

PROJECT MANAGEMENT

for

SUSTAINABLE DEVELOPMENT

Principles, Frameworks,
and Philippine Applications

Author

RINOVIC CALICDAN REPOLLO

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Foreword

Projects are the instruments through which development intentions become tangible realities. A national policy, a university program, a community aspiration, or a local government commitment remains an idea until a project gives it a schedule, budget, structure, and accountability. Yet a difficult truth has become impossible to ignore across the public and development sectors. Many projects are delivered on time and within budget, formally accepted and closed, yet judged failures within a few years because the value they promised did not endure. Facilities fall into disrepair, systems are abandoned, benefits do not reach the intended communities, and the environmental or social costs quietly outweigh the gains. This book confronts that truth directly and argues that the discipline of project management must be reconciled with the ethic of sustainability.

The reconciliation is overdue. For decades, the literature has tended to treat these two fields as separate conversations. Project management texts have refined the mechanics of scope, time, and cost while treating sustainability as an optional environmental gesture appended near the end. Sustainability writing, in turn, has articulated compelling visions of intergenerational responsibility while paying limited attention to the unglamorous delivery disciplines that determine whether those visions survive contact with procurement rules, staffing constraints, and political transitions. The present work refuses that separation. It integrates recognized project management standards with sustainability principles and insists that the integration be operational rather than rhetorical.

What distinguishes this volume further is its deliberate grounding in the Philippine setting. The author does not romanticize that setting. The reader will find candid discussion of procurement delays, thin institutional capacity, maintenance failures, contested stakeholder interests, the discontinuities that accompany changes in political leadership, and the exposure of communities to typhoons, flooding, and other hazards. The relational values that shape Filipino organizational life are treated with the same balance, presented both as genuine sources of cooperation and as potential sources of favoritism, indirect communication, and weakened accountability. Scholarship that takes local realities seriously in this way is far more useful to practitioners than idealized models imported without adaptation.

It is a pleasure to commend this book to graduate and undergraduate students, to faculty and researchers, to public officials and local development planners, to project managers in government, education, business, and civil society, and to the many practitioners who carry the daily burden of making projects work and last. Read critically, applied thoughtfully, and adapted to context, the ideas assembled here can help ensure that projects deliver outcomes that are not only completed but also useful, responsible, equitable, resilient, and enduring.

Atty. Liwawa Siapno, MDM- PM, PhD

Dr. Irene De Vera

Preface

This book began as a response to a recurring frustration. Having taught project management alongside sustainable development and observed and supported projects in universities, local governments, and communities, I came to see how often competent, well-intentioned teams delivered projects that satisfied every conventional measure of success yet left little lasting value behind. The gap was not one of effort or sincerity. It was a gap in how success itself was defined and in how the tools of the trade were used. A project judged solely by scope, time, and cost can be declared complete on the very day its long decline begins. That observation is the seed from which this book grew.

The gap this book addresses is conceptual before it is technical. Most available materials ask project managers to deliver outputs efficiently, while also asking them to care about the environment and society. Few show, in operational detail, how sustainability considerations should shape decisions at each stage of a project, from the moment a need is identified to the years after formal closure when benefits are supposed to be realized. This book attempts to close that gap by treating sustainability not as an add-on but as an integrated management concern that spans environmental, social, economic, institutional, ethical, and governance dimensions.

The relationship between project management and sustainability, properly understood, is mutually corrective. Project management brings to sustainability the disciplines it often lacks: clear objectives, defined scope, credible schedules and budgets, risk analysis, stakeholder management, and rigorous monitoring and evaluation. Sustainability brings to project management the longer horizon and wider conscience it often lacks: attention to whole life-cycle costs and impacts, to the people who bear externalities, to the institutions that must maintain outcomes, and to the fairness of how benefits and burdens are distributed. Neither field is complete without the other.

The Philippine relevance of this integration is immediate and practical. The country pursues ambitious development commitments through state universities and colleges, national government agencies, local government units, cooperatives, nongovernment organizations, enterprises, and community groups, and it does so under real constraints of funding, capacity, and continuity, and under the recurring pressure of climate and disaster risk. Sustainable project management is not a luxury in this environment. It is a practical necessity to ensure that scarce public and community resources produce outcomes that endure beyond a single budget cycle or political term. Throughout the book, Philippine laws, policies, agencies, and cases are integrated into the discussion rather than isolated in a single chapter.

The intended audience is deliberately broad. Graduate and undergraduate students will find a structured, rigorous, and readable text. Faculty and researchers will find a synthesis of the literature and standards, along with an original framework open to critique and testing. Practitioners in government, education, business, and civil society, as well as planners, consultants, evaluators, and policymakers, will find tools and templates they can adapt to their own settings. The book assumes no single disciplinary background and defines technical terms before applying them.

The book's distinct scholarly contribution is the Sustainable Project Management Integration Framework introduced in Chapter 3, applied across Chapters 4-14, and consolidated in Chapter 15. I present it honestly as a proposed, author-developed model intended for scholarly discussion and practical use. It has not yet undergone formal empirical validation, and I note this wherever it appears. I would welcome the work of others who wish to test and improve it.

The book is organized into four parts. Part One establishes the foundations. Part Two turns to planning and design. Part Three addresses leadership and implementation. Part Four concentrates on monitoring, impact, and the Philippine application. A final commitment underlies every chapter: sources are verified, claims are supported, references are not fabricated, and matters that cannot yet be confirmed are clearly marked so readers can judge the evidence for themselves.

Rinovic Calicdan Repollo

How to Use This Book

This book is designed to be read as a connected argument and consulted selectively as a working reference. Every chapter follows a consistent internal structure so that readers always know where to find what they need.

The recurring structure of each chapter

Each chapter opens with a chapter overview and a set of learning outcomes, followed by key terms defined before they are applied. The substance then unfolds through an introduction, conceptual and theoretical foundations, and the major scholarly discussions that anchor the topic in the wider literature. Relevant standards, policies, and frameworks are presented next, followed by the Philippine context and applications, a detailed Philippine case study, and an international comparative example. Each chapter also contains at least one original table, model, or diagram, together with practical tools or templates that can be adapted for real projects.

Toward the end, each chapter turns critical. A section on ethical, social, environmental, and governance considerations is followed by a frank discussion of critical issues, tensions, and limitations. A chapter synthesis draws the threads together, and the chapter closes with critical reflection questions, an application activity with stated purpose and assessment criteria, and a list of references.

How can different readers navigate the book?

Students may read the chapters in sequence, using the learning outcomes to guide study and the activities to consolidate understanding. Faculty may assign chapters as modules and use the tables, cases, and templates as teaching aids. Practitioners and planners may enter the book at the chapter most relevant to their immediate task and follow cross-references to related material. Policymakers and evaluators may focus on the framework, the standards, policy discussions, and the critical sections.

The framework as a connecting thread, and a note on verification

The Sustainable Project Management Integration Framework runs through the entire book, introduced in Chapter 3, applied in the chapters that follow, and consolidated in Chapter 15. Two conventions support the book's commitment to research integrity. Wherever a factual claim or bibliographic detail could not be fully confirmed, it is marked Verification Required. Cases are labeled honestly: a case reconstructed from public information is identified as such, and an example built to illustrate a concept is marked as an Illustrative Case.

Acknowledgment

This book was written within a community of institutions and colleagues, and it owes much to them. I am grateful to Pangasinan State University, and in particular to the Open University Systems, for the institutional environment, the teaching opportunities, and the support that made this work possible.

The book grew out of the graduate course MDMN 205, Project Management and Sustainable Development. I acknowledge with appreciation Dr. Irene A. De Vera, with whom the foundational course material for that subject was developed, and whose collaboration helped shape the initial understanding from which this expanded scholarly treatment departs. This book is a substantially new and independent work, but its origins in shared teaching are gratefully recognized.

I thank the colleagues and co-teachers whose conversations sharpened the ideas presented here, the graduate and undergraduate students whose questions and projects tested those ideas against reality, and the practitioners in government, education, cooperatives, and community organizations whose experience grounded the analysis. I am indebted to the reviewers who will conduct a formal external peer review of this manuscript.

Finally, I thank my family for their patience and encouragement, which sustained the writing. Any remaining errors are my responsibility, and I invite readers to bring them to my attention so that future editions may be improved.

R.C.R.

About the Author



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P A R T I
**FOUNDATIONS OF PROJECT MANAGEMENT
AND SUSTAINABILITY**

Chapter 1 Project Management in a Changing World

Chapter 2 Sustainable Development: Concepts, Dimensions, and Global Commitments

Chapter 3 Integrating Sustainability into Project Management

Chapter 4 Project Selection, Strategic Alignment, and the Sustainable Development Goals

CHAPTER 1

Project Management in a Changing World

CHAPTER OVERVIEW

This chapter examines the nature, evolution, and contemporary role of project management. It distinguishes projects from programs, portfolios, and operations; traces the movement from predictive delivery to iterative, agile, hybrid, adaptive, and sustainable approaches; and critically analyzes the traditional triple constraint of scope, time, and cost. It argues that on-time and on-budget delivery is a necessary but insufficient measure of success, and it reconceives project success to include quality, benefits realization, stakeholder satisfaction, institutional value, environmental responsibility, social legitimacy, ethical compliance, resilience, and long-term sustainability. A Philippine transport case and a landmark international case illustrate why an efficiently delivered project can still fail, and why a project that overruns its budget and schedule can still endure.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Define a project and distinguish it from programs, portfolios, and routine operations.
2. Trace the historical evolution of project management and explain the rise of predictive, iterative, incremental, agile, hybrid, adaptive, and sustainable approaches.
3. Critically analyze the triple constraint and explain its limitations as a definition of success.
4. Articulate an expanded, multidimensional model of project success that incorporates benefits, stakeholders, ethics, resilience, and sustainability.
5. Explain the roles of project governance, the sponsor, and the project manager, and the influence of digital transformation on contemporary practice.
6. Analyze real Philippine and international cases to explain why an on-time and on-budget project may still fail and why a delayed and over-budget project may still succeed.

KEY TERMS

Project: a temporary endeavor undertaken to create a unique product, service, or result, with a defined beginning and end.

Program: a group of related projects and activities managed in a coordinated way to obtain benefits not available from managing them individually.

Portfolio: a collection of projects, programs, and operations managed as a group to achieve strategic objectives.

Triple constraint: The interdependent limits of scope, time, and cost, often depicted as the iron triangle, within which a project is traditionally managed.

Project governance: The framework of authority, accountability, and decision rights through which a project is directed and controlled.

Benefits realization: the process of ensuring that the intended outcomes and long-term value of a project are actually achieved and sustained after delivery.

Sustainable project management: The management of project-organized change with consideration of the economic, social, and environmental impacts of the project, its result, and its effect, for both present and future generations.

1.1 Introduction

Projects have become the principal vehicle for organizations to pursue change. Governments deliver public services, universities improve their programs, enterprises enter new markets, and communities respond to shared needs by organizing temporary, goal-directed efforts that are recognizably projects. As the pace of technological, economic, and environmental change accelerates, the share of organizational work performed through projects rather than through stable routine operations continues to grow, a phenomenon sometimes described as the projectification of work and society. Understanding project management is therefore no longer a specialized concern of engineers and contractors alone; it is a core competency for anyone who must convert intention into result.

This growth has been accompanied by a quiet crisis of definition. For much of the twentieth century, a project was judged successful if it delivered its agreed scope, on the agreed schedule, and within the agreed budget. This formulation, the triple constraint, remains useful and will be examined carefully in this chapter. Yet a purely constraint-based definition has an uncomfortable implication: a project can satisfy every one of these measures on its closing day and still fail to produce lasting value. Conversely, a project can breach all three constraints and nonetheless become a celebrated and enduring success. Both possibilities are illustrated later in this chapter through verified cases.

The chapter proceeds by first clarifying what a project is and how it differs from related forms of organized work. It then traces the evolution of project management from early predictive methods to the iterative, agile, hybrid, adaptive, and sustainable approaches that characterize contemporary practice. It examines the standards and frameworks that codify professional practice, situates the discussion in the Philippine development context, and presents a detailed Philippine case and an international comparative case. Finally, it develops an expanded model of project success and considers the ethical, governance, and sustainability dimensions that this book treats as integral rather than optional.

The central argument of the chapter, and in an important sense of the whole book, is stated plainly at the outset. Efficient delivery is necessary but not sufficient. A project that is completed as specified but that cannot be maintained, that is abandoned by its users, that damages its environment, or that entrenches inequity has not succeeded in any meaningful sense. The task of the modern project manager is to deliver outputs and, at the same time, to secure the outcomes, benefits, and long-term sustainability that justify the project in the first place.

1.2 Conceptual and Theoretical Foundations

A project is a temporary endeavor undertaken to create a unique product, service, or result. Two features distinguish it from ordinary work. It is temporary, meaning it has a definite beginning and end, reached when its objectives are achieved, or it is terminated. It is unique, meaning that its deliverable differs in some material way from what has been produced before. These two characteristics, temporality and uniqueness, together separate projects from operations, which are ongoing, repetitive activities that sustain an organization, such as running a registrar's office, operating a water utility, or maintaining a road network.

Projects, programs, and portfolios form a hierarchy of increasing scope. A program is a set of related projects and supporting activities coordinated to obtain benefits that would not be available if the projects were managed separately; a university-wide digital transformation, for instance, might comprise projects for enrollment, finance, and learning management. A portfolio is a broader collection of projects, programs, and operations managed together to advance strategic objectives and to allocate scarce resources across competing priorities. The distinction matters because sustainability considerations, which recur throughout this book, are frequently decided at the program and portfolio levels, where trade-offs among projects are negotiated, rather than within any single project.

Because projects are temporary, organizations that depend on them must repeatedly assemble, direct, and disband teams. Project-based organizations, common in construction, consulting, software, and increasingly in the public and academic sectors, structure much of their work around such temporary teams. This structure creates a persistent tension between the short life of a project and the long life of the value it is meant to create, a tension that lies at the heart of sustainable project management.

Every project passes through a life cycle, a logical sequence of phases from initiation through planning, execution, monitoring and control, and closure. The life cycle provides the temporal spine on which the sustainability framework introduced in Chapter 3 is mapped. Governance sits above the life cycle. Project governance is the framework of authority, accountability, and decision rights through which a project is directed and controlled, typically involving a sponsor who owns the business case and secures resources, a steering body that makes major decisions, and a project manager who plans and delivers the work day to day. The competencies expected of the modern project manager have widened accordingly, extending beyond scheduling and cost control to leadership, stakeholder engagement, ethical judgment, and an understanding of environmental and social impact.

Organizational project management links this project-level activity to strategy, ensuring that the projects an organization undertakes are the right projects and that their collective results advance institutional purpose. This strategic connection is essential to sustainability because a portfolio of well-managed projects can still fail an organization if they are poorly chosen, mutually inconsistent, or misaligned with long-term commitments. Chapter 4 develops this theme in relation to the Sustainable Development Goals.

1.3 Major Scholarly Discussions

The intellectual history of project management is often told as a movement through successive eras. Early practice, formalized in the mid-twentieth century around large defense, aerospace, and construction undertakings, emphasized predictive planning: requirements were fixed in advance, and tools such as the critical path method and the work breakdown structure were used to plan and control a largely linear sequence of work. This predictive or plan-driven tradition remains appropriate where requirements are stable and well understood, and it underpins much public infrastructure delivery.

As projects moved into domains marked by uncertainty and rapid change, particularly in software, predictive planning proved brittle. Iterative and incremental approaches emerged, in which work proceeds in repeated cycles that deliver usable increments of value and incorporate feedback along the way. The agile movement, crystallized in the Manifesto for Agile Software Development (Beck et al., 2001), gave this orientation a set of values, favoring individuals and interactions, working results, customer collaboration, and responsiveness to change. Agile methods break requirements into small, prioritized pieces, promote close collaboration with stakeholders, and adjust at regular intervals so that value is released throughout the effort rather than only at the end.

In practice, few real projects are purely predictive or purely agile. Hybrid approaches combine plan-driven and adaptive elements, applying predictive control to stable components such as procurement and regulatory compliance while using iterative methods for components marked by uncertainty. Adaptive management extends this logic to whole programs operating in volatile environments, treating plans as revisable hypotheses to be tested and updated as conditions change. The selection among these approaches is not a matter of fashion but of fit; Chapter 12 develops a decision framework for choosing among them.

Running alongside this methodological evolution is a second, more recent development central to this book: the emergence of sustainable project management. Silvius and colleagues define sustainability in project management as the development, delivery, and management of project-organized change, with consideration of the economic, social, and environmental impacts of the project, its results, and its effects for present and future generations (Silvius et al., 2012). Their systematic review of the field found strong indications that considering sustainability changes project processes and practices, even as it noted that mainstream standards had not yet fully addressed the sustainability agenda (Silvius & Schipper, 2014).

The deepest scholarly debate, however, concerns the meaning of project success itself. Atkinson (1999) argued that scope, time, and cost, which he called the iron triangle, represent only two best guesses and a phenomenon, and that continued reliance on them alone amounts to accepting a persistent error; he urged the field to adopt additional success criteria reflecting the information system, organizational benefits, and stakeholder community. Shenhar, Dvir, Levy, and Maltz (2001) advanced a multidimensional model in which success is assessed across project efficiency, impact on the customer, direct business and organizational success, and preparation for the future, with the relative weight of each dimension varying by project type and time horizon.

These contributions converge on a conclusion that this book adopts and extends. Project efficiency, delivering the agreed scope on time and on budget, is one legitimate dimension of success, but it is neither the only one nor the most consequential over the long run. As the horizon lengthens, dimensions such as benefits realization, user acceptance, institutional value, environmental responsibility, social legitimacy, and resilience come to dominate the assessment. A definition of success that ignores them will systematically reward projects that deliver outputs while neglecting outcomes, which is precisely the failure pattern that sustainable project management seeks to correct.

Contemporary practice is being reshaped further by digital transformation. Artificial intelligence, data analytics, and automation are changing how projects are estimated, scheduled, monitored, and controlled, while collaboration technologies and remote work have altered how distributed teams coordinate. These developments enlarge what projects can achieve and also introduce new risks, including data quality, privacy, cybersecurity, and equity concerns, that responsible project managers must weigh. Chapter 15 returns to these frontier issues in detail.

1.4 Relevant Standards, Policies, and Frameworks

Professional practice is codified in several complementary bodies of guidance. The Project Management Institute's A Guide to the Project Management Body of Knowledge, in its seventh edition, moved away from a prescriptive, process-based model toward a principles-based, outcomes-oriented approach organized around performance domains and a broader conception of value delivery (Project Management Institute, 2021). This shift is significant for sustainable project management because it foregrounds the value that a project creates rather than the mere production of deliverables.

The International Organization for Standardization provides widely adopted guidance. ISO 21502:2020 provides high-level descriptions of project management practices that work well, applicable to any organization and any type of project, regardless of delivery approach, and explicitly accommodates predictive, incremental, iterative, adaptive, and hybrid approaches, including agile (International Organization for Standardization, 2020). Its companion, ISO 21500:2021, provides the context and concepts for project, program, and portfolio management. PRINCE2, a structured method widely used in the United Kingdom and elsewhere, adds a process model built around a continuously justified business case, a theme directly relevant to whether a project's benefits are realized.

None of these standards was originally designed with sustainability in mind, and reviews of the field have noted that the sustainability agenda remains only partially integrated into them (Silvius & Schipper, 2014). This book treats that gap as an opportunity. It draws on the delivery discipline these standards codify while, through the framework of Chapter 3, adding the sustainability considerations they underweight.

In the Philippine setting, project delivery is shaped by a policy architecture that connects national planning to public investment. The Philippine Development Plan 2023-2028, adopted through Executive Order No. 14, series of 2023, sets the medium-term development agenda and is anchored on the long-term vision AmBisyon Natin 2040 and aligned with the 2030 Agenda for Sustainable Development (National Economic & Development Authority, 2023). The Plan is operationalized

through the Public Investment Program, which lists the priority programs and projects that agencies, government corporations, state universities and colleges, and local government units are directed to pursue. Chapter 14 examines this architecture and its practical frictions in detail.

1.5 Philippine Context and Applications

The Philippines conducts a large share of its public development work through projects. National government agencies build infrastructure and deliver services; local government units, empowered by decentralization, plan and implement local projects; state universities and colleges undertake research, extension, and capital projects; and cooperatives, nongovernment organizations, and community groups run livelihood, environmental, and social initiatives. The national policy architecture directs these actors to align their programs and projects with the Philippine Development Plan and to contribute to the country's Sustainable Development Goal commitments (National Economic & Development Authority, 2023).

This project-intensive environment operates under real and well-documented constraints. Public procurement can be slow and vulnerable to delays and disputes; institutional capacity is uneven, particularly in smaller local governments; and political transitions can disrupt continuity, as incoming administrations reprioritize or abandon the projects of their predecessors. Maintenance is chronically underfunded relative to construction, so that assets are built but not adequately sustained. These are not incidental difficulties; they are structural features of the environment that any realistic account of Philippine project management must confront, and they bear directly on the sustainability of project outcomes.

Digital transformation is advancing across Philippine institutions, from online government services to learning management systems in universities, creating new project opportunities and new risks related to connectivity, data governance, and the digital divide between well-served and underserved communities. Climate and disaster risk are further defining features of the context. The country is among the most exposed in the world to typhoons, flooding, and related hazards, so that resilience is not an optional enhancement to Philippine projects but a precondition for their survival.

Within this setting, the distinction between delivering an output and securing a lasting outcome is not academic. A school building, an irrigation system, a transport line, or an information system can be completed and formally accepted, yet fail to deliver enduring value if it is not maintained, staffed, funded, and governed after handover. The Philippine case that follows illustrates this pattern with unusual clarity.

1.6 Detailed Philippine Case Study

The Metro Rail Transit Line 3 (MRT-3), Metro Manila

Based on publicly available information, some operational details were unavailable.

Background: The MRT-3 is a 16.9-kilometer elevated light rail line running along Epifanio de los Santos Avenue (EDSA), the principal artery of Metro Manila, with thirteen stations from North Avenue in Quezon City to Taft Avenue in Pasay City. It was built by the Metro Rail Transit

Corporation under a build-lease-transfer arrangement with the government, opening partially in December 1999 and reaching full operations by July 2000 (MRT Line 3, n.d.).

Development need: The corridor it serves was, and remains, severely congested, imposing high economic and human costs on millions of daily commuters. The line was intended to relieve that congestion, reduce travel time, and provide efficient mass transit along EDSA.

Stakeholders: Principal stakeholders include the Department of Transportation, the private builder-owner, successive maintenance contractors, the riding public, the national government as financier and subsidy provider, and international partners who later financed rehabilitation.

Objectives, scope, and approach: As a delivery project, the MRT-3 largely succeeded: the physical asset, comprising elevated structures, stations, track, signaling, power, and rolling stock, was built and placed into revenue service. The system was designed to handle about 350,000 passengers per day.

What happened after delivery: For roughly a decade, while maintenance and spare-parts supply were handled under a stable arrangement by the original consortium, the line operated reliably. After that arrangement lapsed around 2011, maintenance passed through a succession of short-term providers, and service quality declined markedly. Ridership rose far above design capacity, top speeds fell, trains stalled between stations, and breakdowns became frequent, culminating in a large-scale rehabilitation contracted to the original builder-maintainer that ran from May 2019 to its completion in March 2022, financed through official development assistance (Mitsubishi Heavy Industries, 2022; MRT Line 3, n.d.).

Sustainability dimensions: The case implicates several of the dimensions discussed in this book. Institutional sustainability is central: the erosion of value flowed not from the original construction but from discontinuity in maintenance governance and procurement. Economic sustainability is reflected in the mismatch between fare revenue and the true cost of operations and maintenance. Social dimensions are evident in the daily burden borne by commuters when service is degraded.

Critical analysis: By the narrow test of delivery, the MRT-3 was completed and operated. By the broader test of sustained value, its performance for much of the following decade fell short, and the shortfall was traceable primarily to how the asset was maintained, financed, and governed after handover rather than to its construction. The case demonstrates that the decisive determinants of a project's long-run value often lie beyond the delivery phase, in the arrangements for operation, maintenance, and institutional continuity that a delivery-focused definition of success tends to ignore.

Lessons for project managers: Plan for the whole life cycle, not just handover; treat maintenance financing and maintenance governance continuity as first-order design decisions; and define success in terms of sustained service to users rather than the completion of a physical asset.

Reflection on the case

If the definition of project success had formally included a funded, continuous maintenance regime and a benefits-realization plan extending years beyond handover, how might the decisions surrounding the MRT-3 have differed? Which stakeholders were best placed to protect the line's long-term value, and what prevented them from doing so?

