success – ownership, relevance, effectiveness, efficiency, implementability and sustainability – need to be first considered and made an integral part of the project’s design. The Project Identification stage template, the PPD, guides the practitioner through a structured and systematic process of ensuring that all of these key factors of project success are in fact built into the project at this early stage of project design.

The project management tools introduced in this chapter assist the practitioner in making sound project identification decisions throughout this stage, and in providing information required for completing a high-quality PPD. At the end of the Project Identification stage, a PPD that outlines all necessary elements for a “fundable project” should be in a format acceptable and ready for presentation to financial institutions and other stakeholders with an interest in the project

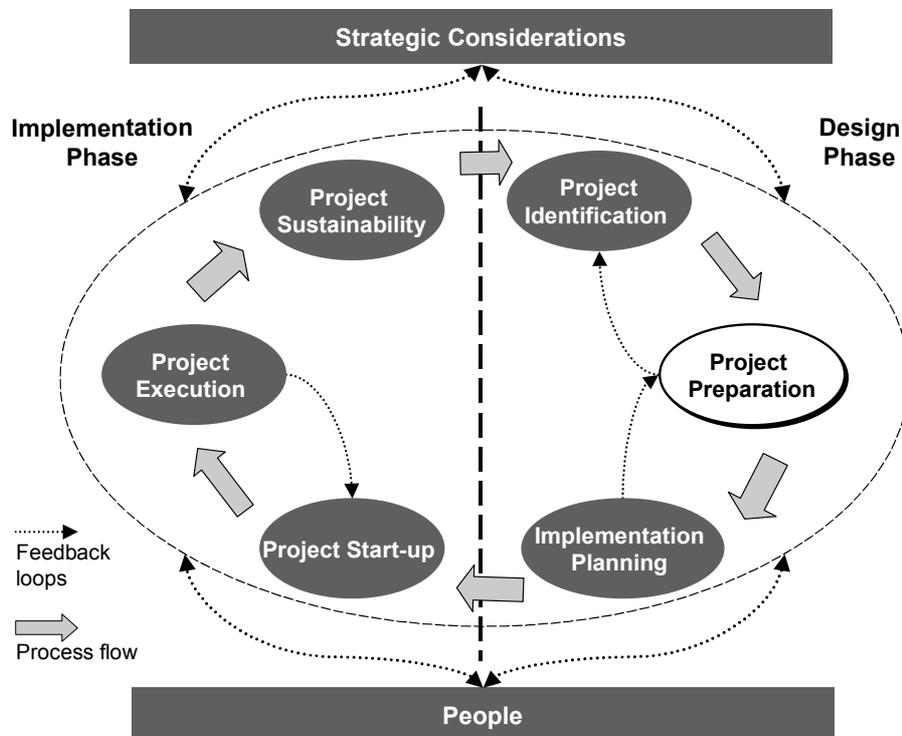
investment. Based on their review of the PPD, the financial institutions can quickly decide whether the investment passes the initial “fundable project” test, and whether they will support the proposing entity in further developing the project during the Preparation stage.

CHAPTER VI: PROJECT PREPARATION

Overview

Once a potentially “fundable” project has been identified, and a Project Proposal Document (PPD) has been reviewed and accepted by the sponsoring government and financing entities, the project enters the Project Preparation stage. During Project Preparation, the entire project is subjected to a more detailed iteration of the project's overall feasibility, given the strategic context. To begin the Project Preparation process, the practitioner should begin with the PPD, described in Chapter V. If the PPD was fully and thoughtfully completed, the detailed preparation of a more elaborated project design worthy of final approvals and financing should be a straightforward, albeit intensive and time-consuming, process. Figure VI.1 provides an illustration of how the Project Preparation stage fits into the RIP Project Management Framework.

Figure VI.1. PMToolkit Project Management Framework – Project Preparation



The primary focus of Project Preparation is “feasibility.” The project manager or practitioner is interested in demonstrating that the project design is feasible with respect to its effectiveness and efficiency. The issues of implementability and sustainability are also important, and are dealt with in detail in Chapter VII, Implementation Planning, and Chapter X, Sustainability. To demonstrate feasibility, the project manager requires highly detailed information about the project and its context. This information will augment that contained in the PPD and may include:

- More specific and measurable indicators on expected project results
- Preliminary technical designs for each project component
- Additional information on legal and institutional constraints that may impact the project
- More detailed feasibility information related to the issues identified in the PPD (technical, economic, financial, environmental, institutional and social)
- A more rigorous specification of potential project risks along with plans for their mitigation
- Information for effectively communicating the project design to key stakeholders and other sponsors to assure their continued buy-in to the project.

In the RIP's project preparation work with infrastructure projects in South East Europe, we have found it beneficial to employ a generic project preparation template for guiding the Project Preparation process. The template that the RIP developed, and is using for this purpose, is described below.

Template: The Project Appraisal Document (PAD)

The PAD provides a comprehensive project review and lays the foundation for project implementation planning, for timely start-up and execution, and for results evaluation. The PAD addresses all major dimensions of project feasibility – technical, economical, financial, institutional, social, and environmental aspects. In particular, for infrastructure-related projects, all of the international financing

entities (IFI) require a separate environmental review. This environmental due diligence ensures that each project is environmentally sound.

Many governments and all of the IFIs use a panel to review and appraise final project proposals. The review and appraisal panel may vary in size and include different technical staff from inside the government or IFI itself, as well as selected outside experts. The basic questions addressed by any panel undertaking a project appraisal during project preparation may be summarized as follows:

- Is there **ownership** and commitment for the project among key stakeholders?
- Will the project be **relevant** to the government's and IFI's policy objectives?
- Will the project as designed be **effective**, and are risks manageable?
- Is the project as designed the most cost-effective approach, and will it be economically efficient?
- Is there a project management organization with capacity to successfully implement the project?
- Will the project results be **sustainable** so that there will be an appropriate return on the project's investment?

With those questions as context, the aim of the PAD is to provide summarized information to government sponsors and other funding institutions (including IFIs and potential private sector investors) regarding all relevant feasibility issues, as well as a clear project management plan.

The PAD document itself serves as a generic template for a project funding application (proposal) providing the information typically required by most governments and IFIs, as well as a basis for project appraisal (see Figure VI.2). For infrastructure projects, the PAD is typically supported by various feasibility study reports and an Environmental Impact Assessment (EIA). In addition to the PAD and the supporting documents mentioned above, studies may be needed to address potential risks prior to a decision to award. The practitioner may be asked by the sponsoring entities to undertake such studies (many times at the practitioner's own

cost). Therefore, the more complete, the more questions answered, and the fewer issues left unresolved by the PAD, the greater the chances of a smooth appraisal and eventual award for a project.

Figure VI.2. The Project Appraisal Document (PAD) Template

Project Appraisal Document (PAD) Template

[Note to Project Preparation Team: This file contains a generic template for a Project Appraisal Document, used to summarize the results of the feasibility study and other project preparation activities. The template serves as a guideline for developing a "bankable project proposal." A document following this format (plus attachments) will be required as the primary deliverable for project preparation activities. The template should be modified as required to fit the specific requirements of the proposing entity and financing institutions.]

A. Project Development Objective

Project Development Objective

[Note: Describe the targeted and measurable key performance indicators and source information for their monitoring from the project goal level of the project logframe.]

Key Performance Indicators

[Note: Describe the key performance indicators and their monitoring source of information for the project purpose, and the project outputs hierarchical levels.]

B. Strategic Context.

Project background and context including regional and country policies and strategies

The broad national, program or sector goals that the project supports

[Note: Summarize assessment of key regional policies and the country's strategy to address them, referencing sector and other relevant studies of sponsor and financing entities.

Key project issues

[Note: Of the issues identified in B.1 specify those that are most critical for the proposed project, indicating the strategic options, e.g., private vs. public techniques, assessed in the sector and policy work related to the project.]

C. Project Description Summary

Project Components

[Note: Provide hierarchical breakdown of project elements, which defines and organizes the total scope of the project using the WBS tool

Key Policy and Institutional Reforms Supported by the Project

Benefits and Target Population

[Note: Provide the summarized information regarding beneficial impacts from the technical, economic, social, and environmental analysis.]

Institutional and Implementation Arrangements

D. Project Rationale

Project alternatives considered and proposed solution/approach including a justification

[Note: Summarize the major project alternatives considered for resolving the project problem, and provide description of trade-offs. If appropriate, include alternative tree diagram that highlights selected project solution.]

Participatory approach and stakeholder commitment

[Note: List key players for project design, implementation and sustainability, and how they have participated along with their level of ownership and support for the project.]

| <u>Key Stakeholders/Beneficiaries:</u> | <u>How Involved?</u> | <u>Commitment?</u> |
|--|----------------------|--------------------|
| | | |
| | | |
| | | |

Major related projects or activities and how they are linked

| <u>Related Projects (Planned or Ongoing):</u> | <u>Important Linkages:</u> |
|---|----------------------------|
| | |
| | |
| | |

Reflections in proposed project of lessons learned from relevant projects

| <u>Previous Projects:</u> | <u>Lessons Learned:</u> | <u>Implications:</u> |
|---------------------------|-------------------------|----------------------|
| | | |
| | | |

E. Summary Project Analysis

[Based upon the outcome of the project feasibility assessment, state why the project is likely to be sound from each of these perspectives.]

Economic

[Indicate reasons why project is likely to be sound from an economic perspective]

Financial

[Indicate reasons why project is likely to be sound from a financial perspective, (e.g., cost recovery, cost controls, accountability)]

Technical

[Indicate reasons why project is likely to be sound from a technical perspective, (e.g., appropriate technology, standards)]

Institutional and managerial

[Indicate reasons why project is likely to be sound from an institutional and managerial perspective (e.g., administrative regulations, project management experience, contracting procedures, monitoring and evaluation capacity)]

Social

[Indicate reasons why project is likely to be sound from a social perspective, and issues requiring special attention during preparation (e.g., gender issues, involuntary resettlement, impact on vulnerable groups)]

Environmental

[Indicate results of initial environmental screening and the overall EIA process]

F. Risks and Sustainability

Factors critical for sustainability of project benefits Critical Risks and Risk Mitigation Plan

[Provide an assessment of the overall risk of the project and describe in more detail the principal risks of the project. Describe the plan to mitigate identified risks.]

| <u>Assumptions/Risks in the fourth column of PPD, Annex 1</u> | <u>Risk Rating</u> | <u>Risk Minimization Measure</u> |
|---|--------------------|----------------------------------|
| PPD Annex 1, cell "from Outputs to Purpose" | | |
| PPD Annex 1, cell "Inputs to Outputs" | | |
| Overall Risk Rating | | |

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

Possible controversial aspects:

[Describe any risks outside the control of the project, such as political instability, violence, etc.]

G. Negotiations and Final Approvals

Additional project preparation activities and schedule

[Summarize key features regarding preparation of additional project documentation required for issuing construction permit and project start-up (detailed engineering design, safety and occupational health statement, and other supplemental documentation according to the requirements of local authorities, as well as procurement documentation for competitive bidding procedure)]

Administrative and regulatory requirements for project approvals

[Note: Summarize key licenses, construction permissions and regulatory procedures required from the local authority/agency]

Procurement and contracting requirements for project implementation

[Summarize key procurement and contracting procedures required by the country procurement law and regulations, as well as procurement guidelines relevant for IFI approached. Specify time and cost requirements associated with preparation of procurement (tender documentation)]

4. Project Implementation Plan

[Summarize key features of project implementation plan per Annex 2]

List of Required Annexes:

1. Completed Logical Framework Summary
2. Project Implementation Plan (PIP) – See Chapter VII of the PMToolkit
3. Full Feasibility Study
4. Environmental Impact Assessment of the project (complete)

ANNEX 1: LOGICAL FRAMEWORK SUMMARY

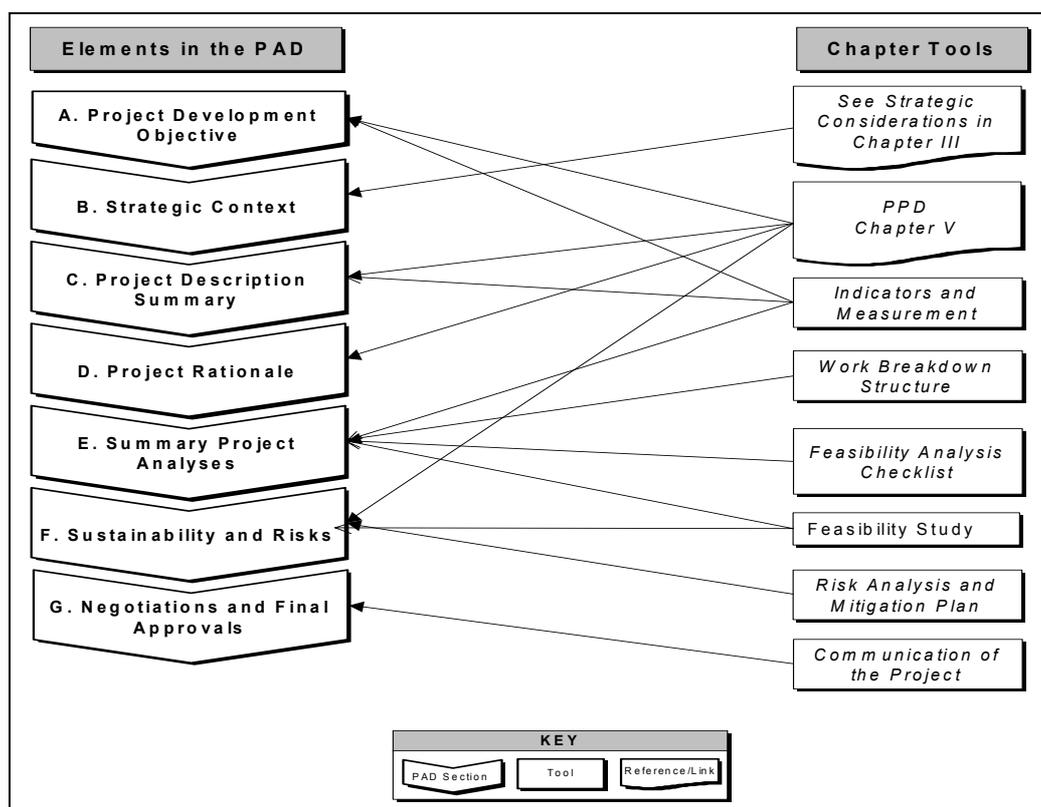
Project Title: _____ Date: _____

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|--|-----------------------------------|-----------------------|------------------------------------|
| <u>Goals:</u> | | | <u>Goals-to-Higher Objectives:</u> |
| <u>Purpose:</u> | | | <u>Purpose-to-Goals:</u> |
| <u>Outputs:</u> | | | <u>Outputs-to-Purpose:</u> |
| <u>Activities by Component (Inputs):</u> | <u>Inputs/Resources:</u> | | <u>Inputs-to-Outputs:</u> |

Tools in Perspective

Specific tools used in completing the PAD are listed below in the order recommended for use during Project Preparation. Figure VI.3 describes the flow of the different tools presented in this chapter in order to put together all of the PAD elements. For instance, in defining part A of the PAD document (the Project Development Objective), the practitioner can use information from the PPD document with information from the horizontal logic of the Logical Framework matrix (key performance indicators and the means of their verification). Similarly, the practitioner can use information from the same PPD as key input for parts C, D, and F of the PAD. To summarize the key project feasibility dimensions in part E, the practitioner uses the information developed in the Work Breakdown Structure (WBS) tool and the Feasibility tools.

Figure VI.3. Using the Tools to Complete the PAD



Each Project Preparation tool is described in Table VI.1.

Table VI.1. List of Tools

| Tools | Description |
|--|--|
| Indicators and Measurement | The middle two columns of the Logical Framework matrix which contains indicators and sources of data for measuring objectives listed in the Narrative Summary column |
| Work Breakdown Structure | Hierarchical breakdown of project elements that defines and organizes the total scope of the project |
| Feasibility Analysis Checklist | Guideline or checklist of the minimum questions that the different feasibility analyses should answer |
| Feasibility Study | A comprehensive summary table which includes sufficient information for understanding feasibility analysis indicators, inputs and techniques for various project dimensions |
| Risk Analysis and Mitigation Plan | Table with a narrative description of the likely risks that may adversely impact the achievement of project objectives, along with solutions to deal with them |
| Communication of the Project | Template to create a project communication document which follows a standard method of using the “vertical” and “horizontal” features of the logical framework matrix to communicate the key elements of a project, and demonstrate its quality dimensions |

MyCity Project Case: Project Preparation Stage

During the previous 3 months, the MyCity Council accepted the PPD prepared by a local consultancy firm and submitted it to the EuroBank. The EuroBank had previously expressed an interest in funding the wastewater infrastructure project. The national government also supported the project and appointed a representative of the EEPA to take part in preparation and evaluation of the PPD. According to the plan, during the following 12 months, a comprehensive feasibility study will be prepared to demonstrate the overall feasibility of the project to both the EuroBank and the national government. A completed PAD will be submitted to the Appraisal Mission of the EuroBank. During project preparation, while feasibility analyses are underway, implementation planning will begin. The implementation planning process (as explained in Chapter VII) will generate the key information required to develop a sound Project Implementation Plan (PIP). The Appraisal Mission will evaluate the project (both the PAD and the PIP) and, if deemed worthy of funding,

suggest the acceptance of the project to the EuroBank Board. At the end of this stage, the EuroBank Board will approve the project and its funding.

Changes in the Project Context

The newly established PMU issued the competitive bid notice for the feasibility study preparation. The decision of the local government Infrastructure Committee on the winner selection divided the political parties. The City Council approved the decision of the committee, but political tensions increased public awareness of the project. When the first draft of the feasibility study was made available to the public, some groups raised issues related to the project's social impact on low-income families because of the proposed increase in tariffs.

The initial review feasibility study suggested some changes in the project design when compared to the original PPD. While the study proved the overall project feasibility, it also highlighted some threats and risks associated with project implementation, as well as a need for several institutional changes. The feasibility study recommendations have also:

- Affected the financing plan of the project
- Recognized the potential rise of social tensions caused by the new tariff system. As a result, some compensation measures will need to be introduced
- Highlighted that the uncertainty about future client willingness to pay will require a 5 percent larger average tariff than calculated previously to compensate for the arrears.
- Shown that with more efficient management, the operation and maintenance costs (O&M) of the Water and Sewage Company could be decreased by 5 to 10 percent.
- Shown that some institutional measures are needed to ensure project liquidity, i.e., positive cash flows over the project execution, because of the risks related to the loan repayment to EuroBank.

Based on the feasibility study, the PMU and the Infrastructure Committee put together the first draft of the PAD and the PIP. The suggested tariff system in the first drafts of the PAD and PIP led to increased political debate and public awareness. The opposition party and some local NGOs organized public protests against the introduction of the proposed tariff system. Due to political pressure, the Mayor was forced to organize an Interest Compliance Forum, whereby all the interested stakeholders were invited to contribute to the definition and set-up of the new tariff system. The PMU and the Infrastructure Committee revised the PAD and the PIP, taking into account the forum and the Ministry of Water and Environment's comments and submitted the revised versions to the council and the ministry on 27 April 2003. Due to the political tensions, the project timetable was also updated, resulting in a three-month extension. Meanwhile, both the ministry and the MyCity Council approved the funding documents and proceeded with negotiations.

The Bank Appraisal Mission visited the city during the first week of June and met with the PMU officers, representatives of all parties, the Water Company, and the ministry. The Appraisal Mission report requested some changes in the project's management structure. It suggested creation of the management consortia (Board) formed on a contractual basis between the representatives of the three funding agencies (EuroBank, national government, and local government). The mission members also requested that the autonomy of the PMU be strengthened so that it would be less subject to local political debates and influences, bearing in mind the forthcoming local elections. Therefore, as a precondition for approving the loan, the Appraisal Mission recommended a test period of 6 months for assessing the sustainability of PMU autonomy. Both the ministry and the council subsequently accepted these suggestions, and the PAD and the PIP were revised accordingly. By the end of September, the EuroBank Board had approved the project according to the Appraisal Mission's recommendations. In the meantime, a local election process was held in MyCity where the opposition gained control of the city government.

SWOT Analyses Update

During the Project Preparation stage, some changes occurred in MyCity's social and political environment and hence in the project design. The feasibility study proved the feasibility of the project and led to the bank's approval, which strengthens the chances of project success. The national government also approved the PAD and the suggested institutional changes that reinforced its commitment to the project. The political debate on the tariff structure took place during project preparation, and as a result, the public became well informed about the project. Through the Interest Compliance Forum, they contributed to and accepted this needed and critical policy. On the other hand, this debate extended the project timetable by 3 months. At the end of the project preparation process, a new party won the local elections. This resulted in a less supportive political environment.

Best Practices

The Interest Compliance Forum used the Participation Choice tool described in Chapter IV, *People*, to increase the commitment of local interest groups to the project.

Concluding Statement

In this stage, important decisions were made that enhanced the prospects for MyCity project success. The flexibility and creativity of the project leaders led to the city government's and bank's decision to approve and fund the project.

Tool Descriptions

Six project preparation tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project update, are focused on the Project Preparation stage of the project where the identified project is further elaborated for appraisal and financing by sponsor entities. All of the Project

Preparation tools have possible applications and linkages to later stages of the project cycle.

Indicators and Measurement

By revisiting the Logical Framework tool introduced in Chapter V and focusing on the tool's "horizontal logic," the practitioner can determine measurable performance indicators and sources of information for monitoring and supervision. In this manner, the practitioner can explicitly define the measures that will indicate project implementation success – referred to as objectively verifiable indicators (OVI). The practitioner must also specify the information sources required for indicator verification – referred to as means of verification (MOV).

The Indicators and Measurement tool assists the practitioner in this effort by:

- Bringing specificity to the project design – to translate the targeted and measurable key performance indicators into the requirements for project feasibility at each level of the project's hierarchy of objectives (goals, purpose, outputs, and activities)
- Using the targeted performance indicators and monitoring information from project activities, outputs and purpose levels in order to establish the project Feasibility Study Terms of Reference (ToR)

The output of the Indicators and Measurement tool is a clear definition of a project's results indicators and the information sources required for their verification. All of this information is required for drafting and refining a high-quality PAD. The Indicators and Measurement tool is described in the following figures.

Figure VI.4. Indicators and Measurement-Description

Indicators and Measurement: Description

- **Purpose**
 - To assist the project manager in determining verifiable indicators, and sources of information for their measurement for each level of a project’s objectives
- **Description**
 - The middle two columns of the Logical Framework matrix which contains indicators and sources of data for measuring objectives listed in the Narrative Summary column
- **Application**
 - Targeted indicators are needed during design for describing the project and guiding feasibility analyses; during implementation project indicators are useful for monitoring and evaluation of results

Figure VI.5. Indicators and Measurement – Illustration

Indicators and Measurement : Illustration

Application of the horizontal logic

| Narrative Summary | Performance Indicators <small>(Objectively Verifiable Indicators)</small> | Monitoring & Supervision <small>(Means of Verification)</small> | Important Assumptions |
|-------------------|--|--|-----------------------|
| Goals: | | | |
| Purpose: | | | |
| Outputs: | | | |
| Activities: | | | |

Figure VI.6. Indicators and Measurement – How to Use

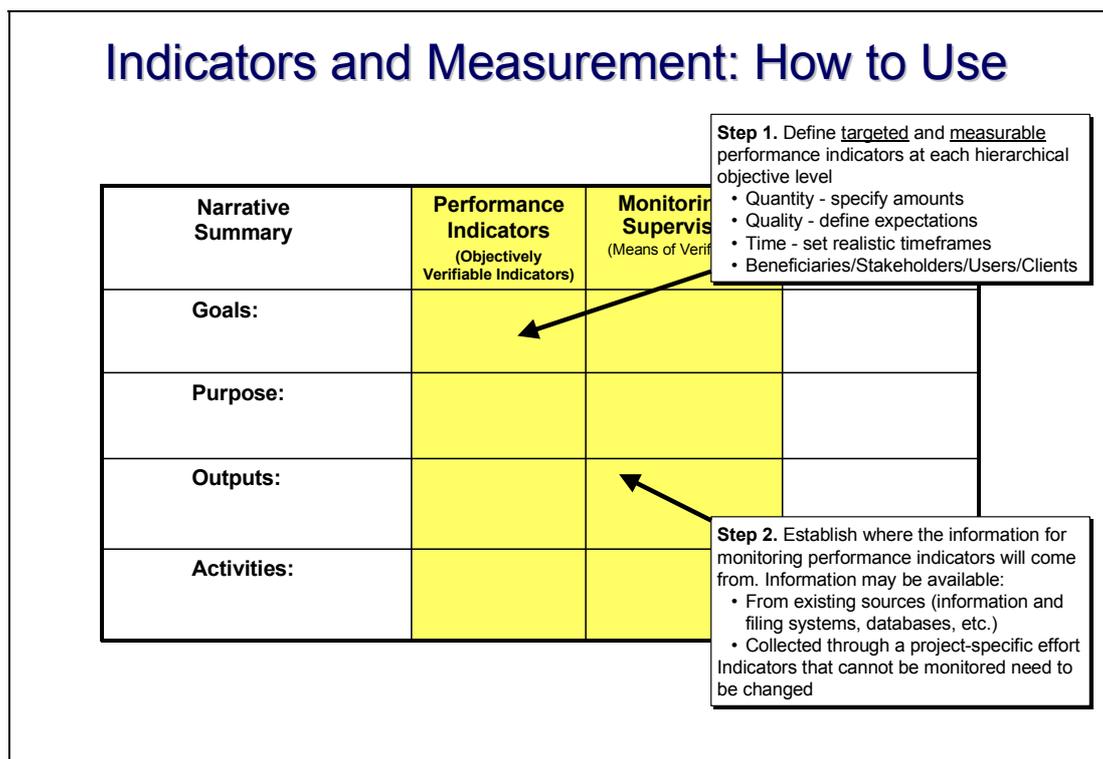


Figure VI.7. Indicators and Measurement – Example

Indicators and Measurement: Example

| Narrative summary | Performance Indicators | Monitoring and Supervision |
|--|--|--|
| <p>Goals:</p> <p>1. To provide continuous safe drinking water resources for MyCity Metropolitan area (Etc.)</p> | <p>1. Compliance with 90% of National standards and 60% of EU standards for water quality</p> | <p>National Statistics Bureau</p> |
| <p>Purpose:</p> <p>1. To increase MySuburb household use of a modern wastewater system on a sustainable basis in accordance with EU and EurLandia standards.</p> | <p><u>BoSS (Beginning of Sustainability Status)</u></p> <p>1.1. 90% of MySuburb households (10,000 households) are connected to the new sewerage system</p> <p>1.2. 95% of connected household pay bills on time</p> <p>1.3. Revenues cover 100% of operating and maintenance cost, and debt service</p> | <p>1. MyCity Statistics Bureau</p> <p>2. Records of Water and Sewerage Company</p> <p>3. Water and Sewerage Company Budget</p> |
| <p>Outputs:</p> <p>1. Infrastructure component</p> <p>1.1. Wastewater collector and sewerage network operational (Etc.)</p> <p>2. Institutional Component</p> <p>2.1. Local policy for environmental protection carried out successfully (Etc.)</p> | <p>1.1.1. 20.7 km of wastewater collectors constructed on time and within budget</p> <p>1.1.2. Completed works pass final inspection</p> <p>2.1.1. The Local Policy follows the recommendations of LEAP</p> | <p>1.1.1. Report of Revision of Implementation for wastewater collection construction</p> <p>1.1.2. Final Inspection Report for wastewater collector construction (Etc.)</p> |
| <p>Activities component:</p> <p><u>1. Infrastructure component</u></p> <p>1.1. Construct wastewater sewer collector and sewerage network (Etc.)</p> <p><u>2. Institutional component</u></p> <p>2.1 Do policy implementation research and make recommendations (Etc.)</p> | <p><u>Inputs/Resources</u></p> <p>1.1 7.76 MEUR (Etc.)</p> <p>2.1 0.48 MEUR (Etc.)</p> | <p>1.1 Project Budget</p> <p>2.1 Project Budget</p> |

Work Breakdown Structure (WBS)

The WBS is a method for elaborating the scope of a project by decomposing project elements into their component parts. Detailing a project with a WBS yields a more detailed understanding of the technical composition of the project components and thus provides a basis for cost estimating and scheduling resource requirements. The WBS assists in managing technical performance, expenditure of programmed funds, and scheduling of deliverables or milestones. A project is disaggregated into progressively smaller pieces that are more manageable collections of interrelated tasks or “work packages.” An effective and useful WBS should be constructed by keeping in mind the following:

- Giving visibility to important or risky work efforts
- Allowing clear mapping of requirements, plans, testing, and deliverables
- Fostering ownership of particular “work packages” by task leaders
- Providing data for performance measurement and historical databases
- Making sense to the individuals actually performing the work and personnel responsible for tracking project costs.

In completing the PAD, a practitioner may use a WBS to determine the major project components (see PAD template, Part C: Project Components); and the different technical dimensions of each component guide feasibility analysis (see PAD template, Part E: Summary Project Analyses). During Project Implementation Planning (Chapter VII), the WBS tool provides a basis for more detailed implementation planning of all project components.

There are many ways to design a WBS for a particular project, and there are sometimes as many views as people in the process. Simple practicality usually provides the best approach. A WBS for a large, multi-agency, multi-year project will have many levels of detail. Whether three or seven levels are required, work packages should add up through each WBS level to form the project total in terms of both implementation activities and resource requirements. WBS elements are

usually numbered, and the numbering system may be arranged according to a practitioner’s preferences. The WBS tool is described in the following figures.

Figure VI.8. Work Breakdown Structure – Description

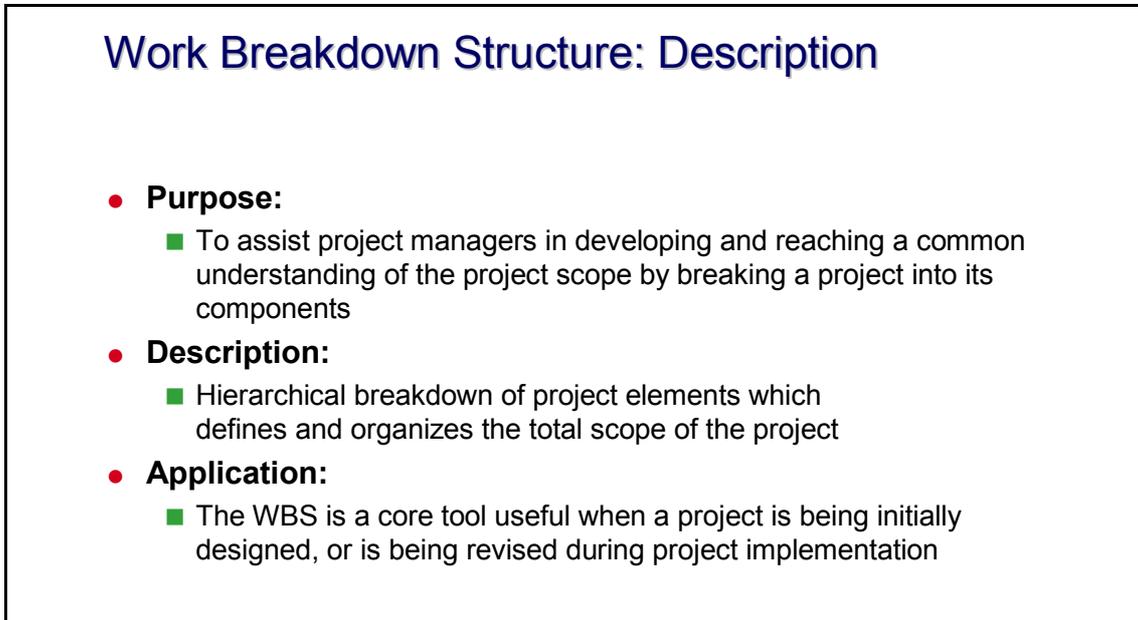


Figure VI.9. Work Breakdown Structure – Illustration

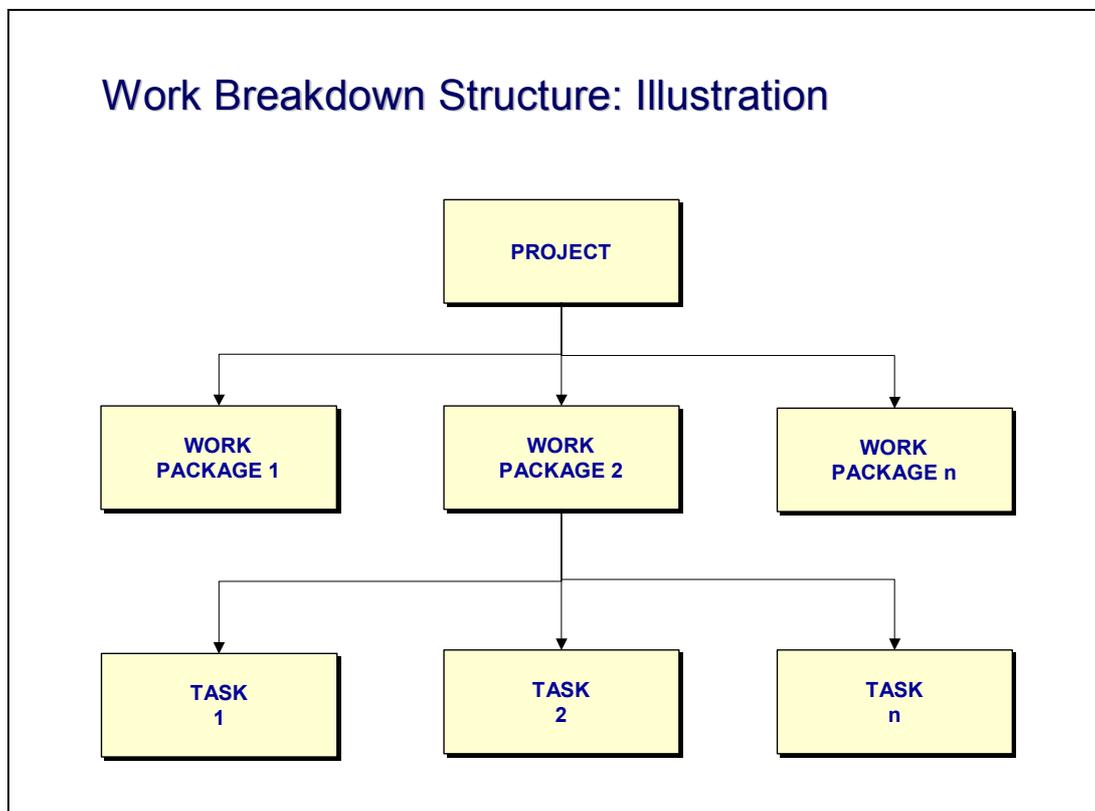


Figure VI.10. Work Breakdown Structure – How to Use

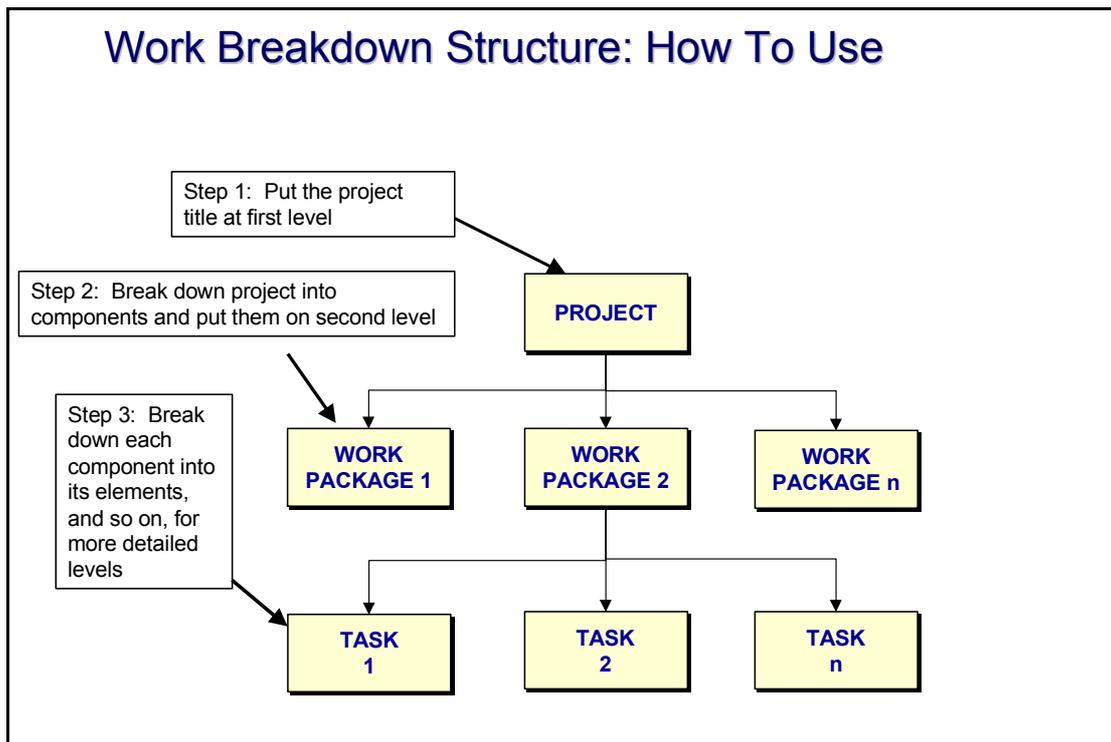
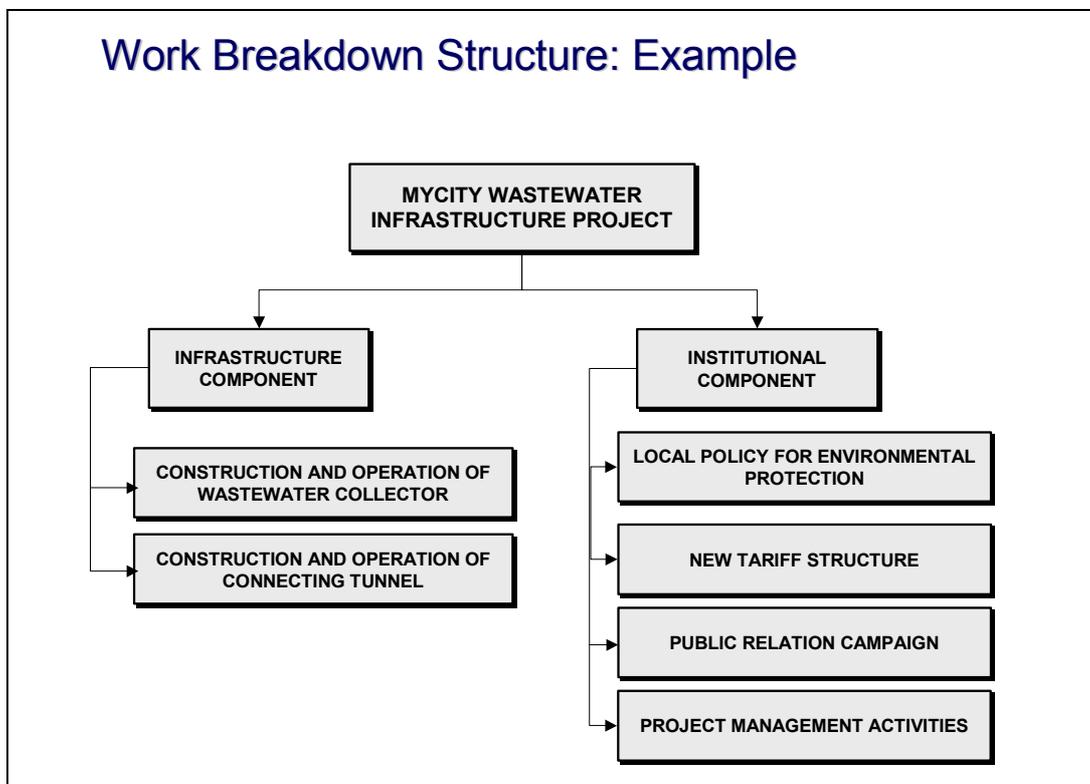


Figure VI.11. Work Breakdown Structure – Example



Feasibility Analysis Checklist

The purpose of feasibility analysis is to concretely demonstrate a project's prospects for success based upon a confluence of important factors described in earlier chapters of the PMToolkit. A pre-feasibility analysis is completed as part of the PPD in order to assure sponsors and financing entities that the project passes an "initial feasibility screening." A full feasibility analysis is completed as part of the detailed project preparation process. The ultimate product of the Project Preparation stage is a "feasibility study report," which is a document required by most government sponsors and prospective financing entities as a basis for comprehensive project appraisal. The project proposer (typically a government entity) or a contractor usually conducts the feasibility analysis. In most cases, IFIs and/or bilateral or multilateral donors provide financial support for its preparation.

To be successful in the eyes of a government sponsor or funding agency, a feasibility analysis must:

- State the project objectives and overall scope
- List major project components and important assumptions
- Demonstrate full feasibility for each element of the project's scope
- Address the project's risks and uncertainties along with the appropriateness of mitigation plans;
- Identify outstanding issues and concerns.

During Project Preparation, the practitioner needs to understand the feasibility analysis process to be effective in:

Preparing the ToR for the feasibility analysis. What are the questions that the Feasibility Study needs to address? What is required from the analysis, and what are the risks identified (i.e., by referring to the Logical Framework "Assumptions" column) in each dimension of feasibility that needs to be addressed?

Assessing whether the completed feasibility analysis meets its objectives or not. Is it complete? Does it answer all the questions required?

Transferring the information from the feasibility analyses into the PAD. What are the key pieces of information that are required to demonstrate project feasibility? How does the practitioner use the information?

Two tools described in this chapter help frame answers to these crucial questions: a Feasibility Analysis Checklist, and the Feasibility Study. The Feasibility Analysis Checklist tool is described here.

The Feasibility Analysis Checklist provides the basis for a comprehensive feasibility analysis and guides the practitioner in giving special consideration to all potential issues affecting project feasibility during project preparation. The major feasibility issues that are relevant during the Project Preparation stage include:

1. Economic Analysis
2. Financial Analysis
3. Technical Analysis
4. Environmental Analysis
5. Institutional and Managerial Analysis
6. Social Analysis.

Depending upon the source of project funding, some feasibility issues require more or less emphasis. For instance, if the proposing entity applies for loan financing from a commercial bank, the institution providing the loan collateral will be heavily scrutinized. IFIs require similar justification; but due to their overall development objectives, in some cases they are willing to take greater risks in certain areas and place more emphasis on an overarching goal.

For bilateral and multilateral IFIs, the project development objective is crucial because the priority given project results and impact often outweighs other factors under consideration. For the EU, it is critical that the project complies with the EU Directives and their strategic considerations, i.e., how does this project support regional economic and political integration? A common requirement is compliance

with national standards (environmental, legal, etc.) within the country in which the project is being prepared. The Feasibility Analysis Checklist is described below.

Figure VI.12. Feasibility Analysis Checklist – Description

Feasibility Analysis Checklist: Description

- **Purpose:**
 - Assist the project manager in ensuring that all critical issues are covered in the six feasibility dimensions (Economic, Financial, Technical, Institutional, Environmental and Social) and that they are reflected in the PAD's Summary Analysis Section
- **Description:**
 - Guideline or checklist of the minimum questions that the different feasibility analyses should answer
- **Application**
 - Use the checklist as a guide in preparing the Summary Project Analysis section in the PAD, or when the project is being modified with the addition of new components or technical activities

Figure VI.13. Feasibility Analysis Checklist – Illustration

Feasibility Analysis Checklist: Illustration

| QUESTIONS TO BE ANSWERED BY A FEASIBILITY ANALYSIS | |
|--|---|
| <p>ECONOMIC</p> <ul style="list-style-type: none"> Do the expected benefits exceed the costs over the lifecycle of the project? Does the preferred alternative have the highest benefits relative to other costs? Have avoidable user/customer costs been considered such as accidents, travel time, and water consumption costs? Have costs for each stage of the lifecycle been considered (e.g. planning, design, construction, operations, and maintenance)? Are the benefits and costs distributed in an acceptable manner among those who are affected by the project or who will pay for it? Do intangible and non-quantifiable benefits and costs support economic feasibility? | <p>INSTITUTIONAL</p> <ul style="list-style-type: none"> Can the project be implemented within the legal and regulatory framework? If not, can the legal and/or regulatory framework be changed? Is the project consistent with policy? Do the implementing agencies have the capacity to do the project (i.e. required culture, leadership, vision, strategy, and funding)? Has there been adequate notification and buy-in on the part of key institutional stakeholders including government, regulatory bodies, the judiciary, private sector, and Non-Governmental Organizations? Can the government, private sector and other partners achieve the necessary agreements? And are the agreements enforceable? Do necessary procurement procedures exist for the project? Is the process based on objective and credible selection criteria? Is there a project management organization with capacity to do the project? Is it possible to establish organizational goals, objectives, and targets and responsibility to achieve them? Do project management personnel have the background, experience, and training to manage the project? Are adequate project management processes available, including procurement and human resources? Are the financial management systems and personnel adequate for project accounting, monitoring, internal controls, evaluation, auditing and reporting? Are there major barriers to internal or external communications? Is the communications infrastructure adequate? |
| <p>FINANCIAL</p> <ul style="list-style-type: none"> Can financial resources be provided for the project in a timely fashion? Are public financial resources sufficient? Are private resources sufficient? Or are both public and private financial resources required? Is the return on investment large enough to compensate for the risk? Is the return on investment greater or equal to the return on similar investments with similar risk? To the next best investment? Will the cash flow be sufficient to sustain the project? | <p>ENVIRONMENTAL</p> <ul style="list-style-type: none"> Is any single type of negative environmental impact - direct or indirect -- unacceptably large? Are any combination of or cumulative negative impacts unacceptably large? Will the project comply with all environmental laws and regulations? Are environmental public interest groups likely to oppose and undermine support for the project? Are there any environmental resource bottlenecks or constraints that cannot be overcome such as energy availability, protected habitat, or exceptionally sensitive biota? Will the project adversely affect public health and safety? |
| <p>TECHNICAL</p> <ul style="list-style-type: none"> Is the project concept appropriate for the site's physical conditions? Is the core concept structurally feasible? Is the core concept technologically sound and feasible? Can the physical resources for the project be provided, especially equipment and materials? Can the technical expertise to carry out the project be provided? | <p>SOCIAL</p> <ul style="list-style-type: none"> Will the project cause unacceptable social, cultural, or economic disruption or strain during construction or any other phase of the project? Will the project increase jobs and income? Divert resources in a noticeable way from other activities that would create more jobs and income? Will the project be perceived as being socially unjust as a result of the distribution of benefits or costs? |

Figure VI.14. Feasibility Analysis Checklist – How to Use

Feasibility Analysis Checklist: How to Use

| QUESTIONS TO BE ANSWERED BY A FEASIBILITY ANALYSIS | |
|--|---|
| <p>ECONOMIC</p> <ul style="list-style-type: none"> Do the expected benefits exceed the costs over the lifecycle of the project? Does the preferred alternative have the highest benefits relative to other costs? Have avoidable user/customer costs been considered such as accidents, travel time, and water consumption costs? Have costs for each stage of the lifecycle been considered (e.g. planning, design, construction, operations, and maintenance)? Are the benefits and costs distributed in an acceptable manner among those who are affected by the project or who will pay for it? Do intangible and non-quantifiable benefits and costs support economic feasibility? | <p>INSTITUTIONAL</p> <ul style="list-style-type: none"> Can the project be implemented within the legal and regulatory framework? If not, can the legal and/or regulatory framework be changed? Is the project consistent with policy? Do the implementing agencies have the capacity to do the project (i.e. required culture, leadership, vision, strategy, and funding)? Has there been adequate notification and buy-in on the part of key institutional stakeholders including government, regulatory bodies, the judiciary, private sector, and Non-Governmental Organizations? Can the government, private sector and other partners achieve the necessary agreements? And are the agreements enforceable? Do necessary procurement procedures exist for the project? Is the process based on objective and credible selection criteria? Is there a project management organization with capacity to do the project? Is it possible to establish organizational goals, objectives, and targets and responsibility to achieve them? Do project management personnel have the background, experience, and training to manage the project? Are adequate project management processes available, including procurement and human resources? Are the financial management systems and personnel adequate for project accounting, monitoring, internal controls, evaluation, auditing and reporting? Are there major barriers to internal or external communications? Is the communications infrastructure adequate? |
| <p>FINANCIAL</p> <ul style="list-style-type: none"> Can financial resources be provided for the project in a timely fashion? Are public financial resources sufficient? Are private resources sufficient? Or are both public and private financial resources required? Is the return on investment large enough to compensate for the risk? Is the return on investment greater or equal to the return on similar investments with similar risk? To the next best investment? Will the cash flow be sufficient to sustain the project? | <p>ENVIRONMENTAL</p> <ul style="list-style-type: none"> Is any single type of negative environmental impact - direct or indirect -- unacceptably large? Are any combination of or cumulative negative impacts unacceptably large? Will the project comply with all environmental laws and regulations? Are environmental public interest groups likely to oppose and undermine support for the project? Are there any environmental resource bottlenecks or constraints that cannot be overcome such as energy availability, protected habitat, or exceptionally sensitive biota? Will the project adversely affect public health and safety? |
| <p>TECHNICAL</p> <ul style="list-style-type: none"> Is the project concept appropriate for the site's physical conditions? Is the core concept structurally feasible? Is the core concept technologically sound and feasible? Can the physical resources for the project be provided, especially equipment and materials? Can the technical expertise to carry out the project be provided? | <p>SOCIAL</p> <ul style="list-style-type: none"> Will the project cause unacceptable social, cultural, or economic disruption or strain during construction or any other phase of the project? Will the project increase jobs and income? Divert resources in a noticeable way from other activities that would create more jobs and income? Will the project be perceived as being socially unjust as a result of the distribution of benefits or costs? |

Step 1. Prepare the ToR for the Feasibility Analysis based on the questions that need to be answered

Step 2. Once the Feasibility Analysis has been completed, use the tool to ensure that all-important issues have been addressed.

