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Green Project Management

The Project Sustainability Reporting Guide

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This publication has been designed with sustainability in mind, using practices that minimize paper use and reduce environmental impact.

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Foreword

Organizations today are focused on ESG disclosures and sustainability reporting. Frameworks like GRI, SASB/ISSB, TCFD, the SDGs, among others provide the structure. They speak consistently of activities — the things organizations do that create impacts on people, the planet, and prosperity. For most organizations, these activities are projects where change happens. Projects create products, transform systems, build infrastructure, and deliver innovation.. However, organizations require a way to account for project impacts in their sustainability disclosures, but lack a framework.

The Project Sustainability Reporting Guide provides a framework for organizations to establish, track and report project level sustainability metrics and further highlights the difference between incremental sustainability and authentic sustainability. Too often, organizations report progress in relative terms—"reduced emissions by 20%," "improved efficiency by 15%"—without communicating the attainment of true sustainability. A project that reduces its carbon footprint by 30% may still emit twice its fair allocation under a 1.5°C global warming scenario. A facility that "improves" water efficiency by 25% may still deplete a stressed watershed.

This Guide introduces a methodology that measures performance not incrementally but against normative thresholds required to maintain the carrying capacities of natural, human, social, constructed, and economic capitals. It allows stakeholders to distinguish between projects that are "less bad" and those genuinely sustainable. The Guide bridges project delivery and organization-level sustainability reporting. It completes the sustainable project management toolkits from Project Management Institute and Green Project Management. It shows how the Sustainability Management Plan (SMP) and the P5 Standard help identify impacts, apply materiality, and ensure projects produce data that flows directly into corporate reporting.

These tools equip anyone with the know-how to put sustainability into action and deliver sustainability impacts with their projects. Every project team needs support to move beyond incremental thinking toward authentic sustainability grounded in carrying-capacity thresholds. The SMP provides the structure; this Guide explains the process—from identifying impacts (P5) to contextualizing them against sustainability thresholds to managing them transparently at achievable maturity levels. When teams adopt this approach, projects shift from optimizing within unsustainable systems to becoming catalysts for regenerative transformation—and organizational reporting becomes grounded in science, not aspiration.

A leader reading this— vice president, division head, or executive—should ask: Are our projects truly sustainable, or merely "less bad"? Do we measure performance against carrying-capacity thresholds, or only past baselines? Are we stewarding all vital capitals—natural, human, social, constructed, and economic—or optimizing financial capital alone? This Guide provides the framework to move from incremental to context-based and regenerative sustainability.

— Joel Carboni

Founder and President of GPM
Author

Our Sustainability Ecosystem

Using our Sustainable Project Management™ Ecosystem includes Standards, Practice Guides, Training, and Certification, this is how they benefit organizations:
Consider a company that manages a network of large facilities — warehouses, fulfillment centers, offices, or data hubs. Or imagine a global technology provider operating energy-intensive data centers, or a healthcare organization building hospitals and clinics. These sectors appear different, but they share the same challenge: projects are material, yet they are missing from most sustainability reports and ESG disclosures.
At the corporate level, organizations publish strong ESG commitments — on safety, climate, equity, or resilience. But at the project level, teams deliver expansions, retrofits, and new facilities without a consistent process to connect their work to those commitments. Health and safety incidents may be tracked locally, energy data may be collected by operations, and community concerns may surface through stakeholder engagement — but without a structured system, these project-level impacts are rarely captured in a way that can flow into sustainability reporting. The result is a gap: disclosures tell the story of strategy, but not of where the strategy is actually lived out — in projects.

Our unique tools, the Sustainability Management Plan (SMP) and P5 Impact Analysis (P5IA) come in. Together, they ensure no stone is left unturned**:**

- **Warehouses and fulfillment centers**: occupational health and safety, ergonomics, waste, and energy efficiency.
- **Data centers**: water consumption, renewable sourcing, e-waste, and digital responsibility.
- **Healthcare facilities**: patient safety, medical waste, equitable access, and climate resilience.

Every impact is identified, tested for materiality, and documented in the SMP. This creates a **linkage practice**:

- **Strategy**: organizational commitments are translated into project-level material topics.
- **Delivery**: project teams use the SMP to manage and monitor sustainability alongside cost, scope, and schedule.
- **Reporting**: verified project data feeds directly into ESG disclosures, ensuring they reflect real activities and outcomes.

By embedding this practice, organizations gain more than compliance. They gain **visibility and confidence** that the activities driving their sustainability strategy — the projects themselves — are connected to their reporting.
That is the purpose of this Guide. It is the **final piece of the puzzle**: the bridge that connects **project delivery with disclosures**, making sustainability reporting not just stronger, but complete.

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Orientation – Who's Who in Sustainability Reporting

A) Why This Section Matters

If you are new to sustainability reporting, the number of frameworks and acronyms can feel overwhelming. This Guide assumes no prior knowledge. Before we explain project materiality, we need to clarify **who the key organizations are, what they do, when they apply, and how they connect to projects**.

Think of these frameworks as the **rules of the road for sustainability reporting**. Each one looks at your project from a different angle:

- Global Reporting Initiative (GRI) → how your project affects the world.
- Sustainability Accounting Standards Board (SASB) / International Sustainability Standards Board (ISSB) → how project impacts affect financial performance.
- **Task Force on Climate-Related Financial Disclosures (TCFD) / IFRS S2 Climate Standard** → how climate risks and resilience are governed and disclosed.
- United Nations Sustainable Development Goals (SDGs) → which global goals your project contributes to.
- Kunming-Montreal Global Biodiversity Framework → how your project addresses biodiversity.

However, these frameworks share a common limitation when applied incrementally: they can measure relative improvements without revealing whether performance is absolutely sustainable. A project can report 'contributions to SDG 13 (SDG 13 (Climate Action) through emissions reductions while still exceeding its fair carbon allocation by 200%. Similarly, a project can align with GRI standards while depleting local water sources beyond carrying capacity.

The Guide integrates context-based sustainability (CBS) into these frameworks. CBS provides the missing denominator—the normative threshold against which performance is measured. When frameworks are applied with context, they transition from directional indicators ('Are we improving?') to absolute assessments ('Are we sustainable?'). This distinction is critical for projects claiming to contribute to the SDGs, which represent absolute global goals, not incremental targets.

B). GRI – Global Reporting Initiative

- **Who**: An independent international standards body, headquartered in Amsterdam.
- **What**: Provides the **GRI Standards**, the world's most widely used framework for reporting on sustainability impacts.
- **When**: Founded in 1997 after the Exxon Valdez oil spill; standards regularly updated, with the latest foundation being **GRI 1: Foundation 2021**.
- **How**: Organizations use GRI to disclose their **most significant impacts on the economy, environment, and people, including human rights**. For projects, this means tracking data like emissions, water use, labor practices, and community impacts in the SMP and reporting them upward.

C). SASB / ISSB – Sustainability Accounting Standards Board / International Sustainability Standards Board

- **Who**: SASB was founded in the U.S. in 2011; in 2021 it merged into the **ISSB**, part of the **IFRS Foundation**, which also governs global financial reporting standards.
- **What**: Provides **industry-specific standards** that focus on *financial materiality* — sustainability issues most likely to affect financial performance.
- **When**: ISSB's standards (IFRS S1 and S2) became effective in 2024, consolidating SASB metrics into a global baseline.
- **How**: Projects supply data that can affect financial outcomes: e.g., energy efficiency (IT), emissions (utilities), clinical trial ethics (pharmaceuticals). This data, captured in the SMP, is aligned with sector-specific SASB/ISSB standards and disclosed to investors.

D). TCFD / IFRS S2 – Task Force on Climate-Related Financial Disclosures

- **Who**: Established in 2015 by the G20's Financial Stability Board; its recommendations are now embedded in **IFRS S2** under ISSB.
- **What**: Provides a framework for disclosing **climate-related risks and opportunities**, structured around four pillars: Governance, Strategy, Risk Management, Metrics & Targets.
- **When**: TCFD recommendations (2017) are now **embedded in IFRS S2** (effective 2024).
- **How**: Use the SMP to capture **governance, strategy, risk management, metrics & targets** aligned with **IFRS S2**.

E). SDGs – UN Sustainable Development Goals

- **Who**: Developed by the United Nations in 2015, adopted by 193 countries.
- **What**: 17 global goals with 169 targets covering poverty, health, education, climate, biodiversity, and equality.
- **When**: Designed as part of the UN's **2030 Agenda for Sustainable Development**. Targets run through 2030.
- **How**: Projects map their outcomes to relevant SDGs. For example:
    - Renewable energy → SDG 7 (Affordable & Clean Energy).
    - Workforce equity → SDG 5 (Gender Equality).
    - Biodiversity restoration → SDG 15 (Life on Land).
      The SMP records commitments and results, which organizations can roll up into SDG contributions.