1.7 International Comparative Example

The Sydney Opera House, Australia

The Sydney Opera House is the mirror image of the preceding case and, for that reason, an instructive comparison. By every measure of the triple constraint, it was a spectacular failure. When construction began in 1959, the projected cost was about AU\$7 million, and completion was planned for early 1963. The building was, in fact, opened in October 1973, roughly ten years late, at a final cost of about AU\$102 million, an overrun of well over a thousand percent in real terms, and its architect resigned in 1966 amid the disputes that accompanied the overruns (Project Management Institute, n.d.).

Judged solely by scope, time, and cost, the project would be counted among the great delivery failures of its era, and at the time it was widely condemned as such. Yet by the broader criteria this chapter advocates, the outcome is unambiguously a success. The building became a defining national symbol, was inscribed as a UNESCO World Heritage site in 2007 as a masterpiece of twentieth-century architecture, and now draws many millions of visitors annually while contributing substantial cultural and economic value to its city and country (Project Management Institute, n.d.).

The comparison with the MRT-3 is pointed. One project was delivered broadly on plan yet struggled for years to sustain its intended value; the other breached every constraint yet created enduring value on a scale few projects ever reach. Together, they demonstrate that project success is multidimensional and time-dependent, and that delivery efficiency, while genuinely important, is a poor proxy for the value a project ultimately creates or destroys.

1.8 Comparative and Success Models

Two original tables consolidate the chapter's argument. Table 1.2 compares the principal delivery approaches, and Table 1.3 sets out an expanded model of project success that this book adopts and develops in later chapters.

Table 1.2 Comparison of Project-Delivery Approaches

Approach	Requirements	Delivery of value	Best suited to
Predictive	Fixed early	At the end, on completion	Stable, well-understood work
Iterative / Incremental	Refined over cycles	In repeated increments	Evolving requirements
Agile	Emergent, reprioritized	Continuously, each cycle	High uncertainty, close users
Hybrid	Mixed by component	Mixed by component	Projects with both stable and uncertain parts
Adaptive	Treated as revisable	As conditions allow	Volatile programs and environments
Sustainable	Include impact criteria	Across the whole life cycle	Any project accountable for lasting value

Source: Author's synthesis, drawing on Beck et al. (2001), Silvius et al. (2012), International Organization for Standardization (2020), and Project Management Institute (2021).

Table 1.3 The Expanded Project Success Model

Dimension of success	Core question	Time horizon
Project efficiency	Was the agreed scope delivered on time and on budget?	Short term
Quality and acceptance	Does the result meet standards and is it accepted by users?	Short to medium
Benefits realization	Are the intended outcomes and benefits actually achieved?	Medium term

Dimension of success	Core question	Time horizon
Stakeholder and institutional value	Do stakeholders and the institution gain lasting value?	Medium to long
Environmental and social responsibility	Are environmental and social impacts responsibly managed?	Long term
Resilience and sustainability	Can the outcome be maintained and adapted over time?	Long term

Source: Author's synthesis, extending Atkinson (1999) and Shenhar et al. (2001).

1.9 Practical Tool: A Success-Definition Checklist

Before a project is approved, its sponsors and manager can use the following checklist to ensure that success is defined in terms beyond delivery. Each item should be answered explicitly and documented in the project's initiating documents.

SUCCESS-DEFINITION CHECKLIST

- Efficiency: Are scope, time, and cost defined, with realistic estimates and contingencies?
- Quality and acceptance: Are quality standards and user-acceptance criteria specified?
- Benefits: Is there a benefits-realization plan naming the outcomes to be achieved and when?
- Operation and maintenance: Is a funded plan for operation, maintenance, and staffing in place beyond handover?
- Institutional continuity: Is responsibility for the outcome assigned to a durable institution?
- Environment and society: Are environmental and social impacts assessed and mitigated?
- Resilience: Are foreseeable hazards and disruptions identified with adaptive responses?

1.10 Ethical, Social, Environmental, and Governance Considerations

Reconceiving success has ethical force. If a project manager is accountable only for delivering scope on time and on budget, then decisions that secure those metrics at the expense of users, communities, or the environment can appear defensible. Once success is redefined to include benefits, social legitimacy, and long-term sustainability, those same decisions are exposed as failures of responsibility. Widening the definition of success, therefore, widens the domain of professional accountability, which is the intended effect.

Governance is the mechanism through which this accountability is exercised. Clear decision rights, an actively engaged sponsor, and honest reporting allow problems to be surfaced and corrected while correction is still possible; their absence allows small deviations to compound into large failures, as the maintenance history of the Philippine case illustrates. Environmental and social considerations, treated in this book as integral to every project rather than as a separate compliance exercise, enter at this level, through the criteria against which projects are approved, monitored, and judged.

1.11 Critical Issues, Tensions, and Limitations

Broadening the definition of success is not without difficulty. The additional dimensions, benefits, institutional value, environmental and social responsibility, and resilience, are harder to measure than

scope, time, and cost, and they are realized over horizons that extend well beyond the tenure of the project team and often beyond the political cycle. This creates genuine tension: the people accountable for a project at delivery are often not the ones who will determine whether its benefits are sustained. Designing accountability that survives handover is a real and unsolved challenge, which is further addressed in Chapters 13 and 14.

There is also a risk of overcorrection. If efficiency is dismissed rather than kept in proper proportion, projects may excuse cost and schedule failures by appealing to vague future benefits that never materialize. The Sydney Opera House succeeded despite its overruns, not because of them, and its example should not be read as a license for undisciplined delivery. The expanded model presented here retains efficiency as one legitimate dimension of success precisely to guard against this misreading.

Finally, the approaches surveyed in this chapter are tools, not doctrines. Agile methods are not universally superior to predictive ones, and sustainable project management does not render conventional discipline obsolete; each is appropriate to particular conditions. The remainder of the book is concerned with judgment: choosing and combining approaches, and weighing competing dimensions of success, in the specific and demanding conditions of Philippine practice.

Chapter Synthesis

This chapter defined projects and distinguished them from programs, portfolios, and operations; traced the evolution of project management from predictive planning to iterative, agile, hybrid, adaptive, and sustainable approaches; and critically examined the triple constraint. Drawing on Atkinson and on Shenhar and colleagues, it argued that project success is multidimensional and time-dependent, and it developed an expanded success model that retains efficiency while adding benefits realization, stakeholder and institutional value, environmental and social responsibility, and resilience.

Two verified cases anchored the argument. The Metro Rail Transit Line 3 showed how a delivered asset can lose value when maintenance, financing, and governance falter after handover. The Sydney Opera House showed how a project can breach every constraint and still create enduring value. Together, they establish the book's foundational claim: efficient delivery is necessary but not sufficient, and the task of sustainable project management is to secure outcomes and lasting value, not merely outputs. Chapter 2 turns to the other half of this book's title, examining sustainable development itself before Chapter 3 integrates the two.

Critical Reflection Questions

1. Why can a project that is delivered on time and within budget still be judged a failure? Illustrate your answer with an example other than those in this chapter.
2. Evaluate Atkinson's claim that the iron triangle represents two best guesses and a phenomenon. Do you find the criticism persuasive? Why or why not?
3. Compare the MRT-3 and Sydney Opera House cases. What does each reveal about the limits of efficiency as a measure of success?

4. Under what conditions would a predictive approach be preferable to an agile one for a Philippine public project, and vice versa?
5. The people accountable for a project at delivery often differ from those who determine whether its benefits are sustained. How might governance be designed to address this tension?
6. In your own institution or community, identify a completed project whose long-term value has not been sustained. What were the decisive causes?
7. Does the expanded success model risk excusing genuine delivery failures? How can this risk be managed?

Application Activity

PROJECT TASK: REDEFINING SUCCESS

Purpose. To practice defining project success in multidimensional terms.

Instructions. Select a real project in your organization, community, or locality, either proposed or recently completed. Using the Expanded Project Success Model (Table 1.3) and the **Success-Definition Checklist**, write a two-page success definition that specifies criteria and indicators for each dimension, from efficiency through resilience and sustainability. Identify which institution will be accountable for each dimension and over what time horizon.

Expected output. A written success definition of about two pages, with a one-page justification explaining your choice of indicators and horizons.

Assessment criteria. Coverage of all six dimensions (30 percent); realism and measurability of indicators (30 percent); clarity of institutional accountability and time horizons (25 percent); overall coherence and writing (15 percent).

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CHAPTER 2

Sustainable Development: Concepts, Dimensions, and Global Commitments

CHAPTER OVERVIEW

This chapter examines sustainable development as a concept, a set of dimensions, and a body of global commitments. It traces the idea from its emergence in the late twentieth century through the Brundtland definition to the triple bottom line and the Five Ps, and it distinguishes the environmental, social, economic, institutional, governance, and ethical dimensions that a serious treatment must address. It follows the movement from the Millennium Development Goals to the Sustainable Development Goals and the 2030 Agenda, giving due attention to synergies, trade-offs, and the criticisms that thoughtful scholars have raised. It grounds the discussion in Philippine national planning and policy, presents the Ifugao Rice Terraces as a detailed case of long-run sustainability under pressure, and compares Bhutan's alternative development paradigm. It prepares the reader for Chapter 3, which integrates sustainable development with project management.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Explain the origins and evolution of sustainable development and state the Brundtland definition precisely.
2. Distinguish and relate the environmental, social, economic, institutional, governance, and ethical dimensions of sustainability.
3. Compare the triple bottom line and the Five Ps and explain concepts such as intergenerational equity, resilience, regenerative development, and the circular economy.
4. Trace the movement from the Millennium Development Goals to the Sustainable Development Goals and explain synergies and trade-offs among the goals.
5. Assess the principal criticisms of sustainability frameworks and respond to them thoughtfully.
6. Relate sustainable development to Philippine national planning and policy and analyze a verified Philippine case of long-run sustainability.

KEY TERMS

Sustainable development: development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987).

Intergenerational equity: fairness in the distribution of resources, opportunities, and burdens between present and future generations.

Triple Bottom Line: an accounting and management perspective that evaluates performance against economic, social, and environmental results, sometimes rendered as profit, people, and planet.

Circular economy: An economic model that designs out waste and keeps materials and products in productive use, in contrast to a linear take-make-dispose model.

Regenerative development: an approach that seeks not merely to reduce harm but to restore and enhance the social and ecological systems on which development depends.

Sustainable Development Goals: The seventeen global goals adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development.

2.1 Introduction

Sustainable development is among the most influential and most contested ideas of the past half-century. It has reshaped national planning, corporate strategy, international finance, and the language of everyday politics, yet its very familiarity can obscure how demanding and how disputed it remains. This chapter examines the concept with the seriousness it deserves, resisting both the tendency to reduce sustainability to tree planting and clean-up drives and the opposite tendency to treat it as an unquestionable good beyond criticism.

The chapter has three tasks. The first is conceptual: to define sustainable development, to trace its evolution, and to distinguish its several dimensions. The second is institutional: to follow the global commitments through which the idea has been operationalized, from the Millennium Development Goals to the Sustainable Development Goals and the 2030 Agenda, and to examine how they work and where they are criticized. The third is contextual: to relate these ideas to Philippine planning and policy and to analyze a verified Philippine case in which sustainability has been pursued, threatened, and partially recovered over a long span of time.

Throughout the chapter, sustainability is treated as an integrated concern spanning environmental, social, economic, institutional, ethical, and governance dimensions. This breadth is deliberate and consequential. A conception of sustainability confined to the natural environment cannot account for why projects fail when institutions are weak, when benefits are captured by the powerful, or when communities are excluded from decisions that affect them. The integrated conception adopted here is what makes it possible, in Chapter 3, to connect sustainable development to the practical discipline of project management.

2.2 Conceptual and Theoretical Foundations

The modern concept crystallized in 1987, when the World Commission on Environment and Development, chaired by Gro Harlem Brundtland, published *Our Common Future* and defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). The definition is deceptively simple. It joins two commitments that are often in tension: meeting present needs, especially the needs of the poor, and safeguarding the capacity of the future. It introduces intergenerational equity, fairness between present and future generations, as a core principle, and it implies intragenerational equity,

fairness among people living now, since a development path that leaves many in poverty is neither just nor stable.

A widely used approach to decomposing sustainability is the triple bottom line, popularized by John Elkington, which evaluates performance against economic, social, and environmental outcomes rather than economic outcomes alone (Elkington, 1997). This book extends the triple bottom line in two directions that practice has shown to be necessary. It adds an institutional and governance dimension, because outcomes that no capable and accountable institution maintains do not endure, and it makes explicit the ethical dimension that underlies the fair distribution of benefits and burdens. Sustainability, in the account used here, therefore has environmental, social, economic, institutional, governance, and ethical dimensions, each of which recurs throughout the book.

The 2030 Agenda articulates a complementary framing built on five themes, often called the Five Ps: people, planet, prosperity, peace, and partnership (United Nations, 2015). This framing usefully signals that sustainable development is not only about the environment and the economy but also about social inclusion, peaceful and just institutions, and the partnerships through which shared goals are pursued. It aligns closely with the multidimensional view adopted in this book.

Several further concepts sharpen the analysis. Resilience is the capacity of a system to absorb disturbance and to reorganize while retaining its essential function, a property of particular importance in a hazard-exposed country. Regenerative development goes beyond reducing harm to actively restoring social and ecological systems. The circular economy reconceives production and consumption to design out waste and keep materials in use, in contrast to the linear take-make-dispose pattern. Each of these concepts reappears in later chapters as a criterion against which sustainable projects can be assessed.

2.3 Major Scholarly Discussions

The global institutionalization of sustainable development proceeded in two great waves. In September 2000, the United Nations adopted the Millennium Development Goals, a set of eight goals with time-bound targets focused on extreme poverty, education, gender equality, child and maternal health, disease, environmental sustainability, and global partnership, to be achieved by 2015. The Millennium Development Goals concentrated attention and resources on human development and produced measurable progress on several fronts, even as critics noted their narrow framing, their limited attention to inequality and governance, and their treatment of developing countries as recipients rather than agents.

In September 2015, the United Nations adopted the successor framework, Transforming Our World: The 2030 Agenda for Sustainable Development, comprising seventeen Sustainable Development Goals and 169 targets to be pursued to 2030 (United Nations, 2015). The Sustainable Development Goals are broader, more integrated, and formally universal, applying to all countries rather than only to the global South. They address poverty, hunger, health, education, gender equality, water, energy, work, industry, inequality, cities, consumption, climate, oceans, land, peace and justice,

and partnership, and they are accompanied by a global indicator framework intended to make progress measurable.

A defining feature of the Sustainable Development Goals is their interconnection. Progress on one goal frequently supports progress on others: educating girls advances health, gender equality, and economic growth simultaneously. But the goals can also stand in tension. Rapid economic growth pursued without care can raise emissions and degrade ecosystems, setting the goal of decent work at odds with those of climate action and life on land. Recognizing these synergies and trade-offs is essential to honest planning, and Chapter 4 develops tools for surfacing them at the level of individual projects.

Sustainability frameworks have attracted serious criticism that this book takes seriously rather than dismissing. Some scholars argue that the goals are too numerous and insufficiently prioritized, diffusing effort; others question whether continued economic growth can be reconciled with ecological limits at all. Raworth's doughnut economics reframes the challenge as meeting human needs within planetary boundaries, neither overshooting ecological ceilings nor falling below social foundations (Raworth, 2017). Sachs and others defend the framework as an indispensable, if imperfect, instrument of global coordination (Sachs, 2015). A recurring practical criticism, examined later in this book, is that institutions may claim alignment with the goals for reputational purposes without substantive action, a practice sometimes called SDG washing.

The measured position adopted here is that the Sustainable Development Goals are a valuable and legitimate framework for organizing development effort, precisely because they are integrated, universal, and measurable, while remaining open to the criticism that they can be treated superficially, that their trade-offs are often unacknowledged, and that the financing and institutional capacity required to achieve them are frequently absent. Sustainable project management, as developed in this book, is one practical response to the gap between the goals and their realization.

2.4 Relevant Standards, Policies, and Frameworks

The Philippines has embedded sustainable development in its planning architecture. The long-term vision *AmBisyon Natin 2040*, adopted in 2016, expresses the aspirations of Filipinos for a stable, comfortable, and secure life over a 25-year horizon and is explicitly framed in terms consistent with intergenerational equity. The Philippine Development Plan 2023-2028 operationalizes this vision over the medium term and is aligned with the 2030 Agenda, directing national agencies, government corporations, state universities and colleges, and local governments to pursue programs and projects that advance the Sustainable Development Goals (National Economic & Development Authority, 2023).

Sectoral legislation gives sustainability concrete legal force. The Climate Change Act of 2009 (Republic Act No. 9729) established the Climate Change Commission and mandated the mainstreaming of climate considerations into national and local planning. The Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121) created a comprehensive framework for reducing disaster risk, a matter of existential importance in a country so exposed to

natural hazards. The Indigenous Peoples' Rights Act of 1997 (Republic Act No. 8371) recognized ancestral domains and required free, prior, and informed consent for interventions affecting indigenous communities, a provision directly relevant to the case examined below.

These instruments illustrate that in the Philippine context, sustainable development is not merely an aspiration but a set of binding obligations that shape how projects must be planned, consulted, and implemented. Chapters 8, 10, and 14 return to the practical operation of these frameworks, including the frictions that arise when legal mandates meet limited capacity and competing interests.

2.5 Philippine Context and Applications

Sustainable development in the Philippines spans an unusually wide range of concerns because the country combines rapid urbanization, deep rural poverty, extraordinary biodiversity, and extreme exposure to hazards. National development planning must reconcile the goal of high, job-creating growth with commitments to poverty reduction, environmental protection, and resilience, and it must do so across a decentralized system in which local governments carry substantial responsibility for implementation.

The substantive agenda is broad. Food security depends on sustainable agriculture and fisheries in a setting where climate change threatens both. Water and energy must be expanded and made cleaner without deepening inequality between served and underserved areas. Education and health remain central to human development and to the country's Sustainable Development Goal commitments. Coastal and marine resource management is critical in an archipelagic state whose fisheries sustain millions of livelihoods, and disaster risk reduction is woven through every sector because a single major typhoon can erase years of development gains in an afternoon.

Local governance is where much of this agenda is contested and delivered. Decentralization gives local governments the mandate to plan and implement, but capacity, financing, and continuity vary widely, so the sustainability of local projects is often determined less by their design than by the institutional strength of the units that must carry them out. The case that follows, drawn from the Cordillera highlands, exemplifies both the achievements and the fragility of sustainable development pursued over the long term.

2.6 Detailed Philippine Case Study

The Ifugao Rice Terraces, Cordillera

Based on publicly available information, some operational details were unavailable.

Background: The Rice Terraces of the Philippine Cordilleras are an ancient system of irrigated rice terraces carved into the mountains of Ifugao over some two thousand years by the Ifugao people. They were inscribed on the UNESCO World Heritage List in 1995, the first property ever included in the cultural landscape category, in recognition of a living, organically evolved landscape shaped by indigenous knowledge (UNESCO World Heritage Center, n.d.).

Development needs and tensions: The terraces are simultaneously a heritage treasure, an agricultural system, and the livelihood base of upland communities. They embody a tension at the heart of

sustainable development: the practices that sustain them are labor-intensive and yield modest cash income, so the young increasingly migrate to cities, and the pressures of tourism and the market economy strain the very traditions that maintain the landscape (Food and Agriculture Organization of the United Nations, n.d.).

Stakeholders: The Ifugao farming communities and their traditional institutions; national and local governments; UNESCO; the Food and Agriculture Organization; tourism operators and visitors; and researchers. The Indigenous Peoples' Rights Act frames the rights of the communities as duty holders and rights holders in decisions affecting their ancestral domain.

Sustainability dimensions: The case integrates all sustainability dimensions. Environmentally, the terraces conserve soil and water and support biodiversity, each cluster capped by a communally managed forest, the muyong, that regulates the water supply and harbors hundreds of indigenous plant species. Socially and culturally, they transmit indigenous knowledge across generations. Economically, they must generate enough livelihood to retain the people who maintain them. Institutionally, their survival depends on traditional governance and on supportive state action.

What happened: Despite their World Heritage status, abandonment, deterioration, out-migration, and the pressures of unregulated tourism led UNESCO to place the terraces on the List of World Heritage in Danger in 2001. Sustained restoration and conservation efforts by national, provincial, and municipal governments and communities followed, and the terraces were removed from the danger list in 2012 (UNESCO World Heritage Center, n.d.; Britannica, n.d.). They have also been recognized within the Food and Agriculture Organization's Globally Important Agricultural Heritage Systems program as an outstanding example of traditional, sustainable agriculture.

Critical analysis: The Ifugao terraces demonstrate that sustainability is not a state achieved once and secured forever but a continuing accomplishment that must be renewed against changing pressures. International recognition alone did not protect them; it was the combination of engaged communities, supportive institutions, and adequate resources that reversed their decline. The case also shows the limits of treating heritage and livelihood separately: unless the system generates a viable living for those who maintain it, no amount of external designation will keep it alive.

Lessons for project managers: Sustainability requires durable institutions and continuing resources, not one-time interventions; the people who maintain an outcome must benefit from it; and indigenous knowledge and consent are not obstacles to development but foundations of it. These lessons carry directly into the design of sustainable projects in later chapters.

Reflection on the case

What made the difference between the decline of the terraces before 2001 and their recovery by 2012? If you were designing a project to sustain a similar heritage-livelihood system, how would you ensure that those who maintain it share fairly in its benefits?

2.7 International Comparative Example

Gross National Happiness in Bhutan

Bhutan offers an instructive comparison because it has pursued an explicitly alternative conception of development. Rather than treating the growth of gross domestic product as the primary measure of

progress, Bhutan has organized its development around Gross National Happiness, a multidimensional framework that weighs psychological wellbeing, health, education, time use, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards. The approach institutionalizes the claim, central to sustainable development, that human and ecological flourishing cannot be reduced to income alone.

The Bhutanese experience is neither a utopia nor a template to be uncritically copied, and it faces real challenges of poverty, out-migration, and economic constraints. Its significance for this book lies in what it demonstrates conceptually: that the measures a society chooses shape the development it pursues. A country that measures only output will tend to maximize output; a country that measures wellbeing, environmental integrity, and cultural continuity will tend to protect them. The lesson connects directly to Chapter 1's argument about measuring project success and to this book's insistence that what is measured, at the levels of both nations and projects, determines what is achieved.

The comparison with the Ifugao case is illuminating. Both concern the reconciliation of tradition, environment, and livelihood; both show that sustainability depends on aligning what is valued and measured with what is to be protected; and both caution against importing models without adaptation. Bhutan chose its measures deliberately at the national level; the Ifugao terraces have been sustained through the alignment of community values with supportive institutions at the local level.

2.8 Dimensions and Alignment Tables

Two original tables consolidate the chapter. Table 2.1 presents the dimensions of sustainable development used throughout this book, and Table 2.3 illustrates how selected Sustainable Development Goals relate to Philippine project types.

Table 2.1 The Dimensions of Sustainable Development

Dimension	Central concern	Illustrative question for a project
Environmental	Ecological integrity and resource use	Does the project protect or degrade its environment over its life?
Social	Inclusion, equity, and well-being	Who benefits, who bears costs, and are the vulnerable included?
Economic	Viability and value over time	Can the outcome be financed and sustained after funding ends?
Institutional	Capacity and continuity	Is there a durable institution capable of maintaining the outcome?
Governance	Accountability and transparency	Are decisions transparent, and are duty holders accountable?
Ethical	Fairness and responsibility	Are benefits and burdens distributed fairly and honestly?

Source: Author's synthesis, extending the triple bottom line (Elkington, 1997) with institutional, governance, and ethical dimensions.

Table 2.3 Selected SDGs and Illustrative Philippine Project Types

Sustainable Development Goal	Illustrative Philippine project type
SDG 2 Zero Hunger	Climate-resilient sustainable agriculture and community food systems
SDG 4 Quality Education	State-university learning-management and access projects
SDG 6 Clean Water and Sanitation	Rural water-supply and watershed protection projects
SDG 7 Affordable and Clean Energy	Community solar and rural electrification projects
SDG 11 Sustainable Cities and Communities	Local disaster-risk-reduction and flood-management projects

Sustainable Development Goal	Illustrative Philippine project type
SDG 13 Climate Action	Local climate-adaptation and mangrove-restoration projects
SDG 14 Life Below Water	Coastal and marine resource-management projects

Source: Author's synthesis, drawing on United Nations (2015) and National Economic and Development Authority (2023). Illustrative, not exhaustive.

2.9 Practical Tool: A Dimensions Screening Worksheet

Early in project identification, a team can use the following worksheet to ensure a proposed project has been considered across all dimensions of sustainability rather than just the environmental dimension.

SUSTAINABILITY DIMENSIONS SCREENING WORKSHEET

- **Environmental:** What resources are used, and what impacts are created over the whole life of the outcome?
- **Social:** Who benefits and who bears costs, and are vulnerable and marginalized groups meaningfully included?
- **Economic:** How will the outcome be financed and sustained after external funding ends?
- **Institutional:** Which durable institution will own, staff, and maintain the outcome?
- **Governance:** How will decisions be made transparently, and how will duty holders be held accountable?
- **Ethical:** Are benefits and burdens distributed fairly, and are claims about the project honest?