Figure VI.15. Feasibility Analysis Checklist – Example

| QUESTIONS TO BE ANSWERED BY THE MYCITY WASTEWATER PROJECT FEASIBILITY ANALYSES | |
|--|---|
| <p>Economic</p> <ul style="list-style-type: none"> • Have costs for each stage of the project lifecycle been considered (e.g. planning, design, construction, operations, and maintenance)? • Do intangible and non-quantifiable benefits and costs support economic feasibility? • Do the expected economic benefits exceed the costs over the lifecycle of the project? • Have avoidable user/customer costs been considered such as accidents, travel time, and water consumption costs? | <p>Institutional</p> <ul style="list-style-type: none"> • Can the project be implemented within the legal and regulatory framework in EurLandia? If not, can the legal and/or regulatory framework be changed? Is the project consistent with MyCity and EurLandia policy? • Do the MyCity Water and Sewage Company have the capacity to do the project (i.e. required culture, leadership, vision, strategy, and funding)? • Has there been adequate notification and buy-in on the part of key institutional stakeholders including government, regulatory bodies, the judiciary, private sector, and non-governmental organizations? If not, what are the potential threats coming from potential negative stakeholders, and what measures and strategy need to be undertaken? • Do project management personnel in the newly established Project Management Unit (PMU) have the background, experience, and training to manage the project? • Are adequate project management processes available, including procurement and human resources? • Are the financial management systems and personnel adequate for project accounting, monitoring, internal controls, evaluation, auditing and reporting? |
| <p>Financial</p> <ul style="list-style-type: none"> • Will the average tariff proposed be enough to cover the potential uncertainty about consumer willingness to pay? • Will the cash flow be sufficient to sustain the project? • Are there any opportunities for reducing the operation & maintenance (O&M) costs of the Water Company? • Is the return on investment large enough to compensate for the risk? • What are the preferable terms of the loan from the EuroBank considering the project payback? | <p>Social</p> <ul style="list-style-type: none"> • Will the project cause unacceptable social, cultural, or economic disruption or strain during construction or any other stage of the project? • What is the percentage of the socially depressed people/families in MySuburb, and what kind of social allowance can the MyCity Project offer to them? • Will the project increase jobs and income? Divert resources in a noticeable way from other activities that would create more jobs and income? |
| <p>Technical</p> <ul style="list-style-type: none"> • Can the physical resources for the project be provided, especially equipment and materials? • Are current geological investigations providing sound basis for the sewer system and tunnel construction technology, and cost estimate? • Is special equipment needed for the tunnel construction, and what are the cost implications for the project? | <p>Environmental</p> <ul style="list-style-type: none"> • Does the wastewater effluent quantity and quality comply with the environmental laws and regulations? • What will be the major environmental impacts during the construction phase of the project? What are the mitigation measures and their costs? • Are environmental public interest groups likely to oppose and undermine support for the project? • Are there any environmental resource bottlenecks or constraints that cannot be overcome such as energy availability, protected habitat, etc.? |

Feasibility Study

The RIP employs a Feasibility Study tool to assist the project manager, or the feasibility study team leader, with the performance of the feasibility analysis task. The Feasibility Study tool provides general, yet comprehensive, information for the

six major types of feasibility analysis included in most infrastructure project feasibility studies.

As mentioned above, the preparation of a Feasibility Study is a comprehensive effort. The study, therefore, is usually performed by a team of consultants, each with expertise for a different technical dimension of the study. For instance, an engineer specializing in a relevant technical field will do the technical analysis; an economist will be responsible for economic analysis; and environmental experts and lawyers may also be needed to do an EIA, and so forth. The project manager in turn is responsible for:

- Preparing the feasibility analysis ToR (using information from the Feasibility Analysis Checklist tool)
- Supervising the feasibility study team effort (using the Team Building tool in Chapter IV, People)
- Integrating the results of the various analyses into a comprehensive study report that can be summarized in the PAD

The project manager, or the feasibility study team leader, can provide oversight and control by using the Feasibility Study tool consisting of three key elements:

1. A column of key feasibility indicators that demonstrate the project is sound in one of the six feasibility analysis dimensions.
2. A second column that provides a description of the input requirements related to each of the project feasibility indicators in the previous column.
3. The third column that lists available techniques for the different feasibility analysis dimensions, enabling the project manager to better understand the best available analytical techniques for developing a high-quality feasibility report.

The information in each column can also be used to draft the Feasibility Study ToR. The Feasibility Study tool is presented in the following figures.

Figure VI.16. Feasibility Study – Description

Feasibility Study: Description

- **Purpose:**
 - Provides the Project Manager with an overview of the indicators which demonstrate project sources for each major feasibility dimension (technical, financial, economic, environmental, institutional and social), the data input for the feasibility indicators and the most frequently used techniques for the feasibility analysis
- **Description**
 - A comprehensive summary table which includes sufficient information for understanding feasibility analysis indicators, inputs and techniques for various project dimensions
- **Application**
 - The tool should be applied throughout the project preparation phase, both in drafting the ToR for the feasibility study, and for supervision and control of the expected feasibility study deliverables

Figure VI.17. Feasibility Study – Illustration

Feasibility Study: Illustration

Overview of feasibility issues, indicators, tools and expected output

| Feasibility Dimension | Indicator of Project Feasibility | Input Requirements | Techniques |
|---|---|--|---|
| <i>Technical Analysis</i> | Level of technology & technical risk; Cost effectiveness; Operational & Maintenance sustainability (O&M); | Identification of feasible project alternatives, cost estimate of project capital and O&M costs; Approvals, licences, land availability; | Best Available technology (BAT); Benchmarking; " Best value for money "; Common sense Least-cost Analysis |
| <i>Financial Analysis</i> | Project Cash Flow, Net Present Value (NPV), Financial Rate of Return (FIRR), payback period; revenues structure | Forecasted financial statements (cash flow, income statements and balance sheets for the project economic life; FIRR; Payback period shorter the the project economic life; Financial ratios analysis; Debt service ability; | Financial Cost Benefit Analysis (CBA); Financial Management Analysis; Financial Planning Tools; Financial Sensitivity Analysis; |
| <i>Economic Analysis</i> | Economic Rate of Return (EIRR); Economic environment (import substitution, export promotion effect, inflation, and economic risk factors); | EIRR at acceptable value; Public Health Impact; Employment Impact; Real Estate Value; | Economic & Social CBA; Economic Sensitivity Analysis; Risk Assessment; |
| <i>Environmental Analysis</i> | Reduction in pollution of physical environments (air, water, soil); Significance of impacts to other environmental components (biological, social); Environmental Permits; Reduction in Environmental Charges; | Description and Quantification of environmental impacts (both adversarial and beneficial); | Checklists; Interaction matrices; Network diagrams; Maps and Overlays; |
| <i>Institutional & Legal Analysis</i> | Government and Implementing Agency commitment to the project; Compliance with local laws & regulations; Management experience; | Description of adequacy of Institutional Arrangements Description of the organization training and their training needs; Analysis of relevant laws and regulations for the project; Institutional & organizational gaps; | Institutional Assessment Questionnaire; Organizational Analysis Tool; Interviews with executives and project managers in the Implementing Agency; |
| <i>Social Analysis</i> | Social Acceptability of the project Acceptable level of Public Concern | Demographic situation and concerns in the state, county, city, Economic and Employment history and concerns. Land use, value, and taxes. | Social Soundness Analysis Social Impact Questionnaire Checklist |

Figure VI.18. Feasibility Study – How to Use

Feasibility Study: How to Use

Overview of feasibility issues, indicators, tools and expected output

| Feasibility Dimension | Indicator of Project Feasibility | Input Requirements | Techniques |
|---|--|--|---|
| <i>Technical Analysis</i> | Level of technology & technical risk; Cost effectiveness; Operational & Maintenance sustainability (O&M); | Identification of feasible project alternatives, cost estimate of project capital and O&M costs; Approvals, licences, land availability; | Best Available technology (BAT); Benchmarking; "Best value for money"; Common sense Least-cost Analysis |
| <i>Financial Analysis</i> | Project Cash Flow, Net Present Value (NPV), Financial Rate of Return (FIRR), payback period; revenues structure | Forecasted financial statements (cash flow, income statements and balance sheets for the project economic life; FIRR; Payback period shorter the the project economic life; Financial ratios analysis; Debt service ability; | Financial Cost Benefit Analysis (CBA); Financial Management Analysis; Financial Planning Tools; Financial Sensitivity Analysis; |
| <i>Economic Analysis</i> | Economic Rate of Return (EIRR); Economic environment (import substitution, export promotion effect, inflation, and economic risk factors); | EIRR at acceptable value; Public Health Impact; Employment Impact; Real Estate Value; | Economic & Social CBA; Economic Sensitivity Analysis; Risk Assessment; |
| <i>Environmental Analysis</i> | Reduction in pollution of physical environments (air, water, soil); Significance of impacts to other environmental components (biological, social); Environmental Permits; Reduction in Environmental Charges; | Description and Quantification of environmental impacts (both adversarial and beneficial); | Checklists; Interaction matrices; Network diagrams; Maps and Overlays; |
| <i>Institutional & Legal Analysis</i> | Government and Implementing Agency commitment to the project; Compliance with local laws & regulations; Management experience; | Description of adequacy of Institutional Arrangements Description of the organization training and their training needs; Analysis of relevant laws and regulations for the project; Institutional & organizational gaps; | Institutional Assessment Questionnaire; Organizational Analysis Tool; Interviews with executives and project managers in the Implementing Agency; |
| <i>Social Analysis</i> | Social Acceptability of the project; Acceptable level of Public Concern | Demographic situation and concerns in the state, county, city; Economic and Employment history and concerns. Land use, value, and taxes. | Social Soundness Analysis; Social Impact Questionnaire Checklist |

Step 1. This column provides a general list of typical Indicators of Project Feasibility for infrastructure projects. From this list choose 2 to 3 most relevant indicators for inclusion into the Feasibility Study ToR.

Step 2. For each Indicator related in Step 1 identify the type of input data required for the feasibility analysis. Choose as appropriate from the list provided in the column.

Step 3. From the list of general feasibility analysis techniques in this column, choose the one most suitable for your project.

Figure VI.19. Feasibility Study – Example

Feasibility Study: Example

Overview of feasibility issues, indicators, tools and expected output

| Feasibility Dimension | Indicator of Project Feasibility | Input Requirements | Techniques |
|---|--|--|---|
| <i>Technical Analysis</i> | Level of technology & technical risk; Cost effectiveness; Operational & Maintenance sustainability (O&M); | Identification of feasible project alternatives, cost estimate of project capital and O&M costs; Approvals, licences, land availability; | Best Available technology (BAT); Benchmarking; "Best value for money"; Common sense Least-cost Analysis |
| <i>Financial Analysis</i> | Project Cash Flow, Net Present Value (NPV), Financial Rate of Return (FIRR), payback period; revenues structure | Forecasted financial statements (cash flow, income statements and balance sheets for the project economic life; FIRR; Payback period shorter the the project economic life; Financial ratios analysis; Debt service ability; | Financial Cost Benefit Analysis (CBA); Financial Management Analysis; Financial Planning Tools; Financial Sensitivity Analysis; |
| <i>Economic Analysis</i> | Economic Rate of Return (EIRR); Economic environment (import substitution, export promotion effect, inflation, and economic risk factors); | EIRR at acceptable value; Public Health Impact; Employment Impact; Real Estate Value; | Economic & Social CBA; Economic Sensitivity Analysis; Risk Assessment; |
| <i>Environmental Analysis</i> | Reduction in pollution of physical environments (air, water, soil); Significance of impacts to other environmental components (biological, social); Environmental Permits; Reduction in Environmental Charges; | Description and Quantification of environmental impacts (both adversarial and beneficial); | Checklists; Interaction matrices; Network diagrams; Maps and Overlays; |
| <i>Institutional & Legal Analysis</i> | Government and Implementing Agency commitment to the project; Compliance with local laws & regulations; Management experience; | Description of adequacy of Institutional Arrangements Description of the organization training and their training needs; Analysis of relevant laws and regulations for the project; Institutional & organizational gaps; | Institutional Assessment Questionnaire; Organizational Analysis Tool; Interviews with executives and project managers in the Implementing Agency; |
| <i>Social Analysis</i> | Social Acceptability of the project; Acceptable level of Public Concern | Demographic situation and concerns in the state, county, city; Economic and Employment history and concerns. Land use, value, and taxes. | Social Soundness Analysis; Social Impact Questionnaire Checklist |

Risk Analysis and Mitigation Plan

The assumptions column cells in the Logical Framework presented in Chapter V reflect the practitioner's recognition that there are factors beyond a manager's control necessary for the successful achievement of project objectives at all levels. Therefore, having identified the critical assumptions, i.e., the project risks, the project manager can attempt to increase the probability of project success and sustainability by identifying a strategy and specific measures to reduce and manage such risks. The Risk Analysis and Mitigation tool is a straightforward and efficient guide that enables the project manager to carefully identify and analyze the risks and uncertainties and to identify measures for mitigating them.

Specifically, for each risk associated with a project's design and implementation activities, a description of the probability and magnitude of adverse impact should be defined. Once the impacts are identified, an appropriate strategy for mitigating these risks can be proposed. While these risks may be outside the control of the project manager, they are not necessarily beyond the control or influence of other project stakeholders. For example, legislators can modify laws and regulations to produce a more enabling environment; or governments can undertake public education efforts to mollify public concerns.

The Risk Analysis and Mitigation Plan tool enables the project manager to work together with other stakeholders to identify opportunities for mitigating risk at two points in time. First, while the project is being prepared, components and activities can be added or revised to minimize some anticipated risk. The preferred method of mitigating risks is to "prevent" them by adjusting the project design during preparation. A thorough Feasibility Study can assist in both identifying potential risk issues and suggesting design modifications. Second, where risks remain in the final project design (e.g., the PAD and PIP), it is the responsibility of the project manager to ensure that the project's monitoring plan include these risk items and to actively watch for them during project implementation. The Risk Analysis and Mitigation Plan tool is described in the following figures.

Figure VI.20. Risk Analysis and Mitigation Plan – Description

Risk Analysis and Mitigation Plan: Description

- **Purpose:**
 - To elaborate measures to identify, reduce and manage project risks through the planning, monitoring and controlling of these risks throughout the project cycle
- **Description:**
 - Table with a narrative description of the likely risks that may adversely impact the achievement of project objectives, along with solutions to deal with them
- **Application**
 - The Risk Analysis and Mitigation Plan tool is most useful during preparation to “prevent” problems, but can also be used at any stage of the project cycle where risks become evident to the project team

Figure VI.21. Risk Analysis and Mitigation Plan – Illustration

Risk Analysis and Mitigation Plan: Illustration

| Risks | Probable Impacts | Risk Minimization Measure |
|-------|------------------|---------------------------|
| 1. | | |
| 2. | | |
| 3. | | |

Figure VI.22. Risk Analysis and Mitigation Plan – How to Use

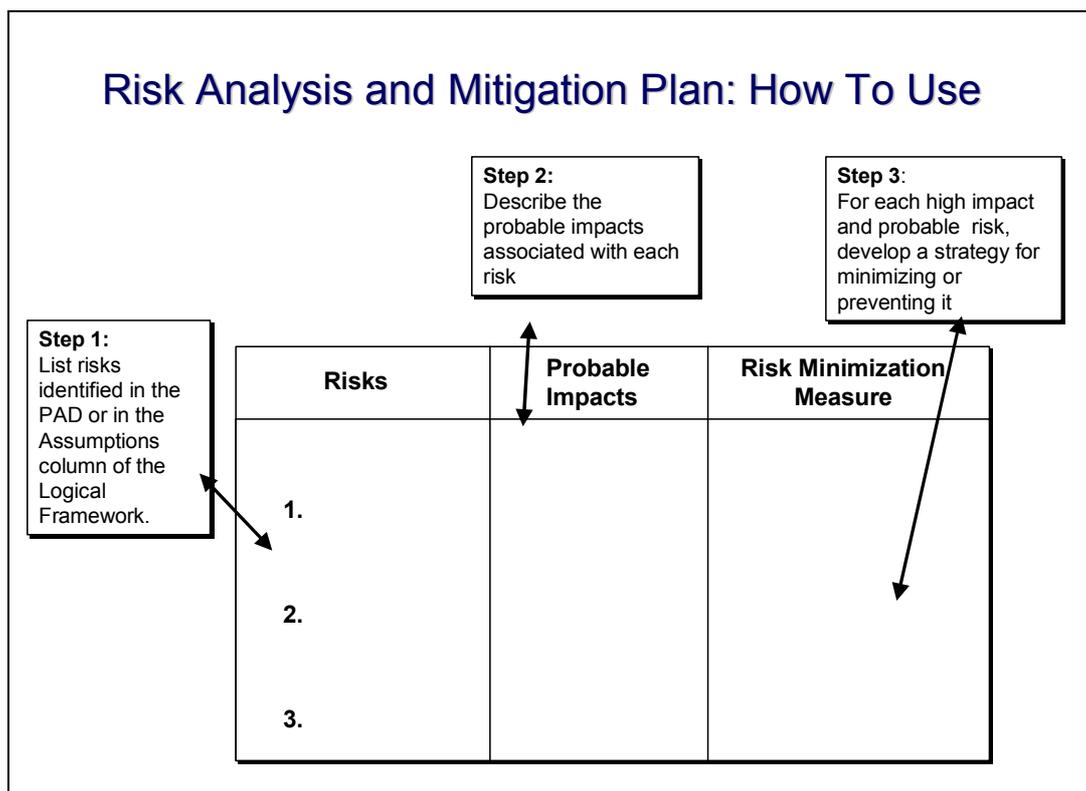


Figure VI.23. Risk Analysis and Mitigation Plan – Example

Risk Analysis and Mitigation Plan: Example

| Risks | Probable Impacts | Risk Minimization Measure |
|---|---|---|
| 1. Inputs to Outputs | | |
| 1.1 EuroBank does not receive appropriate documentation and does not transfer money on time | Project Implementation is delayed | Involve City Council and PMU Consultant in early stage of project preparation |
| 1.2 New water tariff structure for citizens will not be implemented on time | Project can not achieve sustainability without a stable revenue base | Involve all project stakeholders in setting up the new tariff structure through establishing a Compliance Forum |
| 1.3 Construction equipment and materials are not certified and without appropriate quality | Delay in project implementation Cost increase | Equipment and material specifications must be defined in clear terms, and constitute an important criterion competitive bidding procedure |
| 2. Outputs to Purpose | | |
| 2.1 Lost support from the EuroBank refinancing project execution | Discontinuation or halt in project execution | Continuous communication with EuroBank staff, and their involvement during the project design along with a willingness to accommodate bank recommendations |
| 2.2 Lost support and commitment from the Local Government | Discontinuation or halt in project execution | Project benefits must be clearly defined in order to be appreciated by all political parties. Involve Eurobank to ensure independence of PMU from the local government |
| 2.3 Water and Sewage Company does not take appropriate measures for preparing wastewater network for sustainability | Delay project execution and threatens achieving project sustainability status | Involve Water and Sewage Company early in the project preparation process. Train key management and operation staff in order to support the project sustainability |
| 2.4 Consumers are not willing to pay wastewater tariffs | MyCity cannot repay the loan to the Eurobank. Project is not sustainable | Organize Compliance Forum and involve all stakeholders in structuring the tariff system. Introduce compensation measures for socially depressed people. Introduce financial incentives for timely connections to the wastewater network |
| 2.5 Additional sources of groundwater pollution | Threatens achieving the project purpose on a sustainable basis | Carefully monitor additional sources of pollution and plan their connection to the new wastewater system. Develop basin water management plan that will plan for and limit additional pollution on long run |

Communication of a Project

A clear and simple Communication tool establishes a sound basis for imparting the essential and unique project design elements to members of the project team and other stakeholders, including project decision-makers within the government and potential financing institutions. Basically, this tool provides a template for a project communication document that uses the information from the “vertical” and “horizontal” logic of the project's Logical Framework (as described in Chapter V and in this chapter) to effectively and efficiently communicate the critical features of the project design, especially the objectives, risks and measurable results. By using the Communication of a Project tool, the project manager can once again reflect on the project's strategic considerations and consider modifications to ensure that the key success factors, as discussed in Chapter I, are fully integrated into the project design.

In terms of its practical application, the practitioner can use the Communication of a Project tool in several ways:

1. As the content outline for an oral briefing to project sponsors and potential funders, the major features of the project – including ownership, relevance, effectiveness, efficiency, implementability, and sustainability – can be clearly communicated in a 10 to 15 minute presentation.
2. As the text of a transmittal letter for the PAD to project sponsors and funding entities.
3. As the text for a “project flyer,” introduced in Chapter VIII, Project Start-up.

Communicating the project design in a clear and concise manner is critical for nurturing stakeholder commitment and support. The Communication of a Project tool is described in the following figures.

Figure VI.24. Communication of a Project – Description

Communication of a Project: Description

- **Purpose:**
 - Clearly present the key elements of a project to sponsors, decision makers and potential financiers
- **Description**
 - Template to create a project communication document which follows a standard method of using the “vertical” and “horizontal” features of the logical framework matrix to communicate the key elements of a project, and demonstrate its quality dimensions
- **Application**
 - Use the Communication tool as the basis for oral briefings on the project design, the transmittal letter for the PAD and the content of the Project Flyer following project approval

Figure VI.25. Communication of a Project – Illustration

Communication of a Project: Illustration

Project Name

The overall goal of this project is to... *(Project Goal)*.

In order to achieve/contribute to this sectoral goal, the project will... *(Project Purpose)*.

The project will achieve this objective by taking direct responsibility for ... *(Project Outputs)*.

We believe that if we ... *(Project Activities)* and if ... *(Activities Level Assumptions)*, we will achieve our targets of ... *(Outputs OVIs)*. We estimate that this will cost approximately ... *(Activity OVIs)*.

In addition to reaching these targets, several other things must happen if the project is to achieve its major objective of ... *(Purpose BOSS)*. These factors, outside our direct control, include ... *(Output Level Assumptions)*.

We believe that if we can achieve the major objective of this project, *(Project Purpose)*, we are likely to achieve, or contribute meaningfully to, the project overall goal of *(Project Goal)*. The achievement of this goal is, however, affected by factors outside of this project. These include ... *(Purpose Level Assumptions)*. It is our judgement that all of these factors taken together will be sufficient to realize this goal and that the proposed project is an important and cost effective element in this strategy.

We have done the economic and financial analysis, relating costs (Activity OVIs) to project impact *(Project Purpose BOSS)*, and find the project gives a return on investment of *(EIRR/FIRR)*.

Key

OVI. Objectively Verifiable Indicators

BOSS. Beginning of Sustainability Status

MOV. Means of Verification

EIRR. Economic Internal Rate of Return

FIRR. Financial Rate of Return

Optional

We propose that the performance of the project be monitored and assessed in the following way ... *(MOVs for major OVIs at Output, Purpose and possibly Goal levels)*.

Figure VI.26. Communication of a Project – How to Use

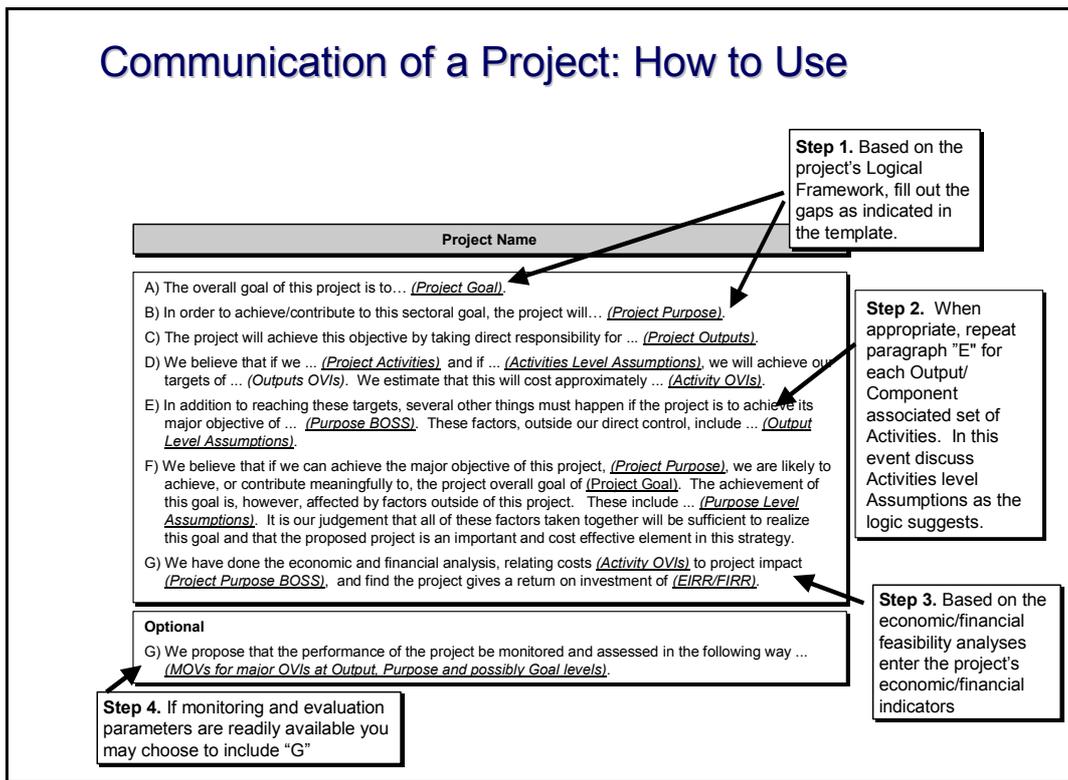
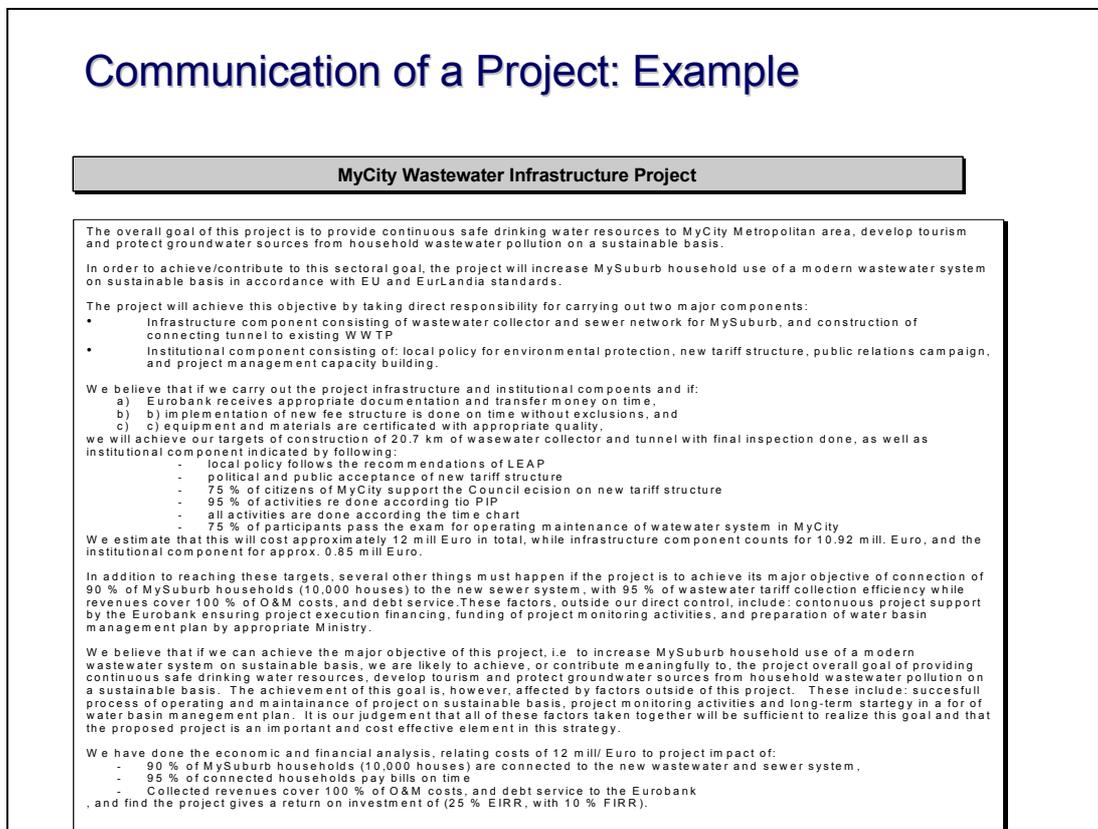


Figure VI.27. Communication of a Project – Example



Conclusion

This chapter explained the PAD template and several additional preparation tools useful in completing a high-quality project design. The PAD and its related tools lay the foundation for a timely project appraisal by decision-makers and potential financiers. The following two documents are the ultimate products of project preparation efforts:

1. *The PAD*. The PAD summarizes all relevant and critical project information for a particular funding institution. This information includes both project feasibility and a demonstrated application of best project management practices as recognized by IFIs and the donor community. This chapter provided a template for the PAD, with the instructions on how to complete it by using information from different sources and different tools presented in this chapter and previous chapters. The PAD completion process was presented graphically in the Tools Diagram in Figure VI.3.
2. *The Feasibility Study*. A Feasibility Study involves a comprehensive analysis relevant to each project dimension (technical, economic, financial, environmental, institutional, and social). It is important that the project manager understand Feasibility Study questions for inclusion in a ToR, and be knowledgeable of the various elements of a Feasibility Study. Hence, this chapter introduced tools relevant to feasibility issues and requirements, thus enabling the project manager to successfully draft a ToR for each project dimension, and supervise and control the feasibility study team's work.

All of the tools introduced in this chapter facilitate completion of the document noted above. Some of the tools, such as the WBS, can also be used in the project implementation planning tasks discussed in the next chapter. Implementation Planning is highly interrelated with the project preparation process, especially following the draft completion of the Feasibility Study. The next chapter turns to a more detailed discussion of the Implementation Planning stage of the project cycle.

CHAPTER VII: IMPLEMENTATION PLANNING

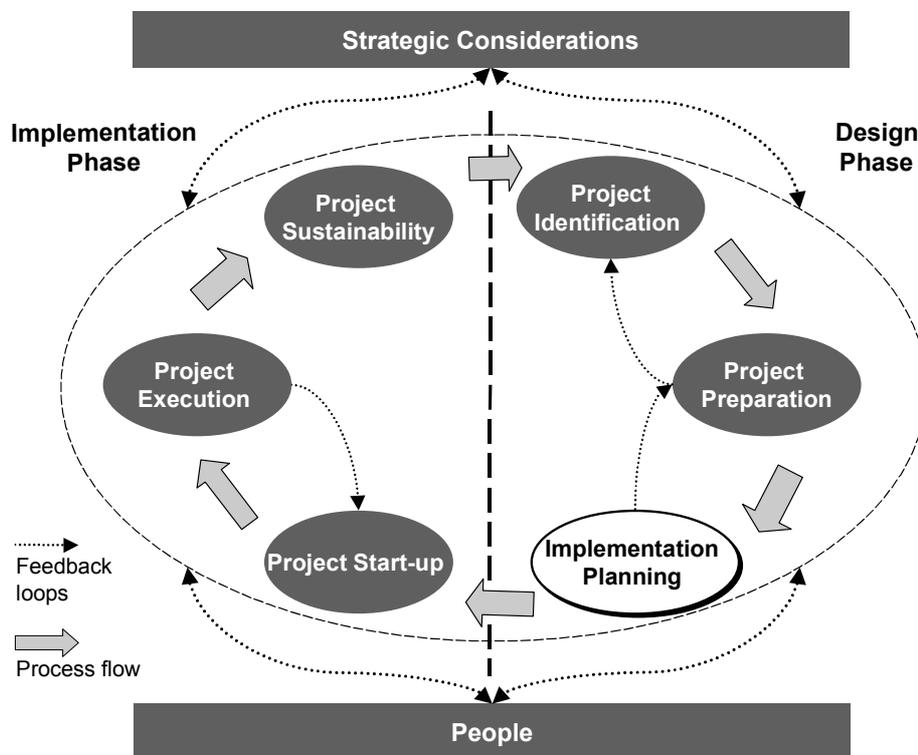
Overview

As project preparation proceeds, and the PAD is being drafted, the Implementation Planning stage begins. Accurate, up-front detailed planning increases both the implementability and sustainability of infrastructure projects. In other words, “You must plan the work and work the plan!” Taking time during Project Design to develop a well thought-out, yet adaptable, implementation plan is critical to accomplishing a project’s objectives on time and within budget.

A complete implementation plan produces many tangible benefits for the practitioner, such as providing more realistic cost estimates based upon detailed technical data, speeding the process of financing and final project approvals, and rapidly commencing the Start-up stage of the project.

Just as the Project Preparation stage forced the practitioner to delve deeper into the feasibility of a project's technical design, the Implementation Planning stage asks the practitioner to drill further down into the operational details of the project to answer the question, “Now that the general design is drafted, what will it really take to make this project work?” (See Figure VII.1). In this sense, Project Preparation and Implementation Planning go hand-in-hand. There is also a strong feedback loop from Implementation Planning to Preparation. As additional information about costs and implementation time frames is gathered, it is often necessary to reconsider design and feasibility issues.

**Figure VII.1. PMToolkit Project Management Framework –
Implementation Planning**



Some of the most important implementation planning details are:

- Refining the duration and final costs for various tasks
- Crafting a schedule for the project that further defines deliverable and milestone dates (as well as resource allocation)
- Making necessary procurement arrangements so that materials are delivered in accordance with the schedule
- Developing a monitoring, reporting and evaluation plan
- Finalizing the ToR for key procurement actions with both the sponsoring and funding agencies.

This chapter introduces several tools for the implementation planning task. In addition, the preceding chapter introduced several important tools that can be used in the Implementation Planning stage. For example, the WBS facilitates the process

of resource and cost estimation. WBS allows the identification of tasks to be performed and resources allocated to them. Once resource levels have been allocated to tasks, estimates of task durations can be made. Task durations can be used in developing a work schedule for the project. Also, feasibility analysis serves as a precondition for detailed implementation planning. The project's Logical Framework “horizontal logic” serves as the basis for guiding project implementation and measuring project results.

Template: Project Implementation Plan (PIP)

The end product of the Implementation Planning stage is the Project Implementation Plan (PIP). The PIP details all of the implementation considerations – related to time, cost and performance – required for project success. A well-prepared PIP gives confidence to project sponsors and financiers that a project is “implementable.” In this way, it facilitates project negotiations and approvals. A thorough PIP also sets the stage for smooth project start-up, including procurement of consultant services. A PIP contains detailed information on the Project Scope, Description and Financing Plan; proposed Implementation Arrangements; the Implementation Plan; the Monitoring and Evaluation Plan; and a Related ToR. The template presented in Figure VII.2 serves as a guideline for the preparing the PIP.

Figure VII.2. The Project Implementation Plan Template

| PROJECT TITLE | |
|---|-------------|
| Project Implementation Plan | |
| 1. Project Scope, Description and Financing Plan | |
| [Summary of project scope and objectives] | |
| [Detailed project description: detailed financial and economic analysis of the project, including description of assumptions; description of main project risks (internal and external); critical factors that could affect the project's success, and an assessment of the project's sensitivity to them.] | |
| [Detailed financing plan.] | |
| Components | Description |
| A. B. C. Etc. | |
| 2. Implementation Arrangements | |
| [Organization responsible for the project.] | |

[Implementation agreement between the borrower and implementation agencies.]

[Responsibilities of the implementing agencies and other stakeholders.]

[Relationship of the implementing agency with other entities (ministries, project beneficiaries, etc.); participation arrangements.]

[Administrative arrangements for project implementation.]

3. Implementation Plan

[Time-bound detailed implementation plan for each project component, including technical assistance and training.]

[Schedule of procurement actions, including target dates for each step.]

[Schedule of disbursements for each project component, detailing expected bank financing, government counterpart funds, and co-financing.]

[Specific actions required to achieve the project's development impact objectives (including implementation of environmental and social actions specified in any mitigation plans, resettlement plans, and indigenous peoples plans.)

[Provision for setting up project accounting and financial management system; agreement on timetable for appointing auditors to audit the institutions' financial statements (short- and long-form audit, including management letter), project accounts, revolving fund accounts, statements of expenditure, etc.]

4. Monitoring and Evaluation Plan

[Key development impact indicators for measuring progress in reaching project development objectives.]

[Key progress indicators for monitoring delivery of project inputs and achievement of project outputs.]

[Key financial indicators to assess the project's budgetary and financial health.]

[Major loan covenants that require special attention.]

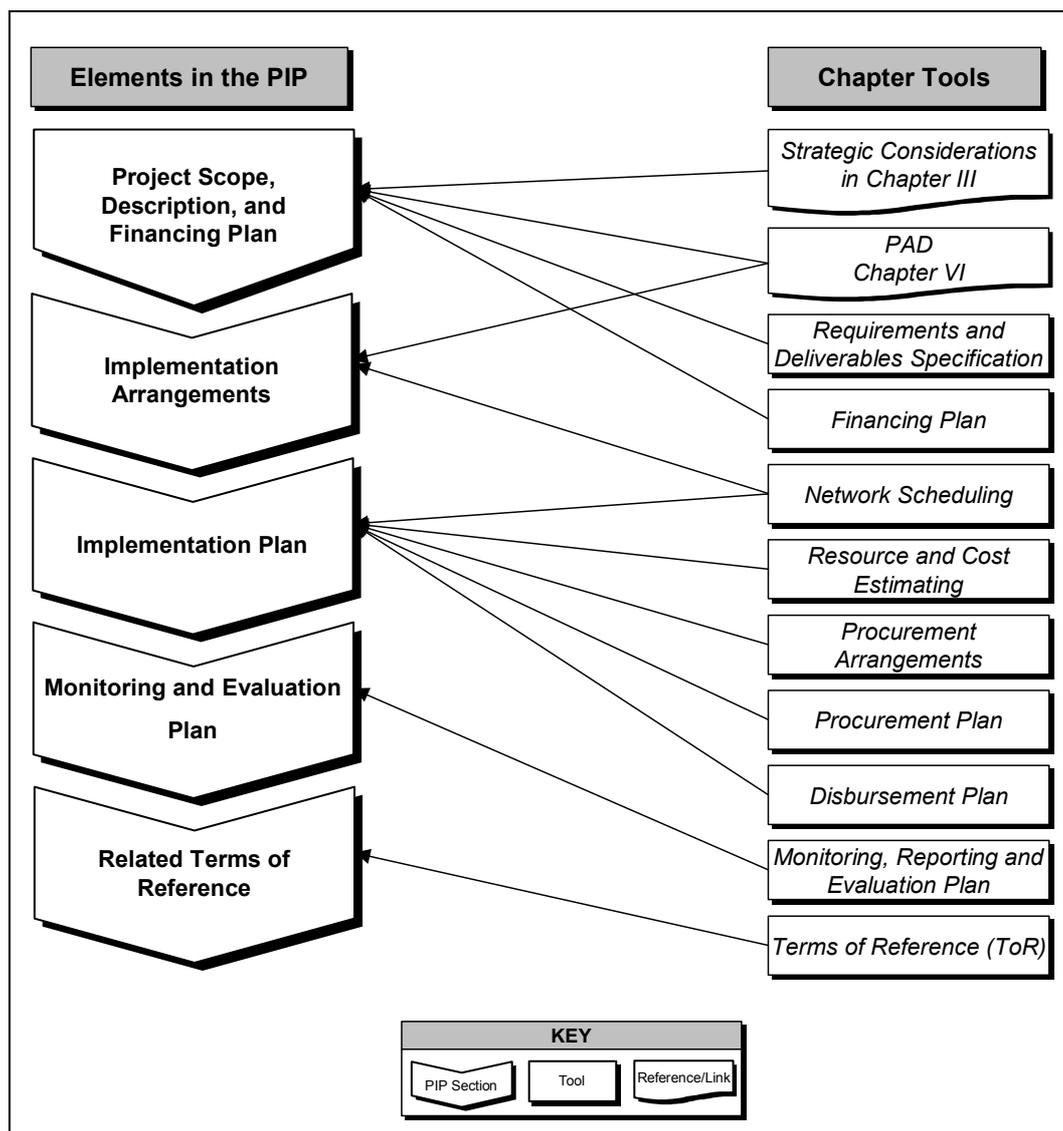
5. Related Terms of Reference

[Terms of Reference for project components]

Tools in Perspective

The following figure provides a quick overview of tools used in the Project Implementation stage. The detailed description, illustration, method of use, and an example of the application of these tools follow in this chapter. Specific tools used in completing the PIP are listed below. The tools are presented in the order recommended for use during Implementation Planning.

Figure VII.3. Using the Tools to Complete Project Implementation Plan



Each Project Implementation Planning tool is described in Table VII.1.

Table VII.1. List of Tools

| Tools | Description |
|---|---|
| Requirements and Deliverables Specification | A table with a narrative listing of client requirements and measurements linked to the project's planned deliverables |
| Financing Plan | A table that lists the amounts of funds for project financing according to their source (IFI, national and/or local government) and currency (local and/or foreign) |
| Network Scheduling | A graphical display of project schedule information in a network form that includes dependency relationships and milestones |

| Tools | Description |
|---|--|
| Resource and Cost Estimating | A table with columns for listing a project's resource requirements, estimated level of effort for each resource, and associated costs |
| Procurement Arrangements | A flow chart that describes the procurement planning process and the different decision points that determine the final procurement arrangements |
| Procurement Plan | A matrix that lists the different project elements and their procurement arrangements, including contract information and procurement deadlines |
| Disbursement Plan | A matrix for planning and presenting, on a quarterly basis, the schedule for disbursement of funds by source throughout project implementation |
| Monitoring, Reporting, and Evaluation Plan | A summary matrix of the key project events that should be actively watched, assessed, reported, and acted upon during implementation to ensure that the right information gets to the right people at the right time |
| Terms of Reference (ToR) | A narrative outline of minimum content to be included in the ToR |

MyCity Project Update: Implementation Planning Stage

The Implementation Planning and Project Preparation stages occur concurrently. Therefore, at the end of the Implementation Planning stage, when a funding institution approves the PAD for a project, a PIP is also included in the approval package. This package contains all the information required to launch the Project Start-up, thus initiating the actual performance of implementation work.

Changes in the Project Context

Based on the findings of the Feasibility Study, the budget for tunnel construction was increased by 20 percent because of the uncertainties related to the geological structure of MyHill. This cost increase could be financed through a minor tariff increase (yearly EUR 0.5 per average family). The study suggested the establishment of a targeted social allowance system to support the socially sensitive groups that will be affected by the new tariffs. This suggestion was built into the project design. Based upon the study's suggestion, a 5 percent (EUR 2 per year per average family) risk fund was built into the tariff structure to ensure the sustainability of the project, thus compensating for the uncertainty associated with public acceptance of the new tariffs. On the other hand, project calculations showed that because of more

efficiency in the existing Wastewater Treatment Plant (WWTP), the O&M costs would decrease. An average yearly EUR 4 per family decrease will compensate for increases in the tariffs. These decisions were later accepted and supported by the Final Declaration of the Interest Compliance Forum. To increase citizens' willingness to pay, a public participation campaign was also included in the project design (MyManager used the Participation Choice people tool in Chapter IV). The Feasibility Study using the PPP Analysis tool recommended that a "management contract" with an outside entity be let to increase the efficiency of the Water and Sewerage Company and decrease the O&M costs, but a decision on this question was postponed.

In the Final Declaration, the parties of the Social Compliance Forum agreed that the tariff system will be digressive according to the consumption; the local government will not force the people to connect to the new system; and the connection cost has to be shared between the public and the individual households connected to the system.

Based upon the ministry's request, a more elaborated liquidity plan was built into the PIP. The ministry promised to provide a liquidity loan if any delay would occur in project financing.

The Appraisal Mission requested additional changes in the PIP. The mission suggested a consortium contract of the three donors to finance the project and suggested the establishment of a Consortium Board to supervise the project. The Consortium Board's members would be the representatives of the three donors. The three donors accepted the financing scheme. However, the PMU had to be strengthened as follows:

A project manager will be appointed for a 4-year term with the consent of the council and will be responsible directly to the council and the board.

Financing of the PMU will be handled through an independent account.

The project manager has the right to announce procurement processes and sign the contracts without approval of the council as long as these activities fall within the overall budget of the project.

Only the board will approve PMU reports. Because of the forthcoming local election, all undersigned parties committed to the project and to the autonomy of the PMU.

SWOT Analysis Update

Due to the changes in project design, project liquidity was strengthened through a liquidity loan promised by the national government. The consortium scheme of financing strengthened the commitment of the national government to the project and reduced the political tensions caused by the newly elected mayor and council. The institutional changes in the project leadership, the strengthening of the PMU, and the creation of the board increased the flexibility of project management.

Concluding Statement

With the Eurobank's approval of the PAD and the PIP, the design phase of MyCity's Wastewater Infrastructure project concluded.

Tool Descriptions

Nine Project Implementation Planning tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project Case Update, are focused on preparing for the execution of an approved and funded project. All of the Project Implementation Planning tools have possible applications and linkages to later stages in the project cycle.

Requirements and Deliverables Specification

The Requirements and Deliverables Specification tool allows the practitioner to ensure that the project deliverables are clearly linked to client requirements by presenting them in clearly stated and measurable terms. These linkages should be

communicated to all stakeholders in order to seek their explicit concurrence, e.g., ownership and commitment.

Experience shows that delays during implementation often arise because the project deliverables do not align with client requirements. A mismatch of deliverables and client requirements often results in delayed or disputed remuneration to the implementing organization for work performed. Or the mismatch leads to additional work by the implementing organization to rectify the situation, again without a means to seek recovery of these costs. Professional project managers appreciate the value of presenting and communicating a project's deliverables in terms of clear and measurable indicators. The Requirements and Deliverables Specification tool can assist with this task. The tool is presented in the following figures.