F). Kunming-Montreal Global Biodiversity Framework

- **Who**: A United Nations agreement under the Convention on Biological Diversity (CBD), adopted in December 2022 at COP15 in Montreal.
- **What**: A global plan to halt and reverse biodiversity loss by 2030. Its most famous goal is "30 by 30": protect 30% of land and sea by 2030.
- **When**: Adopted in 2022, succeeding the 2010–2020 Aichi Biodiversity Targets.
- **How**: Projects document biodiversity impacts and mitigation in the SMP. Commitments may include habitat protection, restoration, or offsetting. At Closure, verification ensures actions were completed; at Benefits Realization, biodiversity recovery is tracked.

G) Why These Matter for Projects

Sustainability frameworks provide the rules of the road for disclosure, but they are often written with the organization as the unit of analysis. What is frequently overlooked is that the activities these frameworks describe are, in practice, carried out through projects.

Projects are where strategies are implemented, facilities are built, technologies are deployed, and services are transformed. This means that every reporting framework — whether it focuses on outward impacts, financial relevance, climate risk, global development, or biodiversity — has a direct connection to project work. Understanding these connections is critical, because it allows organizations to trace a clear line from project-level impacts to enterprise-level reporting and accountability.

- **GRI** → outward impacts (people, planet, prosperity).
- **SASB/ISSB** → inward financial relevance (risks, costs, resilience).
- **TCFD/IFRS S2** → climate governance and strategy.
- **SDGs** → contributions to global goals.
- **Kunming-Montreal** → alignment with global biodiversity stewardship.

💡 *In short: These frameworks are the "languages" sustainability reporting speaks. The Sustainability Management Plan (SMP) ensures projects can provide the data needed to translate project impacts into disclosures aligned with them.*

Using the GRI Standards correctly: Only **organizations** (not individual projects) can state they report *in accordance with* or *with reference to* the GRI Standards. If project data from this guide supports an organizational report **with reference** to GRI, the organization **shall**:

1. Publish a **GRI content index** listing each disclosure and its location;
2. Include a **statement of use**, e.g.: "**[Organization]** has reported the information cited in this GRI content index for **[period] with reference to the GRI Standards**."
3. **Notify GRI** (reportregistration@globalreporting.org) with the link to the content index and statement of use.

Part 1. Introduction

1.1 Why Projects Matter for Sustainability Reporting

Organizations are built on projects. Whether it is constructing a data center, developing a new pharmaceutical product, deploying a smart grid, or launching a digital platform, **projects are where sustainability impacts actually happen**.
A critical distinction must be made: **projects are where impacts happen, but are those impacts sustainable?**
Conventional project management has operated within a mono-capitalist paradigm—optimizing financial capital while treating natural, human, and social capitals as externalities or constraints. This orientation perpetuates a fundamental misconception, that incremental improvements in eco-efficiency equate to sustainability.
They do not. A project that reduces waste by 50% while operating in a resource-depleted region may still be unsustainable. A project that 'improves' labor conditions while paying below living wages has not achieved social sustainability. To say performance has become 'less bad' is not to say it has become sustainable in rigorous terms.
This Guide introduces a Multi-Capitalist approach to project management, one that recognizes projects must preserve and regenerate all vital capitals (natural, human, social, constructed, economic) to achieve authentic sustainability. This requires measuring performance against carrying capacity thresholds, not just against past baselines or peer averages. This requires measuring performance against carrying capacity thresholds, not just against past baselines or peer averages.
Traditional sustainability reports often aggregate data at the corporate level. While useful, this can obscure the fact that **material impacts — the most significant effects on the economy, the environment, and people — occur at the project level**.
This **Guide** provides a framework to connect project-level data to organizational sustainability reporting. It helps ensure that what happens in projects is not lost when an organization reports to frameworks like GRI, SASB/ISSB, or TCFD/IFRS S2.
Scope note: Projects do not "report" individually to any external organization. **Organizations** report using the reporting frameworks and standards. This guide structures **project-level information** so it can be **integrated** into organizational sustainability reports and disclosures on material topics.

1.2 What This Guide Does

The Guide helps project managers, PMOs, and sustainability officers by:

1. **Identifying impacts** using the P5™ framework (*Product, Process, People, Planet, Prosperity*).
2. Determining material topics **(GRI)** and contextualizing performance across three levels:
    - **Level 1 (Incremental Materiality):** Identify material topics based on stakeholder significance and financial relevance, measured against baselines and trends (conventional GRI/ISSB approach)
    - **Level 2 (Context-Based Materiality):** Measure material impacts against normative thresholds—the carrying capacities of vital capitals that must be maintained for stakeholder well-being. Calculate sustainability quotients (S = A/N) to reveal whether performance is absolutely sustainable, not just 'better than before'
    - **Level 3 (Regenerative Materiality):** Identify opportunities to restore and regenerate depleted capitals beyond sustainability thresholds, contributing to social and ecological healing
3. **Aligning project communications with sustainability commitments** — ensuring that the data projects already generate (baselines, progress reports, closure reports) also reflect sustainability performance.
4.

5. Providing materiality insights **and context-based performance metrics** based on project phase data—enabling organizations to:
    - Translate project outcomes into disclosures aligned with GRI, SASB/ISSB, TCFD/IFRS S2, SDGs, and Kunming-Montreal
    - Distinguish between projects that are 'less bad' (incremental) and those that are genuinely sustainable (within thresholds)
    - Report transparently on maturity level and trajectory toward absolute sustainability
    - Support science-based target setting and threshold alignment at the organizational level

💡 *In plain terms: This Guide makes sure project information speaks the same language as sustainability reporting frameworks.*

💡 **Key Distinction: Better ≠ Sustainable**

Incremental Thinking: Our project reduced carbon emissions by 25% compared to last year.
Question it doesn't answer: Is 25% enough? Compared to what threshold?
Context-Based Thinking: Our project's carbon emissions are currently 1.8 times our science-based fair allocation ($S_{(env)} = 1.8$). We are committed to reaching $S_{(env)} \leq 1.0$ by 2030, aligned with a 1.5°C pathway.
What this reveals: The project is 80% above its sustainable allocation despite reductions. There is a clear gap to close, and a science-based target to guide action.

This Guide enables both approaches. Organizations newly embracing project sustainability can start with reporting incremental performance (Level 1 maturity) while transparently acknowledging the threshold-based sustainability gap they must bridge. Projects ready for context-based reporting can measure against absolute sustainability thresholds (Level 2+). The key is **honesty about where you are** on the journey from incremental to regenerative.

1.3 Who Should Use This Guide

- **Project managers and PMOs** – to integrate sustainability and materiality into project governance.
- **Sustainability officers and ESG reporters** – to capture consistent, auditable project data.
- **Executives and boards** – to understand how project-level actions contribute to enterprise sustainability performance.
- **Communities, investors, and regulators** – to benefit from clearer, project-focused disclosures.

1.4 How the Guide Is Structured

This Guide is organized into eight parts, each designed to be practical and educational:

Orientation: Explains *who* the key reporting bodies are, *what* they do, *when* they apply, and *how* projects connect to them.

Part 1. Introduction: Why projects matter, what this Guide does, and who it is for.

Part 2. Principles & Core Concepts: Dual materiality, P5, the SMP, and the materiality test.

Part 3. The Project Lifecycle Framework: Step-by-step guidance for embedding sustainability in each phase.

Part 4. Bridging P5 to Materiality: How P5 impacts flow into the SMP and become material topics.

Part 5. Sector Modules: Tailored examples for IT, construction, pharma, energy, mega-projects, and more.

Part 6. Cross-Cutting Topics: Climate, water, waste, biodiversity, equity, digital responsibility, governance.

Part 7. Tools & Templates: Practical worksheets and reporting aids.

Part 8. Annexes: Full glossary, case studies, references.

1.5 How to Read This Guide

- If you are **new to sustainability**, start with the Orientation to understand the global frameworks.
- If you are a **project manager**, focus on **Part 3 (Lifecycle Framework)** for phase-by-phase guidance.
- If you are a **sustainability leader**, use **Parts 4 and 6** to connect project data into disclosures.
- Everyone should use the **glossary callouts** throughout the Guide as learning aids.

💡 **Tip**: Think of this Guide as a *bridge*. On one side are projects (where impacts happen). On the other side are sustainability frameworks (that guide sustainability reporting). This Guide shows how to cross that bridge.

Part 2. Principles & Core Concepts

This Guide is built on five principles that together form the foundation for project-level sustainability and materiality management:

1. Dual Materiality – seeing both the impacts of the project and the impacts on the project.
2. P5 as the Input Framework – a comprehensive lens for identifying sustainability impacts.
3. The Sustainability Management Plan (SMP) – the central instrument that grows with the project.
4. The Materiality Test – the filter for prioritizing which impacts become material topics.
5. Alignment with Global Frameworks – ensuring project practices connect directly to GRI, SASB/ISSB, TCFD/IFRS S2, SDGs, and Kunming-Montreal.