2.10 Ethical, Social, Environmental, and Governance Considerations

The ethics of sustainable development are inescapable because the concept is fundamentally about the fair distribution of goods and burdens across people and across time. Intergenerational equity asks the present to accept constraints for the benefit of those not yet born; intragenerational equity asks the advantaged to accept constraints for the benefit of the disadvantaged now. Neither is self-executing, and both are frequently resisted. A serious treatment of sustainability must therefore engage with power, since who decides, who benefits, and who is heard are questions of justice, not merely of technique.

Governance considerations follow directly. The Sustainable Development Goals will not be achieved by well-meaning aspirations alone; they require transparent decision-making, accountable institutions, honest measurement, and mechanisms that allow affected people to be heard and to seek redress. The Ifugao case shows that even a globally recognized treasure can decline when institutional support falters, and can recover when it is restored. This is why the framework developed in later chapters treats institutional and governance sustainability as coequal with environmental and social sustainability, rather than as afterthoughts.

2.11 Critical Issues, Tensions, and Limitations

The first tension is between growth and ecological limits. Much development policy assumes that continued economic growth is both necessary and compatible with environmental protection, while critics contend that on a finite planet, this assumption cannot hold indefinitely and that green growth may be insufficient. This book does not resolve the debate, but it insists that it be acknowledged, because projects that assume away the tension may impose environmental costs that later overwhelm their benefits.

The second tension concerns trade-offs among the goals themselves. Because the Sustainable Development Goals are interconnected, advancing one can set back another, yet planning documents often present them as mutually reinforcing without acknowledging the hard choices involved. Honest sustainable project management surfaces these trade-offs rather than concealing them, a discipline developed in Chapter 4.

The third issue is the gap between rhetoric and substance. Institutions face strong incentives to claim alignment with sustainability for reputational advantage while doing little, a practice this book examines under the heading of SDG washing and, in the context of communication, greenwashing. A related danger is measurement itself: indicators can distort behavior, rewarding what is easy to count over what matters most. These limitations do not discredit the pursuit of sustainable development; they define the conditions under which it must be pursued honestly, and they motivate the practical, verification-conscious approach of this book.

Chapter Synthesis

This chapter defined sustainable development through the Brundtland formulation, distinguished its environmental, social, economic, institutional, governance, and ethical dimensions, and explained the triple bottom line, the Five Ps, and related concepts of resilience, regeneration, and circularity. It traced the movement from the Millennium Development Goals to the Sustainable Development Goals and the 2030 Agenda, and it engaged seriously with synergies, trade-offs, and criticisms rather than presenting sustainability as beyond question.

The Ifugao Rice Terraces demonstrated that sustainability is a continuous endeavor requiring durable institutions, adequate resources, and fair benefits to those who sustain the outcome, while Bhutan's Gross National Happiness showed that the measures a society chooses shape the development it achieves. Grounded in Philippine planning and legislation, the chapter prepares the way for Chapter 3, which brings together the two halves of this book's title by integrating sustainable development into project management practice and introducing the Sustainable Project Management Integration Framework.

Critical Reflection Questions

1. State the Brundtland definition of sustainable development and explain the tension it contains between present needs and future capacity.

2. Why is it inadequate to treat sustainability as concerning only the natural environment? Illustrate with the dimensions developed in this chapter.
3. Choose two Sustainable Development Goals and explain both a synergy and a trade-off between them, using a Philippine example.
4. Evaluate the criticism that the Sustainable Development Goals are too numerous and insufficiently prioritized. How would you respond?
5. What does the Ifugao Rice Terraces case reveal about the relationship between heritage, livelihood, and institutional support?
6. What does Bhutan's Gross National Happiness suggest about the relationship between what a society measures and what it achieves?
7. In your own locality, identify a development effort at risk of SDG washing. What would distinguish substantive action from a superficial claim?

Application Activity

PROJECT TASK: SDG MAPPING AND DIMENSIONS SCREENING

Purpose. To practice relating a real development need to the Sustainable Development Goals and to the dimensions of sustainability.

Instructions. Identify a development need in your community or institution. Using Table 2.3 and the Sustainability Dimensions Screening Worksheet, map the need to a primary Sustainable Development Goal and one or two supporting goals, then screen a proposed response against all six dimensions of sustainability. Identify at least one likely trade-off among the goals and explain how you would manage it.

Expected output. A two-page brief containing the SDG mapping, the completed dimensions screening, and a paragraph on the identified trade-off.

Assessment criteria. Appropriateness of the SDG mapping (25 percent); completeness of the dimensions screening (30 percent); quality of the trade-off analysis (30 percent); clarity and writing (15 percent).

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CHAPTER 3

Integrating Sustainability into Project Management

CHAPTER OVERVIEW

This chapter builds the conceptual bridge between conventional project management and sustainable development, and it introduces the central original contribution of this book: the Sustainable Project Management Integration Framework. It distinguishes sustainability in project processes from sustainability of project outcomes, develops life-cycle and systems thinking, and examines how established standards can be extended toward sustainability. It then presents the framework's eight dimensions and maps them across seven stages of the project life cycle, illustrated with two diagrams and a summary table. A Philippine case in which operational completion failed to secure lasting value, and an international benchmark of sustainable delivery, grounded the discussion. The framework is presented honestly as a proposed, author-developed model that has not yet undergone formal empirical validation.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Distinguish sustainability in project processes from sustainability of project outcomes and explain life-cycle and systems thinking.
2. Explain how recognized standards and the P5 approach extend project management toward sustainability.
3. Describe the eight dimensions of the Sustainable Project Management Integration Framework and their rationale.
4. Map the eight dimensions across the seven stages of the project life cycle.
5. Apply the framework to analyze why an operationally completed project can fail to create lasting sustainability.
6. Evaluate the framework critically, including its status as a proposed model awaiting empirical validation.

KEY TERMS

Sustainable project management: The management of project-organized change with consideration of economic, social, and environmental impacts, for present and future generations.

Green project management: An approach that emphasizes reducing the environmental impact of project processes and products.

Life-cycle thinking: considering impacts and costs across the whole life of a project's result, from creation through operation to end of life, rather than at delivery alone.

Externality: a cost or benefit of a project borne by parties who are not directly involved in it, such as a community affected by pollution.

Benefits realization: the deliberate process of ensuring that intended outcomes and long-term value are achieved and sustained after delivery.

SPMIF: The Sustainable Project Management Integration Framework, the proposed model developed in this book, that maps eight sustainability dimensions across the project life cycle.

3.1 Introduction

Chapters 1 and 2 examined the two halves of this book's title separately. Chapter 1 argued that project success is multidimensional and that efficient delivery does not guarantee lasting value. Chapter 2 examined sustainable development as an integrated concern spanning environmental, social, economic, institutional, governance, and ethical dimensions. This chapter joins the two. It asks how the discipline of project management can be reshaped so that sustainability is not an afterthought tacked on near closure, but a consideration that informs decisions at every stage.

The integration is not merely additive. Bolting a sustainability checklist onto an otherwise unchanged process yields the ceremonial compliance that this book warns against. Genuine integration changes how needs are assessed, how options are compared, how success is defined, how risks are understood, and how outcomes are monitored and maintained. It requires a shift in the unit of concern from the project's outputs to the value those outputs create or destroy throughout their lifetimes.

The chapter first develops the conceptual foundations of this shift, then reviews the standards and approaches that support it, situates it within Philippine practice, and presents the Sustainable Project Management Integration Framework, which organizes the remainder of the book. The framework is introduced here, applied in Chapters 4-14, and consolidated in Chapter 15.

3.2 Conceptual and Theoretical Foundations

A useful starting distinction separates two senses in which a project can be sustainable. The first concerns the sustainability of the project's processes: whether the way the work is carried out is economical, socially responsible, and environmentally sound, for example, through local sourcing, workforce wellbeing, and reduced energy and material use. The second concerns the sustainability of the project's outcomes: whether the results, once delivered, continue to create value without imposing unacceptable costs, and whether they can be maintained, financed, and governed over time. Both matter, but the second is decisive because a project executed with impeccable process can still produce an outcome that no institution can maintain.

Life-cycle thinking is the discipline that keeps the second sense in view. It insists that the relevant horizon is not the delivery date but the whole life of the result, from creation through operation to eventual renewal or retirement, and that costs and impacts be assessed across that horizon. A procurement decision that minimizes initial cost may maximize life-cycle cost once operations, maintenance, and disposal are factored in; a design that is cheap to build may be expensive or impossible to sustain. Chapter 7 develops the financial implications of this principle in detail.

Systems thinking complements life-cycle thinking by attending to the connections between a project and its wider context. Projects create externalities, costs, and benefits borne by parties outside

the project, and they interact with institutions, ecosystems, and communities whose responses determine whether outcomes endure. A project that ignores these connections may deliver its outputs and still fail because it depended on maintenance capacity that did not exist, on community acceptance it never secured, or on institutional continuity that political change disrupted.

The organizing consequence of these ideas is that accountability must extend beyond closure. Conventional practice treats formal acceptance and record archiving as the end of the project manager's responsibilities. Sustainable project management treats benefits realization, the achievement and maintenance of intended outcomes, as part of the project's purpose, and therefore requires that arrangements for operation, maintenance, financing, and governance be designed into the project from the outset rather than left to chance after handover.

These foundations reframe the meaning of project success established in Chapter 1. Sustainability-oriented success asks not only whether the agreed scope was delivered efficiently, but whether the outcome creates lasting value across environmental, social, economic, institutional, governance, and ethical dimensions, for present and future stakeholders. The framework introduced later in this chapter operationalizes exactly this question.

3.3 Major Scholarly Discussions

The scholarly foundation for integrating sustainability into project management was consolidated by Silvius and colleagues, whose systematic review concluded that considering sustainability changes project content and processes, while also noting that mainstream standards had not fully incorporated the sustainability agenda (Silvius & Schipper, 2014; Silvius et al., 2012). Their later work explored the relationship between sustainability and project success, arguing that attention to sustainability is associated with, and can strengthen, several dimensions of success (Silvius & Schipper, 2016). This body of work supplies the intellectual warrant for the present chapter.

A parallel development in professional standards reinforced the shift. The seventh edition of the Project Management Institute's body of knowledge reoriented the field from producing deliverables to delivering value, foregrounding outcomes and stakeholder benefit rather than process compliance alone (Project Management Institute, 2021). This reorientation is congenial to sustainability, because value delivered over the life of an outcome is precisely what sustainable project management seeks to secure.

Two methodological traditions from the development and evaluation literature strengthen the integration. A theory of change makes explicit the causal pathway by which a project's activities are expected to produce outputs, outcomes, and long-term impacts, together with the assumptions on which that pathway depends (Rogers, 2014). Results-based management uses that logic to plan, monitor, and manage for outcomes rather than activities. Both traditions push the project manager's attention beyond outputs toward the results that justify the project, and both are woven into the framework developed below and applied in Chapter 13.

The literature also cautions against superficial adoption. Just as nations can claim alignment with the Sustainable Development Goals without substantive action, projects can adopt the vocabulary of

sustainability while changing nothing of consequence. The framework in this book is designed to resist that tendency by attaching, at each stage and dimension, concrete questions, actions, indicators, and documentation, so that the claim of sustainability can be checked against evidence.

3.4 Relevant Standards, Policies, and Frameworks

No single standard yet integrates delivery discipline and sustainability completely, but several contribute essential elements. ISO 21502:2020 codifies sound project management practice across delivery approaches (International Organization for Standardization, 2020), while the PMBOK Guide's value orientation aligns practice with outcomes (Project Management Institute, 2021). Risk is addressed by ISO 31000:2018, quality by ISO 9001:2015, environmental management by ISO 14001:2015, and social responsibility by ISO 26000:2010. Each supplies a piece of the sustainability picture: quality assurance, environmental control, social responsibility, and risk governance.

The most directly relevant instrument is the P5 Standard for Sustainability in Project Management, developed by Green Project Management and now published jointly with the Project Management Institute. P5 extends the triple bottom line of people, planet, and prosperity by adding the project's product and process, and it maps project impacts to the Sustainable Development Goals through a structured impact analysis (GPM Global & Project Management Institute, n.d.). The framework developed in this book is consistent with the spirit of P5 while organizing the sustainability agenda around eight dimensions and the life-cycle stages, in a form intended to be accessible to Philippine institutions.

Life-cycle assessment, environmental, social, and governance principles, the theory of change, and results-based management complete the toolkit on which the framework draws. In the Philippine setting, these international instruments operate alongside the national planning architecture examined in Chapter 1 and the sectoral legislation examined in Chapter 2, including the climate and disaster-risk laws that give sustainability binding force.

3.5 Philippine Context and Applications

The Philippine case for integrating sustainability into project management is made most powerfully by the gap between construction and continuity that recurs across the public sector. Assets are built with capital budgets and celebrated at ribbon-cutting ceremonies, but the operations, maintenance, and institutional support required to sustain them are chronically underfunded and organizationally fragile. The result is a landscape in which outputs are delivered and outcomes decay, exactly the pattern the framework is designed to prevent.

The Metro Rail Transit Line 3 case examined in Chapter 1 is emblematic. The line was built and operated, satisfying the delivery test, yet its value for much of the following decade was undermined by discontinuity in maintenance governance and financing after the original arrangement lapsed. Viewed through the lens of this chapter, the failure was not one of construction but of the sustainability of the outcome: the institutional, economic, and governance arrangements needed to keep the asset serving its users were not put in place during the project.

Integrating sustainability into Philippine project management, therefore, means concretely designing maintenance financing, institutional ownership, and governance continuity into projects from the start; assessing life-cycle costs rather than initial costs; consulting with and including affected communities; and monitoring outcomes beyond handover. These are not exotic additions but disciplined applications of the framework that follows, adapted to the realities of Philippine institutions.

3.6 Detailed Philippine Case Study

Operational Completion without Lasting Sustainability (MRT-3 revisited)

This case revisits the Metro Rail Transit Line 3, introduced with full sourcing in Chapter 1, and reinterprets it through the eight dimensions of the framework. Based on publicly available information, some operational details were unavailable.

Reframing the case: The MRT-3 was operationally completed; the physical system was built and placed in service. Yet the value it delivered to users degraded for much of the following decade. The framework locates the failure precisely.

Dimension analysis: Strategic alignment was sound; the line served a genuine and enduring transport need. Environmental responsibility was arguably advanced by shifting travel to rail. The failures concentrated in other dimensions: economic viability, because fare revenue did not cover the true cost of operation and upkeep; institutional sustainability, because responsibility for maintenance passed through discontinuous arrangements; governance, because accountability for maintenance quality was diffuse; and monitoring and benefits, because the sustained service to users, not the completion of the asset, was the benefit that mattered and it was not adequately protected.

Lesson through the framework: Had the eight dimensions been assessed at each life-cycle stage, the concentration of risk in institutional, economic, and governance sustainability would have been visible at planning, and arrangements for continuous, funded maintenance under clear accountability could have been designed as part of the project rather than improvised after failure appeared. The case is not an argument against building the line; it is an argument for defining and securing the sustainability of the outcome as part of the project's purpose.

3.7 International Comparative Example

The London 2012 Olympics and ISO 20121

A contrasting international benchmark is the sustainability program of the London 2012 Olympic and Paralympic Games, widely cited as a deliberate attempt to integrate sustainability into the planning and delivery of a very large, time-bound project. The program addressed carbon, waste, materials, biodiversity, and social inclusion across the project life cycle rather than as a closing gesture, and it contributed to the development of a formal management standard, ISO 20121:2012 on event sustainability management systems, which codified the approach for reuse by others (International Organization for Standardization, 2012).

The comparison with the MRT-3 case is instructive. Where the transport line treated the sustainability of the outcome as external to the project and suffered for it, the London program treated sustainability as an integral management system embedded across the life cycle and left behind not

only venues but a reusable standard. The lesson for Philippine practice is that integration is achievable and that its benefits extend beyond any single project to the institutions and standards that outlast it.

3.8 The Sustainable Project Management Integration Framework

The Sustainable Project Management Integration Framework, referred to throughout this book as the SPMIF, is the original conceptual contribution that organizes the manuscript. It is presented here as a proposed, author-developed model intended for scholarly discussion and practical use. It has not undergone formal empirical validation, and it should be treated as a structured way of thinking rather than as a validated measurement instrument.

The framework rests on a simple proposition. Sustainability in projects is not a single attribute but a set of distinct concerns, and each concern must be considered not once but repeatedly, at every stage of the project life cycle. The framework therefore has two axes: eight sustainability dimensions and seven life-cycle stages. Their intersection defines the questions a project team should ask and the actions it should take. Figure 3.1 presents the conceptual model.



Figure 3.1 The Sustainable Project Management Integration Framework: Conceptual Diagram

Source: Author's original framework (proposed model; not yet empirically validated).

The eight dimensions are set out in Table 3.1. Together they extend the triple bottom line by making explicit the institutional, governance, and ethical concerns whose neglect so often undermines outcomes, and by giving strategic alignment, risk and resilience, and monitoring and benefits the status of first-order sustainability concerns rather than separate management functions.

Table 3.1 The Eight Dimensions of the SPMIF

Dimension	Central concern	Guiding question
D1 Strategic and SDG Alignment	Fit with strategy and the SDGs	Is the project the right project, and which goals does it truly advance?
D2 Economic and Financial Viability	Value and viability over the life cycle	Can the outcome be financed and sustained after funding ends?
D3 Environmental Responsibility	Ecological impact and resource use	Are life-cycle environmental impacts avoided, reduced, or offset?
D4 Social Inclusion and Stakeholder Welfare	Equity, inclusion, and welfare	Who benefits, who bears costs, and are the vulnerable included?
D5 Ethical Governance and Accountability	Integrity, transparency, accountability	Are decisions transparent and are duty holders accountable?
D6 Risk, Resilience, and Adaptability	Uncertainty, hazards, adaptation	Can the project and its outcome withstand and adapt to shocks?
D7 Monitoring, Learning, and Benefits Realization	Outcomes and learning	Are intended benefits measured, learned from, and actually realized?
D8 Long-Term Institutional Sustainability	Capacity and continuity	Which durable institution will own and maintain the outcome?

Source: Author's original framework.

Each dimension is then considered across the seven stages of the project life cycle: identification, initiation, planning, implementation, monitoring and control, closure and transition, and post-project benefits evaluation. Figure 3.2 shows this mapping. At every intersection of a dimension and a stage, the framework prompts the team to specify core questions, required management actions, decision criteria, relevant tools, stakeholder responsibilities, ethical considerations, performance indicators, potential risks, corrective actions, and documentation. Chapter 15 consolidates the full matrix; the chapters between apply it stage by stage.

Each intersection carries: questions • actions • tools • indicators • risks • documentation							
SUSTAINABLE VALUE DIMENSION	Identify	Initiate	Plan	Implement	Monitor	Close	Post-eval
D1 Strategic & SDG Alignment	✓	✓	✓	✓	✓	✓	✓
D2 Economic & Financial Viability	✓	✓	✓	✓	✓	✓	✓
D3 Environmental Responsibility	✓	✓	✓	✓	✓	✓	✓
D4 Social Inclusion & Stakeholder Welfare	✓	✓	✓	✓	✓	✓	✓
D5 Ethical Governance & Accountability	✓	✓	✓	✓	✓	✓	✓
D6 Risk & Resilience & Adaptability	✓	✓	✓	✓	✓	✓	✓
D7 Monitoring, Learning & Benefits	✓	✓	✓	✓	✓	✓	✓
D8 Long-Term Institutional Sustainability	✓	✓	✓	✓	✓	✓	✓

• Applies at this stage
 Questions
 Actions
 Tools
 Indicators
 Risks
 Documentation

Figure 3.2 Mapping the Eight Dimensions across the Seven Life-Cycle Stages

Source: Author's original framework. Each marked intersection carries questions, actions, tools, indicators, risks, and documentation.

The framework's value is not that it guarantees sustainability, which no framework can, but that it makes the neglect of any dimension at any stage visible. The MRT-3 case illustrates the point: a framework that forced explicit attention to institutional and economic sustainability at the planning stage would have surfaced, early and on paper, the very risks that later materialized. The framework is thus a discipline of attention, converting sustainability from a slogan into a set of specific, checkable commitments distributed across the life of a project.

3.9 Practical Tool: The SPMIF Stage Screen

At each stage transition, a project team can apply the following short screen, answering it explicitly for every one of the eight dimensions before proceeding. Fuller stage-specific tools appear in the relevant later chapters.

SPMIF STAGE SCREEN (APPLY PER DIMENSION)

- **Question:** What is the core sustainability question for this dimension at this stage?
- **Action:** What management action does this stage require for this dimension?
- **Indicator:** How will performance on this dimension be measured?
- **Risk:** What is the principal sustainability risk, and what is the corrective action?
- **Owner:** Who is responsible, and where is the decision documented?

3.10 Ethical, Social, Environmental, and Governance Considerations

By elevating ethical governance and accountability and social inclusion and stakeholder welfare to the status of named dimensions, the framework makes explicit that sustainability is a matter of justice as well as of engineering and finance. Decisions about who is consulted, who benefits, and who bears costs are distributed across every stage and are therefore harder to defer or evade. This is a deliberate design choice: the dimensions most often neglected in practice are given the same standing as scope, time, and cost.

Governance is served by the framework's insistence on documentation at each intersection. A commitment that is written, assigned to an owner, and attached to an indicator can be audited; one that is merely asserted cannot. In the Philippine context, where accountability after handover is a recurring weakness, this documentary discipline is among the framework's most practical contributions.

3.11 Critical Issues, Tensions, and Limitations

The framework's most important limitation is stated plainly: it is a proposed model that has not been empirically validated. Its dimensions and stages are grounded in the literature and in practice, but claims about its effectiveness await testing. Readers and users should treat it as a structured aid to judgment, not as a certified instrument, and researchers are invited to test and refine it.

A second tension is complexity. Considering eight dimensions across seven stages generates fifty-six intersections, which could overwhelm a small project team. The framework is intended to be applied proportionately: a large public infrastructure project warrants full treatment, while a modest community initiative may address the intersections briefly. Judgment about proportionality is itself part of competent use.

A third limitation concerns measurement. Several dimensions, particularly institutional sustainability and ethical governance, resist precise quantification, and indicators chosen for convenience can distort behavior. The framework mitigates this by pairing indicators with narrative documentation, but it cannot eliminate the difficulty. These limitations do not undermine the framework's purpose; they define the conditions of its responsible use.

Chapter Synthesis

This chapter integrated project management and sustainable development by distinguishing between the sustainability of processes and that of outcomes, developing life-cycle and systems thinking, and extending established standards toward sustainability. It introduced the Sustainable Project Management Integration Framework, an original proposed model that maps eight sustainability dimensions across seven life-cycle stages, illustrated in Figures 3.1 and 3.2 and summarized in Table 3.1.

Revisiting the MRT-3 case through the framework, it found its failure in the institutional, economic, and governance dimensions rather than in construction, while the London 2012 program showed that integration across the life cycle is achievable and durable. The framework is offered as a discipline of attention, presented honestly as a proposed model awaiting validation. Chapter 4 puts it

to work at the first stage of the life cycle, project selection, and strategic alignment with the Sustainable Development Goals.

Critical Reflection Questions

1. Distinguish the sustainability of a project's processes from the sustainability of its outcomes, and explain why the latter is decisive.
2. Why does life-cycle thinking change procurement and design decisions? Give a Philippine example.
3. Choose two of the eight SPMIF dimensions and explain how neglecting them could cause an operationally completed project to fail.
4. Apply the framework to the MRT-3 case. At which stage and in which dimensions should the decisive risks have been surfaced?
5. The framework generates fifty-six intersections. How would you apply it proportionately to a small community project?
6. What does it mean that the framework is a proposed model that has not been empirically validated, and how should that affect its use?
7. Compare the London 2012 approach with a Philippine project you know. What would integrated sustainability have required?

Application Activity

PROJECT TASK: A FIRST SPMIF SCREEN

Purpose. To practice applying the eight dimensions of the framework at a single life-cycle stage.

Instructions. Select a real or proposed project in your institution or community and choose one life-cycle stage, for example, planning. Using the SPMIF Stage Screen, complete the five prompts (question, action, indicator, risk, owner) for each of the eight dimensions at that stage. Identify the two dimensions where your project is weakest and propose concrete corrective actions.

Expected output. A completed screen covering all eight dimensions at one stage, of about two to three pages, with a short commentary on the two weakest dimensions.

Assessment criteria. Coverage of all eight dimensions (30 percent); quality and realism of the entries (30 percent); identification and treatment of weaknesses (25 percent); clarity and writing (15 percent).