Figure VII.4. Requirements and Deliverables Specification – Description

Requirements and Deliverables Specification: Description

- **Purpose:**
 - To assist project practitioners in ensuring that client requirements are being directly addressed through the project's planned deliverables
- **Description:**
 - A table with a narrative listing of client requirements and measurements linked to the project's planned deliverables
- **Application:**
 - Use it in the Project Scope and Objectives section of the PIP to ensure that the deliverables are clearly linked to project requirements and that this linkage is clearly communicated to all stakeholders

Figure VII.5. Requirements and Deliverables Specification – Illustration

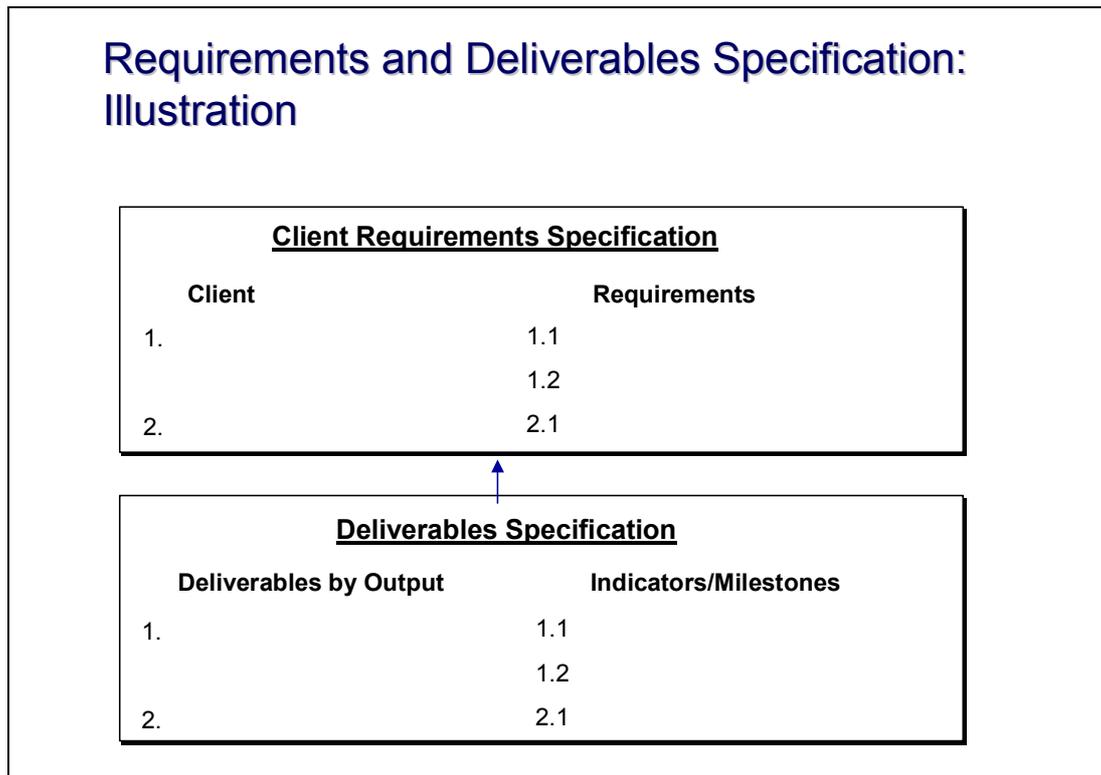


Figure VII.6. Requirements and Deliverables Specification – How to Use

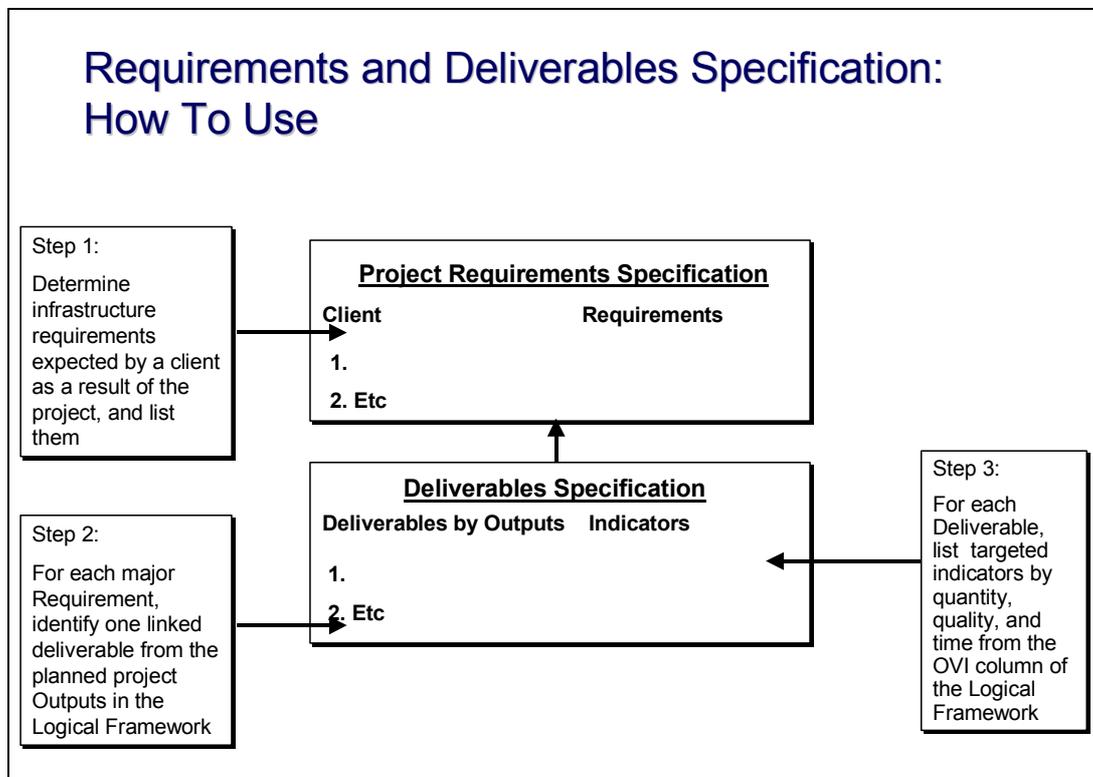
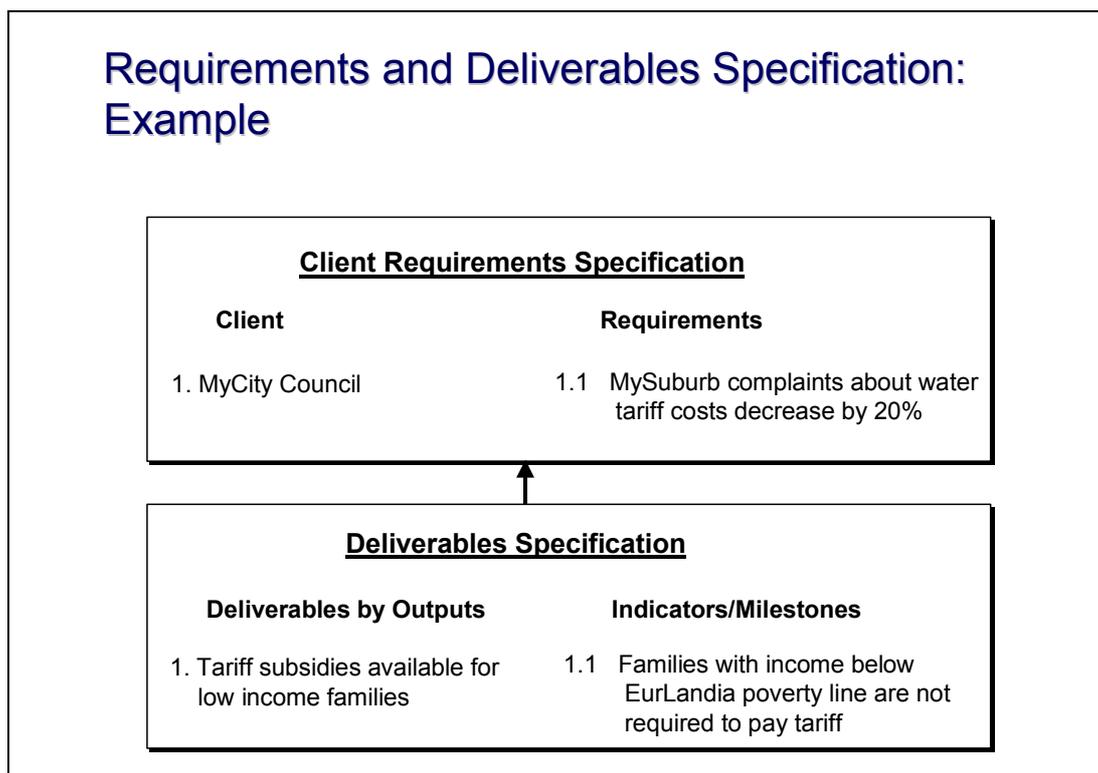


Figure VII.7. Requirements and Deliverables Specification – Example



Financing Plan

The Financing Plan lists all of the funds needed to finance a project according to their source and currency. Foreign funds are funds in the currency of any country other than the recipient country. Local funds are funds in the currency of the country sponsoring the project, or funds for goods or services supplied from the territory of the country.

The Financing Plan evaluates various possible financing options for the project by taking into account the impact of funds not flowing from an IFI, such as funds made available through the sponsor country, typically the local or national government. These alternative financing sources present themselves during early stages of the project cycle. Rather than formulate a complex or detailed analysis of financing options, the Financing Plan simply satisfies a requirement of most IFIs in considering a PIP by formally laying out the non-IFI sources of funds. The practitioner should approach this effort keeping the above points in mind and not devote an inordinate

amount of effort to this exercise. The Financing Plan tool is presented in the following figures.

Figure VII.8. Financing Plan – Description

Financing Plan: Description

- **Purpose:**
 - Summarize the sources and currencies of the funds to be used during project implementation
- **Description:**
 - A table that lists the amounts of funds for project financing according to their source (IFI, national and/or local government) and currency (local and/or foreign)
- **Application:**
 - For use in the Project Scope, Definition and Financing Plan section of the PIP

Figure VII.9. Financing Plan – Illustration

Financing Plan: Illustration

Project Name
FINANCING PLAN

| Sources | Millions EUR | | | % of Total |
|--------------|--------------|---------|-------|------------|
| | Local | Foreign | Total | |
| 1. | | | | |
| 2. | | | | |
| | | | | |
| | | | | |
| N. | | | | |
| Total | | | | 100 |

Figure VII.10. Financing Plan – How to Use

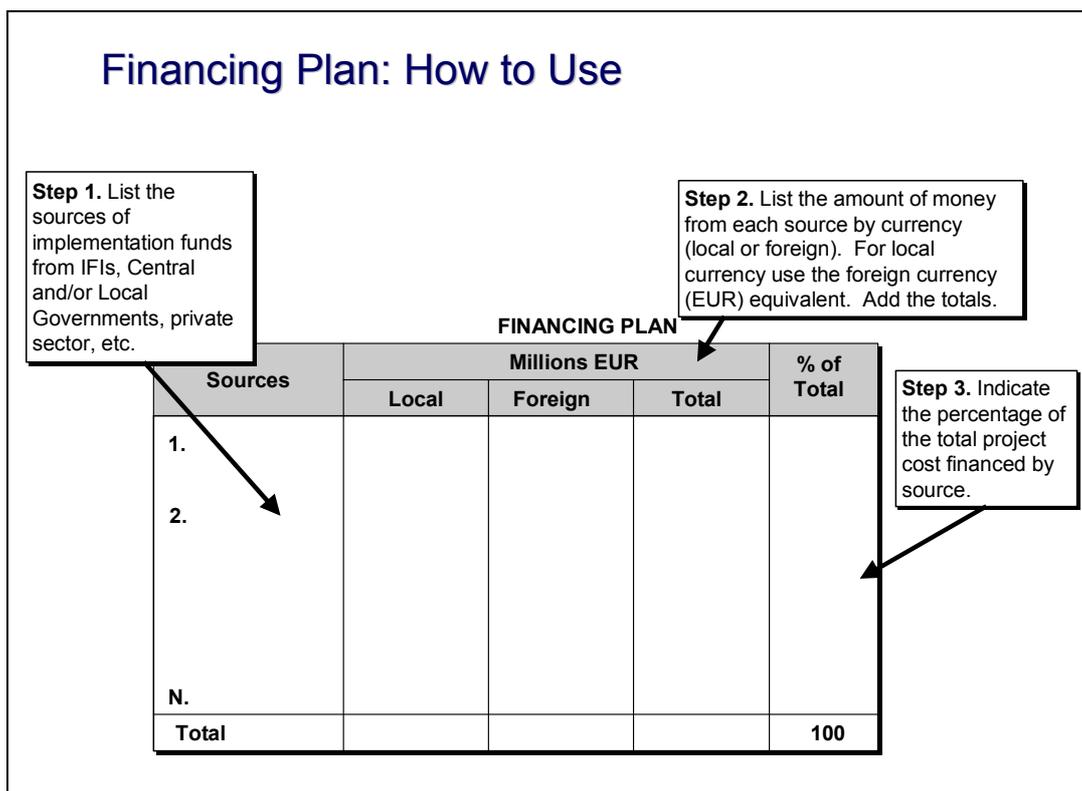
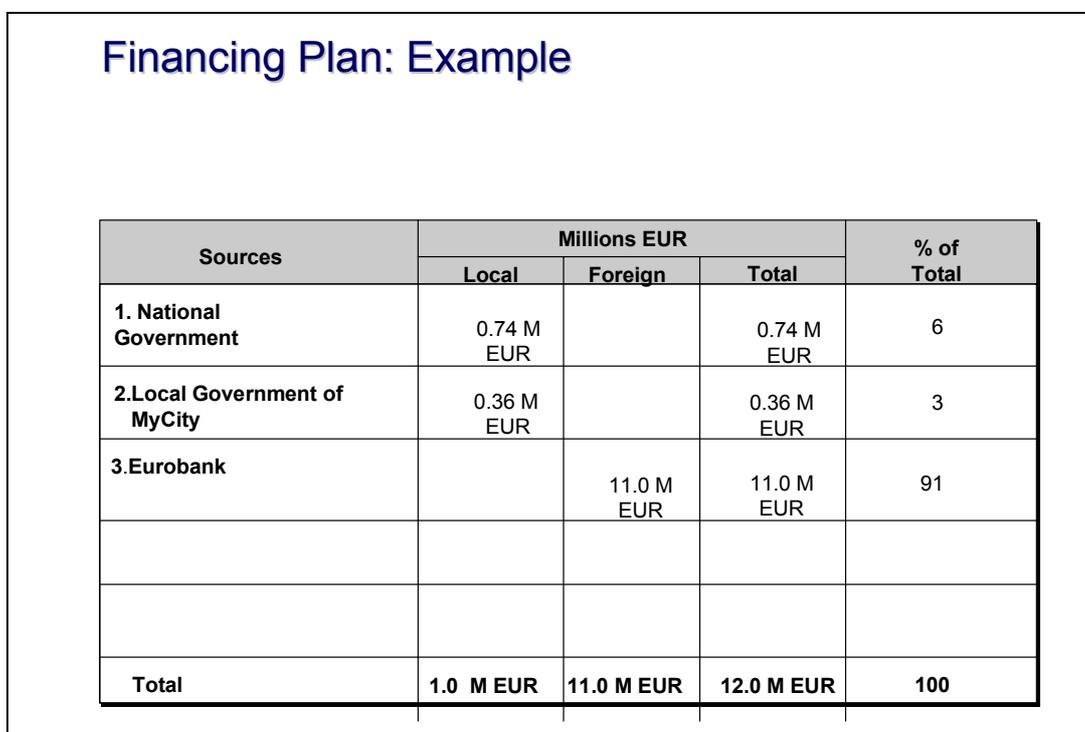


Figure VII.11. Financing Plan – Example



Network Scheduling

The Network Scheduling tool can be used for planning time frames associated with the performance of work. The application of networking methods increases the efficient use of resources by concentrating project implementation resources on tasks critical for carrying out the scope of work. These methods can also be used to reevaluate the project during actual implementation and to reallocate resources to cope with unexpected blocks to task accomplishment. Some common methods of network scheduling include the Program Evaluation and Review Technique (PERT) and the Critical Path Method (CPM). Many computerized project management software applications such as Microsoft Project, Primavera, and PC TeamUp, include network scheduling features.

Networks are especially useful in planning the timing and execution of complicated sets of interdependent program and project activities. Networks also assist project design staff in identifying critical activities, those that are the most time urgent, and in lowering the priority of non-critical activities. This approach also clarifies the implementation effects of a delay or shortfall in the execution of a specific activity.

A project network includes all activities of a project linked to one another. Project activities are diagrammed in a logical order, as the project progresses from its start to its completion. There are three questions that the practitioner must ask when scheduling project activities:

- Which activities must be finished before a subsequent activity can be started?
- Which activities can be carried out concurrently?
- What activities cannot start until a preceding activity is finished?

Each activity is given a duration time to calculate the total amount of time that it will take to complete the project. The path of longest activity duration time through the network is called the “critical path.” It is “critical” in the sense that if any of the activities on the path are delayed, the entire project will be delayed. The Network Scheduling tool is described in the following figures.

Figure VII.12. Network Scheduling – Description

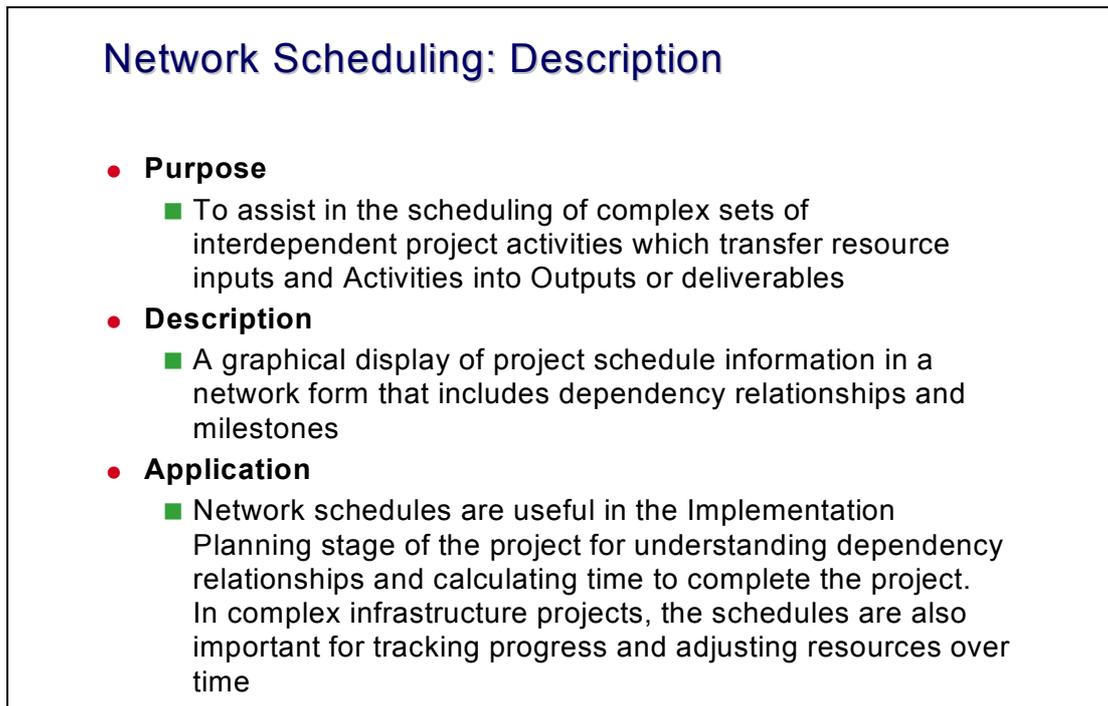


Figure VII.13. Network Scheduling – Illustration

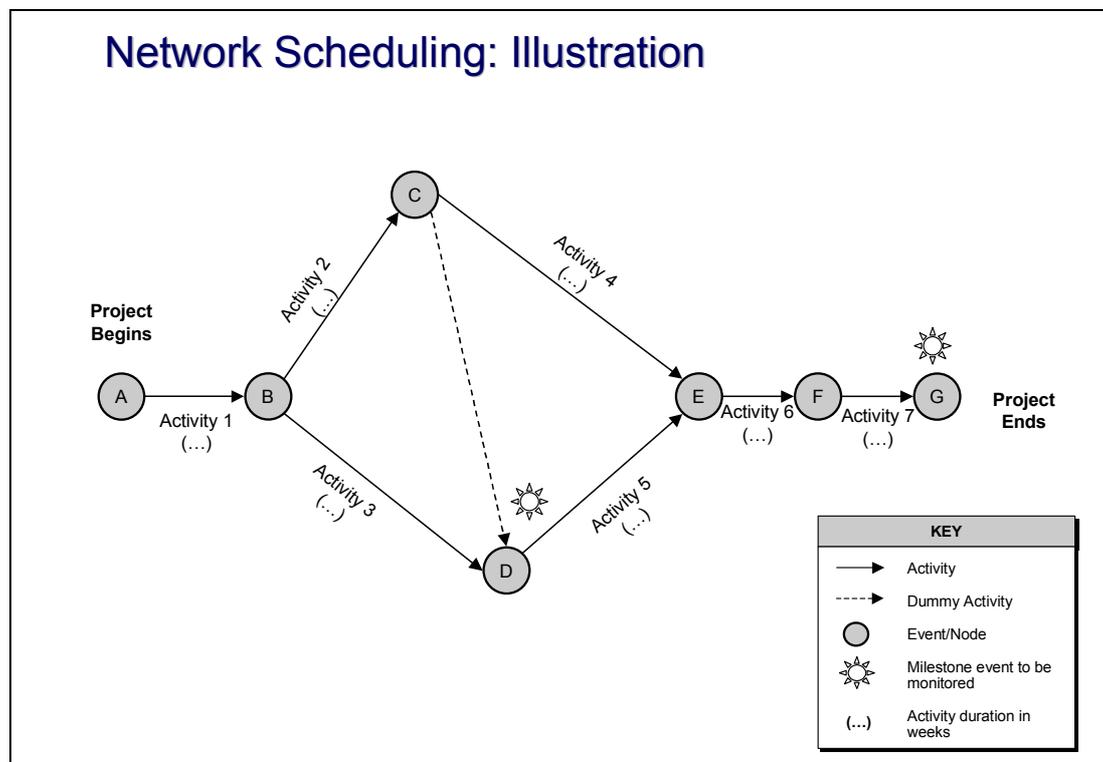


Figure VII.14. Network Scheduling – How to Use

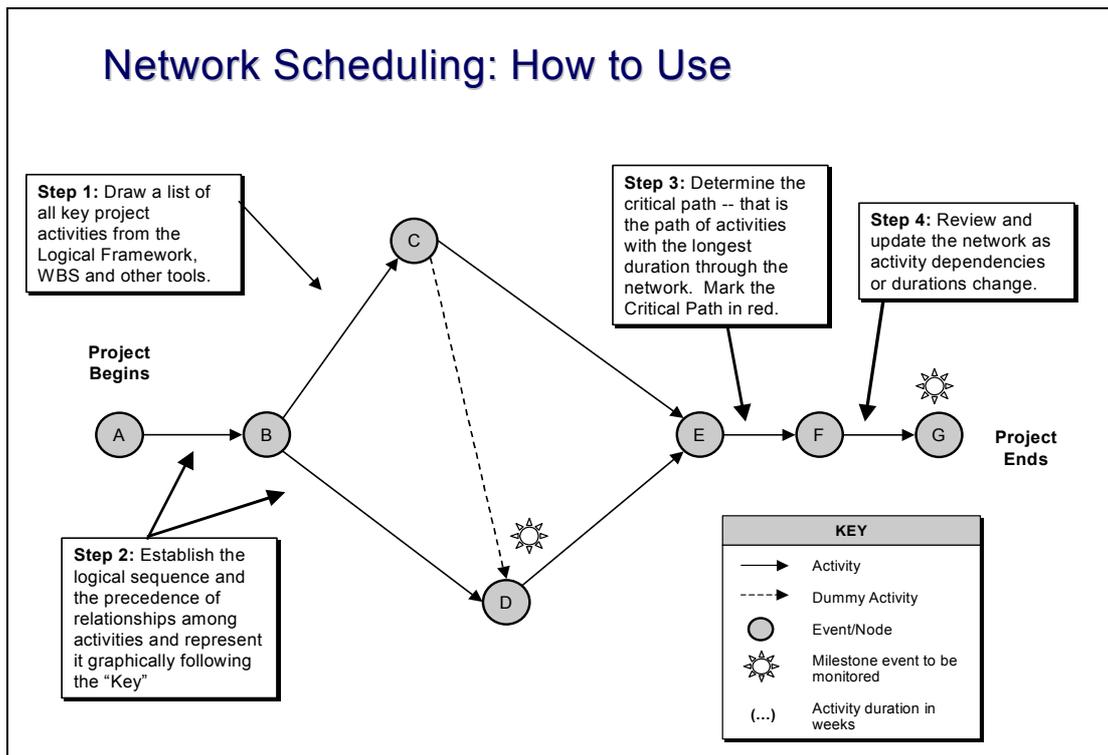
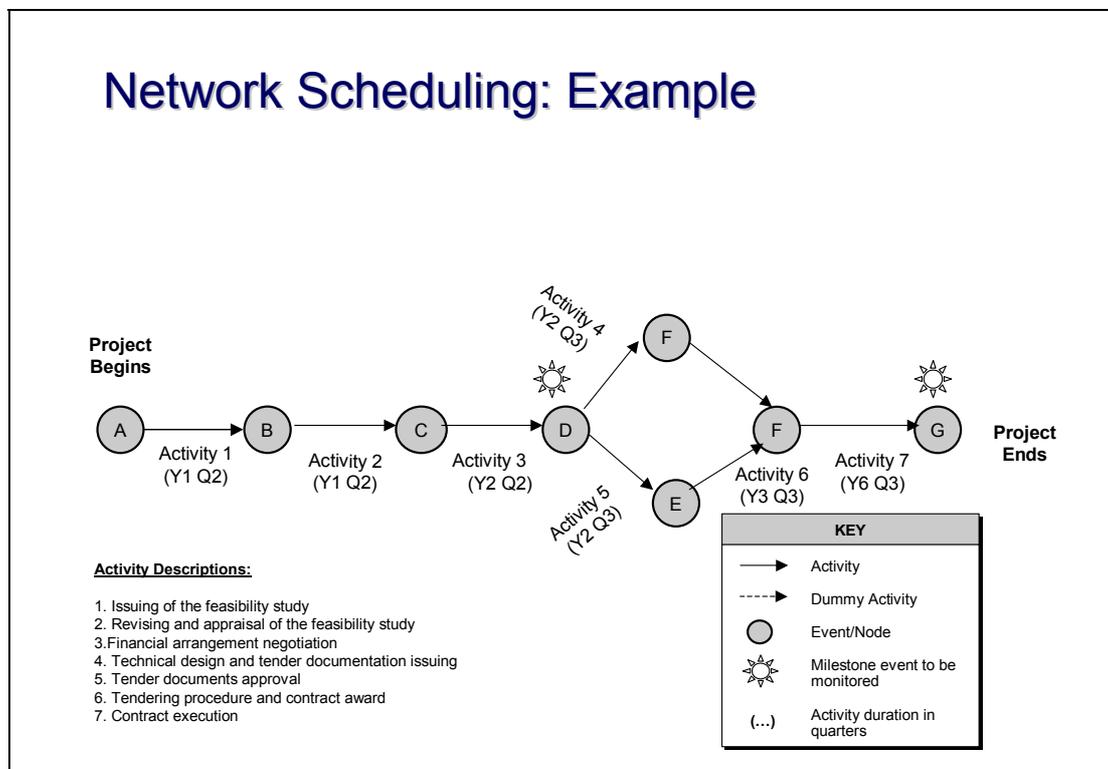


Figure VII.15. Network Scheduling – Example



Resource and Cost Estimating

Network Scheduling Methods and the WBS presented in Chapter VI complement each other to provide a full picture of proposed project implementation. One defines and disaggregates critical project activities; the other allows the practitioner to assign more concrete timelines, resource, and cost estimates to these efforts. Project management software can assist the practitioner in utilizing these two concurrent and self-reinforcing tools.

Consistent and thorough resource and cost estimation increases the likelihood of project completion within scope, time and budget. The first step in this process is determining what resources (people, equipment, materials) and what quantities of each are needed to perform project activities. Then project practitioners need to assess the costs associated with each of these resources and allocate these costs to outputs or to individual activities. For infrastructure projects in particular, project costs include all costs associated with the project planning, the project viability assessment, the project construction and development, and ongoing operations and maintenance costs. Such costs derive from both labor performed and expenses incurred for materials, travel, and other out-of-pocket expenses. Such costs can be classified in three categories:

1. *Pre-project* – includes the costs for project identification, for determining project feasibility, for detailed implementation planning, and for the subsequent negotiations and approvals.
2. *Project Implementation* – includes all costs associated with project start-up, execution and completion, including final design and engineering, land acquisition, construction, project management, and construction financing.
3. *Operations and Sustainability* – includes the actual costs that will be required to operate and maintain the infrastructure resulting from the project completion. These costs can also include costs deriving from environmental mitigation and population relocation.

Depending upon the type of project, the amount of project costs and the stage where they are incurred can vary significantly. For example, an infrastructure project's costs may be spread over the above three categories and may comprise equal amounts of both labor and materials. However, a project that proposes the provision of technical assistance is chiefly composed of design and implementation labor costs but may not include a substantial amount of operations costs.

Practitioners should bear in mind the type of activity proposed when using the Resource and Cost Estimating tool presented in the following figures. In addition, proper allocation of costs to specific deliverables and milestones may be necessary. Failure to allocate properly may, under various types of implementing arrangements, lead to the disallowance of certain types of costs, and the withholding of payments.

Figure VII.16. Resource and Cost Estimating – Description

Resource and Cost Estimating: Description

- **Purpose:**
 - To assist the project manager in developing a detailed cost budget for a project based on the estimated resources required to complete an Output deliverable or carry out an activity
- **Description:**
 - A table with columns for listing a project's resource requirements, estimated level of effort for each resource, and associated costs
- **Application:**
 - Use it during project design and implementation to document the resources required to complete a task, and the total costs associated with the completion

Figure VII.17. Resource and Cost Estimating – Illustration

Resource and Cost Estimating: Illustration

Project Component: _____

| Resource Estimating and Costing | | | |
|---------------------------------|-----------------|---------------|---------------|
| Type of Resource | Level of Effort | Resource Rate | Cost Estimate |
| | | | |
| | | | TOTAL |

Figure VII.18. Resource and Cost Estimating – How to Use

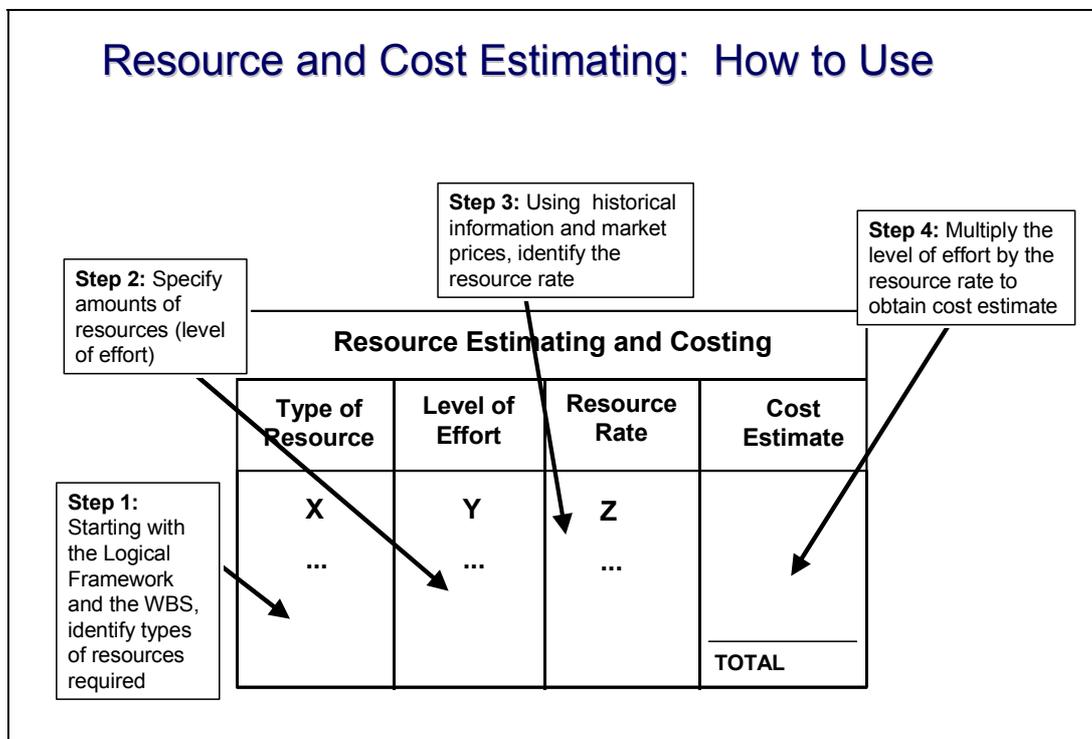


Figure VII.19. Resource and Cost Estimating – Example

Resource and Cost Estimating: Example

Project Component: Infrastructure --MyCity Tunnel

| Resource Estimating and Costing | | | |
|--|------------------------|----------------------|----------------------|
| Type of Resource | Level of Effort | Resource Rate | Cost Estimate |
| 1. Tunnel Contract | 1 Contract | 3.78 MEUR | 3.78 MEUR |
| 2. Supervision personnel | 4 Staff | 0.1 MEUR | 0.40 MEUR |
| | | | Total: 4.18 MEUR |

Procurement Arrangements

An effective procurement strategy, meaning one that includes sufficient project management time, is necessary to ensure transparency and open competition in infrastructure projects. A procurement strategy must be developed and approved as early as possible during project design. This will allow for all suitable pre-implementation procurement actions (such as the preparation of ToRs) to be completed prior to project start-up, thus minimizing the implementation period.

Procurement arrangements are related to contract packaging. The following table summarizes relevant World Bank procurement methods, including International Competitive Bidding (ICB), Limited International Bidding (LIB), National Competitive Bidding (NCB), and Direct Contracting. The methods are different in terms of the size of the contract, work and services values, the interest of foreign and local suppliers or contractors, and time range.

Table VII.2. Summary of Relevant World Bank Procurement Methods

| METHOD | SUITABLE APPLICATION | APPROXIMATE TIME RANGE |
|--|---|--|
| INTERNATIONAL COMPETITIVE BIDDING (ICB) | <ul style="list-style-type: none"> • Bank preferred method for large contracts for goods, works and services valued at US dollars \$10 million or more. • Interest by foreign suppliers or contractors. • Procurement requirements are widely available. • Although efficiency is important, there is no specific urgency in processing the procurement. | <ul style="list-style-type: none"> • Works with prequalification needs: 16-20 months • Works without prequalification needs: 8-12 months • Goods: 8-10 months |
| LIMITED INTERNATIONAL BIDDING (LIB) | <ul style="list-style-type: none"> • Exceptional reasons such as emergency actions related to a major natural disaster, which may justify the waiving of advertising of competitive bids • Highly specialized equipment for construction of dams, with only a limited number of known suppliers or manufacturers. | <ul style="list-style-type: none"> • For goods: 5-6 months |
| NATIONAL COMPETITIVE BIDDING (NCB) | <ul style="list-style-type: none"> • Value small in relation to the effort bidders need to do to tender • Local capability and competitiveness makes it unattractive for foreigners • Contract with significant transportation component and labor intensive • Works spread geographically over time upsetting economies of scale • Costs of ICB are clearly and disproportionately high | <ul style="list-style-type: none"> • NCB goods: 5-6 months |
| DIRECT CONTRACTING | <ul style="list-style-type: none"> • Extension of existing contract is necessary as works are already underway and were procured in an acceptable fashion • Standardization of equipment and spare parts of compatibility with existing equipment is required • Exceptional cases, early delivery of essential goods in emergency operations | <ul style="list-style-type: none"> • 1 to 3 months |

The objective of contract packaging is to group the procurement requirements in such a way as to ensure economy and efficiency in the delivery of the required goods, services, and work at the scheduled time. This includes determining whether single or multiple contracts should be used to procure planned items and where individual contracts (slices) or groups of similar contracts (packages) will be.

Factors to consider when making contract packaging decisions include the ability of local suppliers of goods and services to meet project needs and the likely interest of foreign bidders to participate in the project. The scope and sizes of contract packages can be divided in a way to allow local firms to compete effectively when there are well established local civil works contracting and goods supply capabilities, and when foreign interest in bidding for small local contracts is low, or when foreign companies are not the best overall value for implementing a particular project. On the other hand, larger scope and sizes of contract packages should be used when there are reasons of economy or efficiency, and in particular, if experienced foreign bidders with good references express an interest in participating

in the bidding process, preferably in collaboration with knowledgeable local partners.

If local and foreign interests and capabilities exist, it may be possible to meet the needs of both by appropriately sizing and timing contract awards. For example, the work may be divided into individual packages that can be handled by local bidders. Due to their relatively small size, the call for bids (or tenders) on five or ten of these small packages can be announced simultaneously. A small local contractor can bid for one or however many slices of the scope it can effectively handle. A large foreign bidder can bid on part or all of the entire package, potentially offering a discount if the contractor is awarded all or a specified number of contract components.

The practitioner should be sensitive to the documented capabilities and demonstrated management experience of a contractor in undertaking multiple activities. If the contractor does not perform well, it may risk non-performance and termination of the contract. Similarly, if the practitioner is actually managing the procurement process, then he/she must be aware of the characteristics of the marketplace for the infrastructure goods or services. In this manner, “packages” or “slices” of an appropriate size can be offered to attract a sufficient number of bidders. Otherwise, actual implementation can be significantly delayed due to lack of responses, and the procurement cycle will need to start all over again.

The appropriate time to plan for the procurement arrangements is during the Implementation Planning stage. Completing all procurement arrangements during the planning stage of the project cycle will allow for a rapid start-up of the project following the approval process. The Procurement Arrangements tool is presented in the following figures to assist with procurement planning.

Figure VII.20. Procurement Arrangements – Description

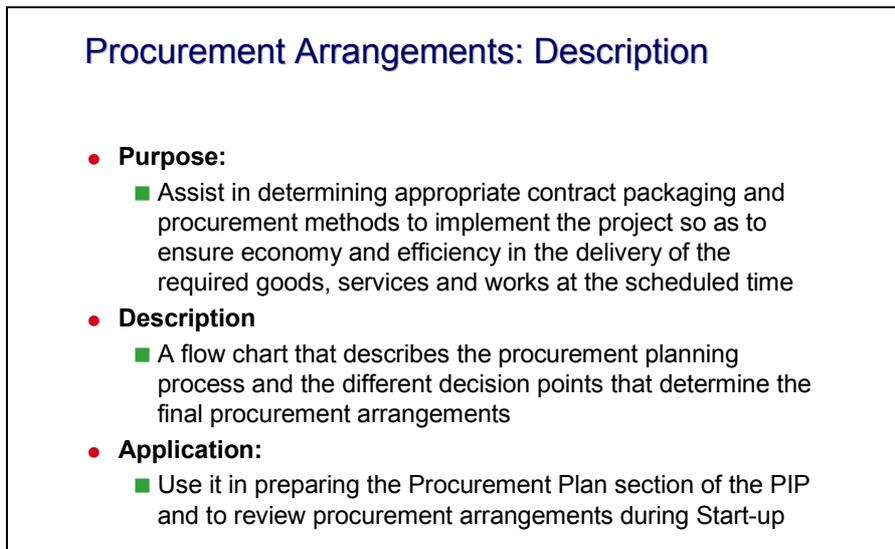


Figure VII.21. Procurement Arrangements – Illustration

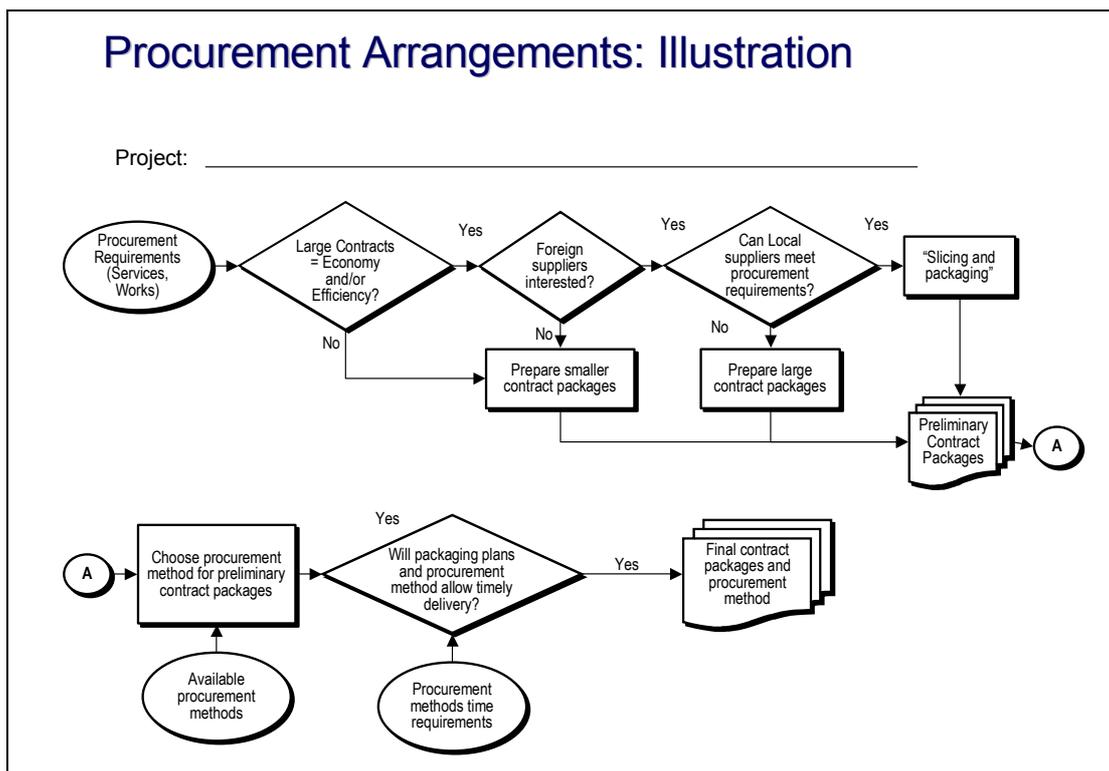


Figure VII.22. Procurement Arrangements – How to Use

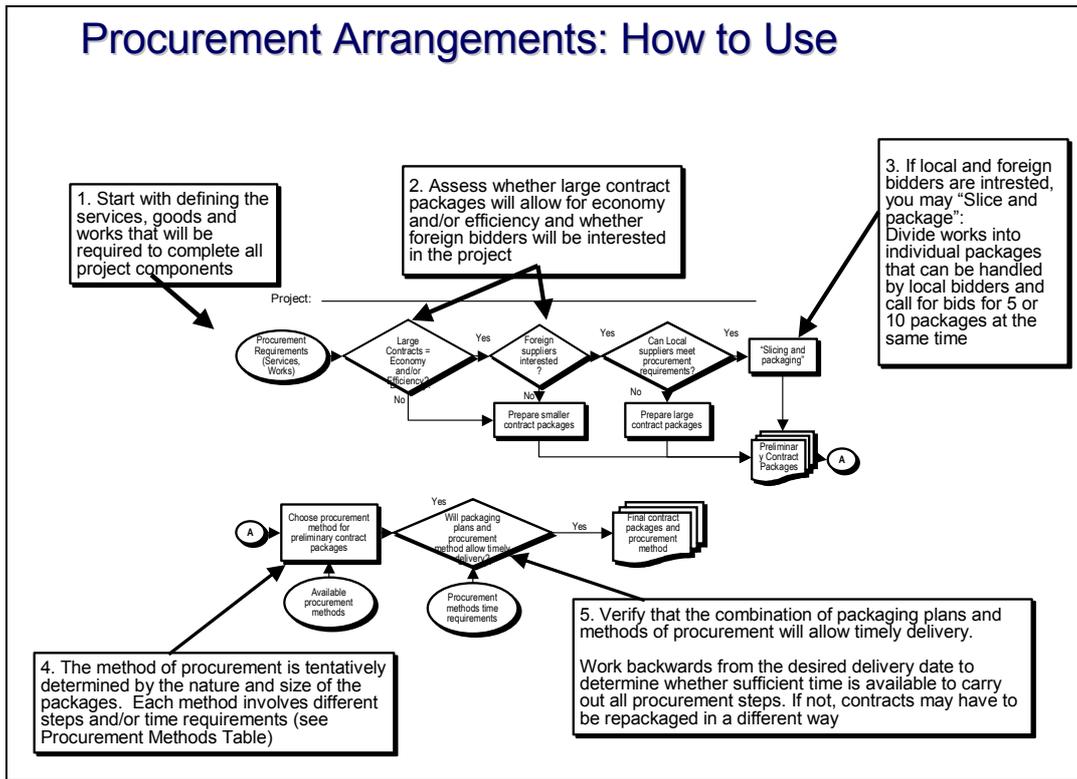
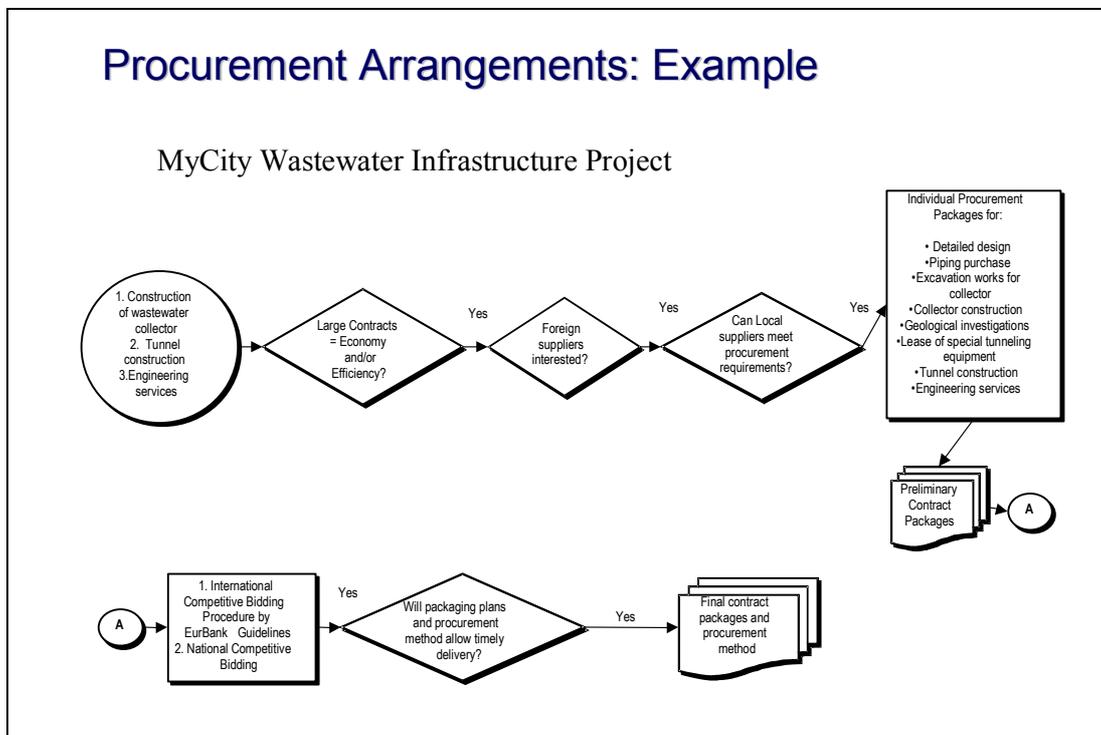


Figure VII.23. Procurement Arrangements – Example



Procurement Plan

At this point, the practitioner moves on to developing the Procurement Plan and the Statement of Work. Procurement planning should involve a number of key milestones:

- A pre-qualification process and schedule
- Request for Proposal (RFP) preparation and schedule
- A bidders conference and site visit schedule
- A bid examination and evaluation process and schedule
- A short list (pre-qualification) review by the procurement team
- A tender document review and approval by the procurement team prior to issuance
- A contract negotiation schedule
- A contractor selection schedule
- A contract award schedule
- An announcement of contract award
- A process for managing protests and providing dispute resolution.

For the practitioner, the goal of the Procurement Plan, as was the case in contract packaging, is to ensure that the right number of contracts at the right value is in place to perform the work required on time and within the overall project budget.

The Procurement Plan should be developed as early in project design as possible. The Procurement Plan tool is described in the following figures.

Figure VII.24. Procurement Plan – Description

Procurement Plan: Description

- **Purpose:**
 - To assist project practitioners in deciding on the appropriate number of contracts, procurement methods, value and procurement target dates for each project component
- **Description:**
 - A matrix that lists the different project elements and their procurement arrangements including contract information and procurement deadlines
- **Application:**
 - For use in the Implementation Plan section of the PIP, and also during Start-up as procurement actions are completed

Figure VII.25. Procurement Plan – Illustration

Procurement Plan: Illustration

Project: _____

| Component | Total Cost | Nr. of Contracts | Procurement Method | Deadlines | | | | |
|-----------|------------|------------------|--------------------|----------------------|-----------------------------|----------------------|--------------------|---------------------|
| | | | | Document Preparation | Invitation Prequalification | Invitation Tendering | Contract Signature | Contract Completion |
| Works | | | | | | | | |
| Goods | | | | | | | | |
| Services | | | | | | | | |

PROCUREMENT METHOD KEY

ICB - International Competitive Bidding
 LCB - Limited Competitive Bidding
 NCB - National Competitive Bidding
 DC - Direct Contracting
 Other

Figure VII.26. Procurement Plan – How to Use

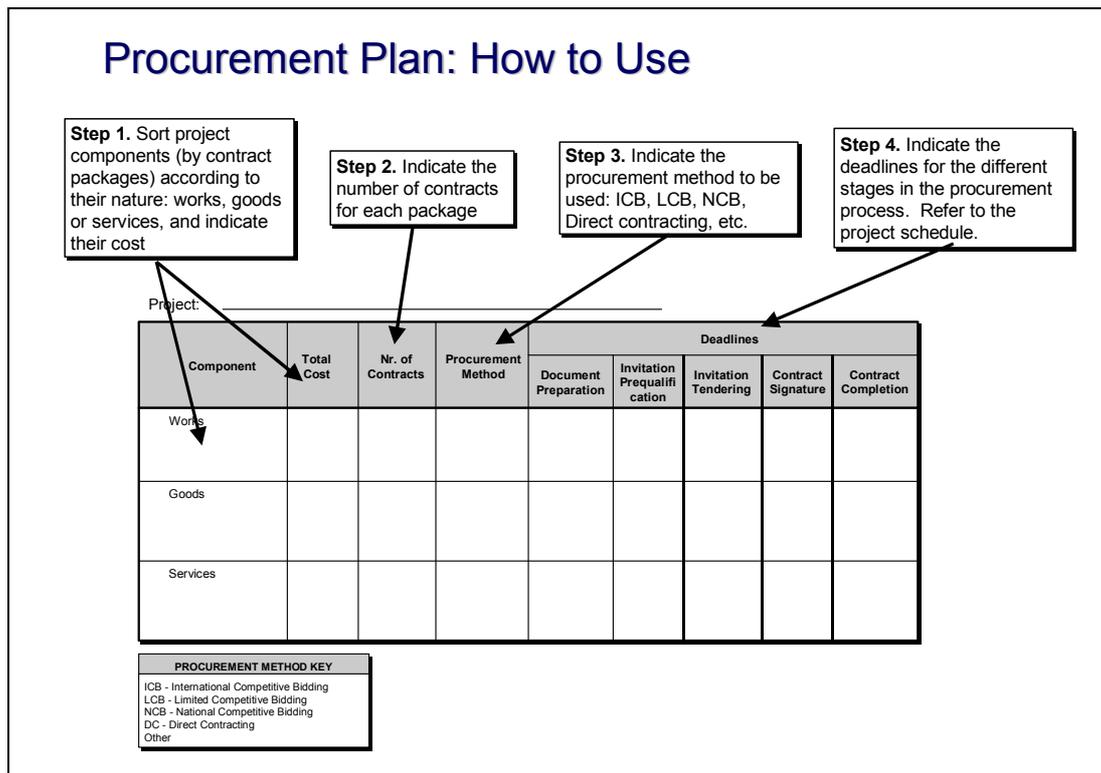


Figure VII.27. Procurement Plan – Example

Procurement Plan: Example

MyCity Wastewater Project

| Component | Total Cost (Million EUR) | Nr. of Contracts | Procurement Method | Deadlines | | | | |
|---------------------------|--------------------------|------------------|--------------------|----------------------|-----------------------------|----------------------|--------------------|---------------------|
| | | | | Document Preparation | Invitation Prequalification | Invitation Tendering | Contract Signature | Contract Completion |
| Works | | | | | | | | |
| Excavation works | 0.5 | 1 | NCB | | | | | |
| Tunnel Construction | 2.25 | 1 | ICB | Y2/Q3 | Y2/Q4 | Y3/Q1 | Y3/Q3 | Y6/Q3 |
| Collector Construction | 2.25 | 1 | ICB | | | | | |
| Goods | | | | | | | | |
| Purchase of piping | 4.5 | 1 | ICB | Y3/Q1 | Y3/Q1 | Y3/Q2 | Y3/Q3 | Y4/Q2 |
| Lease of equipment | 0.46 | 1 | ICB | Y3/Q1 | Y3/Q1 | Y3/Q2 | Y3/Q3 | Y5/Q3 |
| Services | | | | | | | | |
| Detail design | 0.26 | 1 | NCB | Y2/Q4 | Y1/Q4 | Y2/Q1 | Y2/Q2 | Y2/Q3 |
| Geological Investigations | 0.2 | 1 | NCB | | | | | |
| Engineering services | 0.5 | 1 | ICB | | | | | |

PROCUREMENT METHOD KEY

ICB - International Competitive Bidding
 LCB - Limited Competitive Bidding
 NCB - National Competitive Bidding
 DC - Direct Contracting
 Other

Disbursement Plan

To avoid delays in the disbursement of funds for project implementation, a Disbursement Plan should be carefully designed. The plan presents the time schedule for disbursement of funds throughout project start-up and execution. Usually funds are disbursed against foreign or local expenditures, including equipment, materials, civil works, technical and consulting services, and studies.