2.1 The Paradigm Shift: From Mono-capitalism to Multi-capitalism in Projects

Traditional project management operates within what can be termed a mono-capitalist paradigm—one that prioritizes financial capital above all others. The "iron triangle" of scope, time, and cost reflects this orientation: success is measured by whether the project delivers its outputs on time and on budget, with minimal regard for impacts on natural, human, or social capitals.

This Guide challenges that paradigm. Authentic sustainability requires Multi-Capitalist project management—an approach that recognizes projects inevitably affect multiple forms of capital and must be held accountable for preserving and regenerating all of them.

The PMBOK® Guide, 8th Edition (2025) integrates sustainability into project management by emphasizing materiality, value delivery, resilience, and long-term outcomes**.**

While PMI keeps its standards **framework-neutral**, these concepts align directly with GPM's **P5 Standard**:

- **Materiality** → PMBOK's inside-out and outside-in lens matches P5's outward (impacts on the world) and inward (impacts on the project) framing.
- **Value Delivery** → PMBOK's focus on long-term value aligns with P5's **Prosperity** dimension.
- **Resilience** → PMBOK's emphasis on resilience mirrors P5's attention to **Process** and **Planet** elements.
- **Benefits Realization** → PMBOK's benefits orientation corresponds with P5's **People** and **Prosperity** dimensions.

This alignment means project teams can confidently use the SMP and P5IA alongside PMI practices,

knowing that both frameworks are reinforcing the same sustainability principles.

Alignment with Global Frameworks – ensuring project practices connect directly to GRI, SASB/ISSB,

Capital Type	Examples	Mono-capitalist PM Approach	Multi-Capitalist PM Approach
Natural Capital	Water, air, biodiversity, climate stability, materials	Treated as "free" inputs or externalities	Measured against carrying capacities; impacts must remain within thresholds at S(env) ≤ 1.0
Human Capital	Health, skills, knowledge, well-being	Managed as "labor costs"	Stewarded for sufficiency at S(non-env) ≥ 1.0 (living wages, safe conditions, development opportunities)
Social Capital	Trust, relationships, institutions, equity	Ignored unless regulatory requirement	Actively cultivated (S(non-env) ≥ 1.0); power imbalances addressed
Constructed Capital	Infrastructure, technology, built environment	Core focus of project deliverables	Designed for longevity, circularity, adaptability for S(non-env) ≥ 1.0
Economic Capital	Financial resources, productive capacity	Sole measure of success	One of five capitals targeting S(non-env) ≥ 1.0 and optimized in service of sufficiency across all capitals

Table 1. Capital Type and Capitalist Approach

Why Mono-capitalism Fails Projects

A mono-capitalist project may optimize financial returns while:

- Depleting an aquifer beyond regeneration capacity (natural capital destroyed)
- Paying workers below living wages (human capital degraded)
- Displacing communities without genuine consent (social capital eroded)
- Building infrastructure that locks in fossil fuel dependency (constructed capital misaligned)

From a narrow financial view, the project "succeeds." From a sustainability view—one that accounts for impact on all capitals—it fails catastrophically, **externalizing costs onto stakeholders and ecosystems** that cannot advocate for themselves.

The Multi-Capitalist Alternative

A Multi-Capitalist project asks fundamentally different questions:

1. **Sufficiency**: Do all affected stakeholders have access to sufficient vital capitals to meet their needs?
2. **Thresholds**: Are the project's impacts on each capital within normative thresholds required for sustainability?
3. **Distribution**: Is value (economic and otherwise) distributed equitably among stakeholders, or concentrated?
4. **Regeneration**: Where capitals have been depleted, does the project contribute to their restoration?

Context-based sustainability (CBS) provides the methodology for answering these questions rigorously. By measuring impacts against carrying capacity thresholds for each vital capital, CBS makes Multi-Capitalist project management operational rather than aspirational.

Practical Implications

This shift does not mean abandoning financial discipline. It means **redefining project success** to include:

- **Time, scope, cost** (financial capital)
- **+ Impacts within carrying capacity thresholds** (all capitals)
- **+ Equitable value distribution** (social capital)
- **+ Contribution to stakeholder well-being** (human capital)
- **+ Ecological regeneration where applicable** (natural capital)

Later sections of this Guide show how to integrate these dimensions through:

- The **P5 framework** (identifying impacts across all five capital types)
- The **Sustainability Quotient** (measuring performance against thresholds: S = A/N)
- The **Maturity Framework** (providing a pathway from mono-capitalist incrementalism to Multi-Capitalist regeneration)

💡 **Glossary Callout: Mono-capitalism vs. Multi-capitalism**

Mono-capitalism: An economic system and management approach that prioritizes financial capital accumulation above all other forms of capital. In project management, this manifests as the "iron triangle" mentality where success = on-time, on-budget delivery regardless of social or ecological costs.

Multi-capitalism: An economic system and management approach that recognizes the interdependence of multiple capital types (natural, human, social, constructed, economic) and seeks to preserve or regenerate all of them. In project management, this requires measuring performance against thresholds for all capitals, not just financial metrics. **Context-based sustainability (CBS)** is the methodology that operationalizes multi-capitalism by providing the tools to measure, manage, and report performance across all capitals in rigorous terms, measured as the Sustainability Quotient (S = A/N). CBS and the Multi-capitalist framework referenced throughout this Guide were developed by Mark W. McElroy, PhD, and the Center for Sustainable Organizations. These methodologies, alongside other renown standards, in sustainability provide the technical foundation for measuring performance against normative thresholds across multiple capital types.

2.2 Context-Based Dual Materiality

What is Materiality?

In sustainability, **materiality** means focusing on the *most significant issues*.

- In **GRI**, material topics are the project's most significant **impacts on the economy, environment, and people, including human rights**.
- In **financial reporting**, materiality means **what could influence investor decisions**.

What is Dual Materiality?

Dual Materiality and Context-Based Assessment

Dual materiality is a necessary but insufficient framework for authentic sustainability. It asks:

"What are we doing to the world?" and "What are the impact of the world on us?"

1. **Outward:** How does the project impact the world? (GRI perspective) - how the project affects people, communities, ecosystems, and the economy. Example: GHG emissions, biodiversity loss, community displacement, job creation.
2. **Inward:** How do sustainability issues impact the project? (ISSB/TCFD perspective) - how sustainability issues affect the project's success. Example: carbon pricing, climate risks, supply chain disruption, labor availability.

Together, projects see both sides: "What are we doing to the world?" and "What will the world do to us?"
Example:

- Outward: A solar farm displaces farmland (community concern).
- Inward: Changing subsidies could undermine its economics.

However, dual materiality does not inherently ask: **Are these impacts within sustainable limits?**

Context-based sustainability completes the picture by adding a third dimension: Thresholds.

3. **Thresholds:** Are the project's impacts—both outward and inward—within the carrying capacities of the vital capitals that stakeholders depend on.

Assessment Type Examples

Assessment Type	Question Asked	Example
Outward Materiality (GRI)	What impacts does the project have?	Project withdraws 500,000 m^3 water annually
Inward Materiality (ISSB)	How do sustainability issues affect the project?	Water scarcity poses supply chain risk
Context-Based Threshold	Are impacts within carrying capacity?	Watershed renewable capacity is 1.2M m^3/year. Project's fair allocation is 60,000 m^3. Current withdrawal (500k) is 8.3x sustainable allocation (S(env) = 8.3). Unsustainable.

Table 2. Assessment Type

Without the third lens of thresholds, dual materiality can identify *what* matters without determining whether performance is *sufficient* to be sustainable.
This Guide integrates CBS into dual materiality assessment through the **Sustainability Quotient**, a general specification for sustainability metrics unique to CBS: S = A / N
Where:
S = Sustainability Performance
A = Actual impacts on carrying capacities of vital capitals
N = Normative impacts (thresholds) required to maintain those capitals

A critical distinction applies to how the quotient is interpreted across capital types.

CBS best practice requires that allocations in the case of impacts on natural capitals will be expressed in terms of not-to-exceed shares of available supply (consumption), while allocations in the case of impacts on all other capitals should be expressed in terms of not-to-fall-below shares of the responsibility to produce them (production).

To be sustainable, an organization must consume within the sustainable limits of its natural capital ($S_{(env)} \leq 1.0$) and ensure sustainable production of all other forms of capitals ($S_{(non\text{-}env)} \geq 1.0$)—fairly, justly, and proportionately.