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CHAPTER 4

Project Selection, Strategic Alignment, and the Sustainable Development Goals

CHAPTER OVERVIEW

This chapter applies the framework at the first stage of the life cycle: deciding which projects to undertake. It develops the analytic tools for identifying, evaluating, prioritizing, and selecting sustainable projects, from needs assessment and problem-tree analysis through feasibility, cost-benefit, multi-criteria, and social-return analysis, to screening against the Sustainable Development Goals. It presents an original SDG Project Alignment Matrix and a problem-to-objective analysis, and it examines the difference between genuine and symbolic alignment, the phenomenon of SDG washing, and the trade-offs that honest selection must surface. Because good projects poorly chosen cannot be rescued by good delivery, selection is where sustainability is won or lost.

LEARNING OUTCOMES

1. Apply needs assessment, situation analysis, and problem-tree and objective-tree analysis to identify sound project ideas.
2. Compare feasibility, cost-benefit, cost-effectiveness, multi-criteria, and social-return methods for evaluating projects.
3. Screen and prioritize projects against the Sustainable Development Goals and the eight SPMIF dimensions.
4. Construct an SDG Project Alignment Matrix for a proposed project.
5. Distinguish genuine SDG alignment from symbolic alignment and SDG washing, and surface trade-offs honestly.
6. Relate project selection to Philippine planning, from state universities to local governments.

KEY TERMS

Needs assessment. a systematic study of the gap between current and desired conditions that a project might address.

Problem tree. An analytic tool that maps a core problem with its causes as roots and its effects as branches.

Multi-criteria decision analysis. a family of methods for evaluating options against several weighted criteria that cannot be reduced to a single measure.

Social return on investment. a method for estimating the social, environmental, and economic value created by an intervention relative to the resources invested.

SDG washing. claiming alignment with the Sustainable Development Goals for reputational advantage without substantive contribution.

Portfolio alignment. ensuring that the set of projects an organization pursues collectively advances its strategy and commitments.

4.1 Introduction

The most consequential sustainability decision in a project's life is often made before the project formally begins: the decision to undertake it at all, and to undertake it rather than something else. A project that is well delivered but poorly chosen wastes resources on the wrong problem; a portfolio of individually competent projects can still fail an institution if the projects are misaligned with its strategy or with the commitments it has made. Selection is therefore the stage at which strategic and SDG alignment, the first dimension of the framework, is principally exercised.

This chapter develops the analytic discipline of choosing sustainable projects. It moves from understanding the problem, through generating and screening options, to evaluating and prioritizing them against economic, social, environmental, and strategic criteria, and finally to aligning them with the Sustainable Development Goals. Throughout, it insists on a distinction that later sections make central: between projects that genuinely advance sustainable development and projects that merely claim to.

The stakes are practical. In a setting of scarce public and community resources, choosing well is the highest-leverage act of sustainable project management. The tools in this chapter are the means by which that choice is made defensible, transparent, and honest.

4.2 Conceptual and Theoretical Foundations

Sound selection begins with understanding, not with solutions. Needs assessment and situation analysis establish the gap between current and desired conditions, as well as the context in which any project must operate. Premature attachment to a favored solution, a common failing in practice, produces projects that address symptoms rather than causes and that founder when the unexamined context reasserts itself.

Problem-tree and objective-tree analysis disciplines this understanding. In a problem tree, a core problem is placed at the center, with its causes arranged below as roots and its effects above as branches, so that the problem's structure becomes visible. The tree is then reframed into an objective tree, in which each cause becomes a means and each effect an end, converting a diagnosis into a coherent set of objectives. Figure 4.1 shows this transformation, which underlies the widely used logical framework approach in development practice.

From the objective tree, candidate interventions are generated and screened. Screening applies quick, decisive filters, strategic fit, legal and environmental feasibility, and obvious sustainability risks, to eliminate options that should not proceed to costly detailed appraisal. Only the survivors are subjected to the fuller evaluation methods examined next. This staged narrowing conserves scarce appraisal capacity and imposes discipline on enthusiasm.

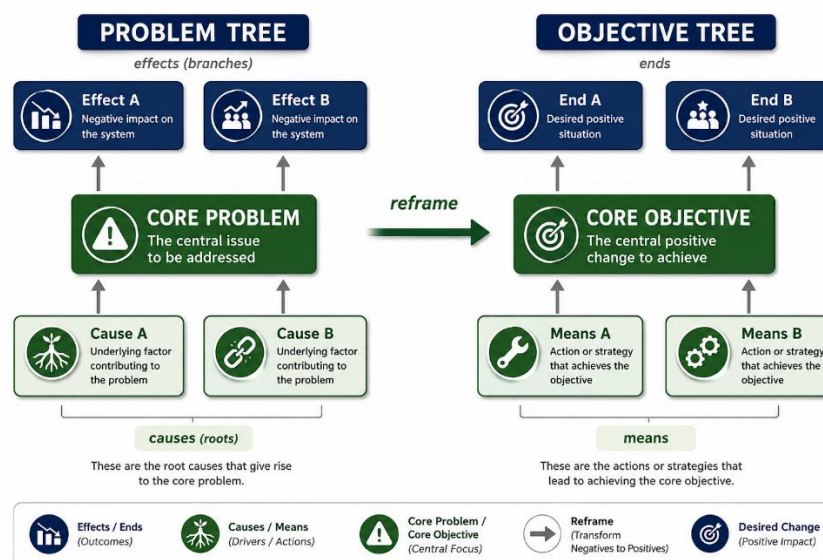


Figure 4.1 From Problem Tree to Objective Tree

Source: Author's synthesis, drawing on the logical framework approach (European Commission, 2004).

4.3 Major Scholarly Discussions

Several evaluation methods compete and complement one another. Cost-benefit analysis expresses costs and benefits in monetary terms and computes a net benefit, offering comparability at the price of monetizing values, such as ecological or cultural goods, that resist monetization. Cost-effectiveness analysis avoids monetizing benefits by comparing the cost of achieving a fixed objective, useful where the objective is agreed but its monetary value is contested.

Where objectives are multiple and incommensurable, multi-criteria decision analysis evaluates options against several weighted criteria that cannot be collapsed into one measure, making trade-offs explicit rather than hiding them inside a single figure (Belton & Stewart, 2002). This transparency is valuable for sustainable projects, whose merits span dimensions that no single metric captures. Social return on investment extends the logic toward social and environmental value, estimating the value created relative to resources invested and expressing it, with due caution, as a ratio (Nicholls et al., 2012).

Underlying all these methods is the theory of change introduced in Chapter 3, which specifies how a chosen intervention is expected to produce outcomes and impacts (Rogers, 2014). Selection is not only about comparing options but about verifying that the favored option has a credible causal pathway to the outcomes that justify it. Environmental and social screening, portfolio alignment, and attention to trade-offs among the Sustainable Development Goals complete the appraisal, ensuring that a project chosen for its primary benefit does not impose unacceptable costs on other goals or stakeholders.

4.4 Relevant Standards, Policies, and Frameworks

The Sustainable Development Goals supply the reference framework against which sustainable projects are aligned (United Nations, 2015), and the P5 approach offers a structured way to map a

project's impacts to those goals and to the triple bottom line (GPM Global & Project Management Institute, n.d.). Aligning a project with the goals means more than labeling it with an icon; it means identifying the specific targets it advances, the goals it may set back, and the indicators by which its contribution will be judged.

In the Philippine setting, project selection is governed by the national planning architecture examined in Chapter 1. The Philippine Development Plan 2023-2028 and its Public Investment Program direct agencies, government corporations, state universities and colleges, and local governments toward priority programs and projects aligned with national goals and the Sustainable Development Goals (National Economic and Development Authority, 2023). Major public projects also pass through established evaluation and approval processes, which provide the formal points at which alignment and feasibility are, in principle, tested.

The framework of this book adds to these processes a specific discipline: screening every candidate project against the eight SPMIF dimensions at the selection stage, so that strategic and SDG alignment, economic viability, environmental responsibility, social inclusion, ethical governance, risk and resilience, monitoring and benefits, and institutional sustainability are all considered before commitment, not discovered afterward.

4.5 Philippine Context and Applications

Project selection in Philippine institutions is shaped by both formal criteria and informal pressures. State universities and colleges choose among research, extension, and capital projects within budget ceilings; local governments select local development projects that must align with the local development plan and the annual investment program; cooperatives and community organizations choose livelihood and environmental initiatives within the constraints of member priorities and available grants. In each setting, the formal appraisal apparatus coexists with political and relational influences that can bias selection toward the visible, the short-term, and the favored.

This reality is not a reason to abandon rigorous selection, but rather to strengthen it. Transparent criteria, documented appraisal, and explicit SDG alignment make it harder for weak projects to advance on influence alone, and they give conscientious officials a defensible basis for their choices. The tools in this chapter are, among other things, instruments of accountability.

The chapter's illustrative case, which follows, is set in a state university choosing among competing project ideas, a decision faced routinely across the Philippine higher-education system and directly relevant to the institutions for which this book is written.

4.6 Detailed Case Study

Illustrative Case: A State University's Project Choice

Illustrative Case. The following case is constructed to illustrate the selection method and does not report a specific real project or real results.

Background: A state university with a modest extension budget must choose among three proposed projects: a campus solar installation, a community water-quality monitoring project with a nearby

fishing village, and a digital literacy program for out-of-school youth. All three are worthy; only one can be funded this cycle.

Problem and objective analysis: Applying problem-tree analysis, the team clarifies the core problem each project addresses, traces causes and effects, and then reframes each into an objective tree. This reveals that the water-quality project addresses a cause of a livelihood problem affecting a vulnerable community, whereas the solar project mainly reduces the university's own costs.

Evaluation: Cost-benefit reasoning favors the solar project on narrow financial grounds. Multi-criteria analysis, weighting social inclusion, SDG contribution, and institutional sustainability alongside cost, favors the water-quality project, whose benefits reach a vulnerable external community and align with several goals. A social-return perspective reinforces this, valuing the livelihood and health effects that the financial analysis omitted.

SDG alignment and trade-offs: The water-quality project aligns with a primary goal on life below water and clean water, with supporting contributions to no poverty and partnerships, and a candid note that it advances the university's operational sustainability less than the solar option would. The trade-off is made explicit rather than hidden.

Selection and rationale: The university selects the water-quality project, documenting the multi-criteria scores, the SDG alignment, and the institutional arrangement with the village that will sustain monitoring after the grant ends. The rationale is transparent and defensible, and the two unfunded ideas are retained in the pipeline for future cycles.

Lessons: Financial analysis alone would have led to a different decision; multidimensional appraisal and explicit SDG alignment changed the decision and made it accountable. The case shows selection as the stage where sustainability is most cheaply secured or most easily lost.

4.7 International Comparative Example

Internationally, a growing number of governments and development banks have moved to embed Sustainable Development Goal screening into the appraisal of public investments, requiring proposals to state which goals and targets they advance and to disclose potential adverse effects. The practice, encouraged by the universal and measurable design of the 2030 Agenda (United Nations, 2015), shifts SDG alignment from a communications exercise toward a condition of funding.

The relevance for Philippine institutions is direct. Where alignment is merely declared, projects can claim goals they do not truly serve; where alignment is appraised, with targets named and adverse effects disclosed, the claim becomes checkable. The SDG Project Alignment Matrix presented next is a practical instrument for making alignment explicit and auditable at the point of selection.

4.8 Original Tool: The SDG Project Alignment Matrix

The SDG Project Alignment Matrix records, for a candidate project, the fields necessary to make its sustainability contribution explicit and its trade-offs visible. Upon completion, it becomes part of the project's initiating record and a baseline for later monitoring. Table 4.1 sets out the matrix as a template, with guidance for each field.

Table 4.1 SDG Project Alignment Matrix (Template)

Field	Guidance for completion
Development problem	State the core problem, drawn from the problem-tree analysis.
Target beneficiaries	Identify who benefits, disaggregated by vulnerability where relevant.
Project intervention	Describe the proposed response and its causal logic.
Primary SDG	Name the single goal the project most directly advances.
Supporting SDGs	List secondary goals meaningfully advanced.
Relevant targets	Cite the specific SDG targets addressed, not only goals.
Expected outputs	State the tangible deliverables.
Expected outcomes	State the changes in condition or behavior sought.
Potential negative effects	Disclose goals or groups that the project may set back.
Sustainability risks	Identify risks across the eight SPMIF dimensions.
Proposed indicators	Specify how contributions and effects will be measured.

Source: Author's original tool.

The discipline of the matrix lies in its demand for honesty. The field for potential negative effects forces disclosure of trade-offs; the field for relevant targets prevents vague goal-labeling; the field for sustainability risks connects selection to the framework's eight dimensions. A project that cannot complete the matrix credibly is not ready for selection.

4.9 Practical Tool: A Selection Screen

SUSTAINABLE PROJECT SELECTION SCREEN

- Is the problem clearly understood, with causes and effects analyzed rather than assumed?
- Does the intervention have a credible theory of change to the intended outcomes?
- Has the project been evaluated on more than financial grounds, including social and environmental value?
- Is SDG alignment specified by target, with potential adverse effects disclosed?
- Have the eight SPMIF dimensions each been screened for major risks?
- Is there a credible institution to own and sustain the outcome after funding ends?

4.10 Ethical, Social, Environmental, and Governance Considerations

Selection is an ethical act because it distributes scarce resources among competing claims. To choose a project is to decline others, and the grounds of that choice, whose needs count, whose voice is heard, whose benefit is weighed, are matters of justice. Transparent, documented, multidimensional selection is therefore not only more effective but more just, because it makes the grounds of choice visible and contestable rather than leaving them to influence.

Governance considerations converge on transparency. The matrix and the selection screen are, in effect, accountability instruments: they create a documentary record of why a project was chosen, against what criteria, and with what disclosed trade-offs. In settings where selection can be swayed by

relational and political pressures, such records serve as a practical safeguard of the integrity of public and community resources.

4.11 Critical Issues, Tensions, and Limitations

The central tension in selection is between rigor and reality. The methods in this chapter assume time, data, and analytic capacity that many institutions lack, and their sophistication can be misused to lend false precision to decisions already taken on other grounds. The remedy is not to abandon rigor but to apply it proportionately and honestly, using simple, transparent criteria where capacity is limited and reserving elaborate appraisal for large commitments.

A second issue is SDG washing. Because alignment with the goals confers legitimacy, there is a standing temptation to claim it without earning it, attaching goals a project barely serves or ignoring goals it sets back. The alignment matrix resists this by demanding specific targets and disclosed adverse effects, but no tool can compel honesty; that remains a matter of institutional culture and accountability.

Finally, selection cannot anticipate everything. Even well-chosen projects encounter unforeseen conditions, and the later stages of the framework, planning, implementation, monitoring, and beyond, exist precisely to manage what selection could not foresee. Good selection improves the odds; it does not guarantee the outcome. Chapter 5 turns to the next stage, translating a selected project into a defined, initiated undertaking with clear scope and success criteria.

Chapter Synthesis

This chapter applied the framework at the selection stage, developing the discipline of choosing sustainable projects. It moved from needs assessment and problem-tree analysis, illustrated in Figure 4.1, through cost-benefit, multi-criteria, and social-return evaluation, to alignment with the Sustainable Development Goals. It presented an original SDG Project Alignment Matrix and a selection screen, and it distinguished genuine alignment from SDG washing.

An illustrative university case showed that multidimensional appraisal and explicit SDG alignment can change a decision that a narrow financial analysis would have settled otherwise, making it transparent and accountable. Selection, the chapter argued, is where sustainability is most cheaply secured or most easily lost. Chapter 5 carries the selected project into initiation, defining its scope, objectives, and sustainable success criteria.

Critical Reflection Questions

1. Why is project selection described as the stage where sustainability is most cheaply secured or most easily lost?
2. Transform a development problem you know into a problem tree and then an objective tree. What does the reframing reveal?
3. Compare cost-benefit analysis, multi-criteria decision analysis, and social return on investment. When is each most appropriate?

4. Complete an SDG Project Alignment Matrix for a proposed project, paying particular attention to potential negative effects.
5. Distinguish genuine SDG alignment from SDG washing using a Philippine example.
6. How can rigorous selection methods be misused to lend false precision to decisions taken on other grounds, and how can this be prevented?
7. In your institution, what informal pressures bias project selection, and how might transparent criteria counter them?

Application Activity

PROJECT TASK: SELECT AND ALIGN A PROJECT

Purpose. To practice sustainable project selection and SDG alignment.

Instructions. Identify two or three candidate projects for your institution or community. For each, sketch a problem tree, then evaluate the candidates using at least two methods, including one that captures social or environmental value. Complete an SDG Project Alignment Matrix for your preferred candidate, disclosing at least one potential negative effect, and justify your selection in a short memorandum.

Expected output. A selection memorandum of about three pages, with the problem trees, the comparative evaluation, and the completed alignment matrix as annexes.

Assessment criteria. Quality of problem analysis (25 percent); appropriateness and honesty of evaluation (25 percent); completeness of the alignment matrix, including disclosed trade-offs (30 percent); clarity of the memorandum (20 percent).

Chapter References

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P A R T II

PLANNING AND DESIGNING SUSTAINABLE PROJECTS

Chapter 5 Project Initiation, Scope, Objectives, and Success Criteria

Chapter 6 Sustainable Project Planning, Scheduling, and Resource Management

Chapter 7 Project Cost, Budgeting, Financing, and Sustainable Procurement

Chapter 8 Risk, Resilience, and Uncertainty in Sustainable Projects

CHAPTER 5

Project Initiation, Scope, Objectives, and Success Criteria

CHAPTER OVERVIEW

This chapter carries a selected project into initiation, where its rationale is formalized, and its boundaries are set. It develops the business case, the project charter, and the problem statement; distinguishes SMART and SMARTER objectives; and connects objectives to outputs, outcomes, and impacts through the logical framework and theory of change. It treats scope definition, the work breakdown structure, and change control as safeguards against scope creep, and it extends conventional success criteria to include sustainable success criteria drawn from the eight dimensions of the framework.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Prepare a business case and project charter that justifies a project and defines its authority.
2. Write SMART and SMARTER objectives and connect them to a results chain.
3. Define product and project scope and construct a work breakdown structure.
4. Manage scope creep through acceptance criteria and change control.
5. Specify sustainable success criteria that extend beyond scope, time, and cost.

KEY TERMS

Project charter. The document that formally authorizes a project and names the project manager's authority.

Scope creep. The uncontrolled expansion of scope without corresponding adjustment of time, cost, and resources.

Work breakdown structure. a hierarchical decomposition of the total scope of work into manageable components.

Sustainable success criteria. criteria for judging success that extend beyond the triple constraint to the eight sustainability dimensions.

5.1 Introduction

Initiation converts a chosen idea into an authorized undertaking with a defined purpose, boundary, and set of success criteria. Decisions taken here, about why the project exists, what it will and will not deliver, and how its success will be judged, constrain everything that follows. A project initiated with a vague purpose, an unbounded scope, or a purely delivery-focused definition of success carries those weaknesses through every later stage.

This chapter treats initiation as the stage at which the framework's demand for sustainable success criteria is first operationalized. Alongside the conventional apparatus of business case, charter, objectives, and scope, it insists that the criteria by which the project will later be judged include the sustainability of its outcome, not merely the efficiency of its delivery.

5.2 Conceptual and Theoretical Foundations

The business case sets out the justification for a project, comparing the cost of acting with the expected benefit and the cost of not acting. In sustainable project management, the business case is assessed over the life cycle, so that a low initial cost that produces high maintenance or environmental costs is recognized as the poor investment it is. The project charter then formally authorizes the project, names the sponsor and project manager, and records the high-level scope, objectives, and constraints. It is the instrument through which governance, the framework's fifth dimension, is first established.

A clear problem statement anchors the charter, stating the condition the project addresses without presupposing the solution. From it flow objectives, which should be SMART, that is, specific, measurable, achievable, relevant, and time-bound, and preferably SMARTER, adding evaluation and review so that objectives are revisited as conditions change (Doran, 1981).

5.3 Major Scholarly Discussions

Objectives gain meaning when placed in a results chain that distinguishes inputs, activities, outputs, outcomes, and impacts. The logical framework approach and the theory of change make this chain explicit and expose the assumptions on which it depends (Rogers, 2014). This discipline guards against the common confusion of outputs with outcomes, the confusion that lets a project claim success for building a facility that never delivers the benefit it was meant to produce.

Scope is defined in two senses: product scope, the features of the deliverable, and project scope, the work required to produce it. The work breakdown structure decomposes project scope into manageable components and serves as the basis for estimating, scheduling, and controlling. An undisciplined scope invites scope creep, the incremental expansion of work without corresponding adjustment of time and cost, which is contained through explicit acceptance criteria, a scope baseline, and formal change control.

5.4 Relevant Standards, Policies, and Frameworks

The initiation practices described here are codified in ISO 21502:2020 and in the value orientation of the PMBOK Guide (International Organization for Standardization, 2020; Project Management Institute, 2021). In the Philippine setting, public projects formalize initiation through project proposals and feasibility documents assessed against the priorities of the Philippine Development Plan and its investment program (National Economic & Development Authority, 2023). The framework of this book requires that the charter record sustainable success criteria derived from the eight dimensions.

5.5 Philippine Context and Applications

In Philippine institutions, initiation documents are often prepared to satisfy administrative and funding requirements rather than to govern the project, and success criteria frequently default to completion and disbursement. The consequence is projects that are formally initiated but weakly bound, and whose stated success ignores the outcome. Strengthening initiation, by writing genuine business cases, bounding scope, and specifying sustainable success criteria, is among the least costly and most effective improvements available to Philippine project practice.

5.6 Case Study

Illustrative Case: Chartering a Campus Water-Reuse Project

Illustrative Case. Constructed to illustrate initiation practice, it does not report a specific real project or real results.

Business case: A state university proposes a greywater reuse system for its grounds. The initial cost is modest; the life-cycle cost is driven by reduced water bills, reduced potable-water demand, and an instructional benefit for engineering students.

Charter and scope: The charter names the sponsor and manager and limits the scope to a single building cluster, excluding the wider campus, thereby preventing early scope creep. Product scope covers collection, treatment, and distribution for irrigation only.

Sustainable success criteria: Success is defined not only as on-time, on-budget delivery but also as sustained operation for at least 3 years, a target reduction in potable water use, a maintenance plan funded from the operating budget, and demonstrated student learning outcomes.

Lesson: By writing sustainability into the success criteria at initiation, the project makes its later maintenance and benefits realization a defined obligation rather than an afterthought.

5.7 International Comparative Example

Internationally, results-based and logical framework initiation is standard in development projects funded by multilateral banks, which require an explicit results chain and success indicators before approval. The discipline shifts the definition of success from disbursement toward outcomes, and it offers a model that Philippine public and university projects can adapt.

5.8 Original Tool: A Sustainable Project Charter

Table 5.1 sets out a charter template that embeds sustainable success criteria alongside the conventional elements.

Table 5.1 Sustainable Project Charter (Template)

Element	Content
Problem statement	The condition addressed, from the problem-tree analysis.
Business case	Life-cycle justification, including the cost of inaction.
Objectives	SMARTER objectives linked to the results chain.
Scope (in / out)	Product and project scope, with explicit exclusions.
Governance	Sponsor, project manager, and decision rights.

Element	Content
Conventional success criteria	Scope, time, cost, and quality targets.
Sustainable success criteria	Targets across the eight SPMIF dimensions, including maintenance and benefits.
Key risks	Principal risks, including sustainability risks.

Source: Author's original tool.

5.9 Practical Tool: Scope-Control Checklist

SCOPE-CONTROL CHECKLIST

- Is a scope baseline documented and approved?
- Are acceptance criteria defined for each deliverable?
- Is a change-control process in place, with a clear authority to approve changes?
- Are exclusions stated explicitly to prevent assumed scope?
- Do success criteria include sustainable outcomes, not only outputs?

5.10 Ethical, Social, Environmental, and Governance Considerations

Defining success at initiation is an ethical act because the chosen criteria determine what the project will be held accountable for. Criteria that ignore maintenance, inclusion, or environmental impact license their neglect. Embedding sustainable success criteria in the charter is therefore a governance safeguard, converting sustainability commitments into auditable obligations from the project's first formal document.

5.11 Critical Issues, Tensions, and Limitations

The main tension is between the desire for ambitious scope and the discipline of bounded scope. Sponsors and stakeholders press for more, and a project that can say no accumulates commitments it cannot sustain. Yet excessive rigidity can exclude beneficial adaptation. The resolution lies in disciplined change control rather than in either unbounded flexibility or inflexible baselines. A further limitation is that well-written criteria do not enforce themselves; they require the monitoring and governance developed in later chapters.

Chapter Synthesis

This chapter formalized a selected project through a business case, charter, objectives, and scope, and extended the success criteria to include the sustainability of the outcome. It presented a sustainable project charter template and a scope-control checklist, and it argued that embedding sustainable success criteria at initiation converts sustainability from aspiration into obligation. Chapter 6 turns to planning the work authorized by the charter.