The World Bank (WB), for example, uses two procedures with special requirements. These are the Statement of Expenditures (SoE) and Special Accounts (SA). The SoE method is used to reimburse the recipient country (or the guarantor) when documentation would otherwise be cumbersome or voluminous. SAs are revolving accounts funded with an advance from a World Bank loan for use by the recipient country exclusively to cover the WB share of eligible expenses in both local and foreign currencies. The primary objective of the SA is to help the recipient country overcome cash flow problems and to speed disbursement. The loan agreement and disbursement letter outlining the disbursement procedures to be followed by the loan include retroactive financing provisions, items eligible for disbursement under SoE procedure, requirements for the operation of an SA, and a minimum application value. The method of payment specified in the bidding documents should take into account the disbursement procedures applicable to the concerned loan.

Much like the Financing Plan, the Disbursement Plan simply satisfies a requirement of most IFIs in considering a PIP by formally laying out the timing of fund disbursement. In this case, however, the practitioner must pay close attention to the timing of funds required and their source. Lack of funds available due to poor forecasting can result in project delays or even work stoppage. Once again, the practitioner can return to tools presented earlier, such as the WBS, to determine when funds are required and at what amount. By providing such estimates to the funding agency, the practitioner can increase the chances that the funds will be in place exactly when they are needed. The Disbursement Plan tool can assist in this process as described in the following figures.

Figure VII.28. Disbursement Plan – Description

Disbursement Plan: Description

- **Purpose:**
 - To assist the project manager in ensuring that the right amount of funds from the correct sources will be available when needed throughout project implementation
- **Description:**
 - A matrix for planning and presenting, on a quarterly basis, the schedule for disbursement of funds by source throughout project implementation
- **Application:**
 - For use in the Implementation Plan section of the PIP, and also to compare against actual disbursements to determine if project implementation is progressing as planned

Figure VII.29. Disbursement Plan – Illustration

Disbursement Plan: Illustration

Project: _____

| Calendar Year | Date End Quarter | Quarterly Disbursements | | | | | Total | Total Cumulative |
|---------------|------------------|-------------------------|---------------------|------------------|-------|--|-------|------------------|
| | | IFI | National Government | Local Government | Other | | | |
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| Totals | | | | | | | | |

Figure VII.30. Disbursement Plan – How to Use

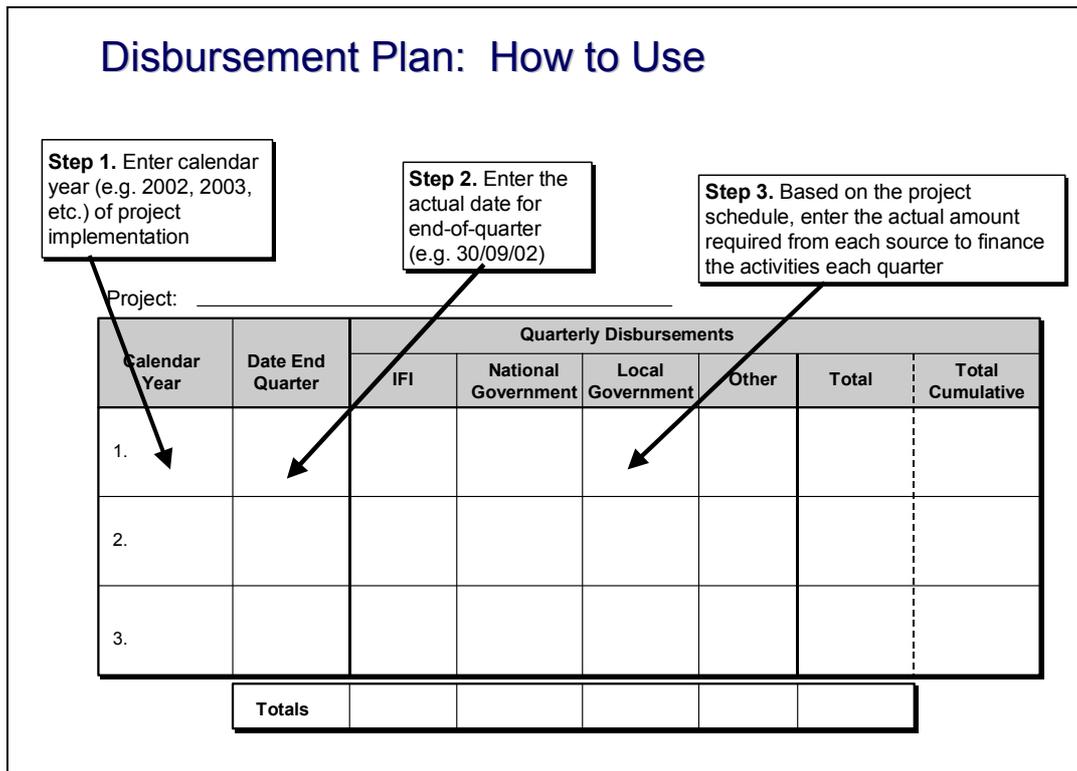


Figure VII.31. Disbursement Plan – Example

Disbursement Plan: Example

MyCity Wastewater Project

| Calendar Year | Date End Quarter | Quarterly Disbursements (Millions EUR) | | | | | Total | Total Cumulative |
|---------------|------------------|--|---------------------|------------------|-------|------|-------|------------------|
| | | IFI | National Government | Local Government | Other | | | |
| Year 2 | Q 1 | | | | | | | |
| | Q 2 | | 0.6 | 0.18 | | 0.78 | 0.78 | |
| | Q 3 | | | | | 0.20 | 0.98 | |
| | Q 4 | | 0.1 | 0.10 | | | | |
| Year 3 | Q 1 | 0.12 | | | | 0.12 | 1.1 | |
| | Q 2 | 0.12 | | | | 0.12 | 1.22 | |
| | Q 3 | 0.8 | | | | 0.8 | 2.02 | |
| | Q 4 | 0.8 | | | | 0.8 | 2.82 | |
| Year 4 | Q 1 | 0.8 | | | | 0.8 | 3.62 | |
| | Q 2 | 0.8 | | | | 0.8 | 4.42 | |
| | Q 3 | 1.0 | | | | 1.0 | 5.42 | |
| | Q 4 | 1.0 | | | | 1.0 | 6.42 | |
| Totals | | 5.44 | 0.70 | 0.28 | | 6.42 | | |

Monitoring, Reporting and Evaluation Plan

Monitoring, reporting and evaluation form the three pillars of any management information system, whether it be elaborate and computer based or simple and paper based. *Monitoring* entails tracking the performance of key activities and accomplishments. *Reporting* involves formally communicating achievements, problems, or prospects. *Evaluating* includes assessing accomplishments or results against previously defined indicators. Monitoring and reporting occur on a periodic or continuous basis through the project cycle, not merely at predetermined points in the period of performance. Evaluating, on the other hand, may and should occur on an episodic basis at pre-prescribed points in time. In every case, the information gathered in assessing project performance should be restricted to that required for improved decision-making, accountability, and performance.

Evaluation typically entails a considerably broader scope of activities than that of monitoring or reporting. Evaluations frequently deal with multiple variables that involve a high degree of uncertainty. In evaluating project performance, a practitioner addresses issues such as the following:

- Whether the rationale for the project remains intact in light of changing circumstances
- Whether the project design (including basic assumptions about the external context) is still valid
- Whether planned and unplanned outcomes and results have occurred
- Whether observable impacts can be attributed to the project intervention
- Whether changes in the design are required to improve future performance.

Evaluations do not assume that the existing project design is optimal. On the contrary, they rigorously challenge the design by assessing results to date and in determining whether alternative strategies and activities might be more appropriate. Evaluation is concerned both with explaining current project effectiveness and with improving effectiveness in the future.

The PMToolkit Monitoring, Reporting, and Evaluation Plan tool is one type of systematic summary of the items to be actively watched or tracked during implementation. For each item to be tracked, this plan identifies:

- The points in time over the project period of performance at which reporting should take place
- The relevant indicators of progress or achievement
- The expected levels of accomplishment for those indicators at specific points in time
- The best source of data to verify the indicators
- The stakeholder to whom the report is to be delivered.

The indicators selected express what a practitioner is willing to call "success." Thus, the evaluation task is primarily oriented toward collecting the data for those key indicators, and then assessing actual accomplishments against these pre-set standards of success. These "success" indicators are most commonly summarized in the Logical Framework tool presented in Chapter VI.

The Monitoring, Reporting, and Evaluation Plan, which is described in the figures below, is useful for integrating and streamlining project implementation information. It clearly defines what we need to know, when we need to know it, how we are to find it, and who needs the information. By focusing attention on information that is really needed, this plan reduces information overload and helps to ensure "that the right information gets to the right people at the right time." The Monitoring, Reporting, and Evaluation Plan, once accepted, becomes an agreement among project members within and across participating organizations about the nature, frequency, and substance of information flows. It also allows for various stakeholders in the implementation process, such as executives, donors and contractors, to pre-schedule their monitoring, reporting and evaluation activities. In this way, the project practitioners can achieve economies of scale and avoid placing unrealistic information processing burdens on any one individual or organization.

Practitioners should identify what items or milestones to monitor, when they are to be monitored, where to find the information, and what kind of report, if any, to file once monitoring is completed. Again, one does not start from scratch; previously utilized tools, such as the WBS and the milestones in the Network Schedule, contain much of this information. Some reports on monitoring and evaluation tasks are periodic, i.e., they occur at prescribed times or intervals, irrespective of project activities or achievements. Others are episodic, i.e., keyed to the completion of various activities or the achievement of various objectives. The former can be scheduled well in advance with relative certainty. The timing of episodic monitoring is, by its nature, less certain and is triggered by event accomplishment.

The plan uses three types of reports: exception reports, achievement reports, and periodic reports. *Exception reports* are filed when a result that is both scheduled to happen and important fails to occur or is likely to not occur on time. *Achievement reports* announce the achievement of an expected – or an important unexpected – result. *Periodic reports* track activities, expenditures, or achievements at predetermined times such as on a monthly or quarterly basis. As a general rule, achievement or exception reports are the most cost effective. They should be substituted for periodic reports whenever circumstances permit.

Figure VII.32. Monitoring, Reporting and Evaluation Plan – Description

Monitoring, Reporting and Evaluation Plan: Description

- **Purpose:**
 - To assist the project manager in thinking about and selecting the most important events that should be monitored and evaluated during project implementation so as to contribute to the project’s overall success
- **Description:**
 - A summary matrix of the key project events that should be actively watched, assessed, reported, and acted upon during implementation to ensure that the right information gets to the right people at the right time
- **Application**
 - Include it in the Monitoring and Evaluation section of the PIP, and use it as a guide during project implementation

Figure VII.33. Monitoring, Reporting and Evaluation Plan – Illustration

Monitoring, Reporting and Evaluation Plan: Illustration

Project Component _____

| Item to be Monitored | Periodic or Episodic (P or E) | Monitoring Dates | Indicator and Target | Source of Data | Report for Whom? |
|----------------------|-------------------------------|------------------|----------------------|----------------|------------------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| Etc.: | | | | | |

Figure VII.34. Monitoring, Reporting and Evaluation Plan – How to Use

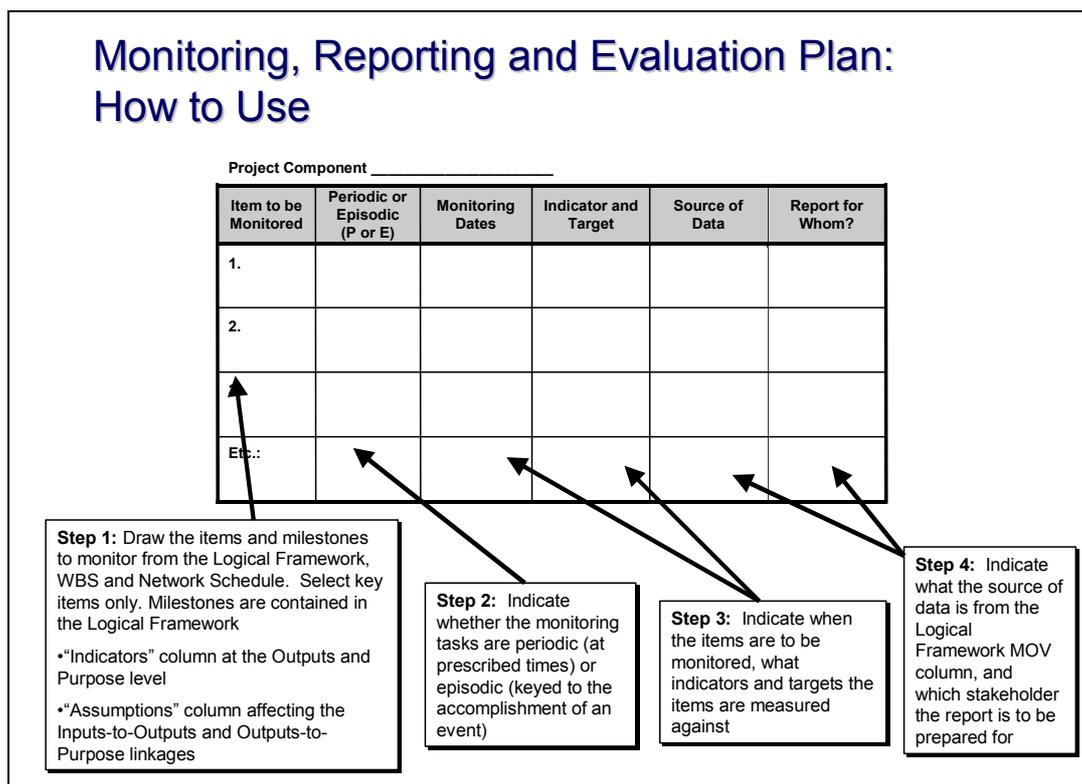


Figure VII.35. Monitoring, Reporting and Evaluation Plan – Example

Monitoring, Reporting and Evaluation Plan: Example

Project Component: MyCity Physical Works

| Item to be Monitored | Periodic or Episodic (P or E) | Monitoring Dates | Indicator and Target | Source of Data | Report for Whom? |
|---|-------------------------------|---|---|---|-------------------------------------|
| 1. Contracts signed | E | When Contracts signed | Contract type and date | Project Monitoring Unit | Parent Ministry |
| 2. Wastewater Collector and Tunnel construction | P | Milestone dates from the project construction gantt chart | Completed works pass periodic inspection and commissioning | Inspection reports from the Engineer | Project Manager and Financing Board |
| 3. Counterpart funds provided | P | Quarterly, and according to the Disbursement plans in PIP | Amounts in PAD, and according to the negotiated Disbursement Plan | Ministry of Finance MyCity Budget Dept. | Parent Ministry and Financing Board |
| 4. Eliminated pollution | P | Semi-Annually | Groundwater pollution indicators for MySuburb area | Project Monitoring Unit Ministry of Env. | Project Manager and Donor |

Terms of Reference (ToR)

A ToR is used to specify the project work that is to be carried out by an individual or contractor. A ToR includes information on project background and objectives, scope of work, reporting schedule and deliverables, period of performance, professional expertise required, and counterpart responsibilities. This section provides an introduction to ToRs and introduces a tool containing the basic structure of a ToR. The section also provides some guidance for preparing and presenting a ToR.

Individual ToRs are readily modified and developed according to changing project requirements. ToRs are used at every stage of the project cycle when a project manager requires someone else to perform a task. When engaging consultants, it is important that the ToR describe clearly and comprehensively the exact requirements and results expected in what time frame. If ToRs are used in the procurement proposal evaluation process, this will allow comparable proposals to be received, and the selection to be made on fair and equal terms. At the same time, the ToR should not be drafted so narrowly that a consultant, when submitting a proposal, is prevented from making a creative contribution to achieving the specified project results.

A clear and comprehensive ToR is also essential for reaching an agreement on an enforceable contract. If expected results are not clearly defined, or timelines are not established, or allowable costs are not clearly defined, no standards can be applied to determine whether the performance of the work has actually been fulfilled. A client cannot assess the value or impact of the contract. Similarly, the practitioner needs to ensure that the ToR clearly spells out activities that are considered within the ToR, precise but reasonable timelines and due dates, allowable and recoverable costs, and reporting requirements to indicate performance. Without such definitions, the contractor has no means to legitimately claim that work has or has not been performed for which remuneration can be received. The Terms of Reference tool is presented in the following figures.

Figure VII.36. Terms of Reference (ToR) – Description

Terms of Reference (ToR): Description

- **Purpose:**
 - To assist the project manager to communicate the “whats” and “hows” of a contract or work order to potential contractors and other stakeholders
- **Description:**
 - A narrative outline of the minimum content to be included in the ToR
- **Application:**
 - The ToR can be used any time work needs to be performed by an individual or contractor during project design and implementation. Depending on the project’s complexity, develop one ToR for the entire project or one for each component or sub-component. Include ToRs in the PIP.

Figure VII.37. Terms of Reference (ToR) – Illustration

Terms of Reference (ToR): Illustration

Terms of Reference

Project or Component: _____

| |
|---|
| A. Background and Objectives |
| B. Scope of Work |
| C. Reporting Schedule and Deliverables |
| D. Period of Performance |
| E. Professional Expertise Required |
| F. Counterpart and Responsibilities |
| G. Annexes |

Figure VII.38. Terms of Reference (ToR) – How to Use

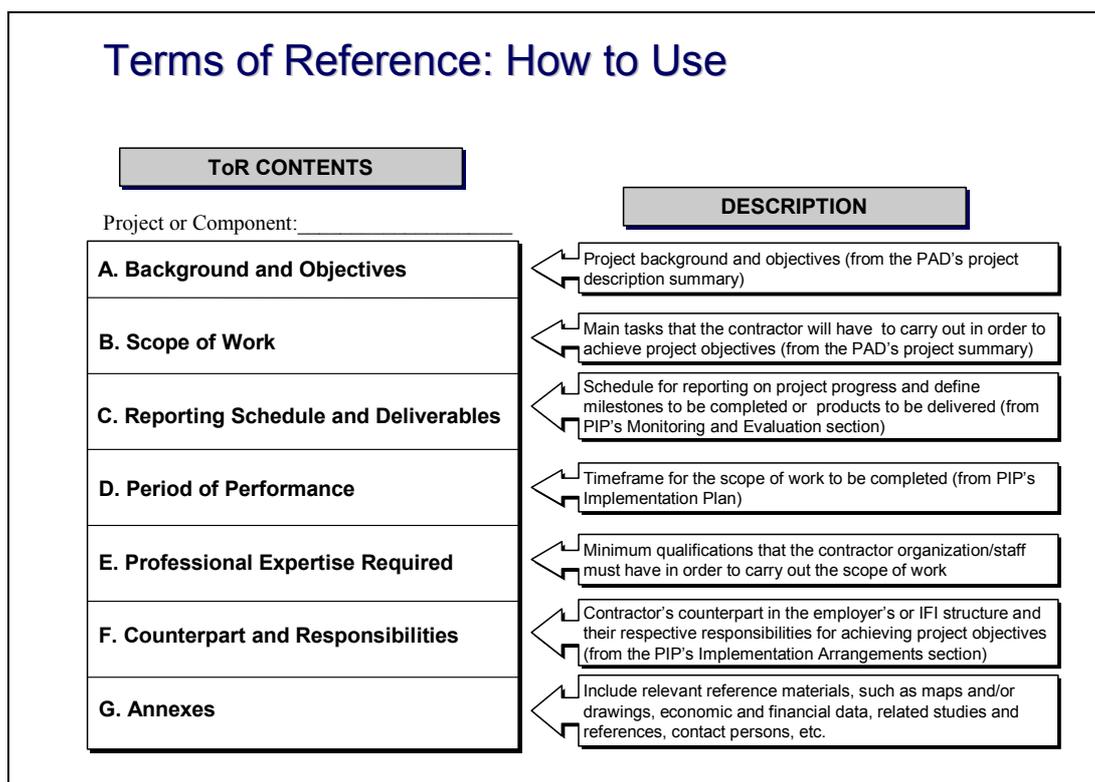


Figure VII.39. Terms of Reference (ToR) – Example

Terms of Reference (ToR): Example

| TERMS OF REFERENCE (ToR) | |
|--|--|
| Project: <u>MyCity Wastewater Infrastructure Project</u> | |
| A. Background and Objectives | MyCity is developing MySuburb without appropriate sewage infrastructure, leading to significant pollution of the groundwater. The purpose of the project is to protect MyCity's water supply sources. Construction of a wastewater collection system and transmission of the sewage, by tunnel, will help to reach the Purpose of this project |
| B. Scope of Work | The local water specialist will be responsible for developing a system for measuring the level of contaminants in the waste water. |
| C. Reporting Schedule and Deliverables | The local water specialist will report directly to the Project Manager. Deliverables include data related to contaminants in waste water including: organic materials, nitrogen, etc. |
| D. Period of Performance | The period of performance is between January Y4 and December Y4. The estimated professional level of effort for this task shall not exceed 120 person days. |
| E. Professional expertise required | The qualifications of the local water specialist shall include: a) At least (5) years of relevant professional experience in water sector b) A graduate degree in water related subjects |
| F. Annexes | Logical Framework Summary and Project Schedule |

Conclusion

Implementation Planning is a critical stage of the project cycle. A carefully thought-out and well-developed implementation plan increases the likelihood of the project success by speeding up the project approval process and initiating project start-up. Without full consideration of the topics and tools described in this chapter, it would be next to impossible to actually start work and track physical and financial progress. In addition, the procurement and contracting process – an important feature of infrastructure project implementation – would be seriously delayed.

The PIP is the template for the Implementation Planning stage. This document provides detailed information on project scope, description, financing plan, implementation arrangements, implementation plan, monitoring, reporting, and evaluation, and related terms of reference. With Project Preparation and Implementation Planning completed, the project can be negotiated and approved, and the project cycle moves on to Project Start-Up.

CHAPTER VIII: PROJECT START-UP

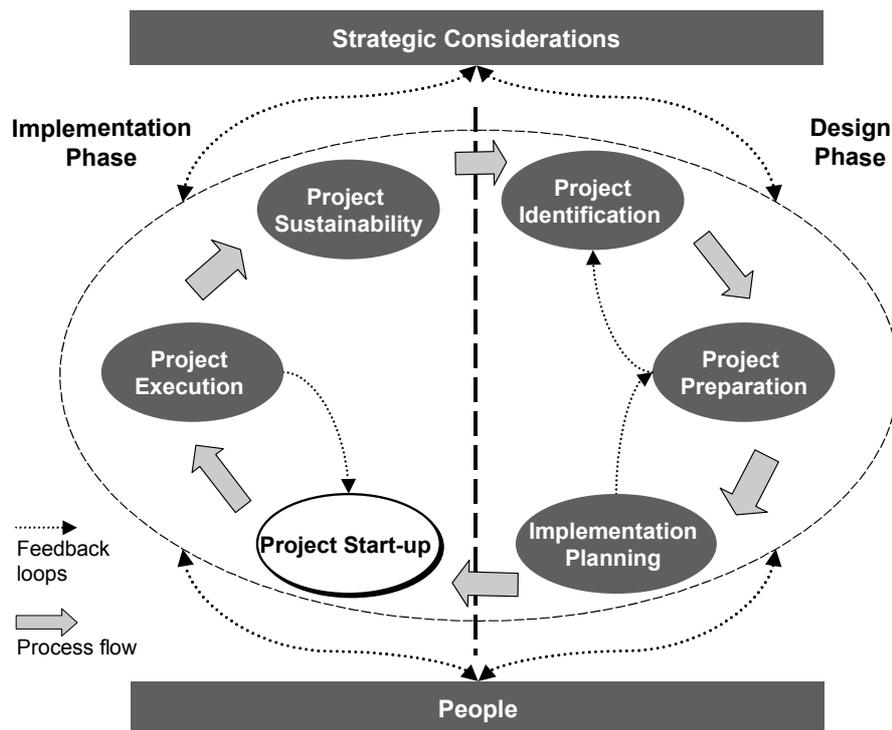
Overview

Project Start-up begins after a project is designed, approved and officially negotiated with sponsors and financing entities. This is the dividing point in the project cycle between Project Design and Project Execution. Start-up includes initiation of work by bringing together project personnel, equipment, facilities, and other resources. But it has a broader meaning than just mobilization. It signifies the physical creation of an overarching project organization and implementation management team, as well as the final integration of stakeholders and tasks in line with the predefined project objectives. In many projects, start-up includes a location change from the proposer's office to the implementation site. And most of the previously engaged resources, documents, and support systems must also move. Such complexities mandate that the crossing of the threshold between design and implementation be recognized as a critical point in the project cycle requiring significant planning and attention to detail. The location of the Start-up stage in the PMToolkit Framework is presented in Figure VIII. I below.

The Start-up and Execution stages – actually performing the work within the prescribed period of performance – consume on the order of 90-95 percent of all programmed funds. Therefore, a project should get off to a solid and timely start without establishing an impression that the implementing entity will be unable to perform. Typically, there will be many hurdles that the project manager and the new implementation team will need to overcome. The point is to demonstrate that the project can be implemented as designed and that risks can be managed.

Effective Project Start-up requires the management practitioner to understand key project inception concepts and the tools that support this process. Such tools allow the practitioner to recognize the characteristics of an effective project organization, to establish clear organizational responsibilities, to understand procurement and contracting concepts, and to employ effective methods for communicating with stakeholders and team members.

Figure VIII.1. PMToolkit Project Management Framework – Project Start-up



Template: Inception Report (IR)

The end product of the Project Start-up stage is an Inception Report (IR), a template that contains all necessary details for aligning project execution with previously produced design documentation that carried the project to this point. This includes the PPD, PAD, and PIP described in Chapters V, VI, and VII respectively. Through the IR template, the project team confirms a detailed and mutually agreed strategy for project execution. The IR is an important source of information for all individuals or organizations that should join the project. Below is the template indicating the content of the IR, including details on the linkages to the tools presented in this chapter (see Figure VIII.2).

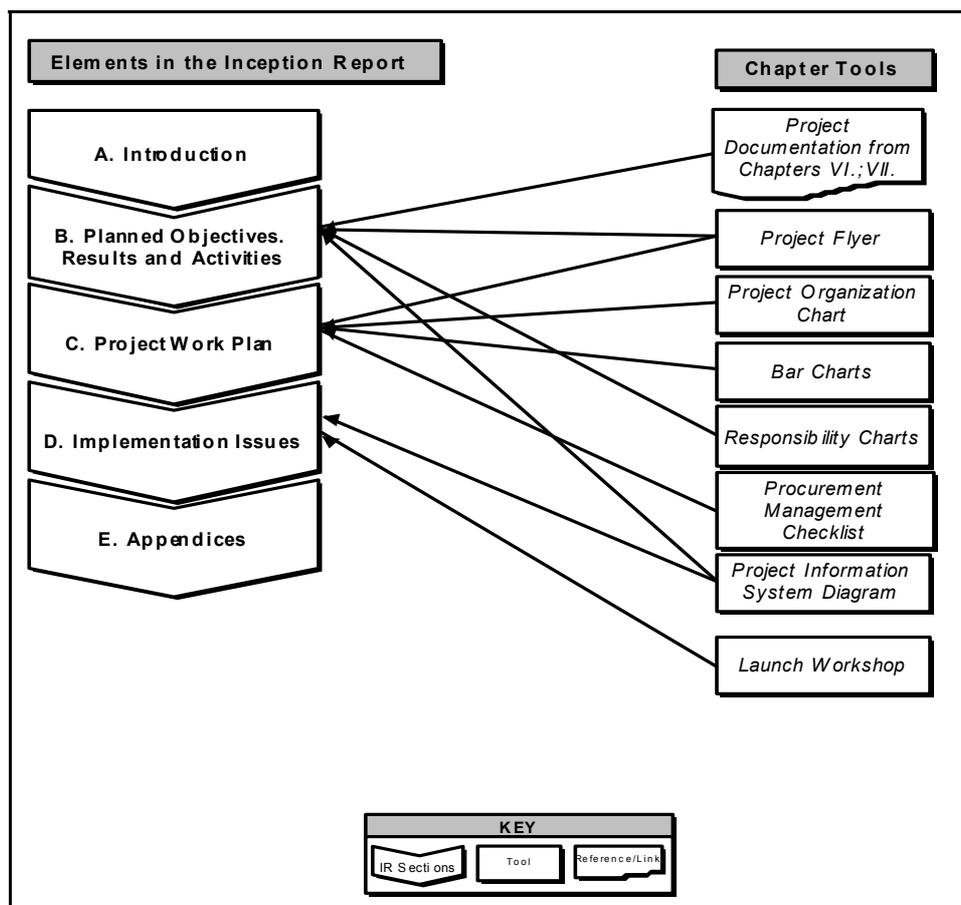
Figure VIII.2. The Inception Report Template

| PROJECT TITLE | |
|--|--|
| Inception Report | |
| 1. Introduction | |
| 1.1. Inception Report Purpose | (Overview of implementation objectives and approach in relation to the scope of the project and elapsed time since negotiations and approval of project; Describe proposed implementation methodology and approach in the light of observations of the project team on site) |
| 1.2. Project Objectives and Scope | (Short description of objectives and scope) |
| 1.3. Project Organization | (Descriptions of units and staff involved in the project including their roles and relationships) Annex: Project Organization Chart |
| 1.4. Project Mobilization Activities and Accomplishments | (Detailed descriptions on conditions, restrictions and responsibilities for mobilization activities) |
| 2. Planned Objectives, Results and Activities | |
| 2.1. Component 1 | |
| 2.2. Component 2 | |
| 2.3. Etc. | (Detailed explanation for each stated objective, including specific results and necessary activities for each objective) |
| 3. Project Work Plan | |
| 3.1. Work Plan Schedule | (Graphical representation of project tasks, usually as a bar chart diagram. It might also include project staffing schedule as a separate additional plan) Annex: Bar Chart |
| 3.2. Responsibility Chart | (Tabular presentation of dependency between key project outputs and particular actors) Annex: Responsibility chart |
| 4. Implementation Issues | |
| 4.1. Start-up Issues | |
| 4.2. Implementation Issues | |
| 4.3. Sustainability Issues | (Descriptions of particular issues for management consideration) |
| 5. Appendices | |
| (Different useful sources of additional information such as the project terms of references, a list of persons contacted, and a list of other ongoing projects or consultancies) | |

Tools in Perspective

The following figure provides a quick overview of tools used in the Project Start-up stage for which the detailed description, illustration, method of use, and an example of their application follow in this chapter. With the PIP discussed in Chapter VII complete, information concerning project deliverables, the WBS, resources and costs, initial schedule, and the risk mitigation plan are available. Based upon these sources, the practitioner can establish the organizational preconditions and information flow for project start-up with minimal misunderstanding or delay. Specific tools used in completing the Inception Report are listed in Figure VIII.3. The tools are presented in the order recommended for use.

Figure VIII.3. Using the Tools to Complete the Inception Report



Each Project Start-up tool is described in Table VIII.1.

Table VIII.1. List of Tools

| Tools | Description |
|----------------------------|---|
| Project Flyer | A summary table of project highlights from project design and approval documents |
| Project Organization Chart | A chart that shows roles and relationships among key project actors |
| Bar Charts | A tabular-graphical representation of project activities, most probably together with their duration times, dependency relationships and allocated resources |
| Responsibility Charts | Chart which details the different kinds of responsibility (approval, execution, support, information, etc.) that involved actors have related to project activities/results |

| Tools | Description |
|---|--|
| Procurement Management Checklist | A checklist of the key procurement elements to manage during the procurement execution process |
| Project Information System Diagram | A diagram that shows key project actors, information repositories and communication lines |
| Launch Workshop | A format for presenting the agenda for a launch workshop |

MyCity Project Update: Start-up Phase

By September 2003, EuroBank approved the investment for the MyCity Wastewater Infrastructure Project. With this action, project design was completed and implementation of the project started. As a first step, the My City Council decided to appoint a new project manager. The PMU focused on selecting and contracting the engineer and the designer through an International Competitive Bidding (ICB) process. All those activities were supervised and approved by the Consortium Board.

Changes in the Project Context

The new council appointed the new project manager for a 4-year term. They designated the mayor as their representative on the Consortium Board and empowered him to sign the consortia contract. Due to the national government's demand, the undersigning of the contract was delayed for 1 month. According to public opinion, the reason for the delay was political tension between national and local governments. During the period from November 2003 to February 2004, the PMU received all necessary permits and licenses required for construction. While preparing for bid announcement, some tensions arose between stakeholders. The local and national governments urged that national firms be involved in the bidding, while the Eurobank disagreed and insisted on an open international invitation for bid. Finally, all stakeholders agreed that the potential bid winner from outside EurLandia must subcontract at least the 35 percent of the contract's value to

EurLandia firms. On the pre-qualification procedure, the Appraisal Committee (including representatives of the Water & Sewerage Company, the EuroBank, the government, the Infrastructure Committee of MyCity, and the PM) selected three firms and invited them to submit a detailed proposal for construction. On June 2004, after a 3-month negotiation, the PMU signed a construction contract with the selected firm, Euro Pipeline Ltd. The winner's offer was EUR 0.3M cheaper than the next proposal. In parallel, the PMU also announced a bid for an engineering firm. In April 2004, the PMU signed a contract with the selected firm, Precise Design Ltd. The board approved the inception report at the end of September.

SWOT Analyses Update

The new project manager has received significant stakeholder support and the opportunity to manage the project efficiently. The selected contractor is an international construction firm that has a stable financial background and good references, as well as significant experience with EuroBank investment projects. The references and background for the project engineering firm are also solid.

Best Practices

The consortium made a significant step in saving EUR 0.3M of project funds by utilizing an open international bidding process.

Concluding Statement

Due to the professional design of communication, management, and conflict resolution procedures, the start-up period was relatively smooth with minimum changes or delays.

Tool Descriptions

Seven Project Start-Up tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project Case Update, are focused on initiating the project start-up work in a thoughtful and well-planned

manner. All of the Project Start-Up tools have immediate relevance for actual project execution, as will be discussed in Chapter IX.

Project Flyer

Project Flyer is a simple tool that summarizes highlights from the various project design and approval documents presented in the previous chapters of the PMToolkit. The flyer includes data on project background, sponsors, objectives, deliverables, and organization. The format and presentation of the flyer should be simple and concise in order to communicate key information to stakeholders who may or may not have previous knowledge of the project. While primarily designed for use by project stakeholders, the flyer also serves as a means to bolster public awareness and education about the project and its objectives. A clear and persuasive flyer can go a long way in generating positive support and mollifying potential opposition to project start-up and execution.

The most effective means to create a clear and concise flyer is to develop a one-page summary description in table format. A flyer may also include contact information for project implementers and sponsors, as well as the primary contractors involved in execution. The Project Flyer tool is described in the following figures.

Figure VIII.4. Project Flyer – Description

Project Flyer: Description

- **Purpose**
 - To provide a brief and clear description of the project scope, objectives and other key elements to team members and interested stakeholders
- **Description**
 - A summary table of project highlights from project design and approval documents
- **Application**
 - The project Flyer is useful during the Start-up and Execution stages to introduce the approved project to new team members and stakeholders

Figure VIII.5. Project Flyer – Illustration

Project Flyer: Illustration

| Project Title | |
|--|---|
| <ul style="list-style-type: none"> ● Background and Sponsors _____ _____ _____ _____ | <ul style="list-style-type: none"> ● Component Activities _____ _____ _____ _____ |
| <ul style="list-style-type: none"> ● Objectives _____ _____ _____ _____ | <ul style="list-style-type: none"> ● Organization _____ _____ _____ _____ |

Figure VIII.6. Project Flyer – How to Use

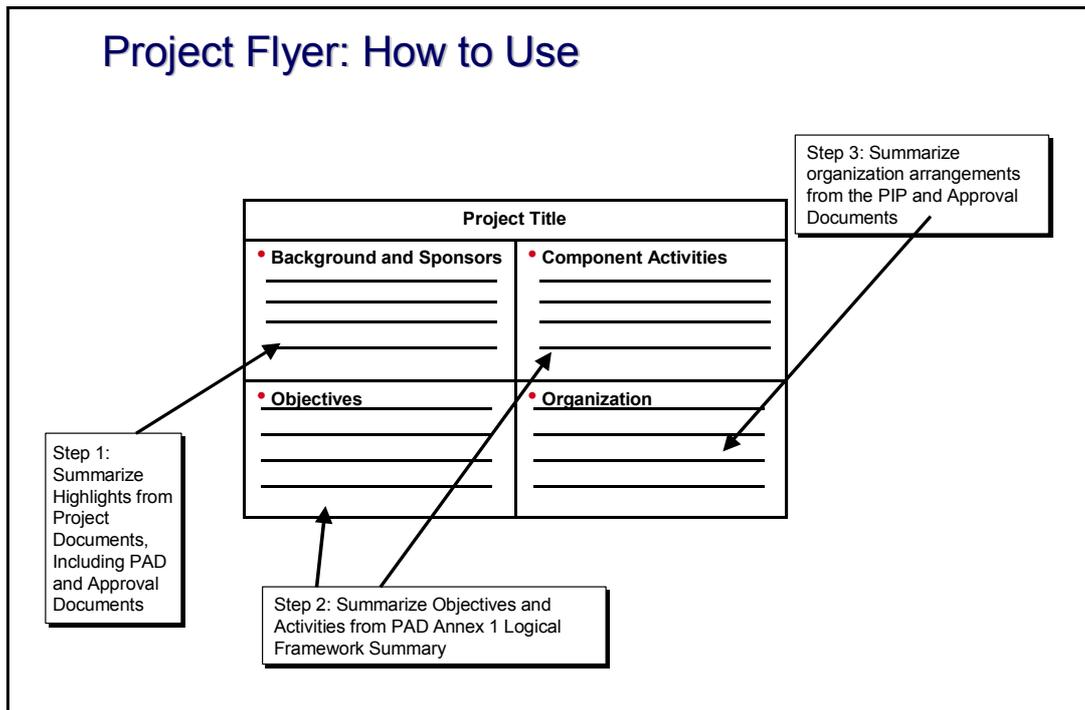


Figure VIII.7. Project Flyer – Example

Project Flyer: Example

| MYCITY WASTEWATER INFRASTRUCTURE PROJECT | |
|--|--|
| <ul style="list-style-type: none"> • Background and Sponsors <p>The MySuburb area of MyCity is in critical need of improved wastewater disposal infrastructure. With no public sewage system in the area, all wastewater is currently discharged into groundwater. This is already affecting the quality of groundwater. Therefore MyCity has initiated a wastewater improvement project in the MySuburb zone. The project has support from local and national authorities and is partially funded by a EuroBank loan.</p> | <ul style="list-style-type: none"> • Component Activities <p>The project includes all work necessary for completion and delivery of a feasibility study, a detailed design, and procurement and construction of 20.7 km sewer collectors comprising five sections, and 2 km hydrotechnical tunnel for linking it to the existing city sewer system.</p> <p>A new tariff system will be introduced and the management capabilities of the Water & Sewerage Company will be improved in order to reduce O&M costs during the operation period.</p> |
| <ul style="list-style-type: none"> • Objectives <p>The proposed project consists of building 20.7 km of sewer collectors in the MyCity suburb area. The project will serve 643 Ha with 16000 residents. The main objective is protection of groundwater in the area that supplies MyCity with drinking water. However, it is also expected that completion of the project will support future tourism and related economic development in the MySuburb area.</p> | <ul style="list-style-type: none"> • Organization <p>As a Sponsor of the project, MyCity has received financing from the EuroBank. The guarantor of the loan arrangement is the National Government of MyLandia. Local Water & Sewerage Company, owned by MyCity, will promote the project. MyCity will establish a PMU, and nominate a project manager responsible for start-up and execution. Design, engineering, and other contractors and suppliers will be selected through an international bidding process.</p> |

Project Organization Chart

A project organization chart is a useful tool that shows roles and relationships between main project actors: those providing the project financing, those who are sponsoring the activity, those in the PMU who are managing implementation, and the actual contractor who is executing the infrastructure work. Typically no more than a page, the organization chart is a graphical representation of key project roles, along with authority and cooperative relationships. A carefully designed project organization chart is an effective means for communicating the key relationships between parties involved in management and execution by spelling out roles in advance and encouraging all parties to concur. For a complete discussion of the different types of project organization, refer to the Project Management Body of Knowledge (PMBOK) (Duncan 1996). The Organization Chart tool is explained in the following figures.

Figure VIII.8. Project Organization Chart – Description

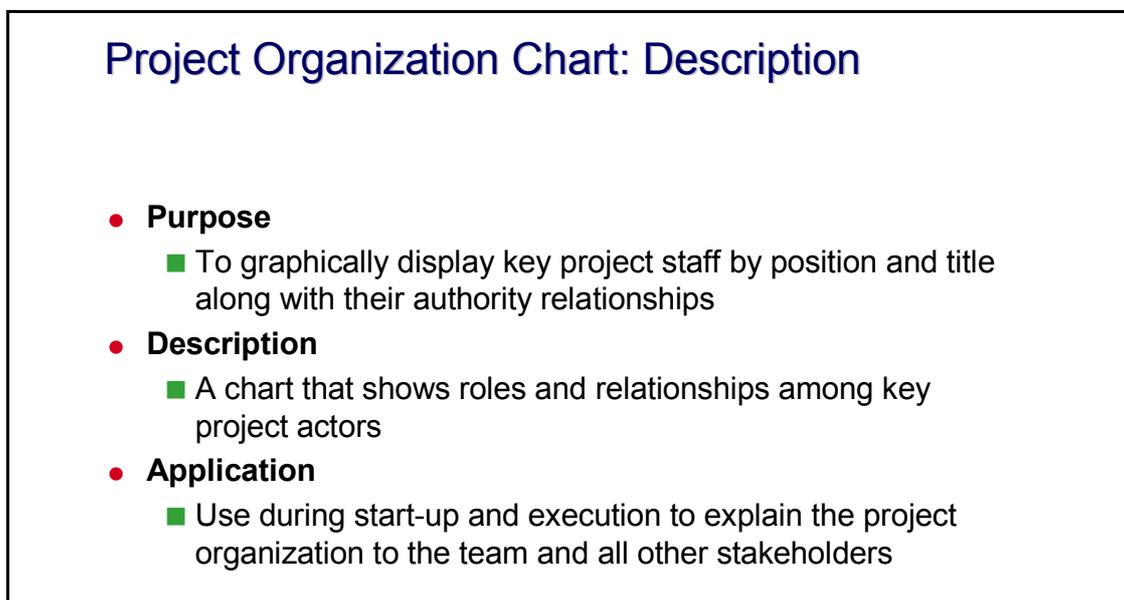


Figure VIII.9. Project Organization Chart – Illustration

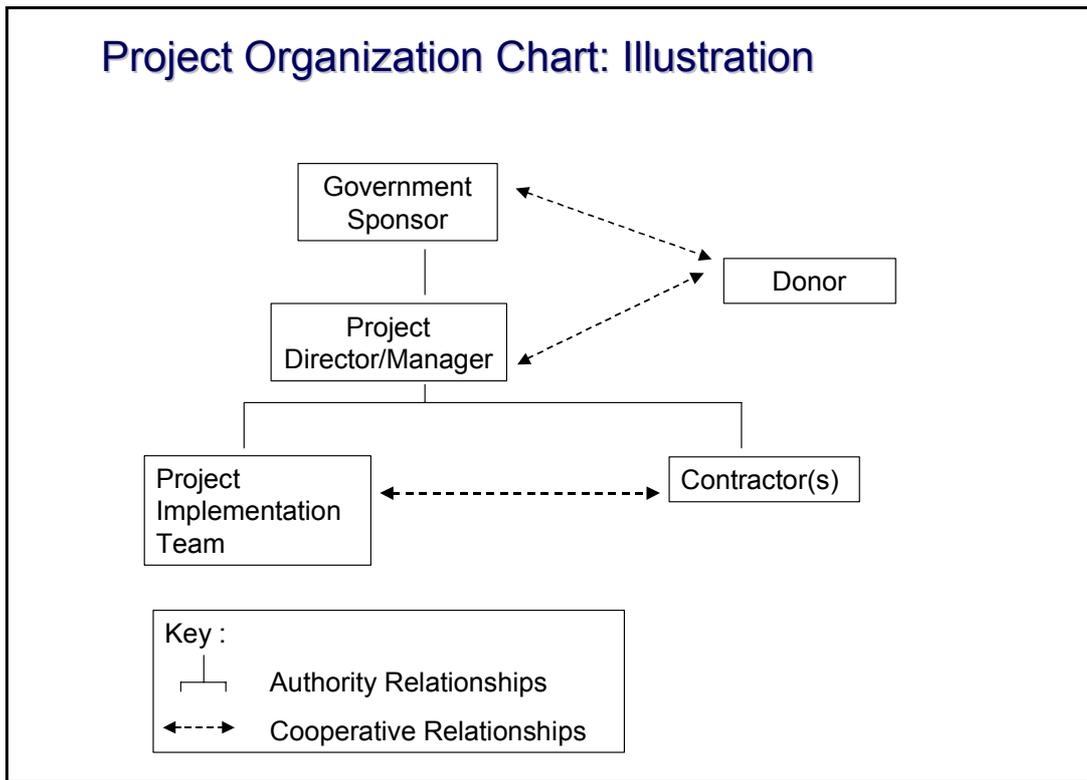


Figure VIII.10. Project Organization Chart – How to Use

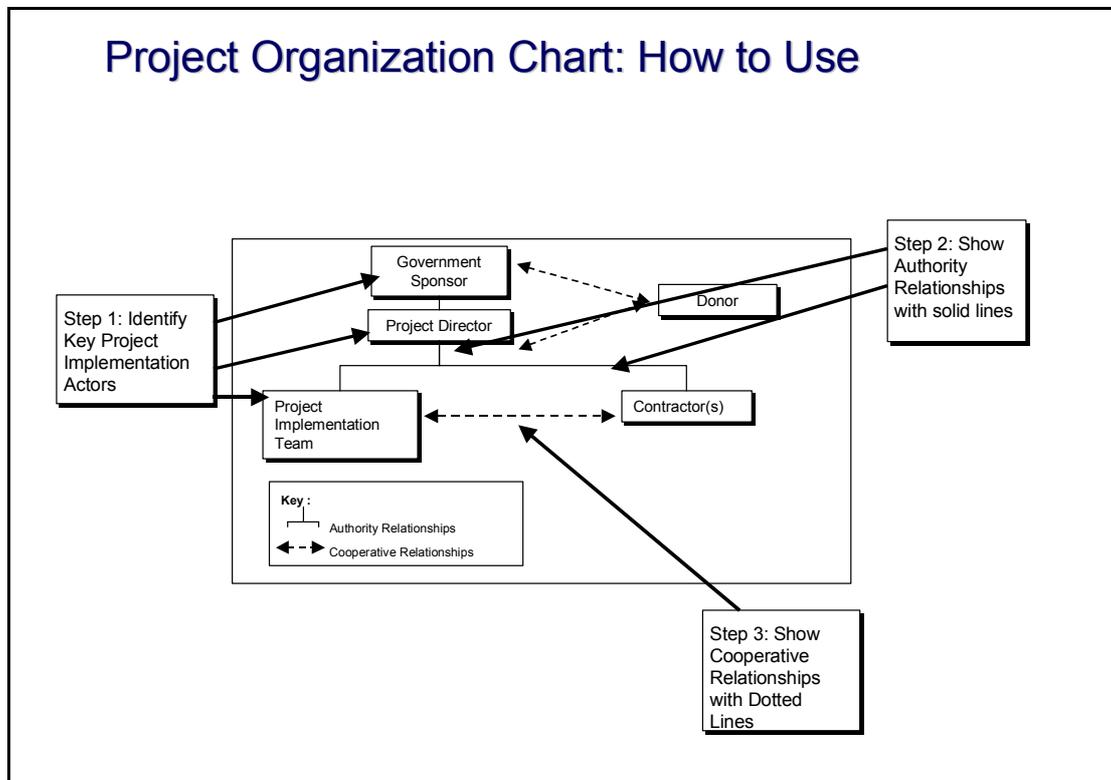
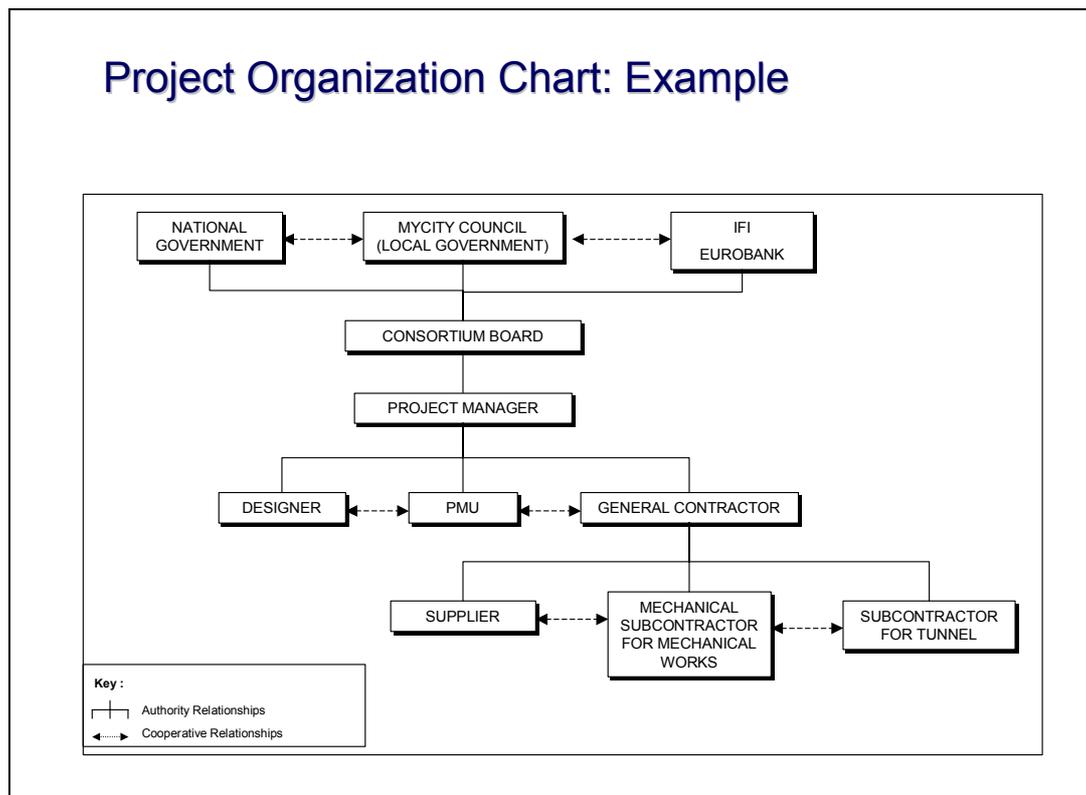


Figure VIII.11. Project Organization Chart – Example



Bar Charts

A bar chart, also known as a Gantt chart, is probably the most widely used tool by project management practitioners. The popularity of the chart is based on the “easy to make/easy to use” rule. Bar charts combine narrative and graphical representations of project workflows based upon the dependent relationships between individual execution activities and their precedents. A descriptor for the individual bars may include a unique tracking code, a description of the activity, and the activity duration. Additional data may also be represented, either by narrative or graphically; such data includes resource assignment, start and finish times, float, and completion details. The graphical representation of each activity is a horizontal line with the length in proportion to duration. Project activities are linked graphically by lines and arrows to present a time-scaled project execution logic. These flows represent critical paths, much in the same way that such critical paths were diagrammed in the Network Schedule tool introduced in Chapter VII.