Interpreting the Sustainability Quotient:
The interpretation of S = A/N depends on the capital type:
For **Natural Capitals** - water, carbon, biodiversity (maximum thresholds):

- $S_{(env)} > 1.0$ → Unsustainable (exceeding limits, depleting capital)
- $S_{(env)} = 1.0$ → At limit (threshold performance)
- $S_{(env)} < 1.0$ → Sustainable (below limits, conserving capital)

For **Human, Social, Economic, and Constructed Capitals** (minimum thresholds):

- $S_{(non\text{-}env)} < 1.0$ → Unsustainable (failing to meet obligations)
- $S_{(non\text{-}env)} = 1.0$ → Meeting obligations (threshold performance)
- $S_{(non\text{-}env)} > 1.0$ → Exceeding obligations (regenerative)

Example: Carbon Emissions Materiality (Natural Capital)

Traditional Dual Materiality	Context-Based Dual Materiality
Outward: Project emits 50,000 tCO_2e annually	Outward: Project emits 50,000 tCO_2e annually
Inward: Carbon pricing may increase costs by $2M	Inward: Carbon pricing may increase costs by $2M
	Threshold: Project's fair carbon allocation (1.5°C pathway) is 20,000 tCO_2e. S(env) = 50,000 / 20,000 = 2.5. Project is emitting 2.5x its sustainable allocation—highly material both for climate impact and future regulatory/ reputational risk

Table 3. Carbon Emissions Materiality

The threshold lens reveals that even if the project reduces emissions by 30% next year (to 35,000 tCO_2e), it would still be at $S_{(env)} = 1.75$—substantially unsustainable. **Incremental improvement ≠ sustainability.**

Why it Matters

- Only within thresholds can projects determine their relative sustainability

2.3 P5 as the Input Framework

What is P5?

The **P5 Standard for Sustainability in Project Management** is the most widely utilized framework to integrate sustainability in projects.

Published by GPM in 2011, it defines sustainability across five dimensions:

- **Product** – lifecycle impacts of project outputs (reuse, disposal, waste).
- **Process** – efficiency, effectiveness, fairness of project management.
- **People** – impacts on workers, communities, customers, and human rights.
- **Planet** – impacts on the natural environment (energy, emissions, water, biodiversity).
- **Prosperity** – economic impacts, financial feasibility, social return on investment.

Why it Matters

- Provides a **comprehensive impact scan**.
- Ensures no sustainability dimension is overlooked.
- Forms the **Impact Register** in the SMP.

Example: In Discovery, a hospital project identifies waste streams (Product), OHS concerns (People), water use (Planet), procurement fairness (Process), and community economic benefits (Prosperity).

P5 and Multi-Capital Integration

The P5 Standard provides a comprehensive lens for identifying sustainability impacts across five dimensions: Product, Process, People, Planet, and Prosperity. However, **P5 alone does not inherently assess whether performance is sustainable**—it identifies what to measure, not what the measurement means relative to thresholds.

Integrating P5 with Context-Based Sustainability:

P5 Dimension	Capital Type(s) Affected	Context-Based Question
Product	Natural, Constructed	Is the product's lifecycle impact (materials, waste, disposal) within circular economy thresholds?
Process	Economic, Social	Are procurement, contracting, and decision-making processes equitable and within ethical governance norms?
People	Human, Social	Do all workers and affected communities have access to sufficient human and social capital (living wages, safe conditions, voice)?
Planet	Natural	Are impacts on air, water, climate, biodiversity within planetary boundaries and regional carrying capacities?
Prosperity	Economic, Social	Is value distributed equitably? Is economic activity aligned with sufficiency principles?

Table 4. Integrating P5 with Context-Based Sustainability:

Workflow Integration:

1. **P5 Impact Analysis (P5IA):** Identifies *all* potential impacts across five dimensions → **Impact Register**
2. **Materiality Test:** Filters impacts by stakeholder significance and financial relevance → **Materiality Matrix**
3. **Context-Based Assessment:** For material impacts, establishes normative thresholds (N) and calculates sustainability quotients (S = A/N) → **Threshold Alignment Table**
4. **Target Setting:** Sets goals to close gaps between current performance and sustainability thresholds
5. **Monitoring & Reporting:** Tracks progress toward $S_{(env)} \leq 1.0$ across all environmentally material capitals and $S_{(non\text{-}env)} \geq 1.0$ across all non-environmental capitals.

P5 Element	Incremental Metric (Level 1)	Context-Based Metric (Level 2)
Product (materials)	Used 15% recycled steel	Virgin steel consumption S(env) = 2.0 (Twice the maximum virgin steel consumption to stay within sustainable limit
Planet (water)	Reduced water use by 20%	Water withdrawal S(env) = 3.4 in high-stress watershed (240% above sustainable allocation)
People (wages)	Increased average wage by 10%	Living wage gap Snon-env) = 0.71 (average worker earns 71% of living wage)
Prosperity (local value)	Spent $2M with local suppliers	Local value retention Snon-env) = 0.45 (55% less than the obligated local value retention for the affected community)

Table 5. Example: Construction Project

This integration moves P5 from impact identification to impact contextualization—the critical step for distinguishing incremental improvement from authentic sustainability.

2.4 The Sustainability Management Plan (SMP)

What is the SMP?

The **SMP**, introduced by GPM in 2009, is the **bridge between project activities and sustainability commitments**.

- It is a **living document** that evolves with the project.
- It consolidates **impacts, commitments, monitoring, verification, and outcomes**.
- By project end, it becomes the **single source of truth** for disclosures.

How the SMP Evolves

The SMP evolves across the project lifecycle, with outputs scaled to organizational maturity level:

All Projects (Incremental Baseline):

- **Discovery/Planning** → Impact Register (P5IA results)
- **Design/Planning** → Material Topics Management Table (commitments and targets)
- **Delivery/Execution** → Implementation & Monitoring Section (progress tracking)
- **Closure** → Verification Checklist (commitments fulfilled)

- **Benefits Realization** → Benefits Tracker (outcomes vs. targets

Projects with Context-Based Assessment (Level 2+):

- **Discovery/Planning** → Impact Register + **Threshold Research Table** (normative thresholds identified)
- **Design/Planning** → Material Topics Management Table + **Sustainability Quotient Dashboard** (S = A/N calculated, gaps identified)
- **Delivery/Execution** → Implementation & Monitoring + **Threshold Trajectory Tracking** (progress toward $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1$)
- **Closure** → Verification Checklist + **Threshold Achievement Validation** (third-party verified)
- **Benefits Realization** → Benefits Tracker + **Carrying Capacity Restoration Assessment** (long-term capital health)

Projects with Regenerative Intent (Level 3):

- All Level 2 outputs + **Regenerative Potential Mapping** (opportunities to restore depleted capitals)
- **Stakeholder Co-Governance Protocols** (affected communities participate in threshold-setting and verification)
- **Multi-Capital Return on Investment (MC-ROI)** (value creation across all five capital types, not just financial)

Example: For a smart hospital project, the SMP captures baseline waste and energy use (Discovery), sets targets for waste diversion and renewable use (Design), tracks results in progress reports (Delivery), verifies commitments at handover (Closure), and records energy savings post-operation (Benefits).

2.5 The Materiality Test

Purpose

Not every identified impact is equally important. The **materiality test** prioritizes issues that matter most.

Criteria

1. **Stakeholder significance** – importance to affected people, communities, regulators, investors.
2. **Financial relevance** – potential effect on project costs, schedule, risks, or resilience.

Materiality Test and Context-Based Thresholds

The traditional materiality test asks two questions:

1. **Stakeholder significance:** How important is this issue to affected parties?
2. **Financial relevance:** Could this issue affect project costs, schedule, or risks?

For projects pursuing context-based sustainability (Level 2+), a third criterion is added:

3. **Threshold proximity:** How close is current performance to the normative threshold (S = A/N)? For **natural capital**, issues near or exceeding thresholds ($S_{(env)} \geq 0.8$) are automatically elevated to material regardless of other scores. For **non-natural capitals**, issues with (reverse) $S_{(non\text{-}env)} \leq 1.2$ should be elevated.

Why Threshold Proximity Matters:

An impact may score medium on stakeholder significance and low on financial relevance, yet be **critically material** if it's approaching or exceeding a carrying capacity threshold.

For example:

- Local biodiversity (natural capital) loss may not register financially in the short term, but if the project operates in an ecosystem already at 90% bio-degradation, **it is highly material** because the margin for sustainability is razor-thin.
- Water use may seem unremarkable if the facility is "only" withdrawing 5% of regional supply, but if the watershed is already in 150% overshoot ($S_{(env)} = 1.5$), **any withdrawal is material**.