Critical Reflection Questions

1. Why can a project be well initiated administratively yet weakly bounded in practice?
2. Distinguish outputs from outcomes using a results chain, and explain why the distinction matters for success.
3. How do SMARTER objectives improve on SMART objectives for sustainable projects?
4. Draft two sustainable success criteria for a project you know, and explain how each would be measured.
5. How does change control differ from simply resisting all change?
6. In your institution, what would it take to make sustainable success criteria a standard part of project charters?

Application Activity

PROJECT TASK: DRAFT A SUSTAINABLE CHARTER

Purpose. To practice initiation with sustainable success criteria.

Instructions. For a selected project, complete the Sustainable Project Charter template, giving particular attention to the sustainable success criteria and the scope exclusions. Sketch a one-page results chain linking activities to outcomes and impacts.

Expected output. A completed charter of about two pages with an attached results chain.

Assessment criteria. Clarity of problem and business case (25 percent); quality of objectives and results chain (25 percent); rigor of scope definition (20 percent); strength of sustainable success criteria (30 percent).

Chapter References

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CHAPTER 6

Sustainable Project Planning, Scheduling, and Resource Management

CHAPTER OVERVIEW

This chapter develops planning, scheduling, and resource management for sustainable projects. It treats planning as iterative, moving from activity definition and sequencing through the critical path and the Gantt chart to schedule baselines and compression. It extends resource management to sustainable resource planning, addressing workforce equity and wellbeing, energy and material use, local sourcing, and carbon-conscious scheduling, and it presents an illustrative plan for a Philippine community project.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Define, sequence, and schedule project activities using the critical path method and Gantt charts.
2. Distinguish resource leveling from resource smoothing and apply schedule compression appropriately.
3. Plan resources sustainably, addressing workforce equity, wellbeing, and material and energy use.
4. Integrate local sourcing and carbon-conscious choices into scheduling.
5. Prepare an integrated sustainable plan for a community project.

KEY TERMS

Critical path. The longest sequence of dependent activities that determines the shortest possible project duration.

Gantt chart. a bar chart that displays activities against time, showing durations and dependencies.

Resource leveling. adjusting a schedule to resolve resource over-allocation, potentially changing the critical path.

Sustainable resource planning. planning the use of people, materials, and energy to minimize social and environmental cost.

6.1 Introduction

Planning translates the charter into an executable schedule and a responsible plan for the resources the work will consume. In sustainable project management, planning carries a double burden: it must produce a realistic, controllable schedule, and it must ensure that the way resources are used, human, material, and energetic, is itself economical, equitable, and environmentally sound. Planning is iterative; the first plan is a hypothesis refined as estimates improve and conditions change.

6.2 Conceptual and Theoretical Foundations

From the work breakdown structure, activities are defined, sequenced according to their dependencies, and estimated for duration. A network diagram reveals the critical path, the longest chain of dependent activities that sets the minimum project duration, and therefore the activities where delay directly delays the project. The Gantt chart, illustrated in Figure 6.1, presents the schedule accessibly, showing durations, milestones, and overlaps.

Resource management ensures that the people, materials, and equipment required are available when needed. Resource leveling resolves over-allocation, sometimes extending the schedule, while resource smoothing adjusts within available slack without changing the end date. Schedule compression, through fast-tracking or crashing, shortens duration at the cost of increased risk or expense, a trade-off that must be weighed deliberately.

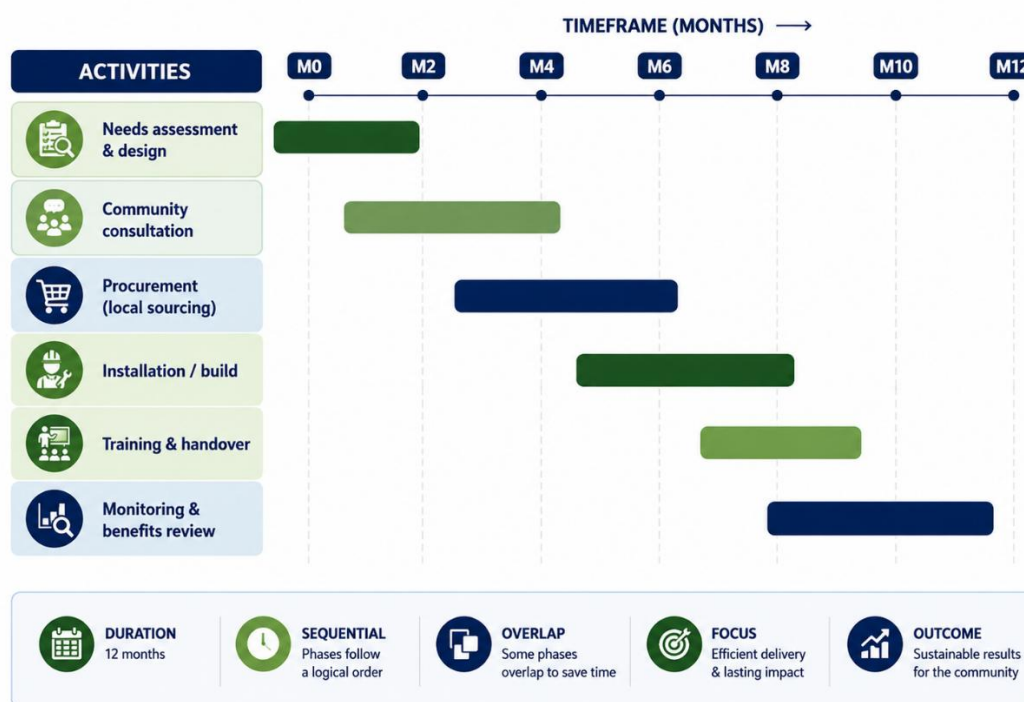


Figure 6.1 Illustrative Gantt Chart for a Community Project

Source: Author's illustration.

6.3 Major Scholarly Discussions

Sustainable resource planning extends conventional resource management in several directions. Workforce planning attends to equity and wellbeing, avoiding the overloading of key individuals and the informal reliance on unpaid or undervalued labor that undermines social sustainability. Material planning favors durable, repairable, and locally sourced inputs, reducing both environmental impact and dependence on fragile supply chains. Energy and transport requirements are planned to reduce consumption and emissions, an approach sometimes described as carbon-conscious scheduling.

These considerations are not add-ons but planning parameters. Local sourcing, for example, can shorten supply chains, support local livelihoods, and reduce transport emissions simultaneously, advancing economic, social, and environmental dimensions at once, while sometimes trading against the lowest unit cost. Making such trade-offs visible in the plan is part of sustainable planning.

6.4 Relevant Standards, Policies, and Frameworks

Scheduling and resource practices are codified in ISO 21502:2020 and the PMBOK Guide (International Organization for Standardization, 2020; Project Management Institute, 2021). Sustainable resource considerations connect to the environmental and social dimensions of the framework and to the sustainability commitments of Philippine planning and legislation examined in earlier chapters.

6.5 Philippine Context and Applications

Philippine projects frequently face resource realities that planning must confront honestly: seasonal labor availability, weather windows that constrain outdoor work, unreliable supply of specialized materials, and transport difficulties in dispersed or upland areas. Planning that ignores these realities produces schedules that fail when they come into contact with them. Sustainable planning in this context means realistic sequencing around the rainy season and hazard windows, deliberate local sourcing where feasible, and workforce plans that respect the well-being of the community and contract workers.

6.6 Case Study

Illustrative Case: Planning a Community Solar Installation

Illustrative Case. Constructed to illustrate planning, it does not report a specific real project or real results.

Plan: The work breakdown structure yields six work packages, from needs assessment and consultation through procurement, installation, training, and a monitoring and benefits review. Figure 6.1 shows the indicative schedule.

Sustainable choices: Local technicians are trained and employed; mounting materials are sourced regionally; installation is scheduled outside the peak rainy months; and a maintenance and benefits review are scheduled after handover rather than treated as the end of the project.

Lesson: Sustainability considerations, local employment, weather-aware sequencing, and a post-handover review are built into the schedule rather than appended to it.

6.7 International Comparative Example

Large international projects increasingly publish sustainable procurement and logistics plans that specify local content, emissions targets, and workforce standards as scheduling constraints. The practice demonstrates that sustainability parameters can be planned rather than hoped for, a lesson transferable to Philippine public and community projects.

6.8 Original Tool: Resource-Allocation Matrix

Table 6.1 records, for each activity, the resources required and the sustainability consideration attached to them.

Table 6.1 Resource-Allocation Matrix with Sustainability Notes

Activity	Resources	Sustainability consideration
Consultation	Facilitators, venue	Inclusive scheduling; accessible venue
Procurement	Budget, suppliers	Local and ethical sourcing; durable materials
Installation	Labor, equipment	Local employment; worker safety; weather window
Training	Trainers, materials	Skills retained locally for maintenance
Monitoring	Staff time, tools	Benefits tracked beyond handover

Source: Author's original tool.

6.9 Practical Tool: Sustainable Scheduling Checklist

SUSTAINABLE SCHEDULING CHECKLIST

- Is the critical path identified, with realistic estimates and contingency?
- Is the schedule sequenced around hazard and weather windows?
- Does the plan use local sourcing and employment where feasible?
- Are workforce loads equitable and well-being protected?
- Is a post-handover benefits review scheduled?

6.10 Ethical, Social, Environmental, and Governance Considerations

Resource planning has direct social and environmental consequences. Who is employed, on what terms, and whose well-being is protected are ethical questions decided in the plan. Material and energy choices determine environmental impact. Making these choices explicit and documenting them brings the social and environmental dimensions of the framework into the everyday discipline of scheduling.

6.11 Critical Issues, Tensions, and Limitations

The principal tension is between the lowest immediate cost and the sustainable choice. Local sourcing, durable materials, and equitable labor can raise initial costs even as they lower life-cycle costs and social risks. When budgets are judged solely on initial cost, sustainable planning is disadvantaged, which is why Chapter 7 argues for life-cycle costing. A second limitation is that plans are only as good as the estimates behind them, and optimism bias routinely produces schedules that cannot be met.

Chapter Synthesis

This chapter developed scheduling through the critical path and the Gantt chart and extended resource management to sustainable resource planning, addressing workforce equity, material and

energy use, local sourcing, and carbon-conscious scheduling. An illustrative community solar plan showed sustainability built into the schedule. Chapter 7 turns to the financial dimension: cost, budgeting, financing, and sustainable procurement.

Critical Reflection Questions

1. Why does the critical path determine the minimum project duration, and why does that matter for control?
2. Distinguish resource leveling from resource smoothing with an example.
3. How can local sourcing advance economic, social, and environmental dimensions at once, and where might it trade off against cost?
4. Why should hazard and weather windows shape a Philippine project schedule?
5. What is carbon-conscious scheduling, and how would you apply it to a project you know?
6. How does optimism bias threaten schedule realism, and how can it be countered?

Application Activity

PROJECT TASK: BUILD A SUSTAINABLE PLAN

Purpose. To practice integrated sustainable planning.

Instructions. For a project of your choice, build a work breakdown structure, an activity list with dependencies, an indicative Gantt chart, and a resource-allocation matrix with a sustainability note for each activity. Identify the critical path and one schedule risk.

Expected output. A short plan package of about three pages, including the schedule and matrix.

Assessment criteria. Soundness of the schedule and critical path (30 percent); realism of estimates and sequencing (25 percent); quality of sustainability considerations (30 percent); clarity (15 percent).

Chapter References

- International Organization for Standardization. (2020). ISO 21502:2020 Project, program and portfolio management: Guidance on project management. ISO.
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CHAPTER 7

Project Cost, Budgeting, Financing, and Sustainable Procurement

CHAPTER OVERVIEW

This chapter develops project financial management and responsible procurement. It distinguishes between cost types and estimation methods, builds a cost baseline with contingency and management reserves, and argues for life-cycle costing and total cost of ownership over lowest initial cost. It surveys financing sources from appropriations and grants to public-private partnerships, blended and climate finance, and it develops sustainable procurement with environmental, social, and anti-corruption criteria, situated in the Philippine procurement context.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Distinguish cost types and apply analogous, parametric, and bottom-up estimation.
2. Build a cost baseline with contingency and management reserves.
3. Apply life-cycle costing and total cost of ownership to compare options.
4. Compare financing sources for sustainable projects, including climate and blended finance.
5. Apply sustainable procurement criteria within the Philippine procurement framework.

KEY TERMS

Life-cycle costing. The assessment of total cost over the whole life of an asset, including operation, maintenance, and disposal.

Contingency reserve. funds set aside for identified risks within the cost baseline.

Sustainable procurement. procurement that integrates environmental, social, and ethical criteria alongside price and quality.

Value engineering. a method for improving value by analyzing the function against lifecycle costs.

7.1 Introduction

Money disciplines projects, and the way it is estimated, budgeted, financed, and spent determines much of a project's sustainability. This chapter argues that the dominant habit of judging projects by lowest initial cost is a principal cause of unsustainable outcomes, because it systematically undervalues durability, maintainability, and life-cycle performance. Sustainable financial management substitutes life-cycle thinking for initial-cost thinking and integrates sustainability into procurement rather than treating it as a separate concern.

7.2 Conceptual and Theoretical Foundations

Costs are classified as direct or indirect, fixed or variable, and as capital or operating expenditures. Estimation proceeds by analogous methods using historical comparison, parametric methods using statistical relationships, or bottom-up methods aggregating detailed estimates, with accuracy rising as detail increases. The estimates form a cost baseline against which spending is controlled, supplemented by a contingency reserve for identified risks and a management reserve for unforeseen ones.

Life-cycle costing and total cost of ownership extend the horizon beyond acquisition to operation, maintenance, and disposal, revealing that the cheapest option to build is frequently the most expensive to own. Value engineering improves the ratio of function to life-cycle cost, and earned value management integrates scope, schedule, and cost to measure performance against plan.

7.3 Major Scholarly Discussions

Financing sustainable projects draws on a widening range of instruments. Traditional sources include government appropriations, grants, and loans; contemporary mechanisms include public-private partnerships, blended finance that combines concessional and commercial capital, climate finance, and green bonds that raise capital for environmentally beneficial projects. Each instrument carries its own conditions, risks, and accountability requirements, and the choice among them shapes the sustainability of the outcome as much as the amount raised.

A central concern is financial continuity after funding ends. Many projects are financed for construction but not for operation and maintenance, which guarantees a decline once the initial funding is exhausted. Sustainable financial planning secures a credible source of continuing funds, from operating budgets, user charges, or endowment, before commitment, treating the absence of such a source as a fatal flaw rather than a detail.

7.4 Relevant Standards, Policies, and Frameworks

Philippine public procurement has long been governed by the Government Procurement Reform Act (Republic Act No. 9184, 2003) and its implementing rules under the Government Procurement Policy Board, with transparency and competitive bidding as guiding principles. This framework has been updated by the New Government Procurement Act (Republic Act No. 12009, 2024), which, among other things, gives greater scope to value-for-money and sustainability considerations [Verification Required: confirm provisions of RA 12009 against the primary text]. Sustainable procurement, integrating environmental and social criteria, aligns with these developments and with international guidance such as ISO 20400 on sustainable procurement.

7.5 Philippine Context and Applications

Two Philippine realities dominate this chapter. First, the persistent underfunding of maintenance means that assets are built with capital budgets and then starved of the operating funds needed to keep them serviceable, as seen in the MRT-3 case. Second, procurement, while governed by strong transparency rules, remains vulnerable to delay and to lowest-bid outcomes that sacrifice durability.

Both realities argue for life-cycle costing and for procurement criteria that reward sustainability rather than initial price alone.

7.6 Case Study

Illustrative Case: Cheapest Build versus Sustainable Life-Cycle Option

Illustrative Case. Constructed to illustrate life-cycle costing; figures are indicative and do not report a real project.

Choice: A local government must choose between a low-cost drainage solution and a more durable, higher-cost design. The low-cost option wins on initial price.

Life-cycle analysis: When operation, frequent repairs, and a shorter service life are factored in, the durable option is cheaper over 15 years and fails less often during floods, protecting the community it serves.

Lesson: Judged on initial cost, the wrong option wins; judged on life-cycle cost and resilience, the sustainable option is both cheaper and safer. The decision rule, not the engineering, determines the outcome.

7.7 International Comparative Example

Many governments now mandate life-cycle costing and sustainable procurement criteria for public works, and issue green bonds to finance environmentally beneficial infrastructure. These practices demonstrate that decision rules can be changed by policy, shifting the systematic bias away from the lowest initial cost toward sustained value.

7.8 Original Tool: Life-Cycle Cost Comparison

Table 7.1 Life-Cycle Cost Comparison (Template)

Cost element	Cheapest option	Sustainable option
Initial cost	Lower	Higher
Annual operation and maintenance	Higher	Lower
Expected service life	Shorter	Longer
Failure and disruption cost	Higher	Lower
Total life-cycle cost	Higher	Lower

Source: Author's original tool. Figures illustrative.

7.9 Practical Tool: Sustainable-Procurement Checklist

SUSTAINABLE-PROCUREMENT CHECKLIST

- Are life-cycle cost and total cost of ownership assessed, not initial price alone?
- Do specifications include environmental criteria (durability, efficiency, materials)?
- Do criteria include social factors (local content, labor standards)?
- Are anti-corruption and transparency controls in place?
- Is a funded source of continuing operation and maintenance identified?

7.10 Ethical, Social, Environmental, and Governance Considerations

Procurement is where public money meets private interest, and it is therefore a principal site of both value creation and corruption risk. Transparent, criteria-based procurement that rewards sustainability serves the ethical and governance dimensions of the framework directly, while opaque or lowest-bid procurement invites waste and capture. Financial continuity is itself an ethical matter, since building what cannot be maintained wastes the resources of the community that funded it.

7.11 Critical Issues, Tensions, and Limitations

The central tension is institutional: life-cycle costing requires data, capacity, and rules that reward long-term value, none of which can be assumed. Where budgeting is annual and separated from maintenance funding, life-cycle logic struggles against structural incentives. Sustainable procurement can also increase initial costs and invite challenges, requiring clear legal authority and documentation. These are reasons to reform incentives and build capacity, not reasons to abandon life-cycle thinking.

Chapter Synthesis

This chapter developed sustainable financial management, arguing for life-cycle costing over initial-cost thinking, surveying financing instruments, and integrating environmental, social, and anti-corruption criteria into procurement within the Philippine framework. An illustrative comparison showed that the decision rule, not the engineering, often determines whether the sustainable option is chosen. Chapter 8 turns to risk, resilience, and uncertainty.

Critical Reflection Questions

1. Why does lowest-initial-cost thinking tend to produce unsustainable outcomes?
2. Distinguish contingency and management reserves, and explain the role of each.
3. How does life-cycle costing change a procurement decision? Use the illustrative case.
4. Compare two financing instruments for a sustainable project, noting their conditions and risks.
5. Why is financial continuity after funding ends treated here as a fatal flaw if absent?
6. How can Philippine procurement reward durability without inviting abuse of discretion?

Application Activity

PROJECT TASK: A LIFE-CYCLE COST COMPARISON

Purpose. To practice life-cycle costing and sustainable procurement.

Instructions. For a real procurement decision, complete a life-cycle cost comparison of a cheaper, less sustainable option and a more sustainable option, and draft procurement criteria that include environmental and social factors and a funded maintenance source.

Expected output. A comparison table with commentary and a one-page set of procurement criteria.

Assessment criteria. Soundness of the life-cycle analysis (35 percent); quality of procurement criteria (30 percent); treatment of continuity (20 percent); clarity (15 percent).

Chapter References

- International Organization for Standardization. (2017). ISO 20400:2017 Sustainable procurement: Guidance. ISO.
- Project Management Institute. (2021). A guide to the project management body of knowledge (PMBOK guide) (7th ed.). PMI.
- Republic Act No. 9184. (2003). Government Procurement Reform Act. Congress of the Philippines.
- Republic Act No. 12009. (2024). New Government Procurement Act. Congress of the Philippines.

CHAPTER 8

Risk, Resilience, and Uncertainty in Sustainable Projects

CHAPTER OVERVIEW

This chapter develops risk management for sustainable projects, defining risk, uncertainty, hazard, and resilience, and moving through identification, qualitative and quantitative analysis, and treatment strategies. It extends conventional risk management to sustainability risks and climate and disaster hazards that define the Philippine context, and presents a Sustainable Project Risk Register that links risks to the eight dimensions of the framework.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Define risk, uncertainty, hazard, vulnerability, and resilience precisely.
2. Apply risk identification and qualitative and quantitative analysis, including the probability-impact matrix.
3. Select appropriate risk-treatment strategies and assign risk ownership.
4. Integrate climate adaptation, disaster-risk reduction, and community resilience into risk management.
5. Construct a Sustainable Project Risk Register linked to the eight dimensions.

KEY TERMS

Risk: the effect of uncertainty on objectives (ISO 31000).

Resilience: the capacity to absorb disturbance and reorganize while retaining essential function.

Probability-impact matrix: a tool for prioritizing risks by their likelihood and consequence.

Risk owner: The person accountable for managing a specified risk.

8.1 Introduction

Every project is an exercise in acting under uncertainty, and sustainable projects add sustainability risks, threats to the environmental, social, economic, institutional, and governance value of the outcome, to the conventional risks of scope, schedule, and cost. In the Philippines, where typhoons and floods can undo years of work in hours, resilience is not an optional refinement but a condition of survival. This chapter integrates risk management with resilience and treats both as core to the framework's sixth dimension.

8.2 Conceptual and Theoretical Foundations

ISO 31000 defines risk as the effect of uncertainty on objectives, encompassing both threat and opportunity (International Organization for Standardization, 2018). Related terms must be

distinguished: a hazard is a source of potential harm, vulnerability is susceptibility to that harm, uncertainty is incomplete knowledge, and resilience is the capacity to withstand and recover. Risk appetite and risk tolerance express how much risk an organization will accept, framing every subsequent decision.

The risk process, shown in Figure 8.1, proceeds from identification through analysis and evaluation to treatment, all within continuous communication, consultation, monitoring, and review. Analysis may be qualitative, using a probability-impact matrix to prioritize, or quantitative, using expected monetary value, sensitivity, and scenario analysis where data permit.

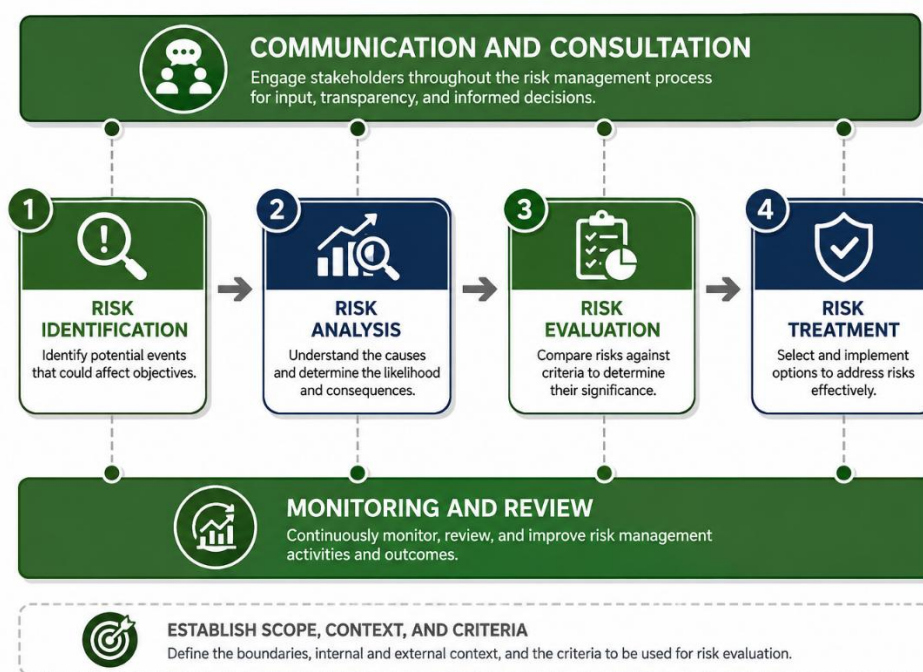


Figure 8.1 The Risk Management Process

Source: Author's synthesis, based on ISO 31000:2018.

8.3 Major Scholarly Discussions

Risks are treated by avoidance, mitigation, transfer, or acceptance for threats, and by exploitation, enhancement, or sharing for opportunities, with escalation where a risk exceeds the project's authority. Each identified risk is assigned an owner accountable for its treatment, and contingency and crisis-management plans prepare responses to risks that materialize. Business continuity extends this preparation to the survival of the outcome and the organization.