The bar chart itself is simply a derivation of the WBS tool presented in Chapter VI. However, rather than being useful as a planning tool, these bar charts become a living representation of the project itself, showing activities as execution progresses and indicating critical points where deliverables and milestones are required to indicate performance. Most project management software on the market, such as Microsoft Project®, allows the practitioner to easily construct and manipulate bar charts to track and communicate project status. The Bar Chart tool is explained in the following figures.

Figure VIII.12. Bar Charts – Description

Bar Charts: Description

- **Purpose**
 - Determine the length of time and scheduling flexibility for implementing a project
- **Description**
 - A tabular-graphical representation of project activities, most probably together with their duration times, dependency relationships and allocated resources
- **Application**
 - Use for representation of time scaled project execution logic linked to the Program Evaluation and Review Technique (PERT), Critical Path Method (CPM) and Project management software (e.g., Microsoft Project, Primavera and PC Team Up)

Figure VIII.13. Bar Charts – Illustration

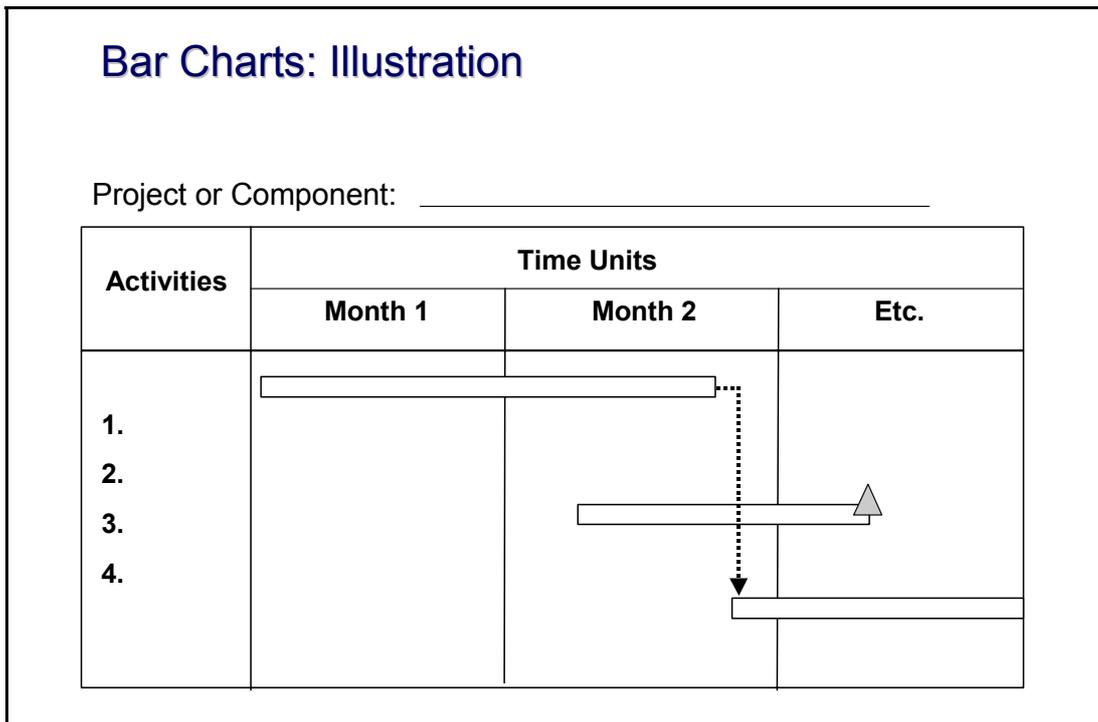


Figure VIII.14. Bar Chart – How to Use

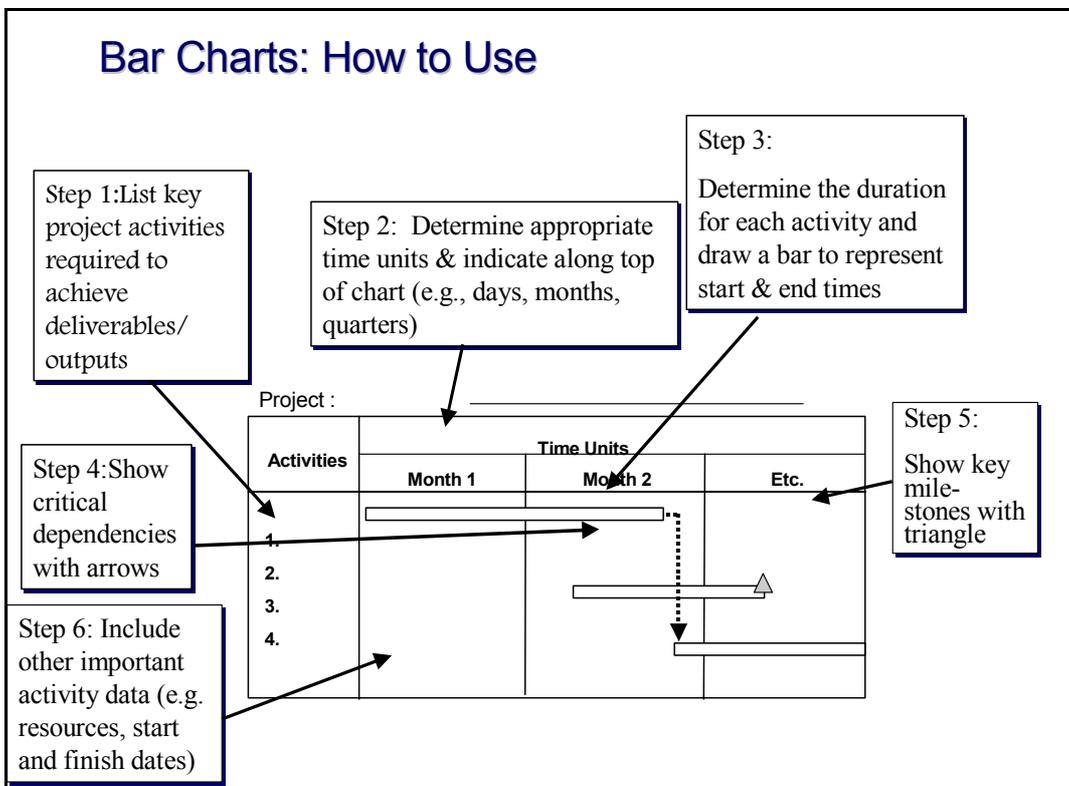
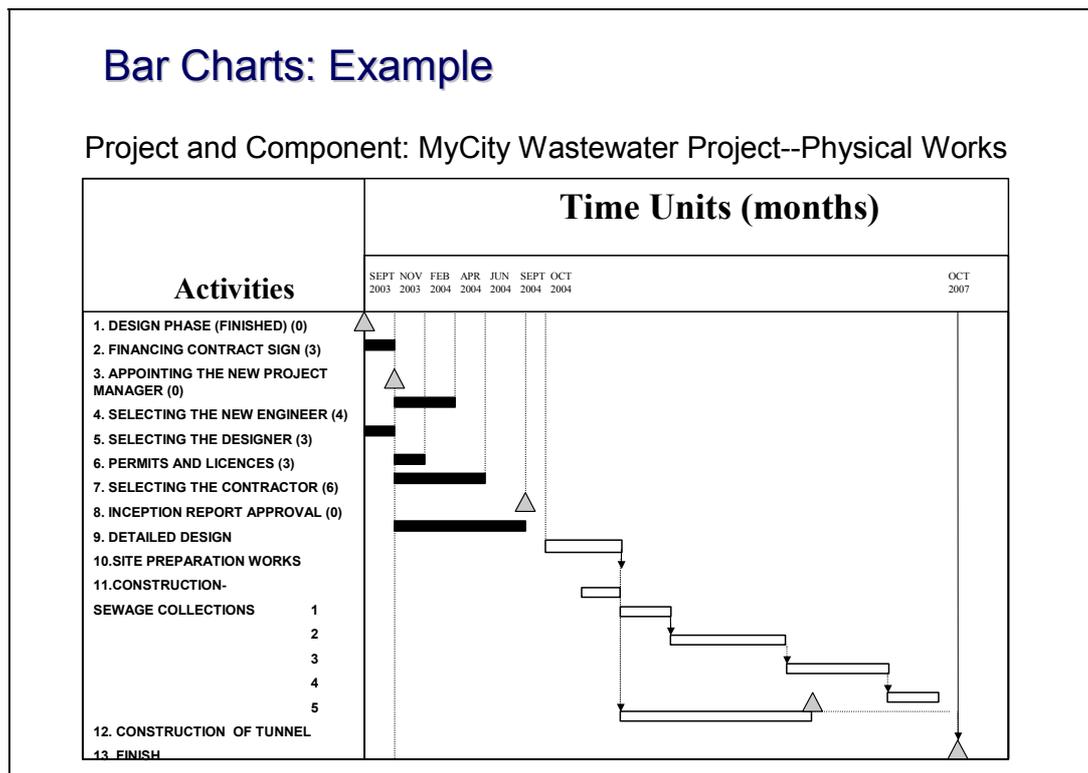


Figure VIII.15. Bar Charts – Example



Responsibility Charts

A responsibility chart is a tabular representation of the relationship, e.g., the roles and responsibilities among key project outputs or activities and specific project actors. The chart summarizes the more complex data from the detailed implementation bar chart and the project organizational chart. The relationship types for assignments in the chart should underline the specific role and responsibility of a particular actor during the execution stage, such as execution, approval, and support.

The responsibility chart answers the simple question, “Who is responsible for doing what to ensure project success?” Therefore, the chart clearly communicates roles to actors, while concurrently seeking their understanding and acceptance of these roles early in implementation. Stakeholders are again provided reinforcement of the importance of their role in the overall achievement of project objectives. The Responsibility Chart tool is explained in the following figures.

Figure VIII.16. Responsibility Charts – Description

Responsibility Charts: Description

- **Purpose**
 - To identify and gain clarity on specific roles and responsibilities regarding project tasks and results
- **Description**
 - Chart which details the different kinds of responsibility (approval, execution, support, information, etc.) that involved actors have related to project activities/results
- **Application**
 - This tool is useful throughout the project cycle where project actors are assigned responsibility for task accomplishment

Figure VIII.17. Responsibility Charts – Illustration

Responsibility Charts: Illustration

Project or Component: _____

| PROJECT RESULTS AND/OR ACTIVITIES | PROJECT ACTOR 1 | PROJECT ACTOR 2 | PROJECT ACTOR 3 |
|-----------------------------------|-----------------|-----------------|-----------------|
| 1. | | | |
| 2. | | | |
| ETC. | | | |

Key:
 A= Approval
 E=Execute
 S=Support

Figure VIII.18. Responsibility Charts – How to Use

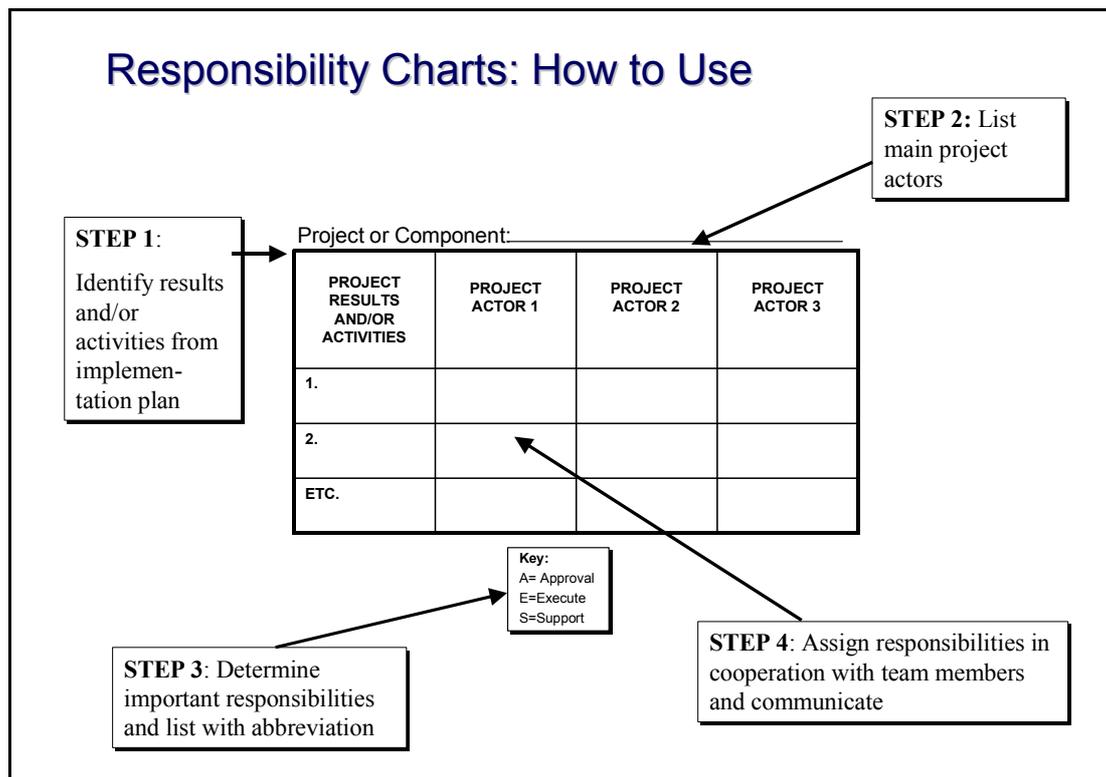


Figure VIII.19. Responsibility Charts – Example

Responsibility Charts: Example

Project Component: MyCity Wastewater – Physical Works

| PROJECT RESULTS AND/OR ACTIVITIES | CONSORTIUM BOARD | | | WATER AND SEWAGE COMPANY | PROJECT MANAGER | PMU | ENGINEER | DESIGNER | GENERAL CONTRACTOR |
|-------------------------------------|------------------|--------------------|----------|--------------------------|-----------------|-----|----------|----------|--------------------|
| | LOCAL GOVERNMENT | CENTRAL GOVERNMENT | EUROBANK | | | | | | |
| 2. Financing contract | E | E | E | I | I | I | | | |
| 3. Appointing new PM | A | E | A | I | | | | | |
| 4. Selecting the engineer | A | A | A | I | E | E | | | |
| 5. Selecting the designer | A | A | A | I | E | E | | | |
| 6. Permits and licences | | | | S | E | E | | | |
| 7. Selecting the contractor | A | A | A | S | E | E | | | |
| 8. Inception report approval | E | E | E | | I | I | | | |
| 9. Detail design | | | | I | A | I | S | E | |
| 10. Site preparation | | | | | S | I | A | I | E |
| 11. Construction sewage collections | | | | | S | I | A | I | E |
| 12. Construction tunnel | | | | | S | I | A | I | E |

A - approval, E - execute, S - support, I - information

Procurement Management Checklist

Procurement management is an important part of project implementation in that it addresses all procurement actions necessary for project performance. The overall procurement cycle includes application of many different tools needed for decisions regarding what, when, and how to procure, such as was presented in the Procurement Plan in Chapter VII. However, in the Project Start-up stage, it is important for the practitioner to again overview where actions stand in the procurement cycle. He/she requires a “snapshot” of the status of any action at a given point in time to determine subsequent steps. The Procurement Management Checklist tool presents an aggregate tabular perspective of the project procurement cycle with the current status of the most important issues for management attention and action.

For each procurement phase, an appropriate set of status inquiry questions is devised. These questions cover the usual sequence of the most important decision points in the procurement cycle. Simply answering these questions with a “yes” or “no” forms an overall image of project status. Moreover, “no” answers imply the need for corrective actions, including new deadlines and responsible actors. Remember – delays in procurement actions often lead to delays in project performance and missed deliverables. A procurement management checklist is a simple means for preventing such issues. The checklist is explained in the following figures.

Figure VIII.20. Procurement Management Checklist – Description

Procurement Management Checklist: Description

- **Purpose**
 - To ensure that a project procurement process is carried out in full compliance with the project design and other conditions with regard to time, cost and quality
- **Description**
 - A checklist of the key procurement elements to manage during the procurement execution process
- **Application**
 - Use it whenever a procurement action is undertaken during project start-up and other stages of the project cycle

Figure VIII.21. Procurement Management Checklist – Illustration

Procurement Management Checklist: Illustration

Project: _____

| Phase | Checklist | Yes | No | Action |
|--|--|-----|----|--------|
| Solicitation | 1. Have key stakeholders been consulted to determine the appropriate bid selection criteria and scoring methodology? | | | |
| | 2. Has technical, financial, and contractual input from other agencies been incorporated into the Request for Proposals (RFP) and other Solicitation Documents? | | | |
| | 3. Have potential bidders with the appropriate organizational qualifications, financial capacity, and technical experience been identified? | | | |
| | 4. Has the RFP been issued and publicized in such a manner as to ensure the participation of a sufficient number of qualified bidders? | | | |
| Proposal Evaluation and Selection | 1. Has an experienced and knowledgeable bid evaluation committee been selected and provided with sufficient guidance to conduct the evaluation and selection process in accordance with the established evaluation and scoring criteria? | | | |
| | 2. Have evaluations of the technical and cost proposals been conducted in accordance with the established evaluation and scoring criteria? | | | |
| | 3. Have the organizational qualifications, financial capacity, and technical experience of the bidding contractors been verified? | | | |
| | 4. Have the winning bid(s) been selected and have all bidders been notified of the evaluation committee's decision? | | | |
| Contract, Negotiation and Award | 1. Have technical, financial, and contractual input from other agencies been incorporated into a contract negotiation strategy? | | | |
| | 2. Have negotiations with the selected contractor(s) been conducted to finalize and define clearly the terms and conditions of the contract? | | | |
| | 3. Has a Notice to Proceed been issued to the contractor(s)? | | | |

Figure VIII.22. Procurement Management Checklist – How to Use

Procurement Management Checklist: How to Use

Project: _____

| Phase | Checklist | Yes | No | Action |
|-----------------------------------|--|-----|----|--------|
| Solicitation | 1. Have key stakeholders been consulted to determine the appropriate bid selection criteria and scoring methodology? | | | |
| | 2. Has technical, financial, and contractual input from other agencies been incorporated into the Request for Proposals (RFP) and other Solicitation Documents? | | | |
| | 3. Have potential bidders with the appropriate organizational qualifications, financial capacity, and technical experience been identified? | | | |
| | 4. Has the RFP been issued and publicized in such a manner as to ensure the participation of a sufficient number of qualified bidders? | | | |
| Proposal Evaluation and Selection | 1. Has an experienced and knowledgeable bid evaluation committee been selected and provided with sufficient guidance to conduct the evaluation and selection process in accordance with the established evaluation and scoring criteria? | | | |
| | 2. Have evaluations of the technical and cost proposals been conducted in accordance with the established evaluation and scoring criteria? | | | |
| | 3. Have the organizational qualifications, financial capacity, and technical experience of the bidding contractors been verified? | | | |
| | 4. Have the winning bid(s) been selected and have all bidders been notified of the evaluation committee's decision? | | | |
| Contract, Negotiation and Award | 1. Have technical, financial, and contractual input from other agencies been incorporated into a contract negotiation strategy? | | | |
| | 2. Have negotiations with the selected contractor(s) been conducted to finalize and define clearly the terms and conditions of the contract? | | | |
| | 3. Has a Notice to Proceed been issued to the contractor(s)? | | | |

Step 1:
Determine the Procurement Phase your of your project

Step 2:
Set an appropriate list of questions

Step 3:
Complete checklist by answering "Yes" or "No" for each question in the Phase

Step 4:
For "No" answers determine required corrective actions with deadlines and responsible persons

Figure VIII.23. Procurement Management Checklist – Example

Procurement Management Checklist: Example

Project: MyCity Wastewater

| Phase | Checklist | Yes | No | Action |
|-----------------------------------|--|-----|----|--|
| Solicitation | 1. Have key stakeholders been consulted to determine the appropriate bid selection criteria and scoring methodology? | | N | Consultation Responsibility: Project Team |
| | 2. Has technical, financial, and contractual input from other agencies been incorporated into the Request for Proposals (RFP) and other Solicitation Documents? | Y | | |
| | 3. Have potential bidders with the appropriate organizational qualifications, financial capacity, and technical experience been identified? | Y | | |
| | 4. Has the RFP been issued and publicized in such a manner as to ensure the participation of a sufficient number of qualified bidders? | Y | | |
| Proposal Evaluation and Selection | 1. Has an experienced and knowledgeable bid evaluation committee been selected and provided with sufficient guidance to conduct the evaluation and selection process in accordance with the established evaluation and scoring criteria? | | N | Selection Responsibility: Project Manager |
| | 2. Have evaluations of the technical and cost proposals been conducted in accordance with the established evaluation and scoring criteria? | | N | Evaluation Responsibility: Project Manager |
| | 3. Have the organizational qualifications, financial capacity, and technical experience of the bidding contractors been verified? | Y | | |
| | 4. Have the winning bid(s) been selected and have all bidders been notified of the evaluation committee's decision? | | N | Selection Responsibility: Project Manager Promoter Representatives |
| Contract, Negotiation and Award | 1. Have technical, financial, and contractual input from other agencies been incorporated into a contract negotiation strategy? | | N | Incorporation Responsibility: Project Team Promoter Legal Department |
| | 2. Have negotiations with the selected contractor(s) been conducted to finalize and define clearly the terms and conditions of the contract? | | N | Negotiation Responsibility: Project Manager |
| | 3. Has a Notice to Proceed been issued to the contractor(s)? | | N | To be issued Responsibility: Project Team Administrator |

Project Information System Diagram

Information is valuable only if it can be obtained in a clear manner on a timely basis and is useful in making a project management decision. Project management is difficult, if not impossible, without a high-quality information system to support it. An effective project information system should be capable of gathering, processing, and distributing information to those who need it, on time and in a useful manner.

Practitioners managing projects continuously communicate and make decisions; all parties need timely and accurate data. However, the design of high-quality information systems often falls outside the skill set of the typical practitioner.

Therefore, tools have been developed in the information technology arena to address this need. Computerized information systems play a significant role in project implementation. During Project Start-up, it is extremely useful for the practitioner to diagram the information and reporting flows required during implementation. The Project Information System Diagram tool is used for doing this. The diagram shows key actors, information repositories, and communication lines within the project. It serves as an initial attempt at the integration of existing systems used by different project actors. The diagram may also indicate gaps where new information system hardware and software are required. The Project Information System Diagram tool is explained in the following figures.

Figure VIII.24. Project Information System Diagram – Description

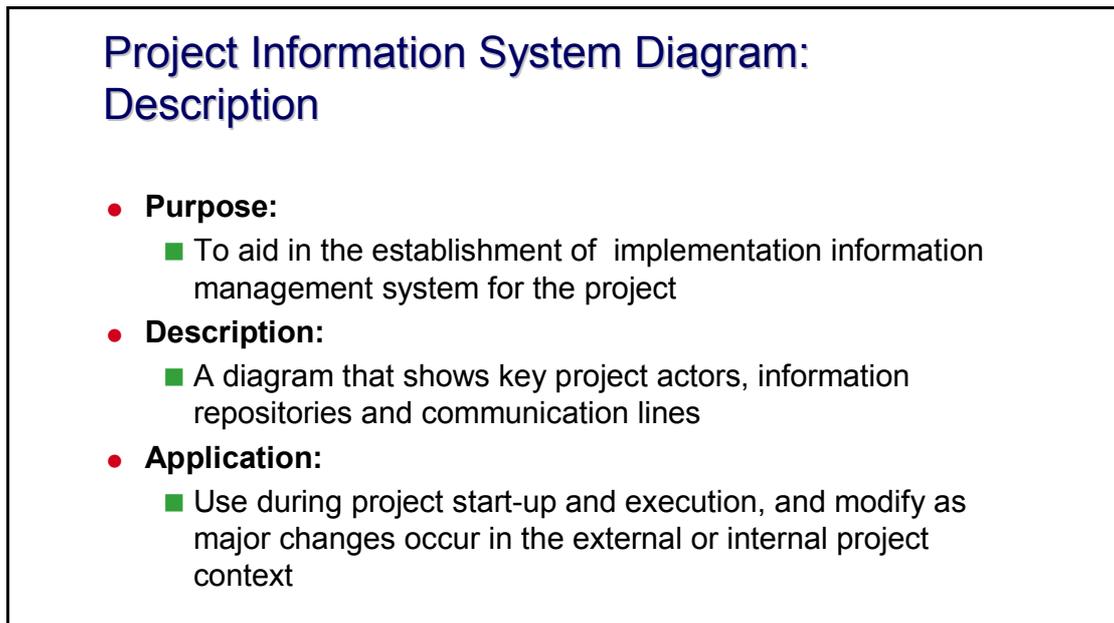


Figure VIII.25. Project Information System Diagram – Illustration

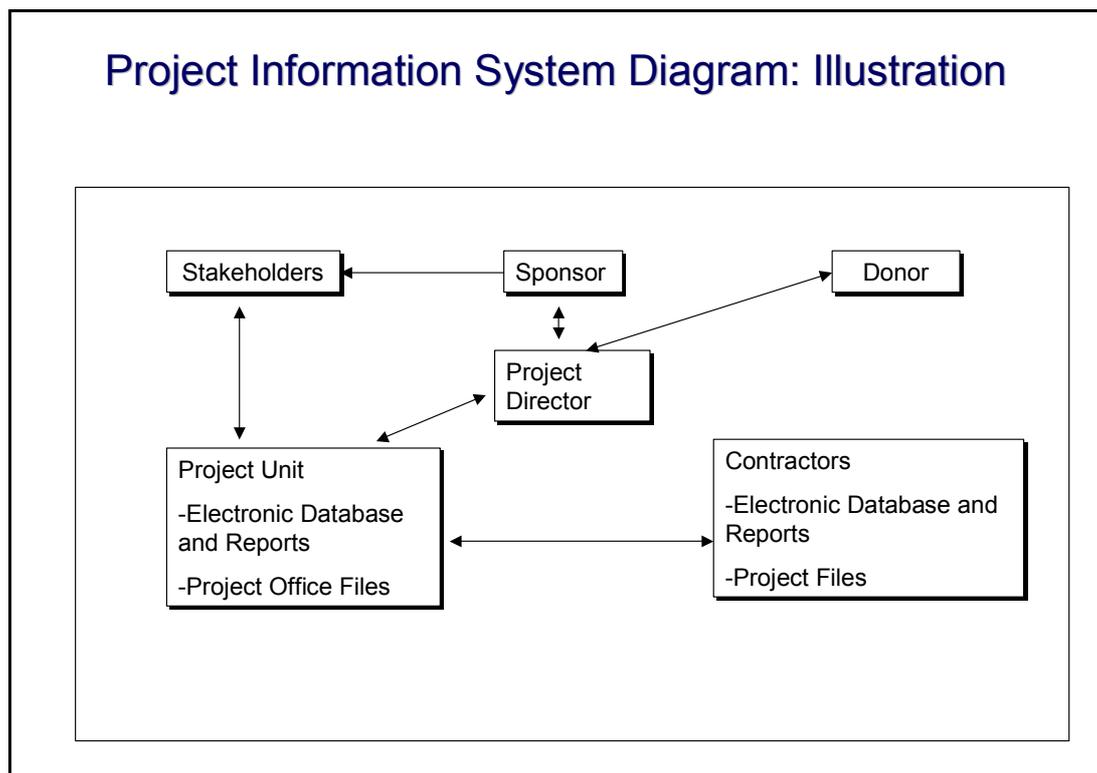


Figure VIII.26. Project Information System Diagram – How to Use

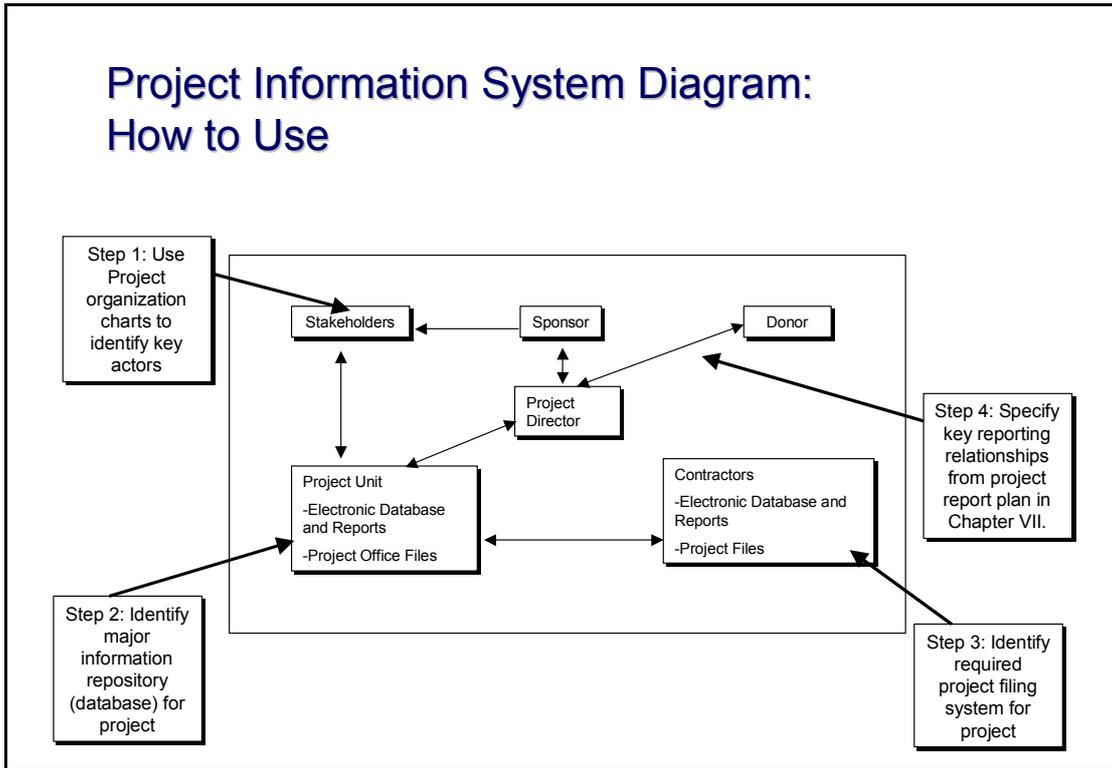
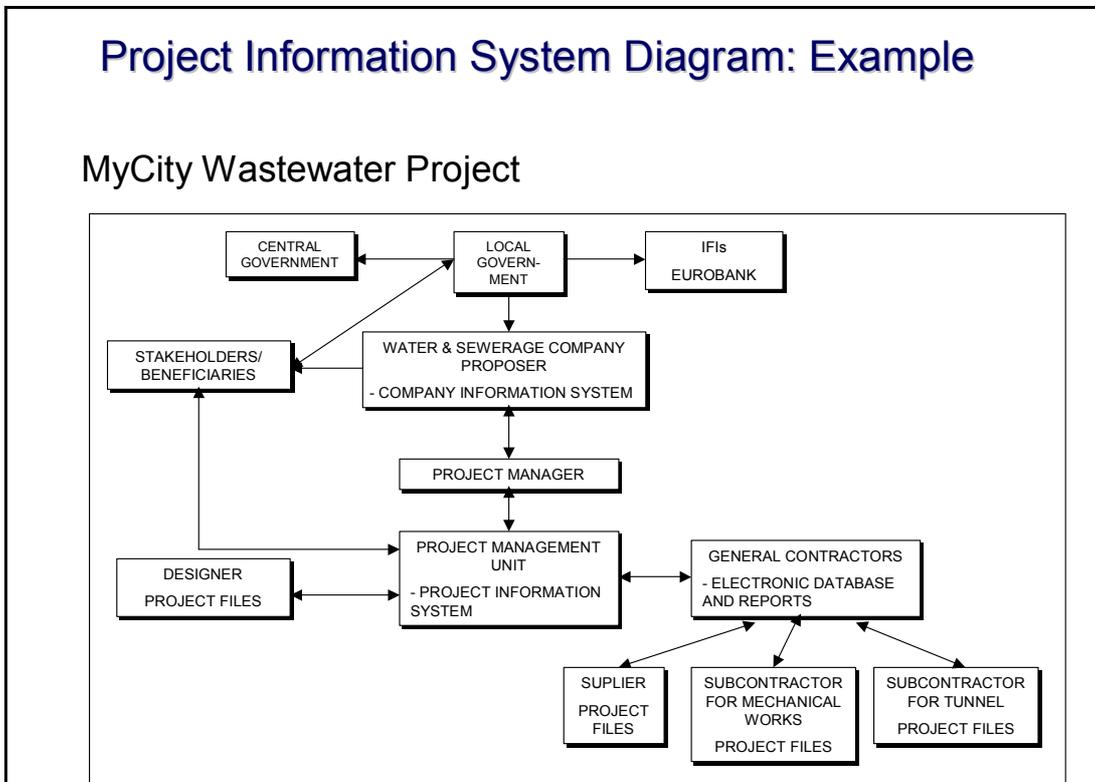


Figure VIII.27. Project Information System Diagram – Example



Launch Workshop

Project execution brings together many parties who have specific roles, but who also have specific and potentially divergent interests, specific practices and procedures unique to their organizations, and different knowledge and skills sets. Before execution begins, all these factors should be balanced; and a common understanding for mutually beneficial execution work should be established. The purpose of a Launch Workshop is to create a forum where information is shared, communication lines are opened, and a common understanding of implementation structure and procedures is reached. Concurrence is explicitly sought so that misunderstandings are avoided during the critical start-up period as well as throughout implementation.

A Launch Workshop should establish an atmosphere of trust among participants. A “neutral site” is often the preferred location to help foster a sense of equality. Discussion should be frank, but constructive; and when not open to the public, such discussions are typically guided by a policy of “non-attribution” so that any issues that might jeopardize project performance can be aired. But it is also a time for celebration, as the real work of project implementation has finally begun.

Figure VIII.28. Launch Workshop – Description

Launch Workshop: Description

- **Purpose:**
 - To provide a forum for communicating implementation structure and procedures to stakeholders and team, and obtain agreements for execution
- **Description:**
 - A format for presenting the agenda for a launch workshop
- **Application:**
 - The launch workshop is most useful during Project Start-up to discuss the main features of the Inception Report with key stakeholders

Figure VIII.29. Launch Workshop – Illustration

Launch Workshop: Illustration

Project: _____

| Launch Workshop Agenda | |
|-------------------------------|---|
| Day 1 | a.m. -Formal opening and welcomes -Workshop overview -Participatory Introductions p.m. -Project setting and objectives - Group exercise on project design |
| Day 2 | a.m. -Component Activities and workplan p.m. -Group exercise on Implements by component |
| Day 3 | a.m. -Project organization and staffing p.m. -Next steps planning -Evaluation and closing |

Figure VIII.30. Launch Workshop – How to Use

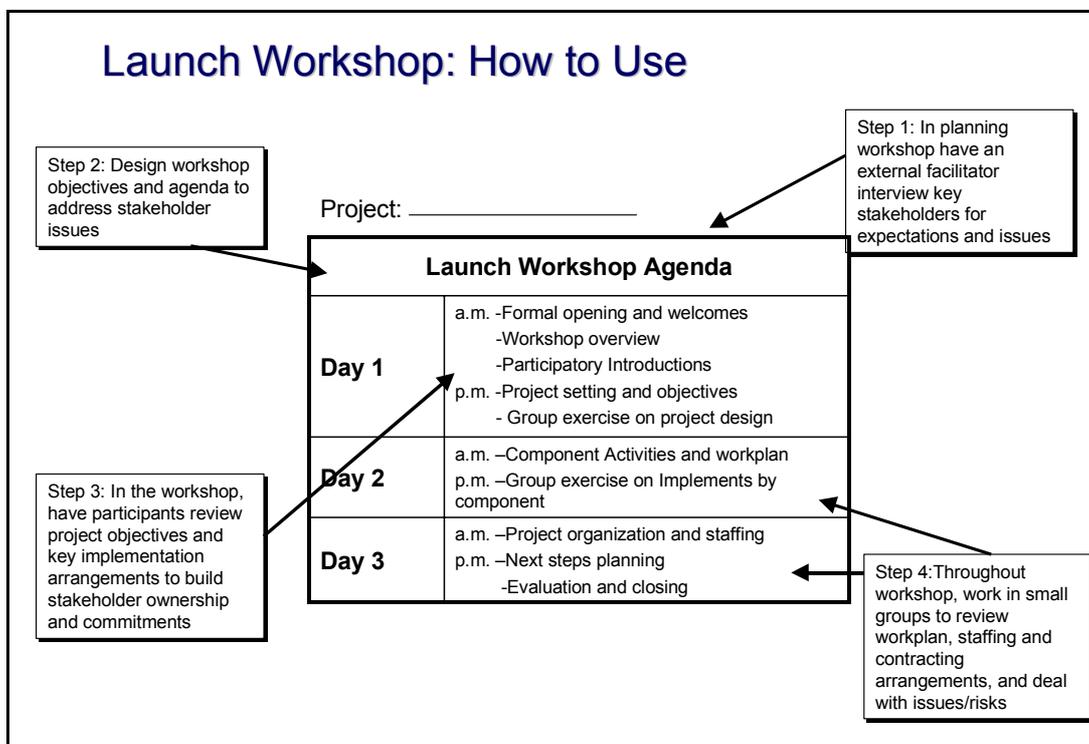


Figure VIII.31. Launch Workshop – Example

| Launch Workshop Agenda | | |
|------------------------|---|--|
| Day 1 | | |
| 9:00 - 9:30 | -Formal opening and welcomes | CITY REPRESENTATIVE |
| 9:30 - 10:00 | -Workshop program overview | WATER & SEWAGE COMP. REPRESENTATIVE |
| 10:00 - 11:00 | -Participatory Introducing | WATER & SEWAGE COMP. REPRESENTATIVE |
| 11:00 - 11:15 | -Break | |
| 11:15 - 12:30 | -Project objective and scope - Presentation-Group discussion | PROJECT MANAGER |
| 12:30 - 13:30 | -Lunch break | |
| 13:30 - 15:00 | -Project organization- Brief presentation - Group discussion | EXTERNAL SPECIALIST |
| 15:00 - 15:15 | -Break | |
| 15:15 - 16:45 | -Roles and responsibilities during implementation Theoretical introduction- Project organization chart presentation- Participants best practices | PROJECT MANAGER; EXTERNAL FACILITATOR |
| 16:45 - 17:00 | -Conclusions on Project objective and scope- Project organization - Roles and responsibilities | PROJECT TEAM |
| Day 2 | | |
| 9:00 - 9:15 | Review and today's agenda | PROJECT TEAM |
| 9:15 - 11:00 | Project deliverables - Definition and deliverables- Group exercise on implements by component | PROJECT MANAGER, EXTERNAL FACILITATOR |
| 11:00 - 11:15 | Break | |
| 11:15 - 12:30 | Procurement management- Process description- Group discussion on best practices | EXTERNAL SPECIALIST FOR PROCUR. MNGT |
| 12:30 - 13:30 | Lunch break | |
| 13:30 - 15:30 | Project schedule- Presentation of initial schedule - Group discussion - Group exercise on scheduling and control | PROJECT MANAGER, EXTERNAL FACILITATOR |
| 15:30 - 15:45 | Break | |
| 15:45 - 17:00 | Project information system- Presentation - Group discussion - Group exercise on communication | EXTERNAL SPECIALIST ON PROJECT INF.SYS |
| 17:00 - 17:15 | Conclusions on Project deliverables – Project procurement – Project schedule – Information system | PROJECT TEAM |
| Day 3 | | |
| 9:10 - 9:15 | -Review and today's agenda | PROJECT TEAM |
| 9:15 - 11:00 | - Start-up issues -Presentation by each stakeholder group - Discussion and conclusions | PROJECT TEAM |
| 11:00 - 11:15 | -Break | |
| 11:15 - 13:00 | -Implementation issues - Presentation of best practices- Change management process- Discussion and conclusions | PROJECT TEAM |
| 13:00 - 14:00 | - Lunch break | |
| 14:00 - 15:30 | -Project sustainability- Presentation- Group exercise | PROJECT TEAM; EXTERNAL SPECIALIST |
| 15:30 - 15:45 | -Break | |
| 15:45 - 16:00 | - Conclusions on Start-up issues- Implementation issues – Project sustainability | PROJECT MANAGER AND |
| 16:00 - 17:00 | - Final synthesis and evaluation- Review of adapted procedures- Authority and responsibility | WATER & SEWAGE COMP. REPRESENTATIVE |

Conclusion

Proper Project Start-up sets the stage for successful Project Execution. Execution itself will bring together many participants, different interests, new procedures, unique situations, and often-temporary structures created solely for the benefit of the project itself. The harmonization of these factors should be attempted as soon as practicable; otherwise, project implementation may suffer from unnecessary misunderstandings, delays and cost overruns.

Undertaking execution without a clear organizational structure, lines of authority, and communication may result in the accumulation of minor project delays that may seem small on the surface; but in the aggregate, they might have an enormous impact upon ultimate project success. Once established, this trend is difficult to reverse. Therefore, by consciously seeking an integration of stakeholders, the implementation team, and project tasks during the start-up period – using the tools introduced in this chapter – negative trends in project performance and bad feelings between stakeholders can be avoided. A clear, common understanding of

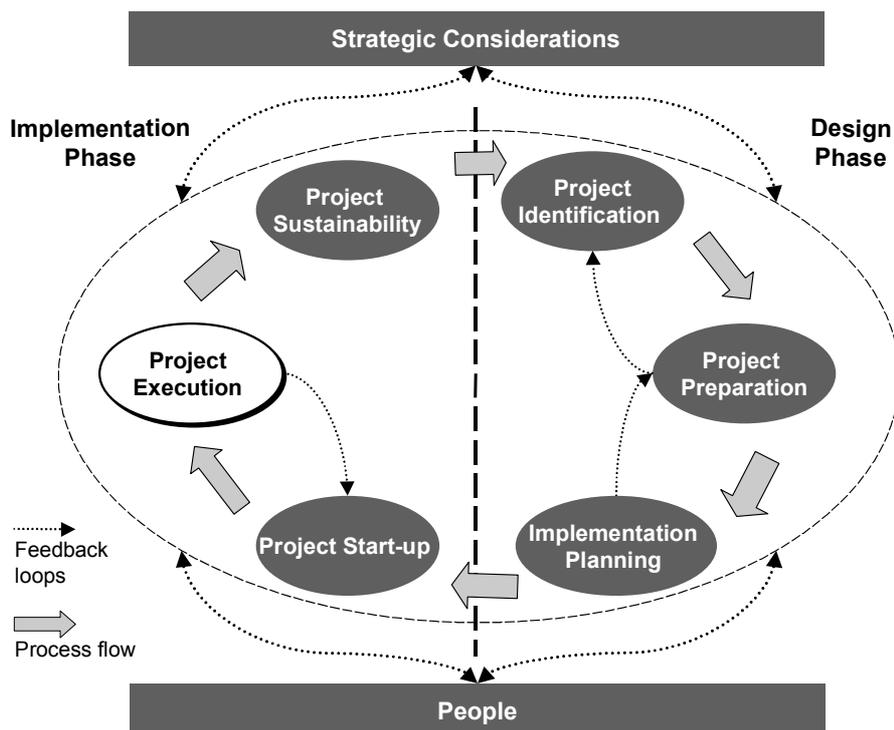
deliverables and objectives, approved cooperative methods and procedures, and the adoption of a clear plan for equitably allocating roles and responsibilities establishes a firm foundation for constructive project execution.

CHAPTER IX: PROJECT EXECUTION

Overview

Project Execution is the second stage in the overall project implementation process. Project Execution begins when the Inception Report (IR) is approved and ends when the project is closed out. As a result, Project Execution – the process of transforming the project design into desired and sustained development results – is complex and challenging, but it is also rewarding. For the client and implementation team, results are achieved; for the contractor(s), professional satisfaction and remuneration are gained as infrastructure goods and services are delivered – on time, within budget, and consistent with quality specifications. Figure IX.1 illustrates the Project Execution stage.

Figure IX.1. PMToolkit Project Management Framework – Project Execution



Project Execution has several key characteristics that distinguish it from other stages of the project cycle. Project Execution takes place in a dynamic and uncertain setting. Regardless of how carefully thought out and planned in advance, execution

rarely occurs without requiring adjustment in both the initial design (e.g., the PAD and PIP) and the start-up IR. The mark of effective execution, therefore, is what the RIP refers to as “structured-flexibility,” an appropriate balance of adherence to the plan and adaptation that permits development results to be achieved in the face of changing conditions. (Brinkerhoff and Ingle 1987) This effort requires a flexible attitude on the part of the implementation team, along with stakeholder acceptance that changes are a necessary part of successful implementation.

Although “time” is important for the project cycle stages, the ongoing stream of events during Project Execution calls for quick actions, frequently with a minimum of time for careful deliberation. Some attention to detail is important throughout the project management cycle, but details are the major concern in implementation. Execution focuses on the details and protocols of transforming inputs into outputs and ensuring that the “assumed” external conditions are in place to facilitate the accomplishment of the project’s hierarchy of objectives. Implementation also involves the detailed negotiations and procurement actions that go hand-in-hand with the execution of project activities but that are not usually planned in sufficient detail during design and appraisal.

The most salient characteristic of execution is the degree to which successful execution depends on the coordinated actions of many people, each with specific responsibilities and different stakes in the outcome. The active involvement of these key stakeholders in the execution and revision of detailed implementation plans and activities is crucial. Participation is important in part because the detailed information required for effective execution is widely dispersed among project team members and external stakeholders, such as politicians, beneficiaries, and bureaucrats. In addition, human beings learn, adapt to and support changes more readily when they share a well-grounded understanding of project objectives and constraints gained through their active involvement in the implementation and re-planning process.

In this stage of the project cycle, practitioners need tools that ensure that all project work is carried out in full compliance of project design and are completed within the stipulated time period and budget. Monitoring and evaluation have significant importance during execution because there is a tendency during implementation for the scope of a project to grow. Unmanaged “scope creep” can produce overruns in time and cost; therefore, it is important that the project manager have an effective tool for managing potential changes in scope. Because practitioners have to negotiate with at least one contractor (but often more), they also need tools for managing contracts and handling contractors’ complaints. Finally, when the project ends, complete technical and financial close-out is essential.

Successful project execution depends on timely and purposive adaptation to change and calls for a flexible and responsive management structure. A team approach is in accordance with the requirements of implementation because it encourages consensus building and information sharing among all key team members. In addition to team building and other “people” tools (see Chapter IV), an understanding is needed of the judicious and proper use of various execution management tools like those presented in this PMToolkit.

Template: Final Implementation Report (FIR)

The end product of the Project Execution phase is the Final Implementation Report (FIR). The FIR is a summary of project startup and execution. It brings together in one place all relevant information about major achievements, important changes and key problems that may have arisen during project execution. The FIR synthesizes information from the numerous reports prepared during the Project Execution. The FIR represents a macro-level point of view of the completed project.

Figure IX.2 shows the Project Execution stage FIR template, which embodies a macro-level point of view.