Three-Dimensional Materiality Matrix:

Projects at Level 2+ use a **cube model** for materiality, not a flat matrix:

Axis	What It Measures	Scale
X-axis	Stakeholder Significance	Low → Medium → High
Y-axis	Financial Relevance	Low → Medium → High
Z-axis	Threshold Proximity (S = A/N)	Natural Capital: Safe (S(env) < 0.5) → Caution (0.5 ≤ S(env) < 0.8) → Critical (S(env) ≥ 0.8) Non-Environmental Capital: Safe (S(non-env) ≥ 1.5) → Caution (1.5 ≥ S(non-env) > 1.2) → Critical (S(non-env) ≤ 1.2)

Table 6. Three-Dimensional Materiality Matrix

Materiality Determination:

- **Automatically Material:** Any impact in "Critical" threshold proximity, regardless of stakeholder/financial scores
- **Highly Material:** Impacts scoring High on 2+ axes
- **Material:** Impacts scoring High on 1 axis + Medium on another
- **Monitor:** All other impacts documented but not prioritized

Example: Project Water Use

Scenario	Stakeholder Sig.	Financial Rel.	Threshold Proximity (S = A/N)	Materiality
Facility in water-abundant region	Low	Low	S(env) = 0.3 (well below threshold)	**Monitor** (no action required)
Facility in moderately stressed basin	Medium	Medium	S(env) = 0.75 (approaching threshold)	**Material** (action recommended)
Facility in critically stressed basin	High	High	S(env) = 2.4 (140% overshoot)	**Automatically Material** (urgent intervention required)

Table 7. Example: Project Water Use

This three-dimensional approach ensures that projects do not overlook impacts that are **existentially material** due to threshold proximity, even if they do not register on conventional stakeholder or financial radars.

Application Steps

1. Capture impacts in the **Impact Register**.
2. Score for stakeholder significance and financial relevance.
3. Plot on a **Materiality Matrix**.

4. Elevate high-priority issues into the **Material Topics Management Table**.
5. Document rationale and framework alignment.

Example: A wind project identifies noise, bird strikes, job creation, and subsidies. After testing: noise (stakeholder concern), bird strikes (biodiversity), and subsidies (financial risk) are elevated as material topics.

2.6 Alignment with Global Frameworks

The SMP ensures project data speaks the same language as global frameworks:

- **GRI** – outward impacts (GRI **3–1**, **3–2**, **3–3**).
- **SASB/ISSB** – financial relevance, sector metrics.
- **TCFD/IFRS S2** – climate risks and governance.
- **SDGs** – contributions to global goals.
- **Kunming-Montreal** – biodiversity protection and restoration.

Mapping Example

SMP Section	GRI	SASB/ISSB	TCFD/IFRS S2	SDGs	Kunming-Montreal
Impact Register	GRI 3–1, 3–2	Sector baselines	Climate risk baselines	SDG linkages	Habitat baseline
Material Topics Table	GRI 3–3	Financially material issues	Climate strategies	SDG targets	Restoration commitments
Monitoring & Closure	Evidence of management	Sector KPIs	Risk management	SDG progress	Biodiversity evidence
Benefits Tracker	Realized impacts	Long-term financial outcomes	Realized climate outcomes	Final SDG contributions	Biodiversity recovery

Table 8. Mapping Example

2.7 Sustainability Maturity Framework: From Incremental to Regenerative

This Guide recognizes a fundamental reality: most projects today operate within incrementalist, mono-capitalist paradigms. They optimize financial capital, pursue eco-efficiency improvements, and report relative gains—without assessing whether performance is absolutely sustainable in threshold terms.

This is not a moral failing—it is a capacity constraint. Organizations are at different stages of:

- Data availability (do we have 5+ years of trend data?)
- Methodological sophistication (can we calculate watershed carrying capacities?)
- Governance authority (can a project team influence corporate tax strategy?)
- Stakeholder readiness (are affected communities prepared for co-governance?)

Rather than mandate immediate context-based assessment for all projects—which would be impractical—this Guide provides a three-level maturity framework that enables transparent reporting at any stage while providing a clear pathway toward authentic sustainability and regeneration.

The Three-Level Framework

Level	Name	Core Approach	Key Characteristics	Reporting Statement
1	**Incremental Sustainability**	Relative improvement	• Baseline → actual comparisons Intensity metrics (per unit, per $) • Trend analysis (1-3 years) • Stakeholder engagement informal • Mono-capitalist orientation dominant	This project reports sustainability performance at **Level 1 (Incremental)**.
2	**Context-Based Sustainability**	Threshold alignment	• Sustainability Quotient (S = A/N) calculated • Normative thresholds identified • Science-based targets adopted • Multi-capital accounting • Third-party limited assurance	This project reports sustainability performance at **Level 2 (Context-Based)**.
3	**Regenerative Sustainability**	Active restoration	• S(env) < 1.0 for all environmentally material impacts and S(non-env) > 1 for all non-environmental impacts • Capitals actively restored/ regenerated • Stakeholder co-governance • Multi-capital ROI measured • Comprehensive third-party assurance	This project reports sustainability performance at **Level 3 (Regenerative)**.

Table 9. The Three-Level Framework

Level 1: Incremental Sustainability

Philosophy: "We are improving compared to our past performance or peer average."

Suitable For:

- Projects in organizations beginning their sustainability journey
- Projects with limited historical data (< 3 years)
- Projects in sectors without established science-based pathways
- Projects with minimal governance authority over upstream/downstream impacts

Core Practices:

- Complete P5 Impact Analysis → Impact Register
- Materiality assessment (stakeholder significance + financial relevance only)
- Set incremental targets: "Reduce X by Y% from baseline"
- Report absolute and intensity metrics

- Trend analysis where data available (minimum 1-year prior year comparison)
- Stakeholder consultation documented**Example Metrics:**
- Reduced Scope 1+2 carbon emissions by 25% from year 20xx baseline
- Increased recycled content in materials from 10% to 18%
- Diverted 82% of waste from landfill
- Improved average wages by 12% over project duration

What's Missing:

- **Denominators (N):** No normative thresholds calculated
- **Sufficiency assessment:** Cannot determine if improvements are "enough"
- **Multi-capital integration:** Typically focuses on environmental and labor issues; economic distribution, social capital, constructed capital longevity underweighted

Honest Acknowledgment: Level 1 projects should transparently state: *"We report incremental improvements. We have not yet assessed whether our performance is within carrying capacity thresholds required for absolute sustainability. We are building toward Level 2 context-based assessment [by target date]."*

Transition Pathway to Level 2:

1. Identify 2-3 highest-priority material impacts for threshold research (typically: carbon, water, wages)
2. Build data systems for 5-year trend tracking
3. Engage with with standard-setting third party organizations, or similar for threshold methodologies
4. Pilot context-based metrics for 1-2 impacts before scaling
5. Secure third-party assurance partnerships

Typical Timeline: 12-24 months from Level 1 → Level 2 readiness

Level 2: Context-Based Sustainability

Philosophy: "We measure performance against carrying capacity thresholds, not just past baselines. We know whether we are sustainable in absolute terms."

Suitable For:

- Projects in organizations with mature sustainability programs
- Projects with 5+ years of historical data
- Projects ready to adopt science-based targets
- Projects willing to invest in threshold research and third-party assurance

Core Practices (builds on Level 1):

- Complete P5IA + Threshold Research Table for all material impacts
- Three-dimensional materiality assessment (stakeholder, financial, threshold proximity)
- Calculate Sustainability Quotient (S = A/N) for all material impacts
- Set context-based targets: "Achieve $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$ by [date]" or "Close X% of gap to threshold"
- Multi-capital accounting across natural, human, social, constructed, economic capitals
- Third-party limited assurance on threshold methodologies and S = A/N calculations
- Transparent disclosure of:
    - Threshold sources and assumptions
    - Fair allocation methodologies

- Confidence levels in data
- Barriers to achieving S = A/N

Example Metrics:

- Carbon emissions: **$S_{(env)} = 1.6$** (60% overshoot of sustainable allocation on the path to 1.5°C increase in climate temperature). Target: $S_{(env)} \leq 1.0$ by 2030 (100% gap closure via operational reductions + offsets)
- Water use: **$S_{(env)} = 2.8$** in high-stress watershed (180% overshoot). Target: $S_{(env)} \leq 1.2$ by project close (57% gap closure via closed-loop recirculation)
- Living wage gap: **$S_{(non\text{-}env)} = 0.71$** (lowest-paid workers earn 71% of living wage). Target: $S_{(non\text{-}env)} \geq 1.0$ by 2027 (100% gap closure via wage floors)
- Biodiversity: **$S_{(env)} = 1.9$** (near double consumption of bio capital regional threshold). Target: $S_{(env)} \leq 1.0$ via 2:1 restoration ratio verified by ecologist

What Level 2 Achieves:

- **Transparency:** Acknowledges when performance is unsustainable
- **Science-based:** Grounds targets in carrying capacity research, not aspirations
- **Comparability:** Other Level 2 projects can benchmark using same S = A/N formula
- **Risk mitigation:** Identifies impacts approaching thresholds before crises emerge
- **Multi-Capitalist:** Balances financial optimization with stewardship of all capitals