For sustainable projects, the risk horizon lengthens and widens. Climate adaptation and disaster-risk reduction address hazards that conventional project risk registers often omit; supply-chain, political, regulatory, technology, cybersecurity, environmental, reputational, and social-conflict risks all bear on the sustainability of outcomes. Community resilience, the capacity of the people served to withstand and recover, becomes a legitimate object of project risk management, not merely a context.

8.4 Relevant Standards, Policies, and Frameworks

ISO 31000:2018 provides the risk-management guidance, and in the Philippine setting the Disaster Risk Reduction and Management Act (Republic Act No. 10121, 2010) and the Climate Change Act (Republic Act No. 9729, 2009) mandate the integration of disaster and climate considerations into planning. Internationally, the Sendai Framework for Disaster Risk Reduction 2015-2030 sets the global agenda for reducing disaster risk (United Nations Office for Disaster Risk Reduction, 2015). Sustainable project risk management operationalizes these mandates at the project level.

8.5 Philippine Context and Applications

The Philippine hazard profile, typhoons, flooding, seismic and volcanic activity, and the effects of a changing climate, make resilience central to every project. A project that ignores hazard exposure in siting, design, and scheduling is not merely risky but negligent. Integrating disaster risk reduction and climate adaptation into project risk management and consulting the communities that bear the hazards is both a legal obligation and a practical necessity in this setting.

8.6 Case Study

Illustrative Case: A Riverside Facility and Flood Risk

Illustrative Case. Constructed to illustrate risk analysis, it does not report a specific real project or real results.

Situation: A community facility is proposed on a low-lying riverside site attractive for its accessibility and low land cost.

Risk analysis: Flood hazard scores high on both probability and impact; the sustainability dimensions most threatened are institutional continuity and social welfare, since a flooded facility cannot serve the community it was built for.

Treatment: Options are compared: avoidance through resiting, mitigation through elevated design and drainage, and transfer through insurance. A combination of resiting and resilient design is chosen, documented in the risk register with owners and monitoring indicators.

Lesson: Naming the hazard early and linking it to the affected sustainability dimensions turned an attractive but fragile choice into a resilient one before commitment.

8.7 International Comparative Example

Internationally, climate-resilient infrastructure standards now require projects to assess exposure to future climate conditions rather than historical ones, and to design for resilience explicitly. The approach, transferable to the Philippines, treats resilience as a design requirement rather than an afterthought.

8.8 Original Tool: Sustainable Project Risk Register

Table 8.1 presents a risk register that links each risk to the sustainability dimension it threatens, enabling risk management and the framework to operate together.

Table 8.1 Sustainable Project Risk Register (Template)

Field	Entry
Risk description	The uncertain event and its effect.
Category and cause	Type of risk and its source.
Likelihood and impact	Assessed probability and consequence.
Dimension affected	Which of the eight SPMIF dimensions is threatened.
Preventive and contingency action	Actions to reduce and to respond.
Risk owner	Person accountable.
Monitoring indicator and status	How it is tracked and its current state.

Source: Author's original tool.

8.9 Practical Tool: Probability-Impact Screen

PROBABILITY-IMPACT SCREEN

- Rate each risk for likelihood and impact on a common scale.
- Prioritize high-likelihood, high-impact risks for active treatment.
- Identify which sustainability dimension each priority risk threatens.
- Assign an owner and a monitoring indicator to every priority risk.
- Review the register at every stage transition.

8.10 Ethical, Social, Environmental, and Governance Considerations

Risk decisions distribute exposure, often onto those least able to bear it. Siting a hazardous or fragile facility where the poor live, or transferring risk onto communities without their consent, is an ethical failure as much as a technical one. Sustainable risk management therefore consults those who bear the risks and weighs the distribution of exposure, bringing the social and ethical dimensions of the framework into risk governance.

8.11 Critical Issues, Tensions, and Limitations

Risk analysis depends on data and judgment that are often scarce, and quantitative techniques can lend false precision to guesses. The greatest risks are frequently those not imagined at all. Sustainable risk management mitigates these limits through scenario thinking, community knowledge, and humility about uncertainty, but it cannot eliminate them. Resilience, the capacity to absorb the unforeseen, is the proper response to the limits of prediction.

Chapter Synthesis

This chapter integrated risk management with resilience, moving from definition through the risk process to treatment, and extended it to sustainability risks and to the climate and disaster hazards central to the Philippine context. It presented a Sustainable Project Risk Register linked to the eight dimensions. Part III now turns from planning to leading and implementing, beginning with leadership, governance, and teams in Chapter 9.

Critical Reflection Questions

1. Distinguish risk, hazard, vulnerability, and resilience with a Philippine example.
2. Why is resilience described as the proper response to the limits of prediction?
3. How does linking a risk to a sustainability dimension change how it is treated?
4. Compare avoidance, mitigation, transfer, and acceptance for a flood risk.
5. Why are risk decisions ethical as well as technical?
6. How would you integrate community knowledge into risk identification for a local project?

Application Activity

PROJECT TASK: BUILD A RISK REGISTER

Purpose. To practice sustainable risk management.

Instructions. For a project you know, identify at least eight risks, assess them on a probability-impact scale, link each to a sustainability dimension, and complete the Sustainable Project Risk Register for the five highest-priority risks, including owners and monitoring indicators.

Expected output. A completed register of at least five priority risks, with a short commentary for each.

Assessment criteria. Quality of risk identification (25 percent); soundness of analysis (25 percent); linkage to dimensions and owners (30 percent); clarity (20 percent).

Chapter References

- International Organization for Standardization. (2018). ISO 31000:2018 Risk management: Guidelines. ISO.
- Project Management Institute. (2021). A guide to the project management body of knowledge (PMBOK guide) (7th ed.). PMI.
- Republic Act No. 9729. (2009). Climate Change Act of 2009. Congress of the Philippines.
- Republic Act No. 10121. (2010). Philippine Disaster Risk Reduction and Management Act of 2010. Congress of the Philippines.
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P A R T III

LEADING AND IMPLEMENTING SUSTAINABLE PROJECTS

Chapter 9 Leadership, Governance, and Sustainable Project Teams

Chapter 10 Stakeholder Engagement, Participation, and Social Inclusion

Chapter 11 Communication, Transparency, and Sustainability Reporting

Chapter 12 Agile, Hybrid, and Adaptive Approaches to Sustainable Projects

CHAPTER 9

Leadership, Governance, and Sustainable Project Teams

CHAPTER OVERVIEW

This chapter develops leadership, governance, and team building for sustainable projects. It surveys transformational, servant, ethical, distributed, and open leadership; sets out governance structures, decision rights, and the RACI matrix; and treats team formation, psychological safety, conflict, and inclusion. It examines open leadership critically, weighing participation against the need for accountable authority, and it grounds the discussion in Philippine institutional practice.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Compare transformational, servant, ethical, distributed, and open leadership.
2. Design a project governance structure with clear decision rights and a RACI matrix.
3. Apply models of team development, psychological safety, and conflict management.
4. Build inclusive, diverse, and multidisciplinary teams.
5. Evaluate open leadership critically, balancing participation and accountability.

KEY TERMS

Servant leadership: leadership that prioritizes the growth and well-being of team members and communities (Greenleaf, 1977).

Project governance: The framework of authority, accountability, and decision rights directs a project.

RACI matrix: a chart assigning who is responsible, accountable, consulted, and informed for each task.

Psychological safety: a shared belief that the team is safe for interpersonal risk-taking.

9.1 Introduction

Projects are delivered by people, and how they are led and governed determines whether talent and effort translate into sustainable outcomes. This chapter treats leadership and governance as the human core of the framework's fifth dimension, ethical governance and accountability, and it develops the team practices through which sustainability is achieved in daily work. It gives particular attention to open leadership, the approach emphasized in the source material, and examines both its promise and its limits.

9.2 Conceptual and Theoretical Foundations

Leadership theory offers several models relevant to sustainable projects. Transformational leadership inspires commitment to a shared vision (Bass, 1985); servant leadership places the growth

and well-being of followers and communities first (Greenleaf, 1977); ethical leadership foregrounds integrity and fairness; and distributed or shared leadership spreads leadership across a team. Open leadership, emphasizing transparency, sharing, and inclusion, mobilizes communities to solve shared problems and aligns naturally with the participatory ethic of sustainable development.

Governance provides the structure within which leadership operates. A sponsor owns the business case, a steering body makes major decisions, and a project manager directs the work, with decision rights and accountabilities made explicit. Figure 9.1 illustrates a governance structure. The RACI matrix clarifies, for each task, who is responsible, accountable, consulted, and informed, preventing the diffusion of accountability that undermines outcomes.



Figure 9.1 Illustrative Project Governance Structure.

9.3 Major Scholarly Discussions

Teams develop through recognizable phases, often summarized as forming, storming, norming, and performing (Tuckman, 1965), and their effectiveness depends on psychological safety, the shared confidence that members can speak, question, and admit error without penalty. Diversity and inclusion strengthen teams by widening the range of knowledge and perspective, provided that inclusion is genuine rather than nominal. Conflict, managed constructively through negotiation and clear decision rules, is a source of better decisions rather than a failure.

Open leadership deserves the critical scrutiny this book applies to all its methods. Its advantages, wider participation, local ownership, and legitimacy, are real, but so are its costs. Excessive consultation can delay decisions, dilute accountability, and stall action in crises, and shared leadership can obscure who is finally answerable. The competent leader calibrates participation to the situation, opening decisions where inclusion adds value and reserving decisive authority where speed and accountability demand it.

9.4 Relevant Standards, Policies, and Frameworks

Governance and stakeholder practices are addressed in ISO 21502:2020 and the PMBOK Guide (International Organization for Standardization, 2020; Project Management Institute, 2021). In the Philippine public sector, governance is further shaped by administrative accountability rules and the anti-corruption responsibilities that attach to public office, giving the ethical dimension of the framework both legal and moral force.

9.5 Philippine Context and Applications

Philippine organizational life is shaped by relational values that both help and hinder project leadership. Bayanihan, the spirit of communal cooperation, and pakikipagkapwa, a deep regard for shared personhood, can mobilize remarkable collective effort. Yet the same relational fabric can produce favoritism, indirect communication that obscures problems, and a reluctance to hold peers accountable. Effective leadership in this context draws on the cooperative strengths while building the transparent decision rights and accountability that counter the risks. Chapter 14 examines these values in greater depth.

9.6 Case Study

Illustrative Case: Governance for a University Extension Project

Illustrative Case. Constructed to illustrate governance, it does not report a specific real project or real results.

Situation: A university extension project involving several departments and a partner community suffers from unclear decision rights, leading to reopened decisions and no one being ultimately accountable.

Intervention: A governance structure is established with a sponsor, a steering committee including community representation, and a project manager, supported by a RACI matrix that assigns accountability for each work stream.

Result: Decisions become traceable and accountable, community voice is institutionalized rather than occasional, and the diffusion of responsibility that had stalled the project is resolved.

Lesson: Open, inclusive governance and clear accountability are complements, not opposites; the RACI matrix made participation compatible with answerability.

9.7 International Comparative Example

International development projects routinely establish steering committees with beneficiary representation and formal RACI or equivalent accountability charts, demonstrating that inclusive governance can be structured rather than left to goodwill. The practice is directly transferred to Philippine university and community projects.

9.8 Original Tool: RACI Matrix

Table 9.1 RACI Matrix (Illustrative)

Task	Sponsor	Manager	Community lead	Team
Approve charter	A	R	C	I
Plan schedule	I	A	C	R
Community consultation	I	A	R	C
Manage risks	I	A	C	R
Approve changes	A	R	C	I

Source: Author's illustration. R responsible, A accountable, C consulted, I informed.

9.9 Practical Tool: Leadership and Team Checklist

LEADERSHIP AND TEAM CHECKLIST

- Are decision rights clear, with a single accountable party for each decision?
- Is participation calibrated to the decision, avoiding both exclusion and paralysis?
- Is psychological safety actively fostered so that problems surface early?
- Is the team inclusive and diverse in a genuine rather than nominal sense?
- Are ethical and anti-corruption responsibilities explicit?

9.10 Ethical, Social, Environmental, and Governance Considerations

Leadership is inescapably ethical: it distributes voice, credit, and accountability, and it sets the tone that determines whether a team acts with integrity. Ethical and servant leadership, transparent governance, and genuine inclusion directly serve the framework's social and governance dimensions, while their absence corrodes both the team and the outcome.

9.11 Critical Issues, Tensions, and Limitations

The central tension of this chapter is between participation and authority. Too little participation forfeits legitimacy and local knowledge; too much forfeits speed and accountability. There is no formula for the balance, only judgment informed by the situation. A further limitation is that structures such as the RACI matrix formalize accountability but cannot create the integrity that makes accountability meaningful; culture and character remain decisive.

Chapter Synthesis

This chapter developed leadership, governance, and team-building for sustainable projects, surveying leadership models, outlining governance and the RACI matrix, and examining open leadership critically as a balance between participation and accountability. Chapter 10 extends the human dimension outward, to the stakeholders and communities whose engagement determines whether sustainable outcomes are achieved.

Critical Reflection Questions

1. Compare servant and transformational leadership for a sustainable project.
2. What are the advantages and the risks of open leadership, and how should the balance be struck?
3. How does a RACI matrix prevent the diffusion of accountability?
4. Why can Filipino relational values both help and hinder project leadership?
5. How does psychological safety affect whether problems surface in time to be fixed?
6. In a project you know, where was participation too little or too much, and what followed?

Application Activity

PROJECT TASK: DESIGN GOVERNANCE

Purpose. To practice designing accountable, inclusive governance.

Instructions. For a project you know, design a governance structure and complete a RACI matrix for at least six key tasks. Identify two decisions that should be opened to participation and two that should be reserved to accountable authority, and justify each.

Expected output. A governance diagram, a RACI matrix, and a short justification of the participation choices.

Assessment criteria. Clarity of decision rights (30 percent); quality of the RACI matrix (25 percent); soundness of the participation calibration (30 percent); clarity (15 percent).

Chapter References

- Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.
- Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.
- International Organization for Standardization. (2020). *ISO 21502:2020 Project, programme and portfolio management: Guidance on project management*. ISO.
- Project Management Institute. (2021). *A guide to the project management body of knowledge (PMBOK guide) (7th ed.)*. PMI.
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63(6), 384-399.

CHAPTER 10

Stakeholder Engagement, Participation, and Social Inclusion

CHAPTER OVERVIEW

This chapter develops stakeholder theory and practice for sustainable projects. It classifies stakeholders and rights holders, maps them by power and interest, and moves from identification to genuine engagement. It distinguishes token from meaningful participation, addresses social inclusion of vulnerable groups, and treats free, prior, and informed consent, grievance mechanisms, and consultation fatigue. A power-interest grid and an engagement plan operationalize the framework's fourth dimension.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Identify and classify stakeholders, including rights holders and duty bearers.
2. Map stakeholders by power and interest and plan engagement accordingly.
3. Distinguish token from meaningful participation and design for the latter.
4. Include vulnerable and marginalized groups, applying consent and grievance mechanisms where appropriate.
5. Prepare a stakeholder register and engagement plan.

KEY TERMS

Stakeholder. any individual or group who affects or is affected by a project.

Social license to operate. the ongoing acceptance of a project by the communities it affects.

Free, prior, and informed consent. the right of indigenous peoples to give or withhold consent to projects affecting them (IPRA).

Meaningful participation. engagement that genuinely influences decisions, as opposed to token consultation.

10.1 Introduction

Sustainable outcomes depend on the people a project affects. Stakeholders can sustain an outcome through ownership and use, or undermine it through resistance and neglect, and the difference often turns on whether they were genuinely engaged. This chapter treats stakeholder engagement and social inclusion as central to the framework's social dimension and as decisive for whether outcomes endure.

10.2 Conceptual and Theoretical Foundations

Stakeholder theory holds that organizations are accountable to all who affect or are affected by them, not to owners alone (Freeman, 1984). Stakeholders may be internal or external, primary or

stakeholders a route to raise and resolve concerns, and attention to consultation fatigue avoids exhausting the goodwill of communities repeatedly asked to participate.

10.4 Relevant Standards, Policies, and Frameworks

Stakeholder engagement is addressed in ISO 21502:2020 and the PMBOK Guide, and social inclusion and consent are mandated in the Philippines by the Indigenous Peoples' Rights Act (Republic Act No. 8371, 1997) and related policy. International safeguard frameworks used by development banks similarly require stakeholder engagement, consent where applicable, and grievance mechanisms, setting a standard that Philippine projects can adopt.

10.5 Philippine Context and Applications

Philippine projects routinely affect residents, farmers, fisherfolk, indigenous communities, students, and informal workers, whose engagement determines whether outcomes are accepted and sustained. Consultation is often treated as a formality to be completed, yet the projects that endure are those in which affected people genuinely shape the design and share in the benefits. The legal requirement of consent for indigenous peoples is a floor, not a ceiling, for the engagement that sustainability requires.

10.6 Case Study

Illustrative Case: A Coastal Project and Fisherfolk Engagement

Illustrative Case. Constructed to illustrate engagement; it does not report a specific real project or real results.

Situation: A coastal resource-management project initially consults a fishing community through a single meeting that satisfies a procedural requirement but influences nothing.

Problem: The community, unpersuaded and unheard, resists the project, and enforcement of the new measures collapses for want of local acceptance.

Correction: Engagement is redesigned around genuine co-creation: fisherfolk help define the measures, a grievance mechanism is established, and benefits are shared. Acceptance and compliance follow.

Lesson: Token consultation forfeited the social license the project needed; meaningful participation restored it. The difference was influence, not merely attendance.

10.7 International Comparative Example

Internationally, projects that secured genuine community co-management of natural resources have proved more durable than those imposed from outside, a finding consistent across many settings. The lesson for Philippine coastal and upland projects is that durable outcomes are co-produced with the communities that live with them.

10.8 Original Tool: Stakeholder Register and Engagement Plan

Table 10.1 Stakeholder Register and Engagement Plan (Template)

Field	Entry
Stakeholder	Group or individual, including vulnerable groups.
Interest and power	Assessed the level of each.
Rights or duties	Relevant rights (e.g., consent) or duties.
Engagement approach	From information to co-creation, matched to the grid.
Grievance route	How concerns are raised and resolved.
Owner and frequency	Who engages and how often.

10.9 Practical Tool: Inclusion Checklist

SOCIAL-INCLUSION CHECKLIST

- Have all affected groups, including vulnerable ones, been identified?
- Is participation meaningful, giving real influence over decisions?
- Is free, prior, and informed consent secured where indigenous peoples are affected?
- Is a grievance-redress mechanism in place and accessible?
- Is consultation fatigue avoided through respectful, purposeful engagement?

10.10 Ethical, Social, Environmental, and Governance Considerations

Engagement is a matter of justice: whose voice counts, and whether the affected share in benefits and burdens, are ethical questions at the heart of sustainable development. Token participation is not merely ineffective but disrespectful, treating people as obstacles to be managed rather than as rights holders to be heard. Genuine inclusion serves the social and ethical dimensions of the framework and is the foundation of durable legitimacy.

10.11 Critical Issues, Tensions, and Limitations

Engagement is costly in time and can be captured by the loudest or most powerful voices, marginalizing the very groups inclusion is meant to reach. Consultation can also raise expectations that a project cannot meet. These difficulties argue for skilled, honest, and proportionate engagement, and for transparency about what participation can and cannot influence, rather than for retreating to token consultation.

Chapter Synthesis

This chapter developed stakeholder engagement and social inclusion, from identification and power-interest analysis to meaningful participation, consent, and grievance mechanisms. An illustrative coastal case showed that token consultation forfeits the social license that meaningful participation secures. Chapter 11 turns to communication, transparency, and sustainability reporting, the channels through which engagement and accountability are sustained.

Critical Reflection Questions

1. Why can stakeholders determine whether an outcome is sustained?
2. Distinguish token from meaningful participation with an example.
3. How does the power-interest grid guide engagement, and what are its limits?
4. Why is free, prior, and informed consent both a legal and an ethical requirement in the Philippines?
5. How can engagement be prevented from being captured by the most powerful voices?
6. In a project you know, was participation meaningful, and with what consequence?

Application Activity

PROJECT TASK: MAP AND ENGAGE STAKEHOLDERS

Purpose. To practice stakeholder mapping and inclusive engagement.

Instructions. For a project you know, identify stakeholders, including vulnerable groups, place them on a power-interest grid, and complete a stakeholder register and engagement plan. Design one mechanism to ensure a marginalized group has real influence.

Expected output. A power-interest grid, a completed register, and a note on the inclusion mechanism.

Assessment criteria. Completeness of identification (25 percent); soundness of the mapping (25 percent); quality of the engagement plan (30 percent); attention to inclusion (20 percent).

Chapter References

- Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
- International Organization for Standardization. (2020). ISO 21502:2020 Project, programme and portfolio management: Guidance on project management. ISO.
- Mendelow, A. (1991). Environmental scanning: The impact of the stakeholder concept. Proceedings of the Second International Conference on Information Systems. [Verification Required: confirm citation details.]
- Project Management Institute. (2021). A guide to the project management body of knowledge (PMBOK guide) (7th ed.). PMI.
- Republic Act No. 8371. (1997). Indigenous Peoples' Rights Act of 1997. Congress of the Philippines.

CHAPTER 11

Communication, Transparency, and Sustainability Reporting

CHAPTER OVERVIEW

This chapter develops project communication, transparency, and sustainability reporting. It sets out the communication process and the components of a communication plan, addresses internal and external communication, crisis and risk communication, and develops sustainability reporting and its integrity. It confronts greenwashing, misleading claims, and misinformation, and it addresses data privacy and the cultural and linguistic realities of communication in the Philippines.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Apply the communication process and design a project communication plan.
2. Distinguish internal, external, crisis, and risk communication.
3. Develop honest sustainability reporting and recognize greenwashing.
4. Address data privacy, confidentiality, and accessible, inclusive communication.
5. Adapt communication to Philippine cultural and linguistic contexts.

KEY TERMS

Communication plan. a plan specifying who receives what information, when, how, and from whom.

Greenwashing. conveying a false or misleading impression of environmental or social responsibility.

Sustainability reporting. The disclosure of a project's environmental, social, and economic performance.

Crisis communication. communication that manages information and trust during an adverse event.

11.1 Introduction

Communication is the connective tissue of a project, and transparency is a condition of accountability. This chapter treats communication and reporting as instruments of the framework's governance dimension, through which stakeholders are informed, trust is maintained, and claims about sustainability are made honest and checkable. Poor communication isolates teams and stakeholders; dishonest communication, including greenwashing, corrodes the legitimacy on which sustainability depends.

11.2 Conceptual and Theoretical Foundations

The classical model of communication describes a sender encoding a message, transmitting it through a channel to a receiver who decodes it, subject to noise, and completed by feedback (Shannon & Weaver, 1949). A communication plan applies this understanding to a project, specifying, for each

stakeholder, what information is needed, through which channel, how often, and from whom. Clear internal communication prevents the confusion and duplication that arise when team members rely on tools that others do not check, while external communication maintains the trust of stakeholders and the public.

Communication takes many forms, written and oral, formal and informal, visual and digital, and must be matched to purpose and audience. Crisis and risk communication are specialized modes that manage information and trust under adverse conditions, where silence and spin are equally damaging, and honesty is both ethical and effective.

11.3 Major Scholarly Discussions

Sustainability reporting extends communication by disclosing environmental, social, and economic performance, allowing stakeholders to judge a project's claims against evidence. Its value depends entirely on its integrity. Greenwashing, conveying a misleading impression of sustainability, is both common and corrosive, and it is driven by the reputational incentives that also drive SDG washing (Delmas & Burbano, 2011). Honest reporting discloses shortfalls as well as achievements and links claims to indicators, resisting the temptation to communicate aspiration as accomplishment.

Transparency has limits that must be respected. Data privacy and confidentiality constrain what may be disclosed, particularly where personal data are involved, and in the Philippines, the Data Privacy Act (Republic Act No. 10173, 2012) governs the handling of personal information. Accessible and inclusive communication ensures that disclosure reaches those it concerns, regardless of language, literacy, or ability.

11.4 Relevant Standards, Policies, and Frameworks

Communication practices are addressed in ISO 21502:2020 and the PMBOK Guide, and sustainability reporting is guided internationally by frameworks such as the Global Reporting Initiative. In the Philippines, the Data Privacy Act (Republic Act No. 10173, 2012) governs personal data, and freedom-of-information policy shapes public disclosure. Honest sustainability reporting aligns with the transparency these instruments require.

11.5 Philippine Context and Applications

Communication in the Philippines must navigate genuine linguistic and cultural diversity, with many languages and a strong role for indirect and relational communication. Messages effective in one region or language may fail in another, and public information must be accessible in the languages people actually use. The relational preference for indirectness, discussed further in Chapter 14, can obscure problems that transparent communication is meant to surface, making deliberate honesty a discipline rather than a default.

11.6 Case Study

Illustrative Case: A Delayed Disclosure and Its Cost

Illustrative Case. Constructed to illustrate communication failure; it does not report a specific real project or real results.