Figure IX.2. The Project Execution End Product Template

PROJECT TITLE Final Implementation Report (FIR)

Cover

Table of Contents

- **1. Introduction**

- 1.1. Scope of Report
- 1.2. Brief Project Overview: Objectives and Component Activities
- 1.3. Organization of Report
(an overview of the project status since the Inception Report was approved)

- **2. Progress on Project Objectives**

- 2.1. Planned versus Actual Results (Output + Purpose) Comparisons
- 2.2. Issues for Attention
(Summary of project objectives and comparison of planned and actual achievements, giving an analysis of key factors that have affected their accomplishment)

- **3. Progress on Component Activities**

- 3.1. Planned versus Actual Comparisons
- 3.2. Issues for Attention
(Summary of component activities completed, and comparison of planned and actual achievements, giving an analysis of key factors that have affected their accomplishment)

- **4. Progress of Project Financing**

- 4.1. Planned versus Actual Comparisons
- 4.2. Issues for Attention
(Summary of actual costs, financing arrangements and implementation timetables, as compared with estimates)

- **5. Summary of Issues, Next Steps and Lessons Learned**

- 5.1. Remaining Issues
- 5.2. Required Next Steps
- 5.3. Lessons Learned
(Highlights the most important findings of the project implementation experience, the plans for future project operations and sustainability and the lessons for future projects in the sector/subsector or country)

Appendixes

Tools in Perspective

Figure IX.3 provides an overview of the Project Execution stage tools for which the detailed description, illustration, method of use and an example of their application follow in this chapter. Specific tools used in completing the FIR template are listed below. The tools are presented in the order of their recommended use.

Figure IX.3. Using the Tools to Complete the Final Implementation Report

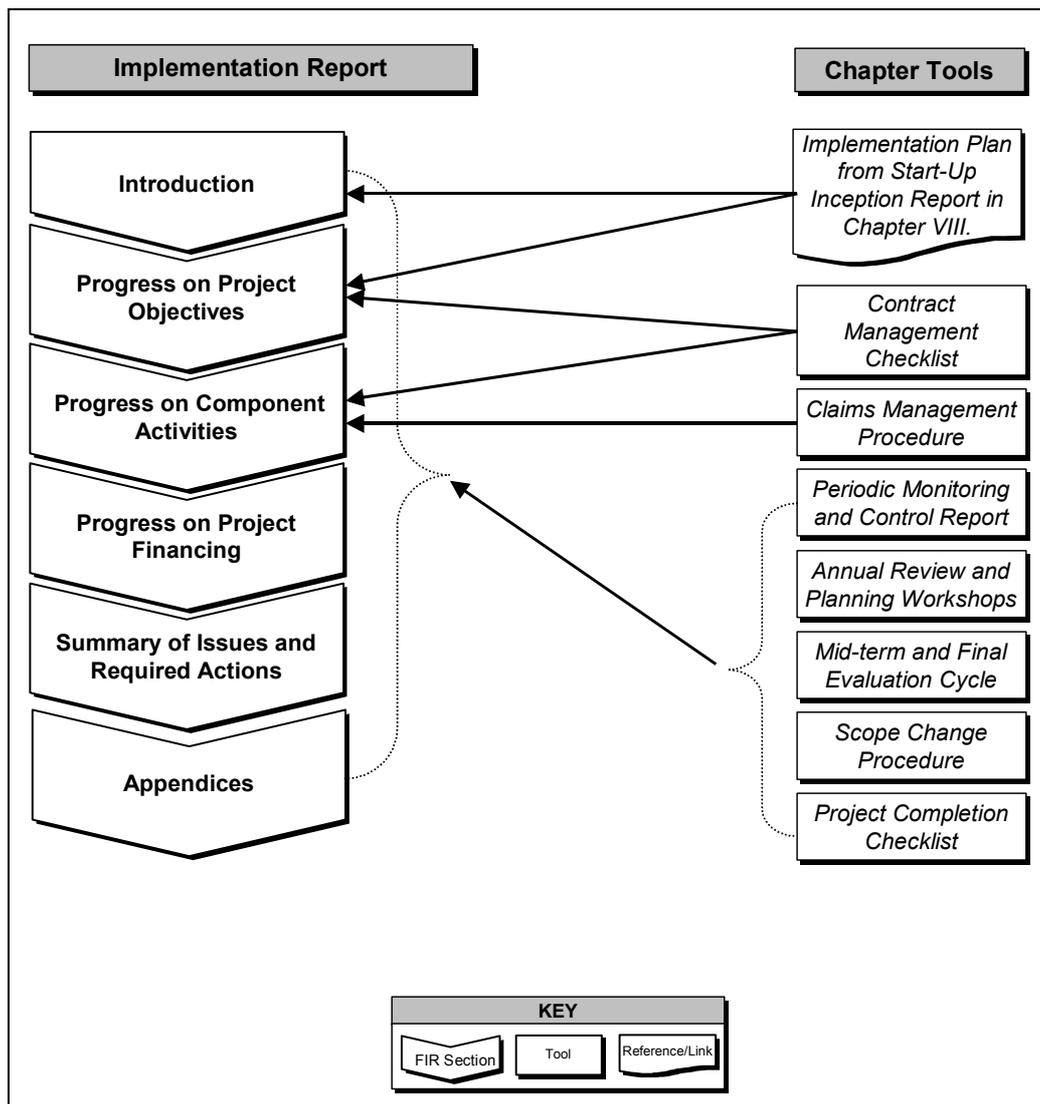


Table IX.1 lists the Project Execution stages tools.

Table IX.1. List of Tools

| Tools | Description |
|--------------------------------------|---|
| Contract Management Checklist | Management checklist delineating key contract management requirements and recommended control actions |
| Claims Management Procedure | Flowchart containing the key generic steps, and their interrelationships, required for handling a project claim |

| Tools | Description |
|---|--|
| Periodic Monitoring and Control Report | Matrix that indicates which project performance indicators and milestones (physical and financial) should be measured, assessed and controlled and what kind of control actions are needed and why |
| Annual Review and Planning Workshops | Bar chart that helps to develop a plan for the workshop by identifying key activities and time units needed for workshop planning, conduct and reporting |
| Mid-term and Final Evaluation Cycle | Evaluation cycle indicating the main steps in conducting a project evaluation |
| Scope Change Procedure | Scope Change Control Process flowchart indicating the main steps of the process and their effect on the implementation plan |
| Project Completion Checklist | Project Completion Checklist delineating key project close-out issues |

MyCity Project Update: Project Execution Phase

When the execution of the MyCity Wastewater Infrastructure Project started, the PMU had already entered into a contract with Euro Pipeline Ltd. as the works contractor for the project and with Precise Design Ltd. as project engineer. Euro Pipeline Ltd. developed the detailed design for construction. Execution, the longest phase of the project, takes 36 months: October 2004 to October 2007. By the end of this phase, all the construction will be completed and approved by the project engineer. After construction is completed, the Project Sustainability phase will begin.

Changes in the Project Context

By the end of 2004, national elections campaigns have already started. As a result of inflation, the National Bank of EurLandia increased the interest rates four times in the last quarter of 2004. Because of increased interest rates and an overall economic slowdown, EurLandia is in a financial crisis. The bank managing MyCity's project accounts went bankrupt, leading to liquidity problems with the project. MyCity

requested a liquidity loan from the national government. The government set specific conditions to disburse the loan, delaying its receipt by 2 months. Besides the delay, the loan amount received from the government was less than requested.

Three months after the collapse of the previous bank, EuroBank signed a contract with the new bank to manage the project accounts. As a result of liquidity problems, initiating construction on the Tunnel was delayed by 2 months.

In May 2005, the opposition party won the national elections; consequently, the same party now rules EurLandia and MyCity.

During fieldwork, Euro Pipeline Ltd. discovered a different geological structure than anticipated, requiring the procurement of special equipment from abroad. This difficulty delayed the work a month and increased the cost of the Tunnel by 10 percent, which was still inside the planned 20 percent risk amount built into the overall cost.

In its Annual Report, the PMU indicated a one-quarter delay in the PAD schedule as a result of the liquidity crises and the unexpected geological structure of the worksite. Originally, the PMU planned that the Tunnel construction would be finished at the end of 2005. The report also focused on the legislative acts required for the sustainability of the project as proposed by the MyCity Council.

At the end of 2005, the City Council passed new regulations and approved the Interest Compliance Forum. According to these new regulations, a new tariff system will be introduced. The tariffs will be increased by an average of 5 percent in a regressive manner to support large families. MySuburb citizens who do not connect to the new sewage system will have to pay a yearly EUR 50 surcharge as an environmental protection fee. The social allowance system was also reformed to support economically disadvantaged individuals affected by the new tariffs. Moreover, all new developments in MySuburb are now forced to connect to the sewage system. Connection to the system is EUR 400. Residents who applied for connection during the construction phase had to pay only 20 percent of the cost; the remainder of the cost was covered by the project budget. A few months later, as a

result of demonstrations, this amount was supplemented with a 12-month preferential loan to provide additional sources for connection costs for those who require such assistance. Those who connect to the system later bear all the connection costs. Local businesses also cover all connection fees on their own.

By the end of March 2006, tunnel construction is completed and the project engineer approves. As a result of an extremely cold and snowy winter, Euro Pipeline was unable to begin the fieldwork for the sewage collector until mid-March, so work was delayed for a month. The spring floods of 2006 also delayed works an additional month, but Euro Pipeline Ltd. assumed it would be able to increase the pace of construction as weather improved and therefore achieve the intended target completion date. At the end of March, the PMU submitted a Project Midterm Report to the Consortium Board. The report was subsequently approved.

Up to the deadline mandated by law (15 April 2006), 70 percent of citizens eligible applied for the construction connection fee (20 percent of the cost). All of them preferred the “loan financed” method instead of cash. This extremely high demand for the loan (only a 60 percent total request rate was planned) increased the cost of the sewage network another EUR 0.512M. Because only EUR 0.29M remained in the Tunnel construction risk fund, the City Council had to recoup EUR 0.15M from the local budget and the same amount from next year’s budget.

As a result of the construction, traffic jams were continuous in MySuburb during summer 2006. The dust, noise, and the traffic jams caused by the construction depressed tourism, decreasing drastically the revenue of the small tourism operators in MySuburb. The City Council decreased the tourism tax liability to compensate for these revenue losses. However, this decision resulted in a EUR 0.15M loss for the overall MyCity budget.

In the Annual Report, the PMU reported an expected one-quarter delay for some connections caused by the increased number of connections required during the construction of the sewage collectors.

On October 15, the construction of the collectors was finished. The spring floods and the cold winter actually resulted in only a 2-week delay compared with the original timetable. By the end of 2006, all connections were finished. At its November session, the City Council declared that the new tariff system and related measures would be introduced on 1 January 2007.

The project engineer approved the final details of the construction, and the Consortium Board approved the FIR. At the end of October 2007, construction was completed. EuroBank approved the final disbursement of the loan.

SWOT Analyses Update

During Project Execution, some important changes occurred in the environment that affected the SWOT Analysis of the project. The EurLandia's economic crises affected the liquidity of project finances. Moreover, the crises put the overall sustainability of the project at risk because of the increased unemployment rate and decreased solvency of MyCity's citizens. As a result of this change, the project budget increased, and the local government had to increase its contribution to the financing of the connections. After the national elections, the same party rules both EurLandia and MyCity, which strengthened the national government's commitment to project success.

Best Practices

An "interest compliance mechanism," such as the one set up during project preparation, can motivate the public to support the legislative acts related to the tariff system and the actual connections. The creation of the Consortium Board helped the project avoid major political crises.

Concluding Statement

The new sewage system of MySuburb was completed. Now, project management must concentrate on identifying threats that might compromise the project's sustainability.

Tool Descriptions

This section presents seven project execution tools. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The tool examples introduced in this chapter, consistent with the MyCity Project Case Update, are focused on carrying out the project design as originally approved in the PAD and PIP, and subsequently updated in the startup IR.

Contract Management Checklist

One of the most important maxims that necessarily apply to management practitioners in either their role as PMU client and employer or as a contractor is “always read your contract and understand it!” Contracts contain the terms and conditions that specify required technical performance and budgetary compliance. In Chapter VIII, the Bar Chart tool was introduced to help structure the “what and when” of execution. By referring to the contract, the practitioner is provided with guidance on the “how” and “under what conditions” for task completion. For example, a contract specifies not only whether construction materials from specific countries are authorized to be purchased under the contract, but also how project costs are to be invoiced for payment.

The Contract Management Checklist tool is designed to assist the practitioner in keeping contracts used throughout the project cycle on track. Even with the most careful preparation, unforeseen events may affect implementation adversely, in time, cost, and/or quality. The Checklist tool identifies actions the practitioner must take to bring contract implementation back in line with expectations. The Checklist tool is described in Figures IX.4 through IX.7.

Figure IX.4. Contract Management Checklist – Description

Contract Management Checklist: Description

- **Purpose**
 - Assists project managers in monitoring and controlling project activities to ensure that they are progressing according to schedule, objectives and budget, as established in the contract, and to ensure that proper administrative and financial procedures are in compliance
- **Description**
 - Management checklist delineating key contract management requirements and recommended control actions
- **Application**
 - This tool can be used at any phase of the project cycle that involves contracts

Figure IX.5. Contract Management Checklist – Illustration

Contract Management Checklist: Illustration

Contract: _____

| Phase | Checklist | Yes/No | Action |
|--------------------------------|---|--------|--------|
| Contract Administration | 1. Are activities and deliverables being completed according to the schedule stipulated in the contract? | | |
| | 2. Have contract deliverables been verified and validated as to quality and technical adequacy? | | |
| | 3. Are resource expenditures in line with the project budget? | | |
| | 4. Are proper administrative and financial management practices being adhered to? | | |
| Contract Close-Out | 1. Has a final contractor performance review been conducted to verify that all contractual obligations have been satisfied? | | |
| | 2. Has a final financial audit been conducted and a final invoice payment been issued? | | |
| | 3. Has a final administrative audit been conducted and have all legal commitments been retired? | | |

Figure IX.6. Contract Management Checklist – How to Use

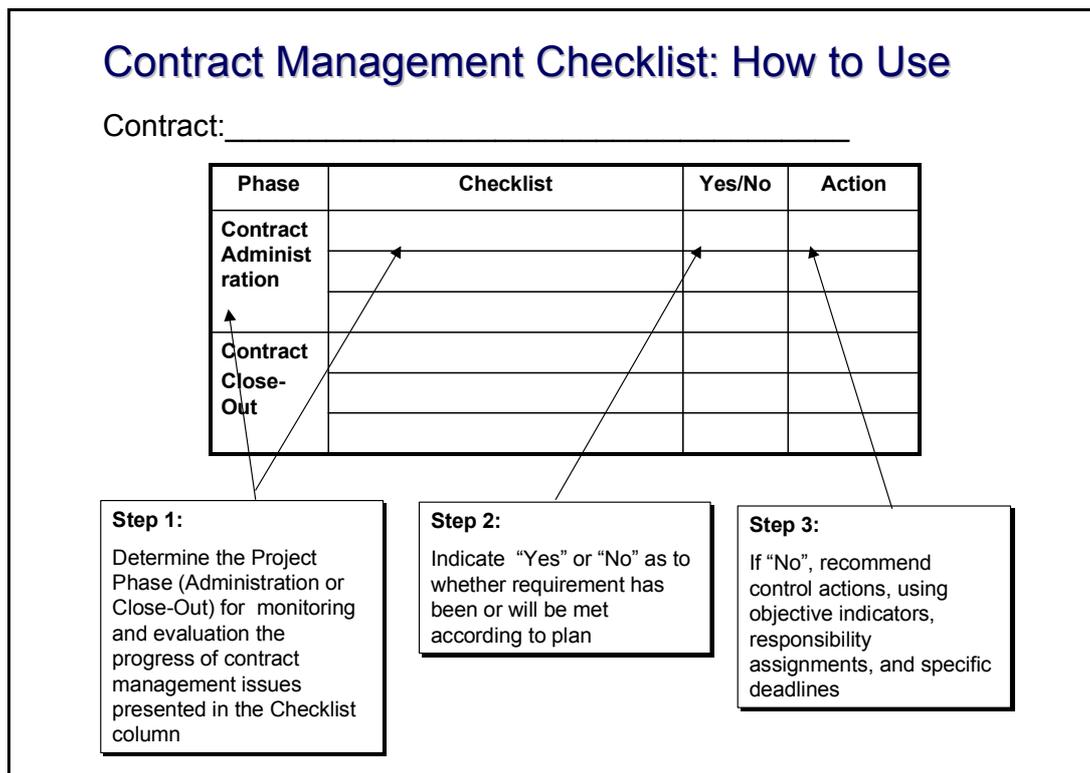


Figure IX.7. Contract Management Checklist – Example

Contract Management Checklist: Example

Contract: Euro Pipeline Ltd. Tunnel Works

| Phase | Checklist | Yes/No | Action |
|--------------------------------|---|--------|---|
| Contract Administration | 1. Are activities and deliverables being completed according to the schedule stipulated in the contract? | Yes | |
| | 2. Have contract deliverables been verified and validated as to quality and technical adequacy? | Yes | |
| | 3. Are resource expenditures in line with the project budget? | No | Additional project cost to be covered with the risk fund |
| | 4. Are proper administrative and financial management practices being adhered to? | Yes | |
| Contract Close-Out | 1. Has a final contractor performance review been conducted to verify that all contractual obligations have been satisfied? | Yes | |
| | 2. Has a final financial audit been conducted and a final invoice payment been issued? | Yes | |
| | 3. Has a final administrative audit been conducted and have all legal commitments been retired? | No | The PMU should conduct a final administration audit by November 15, 2007. |

Claims Management Procedure

Project “claims” probably represent the most contentious area between an implementing entity and a contractor, which in turn generates many problems affecting cost and time to complete. Some claims may have a monetary aspect, such as funding or reimbursement for costs; some an extension of time aspect; and some may dispute a decision on site. Whatever their nature, the practitioner should be attentive to all claims made by the contractor, deal with them promptly and fairly as set out in the contract, and in all instances ensure that a claim, and how it was handled and disposed of, be fully documented. Methods of dispute resolution should be aimed at minimizing court litigation (for example conciliation, mediation, or arbitration).

The Claims Management Procedure tool provided in this section is a sample procedure for handling claims under FIDIC (International Federation of Consulting Engineers) form of contracts. It ensures that procedures for resolving disputes between parties are clear, low-cost, timely and effective. The first step of the Claims Management Procedure is the notification of a potential claim. If the contractor intends to make a claim (such as for different than contracted working conditions on site), the contractor shall give a notice of intention to the project engineer within 28 days after the event precipitating the claim. The contractor has to record the claim, which then will be inspected by the project engineer. Within 28 days of giving notice of the complaint, the contractor should then send to the project engineer an account giving detailed particulars of the claim. The remaining steps in the procedure are included in the Claims Management Procedure tool.

Thus, although having a clearly established Claims Management Procedure in place is crucial for successful implementation, a practitioner’s attention should ideally be focused on avoiding claims in the first place by insisting on a thorough Feasibility Study (see Chapter VI) and by using the Project Startup tools presented in the previous chapter. In this way, project delays are minimized and the likelihood of project success is increased. Figures IV.8 through IX.11 show the Claims Management Procedure. The Claims tool is presented below.

Figure IX.8. Claims Management Procedure – Description

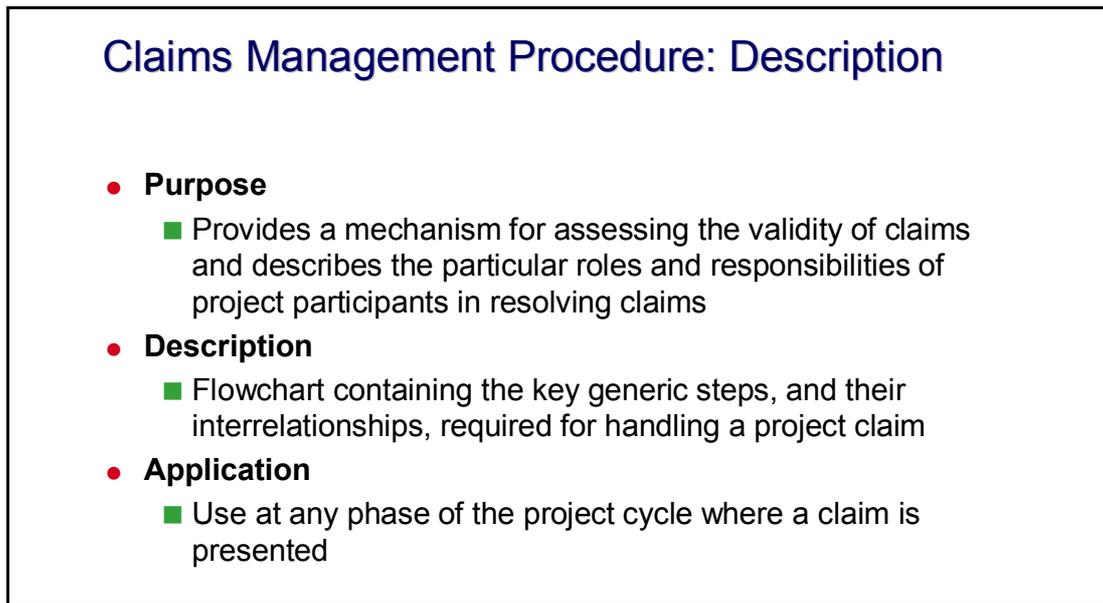


Figure IX.9. Claims Management Procedure – Illustration

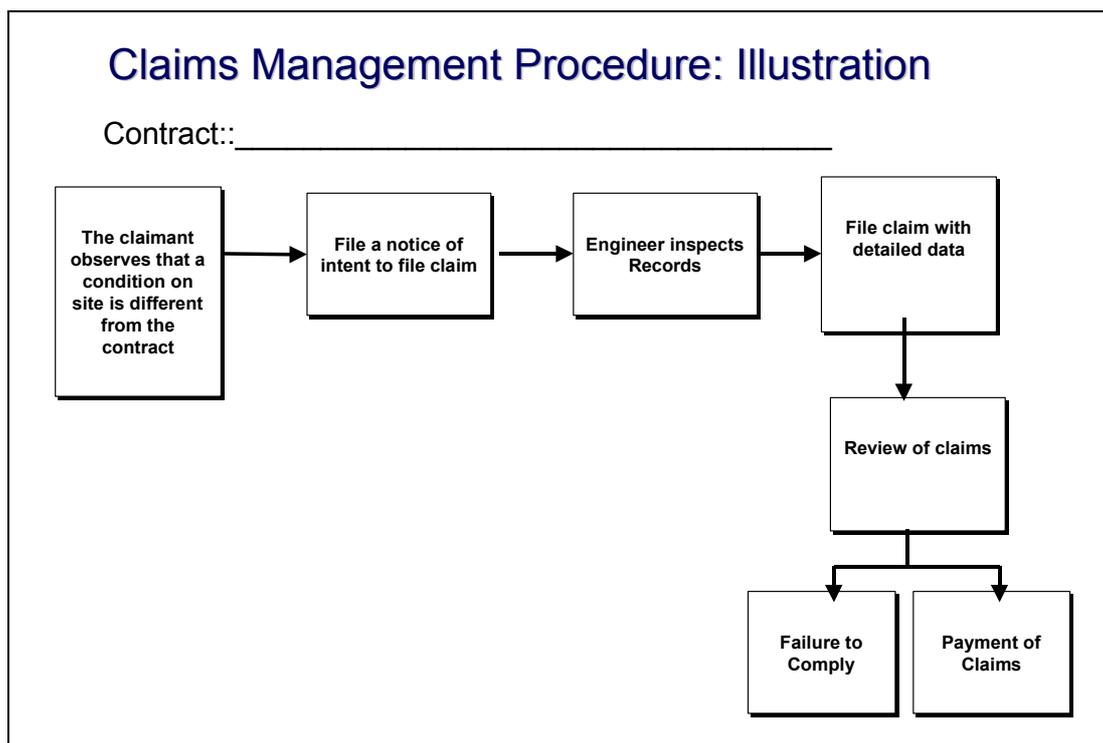


Figure IX.10. Claims Management Procedure – How to Use

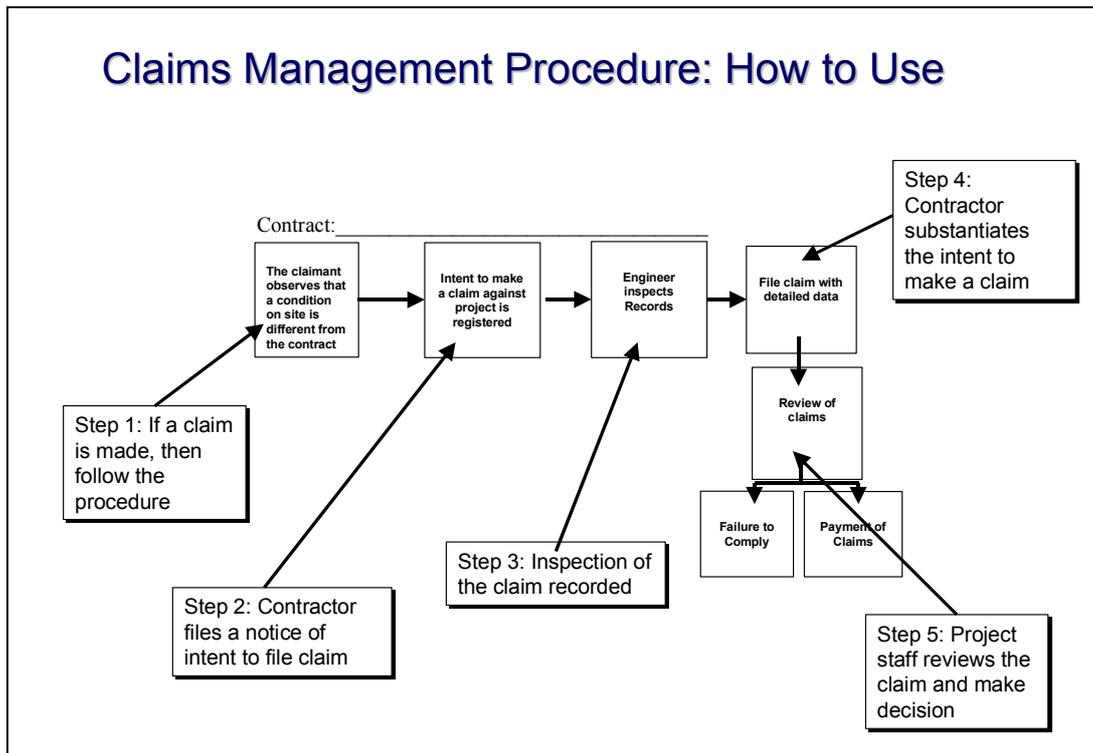
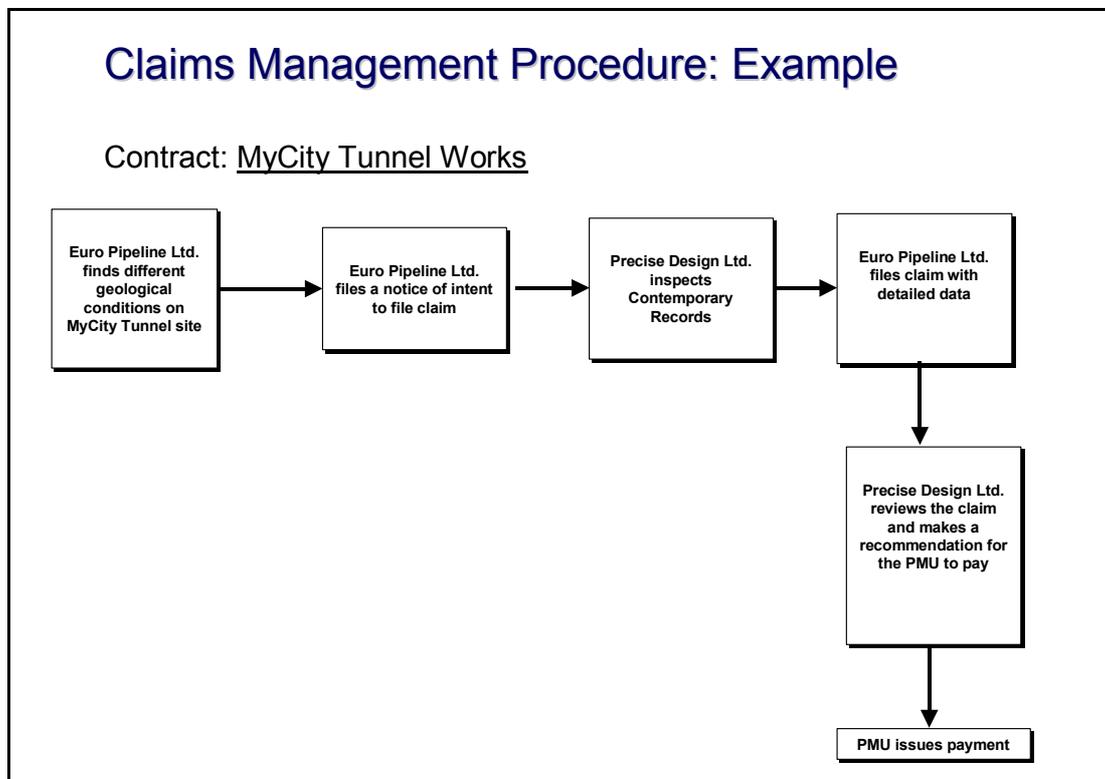


Figure IX.11. Claims Management Procedure – Example



Periodic Monitoring and Control Report

During project execution, performance and cost measures should be regularly monitored and updated. Periodic monitoring is used for comparison of the actual status of implementation with planned targets. If deviations occur from baseline plans, then corrective actions are needed. Practitioners must understand that the objective of monitoring is not faultfinding or assigning blame; rather, it is to better comprehend the causes of delays or changes in plans, and thus to maintain efficiency and to improve forecasting and planning. If implementation continually varies from plan, then control mechanisms are needed. In addition, the project schedule may need to be reviewed and modified. Reporting is a fundamental part of the control process. Project progress must be reported regularly and frequently enough that management decisions can be made in time to be effective in producing the required outcome.

Monitoring tools take on many different forms and require different levels of resources. A Periodic Monitoring and Control Report tool can help ensure that execution is consistent with planned performance, schedules, and budget. The tool is related to other tools described in the previous chapters. The most important related tools are “Indicators and Measurement” (Chapter VI), “Monitoring, Reporting, and Evaluation Plan,” “Resource and Cost Estimation” and “Bar Charts” (Chapter VII).

The Periodic Monitoring and Control Report tool assists the practitioner in deciding whether the project work is, or is not, going according to plan, usually in verifiable and quantifiable terms. If the project is not going according to plan, the tool should indicate why this is so and help point to proposed corrective actions. Figures IX.12 through IX.15 show the Periodic Monitoring and Control Report tool.

Figure IX.12. Periodic Monitoring and Control Report – Description

Periodic Monitoring and Control Report: Description

- **Purpose**
 - To assist practitioners in tracking project time, cost and performance milestones in order to make timely and justified adjustments in accordance with the project plan
- **Description**
 - Matrix which indicates which project performance indicators/milestones (physical and financial) should be measured, assessed, and controlled and what kind of control actions are needed and why
- **Application**
 - The tool can be applied in every phase of the project life-cycle, but it is most relevant in the Project Execution stage

Figure IX.13. Periodic Monitoring and Control Report – Illustration

Periodic Monitoring and Control Report: Illustration

Project or Component: _____

| Planned Performance or Cost Measure & Date | Actual Performance or Cost Status on Date | Analysis & Conclusion | Recommended Control Actions for Identified Stakeholders | Reason for Recommendation |
|--|---|-----------------------|---|---------------------------|
| | | | | |

Figure IX.14. Periodic Monitoring and Control Report – How to Use

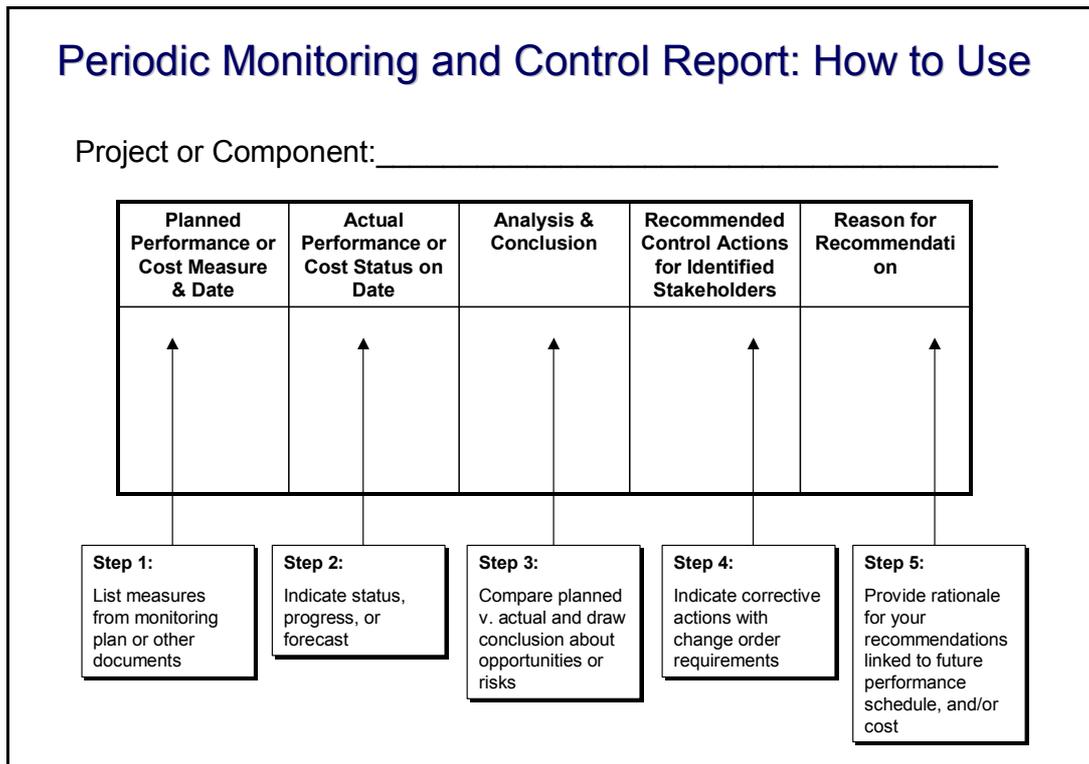


Figure IX.15. Periodic Monitoring and Control Report – Example

Periodic Monitoring and Control Report: Example

Component: MyCity Sewer Works

| Planned Performance or Cost Measure & Date | Actual Performance or Cost Status on Date | Analysis & Conclusion | Recommended Control Actions for Identified Stakeholders | Reason for Recommendation |
|---|--|--|---|---|
| 60% of the citizens will apply for the "in-construction" connection fee by April 15, 2006 | By April 15, 2006 70% of the citizens applied for the "in-construction" connection fee | The program worked better than planned, but more funds must be allocated | Find additional resources, because the amount available from the risk fund is not enough to cover the costs | The high demand increased the cost of the sewage network with additional EUR 0.512M |

Annual Review and Planning Workshops

Annual review and planning workshops bring together key stakeholders and program staff in a structured format to review major accomplishments and to plan for adjustments in program strategy, objectives, tasks, work plans, and schedules for the next year. These meetings build flexibility into project implementation. The resource requirements and scheduling of these annual workshops should be built into the detailed design of the project at a much earlier stage, such as during the formulation of the PIP (Chapter VII). Furthermore, this is the place to plan the next annual review, which must be built into the schedule and the budget of the following year. The Annual Review and Planning Workshop tool is an incremental step toward the FIR development. The information discussed in these workshops is similar to those topics covered in the FIR, only from a “midstream” rather than at the end of project execution.

Because many key decisions are made at these annual workshops, it is essential to prepare for and conduct these meetings effectively. The workshop agenda outline provided below helps to identify the critical issues to be addressed and provides a structured format for conducting the workshop sessions. A bar chart summarizes the main steps of the planning, conduct, and reporting phases of the workshop and their duration. The planning activities commence a few weeks before the workshop itself. During this period, staff members are designated to assist with the logistical arrangements and to meet with key stakeholders to help identify the objectives and draft agenda of the workshop. To be as effective as possible, the agenda should be sent to participants in advance to give them time to become familiar with the topics. Figure IX.16 shows an Annual Review and Planning Workshop agenda.

Figure IX.16. Sample Annual Workshop Agenda

| Annual Review and Planning Workshop Agenda Template | | |
|---|--|--|
| Day 1 | Day 2 | Day 3 |
| a.m. | a.m. | a.m. |
| Introduction and Project Overview Progress on Project Objectives - Planned v. Actual Comparison - Issues for Attention Progress on Component Activities - Planned v. Actual Comparison - Issues for Attention p.m. Progress on Project Financing - Planned v. Actual Comparison - Issues for Attention Summary of Issues and Required Actions | Project Objective Planning - Modify Project Objectives if necessary - Revise scope, content, and implementation arrangements if necessary p.m. Component Activity Planning - Identifying Activities - Sequencing Activities - Responsibility Charting | Project Financial Planning - Budget Exercise p.m. Next Steps Planning Exercise Evaluation and Closing |

During the workshop, an individual (in some cases, an outside facilitator) is selected to establish the norms of discussion, lead discussions and summarize details, and relate the discussions to the overall project objectives. Fairly soon after the workshop, when topics are fresh in people’s minds and recommended actions are likely to have an impact, a report summarizing the proceedings should be completed and disseminated. Typically, the outside facilitator is assigned to complete the proceedings report as part of the statement of work (SOW).

Figures IX.17 through IX.20 show the major features of the Annual Review and Planning Workshops tool.

Figure IX.17. Annual Review and Planning Workshops – Description

Annual Review and Planning Workshops: Description

- **Purpose**
 - Ensures that flexibility is built into the project by having a structured mechanism to redesign the project during implementation
- **Description**
 - Bar-chart that helps to develop a plan for the workshop by identifying key activities and time units needed for workshop planning, conduct and reporting
- **Application**
 - Use it during the project start-up, execution and sustainability stages of project implementation

Figure IX.18. Annual Review and Planning Workshops – Illustration

Annual Review and Planning Workshops: Illustration

Project: _____

| ACTIVITIES | TIME UNITS (Weeks) | | | | |
|---|--------------------|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Planning</u> 1. Logistical arrangements 2. Identifying objectives 3. Planning and circulating agenda 4. Developing materials | → | | | | |
| <u>Conducting</u> 1. Establishing norms 2. Review of past year 3. Planning for coming year 4. Summarizing the details | | | | → | |
| <u>Reporting</u> 1. Developing the Final Report 2. Disseminating the Final Report | | | | | → |

Figure IX.19. Annual Review and Planning Workshops – How to Use

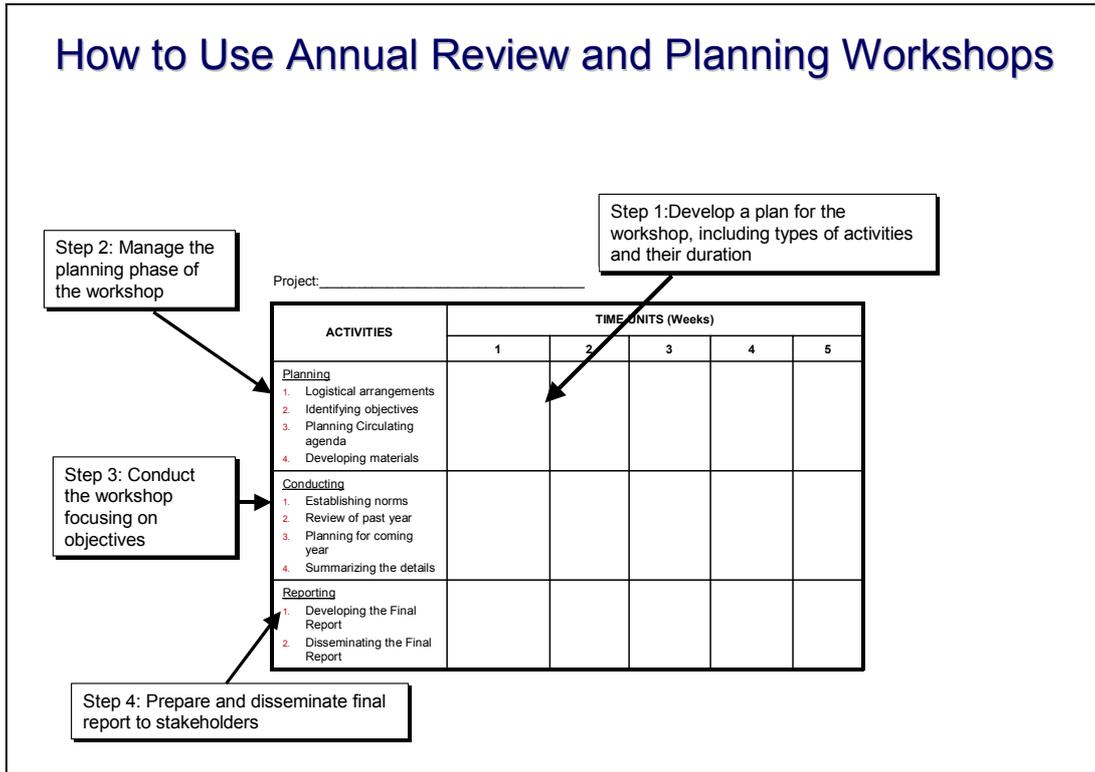
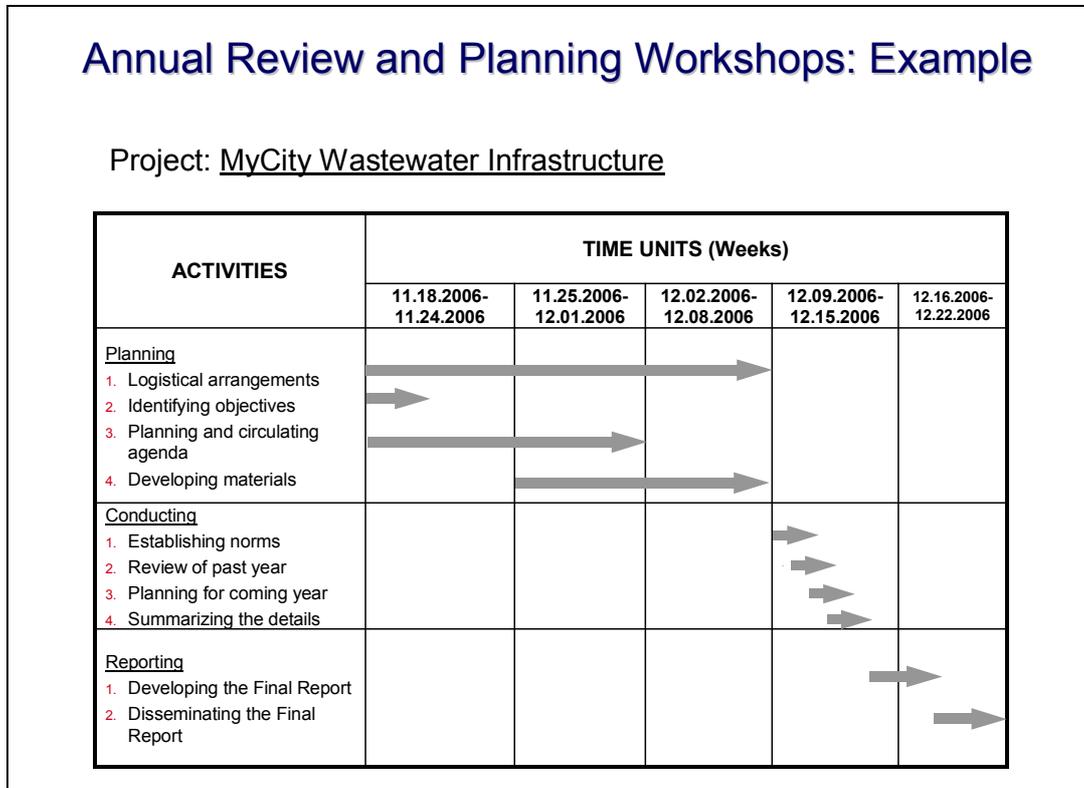


Figure IX.20. Annual Review and Planning Workshops – Example



Mid-Term and Final Evaluation Cycle

As noted earlier in this and previous chapters, monitoring and evaluation is a continual process throughout the project cycle. At certain points in the project execution timeline, “evaluation” reports may be required for either internal or external decision-making. The timing for such reports should be spelled out in the contract for the project or determined by the project organization and included in the PIP discussed in Chapter VII. Project evaluations are usually scheduled toward the mid-point of a project and about 1 year before project completion. The mid-term evaluation focuses on “mid-course adjustment” opportunities. This “final” evaluation assesses the impact and deals in-depth with sustainability issues.

Project evaluations should represent a team effort involving multiple stakeholders with multiple viewpoints. The best way to assure that evaluation results will be used is to address issues that are relevant and timely to decision-makers; thus, it is helpful to involve the actual decision-makers themselves in the evaluation process. Holding evaluation review sessions during the draft and final stages of the evaluation report is also recommended.

The structure of the evaluation report itself should distinguish between “Findings,” “Conclusions” and “Recommendations.” Findings represent the factual information that is gathered and analyzed during the evaluation. Conclusions are inferences that flow directly from Findings. Recommendations are judgments about potential project execution improvements made by the evaluation team based on the evaluation conclusions and the team’s understanding of the project strategic context and internal configuration.

The Mid-term and Final Evaluation Cycle tool can assist management practitioners in planning and carrying out the project’s scheduled evaluations. Figures IX.21 through IX.24 describe this tool.