What Level 2 Does NOT Require (yet):

- **Full threshold achievement:** Projects can honestly report their context-based performance while working toward closure
- **Value chain transformation:** Scope 3 emissions measured, but supply chain may not yet be aligned
- **Regenerative outcomes:** Restoration is planned but not yet delivered

Honest Acknowledgment: Level 2 projects should state: *"We have calculated our Sustainability Quotient (S = A/N) for [X] material environmental impacts. [Y] of these currently exceed thresholds ($S_{(env)} > 1.0$). We are committed to achieving $S_{(env)} \leq 1.0$ by [date] through [specific actions]. Our trajectory and assumptions are detailed in [SMP section]."*

Transition Pathway to Level 3:

1. Achieve $S_{(env)} \leq 1.0$ for all material environmental impacts
2. Achieve $S_{(non\text{-}env)} \geq 1.0$ for all material social impacts (living wage, collective bargaining, equity)
3. Expand scope to full value chain (Scope 3, Tier 2-3 suppliers)
4. Pilot regenerative interventions (ecosystem restoration, social capital building)
5. Establish stakeholder co-governance mechanisms
6. Upgrade to comprehensive third-party assurance

Typical Timeline: 36-60 months from Level 2 → Level 3 readiness

Level 3: Regenerative Sustainability

Philosophy: "We have achieved absolute sustainability ($S \leq 1.0$) and now actively restore depleted capitals. We contribute to social and ecological healing."

Suitable For:

- Projects in organizations with transformative sustainability leadership
- Projects with full value chain influence and long-term stewardship mandates
- Projects explicitly designed for regeneration (e.g., ecosystem restoration, circular economy pioneers, community wealth-building)

Core Practices (builds on Level 2):

- **All material impacts achieve $S_{(env)} \leq 1.0$** for environmental materiality and $S_{(non\text{-}env)} \geq 1.0$ for all non-environmental measures (absolute sustainability threshold met)
- **Sustainable thresholds for priority impacts** (undershooting thresholds, actively regenerating)
- **Multi-capital ROI measured:** Value creation across all five capital types, not just financial
- **Stakeholder co-governance:** Affected communities participate in threshold-setting, monitoring, and benefits distribution
- **Comprehensive third-party assurance:** Annual ecological/social audits verify regenerative claims
- **Open-source contribution:** Share methodologies, data, and lessons learned publicly

Example Metrics:

- Carbon: **$S_{(env)} = 0.4$** (60% below fair allocation via operational reductions + verified carbon sequestration). Net carbon-negative building over 50-year lifecycle.
- Water: **$S_{(env)} = 0.0$** (zero net freshwater withdrawal via closed-loop + rainwater harvesting). Contributing 50,000 m^3/year to watershed restoration via aquifer recharge partnership.
- Biodiversity: **$S_{(env)} = 0.6$** (functional ecosystem restored 40% above pre-project baseline). Species diversity increased by 28% verified by independent ecologist.
- Living wages: **$S_{(non\text{-}env)} = 0.85\%$** of living wage requirement met and therefore still unsustainable. Lowest-paid worker earns 15% below pay ratio (between highest and lowest-paid worker) maintained at <10:1. Regenerative would be $S > 1.0$ (wages exceeding living wage minimum).
- Social capital: $S_{(non\text{-}env)} = 0.6$ Community co-owns 30% of project equity where Governance stipulates 50% ownership from affected communities.

What Level 3 Achieves:

- **Absolute sustainability:** All impacts within carrying capacity thresholds
- **Regeneration:** Active restoration of depleted natural and social capitals
- **Sufficiency principles:** Economic model aligned with ecological and social boundaries (not infinite growth)
- **Intergenerational equity:** Governance structures ensure future generations' needs are protected
- **Systemic transformation:** Demonstrates feasibility of Multi-Capitalist project management

Honest Acknowledgment: Level 3 projects should state: *"We have achieved absolute environmental sustainability ($S_{(env)} \leq 1.0$) across [X] material impacts. We are undershooting natural capital thresholds ($S_{(env)} < 1.0$) for [Y] priority impacts, actively restoring [specific capitals]. Our regenerative outcomes are verified by [third-party] using [methodology]. We acknowledge that [Z] aspects remain at threshold ($S \approx 1.0$) and require ongoing stewardship."*

Few Projects Reach Level 3—And That's Expected: Level 3 represents the **North Star** of project sustainability—what transformation looks like. Most projects will operate at Level 1-2 for the foreseeable future. **This is acceptable if organizations are honest about their maturity level and committed to progression.**
The alternative—claiming "sustainability" based on Level 1 incremental metrics while ignoring thresholds—perpetuates greenwashing and delays authentic transformation.

Maturity Framework Summary Table

Aspect	Level 1: Incremental	Level 2: Context-Based	Level 3: Regenerative
Measurement	Baseline → actual	S = A/N (threshold)	S(env) < 1.0 (natural capitals) S(non-env) > 1.0 (non-natural capitals)
Targets	Reduce by X%	Achieve S(env) ≤ 1.0 and S(non-env) ≥ 1.0	Achieve S(env) < 1.0 + restore and Achieve S(non-env) > 1.0 + restore
Capital Focus	Financial + environmental/labor	All 5 capitals (multi-capital)	All 5 + co-governance
Assurance	Internal/optional	Third-party limited	Third-party comprehensive
Data History	1-3 years	5+ years	10+ years or full lifecycle
Stakeholder Role	Consulted	Engaged in threshold-setting	Co-govern + co-benefit
Scope	Direct operations	Scope 1+2+3, Tier 1-2 suppliers	Full value chain
Transparency	We improved	We are at S(env) = X, targeting ≤ 1.0 and S(non-env) = X and targeting ≥ 1.0	We achieved Senv) ≤ 1.0, and S(non-env) ≥ 1.0 now regenerating
Paradigm	Primarily Mono-Capitalist	Transitioning to Multi-Capitalist	Fully Multi-Capitalist
Typical Timeline	Entry point	2-5 years from Level 1	5-10 years from Level 2

Table 10. Aspects and Types

How to Declare Maturity Level
All projects using this Guide **must declare their maturity level publicly** in every report, disclosure, or communication referencing sustainability performance:

Template Statement:
This project reports sustainability performance at **Level [1/2/3]: [Incremental/Context-Based/Regenerative]**. [Brief explanation of what this means and what the project is doing to progress to the next level, if applicable].

Example (Level 1):
This project reports sustainability performance at **Level 1: Incremental Sustainability**. We have identified material impacts through P5 Impact Analysis and are tracking improvements relative to 2023 baselines. We have not yet calculated sustainability quotients (S = A/N) against carrying capacity thresholds. We are building capacity for Level 2 context-based assessment by 2027, beginning with carbon and water threshold research.

Example (Level 2):
This project reports sustainability performance at **Level 2: Context-Based Sustainability**. We have calculated Sustainability Quotients ($S_{(env)}$ = A/N) for 8 material impacts. Currently, 3 environmental impacts exceed thresholds ($S_{(env)}$ > 1.0): carbon ($S_{(env)}$ = 1.4), water ($S_{(env)}$ = 2.1), and biodiversity ($S_{(env)}$ = 1.6). We are committed to achieving S ≤ 1.0 for all material impacts by 2030 through science-based interventions detailed in our SMP. Third-party limited assurance provided by [firm].

Example (Level 3):
This project reports sustainability performance at **Level 3: Regenerative Sustainability**. We have achieved $S_{(env)} \leq 1.0$ for all 12 material impacts. We are undershooting thresholds ($S_{(env)} < 1.0$) for carbon ($S_{(env)}$ = 0.3), biodiversity ($S_{(env)}$ = 0.5), contributing to ecosystem regeneration. Affected communities co-govern restoration priorities through a stakeholder board with 50% community representation. Comprehensive third-party assurance provided by [firm] using [methodology].

Why This Framework Matters

1. Honesty Over Greenwashing

- Level 1 projects can report incremental gains **without** claiming sustainability
- Level 2 projects can transparently acknowledge S = A/N while demonstrating commitment to closure
- Level 3 projects can claim regenerative status only when verified

2. Comparability

- Projects at the same level use comparable methodologies
- Stakeholders can benchmark: Among Level 2 construction projects, ours achieved $S_{(env)}$ = 1.2 for carbon vs. peer average of $S_{(env)}$ = 1.8

3. Practical Pathway

- Organizations are not paralyzed by perfection
- Clear steps to progress: Level 1 → gather data → Level 2 → close gaps → Level 3

4. Aligns with PMI M.O.R.E Framework

- **M**anage perceptions → Honest maturity declaration prevents misleading stakeholders
- **O**wn project success → Redefines success to include multi-capital sustainability
- **R**elentlessly reassess → Maturity levels encourage continuous progression
- **E**xpand perspective → Moves beyond mono-capitalism to multi-capitalism

The maturity framework makes **context-based sustainability accessible without compromising rigor.** It meets projects where they are while providing a North Star for where they need to go.