Situation: A project encounters an environmental problem but delays disclosure, hoping to resolve it quietly before it becomes public.

Consequence: The problem surfaces through other channels, and the delay, more than the problem itself, destroys trust and invites the perception of a cover-up.

Correction: A crisis-communication protocol is adopted requiring prompt, honest disclosure of problems alongside the plan to address them, and trust is gradually rebuilt.

Lesson: In sustainability communication, honesty about problems protects trust more effectively than the appearance of perfection; delayed disclosure and greenwashing carry their own severe costs.

11.7 International Comparative Example

Organizations that report sustainability performance transparently, including failures, using recognized reporting frameworks, tend to sustain stakeholder trust better than those that publicize only successes. The comparison underlines that credibility flows from honesty, not from favorable selection.

11.8 Original Tool: Project Communication Matrix

Table 11.1 Project Communication Matrix (Template)

Stakeholder	Message and purpose	Channel and frequency	Owner
Steering committee	Status, risks, decisions	Report, monthly	Manager
Community	Progress, opportunities to input	Meeting and local language brief	Community lead
Funders	Performance against plan	Formal report, quarterly	Manager
Public	Honest progress and issues	Public brief, as needed	Communications

Source: Author's original tool.

11.9 Practical Tool: Honest-Reporting Checklist

HONEST SUSTAINABILITY-REPORTING CHECKLIST

- Are claims linked to indicators and evidence rather than asserted?
- Are shortfalls disclosed alongside achievements?
- Is language accurate, avoiding exaggeration and greenwashing?
- Is personal data protected in accordance with the Data Privacy Act?
- Is the report accessible in the languages and formats stakeholders use?

11.10 Ethical, Social, Environmental, and Governance Considerations

Communication is where the ethics of a project become public. Honest disclosure respects stakeholders as capable of judging the truth; greenwashing and delayed disclosure treat them as audiences to be managed. Transparent, accurate, and accessible communication serves the governance and social dimensions of the framework and is the practical face of accountability.

11.11 Critical Issues, Tensions, and Limitations

Transparency and confidentiality can conflict, particularly where personal data or commercially sensitive information is involved, and honesty about problems can be exploited by opponents. These tensions require judgment, not the abandonment of transparency; the remedy for the misuse of honest disclosure is more and better communication, not less. A further limitation is that communication cannot substitute for substance: no report can make an unsustainable project sustainable.

Chapter Synthesis

This chapter developed communication, transparency, and sustainability reporting, treating honesty as the source of credibility and confronting greenwashing and delayed disclosure. It presented a communication matrix and an honest-reporting checklist and addressed data privacy and Philippine linguistic realities. Chapter 12 turns to the delivery approaches, agile, hybrid, and adaptive, through which sustainable projects are implemented under uncertainty.

Critical Reflection Questions

1. Why does honest disclosure of problems protect trust better than the appearance of perfection?
2. What drives greenwashing, and how can honest reporting resist it?
3. How do data privacy and transparency come into tension, and how should the tension be managed?
4. Why must communication in the Philippines attend to linguistic and cultural diversity?
5. Design a crisis-communication rule for a project you know.
6. Can good communication ever substitute for substantive sustainability? Explain.

Application Activity

PROJECT TASK: A COMMUNICATION AND REPORTING PLAN

Purpose. To practice honest communication and reporting.

Instructions. For a project you know, complete a communication matrix, draft a one-page honest sustainability-report outline that discloses at least one shortfall, and write a short crisis-communication rule.

Expected output. A communication matrix, a report outline, and a crisis rule.

Assessment criteria. Quality of the communication plan (30 percent); honesty and evidence-linkage of the report (35 percent); soundness of the crisis rule (20 percent); clarity (15 percent).

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CHAPTER 12

Agile, Hybrid, and Adaptive Approaches to Sustainable Projects

CHAPTER OVERVIEW

This chapter develops contemporary delivery approaches for sustainable projects. It compares predictive, iterative, incremental, agile, hybrid, and adaptive approaches; surveys Scrum, Kanban, lean, and design thinking; and connects incremental delivery to incremental sustainability benefits. It presents a decision matrix for choosing an approach and applies it to a Philippine information-technology case and a non-technology development case, addressing the constraints agility faces in regulated, procurement-bound public settings.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Compare predictive, iterative, agile, hybrid, and adaptive approaches.
2. Explain Scrum, Kanban, lean, and design thinking and their relevance to sustainability.
3. Connect incremental delivery to incremental sustainability benefits and stakeholder feedback.
4. Apply a decision matrix to choose a delivery approach.
5. Assess the constraints agility faces in regulated public environments.

KEY TERMS

Agile: an iterative, feedback-driven approach delivering value in increments (Beck et al., 2001).

Scrum: an agile framework organizing work into time-boxed sprints with defined roles and events.

Minimum viable product: The smallest version of a product that yields validated learning.

Adaptive management: managing by treating plans as revisable hypotheses tested against results.

12.1 Introduction

Not every sustainable project should be delivered the same way. Where requirements are stable, predictive delivery serves; where they are uncertain, and feedback is valuable, agile and adaptive approaches serve better; and most real projects benefit from a considered hybrid. This chapter treats the choice of approach as a management decision to be made deliberately, and it connects iterative delivery to the incremental realization of sustainability benefits and stakeholder feedback.

12.2 Conceptual and Theoretical Foundations

Predictive approaches fix requirements early and deliver value at completion; iterative and incremental approaches deliver in repeated cycles that incorporate feedback; agile approaches, articulated in the Agile Manifesto, prioritize working results, collaboration, and responsiveness to

change (Beck et al., 2001). Hybrid approaches combine predictive and adaptive elements by component, and adaptive management treats plans as revisable hypotheses in volatile conditions.

Specific frameworks operationalize these ideas. Scrum organizes work into time-boxed sprints with defined roles, backlogs, reviews, and retrospectives (Schwaber & Sutherland, 2020); Kanban visualizes and limits work in progress; lean reduces waste; and design thinking and human-centered design generate solutions through prototyping and a minimum viable product tested with users. Each supports the early and continuous stakeholder feedback that sustainable projects need.

12.3 Major Scholarly Discussions

Iterative delivery has a natural affinity with sustainability. Delivering value in increments allows sustainability benefits to accrue early rather than only at completion, and it creates repeated points at which stakeholder feedback and environmental and social learning can reshape the work. Adaptive management is well-suited to the uncertainty of development contexts, where the effects of an intervention cannot be fully predicted and must be learned.

Yet agility faces real constraints in public settings. Regulatory requirements, procurement rules that presuppose fixed specifications, and documentation obligations can limit how adaptive a public project may be. The mature response is not to abandon agility or to force it inappropriately, but to apply hybrid approaches that use adaptive methods where they add value and predictive control where regulation and procurement require it.

12.4 Relevant Standards, Policies, and Frameworks

ISO 21502:2020 and the PMBOK Guide explicitly accommodate predictive, iterative, incremental, adaptive, and hybrid approaches, including agile (International Organization for Standardization, 2020; Project Management Institute, 2021). In the Philippine public sector, procurement and documentation requirements shape the extent of feasible agility, making hybrid approaches particularly relevant.

12.5 Philippine Context and Applications

Agile approaches have taken root in Philippine information-technology work, including government digital services, where iterative delivery and user feedback improve fit and reduce the risk of large, failed, all-at-once systems. In non-technology development work, adaptive management suits community projects whose effects must be learned through implementation. In both procurement and audit requirements, pure agility is constrained, and hybrid approaches predominate in practice.

12.6 Case Study

Illustrative Cases: An IT Service and a Livelihood Program

Illustrative Cases. Constructed to illustrate approach selection, they do not report specific real projects or real results.

IT case: A university builds a student-services portal using an agile, incremental approach, releasing usable features each sprint and adjusting to student feedback, while applying predictive control to procurement and data-privacy compliance, a hybrid in practice.

Non-IT case: A community livelihood program uses adaptive management, piloting an approach, learning from results, and scaling what works, rather than committing to a fixed design that its uncertain context could not support.

Lesson: In both cases, the approach was chosen to accommodate the work's uncertainty and constraints, and both used hybrid elements to reconcile adaptability with regulatory and procurement requirements.

12.7 International Comparative Example

Governments internationally have adopted agile and hybrid approaches to digital services, learning from the failures of large predictive information-technology projects, while retaining predictive control where regulation demands it. The pattern confirms that approach selection, not ideology, drives success.

12.8 Original Tool: Delivery-Approach Selection Matrix

Table 12.1 Delivery-Approach Selection Matrix

Condition	Favors predictive	Favors agile / adaptive
Requirements	Stable and well understood	Uncertain and evolving
Stakeholder availability	Limited	High and continuous
Regulatory and procurement constraints	Strong	Weak or flexible
Uncertainty and complexity	Low	High
Documentation needs	Extensive and fixed	Lighter and evolving

12.9 Practical Tool: Approach-Selection Checklist

APPROACH-SELECTION CHECKLIST

- How stable are the requirements, and how much is genuinely uncertain?
- How available and continuous is stakeholder feedback?
- What do regulation and procurement require in specification and documentation?
- Where would incremental delivery let sustainability benefits accrue earlier?
- Which hybrid combination fits the components of this project?

12.10 Ethical, Social, Environmental, and Governance Considerations

Iterative delivery has an ethical advantage: by incorporating stakeholder feedback continuously, it reduces the risk of imposing an unwanted or harmful outcome and allows social and environmental concerns to shape the work before it is too late. But agility also demands governance, since rapid change without accountability can obscure who decided what, a risk hybrid approaches manage by retaining predictive control where it matters.

12.11 Critical Issues, Tensions, and Limitations

Agility is often misapplied, either forced onto work that needs predictive discipline or invoked to excuse the absence of planning. Public constraints of procurement, audit, and documentation genuinely limit adaptability, and pretending otherwise invites failure. The honest position is that approach is a matter of fit and judgment, that hybrids are the norm rather than the exception, and that no approach substitutes for the sustainability disciplines developed throughout this book.

Chapter Synthesis

This chapter compared predictive, iterative, agile, hybrid, and adaptive approaches, connected incremental delivery to incremental sustainability benefits, and presented a decision matrix for choosing among them, applied to Philippine technology and development cases. Part IV now turns to monitoring, impact, and the Philippine application, beginning with monitoring, evaluation, learning, and sustainability performance in Chapter 13.

Critical Reflection Questions

1. Under what conditions is a predictive approach preferable to an agile one, and vice versa?
2. How does incremental delivery let sustainability benefits accrue earlier?
3. Why do hybrid approaches predominate in Philippine public projects?
4. What constraints does agility face in regulated, procurement-bound settings?
5. Apply the selection matrix to a project you know and justify the resulting approach.
6. How can agile governance prevent rapid change from obscuring accountability?

Application Activity

PROJECT TASK: CHOOSE A DELIVERY APPROACH

Purpose. To practice deliberate approach selection.

Instructions. For a project you know, complete the Delivery-Approach Selection Matrix, recommend a predictive, agile, hybrid, or adaptive approach, and specify which components would use which method and why. Note where incremental delivery would advance sustainability.

Expected output. A completed matrix and a one-page recommendation.

Assessment criteria. Soundness of the analysis (35 percent); justification of the recommendation (30 percent); attention to sustainability and constraints (20 percent); clarity (15 percent).

Chapter References

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P A R T IV

MONITORING, IMPACT, AND PHILIPPINE APPLICATIONS

Chapter 13 Monitoring, Evaluation, Learning, and Sustainability Performance

Chapter 14 Managing Sustainable Projects in the Philippine Context

Chapter 15 The Sustainable Project Management Integration Framework and Future Directions

CHAPTER 13

Monitoring, Evaluation, Learning, and Sustainability Performance

CHAPTER OVERVIEW

This chapter develops the concepts of monitoring, evaluation, learning, and benefits realization. It distinguishes between monitoring and evaluation, and between outputs, outcomes, and impacts; applies results-based management and the results chain; and surveys evaluation types and the internationally recognized evaluation criteria. It treats closure, handover, and institutionalization as decisive for sustainability, and presents a Sustainable Project Performance Scorecard that measures performance across the eight dimensions rather than just scope, time, and cost.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Distinguish between monitoring, evaluation, and learning, and outputs, outcomes, and impacts.
2. Apply results-based management and the results chain to measure performance.
3. Select evaluation types and apply the standard evaluation criteria.
4. Manage closure, handover, and institutionalization for sustainability.
5. Construct a Sustainable Project Performance Scorecard across the eight dimensions.

KEY TERMS

Monitoring: the continuous tracking of activities and outputs against the plan.

Evaluation: the periodic, systematic assessment of a project's relevance, performance, and effects.

Benefits realization: achieving and sustaining the intended outcomes after delivery.

Institutionalization: embedding a project's outcome in a durable institution that maintains it.

13.1 Introduction

What is not measured is rarely sustained. This chapter treats monitoring, evaluation, and learning as the framework's seventh dimension in action, the means by which a project learns whether it is achieving the outcomes that justify it and adjusts when it is not. It insists that measurement extend beyond outputs to outcomes, impacts, and the sustainability of benefits, and that closure be managed as a transition to durable operation rather than an administrative ending.

13.2 Conceptual and Theoretical Foundations

Monitoring is the continuous tracking of activities and outputs against plan; evaluation is the periodic, systematic assessment of relevance, performance, and effects; and learning is the use of both to improve current and future projects. Results-based management organizes these around the results chain of inputs, activities, outputs, outcomes, and impacts, shown in Figure 13.1, keeping attention on the results that justify the project rather than on the activity for its own sake.

Indicators make results measurable and should span quantitative and qualitative dimensions, as well as environmental, social, economic, governance, and institutional dimensions, each with a baseline and a target. Earned value management integrates scope, schedule, and cost, but it must be complemented by outcome and sustainability indicators, since a project can be on schedule and on budget while failing to deliver its intended benefits.

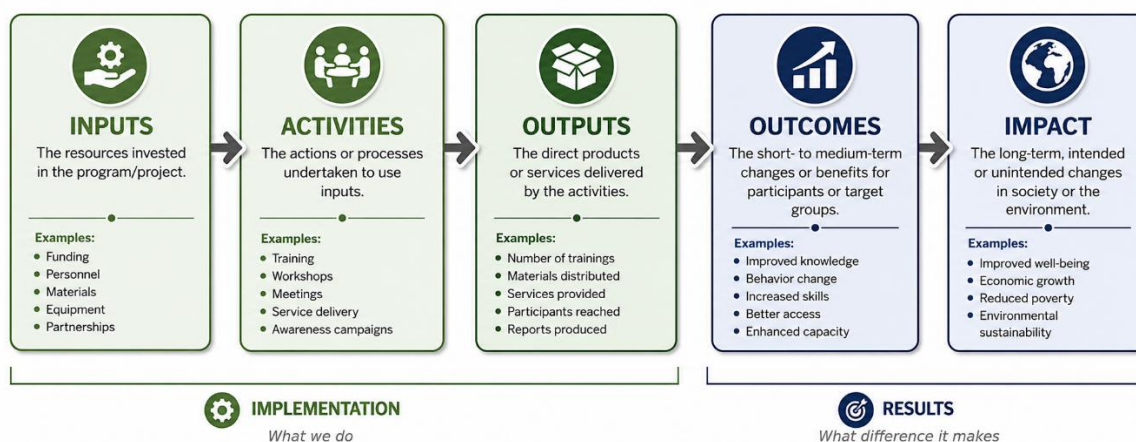


Figure 13.1 The Results Chain and the Monitoring and Evaluation Logic

13.3 Major Scholarly Discussions

Evaluation takes several forms: formative evaluation improves an ongoing project, summative evaluation judges a completed one, and process, outcome, impact, and developmental evaluations serve different questions. Internationally recognized criteria assess relevance, coherence, effectiveness, efficiency, impact, and sustainability, providing a common language for judging projects (OECD, 2019). Sustainability, the last criterion, asks whether benefits will continue after support ends, the central question of this book.

Closure is where sustainability is won or lost in practice. Formal acceptance, handover, and the documentation of lessons learned are necessary, but the decisive act is institutionalization, embedding the outcome in a durable institution with the capacity, mandate, and funding to maintain it. Post-project evaluation, conducted after some time has passed, tests whether benefits were in fact realized and sustained, closing the learning loop that most projects leave open.

13.4 Relevant Standards, Policies, and Frameworks

Evaluation practice is guided internationally by the OECD evaluation criteria (OECD, 2019) and by results-based management as used across the United Nations system, and performance measurement draws on tools such as the balanced scorecard (Kaplan & Norton, 1996). In the Philippines, monitoring and evaluation of public projects operate within the national planning and budgeting system, and the framework of this book adds measurement across the eight sustainability dimensions.

13.5 Philippine Context and Applications

Philippine public monitoring often emphasizes physical and financial progress, tracking whether funds were spent and outputs delivered, while giving less attention to outcomes and to the sustainability of benefits after closure. The result is a systematic blind spot: projects are recorded as complete while the question of whether they achieved lasting value goes unasked. Extending monitoring to outcomes and to post-project sustainability, and institutionalizing outcomes at closure, are the principal improvements this chapter urges for Philippine practice.

13.6 Case Study

Illustrative Case: Outputs Completed, Outcomes Unrealized

Illustrative Case. Constructed to illustrate benefits realization; it does not report a specific real project or real results.

Situation: A training facility is built and formally accepted; monitoring records the output as delivered and the project as complete.

Problem: No institution is funded to operate it, no outcome indicators are tracked, and within two years the facility is idle. The outputs were completed; the outcomes were never realized.

Correction: A post-project evaluation surfaces the failure, and a subsequent redesign institutionalizes operation within a department with a funded mandate and outcome indicators tracked beyond handover.

Lesson: Measuring outputs alone concealed the failure; measuring outcomes and sustaining institutional ownership would have revealed and prevented it.

13.7 International Comparative Example

Development agencies that conduct post-completion and sustainability evaluations, returning years later to test whether benefits endured, have learned to design for sustainability from the start. The practice of asking, after the fact, whether value was sustained is precisely what most project systems omit and what this chapter recommends.

13.8 Original Tool: Sustainable Project Performance Scorecard

Table 13.1 sets out a scorecard that measures performance across the eight dimensions and the conventional constraints together, so that a project cannot appear successful while failing on sustainability.

Table 13.1 Sustainable Project Performance Scorecard (Template)

Performance area	Indicator	Baseline / Target
Scope, time, cost, quality	Delivery against plan	Defined at initiation
Strategic and SDG alignment	Contribution to named targets	Target set
Environmental performance	Life-cycle impact measures	Target set
Social inclusion and welfare	Reach to intended and vulnerable groups	Target set
Governance and transparency	Accountability and disclosure measures	Target set
Resilience	Exposure managed; continuity assured	Target set
Institutional capacity	Ownership and maintenance in place	Target set
Benefits sustainability	Outcomes sustained post-closure	Measured post-project

13.9 Practical Tool: Closure-for-Sustainability Checklist

CLOSURE-FOR-SUSTAINABILITY CHECKLIST

- Is the outcome institutionalized in a durable, mandated, funded owner?
- Are outcome and sustainability indicators tracked beyond handover?
- Are lessons learned documented and fed into future projects?
- Is a post-project evaluation scheduled to test sustained benefits?
- Is a maintenance and operation plan funded and staffed?

13.10 Ethical, Social, Environmental, and Governance Considerations

What a project measures reveals what it values. Measuring only outputs and disbursement declares that delivery is all that matters, licensing the neglect of outcomes and communities. Measuring outcomes, inclusion, and sustained benefits holds a project accountable for the value it was meant to create, serving the ethical and governance dimensions of the framework and respecting the people the project was for.

13.11 Critical Issues, Tensions, and Limitations

Measurement is costly, and indicators can distort behavior, rewarding what is easy to count over what matters, a hazard sometimes summarized as managing to the indicator rather than to the outcome. Attribution is also difficult, since outcomes have many causes beyond the project. These limits argue for indicators chosen with care, complemented by qualitative judgment, and for humility about what evaluation can prove, not for abandoning the effort to learn whether value was sustained.

Chapter Synthesis

This chapter developed monitoring, evaluation, learning, and benefits realization, extending measurement beyond outputs to outcomes and sustained benefits, and treating institutionalization at closure as decisive. It presented a Sustainable Project Performance Scorecard across the eight dimensions. Chapter 14 examines the Philippine context in which all these disciplines must operate, honestly and in full.

Critical Reflection Questions

1. Why is it said that what is not measured is rarely sustained?
2. Distinguish monitoring, evaluation, and learning, and outputs, outcomes, and impacts.
3. How do the six evaluation criteria assess a project, and why does sustainability rank among them?
4. Why is institutionalization at closure decisive for sustainability?
5. How can indicators distort behavior, and how can this be mitigated?
6. In a project you know, were outcomes measured, and with what consequence?

Application Activity

PROJECT TASK: BUILD A SCORECARD AND CLOSURE PLAN

Purpose. To practice outcome-focused measurement and closure for sustainability.

Instructions. For a project you know, complete the Sustainable Project Performance Scorecard with indicators and targets, and draft a closure plan that institutionalizes the outcome and schedules a post-project evaluation.

Expected output. A completed scorecard and a one-page closure-for-sustainability plan.

Assessment criteria. Quality of indicators across dimensions (35 percent); soundness of the closure plan (30 percent); attention to benefits sustainability (20 percent); clarity (15 percent).

Chapter References

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CHAPTER 14

Managing Sustainable Projects in the Philippine Context

CHAPTER OVERVIEW

This chapter examines the Philippine project environment in full and in all its aspects. It surveys the political, economic, social, technological, environmental, and legal conditions; the actors, from national agencies and local governments to state universities, cooperatives, and communities; and the recurring frictions of procurement delays, political transitions, thin capacity, and maintenance failures. It examines Filipino cultural values without romanticizing them, weighing their cooperative strengths against the risks of favoritism, indirect communication, and weak accountability, and it presents a Philippine Sustainable Project Context Checklist.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Analyze the political, economic, social, technological, environmental, and legal conditions of Philippine projects.
2. Map the actors and the national, regional, and local planning architecture.
3. Explain the recurring frictions that threaten project sustainability.
4. Assess Filipino cultural values critically, weighing strengths against risks.
5. Apply a Philippine Sustainable Project Context Checklist.

KEY TERMS

Decentralization: The devolution of powers and functions to local government units under the Local Government Code (Republic Act No. 7160, 1991).

Bayanihan: the Filipino spirit of communal unity and cooperation.

Utang na loob: a relational sense of reciprocal obligation and gratitude.

Institutional capacity: the ability of an organization to plan, deliver, and sustain projects.

14.1 Introduction

Every principle in this book must survive contact with the Philippine context, and that context is demanding. This chapter sets out the conditions, actors, and frictions that shape Philippine projects, and it examines the cultural values that pervade project work. It does so honestly, neither dismissing the real constraints nor romanticizing the culture, because sustainable project management in the Philippines requires seeing the setting as it is.

14.2 Conceptual and Theoretical Foundations

The Philippine project environment can be read through familiar dimensions. Politically, projects operate amid electoral cycles and transitions that can interrupt continuity. Economically, resources are constrained and unevenly distributed. Socially, deep inequality and rich community life coexist. Technologically, rapid digital adoption meets a persistent digital divide. Environmentally, extraordinary biodiversity meets extreme hazard exposure. Legally, a substantial body of planning, environmental, procurement, and rights legislation governs project work.

The actors are many, and their coordination is itself a challenge: national government agencies, local government units empowered by the Local Government Code (Republic Act No. 7160, 1991), state universities and colleges, the private sector, cooperatives, nongovernment and community organizations, and international development partners. The national planning architecture, from the long-term vision through the medium-term plan to local development plans, is meant to align them, though alignment in practice is imperfect.

14.3 Major Scholarly Discussions

Certain frictions recur across Philippine projects and account for much of the gap between output and sustained outcome. Procurement can be slow and disputatious; political transitions can reprioritize or abandon projects; institutional capacity is uneven, especially in smaller local governments; and maintenance is chronically underfunded relative to construction. Bureaucratic delay, corruption risk, and infrastructure and digital gaps compound these difficulties. Naming them plainly is the first step to managing them.

Filipino cultural values shape project work and deserve honest analysis. Bayanihan and pakikipagkapwa can mobilize extraordinary cooperation and community ownership, genuine assets for sustainability. Yet the same relational fabric, through hiya, or shame-based reticence, utang na loob, or reciprocal obligation, and high power distance, can produce favoritism, indirect communication that hides problems, political accommodation, and reluctance to enforce accountability. Enriquez's work in Filipino psychology provides a scholarly basis for taking these values seriously without caricature (Enriquez, 1994). The task is to draw on strengths while building transparency and accountability to counter the risks.