Figure IX.21. Mid-Term and Final Evaluation Cycle – Description

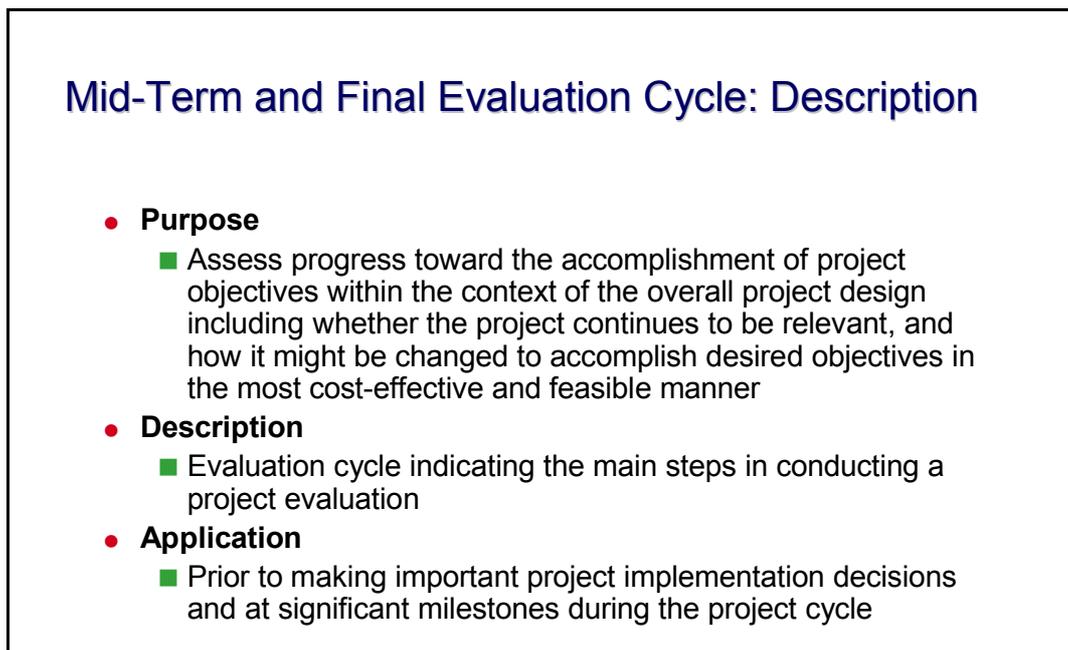


Figure IX.22. Mid-Term and Final Evaluation Cycle – Illustration

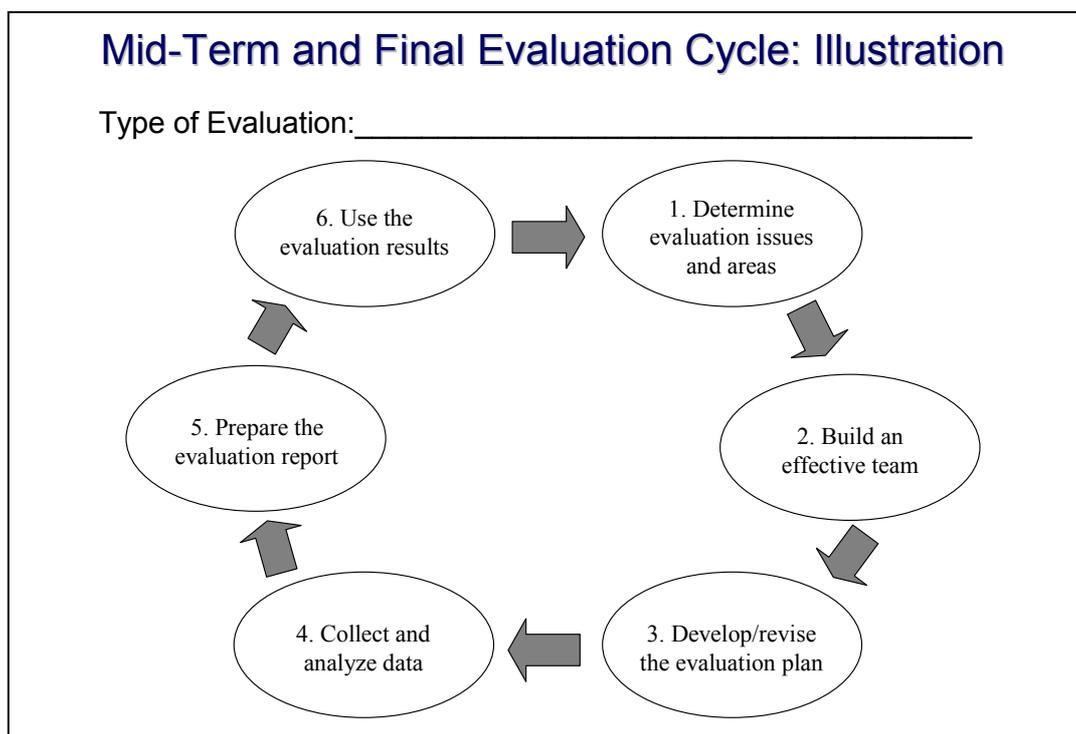


Figure IX.23. Mid-Term and Final Evaluation Cycle – How to Use

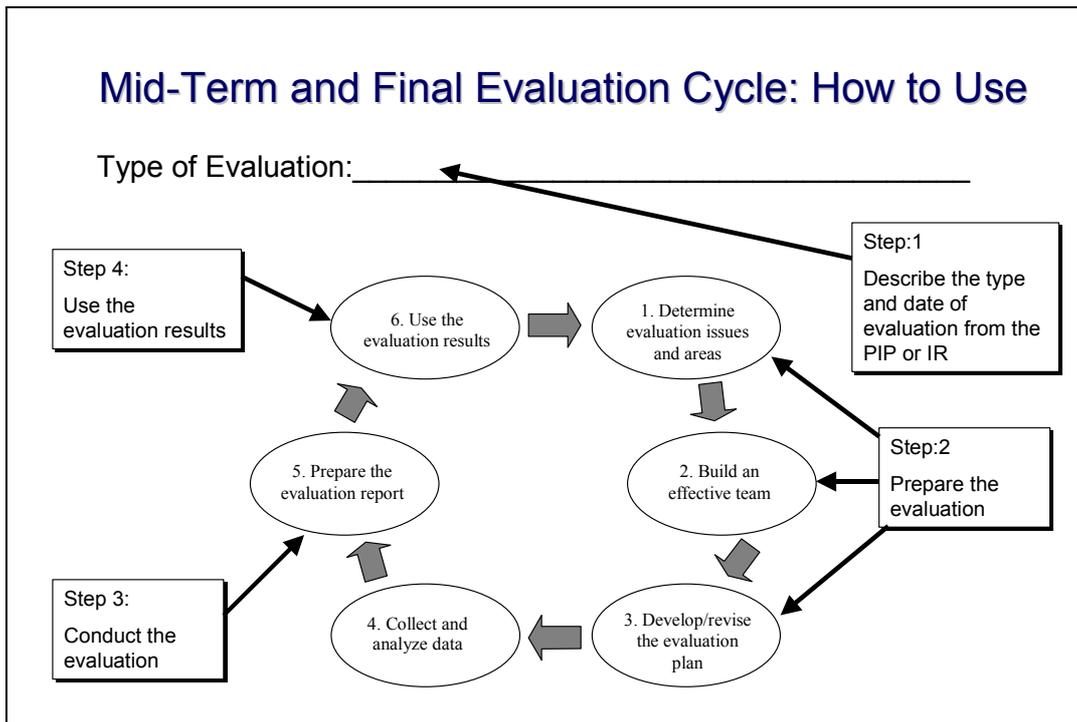
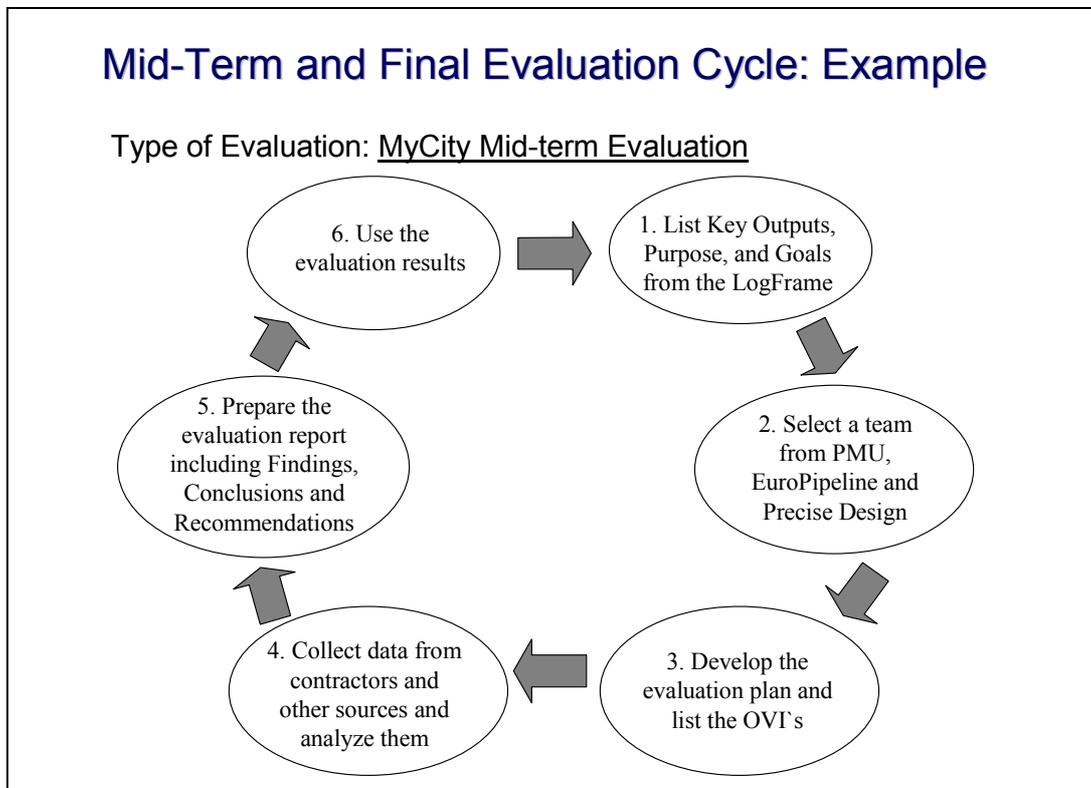


Figure IX.24. Mid-Term and Final Evaluation Cycle – Example



Scope Change Procedure

Changes in the project’s strategic context or internal setting may require changes in the project’s scope, legal contracts or informal agreements among stakeholders involved in project implementation. Large infrastructure projects should have a formal (documented) process for scope change approval. Small projects, especially those involving one’s own resources, may require a less formal process for controlling changes in scope. Large or small, all projects need to manage the scope change process carefully.

A proper Scope Change Procedure requires three elements: (1) a well written PIP and/or IR; (2) a work authorization to initiate all work (whose terms are typically spelled out in the contract itself); and (3) an understanding by stakeholders of the conditions or circumstances that actually warrant a formal change.

Figures IX.25 through IX.29 show Scope Change Procedures. The Scope Change Procedure tool is presented in this section as a flowchart. A change may require a “change request form” to initiate it, as shown in Figure IX.25.

Figure IX.25. Sample Change Request Form

Sample Change Request Form

Date _____

WBS Element _____ #

Work Package _____ #

Activity _____ #

Proposed by _____ Dept. _____

Proposed Change: _____

Impact on Other Parts of Project: _____

Effect on:

- Time
- Cost
- Performance
- Resources

Reason for Change: _____

Benefit of Change: _____

Sign Off:

- Accounting: _____ Date: _____
- Management : _____ Date: _____
- Personnel : _____ Date: _____
- Operations: _____ Date: _____

Approved by: _____ (Project Manager), Date: _____

Scope change review should consider the reason for the request and the overall impact that the change may have on other project components. Subsequently, a change request should be formally approved or rejected. If rejected, it should be returned to the originator for further clarification. In any case, the decision should be documented and recorded. If approved, the change should be formally incorporated into the contract (if required) or into the implementation plan. The revised contract or plan should be issued with updated work requirements, time schedules and resource costs. Finally, changes should be clearly and precisely communicated to all stakeholders to decrease the likelihood of disputes, future claims and project delays.

Figure IX.26. Scope Change Procedure – Description

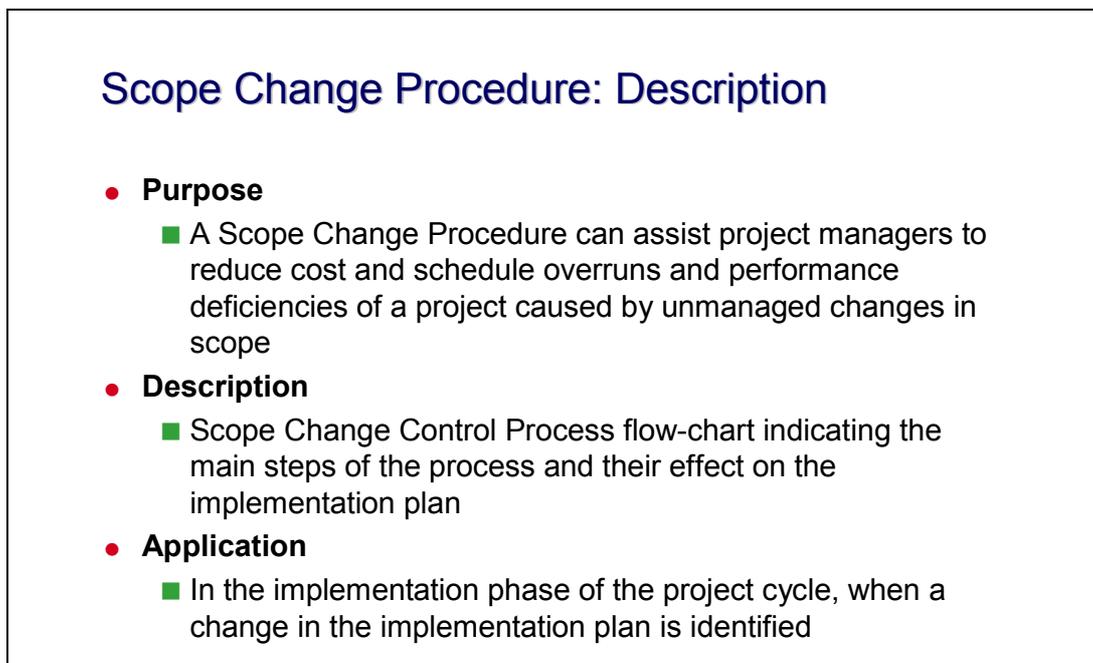


Figure IX.27. Scope Change Procedure – Illustration

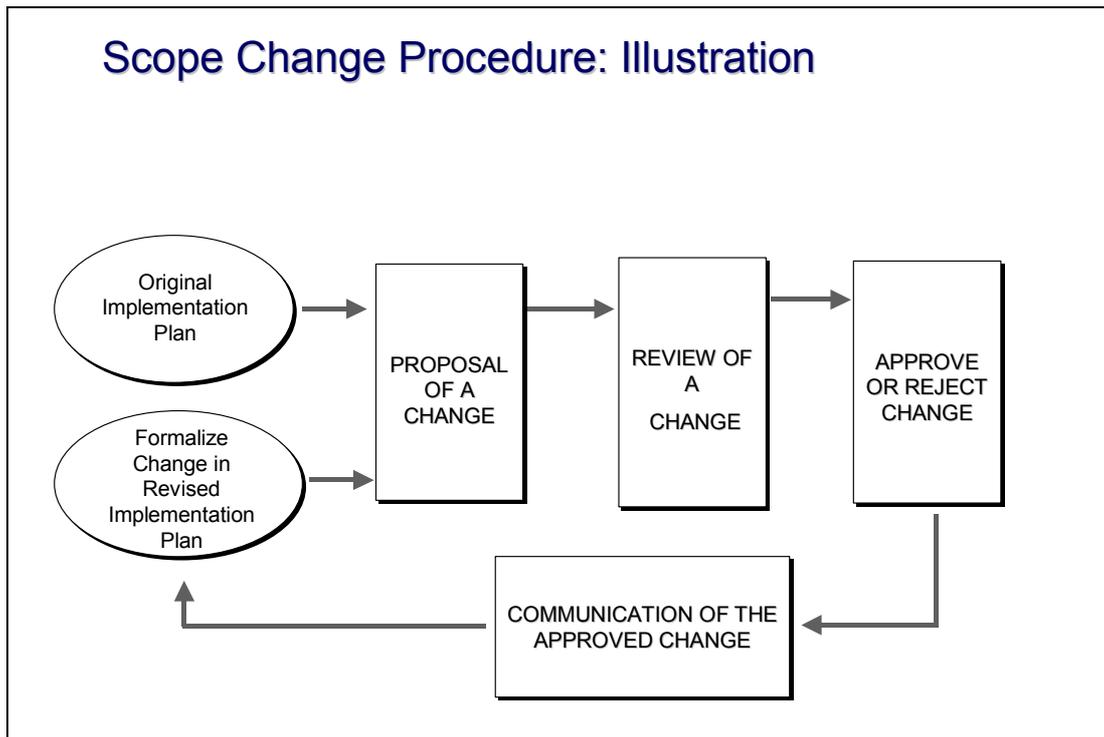


Figure IX.28. Scope Change Procedure – How to Use

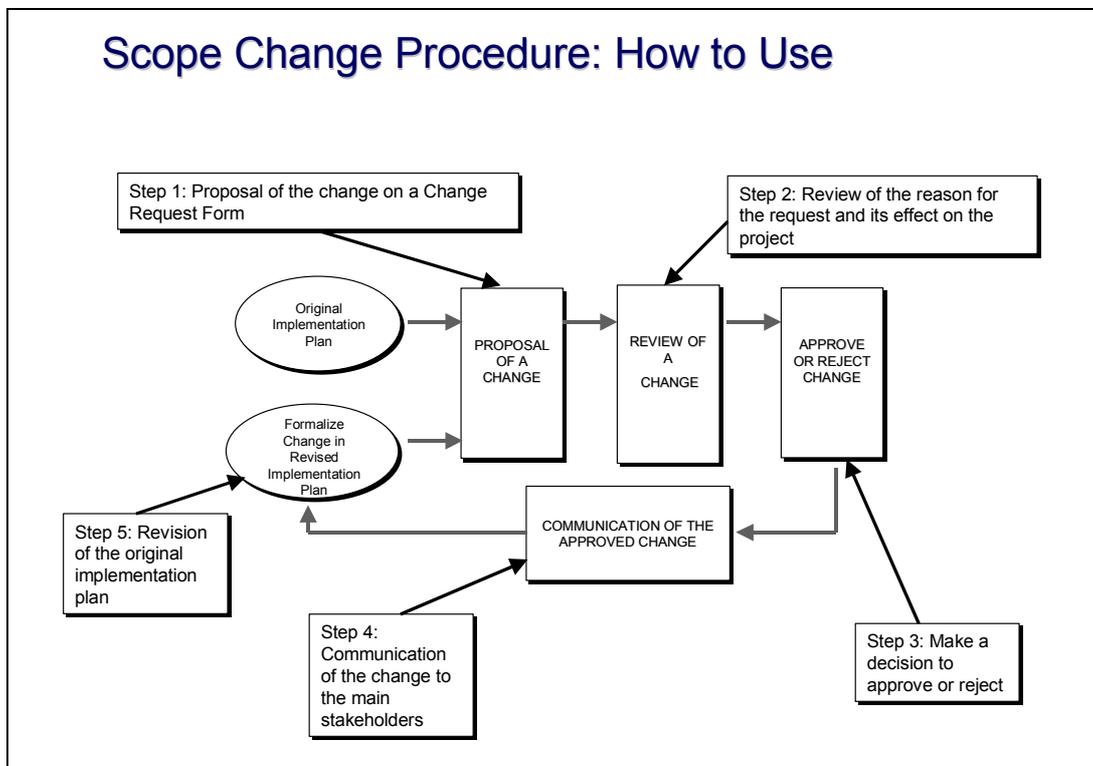
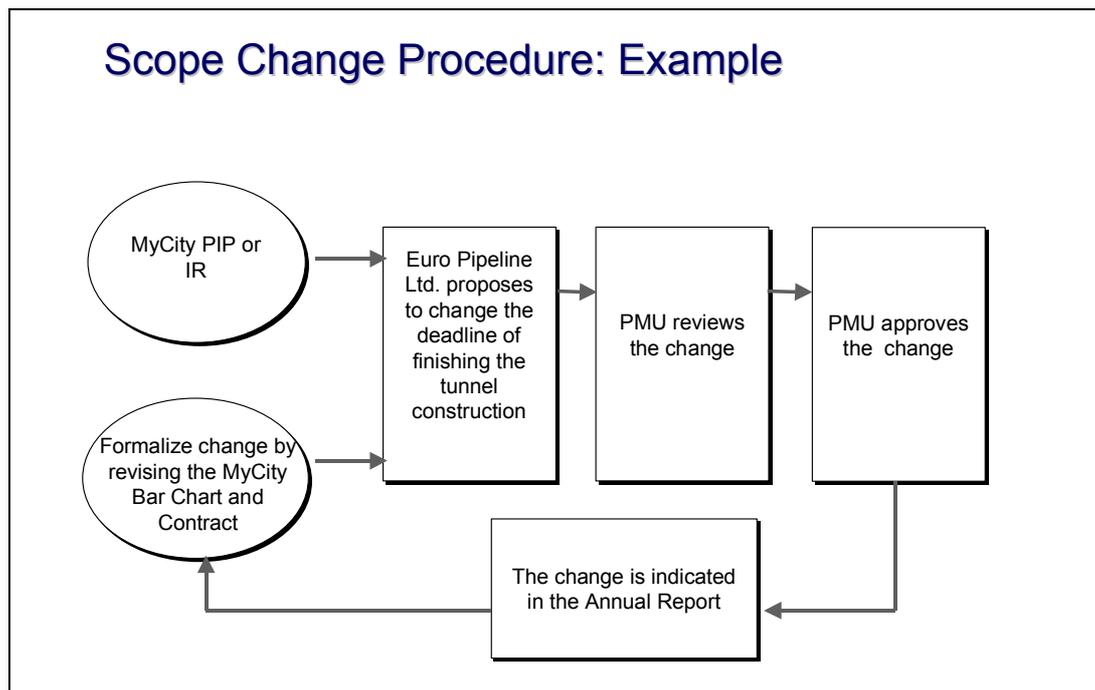


Figure IX.29. Scope Change Procedure – Example



Project Completion Checklist

Every project, by definition, must end. Ideally, a project will have successfully accomplished its objectives on schedule, within budget and without undue (or inappropriate) changes in scope. Effective project close-outs are essential for project success. Poor close-outs introduce inefficiencies into an organization's operations, possibly leading to having to redo work, or delay final products. For contractors in particular, a poor close-out may lead to the inability to recover labor and other incurred costs.

A project is considered complete when the following conditions are satisfied:

- All project systems, documentation (including operating and maintenance manuals, as applicable) and peripheral equipment have been received and accepted.
- All administrative documentation has been archived.
- All expenditures have been made, the budget has been closed, and resources are disengaged.

- A project debriefing and applicable FIR has been accepted.

Effective project close-outs contribute to an efficient organizational operational environment, maximize client satisfaction by not leaving unfinished tasks or “loose ends,” increase client confidence that the project has been implemented with care, and provide sources for gleaning valuable execution lessons and best practices from the procedures used, processes, methodologies and problem-solving actions of the project organization and individual staff.

The project close-out starts with the preparation for hand-over as a pre-condition for the Project Sustainability stage. At present, it is very important to schedule training on how to use and maintain the new systems and to organize the transfer and/or determine the disposition of equipment based on the project inventory. The next step is to prepare and collate project documentation. Systems documentation, user manuals, training materials, user and maintenance documents and budget reports are collected before the project is complete. Once a deliverable is handed over to the client, the operation and maintenance (O&M) or Project Sustainability stage begins. To increase the likelihood of a smooth transition from the project to the O&M phase, the project team must make a conscious effort to work with the client staff charged with operating and maintaining the project’s deliverables. To the extent that a deliverable is something completely new to a client, it is likely that the client will need some training on how to employ and maintain it effectively. The project team should work with the contractor to determine precise training needs and documentation requirements.

The next step is contract performance review. The following questions should be answered:

- Did the deliverable achieve the specified requirements?
- Are there incomplete tasks?
- Was work completed on time and within budget?

Project close-out also includes dealing with the final disposition of project-related payments and an administrative audit of the project. Finally, the project team should perform a lessons-learned assessment to highlight the strengths and weaknesses associated with the overall project effort to gain insight to incrementally improve work performance and client satisfaction on future project assignments.

The Project Completion Checklist tool helps to make the close-out process smooth by preparing for the transfer of the project from the contractor to the client and by ensuring that all administrative and financial requirements are retired in an effective manner. The Project Completion Checklist tool delineates the key project close-out issues by relating one key question to each issue. Figures IX.30 through IX.33 describe the Checklist tool.

Figure IX.30. Project Completion Checklist – Description

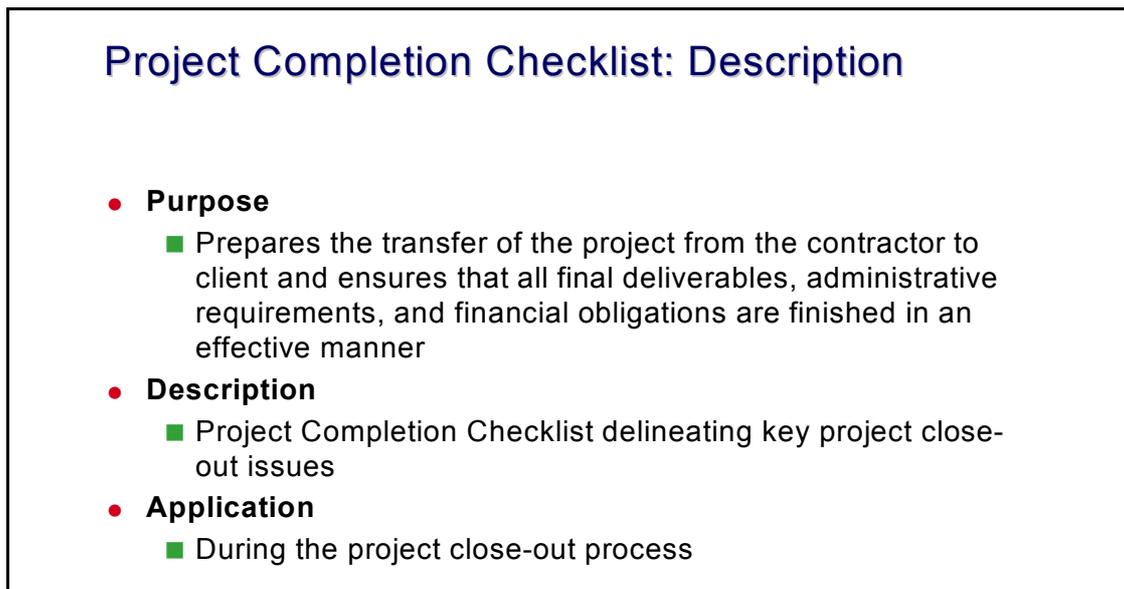


Figure IX.31. Project Completion Checklist – Illustration

Project Completion Checklist: Illustration

Project: _____

| Project Completion Checklist | | |
|---|--------|---|
| Checklist | Yes/No | Action (Responsibility and deadline) |
| Hand-over: Has a training on how to implement and maintenance systems been scheduled? | | |
| Project document: Has all project documentation required by the contract, including systems documentation, training materials, user and maintenance documents, budget reports, and project files and records been prepared and collated? | | |
| Operation and maintenance: Has the Project Management Team provided the client with all necessary training and guidance to prepare a smooth transition from the Project to the Operations and Maintenance phase? | | |
| Customer training: Has the project team tested operations and maintenance systems? | | |
| Contract performance: Has a final contractor performance review been conducted to verify that all contractual obligations have been satisfied? | | |
| Final payments: Has a final financial audit been conducted and a final invoice payment been issued? | | |
| Administrative audit: Has a final administrative audit been conducted and have all legal commitments been retired? | | |
| Lessons learned: Has a post-project evaluation been conducted to examine Lessons Learned and develop suggestions to improve the design and implementation of future projects? | | |

Figure IX.32. Project Completion Checklist – How to Use

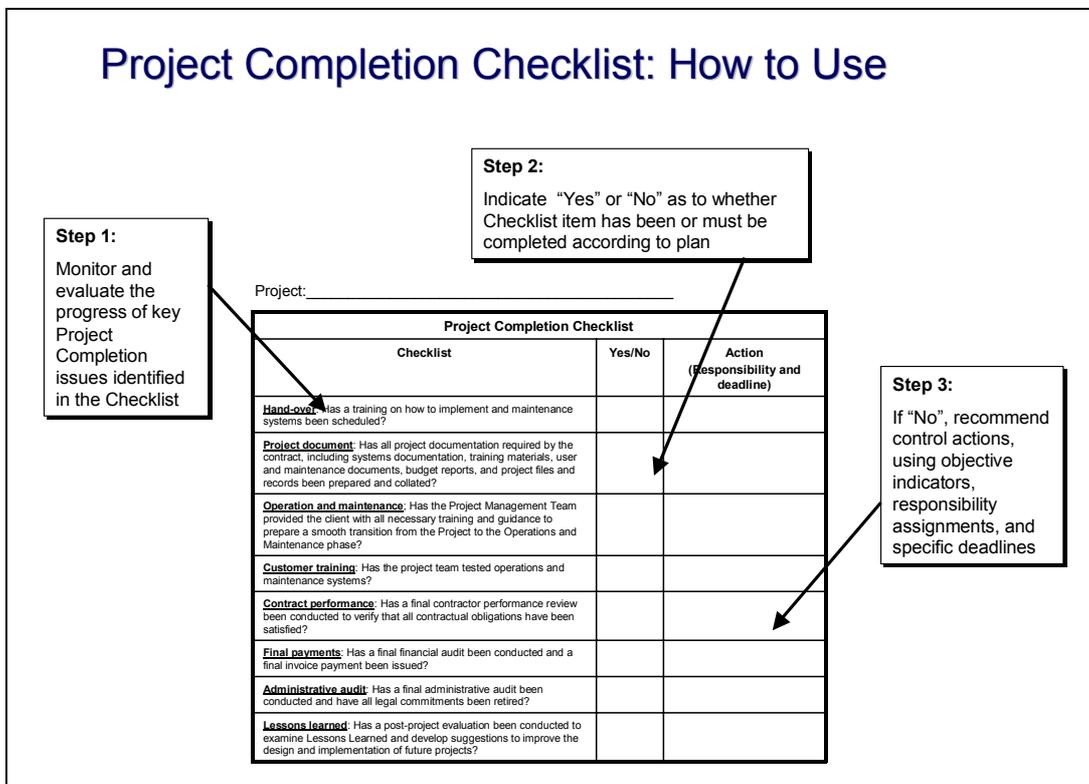


Figure IX.33. Project Completion Checklist – Example

Project Completion Checklist: Example

Project: MyCity Wastewater Infrastructure

| Project Completion Checklist | | |
|---|--------|---|
| Checklist | Yes/No | Action (Responsibility and deadline) |
| Hand-over: Has a training on how to implement and maintenance systems been scheduled? | Yes | |
| Project document: Has all project documentation required by the contract, including systems documentation, training materials, user and maintenance documents, budget reports, and project files and records been prepared and collated? | Yes | |
| Operation and maintenance: Has the Project Management Team provided the client with all necessary training and guidance to prepare a smooth transition from the Project to the Operations and Maintenance phase? | Yes | |
| Customer training: Has the project team tested operations and maintenance systems? | Yes | |
| Contract performance: Has a final contractor performance review been conducted to verify that all contractual obligations have been satisfied? | Yes | |
| Final payments: Has a final financial audit been conducted and a final invoice payment been issued? | Yes | |
| Administrative audit: Has a final administrative audit been conducted and have all legal commitments been retired? | No | The PMU should conduct a final administrative audit by November 15, 2007. |
| Lessons learned: Has a post-project evaluation been conducted to examine Lessons Learned and develop suggestions to improve the design and implementation of future projects? | No | A team should be appointed to summarize the lessons learned by November 15, 2007. |

Conclusion

As a project management expert once stated, “The term ‘implementation’ understates the complexity of the task of carrying out projects that are affected by a high degree of initial ignorance and uncertainty. Here project ‘implementation’ may often mean in fact a long voyage of discovery in the most varied domains, from technology to politics” (Hirschman 1967). Up to the execution stage of the project cycle, the practitioner has been more focused on proposing and planning the work than actual performance of work itself. In this chapter, the practitioner has embarked on the voyage of actual implementation, focusing on the detailed execution of the work planned. The tools described in this chapter have addressed the key issues of setting a management environment that is supportive of performing quality execution work.

The issues of contract and claims management, monitoring, reviewing, evaluating, and reporting, scope changes, and project completion are sometimes considered necessary distractions to the real job of getting the infrastructure work done.

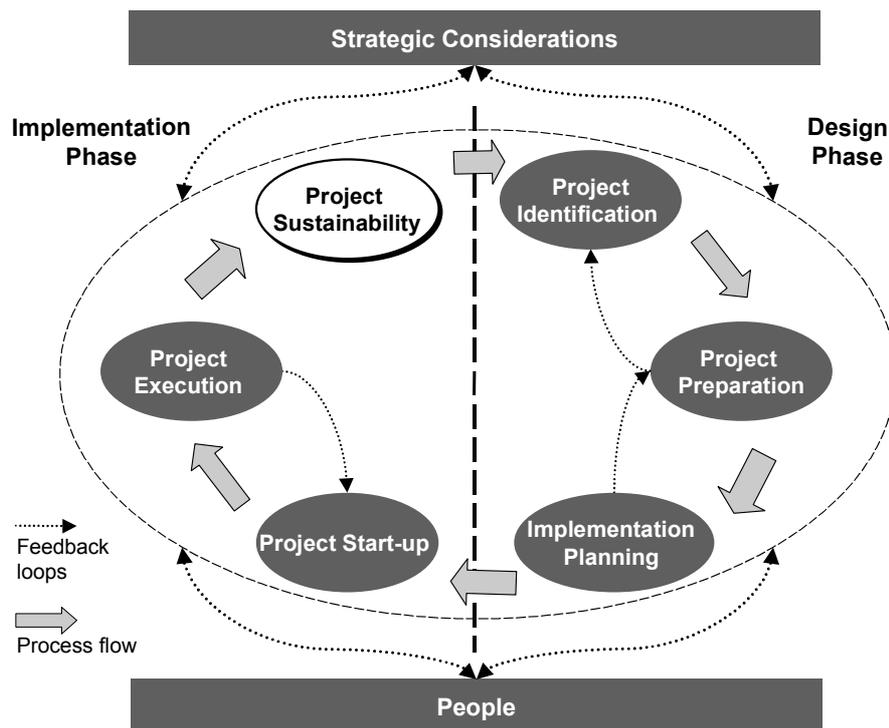
However, it is when these issues are not considered that the project outcome – a modern and fully functioning infrastructure facility that serves the public and private good – might ultimately fail to be achieved. Therefore, the practitioner should view the tools presented in this chapter and in the PMToolkit as time-saving devices that allow dedicated practitioners to become more professional in the craft of project management.

CHAPTER X: PROJECT SUSTAINABILITY

Overview

The expected benefits of many investments fail to materialize following the completion of the Execution stage of the project cycle. Projects frequently stop delivering the desired benefits as soon as the money runs out because project objectives do not cover the continuation of project benefits and indicators are defined only in terms of results during the Execution stage. In addition, most projects neglect the institutional and management capacity required to sustain the delivery of benefits after external project funding ends. The PMToolkit Project Management Framework refers to this “delivery of continuing benefits” process as the Sustainability stage of the project cycle (see Figure X.1).

Figure X.1. PMToolkit Project Management Framework – Project Sustainability



In the project management context, sustainability can be defined as “the continuation of valued benefits following the completion of the Execution stage of the project” (Ingle 1999). The Sustainability stage extends beyond the typical

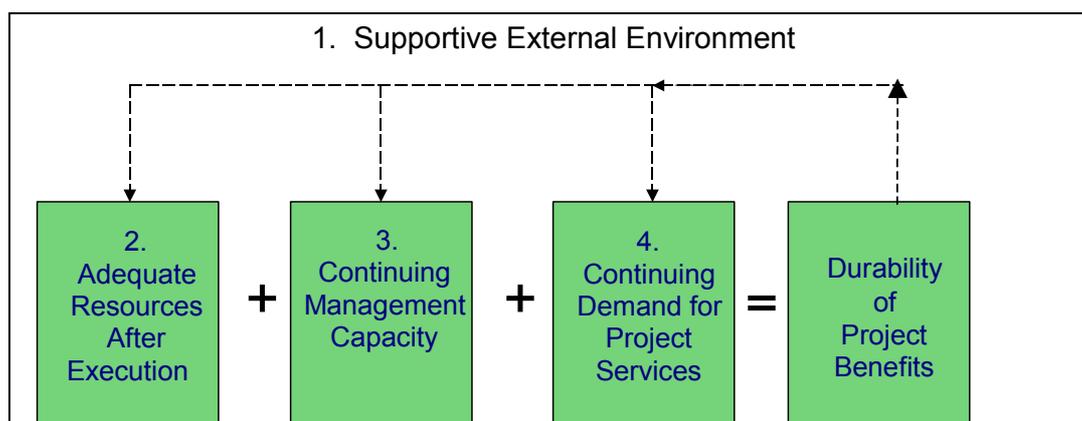
implementation “investment period” definition of a project, i.e., the Start-up and Execution stages. Sustainability deals with the “return on investment period” of a project.

There are several dimensions of project sustainability (Stockmann 1997):

- *Reproduction.* Beneficial project results are being reproduced on a continuing basis by the implementing agency in the interest of the target population.
- *Output-oriented.* The target population has an organizational structure in place that enables it to guarantee the continuation of benefits for itself and for others.
- *Systems-oriented.* The project results improve the performance of all interrelated elements of the benefit continuation system.
- *Innovation-oriented.* The implementing agency possesses the innovation potential to be able to respond flexibly and appropriately to changes in environmental conditions.

These sustainability dimensions represent a different and additive point of view from the conventional project management mindset. This additive “sustainability point of view” should infuse a project from the Identification stage through the Sustainability stage. This chapter introduces several sustainability tools for incorporating and reinforcing this additive “durability of benefits” point of view into projects.

Sustainability considerations should be integral to the objectives of infrastructure projects. Figure X.2 presents a dynamic model of the key elements that influence whether a project's benefits will continue, i.e., be durable following Execution. These factors are critical for the long-term sustainability of project benefits and should be taken into consideration throughout every stage of the project cycle. The Sustainability tools presented in this chapter provide project managers with the means for incorporating the sustainability point of view into projects.

Figure X.2. Dynamic Sustainability Model – Key Elements

The four elements influencing project sustainability are elaborated below:

Supportive External Environment. Although many external factors in a project's strategic context (as discussed in Chapter III) are beyond the control of project managers, they nevertheless greatly influence whether benefits will be sustained (Brinkershoff and Goldsmith 1990). Such factors include the policy and legal framework, bureaucratic culture and procedures, social norms, and economic and political conditions. In some cases, project managers may be able to influence their strategic context to make it more hospitable for durable benefit flows. In instances where the environment is both inhospitable and less favorable to change, project design and implementation should acknowledge and accommodate potential constraints. The external environment should be assessed from a sustainability point of view during project identification and preparation. Periodic assessments during project implementation can detect changes in the external environment that could require modification or adaptation of project activities to enhance the probability of durable benefit flows.

Adequate Resources. Durable benefits depend upon adequate resources – financial, human, natural and technical – following the end of the Execution stage. Benefits cannot continue unless adequate resources can be acquired by the implementing entities responsible for project benefits during the Sustainability stage.

Continuing Management Capacity. Implementing organizations and the people who staff them are crucial in influencing whether benefits continue during the

Sustainability stage. Individuals, supported by the organizational culture and standard operating procedures, need to recognize and work toward benefit continuation objectives, acknowledge and account for opportunities and threats in the external environment, and adapt the organization and its products to evolving stakeholder interests.

Continuing Demand for Project Services. To develop an enduring constituency for benefit continuation, the specific project benefits must address demands of the target population. Therefore, deciding which benefits to deliver is predicated upon identifying the target audience and eliciting from that audience information about what benefits they desire. Needs are not stagnant, however. Benefits should be designed with sufficient flexibility to respond and adapt to changes in demand over time.

From a project cycle point of view, incorporating benefit sustainability concerns into Project Design and Project Implementation phases involves additional analysis and a longer term perspective than in traditional project management.

For **Project Design**, planners should consider such questions as how to integrate sustainability considerations into the initial project concept early in project identification and how to ensure sufficient stakeholder commitment to design a project focused on benefit continuation.

The Project Design phase presents the most opportunities for incorporating sustainability into a project. A project's designers can influence the extent to which decisions reflect a concern for the durability of benefit flows. During this phase, the project design team can decide on the benefits the project should produce and the means for continuing them. Design decisions should support the critical elements for benefit sustainability presented in Figure X.2. All of the tools introduced in this chapter can facilitate this decision-making process.

The **Project Implementation** phase presents the greatest challenges to sustainability. This is because the priorities and time commitments associated with day-to-day

crises in implementation make it difficult to adopt a “think about what should happen after the Execution stage” perspective (Finsterbush 1990). Project Implementation that effectively produces sustainable benefit flows requires increased attention to two areas of project management: local capacity building and financial planning for benefit continuation. In addition to the tools introduced in this chapter, several implementation strategies and actions have proved to be successful to incorporate key sustainability issues during this project phase:

- Hold project launch and annual review/planning workshops:
 - Review resource projections to ensure that funds are reserved for capacity building activities.
 - Use workshops as an opportunity to create political support for sustainability-related project activities.
 - Include an analysis of constraints to sustainability in the project's Strategic Considerations assessments.
 - Revisit the stakeholder analysis to identify “sustainability” stakeholders; invite them to participate in implementation planning workshops.
- Introduce cost recovery mechanisms in a gradual manner:
 - Consider some of the following mechanisms: endowments, fee-for-service arrangements.
 - Undertake fundraising and donations related to sustainability.
 - Keep recurrent costs related to service delivery and maintenance low in order to minimize resource requirements following execution.
- Ensure routine monitoring and reporting for sustainability:
 - Make sustainability an explicitly stated objective.
 - Emphasize environmental reconnaissance in the project's monitoring and reporting activities.
 - Market project successes to build support among sustainability stakeholders.

To summarize, sustainability begins at the end of the Execution stage; but benefit continuation will occur only if it is addressed during the previous stages of the project cycle and integrated throughout Design and Implementation.

Template: Sustainability Assessment Report (SAR)

The PMToolkit Template for the Sustainability stage is the Sustainability Assessment Report (SAR). This template can be used to assess and report on a project's

sustainability status at any point in the project cycle. This template incorporates content from each of the four interrelated sustainability elements depicted in Figure X.2.

Figure X.3. Sustainability Assessment Report

| | |
|---|---|
| | PROJECT TITLE |
| | Sustainability Assessment Report |
| Cover Page | |
| Table of contents | |
| 1. Introduction | |
| 1.1 Purpose of Sustainability Assessment | |
| 1.2 Overview of Project | |
| 1.3 Assessment Methodology | |
| 1.4 Organization of Assessment Report | |
| 2. Assessment Overview | |
| 2.1 Assessment Team Documents | |
| 2.2 Documents Reviewed | |
| 2.3 Assessment Activities | |
| 3. Assessment Findings and Conclusions | |
| 3.1 Supportive External Environment? | |
| 3.2 Adequate Resources? | |
| 3.3 Continuing Management Capacity? | |
| 3.4 Continuing Demand? | |
| 4. Sustainability Recommendations and Action Plan | |
| Appendices | |

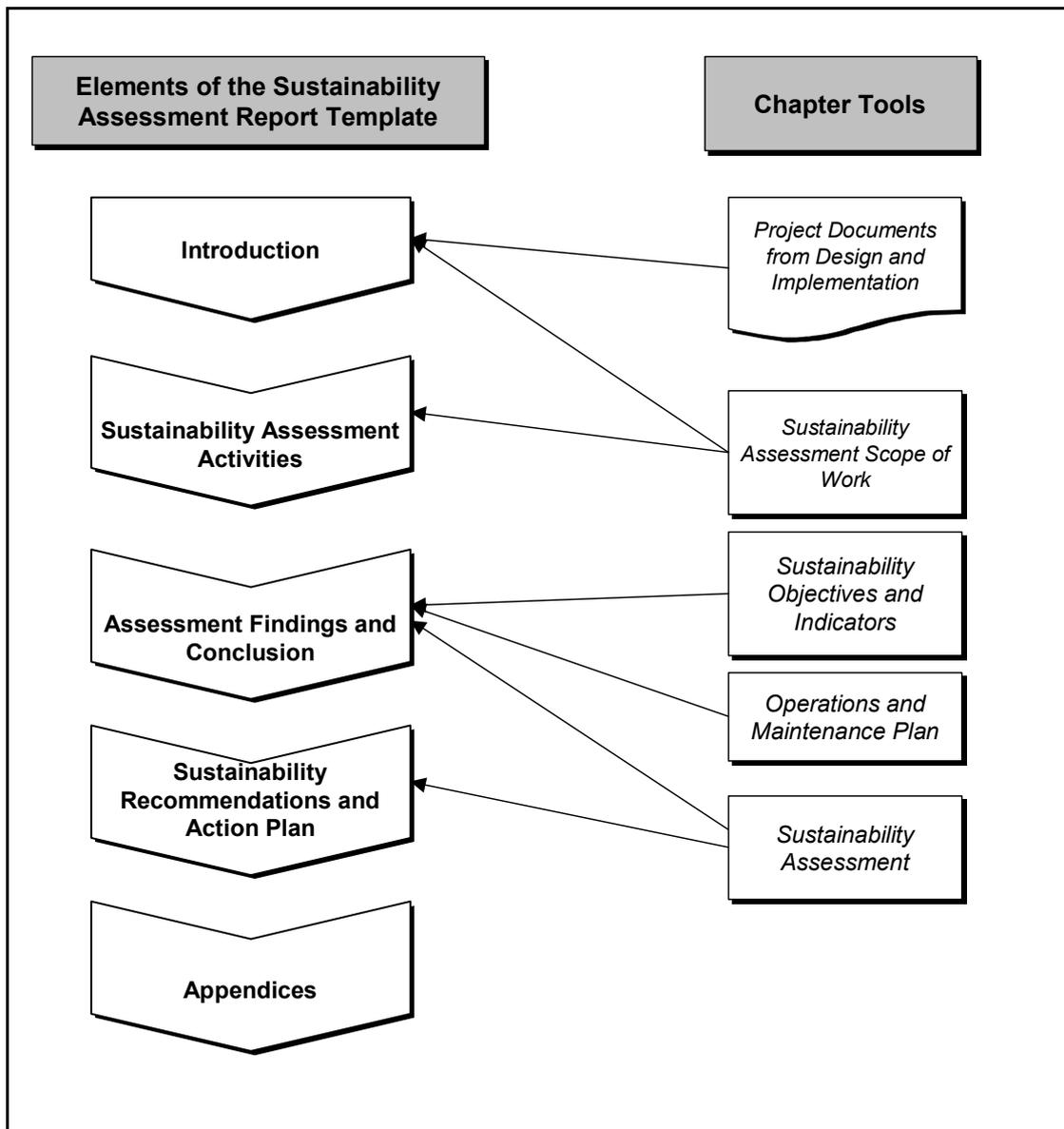
The Sustainability Assessment Report template has four main parts.

1. The *Introduction* consists of four sections. The Purpose section of the sustainability assessment explains why a sustainability assessment is being done. The second section, *Overview of Project*, provides the project setting, objectives and results. The methodology used in performing the assessment is presented in the *Assessment Methodology* section. The *Organization of Assessment Report* section introduces the logic and the structure of the Sustainability Assessment Report.
2. *Assessment Overview* lists the documents reviewed during the assessment. It also provides information on the activities listed in the Scope of Work (SOW) for the assessment.
3. *Assessment Findings and Conclusions* present the results of the analysis in terms of the Sustainability Model Elements.
4. *Recommendations and Action Plan* provides decision-makers with suggestions for better incorporating sustainability considerations into the project.

Tools in Perspective

The following figure provides a quick overview of tools used in the Project Sustainability stage for which the detailed description, illustration, method of use, and an example of their application follow in this chapter. Specific tools used in completing the SAR are listed below in the order recommended for use during preparation of the SAR.

Figure X.4. The Sustainability Assessment Report Template and Related Tools



Each Project Sustainability tool is described in Table X.1.

Table X.1. List of Tools

| Tools | Description |
|---|---|
| Sustainability Assessment Scope of Work | A generic narrative template that can be easily adapted and used to procure resources (internal and external) to complete a sustainability assessment |
| Sustainability Objectives and Indicators | A matrix which contains typical examples of sustainability objectives and corresponding indicators that can be adapted for use in any project |
| Operations and Maintenance Plan | A checklist which contains the basic operations and maintenance elements that need to be planned, organized, directed and controlled in a project setting |
| Sustainability Assessment | A structured approach for identifying key constraints and opportunities for benefit sustainability in the design or implementation phase of a project |

MyCity Project Update: Project Sustainability

Execution of the MyCity Project finished at the end of 2006, thus the Sustainability stage began in 2007. The update of the MyCity scenario is presented below.

In the first quarter of 2007, the arrears increased to 25 percent of the fee liability in MySuburb, which was 10 percent worse than expected. The MyCity Council set up a commission to investigate the cause of this high portion of arrears and suggest measures to solve the problem. A study on the clients of the Water & Sewerage Company showed that at least one unemployed person was residing in 75 percent of the households with arrears. The commission report suggested tax credits for households with unemployed persons consistent with MyCity's social policies. MyCity suggested that the resources for the tax credits could come from the user fee revenues. The user fee revenues were also larger than expected due to high rates of sewer system connection in MySuburb. In addition, the commission reintroduced an idea from the Feasibility Study – of the Water & Sewerage Company entering into a management contract – in order to increase service efficiency and further reduce costs. On the basis of the commission's report, the MyCity Council introduced targeted social allowances and tax credit for households with unemployed persons. The council also asked the Infrastructure Committee to prepare a new feasibility study for a management contract scheme in the Water & Sewerage Company.

During 2007, a Sustainability Assessment was completed, and recommendations acted upon. By 31 December 2007, the PMU completed all of its work and was disbanded. The financial management functions associated with the project loan were delegated to the appropriate departments of the MyCity Mayor's Office. The MyCity Project staff completed a bar chart of the overall flow of project activities from beginning through the sustainability period; and this chart is presented in Figure X.5.

In conclusion, although many unexpected events occurred during the life of the MyCity Project, in the final analysis the project was deemed to be quite successful in terms of being on time, on budget and with beneficial and durable results. Although there were some unexpected delays and cost additions along the way, these variances from the original design were not considered as "out of the normal." The MyCity Mayor concluded that much of the success was due to the effective and flexible project management – with the assistance of the PMToolkit!

Tool Descriptions

Four Project Sustainability tools are presented in this section. The four figures accompanying each tool provide a description of the tool, a format for it, guidance on how to use it, and an example from the MyCity Project. The examples of the tools introduced in this chapter, consistent with the MyCity Project Case Update, are focused on the Sustainability stage of the project cycle, after Project Execution has ended.

Sustainability Assessment Scope of Work

Developing a Project Sustainability Assessment SOW is a routine step for assembling a team to carry out an assessment. The SOW is the primary method that the project manager has to ensure that sustainability priorities are addressed and that a high-quality sustainability assessment is structured and carried out. A well thought-out Project Sustainability Assessment SOW ensures that the right people will be recruited for the specific assessment and that they will clearly understand their tasks and responsibilities. Although the specific content of the scope of work depends on

the type and stage in the project life cycle, the framework for its development is similar at all stages. The four main sections that should be included in a Sustainability Assessment SOW are as follows:

The *Introduction* provides information on the project's background, outlines the approach to achieving long-term sustainability, describes the sustainability assessment's purpose, and reviews sustainability activities to date. Project templates (such as the PAD or PIP) provide information for this section of the scope of work.

The *Sustainability Assessment Objectives* should be included for each level of the project's design – from the goals to very specific activities. Depending on the type and stage of the project, objectives should be reviewed and adapted to the specific needs. A typical sustainability assessment objective might include the evaluation of project progress toward capacity building for durable results after project completion.

The *Assessment Tasks* section examines how the sustainability objectives were incorporated into the original project design and assesses progress towards meeting those objectives. These tasks may include:

Assess commitment to the project's sustainability objectives on the part of stakeholders, beneficiaries, local politicians, and others; and assess the incentives in place (or that need to be initiated) to encourage commitment over the long term.

Examine project links to the local community and the role of the private sector, seeking ways to increase cost effectiveness of the benefit-delivery mechanisms and the market responsiveness of those delivery mechanisms.

Evaluate progress toward financial sustainability of the implementing agency with responsibility during the Sustainability stage and recommendations for improvement.

Evaluate progress made in developing strategic management capacity of the implementing agency's human resources – the objective would be to create a self-sustaining, self-directed institutional vehicle able to deliver a set of benefits which the market values enough to pay for on a continuing basis.

Provide specific recommendations concerning what changes are needed in the policy context to make it more conducive to the benefit delivery process.

Prepare a final report that should include findings and specific recommendations for decision-makers to enhance sustainability.

Special Skills and Level of Effort. Experienced infrastructure project evaluators are knowledgeable of effectiveness assessment techniques. However, they may be less

experienced at looking at strategic management issues and financial sustainability, which are more conventional private sector techniques (Goldsmith 1993). Therefore, both policy/regulatory and management/financial experts should be involved.