2.8 Alignment with European Sustainability Directives (CSRD, CSDDD, and EU Taxonomy)

The Sustainability Management Plan (SMP) provides the operational foundation for project-level data collection under the **Corporate Sustainability Reporting Directive (CSRD)** and the **Corporate Sustainability Due Diligence Directive (CSDDD)**.

Project data recorded in the SMP supports:

- **CSRD / ESRS** requirements for double materiality and sustainability disclosures (ESRS 1 and topical standards E1–E5, S1–S4, G1);
- **CSDDD** due diligence obligations (Articles 6–8) covering identification, prevention, mitigation, and remediation of actual and potential impacts; and
- **EU Taxonomy** alignment by documenting substantial contribution, DNSH, and minimum safeguards at project level.

This ensures that project sustainability data can be aggregated directly into organizational reporting under **EU law** and verified for audit readiness.

Preview: How the SMP Grows Across the Lifecycle

The principles described in Part 2 come to life when applied across the **PRiSM™ lifecycle phases**. The **Sustainability Management Plan (SMP)** is a *living document* that expands as the project progresses. Each phase builds on the last, ensuring that sustainability is not treated as a one-time exercise but is integrated throughout delivery.

- **Pre-Project phase** → Preliminary Impact Screening (early sustainability risks and opportunities).
- **Discovery phase** → Impact Register and Materiality Matrix (baseline data + stakeholder engagement).
- **Design phase** → Material Topics Management Table (commitments, targets, responsibilities).
- **Delivery phase** → Implementation & Monitoring Section (tracking progress against commitments).
- **Closure phase** → Verification Checklist (confirming sustainability commitments were met).
- **Post-Project Benefits Realization phase** → Benefits Tracker (demonstrating outcomes over time).

Together, these steps form a continuous process that connects **project activities** to **organizational reporting**.

Part 3 explains this lifecycle in detail and shows how the SMP provides structure at every stage.

Key Takeaways from Part 2

- **Dual materiality**: Projects must consider impacts *of* and *on* the project.
- **P5**: Provides the comprehensive input lens.
- **SMP**: The central instrument for managing sustainability across phases.
- **Materiality test**: Filters impacts into material topics.
- **Framework alignment**: Ensures project data flows naturally into global disclosures.

Part 3. The Project Lifecycle Framework

The **Sustainability Management Plan (SMP)** evolves as the project moves through its lifecycle. Each phase adds new content, ensuring that project communications (business cases, baselines, progress reports, closure documents) are aligned with sustainability commitments and materiality.

By the end of the lifecycle, the SMP contains:

- All identified impacts (**Impact Register**)
- The material topics prioritized for action (**Material Topics Management Table**)
- Evidence of how commitments were carried out (**Implementation & Monitoring Section**)
- Verification of delivery (**Verification Checklist**)
- Actual outcomes achieved (**Benefits Tracker**)

This structure mirrors **GRI 3–1, 3–2, and 3–3**: *determine material topics → list material topics → explain how they are managed*.

The SMP evolves through the project lifecycle, **with depth and rigor scaled to the organization's maturity level**. This section provides guidance for:

- **All projects (Level 1 baseline):** Core SMP components for incremental sustainability
- **Context-based projects (Level 2):** Additional components for threshold alignment
- **Regenerative projects (Level 3):** Advanced components for active capital restoration

Project teams should focus on the guidance for their current maturity level while understanding the pathway ahead. Attempting to implement Level 2-3 practices without foundational capacity (data systems, threshold methodologies, stakeholder readiness) leads to frustration and abandonment. **Incremental progression is sustainable; premature leaps are not.**

This lifecycle approach is consistent with the **PMBOK® Guide, 8th Edition (2025)**, which positions value delivery, sustainability, and resilience as central to project management.
The SMP provides a practical way to operationalize these principles throughout the lifecycle.

! *When we refer to phases in this Guide, we are using the PRiSM™ lifecycle phases: Pre-Project phase, Discovery phase, Design phase, Delivery phase, Closure phase, and Post-Project Benefits Realization phase.*

3.1 Pre-Project/Initiation

Purpose: Identify potential sustainability risks and opportunities early, before approval.

- **In the SMP, this phase adds**: a **Preliminary Impact Screening**.
- **Materiality link**: Establishes the first evidence base for GRI **3–1** (process for determining material topics).
- **Example**: A transport project flags noise and land acquisition as issues for deeper assessment in Discovery.

What the project manager does

- Identifies early risks and opportunities using the P5 Impact Analysis.
- Engages initial stakeholders (sponsors, facility managers, sustainability team etc.).
- Opens the Sustainability Management Plan (SMP) as a placeholder.

What the team does

- Provides early data inputs (e.g., location risks, known facility or product issues).

- Supports feasibility assessments and prepares initial documentation.

What goes into the SMP

- Preliminary Impact Screening section created.
- Early P5 impacts noted (e.g., high water use, potential displacement, emissions hotspots).

3.2 Discovery/Planning

Purpose: Build the baseline and engage stakeholders to identify material issues.

- **In the SMP, this phase adds**: the **Impact Register**.
    - Lists all potential impacts across P5.
    - Applies the materiality test (stakeholder significance + financial relevance).
    - Produces a **Project Materiality Matrix**.
- **Materiality link**: Produces the project's **list of material topics** (GRI **3–2**).
- **Example**: A data center project baseline shows high water consumption. Stakeholders identify it as critical in a stressed region → elevated into the Materiality Matrix.

What the project manager does

- Schedules stakeholder workshops and consultations.
- Ensures baseline data collection (energy, waste, workforce, community context).
- Leads the materiality test with stakeholders and finance.
- Facilitates escalation based on mitigation strategies to approve suggested changes

What the team does

- Collects baseline performance data.
- Facilitates engagement (interviews, surveys, workshops).
- Scores impacts for stakeholder significance and financial and material relevance.

What goes into the SMP

- Impact Register populated with P5 impacts.
- Project Materiality Matrix created from the materiality test.

Discovery Phase: Maturity-Specific Outputs

Level 1 (Incremental) - Core Outputs:

- **Impact Register:** All P5 impacts identified and documented
- **Stakeholder Map:** Affected parties identified with engagement plan
- **Materiality Matrix:** Impacts scored for stakeholder significance + financial relevance
- **Baseline Data:** Current performance for material impacts (where available)
- **Preliminary Commitments:** Initial ideas for how to address material topics

Level 2 (Context-Based) - Additional Outputs:

- **Threshold Research Table:** For each material impact:
  - Normative threshold (N) identified from scientific literature, international agreements, or regional carrying capacity studies
  - Fair allocation methodology documented (GDP-based, population-based, sector pathway, etc.)
  - Data sources cited
  - Confidence level noted (high/medium/low)
  - Assumptions disclosed
- **Preliminary Sustainability Quotient (S = A/N):** Initial calculation of where performance stands relative to thresholds
- **Gap Analysis:** Distance between current S and target $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$
- **Three-Dimensional Materiality:** Stakeholder + financial + **threshold proximity** assessment

Level 3 (Regenerative) - Additional Outputs:

- **Regenerative Potential Mapping:** Identification of opportunities to achieve $S_{(env)} < 1.0$ and $S_{(non\text{-}env)} \geq 1.0$
- **Stakeholder Co-Governance Protocol:** Mechanisms for affected communities to participate in threshold validation and target-setting
- **Multi-Capital Baseline:** Not just natural/human capital, but also social, constructed, economic capital health assessed
- **Intergenerational Equity Assessment:** Consideration of impacts on future generations' access to vital capitals

Example: Water Impact - Discovery Phase Across Maturity Levels

Context: Construction project in semi-arid region plans to withdraw 300,000 m^3/year for 3-year duration.

Maturity Level	Discovery Output	Example
Level 1	**Impact Register entry:** Water withdrawal: 300,000 m^3/year from municipal supply **Materiality:** High stakeholder significance (local NGO concern), Medium financial relevance (water costs) **Baseline:** No historical data (new facility)	**Commitment:** We will implement water efficiency measures and target 15% reduction from design estimates
Level 2	All Level 1 outputs **+** **Threshold Research:** • Watershed: Rio Grande Basin • Renewable capacity: 1.2M m^3/year (regional hydrological study, 2022) • Current total withdrawal: 1.8M m^3/year (150% overshoot) • Environmental flows: 30% (360k m^3) reserved • Available: 840k m^3/year • Project's fair allocation (GDP-based): 42,000 m^3/year **Preliminary S = A/N:** S(env) = 300,000 / 42,000 = **7.1** **Gap:** Project would need to reduce withdrawal by 86% to achieve S(env) ≤ 1.0	**Commitment:** "We are 610% over our sustainable allocation in an already-stressed watershed. We commit to achieving S(env) ≤ 1.5 by project close (79% gap closure) through: • Closed-loop recirculation (60% reduction) • Rainwater harvesting (20% offset) • Peak demand management (6% reduction) This will not achieve S(env) ≤ 1.0 during project duration due to construction phase constraints. We will support watershed restoration efforts (partner with regional water trust) to address overshoot."