14.4 Relevant Standards, Policies, and Frameworks

The Philippine legal and policy architecture examined throughout this book converges here: the Philippine Development Plan 2023-2028 and its investment program (National Economic & Development Authority, 2023), the Local Government Code (Republic Act No. 7160, 1991), the Climate Change Act (Republic Act No. 9729, 2009), the Disaster Risk Reduction and Management Act (Republic Act No. 10121, 2010), the Indigenous Peoples' Rights Act (Republic Act No. 8371, 1997), and the procurement laws. Together, they give sustainable project management in the Philippines both its mandate and its constraints.

14.5 Philippine Context and Applications

The book's earlier chapters have drawn Philippine applications across disaster preparedness and flood management, renewable energy, sustainable agriculture and fisheries, education technology, waste management, tourism and heritage, health and social development, university extension, and community livelihood. What unites them is the decisive importance of continuity after delivery: in every sector, the difference between a completed output and a sustained outcome turns on institutional ownership, funded maintenance, genuine community engagement, and resilience to hazard. The Philippine context does not change the framework; it raises the stakes of applying it well.

14.6 Case Study

Synthesis Case: The MRT-3 and the Ifugao Terraces Compared

Drawing on the verified cases of Chapters 1 and 2, based on publicly available information.

Two Philippine trajectories: The MRT-3 was a modern asset that lost value when institutional and financial continuity failed after delivery. The Ifugao Rice Terraces are an ancient system that has endured for millennia and recovered from near-loss through the alignment of community values, supportive institutions, and adequate resources.

What the comparison teaches: Sustainability in the Philippine context depends less on the modernity of an outcome than on the institutions, financing, and community engagement that sustain it. The terraces, sustained by living institutions and values, outlasted an asset that was newer but institutionally unsupported.

Lesson: The Philippine frictions, discontinuity, underfunded maintenance, and weak accountability are precisely what the framework's institutional, economic, and governance dimensions are designed to surface and address.

14.7 International Comparative Example

Other hazard-exposed developing countries face similar frictions of capacity, continuity, and maintenance, and those that have improved outcomes have done so by strengthening institutions and maintenance financing rather than by building more. The comparison confirms that the Philippine challenge is shared and that its remedies are institutional.

14.8 Original Tool: Philippine Sustainable Project Context Checklist

PHILIPPINE SUSTAINABLE PROJECT CONTEXT CHECKLIST

- Political: Is the project resilient to transitions and reprioritization?
- Institutional: Is there durable ownership and capacity to maintain the outcome?
- Financial: Is continuing operation and maintenance funded, not only construction?
- Procurement: Are delays and lowest-bid risks anticipated and managed?
- Environmental and hazard: Is the project designed for the local hazard profile?
- Cultural: Are relational strengths used and their risks countered by transparency?

- Legal: Are planning, environmental, procurement, and rights requirements met?
- Community: Is engagement genuine, with benefits shared and consent secured where required?

14.9 Practical Application

The checklist is applied at selection and revisited at every stage, ensuring that the distinctive Philippine risks are surfaced early and managed throughout rather than discovered at closure. Used alongside the framework's stage screen, it grounds the eight dimensions in the specific conditions of Philippine practice.

14.10 Ethical, Social, Environmental, and Governance Considerations

Honesty about the Philippine context is itself an ethical stance. Romanticizing the culture flatters without helping; dismissing it as merely dysfunctional is both false and disrespectful. The balanced view, which honors the genuine strengths of bayanihan and communal solidarity while naming the risks of favoritism and weak accountability, respects Filipino realities and serves the communities that projects are meant to benefit.

14.11 Critical Issues, Tensions, and Limitations

The deepest tension in Philippine practice is between relational and rule-based ways of organizing work. Relationships enable cooperation and can also undermine accountability; rules enable accountability and can also become rigid and impersonal. Sustainable project management does not resolve this tension once and for all but manages it case by case, drawing on relational strengths while insisting on transparent, accountable governance. No framework can substitute for the institutional reform and capacity building that the context ultimately requires.

Chapter Synthesis

This chapter examined the Philippine project environment honestly, surveying its conditions, actors, and frictions, and assessing Filipino cultural values without romanticizing them. It presented a Philippine Sustainable Project Context Checklist and, through a synthesis of the MRT-3 and Ifugao cases, showed that sustainability in this context depends on institutions, financing, and engagement more than on the modernity of the outcome. Chapter 15 consolidates the framework and looks to future directions.

Critical Reflection Questions

1. Which recurring Philippine frictions most threaten the sustainability of project outcomes, and why?
2. How can bayanihan and pakikipagkapwa strengthen projects, and how can their risks be countered?

3. Why does the comparison of the MRT-3 and the Ifugao terraces favor institutions over modernity?
4. How does decentralization under the Local Government Code shape local project sustainability?
5. What does it mean to honor Filipino culture without romanticizing it in project work?
6. Apply the Philippine context checklist to a project you know and identify its two greatest context risks.

Application Activity

PROJECT TASK: A CONTEXT ANALYSIS

Purpose. To practice honest analysis of the Philippine project context.

Instructions. For a real Philippine project, complete the Philippine Sustainable Project Context Checklist, identify the two greatest context risks, and propose concrete measures to manage them, addressing both institutional and cultural factors.

Expected output. A completed checklist and a two-page context analysis with recommendations.

Assessment criteria. Depth of context analysis (35 percent); balance in treating cultural values (25 percent); quality of recommendations (25 percent); clarity (15 percent).

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CHAPTER 15

The Sustainable Project Management Integration Framework and Future Directions

CHAPTER OVERVIEW

This concluding chapter consolidates the Sustainable Project Management Integration Framework, drawing together its eight dimensions and seven life-cycle stages into a single integrated model and a consolidated matrix. It explains how national agencies, local governments, universities, businesses, cooperatives, civil-society organizations, consultants, researchers, and students can use the framework, surveys future directions from artificial intelligence and digital twins to the circular economy and responsible innovation, and closes with the book's central argument: that sustainable project management is not an optional environmental add-on but an integrated management philosophy for delivering lasting value.

LEARNING OUTCOMES

Upon completion of this chapter, the reader should be able to:

1. Consolidate the eight dimensions and seven stages into an integrated model.
2. Apply the consolidated framework across different types of organizations.
3. Assess future directions and their implications for sustainable project management.
4. Use the book's final tools to screen, assess, and review sustainable projects.
5. Articulate the case for sustainable project management as an integrated philosophy.

KEY TERMS

Consolidated SPMIF: the integrated model bringing together the eight dimensions across the seven life-cycle stages.

Digital twin: a dynamic virtual model of a physical asset used to plan, monitor, and maintain it.

Circular economy: an economic model that designs out waste and keeps materials in productive use.

Responsible innovation: innovation that anticipates and addresses its social, ethical, and environmental implications.

15.1 Introduction

The preceding chapters introduced the Sustainable Project Management Integration Framework and applied it in stages. This chapter draws the threads together. It presents the consolidated model, explains its use across a range of Philippine and international organizations, considers the future in which it will operate, and states the argument the book has been building toward. The framework remains, as it has been throughout, a proposed and not yet empirically validated model, offered as a discipline of attention rather than a certified instrument.

15.2 The Consolidated Framework

The consolidated framework, shown in Figure 15.1, integrates the eight dimensions and the seven life-cycle stages into a single view. The eight dimensions, strategic and SDG alignment, economic and financial viability, environmental responsibility, social inclusion and stakeholder welfare, ethical governance and accountability, risk, resilience, and adaptability, monitoring, learning, and benefits realization, and long-term institutional sustainability, are considered at each of the seven stages, from identification through post-project evaluation, and at every intersection the framework prompts core questions, management actions, decision criteria, tools, stakeholder responsibilities, ethical considerations, performance indicators, risks, corrective actions, and documentation.

Table 15.1 presents a consolidated summary of the matrix, listing for each stage the dominant sustainability questions across the dimensions. The full value of the framework lies not in the summary but in its disciplined application: forcing every dimension to be considered at every stage, and documenting the result, converts sustainability from an aspiration into a distributed set of checkable commitments.

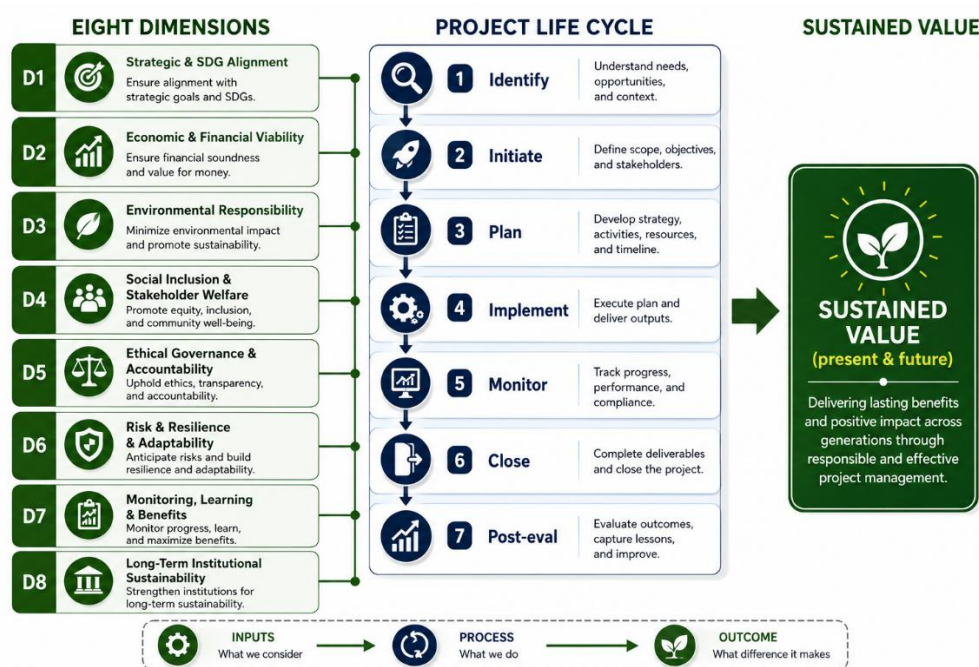


Figure 15.1 The Sustainable Project Management Integration Framework: Consolidated Model

Table 15.1 Consolidated SPMIF Matrix (Summary by Stage)

Life-cycle stage	Dominant sustainability question across the eight dimensions
Identification	Is this the right project, and which goals and whose needs does it truly serve?
Initiation	Are sustainable success criteria and accountable ownership defined?
Planning	Are life-cycle cost, resources, resilience, and inclusion designed in?
Implementation	Are commitments to communities, environment, and integrity honored in delivery?
Monitoring and control	Are outcomes and sustainability, not only outputs, being measured and managed?
Closure and transition	Is the outcome institutionalized, funded, and handed to a durable owner?

Life-cycle stage	Dominant sustainability question across the eight dimensions
Post-project evaluation	Were the intended benefits realized and sustained, and what was learned?

15.3 Using the Framework across Organizations

The framework is designed for wide use. National government agencies can apply it to align major investments with the Sustainable Development Goals and to secure the institutional continuity their projects require. Local governments can use it to strengthen the sustainability of devolved projects under real capacity constraints. State universities and schools can apply it to research, extension, and capital projects, and can teach it. Businesses and cooperatives can use it to integrate environmental, social, and governance concerns into project delivery. Non-government and community organizations can use it to make participation and benefit-sharing concrete. Consultants, researchers, and graduate students can apply, test, and refine it.

Proportionate application is essential. A large infrastructure project warrants the full fifty-six-intersection treatment; a small community initiative may address the intersections briefly. The framework scales by judgment, and learning to apply it proportionately is part of competent use.

15.4 Future Directions

The context of sustainable project management is changing rapidly. Artificial intelligence, predictive analytics, big data, and digital twins are transforming how projects are planned, monitored, and maintained, offering gains in efficiency and foresight while raising concerns of data quality, privacy, equity, and cybersecurity that responsible practice must address. Open data and smart communities extend transparency and participation, and remote project teams reshape collaboration.

Substantive agendas are also evolving. Climate-responsive planning, the circular economy, and regenerative development shift projects from reducing harm to restoring value; sustainable finance and rising environmental, social, and governance expectations reshape how projects are funded and evaluated. Across all of these, responsible innovation and data ethics insist that new capabilities be deployed with attention to their social and environmental consequences. The framework accommodates these developments by treating them as new content for its enduring dimensions and stages rather than as replacements for them.

15.5 The Book's Final Tools

The supplementary materials that follow provide the book's consolidated tools: a Sustainable Project Screening Checklist, a Project Sustainability Assessment Rubric, the SDG Project Alignment Matrix, governance and stakeholder-inclusion checklists, a risk-and-resilience checklist, the Sustainable Project Performance Scorecard, and a Post-Project Sustainability Review. Together, they operationalize the framework across the life cycle and give practitioners a ready means of applying its discipline.

15.6 Ethical, Social, Environmental, and Governance Considerations

The framework's insistence that ethical governance, social inclusion, and long-term institutional responsibility stand as named dimensions is its deepest commitment. It refuses to reduce sustainability to environmental gestures and treats it as a matter of justice across people and across time. This commitment is what distinguishes sustainable project management, as developed here, from the ceremonial adoption of sustainability language that changes nothing.

15.7 Critical Issues, Tensions, and Limitations

The framework's principal limitation remains its status as a proposed model awaiting empirical validation, and its adoption faces the real constraints of capacity, incentives, and institutional continuity documented in this book. It is a discipline of attention, not a guarantee of outcomes, and it depends for its effect on the integrity and capacity of those who use it. These honest limits are stated not to diminish the framework but to define the conditions of its responsible use and to invite the research that would test and improve it.

Chapter Synthesis and Conclusion

This chapter consolidated the Sustainable Project Management Integration Framework into an integrated model and matrix, explained its use across organizations, and surveyed the future in which it will operate. The book's argument can now be stated in full. Sustainable project management is not an optional environmental add-on to conventional practice. It is an integrated management philosophy spanning environmental, social, economic, institutional, governance, and ethical dimensions across the whole life cycle, necessary for delivering outcomes that are useful, responsible, equitable, resilient, and lasting.

The recurring lesson of this book, drawn from the Metro Rail Transit Line 3, the Ifugao Rice Terraces, the Sydney Opera House, and the many applications between, is that efficient delivery is necessary but never sufficient. A project completed on time and on budget can begin its decline on the day it is accepted; a project that endures does so because its sustainability, institutional, economic, social, environmental, and ethical, was designed in, secured, and sustained. That is the discipline this book has sought to make teachable, and it is the discipline on which the lasting value of projects, in the Philippines and beyond, depends.

Critical Reflection Questions

1. State the book's central argument in your own words and defend it.
2. How would you apply the consolidated framework proportionately to a small project and to a large one?
3. Which future direction, from artificial intelligence to the circular economy, will most change sustainable project management, and why?
4. Why does the framework treat ethical governance and social inclusion as named dimensions rather than as context?

5. What research would you design to test and validate the framework?
6. Reflecting on the whole book, what single change would most improve the sustainability of projects in your own institution?

Application Activity

CAPSTONE TASK: APPLY THE FULL FRAMEWORK

Purpose. To integrate the whole book by applying the consolidated framework to a real project.

Instructions. Select a real project. Apply the consolidated SPMIF across the seven stages and eight dimensions, using the book's tools: screen and align it, plan its sustainability, assess its risks and governance, define its performance measures, and design its closure and post-project review. Present your analysis as a sustainability management plan.

Expected output. A sustainability management plan of about six to eight pages applying the framework end-to-end.

Assessment criteria. Completeness across dimensions and stages (35 percent); use of the book's tools (25 percent); realism and honesty, including disclosed trade-offs (25 percent); coherence and writing (15 percent).

Chapter References

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P A R T V

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LIST OF ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
CBA	Cost-Benefit Analysis
CCC	Climate Change Commission
CHED	Commission on Higher Education
CPM	Critical Path Method
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
DILG	Department of the Interior and Local Government
DOTr	Department of Transportation
DRRM	Disaster Risk Reduction and Management
ESG	Environmental, Social, and Governance
EVM	Earned Value Management
FAO	Food and Agriculture Organization of the United Nations
FPIC	Free, Prior, and Informed Consent
GIAHS	Globally Important Agricultural Heritage Systems
GNH	Gross National Happiness
GPPB	Government Procurement Policy Board
ILO	International Labour Organization
IP	Indigenous Peoples
IPRA	Indigenous Peoples' Rights Act
ISO	International Organization for Standardization
LGU	Local Government Unit
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
MRT	Metro Rail Transit
NEDA	National Economic and Development Authority
NGA	National Government Agency
NGO	Nongovernment Organization
OECD	Organisation for Economic Co-operation and Development
PDP	Philippine Development Plan
PIP	Public Investment Program
PMI	Project Management Institute
PPP	Public-Private Partnership
PSU	Pangasinan State University
RA	Republic Act
SDG	Sustainable Development Goal
SPMIF	Sustainable Project Management Integration Framework
SUC	State University and College
TBL	Triple Bottom Line
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WBS	Work Breakdown Structure
WCED	World Commission on Environment and Development

A Comprehensive Review Exercises

The following integrative exercises span the whole book. Suggested answers to selected exercises are indicated where appropriate; fuller answer guidance can be developed for an instructor's edition.

1. Explain, with examples, why an on-time and on-budget project may still fail, and why a delayed and over-budget project may still succeed.
2. Define sustainable development and set out its six dimensions as used in this book, illustrating each with a Philippine example.
3. Describe the eight dimensions of the Sustainable Project Management Integration Framework and map them across the seven life-cycle stages.
4. Using the SDG Project Alignment Matrix, align a project you know with a primary and supporting goals, disclosing at least one potential negative effect.
5. Compare life-cycle costing with lowest-initial-cost thinking and explain the consequences of each for sustainability.
6. Construct a Sustainable Project Risk Register for a hazard-exposed Philippine project, linking risks to the dimensions they threaten.
7. Distinguish token from meaningful participation and design an engagement approach that secures a social license to operate.
8. Explain why measuring outputs alone conceals failures that measuring outcomes would reveal.
9. Assess Filipino cultural values in project work, weighing their strengths against their risks.
10. Apply the consolidated framework to a real project and present a short sustainability management plan.

Suggested Answers to Selected Exercises

Exercise 1. A project can satisfy scope, time, and cost on its closing day yet fail if its outcome is not maintained, used, funded, or governed, as in the MRT-3 case; conversely, a project can breach all three constraints yet create enduring value, as in the Sydney Opera House. Success is multidimensional and time-dependent.

Exercise 8. Outputs are the deliverables a project produces; outcomes are the changes those outputs are meant to cause. Measuring only outputs records a facility as delivered while leaving unasked whether it produced the intended benefit, so failures of benefit realization remain invisible until a post-project evaluation exposes them.

B Templates and Tools

The templates below consolidate the book's tools. Several full templates appear in the indicated chapters and are cross-referenced here; the additional templates are provided in compact form.

B1. Project Concept Note (Template)

Template B1 Project Concept Note

Field	Content
Title and proponent	Project name and responsible unit.
Development problem	The problem, from problem-tree analysis.
Objectives	SMARTER objectives.
Primary and supporting SDGs	Goals and targets advanced.
Beneficiaries	Who benefits, including vulnerable groups.
Indicative cost and financing	Life-cycle cost and funding source.
Sustainability and continuity	Owner and maintenance after funding ends.

B2. Sustainable Project Budget (Template)

Template B2 Sustainable Project Budget

Line	Basis	Note
Direct costs	Bottom-up estimate	Labor, materials, equipment
Indirect costs	Allocation	Overheads
Operation and maintenance	Life-cycle estimate	Funded beyond handover
Contingency reserve	Risk-based	For identified risks
Management reserve	Policy	For unforeseen risks

B3. Monitoring and Evaluation Framework (Template)

Template B3 Monitoring and Evaluation Framework

Result level	Indicator	Baseline / Target / Means
Outputs	Delivery indicator	Tracked continuously
Outcomes	Change indicator	Baseline and target set
Impact	Long-term measure	Assessed post-project
Sustainability	Continuity of benefits	Post-project evaluation

B4. Project Sustainability Assessment Rubric (Template)

Template B4 Project Sustainability Assessment Rubric

Dimension	Weak (1)	Strong (4)
Strategic and SDG alignment	Symbolic or absent	Specific targets, trade-offs disclosed
Economic viability	No continuity funding	Funded life-cycle continuity
Environmental responsibility	Impacts ignored	Life-cycle impacts managed
Social inclusion	Token participation	Meaningful participation, benefits shared
Ethical governance	Opaque, unaccountable	Transparent, accountable
Risk and resilience	Hazards ignored	Designed for resilience
Monitoring and benefits	Outputs only	Outcomes and benefits tracked
Institutional sustainability	No durable owner	Institutionalized ownership

B5. Post-Project Sustainability Review (Template)

Template B5 Post-Project Sustainability Review

Question	Finding
Were intended outcomes achieved?	Evidence of benefit realization.
Are benefits being sustained?	Status of continuity.
Is the outcome maintained and funded?	Institutional and financial status.
What environmental and social effects occurred?	Assessed effects.
What lessons emerge for future projects?	Documented learning.

Cross-referenced Templates

The Sustainable Project Charter (Table 5.1), Resource-Allocation Matrix (Table 6.1), Life-Cycle Cost Comparison (Table 7.1), Sustainable Project Risk Register (Table 8.1), RACI Matrix (Table 9.1), Stakeholder Register and Engagement Plan (Table 10.1), Project Communication Matrix (Table 11.1), Delivery-Approach Selection Matrix (Table 12.1), Sustainable Project Performance Scorecard (Table 13.1), and SDG Project Alignment Matrix (Table 4.1) appear in full within the chapters indicated and complete the book's toolkit.

C Glossary

- Adaptive management.** Managing by treating plans as revisable hypotheses tested against results.
- Agile.** An iterative, feedback-driven delivery approach that releases value in increments.
- Benefits realization.** Achieving and sustaining a project's intended outcomes after delivery.
- Circular economy.** An economic model that designs out waste and keeps materials in productive use.
- Contingency reserve.** Funds set aside within the cost baseline for identified risks.
- Critical path.** The longest sequence of dependent activities determines the minimum project duration.
- Decentralization.** The devolution of powers and functions to local government units.
- Externality.** A cost or benefit of a project borne by parties outside it.
- Free, prior, and informed consent.** The right of indigenous peoples to give or withhold consent to projects affecting them.
- Greenwashing.** Conveying a false or misleading impression of environmental or social responsibility.
- Institutionalization.** Embedding a project's outcome in a durable institution that maintains it.
- Intergenerational equity.** Fairness in the distribution of resources and burdens between present and future generations.
- Life-cycle costing.** Assessment of total cost over the whole life of an asset, including operation and disposal.
- Logical framework approach.** A method linking objectives, activities, indicators, and assumptions in a results structure.
- Meaningful participation.** Engagement that genuinely influences decisions, as opposed to token consultation.
- Monitoring.** The continuous tracking of activities and outputs against plan.
- Multi-criteria decision analysis.** Evaluating options against several weighted, incommensurable criteria.
- Portfolio.** A collection of projects and programs managed together to advance strategy.
- Program.** A set of related projects managed together for benefits unavailable separately.
- Project.** A temporary endeavor undertaken to create a unique product, service, or result.
- Project governance.** The framework of authority, accountability, and decision rights directing a project.
- Resilience.** The capacity to absorb disturbance and reorganize while retaining essential function.
- Results chain.** The sequence from inputs and activities to outputs, outcomes, and impacts.
- Risk.** The effect of uncertainty on objectives.
- SDG washing.** Claiming alignment with the Sustainable Development Goals without substantive contribution.
- Scope creep.** The uncontrolled expansion of scope without adjustment of time and cost.
- Social license to operate.** The ongoing acceptance of a project by the communities it affects.

SPMIF. The Sustainable Project Management Integration Framework is developed in this book.

Sustainable development. Development meeting presents needs without compromising future generations.

Sustainable procurement. Procurement integrating environmental, social, and ethical criteria.

Theory of change. An explicit account of how activities are expected to produce outcomes and impacts.

Triple Bottom Line. Evaluation of performance against economic, social, and environmental results.

Work breakdown structure. A hierarchical decomposition of the total scope of work.

D Consolidated References

The following consolidates the references cited across the chapters. Entries marked [Verification Required] should be confirmed against primary sources before publication, in keeping with the book's verification standard.

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E Index

This index provides an alphabetical guide to the major concepts, frameworks, standards, policies, laws, tools, cases, institutions, and approaches discussed throughout the book, enabling readers to locate topics quickly and connect related ideas across chapters. It highlights key areas such as sustainable project management, governance, stakeholder participation, resilience, monitoring and evaluation, benefits realization, Philippine development policies, and the Sustainable Project Management Integration Framework.

Term / Concept	Key References
Adaptive management	12.2, 15.4
Agile approaches	1.3, 12.1–12.11
Agile Manifesto	1.3, 12.2
AmBisyon Natin 2040	1.4, 2.4
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