The Sustainability Assessment SOW tool is elaborated in the following figures.

Figure X.6. Sustainability Assessment Scope of Work – Description

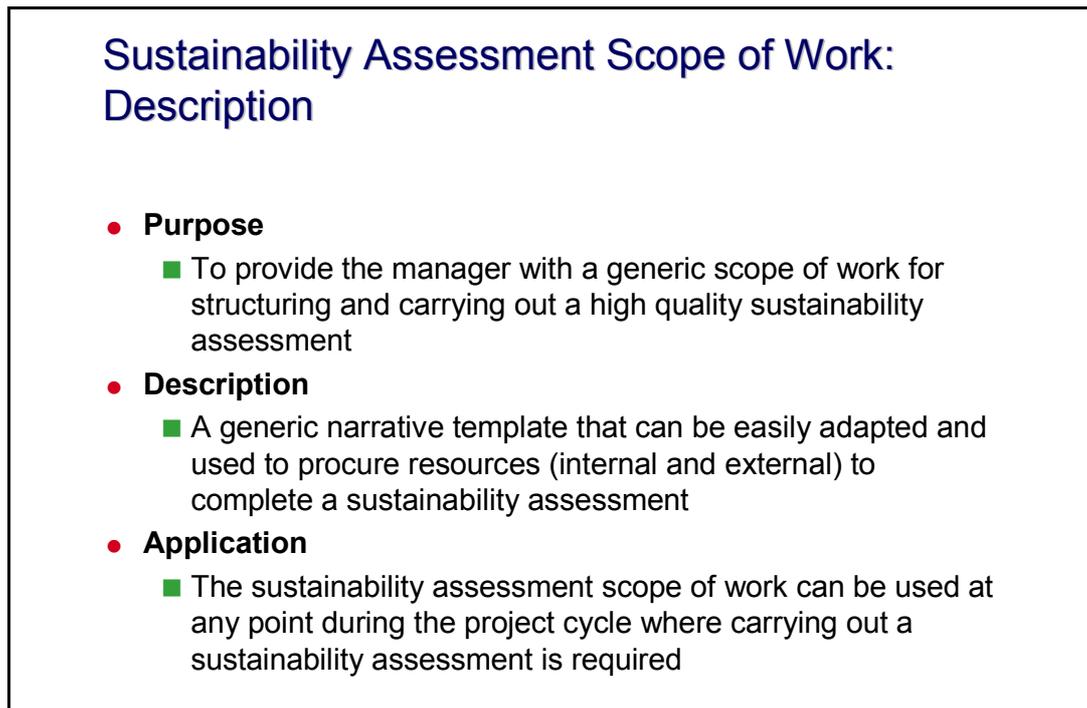


Figure X.7. Sustainability Assessment Scope of Work – Illustration

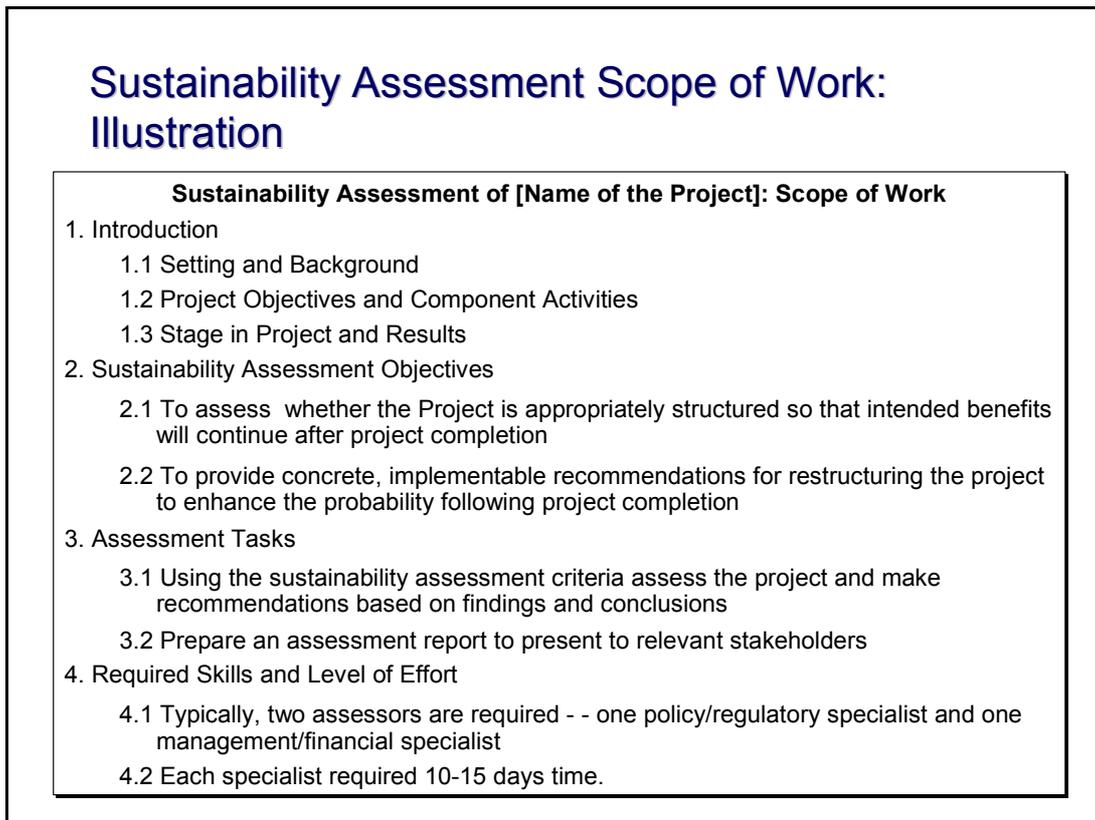


Figure X.8. Sustainability Assessment Scope of Work – How to Use

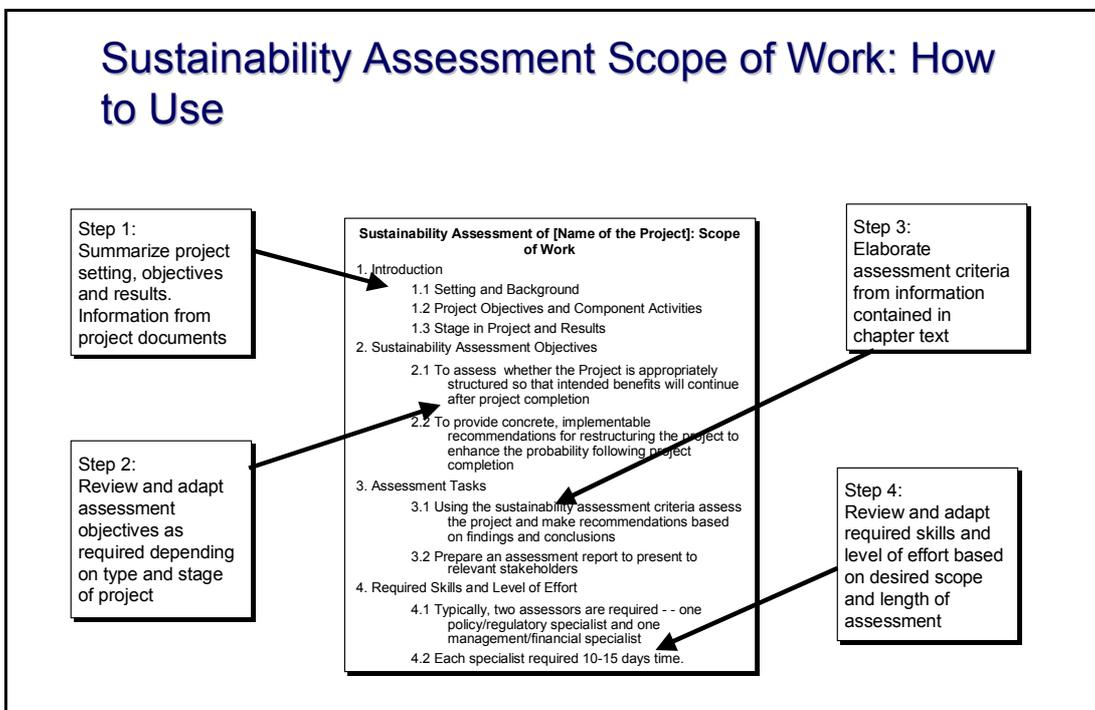


Figure X.9. Sustainability Requirements Analysis – Example

Sustainability Assessment Scope of Work: Example

SCOPE OF WORK -- MyCity Sustainability Assessment

1. Introduction

- MyCity has launched a Project to increase MySuburb household use of a modern wastewater system on a sustainable basis.
- A sustainability assessment is needed.

2. Sustainability Assessment Objectives

- To assess project progress toward capacity to deliver wastewater services on a continuing basis after project Execution.
- To provide specific sustainability recommendations

3. Assessment Tasks

Working in cooperation with the stakeholders the assessment team is required to perform the following tasks:

- Review official and project documents
- Assess the environmental context and changes in the political, social and economic environment
- Etc.

4 Required Skills and Level of Effort

- A minimum of 5 years experience and understanding in the area of benefit sustainability and in financial analysis.
- Estimated level of efforts: 4 weeks

Sustainability Objectives and Indicators

The Sustainability Objectives and Indicators tool is a matrix used for incorporating sustainability considerations into the project concept. The tool comes with typical examples of sustainability objectives and corresponding indicators that can be adapted to any project. In designing projects that aim for sustainability, the Logical Framework (see the description of the Logical Framework tool in Chapter V) summary is modified to include specific measures for sustainability at all levels (activities, outputs, purpose and goals). This tool allows project staff to address the following question: “By the end of the Execution stage are the necessary pre-requisites for sustainability in place?”

The Sustainability Objectives and Indicators tool allows project practitioners to add a “sustainability objective” to the existing project Logical Framework summary. This includes having at least one Beginning of Sustainability Status (BOSS) indicator at the purpose level. The tool also assists the project manager in adding output level

sustainability objectives related to the BOSS objective with at least one for each output-level sustainability objective.

The Sustainability Objectives and Indicators tool is presented in the following figures.

Figure X.10. Sustainability Objectives and Indicators – Description

Sustainability Objectives and Indicators

- **Purpose:**
 - To provide guidance on appropriate types of sustainability objectives and indicators for the Purpose and Output levels of the project logical framework summary
- **Description:**
 - A matrix which contains typical examples of sustainability objectives and corresponding indicators that can be adapted for use in any project
- **Application:**
 - Use in developing sustainability objectives and indicators at any stage of the project cycle

Figure X.11. Sustainability Objectives and Indicators – Illustration

Sustainability Objectives and Indicators: Illustration

| NARRATIVE SUMMARY | INDICATORS |
|---|--|
| <p>PURPOSE:</p> <p>After project is completed, benefits generated by the project continue to be used by intended target groups</p> | <p>BEGINNING OF SUSTAINABILITY STATUS (BOSS):</p> <p>For __ number of years following project, __target groups are using __types and __ amounts of benefits</p> |
| <p>OUTPUTS:</p> <p>At completion of project:</p> <ol style="list-style-type: none"> 1. Regulations more conducive to benefit continuation 2. Financial mechanisms operational 3. Evidence of management performance 4. Benefits responsive to target group needs | <p>OUTPUT INDICATORS:</p> <ol style="list-style-type: none"> 1. __number of regulations adapted by __ date 2. __ number of financial mechanisms operating by __ date. 3. Management team performing well by __date 4. Target groups are satisfied with benefits by __date |

Figure X.12. Sustainability Objectives and Indicators – How to Use

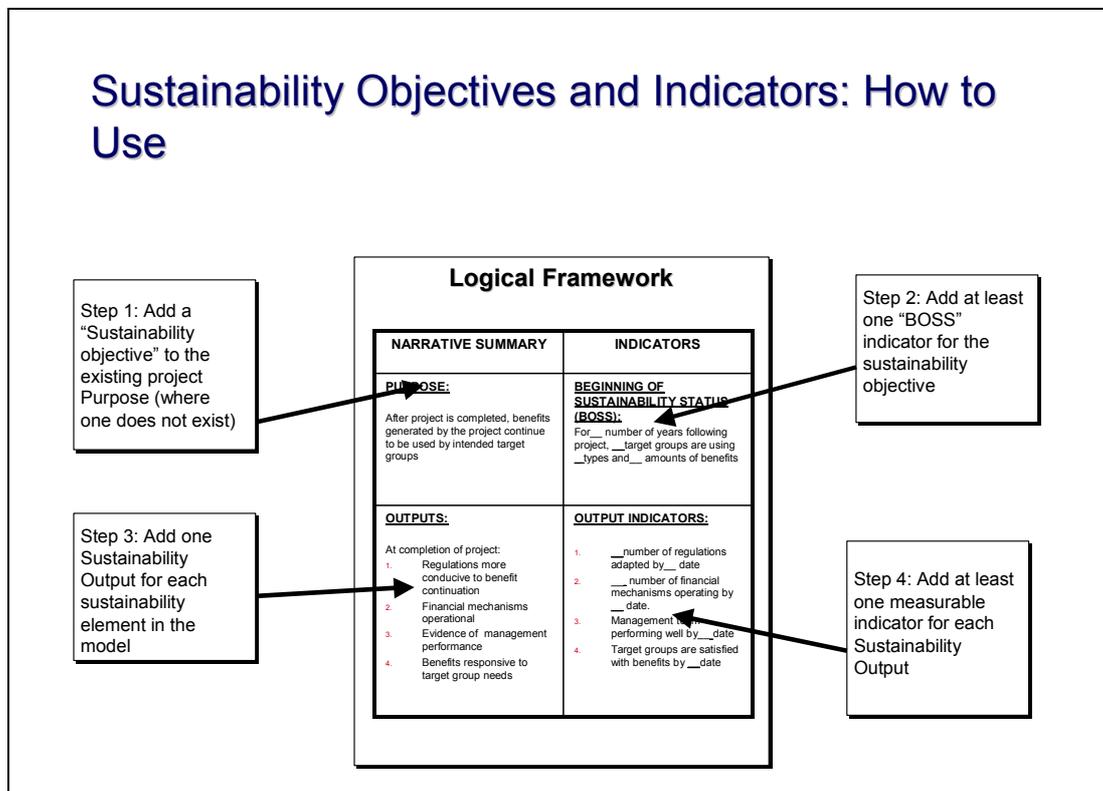


Figure X.13. Sustainability Objectives and Indicators – Example

| Sustainability Objectives and Indicators: Example | |
|---|---|
| Project: <u>MyCity Wastewater</u> | |
| NARRATIVE SUMMARY | INDICATORS |
| <p><u>PURPOSE:</u> 1. To increase MuSuburb household use of modern wastewater system on a sustainable basis in accordance with EurLandia and EU standards.</p> | <p><u>BEGINNING OF SUSTAINABILITY STATUS (BOSS):</u> 1.1. 90% of MySuburb households (10,000) are connected to the new sewerage system. 1.2. 95% of connected households pay bills on time 1.3. Revenues cover 100% of operational and maintenance costs and debt services.</p> |
| <p><u>OUTPUTS:</u> 1. A new tariff structure in place to ensure sustainability 2. Public relations campaign implemented 3. Project management activities completed</p> | <p><u>OUTPUT INDICATORS:</u> 1. A New Regulation adopted by the Council of MyCity by the end of 2005 2. 75% of citizens of MCity support the decision of the City Council on new tariff structure 3.1. 95% of project activities are done according to PIP 3.2. All activities finished according to the time chart 3.3. 75% of participants pass the exam for operating and maintenance of water and wastewater system in MyCity.</p> |

Operations and Maintenance Checklist

The Operations and Maintenance Checklist tool aims to ensure that all project operations and maintenance work is efficiently and effectively managed so that costs can be minimized and the probability for benefit sustainability be increased. The tool targets the main operations and maintenance activities that need to be planned, organized, directed and controlled in the context of infrastructure projects. It also allows checking on various operations and maintenance elements. This tool is applicable during design and implementation planning, operation and maintenance and management of services.

The checklist tool functions like an annual work plan for the project's operations and maintenance work. The tool allows a monthly specification of resource requirements. These resources can then be distributed by task. The tool allows for weekly scheduling of actual work and responses to special requests. Finally, the tool

provides a capability for dealing with reports and updating the operations and maintenance plan.

The Operations and Maintenance Checklist tool is described in the following four figures.

Figure X.14. Operations and Maintenance Checklist – Description

Operations and Maintenance Checklist: Description

- **Purpose:**
 - To ensure that a project's operations and maintenance work is efficiently and effectively managed so as to minimize cost and increase the probability for benefit sustainability
- **Description:**
 - A checklist which contains the basic operations and maintenance elements that need to be planned, organized, directed and controlled in a project setting
- **Application:**
 - Use in both preparing for operations and maintenance and managing services and equipment during sustainability and other phases of the project cycle

Figure X.15. Operations and Maintenance Checklist – Illustration

Operations and Maintenance Checklist: Illustration

| Categories and Checklist Elements | Frequency for Checking Elements |
|---|---------------------------------------|
| 1. Planning 1.1 Work activities 1.2 Levels of effort 1.3 Resources 1.4 Work activity guidelines | Annual Annual Annual Annual |
| 2. Organizing 2.1 Resource requirement 2.2 Workload Distribution | Monthly Monthly |
| 3. Directing 3.1 Work scheduling 3.2 Respond to unprogrammed work requests | Weekly Weekly |
| 4. Controlling 4.1 Progress reporting 4.2 Productivity and cost reports 4.3 Evaluation and updates | Daily/Weekly Monthly Bi-Monthly |

Figure X.16. Operations and Maintenance Checklist – How to Use

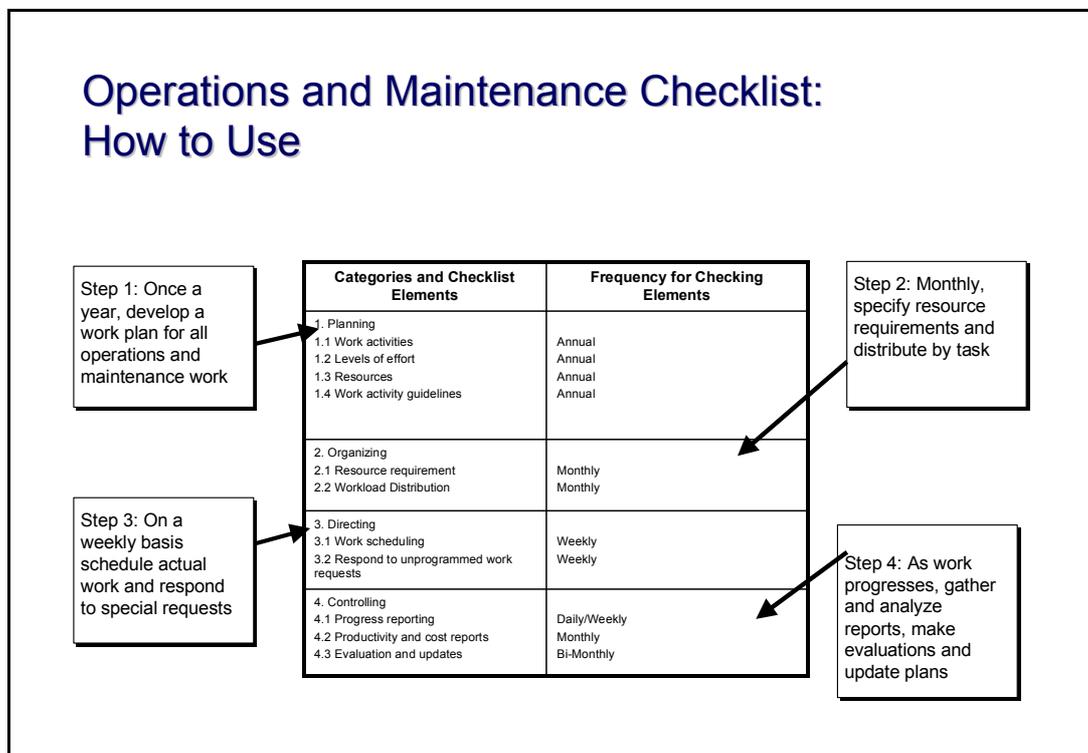


Figure X.17. Operations and Maintenance Checklist – Example

| Categories and Checklist Elements | Frequency of Checking Elements |
|---|---|
| <p>Planning</p> <ul style="list-style-type: none"> •Water & Sewerage Co. O&M Annual Work Activities <ul style="list-style-type: none"> –O&M of the wastewater collector and network –O&M of the WWTP and connecting tunnel •Level of Effort (LOE) <ul style="list-style-type: none"> –O&M of the WW collector and network – 96 person/months –O&M of the WWTP and tunnel – 36 person/months •Resources <ul style="list-style-type: none"> –Human resources (workforce: 2 Engineers, 4 Technicians, 20 Workers) –Financial resources for: Labor, Materials, Equipment – 372,000 \$/annum •Work Activity Guidelines | <ul style="list-style-type: none"> Annual Annual Annual Annual Annual Annual Annual |
| <p>Organizing</p> <ul style="list-style-type: none"> •Water & Sewerage Co. Resource Requirements <ul style="list-style-type: none"> – Human resources – Monthly workforce: 2 Engineers; 4 Technicians; 20 Workers – Financial resources for: Labor, Materials, Equipment – 31,000 \$/month •Workload Distribution by Tasks <ul style="list-style-type: none"> – Monthly check-up and cleaning of wastewater collector and network sections – 8 person/months – O&M of the WWTP components – 1 person month – Monthly solid waste and sludge removal – 1 person month – Monthly tunnel check-up – 1 person month | <ul style="list-style-type: none"> Monthly Monthly Monthly Monthly Monthly Monthly Monthly |
| <p>Directing</p> <ul style="list-style-type: none"> •Weekly Work Schedules <ul style="list-style-type: none"> –Solid waste and sludge removal from WWTP –Solid waste removal from WW collector manholes Nr. x.y.z –Flushing of connecting sewers Nr. (CSx – CSy) –Lubricating of mechanical parts in WWTP –Respond to unprogrammed work requests (i.e: overflow, pump breaks) | <ul style="list-style-type: none"> Weekly Weekly Weekly Weekly Weekly |
| <p>Controlling</p> <ul style="list-style-type: none"> •Progress Reporting <ul style="list-style-type: none"> –Daily work requests and repairs –Daily reports on collector and WWTP O&M •Productivity and Cost Reports <ul style="list-style-type: none"> –O&M Cost reports for the wastewater collector –O&M Cost reports for the WWTP and tunnel •Evaluation and Updates <ul style="list-style-type: none"> –Human resources –Financial resources for: labor, materials, equipment | <ul style="list-style-type: none"> Daily/weekly Daily/weekly Monthly Monthly Bi-monthly Bi-monthly |

Sustainability Assessment

The Sustainability Assessment tool is a structured approach for identifying key constraints and opportunities to benefit sustainability in the Design or Implementation phases of a project. There is a strong rationale for sustainability assessments. They increase the opportunities to ensure benefit flows after the Execution stage is completed. Sustainability assessments provide a methodology for factoring sustainability consideration into plans, implementation actions, and evaluations. The two main preconditions for undertaking a sustainability assessment are recognition of the need to improve benefit sustainability by key stakeholders, and a verbal commitment, backed up by budgeted resources, to act on the recommendations of the Sustainability Assessment Report.

Since the assessment methodology is structured and transparent, it can be readily applied by individual analysts or used in team settings. The assessment methodology is compatible with many other PMToolkit tools, including Stakeholder Analysis, Logical Framework, Feasibility Analysis, and Responsibility Charts.

The typical stages of sustainability assessment are:

- Articulation of interest by relevant stakeholder
- Conduct of a Sustainability Assessment by knowledgeable professionals in cooperation with key stakeholders for a period of several days to several weeks
- Implementation of sustainability recommendations by an appropriate task force with the assistance of external facilitators where appropriate
- Sustainability plan monitoring, evaluation, and redesign by the task force with impact reports to stakeholders.

Sustainability assessments can be conducted at various levels of comprehensiveness, depth, and formality. Though a deep sustainability assessment should be done during design and during the mid-term execution evaluation, periodic assessments during implementation can reveal changes in the project or its strategic context that could require adaptation and modification of sustainability content and activities.

The Sustainability Assessment tool is explained in the following figures.

Figure X.18. Sustainability Assessment – Description

Sustainability Assessment: Description

- **Purpose:**
 - Assess and develop an action plan for benefit sustainability at every stage of the project cycle

- **Description:**
 - A structured approach for identifying key constraints and opportunities for benefit sustainability in the design or implementation stage of a project

- **Application:**
 - Use this tool during project design and implementation to ensure that sustainability considerations are factored into the project

Figure X.19. Sustainability Assessment – Illustration

Sustainability Assessment: Illustration

| Sustainability Assessment Categories | Factors to Consider in Assessment | Recommended Actions for Project |
|---|--|---------------------------------|
| 1. Supportive External Environment for Project Benefit Continuation | 1.1 Policy and Legal Setting 1.2 Nature of Bureaucracy 1.3 Social, Economic, and Political Factors | 1.1. 1.2 1.3 |
| 2. Adequate Resources Following Project Completion | 2.1 Financial and Human 2.2 Appropriate Technology 2.3 Natural Resources | 2.1 2.2 2.3 |
| 3. Continuing Management Capacity to Deliver Services | 3.1 Structure and Processes 3.2 Incentives and Sanctions 3.3 Flexibility for Adaptation to Change | 3.1 3.2. 3.3. |
| 4. Continuing Demand for Project Services | 4.1 Public and Private "Willingness to Pay" 4.2 Effective Marketing | 4.1 4.2. |

Figure X.20. Sustainability Assessment – How to Use

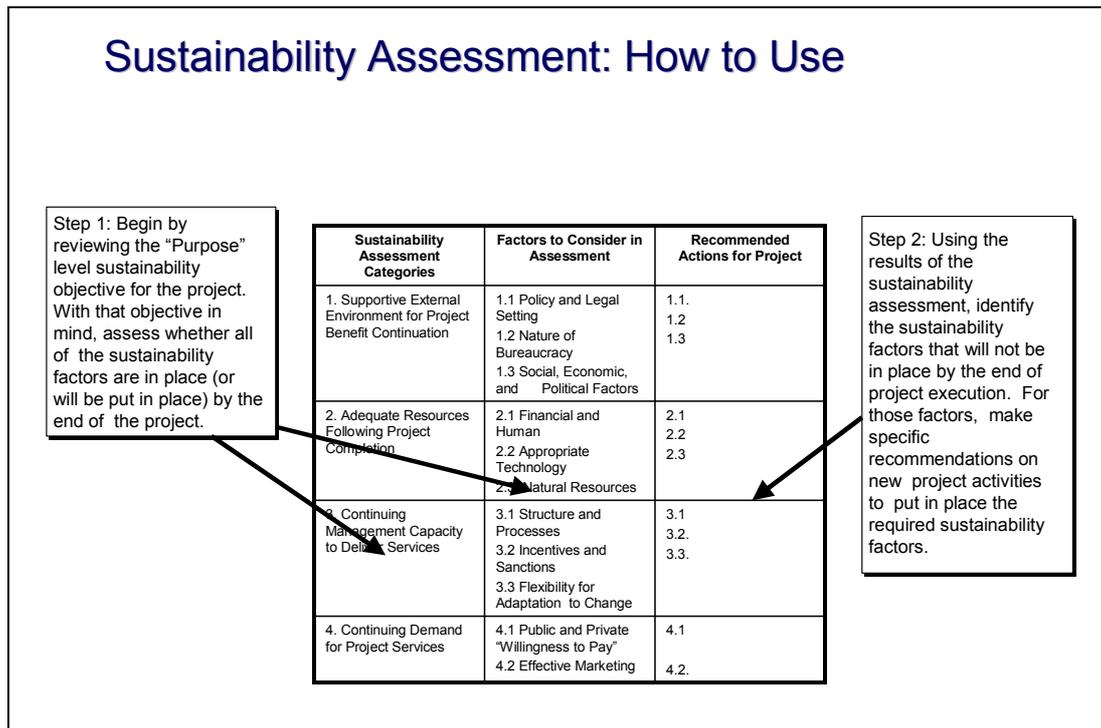


Figure X.21. Sustainability Assessment – Example

Sustainability Assessment: Example

| Sustainability Assessment Categories | Factors to Consider in Assessment | Recommended Actions for Project |
|---|--|--|
| 1. Supportive External Environment for Project Benefit Continuation | 1.1 Policy and Legal Setting | 1.1. The Council of MyCity should adopt a regulation to introduce tax credit and other targeted social allowances for households with unemployed persons |
| 2. Adequate Resources Following Project Completion | 2.1 Financial and Human | 2.1 Introduction of management contract with a private company. The management contract will specify that human resources will be available |
| 3. Continuing Management Capacity to Deliver Services | 3.1. Incentives and Sanctions | 3.1. The Mayor’s office should sign a management contract to improve management and service efficiency |
| 4. Continuing Demand for Project Services | 4.1 Public and Private “Willingness to Pay” 4.2 Effective Marketing | 4.1 Perform regular monitoring of beneficiary willingness to pay 4.2. MyCity should regularly publish reports on the number of users and collection rates |

Conclusion

In summary, to ensure that project benefits are durable and continue beyond the Execution stage of the project, sustainability actions should be taken during the entire project cycle. Factors that have substantial impact on benefit continuation should be considered and reconsidered by project managers using the sustainability tools described in this chapter. The four “management guidelines for project sustainability” presented below can help project managers and key stakeholders to better achieve enduring project results:

Nurture the external environment

- Manage stakeholder expectations by sharing information and having them participate in project decision-making using the Participation Choice tool discussed in Chapter IV.
- Perform periodic Sustainability Assessments using the tool in this chapter.
- Adapt the project (through monitoring and evaluation) to the strategic context to ensure a continuing fit using the tools discussed in Chapter III.

Ensure adequate resources in the long run

- Market the results and value of your project’s services to key stakeholders, including government decision-makers (monthly “benefit” reports, annual workshops and reports, stakeholder visits, etc.).
- Implement the project effectively and efficiently so that resources are not wasted.

Invest in continuous management improvement

- Build capacity for the use of innovative management practices like the tools in the PMToolkit.
- Invest heavily in leadership development and infrastructure project management training.

Deliver increasingly market-responsive services

- Understand the beneficiaries and their changing demands for the project's services.
- Establish a project board or council to solicit feedback from major stakeholders on service quality and responsiveness.

CHAPTER XI: CONCLUSION

The library of texts on the subject of project management grows each year (Bruce and Langdon 2000, Forsberg et al. 2000, Meredith and Mantel 2000, Portny 2001). Most of these publications provide an introduction to the subject, acquainting the reader with various theories and approaches. However, even after mastering the text, the management practitioner is still faced with the problem of translating the newly gained knowledge into something immediately applicable for his or her everyday work. Few practitioners have the time or inclination to devise innovative and creative solutions to the project management problems that confront them daily. The RIP has found – in our infrastructure project work throughout South East Europe – that practitioners are in desperate need of ready access to useful management concepts, templates and practical tools related to the different stages of their project cycle work.

Both leading worldwide project management associations – the Project Management Institute (PMI) and the International Project Management Association (IPMA) – have recognized the need for increased professionalism and standardization. These associations are continually addressing this need through their own efforts; such books as “Body of Knowledge” (PMI) or “Competence Baseline” (IPMA) are widely accepted fundamental reference materials for project managers all over the world. The PMI and IPMA also publish journals and many related materials, including “The PMI Book of Project Management Forms,” that provide numerous templates. Both organizations have active Internet Web sites (PMI: www.pmi.org and IPMA: www.ipma.ch) that provide their members with current information on publications, conferences and related matters, including the books referenced above.

The PMToolkit builds upon these efforts, with a particular emphasis on bolstering the nascent profession of infrastructure project managers in the SEE region. We have attempted to structure the PMToolkit for responsiveness to the everyday needs of project management practitioners. The main characteristic of the PMToolkit is a balanced integration of information on project management concepts, templates, and tools based on the RIP Project Management Framework.

The PMToolkit Framework is grounded in three core concepts as introduced in Chapter I:

1. Flexible management of a project's strategic considerations
2. The centrality of people in project management
3. Integration of project success qualities throughout the project cycle, e.g., ownership, relevance, effectiveness, efficiency, implementability and sustainability

The framework assists the management practitioner by providing two types of tools. The first tools cut across all stages of the project cycle under the chapter headings of Strategic Considerations and People. Many times the powerful influence of a project's strategic context and its people on ultimate project success is not presented as an integral part of the project manager's role. We have attempted to address this shortcoming through the introduction of standard tools that the practitioner can use throughout the project cycle. Second are tools that have specific applicability at one or more stages of the project cycle. Project managers typically find themselves working at different stages of the project cycle – in project identification, implementation planning, project execution and so on – but lacking the tools they need at a particular time in the process. The PMToolkit addresses this shortcoming by linking each tool's applicability to various chapters and stages in the project cycle as summarized in Table II.2 of Chapter II.

The PMToolkit has two other unique features, one dealing with the issue of project sustainability and the other with the MyCity case example. Too often, the issue of sustainability, e.g., the beneficial returns on a project investment, is an afterthought and is only considered as the “PMU lights are being switched off” and everyone is “heading home.” The PMToolkit Framework acknowledges the critical relationship between project sustainability and a project's design and implementation. By focusing the practitioner on project-generated benefits that should continue following project execution, the tools introduced in Chapter X, Project Sustainability, can go a long way in improving the return on a project's investment.

The MyCity Wastewater Infrastructure Project case example used throughout the PMToolkit provides the practitioner with a unique opportunity to better understand how projects evolve and change over time. The case also helps to handle these unanticipated, but fully expected, changes in a “structured yet flexible” manner. The MyCity Project is introduced in Chapter III, Strategic Considerations, and is further elaborated in each of the following chapters. In turn, each PMToolkit tool includes an example drawn from the MyCity Project. This allows the practitioner to witness the development of a project across the entire project cycle, with all of its expectations, problems, and ultimate achievements. Through the application of the various tools in each chapter, we have developed a complete picture of an infrastructure project over time. When the MyCity Project was first introduced in Chapter III, it was only a general concept. Following project preparation, and development of the PAD, a complete project design – laying out the hierarchy of objectives, verifiable indicators, and assumptions – became available as summarized in the Logical Framework. Finally, following project execution in the Project Sustainability stage, a complete picture of MyCity Project activities is available as presented in the bar chart in Table X.5. The bar chart chronicles the actual design and implementation path, and the critical milestones along the way that led to the MyCity Project's successful completion.

Having noted the benefits of the MyCity Project case, the authors also acknowledge its limitations. The MyCity example over-simplifies the complexity of projects and their evolution. While important insights can be gained from the MyCity Project, many management issues and concerns are not addressed. The MyCity case is not a substitute for real-life project experience.

The editors and co-authors would like to make an additional observation about the PMToolkit's final scope. Initially, due to our relationship with RIP, we decided to focus rather narrowly on the infrastructure project needs of management practitioners in countries in transition, particularly in SEE. Transition in the post-socialist era involves a global change in which a multitude of countries are recreating their entire basic political and economic structures. It is a long and arduous process,

with few precedents in history that can be referred to for guidance. The political and socio-economic changes are so fundamental that they impact all levels of society – the state, the local community, and the individual. This transitional world includes the introduction of such forces as political democracy, financial and economic restructuring, and a global competitive marketplace. Despite the fact that many infrastructure problems facing the SEE countries are very similar, each country is following its own way.

One of the major problems cross-cutting the entire SEE region is a lack of experience and knowledge of infrastructure project management under the new global market forces (Radujkovic 2000). The PMToolkit directly addresses this widely recognized problem. As we drafted the PMToolkit to address this problem, and reviewed it with others, it became obvious that the “applicability and reach” of the concepts, templates and tools presented here go much beyond infrastructure projects, and also beyond the management needs of transition country practitioners.

In conclusion, the PMToolkit itself represents a successful “project management” collaboration between a team of dispersed authors and editors across many countries in South East Europe. All of the involved stakeholders have drawn upon their many years of working experience to prepare this document. The team of writers and editors has attempted to introduce a balanced selection of project management concepts, templates and tools that have demonstrated their applicability to infrastructure projects in a transitional country context. Practitioners from around the world should find the PMToolkit useful for becoming more professional in their everyday project work.

APPENDIX 1: GLOSSARY OF TERMS

The glossary defines the key project management terms used in the PMToolkit.

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
|------------------------------|--|
| <i>Allocative efficiency</i> | The allocation of total resources among competing uses to produce the goods and services that the public desires (i.e., through markets, prices, and administrative interventions). |
| <i>Alternatives tree</i> | A tool targeted at providing alternative solutions to a “core problem” identified in the problem tree by means of a hierarchical series of “cause and effect” hypotheses about alternative project solutions. Every project identification process should begin with an alternatives tree. |
| <i>Analysis</i> | A method of presenting the choice between competing uses of resources in a convenient and comprehensible fashion, with costs and benefits being defined and valued, so that investment decision making can be based on better information and be more transparent. |
| <i>Appraisal</i> | Analysis of a proposed project to determine its merit and acceptability in accordance with established criteria. |
| <i>Assumptions</i> | External factors which affect the progress or success of the project, but over which project managers have no control. |
| <i>Bankable project</i> | A project is bankable when it meets the criteria for financing set by a bank. The most important criteria include: ownership, relevants, efficacy, efficiency, implementability and sustainability. |
| <i>Beneficiaries</i> | Individuals and groups expected to directly or indirectly benefit from a development project, program or policy. |
| <i>Benefit:</i> | The improvement in condition brought about by an increase in value and the personal satisfaction occasioned by a gain in utility. |
| <i>Contractor</i> | An entity contracted to assist with project design (e.g., a design institute) and/or implementation (e.g., a construction firm). |
| <i>Costs</i> | In its purest sense, costs are the value of all things that are used in producing a good or service. In a program or project context, costs are defined relative to their opportunity cost. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Cost Benefit Analysis (CBA)</i> | A procedure for evaluating the desirability of a project by weighting benefits against costs. CBA usually implies the use of accounting prices. Results may be expressed in many ways, including internal rate of return, net present value and payback period. |
| <i>Cost-Effectiveness Analysis (CEA)</i> | Cost-effectiveness analysis is used to choose between variants of a project or between alternative projects whose purpose and results are either identical or comparable. This tool takes into account only the costs and consists in a comparison of the total cost of each alternative. |
| <i>Cost estimation</i> | Estimation of the general/initial costs of the project (costs with construction works, materials, land utilities, permits and licenses, costs for preparing the pre-feasibility study, preparing the technical documentation, for engineering and any other costs required for preparing and implementing the project). |
| <i>Development</i> | A process whereby nations and peoples are progressively better at meeting present needs (having more) while improving their capacities to meet future needs (being more). |
| <i>Donor agency</i> | Organization or agency that provides grant financing for projects. |
| <i>Economic life of a project</i> | The overall project life expectancy in physical and technical terms -- extending beyond the project execution stage -- taking into account considerations of likely technological evolution, sectoral development, replacement costs and economies of scale. |
| <i>Effectiveness</i> | The deployment of available resources in such a way that an objective is achieved in an observable and measurable manner. |
| <i>Environmental assessment</i> | A formal analysis covering: (1) existing environmental baseline conditions; (2) potential environmental impacts including opportunities for environmental enhancement; (3) systematic environmental comparisons of alternative investments, sites, technologies and designs; (4) preventive, mitigatory and compensatory measures, in the form of an action plan; (5) environmental management and training; and (6) monitoring and reporting. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Feasibility Analysis</i> | Guideline or checklist that assists the project manager in ensuring that all critical issues are covered in the six feasibility dimensions (Economic, Financial, Technical, Institutional, Environmental, and Social). |
| <i>Feasibility Study</i> | A Feasibility Study is conducted during the Project Preparation stage. It verifies whether the proposed project is well founded and is likely to meet the needs of its intended beneficiaries. The study should design the project in full operational detail. All six types of criteria should be covered: technical, financial, economical, institutional, and environmental and the stakeholders' interests. |
| <i>Financial management</i> | The effective and efficient generation and use of financial resources to accomplish desired objectives. |
| <i>Financially sustainable</i> | The ability of an institution to obtain more revenues than it expends over time so that it can continue to generate benefits. |
| <i>Fundable Project</i> | A project is fundable when it meets the criteria or financing set by the entity(ies) providing the funds for its design and/or implementation. One of the most important criteria is that the project provides the minimum return on investment specified by the financing entity. |
| <i>Final Implementation Report (FIR)</i> | The FIR is a summary template of project implementation, bringing together in one place all relevant information about major activities, important changes, and key problems that may have arisen during project execution. |
| <i>Goal</i> | In the Logical Framework Approach, a goal is the higher-level objective at which a "project" is aimed. It is frequently the central focus of a "program" and usually describes a desired increase in economic, social, political, or natural resources benefits for a country, sector, or beneficiary population. |
| <i>Hypothesis</i> | A statement of a predictive "if-then" or "cause-effect" relationships between two variables where some degree of uncertainty or risk is involved. |
| <i>Identification</i> | The first stage of the project cycle concerned with selecting projects that fit into and support a coherent development strategy, meet sectoral objectives, and are likely to be found feasible. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Implementation</i> | The phase of the project cycle where the legal agreements about physical works and institution building are executed by the borrower with whatever assistance has been agreed upon in such forms as international and domestic contracting, technical assistance and training. |
| <i>Indicator</i> | Conditions that are so strictly associated with certain other conditions that presence of, or variation in, the former indicates presence of, or variation in, the latter. Indicators demonstrate results. |
| <i>Inception Report (IR)</i> | Inception Report is a template that contains all necessary details for aligning project execution with previously produced design documentation that carried the project to this point. Through the IR template, the project team confirms a detailed and mutually agreed strategy for project execution. |
| <i>Inputs</i> | The activities to be undertaken and resources consumed in order to produce outputs. |
| <i>Institution</i> | Any set of established rules and norms of behavior. In projects, an institution is interpreted in its broadest sense to include not only the borrower entity including its organization, management, staffing, policies and procedures, but also the whole array of government policies and the regulatory framework that conditions the environment in which the project entity operates. |
| <i>Logical Framework Approach (LF)</i> | A strategic management approach to project design and implementation which encourages teamwork among key stakeholders for maximizing effectiveness and benefit sustainability by: (1) fostering clearly stated objectives and strategies; (2) clarifying what various project actors must do and why; and (3) stressing the need for flexibility and adaptive learning throughout the project cycle. The Logical Framework Approach is based on a simple 4 by 4 matrix which summarizes the hierarchy of project objectives, indicators for measuring success, means of verification for measuring project progress, and external assumptions that represent the uncertainty and risk associated with a project. |
| <i>Management</i> | The process by which available resources are productively mobilized and used to achieve effectiveness and benefit sustainability objectives under conditions of uncertainty or risk and partial control. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Monitoring</i> | Watching the implementation of activities in order to ensure that they occur as planned through control and influence mechanisms. |
| <i>Milestone</i> | A significant event in the project, usually completion of a major deliverable. |
| <i>Negotiation</i> | The process of mutual discussion and satisfactory agreement related to a problem or concern, or future arrangements. |
| <i>Objectives</i> | A specific statement of intent expressing a desired end from a course of action such as a project, program or policy. Objectives can be arranged in a hierarchical series of linked hypotheses in the form of an "objective tree". |
| <i>Objective tree</i> | A diagrammatic representation of the proposed project interventions planned logically following a problem analysis, showing proposed means, resources and ends. |
| <i>Outputs</i> | In the Logical Framework matrix, the specific objectives or deliverables that a manager is responsible for when given authority over a set of resources during implementation (inputs). |
| <i>People Tools</i> | Management tools, which provide useful skills for managing interactions with, project people while taking into account relevant contextual factors. |
| <i>Practitioners</i> | Individuals involved and interested in the different stages of the project cycle: project managers, government officials, engineers, staff from procurement and contracting departments, management consultants, members of financial institutions, etc. |
| <i>Pre-feasibility Study</i> | The initial assessment of a project alternative's overall soundness. The outcome of a pre-feasibility study should be a sound justification of the project alternative to be further elaborated in the feasibility study. |
| <i>Preparation</i> | The second stage of the project cycle concerned with clarifying project objectives and covering the full range of technical, institutional, economic, financial, social and environmental conditions necessary for project success, including an implementation plan. A critical element of preparation is identifying and comparing technical and institutional alternatives for achieving the project's objectives. The product of the preparation stage is a Project Appraisal Document (PAD). |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Problem Tree</i> | An analysis technique that graphically displays key problems and their causes in a hierarchical manner using cause and effect logic. |
| <i>Procurement</i> | The process of determining and documenting the deliverable specifications, inviting tenders to provide goods and services to construct or maintain infrastructure, evaluating received tenders, and awarding, negotiating and signing a contract. |
| <i>Program</i> | An identifiable set of projects and/or operations initiated and guided by an official organization aimed at the accomplishment of short and long term objectives. |
| <i>Project</i> | An interrelated set of activities established to achieve a concrete purpose within specific time and cost constraints under conditions of uncertainty or risk, and partial control. |
| <i>Project Appraisal Document (PAD)</i> | The PAD provides a comprehensive project review and lays the foundation for project implementation planning, for timely start-up and execution, and for results evaluation. The PAD addresses all major dimensions of project feasibility - technical, economical, financial, institutional, social, and environmental aspects. |
| <i>Project Cycle</i> | The stages that each project passes through, with some variations, including: identification, preparation, implementation planning, start-up, execution and sustainability. Each stage leads to the next, and the last stages, in turn, produces new project approaches and ideas that lead to the identification of new projects, making the cycle self-renewing. |
| <i>Project Design</i> | A comprehensive statement of what the actual project will look like when completed, including plans for how the project will be implemented. |
| <i>Project Execution</i> | The second stage in the implementation phase of the Project Cycle. Project Execution is the process of transforming development strategies and project designs into desired and sustained development results. |
| <i>Project Flyer</i> | One page summary description of the project including information on project setting, sponsors, objectives, component activities and organization. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Project Implementation Plan (PIP)</i> | The PIP is a template for implementation planning. It contains detailed information on the Project Scope, Description and Financing Plan, proposed Implementation Arrangements, the Implementation Plan, the Monitoring and Evaluation Plan, and a Related ToR. |
| <i>Project Management (PM)</i> | The application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. |
| <i>Project Management Framework</i> | The organizing schema for the PMToolkit, which includes three elements: Strategic Considerations, People and the Project Cycle. |
| <i>Project Phase</i> | A collection of logically related project activities, usually culminating in the completion of a major deliverable. The two major phases of the Project Cycle are Design and Implementation. |
| <i>Project Proposal Document (PPD)</i> | The PPD template contains all necessary elements for a “fundable” project, i.e. a project that a bank or other financing entity would agree to consider for investment financing following more detailed Feasibility Analysis and Appraisal. The version of a PPD presented in the PMToolkit was developed by the RIP team based upon extensive review of the various project identification proposal requirements of the IFIs and other entities actively funding infrastructure projects in South East Europe. |
| <i>Public-Private Partnership (PPP)</i> | Contracts between a private sector entity and the government that call for the private partner to deliver a desired service and assume the associated risks. The major PPP contractual arrangements are: Service contract, Management contract, Lease, Build-Operate-Transfer (BOT) and Concession. |
| <i>Purpose</i> | The primary objective for undertaking a project with the following characteristics: (1) key project stakeholders share a commitment to the accomplishment of this objective and (2) the objective is expressed in terms of implementation period effectiveness and economic life of project benefit sustainability. |
| <i>Reporting</i> | Telling someone about achievements, problems or prospects. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
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| <i>Request for Proposal (RFP)</i> | A document produced by an organization seeking individuals or other organizations to perform a specified Scope of Work. RFPs typically involve the responding party providing a technical response to the issues raised in the RFP, as well as the contract type to be used and the costs for performing the work. |
| <i>Risk</i> | A situation where the likely occurrence of an objective can be defined with some estimate of probability. |
| <i>Sustainability Assessment Report (SAR)</i> | The Sustainability Assessment Report (SAR) is a template used to assess and report on a project's sustainability status at any point in the project cycle. This template incorporates content from each of the four interrelated sustainability elements: project's strategic context, adequate resources, continuing management capacity and continuing demand for project services. |
| <i>Scope of Work (SOW)</i> | See Terms of Reference (ToR) |
| <i>Stakeholders</i> | Influential persons or entities with a positive or negative interest (or "stake") in a project, program or policy. |
| <i>Stakeholder Analysis</i> | An analysis technique that combines assessing stakeholder interest with identifying strategies for increasing ownership and support. |
| <i>Strategy</i> | A consistent pattern of decisions related to the achievement of objectives. |
| <i>Strategic Considerations</i> | All information coming from the strategic context of a project that needs to be taken into account during design and implementation. |
| <i>Sustainability</i> | The strategically and financially managed process whereby development investments produce valued outputs that are sufficiently in demand so that enough resources are supplied to continue production for a planned period of time. |
| <i>SWOT Analysis</i> | Analysis of an organization's Strengths, Weaknesses, Opportunities and Threats related to a project. |
| <i>Team</i> | A small number of people with complementary skills who are committed to a common objective and a strategy for which they hold themselves mutually accountable. |

| Activities | The specific actions associated with a project or program that require resources and time to carry out. |
|---------------------------------|---|
| <i>Templates</i> | The PMToolkit templates are generic outlines of a project document intended to provide project decision-makers with the necessary and sufficient information to approve moving from one stage of the project cycle to the next. |
| <i>Terms of Reference (TOR)</i> | Defines the tasks required from the contractor and indicate project background and objectives, plans activities, expected inputs, budget, timetables and job descriptions. |
| <i>Uncertainty</i> | As used in economic analysis and management refers to a situation where there is no clear idea about the order of things. Under conditions of uncertainty, it is not possible to estimate probabilities and establish risks. |
| <i>Value</i> | The amount one person is willing to give up in order to have a good or service. |

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