Level 3	All Level 2 outputs **+** **Regenerative Potential:** • Pilot zero-discharge system (wastewater treatment + reuse for non-potable) • Partner with regional aquifer recharge project (contribute 50k m^3/year excess rainwater) **Co-Governance:** • Downstream agricultural water users invited to co-design water management plan • Monthly reporting to regional water authority + community board • Adaptive management: if watershed conditions worsen, project commits to further reductions	**Commitment:** "We commit to achieving S(env = 0 (zero net freshwater withdrawal) by Year 2 of operations through closed-loop + on-site treatment. During construction (Year 1), temporary withdrawal will be S(env) ≤ 1.2 with offset via aquifer recharge partnership. Long-term, we will contribute net-positive water availability (+50k m^3/year) to watershed regeneration, reducing regional S from 1.5 to 1.45."

Table 11. Water Impact Example

Notice the progression:

- **Level 1:** Acknowledges water use, commits to efficiency, but no denominator
- **Level 2:** Calculates $S_{(env)}$ = 7.1, transparently acknowledges unsustainability, commits to partial gap closure with rationale for why full closure isn't feasible
- **Level 3:** Commits to $S_{(env)}$ = 0 (zero net withdrawal) + regenerative contribution, with co-governance ensuring accountability

All three levels are valid—but only Level 2-3 can claim sustainability in rigorous terms.

3.3 Design/Planning

Purpose: Translate material issues into commitments, targets, and responsibilities.

- **In the SMP, this phase adds**: the **Material Topics Management Table**.
    - For each material topic, record:
        - Policies/standards referenced
        - Actions to be taken
        - SMART targets and KPIs
        - Responsible parties and resources
        - Monitoring methods
- **Materiality link**: Aligns directly with GRI **3–3** (management of material topics).
- **Example**: A construction project sets a target to divert 85% of waste from landfill, assigns responsibility to Procurement, and links progress reporting to monthly contractor data.

What the project manager does

- Translates material issues into measurable commitments.
- Coordinates with procurement, HR, engineering, and IT leads.
- Finalizes the Sustainability Management Plan with commitments.

What the team does

- Defines SMART targets (e.g., % waste diversion, % local hiring).
- Documents actions, policies, and monitoring methods.
- Assigns responsibilities and allocates resources.

What goes into the SMP

- Material Topics Management Table filled with commitments, targets, roles, and resources.

Design Phase: Context-Based Target Setting

The Critical Shift: Traditional targets are incremental ("reduce by X%"). Context-based targets are absolute (achieve $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$).

Level 1 (Incremental) Target Format:

- Reduce [impact] by X% from [baseline] by [date]
- Achieve [certification] (e.g., LEED Gold)
- Divert X% of [waste stream] from landfill

Level 2 (Context-Based) Target Format:

- Reduce [environmental impact] Sustainability Quotient from current $S_{(env)}$ = [X] to $S_{(env)} \leq$ [target] by [date], closing [Y]% of gap to threshold
- Always includes:
  - Current S value
  - Target $S_{(env)}$ value (≤ 1.0 for sustainability, or interim target with justification)
  - % of gap being closed
  - Pathway to achieving target
  - Verification method

Level 3 (Regenerative) Target Format:

- "Achieve $S_{(env)} < 1.0$ for [impact], contributing [quantified regenerative outcome]"
- "Undershoot threshold by X%, verified by [method], with benefits to [stakeholders]"

Target-Setting Examples: Carbon Emissions

Scenario: Manufacturing project, current emissions 80,000 tCO_2e/year. Fair allocation (1.5°C SBTi pathway) = 35,000 tCO_2e/year. Current S = 80,000 / 35,000 = **2.29**.

Maturity	Target Statement	What It Achieves	What It Doesn't Achieve
Level 1	Reduce Scope 1+2 emissions by 30% from year 20xx baseline by 20yy	Emissions drop to 56,000 tCO_2e (still S = 1.6)	❌ Still 60% over sustainable allocation ❌ No pathway to S(env) ≤ 1.0 ❌ Stakeholders cannot assess sufficiency
Level 2	Reduce carbon S(env) from 2.29 to S(env) ≤ 1.5 by year 20xx (35% gap closure to sustainability threshold), achieving 52,500 tCO_2e. Pathway: energy efficiency (15k tCO_2e), renewable procurement (8k tCO_2e), supply chain engagement (4.5k tCO_2e).	✅ Transparent about gap ✅ Science-based pathway ✅ Interim target justified ✅ Long-term commitment clear	⚠️ Not yet at threshold (S(env) = 1.5 still unsustainable) ⚠️ Relies on 20xx timeframe for full alignment
Level 3	Achieve S(env) = 0.8 by year 20xx (20% below sustainable allocation), becoming net-climate-positive through operational reductions (30k tCO_2e), on-site renewables (25k tCO_2e surplus exported to grid), and verified reforestation (2k tCO_2e/year sequestration). Annual third-party	✅ Threshold achieved ✅ Regenerative outcome ✅ Surplus capacity supports grid decarbonization ✅ Verified annually	N/A - full sustainability achieved

Table 12. Design Phase Target Example

Key Insight: Level 1 target sounds impressive (30% reduction!) but is insufficient. Level 2 is honest about the gap and provides a pathway. Level 3 goes beyond sustainability to regeneration.

When Full Threshold Achievement ($S_{(env)} \leq 1.0$ or $S_{(non\text{-}env)} \geq 1.0$) Is Not Immediately Feasible

Many projects at Level 2 will face this reality: closing 100% of the gap to $S_{(env)} \leq 1.0$ or $S_{(non\text{-}env)} \geq 1.0$ within project duration may be technically or economically infeasible.

Examples:

- Brownfield industrial site: Achieving $S_{(env)} \leq 1.0$ for water in a critically stressed basin may require infrastructure (wastewater recirculation) that exceeds project budget by 3x
- Construction project: Embodied carbon $S_{(env)} \leq 1.0$ may require carbon-negative materials (mass timber, bio-concrete) not yet available at scale in the region
- Mega-project: Biodiversity $S_{(env)} \leq 1.0$ may require 15 years of restoration, but project closes in 5 years

Acceptable Level 2 Response:

1. **Calculate the full gap:** We are at $S_{(env)}$ = 3.2. Achieving $S_{(env)} \leq 1.0$ would require X, Y, Z interventions.
2. **Set ambitious interim target:** We commit to $S_{(env)} \leq 1.8$ by project close (44% gap closure).
3. **Explain barriers transparently:** Full $S_{(env)} \leq 1.0$ requires [specific constraint]. We are addressing this through [long-term plan].
4. **Commit to future closure:** We will achieve $S_{(env)} \leq 1.0$ by [date beyond project close] through [operations phase plan] or [organizational strategy].
5. **Compensate where possible:** We are investing in [parallel initiative] to offset unresolved overshoot (e.g., watershed restoration fund, community solar farm).

Unacceptable Response:

- Claiming "sustainability" based on interim improvement
- Ignoring the gap entirely
- Setting $S_{(env)} \leq 1.0$ or $S_{(non\text{-}env)} \geq 1.0$ target without credible pathway
- Declaring success at $S_{(env)}$ = 1.8 without acknowledging it's 80% unsustainable

Example (Transparent Level 2 Water Target):

We are at water $S_{(env)}$ = 4.2 in a critically overstressed basin. Achieving $S_{(env)} \leq 1.0$ (zero net withdrawal) by project close would require closed-loop wastewater treatment infrastructure costing $12M beyond approved budget. We commit to:

- **Interim target:** $S_{(env)} \leq 2.5$ by project close (40% gap closure via rainwater harvesting, efficiency measures, off-peak scheduling)
- **Long-term target:** $S_{(env)} \leq 1.0$ by Year 3 of operations via phased wastewater recirculation system (budgeted in operations plan)
- **Compensatory action:** $500k investment in regional watershed restoration fund to support aquifer recharge, offsetting 25% of unresolved construction-phase overshoot. We acknowledge this project will not achieve absolute water sustainability during construction phase. Our trajectory and rationale are documented in SMP Section 4.2 and have been validated by [third-party assurance firm].

This level of transparency is **essential** for Level 2 credibility. **Honesty about constraints is more valuable than inflated claims.**

3.4 Delivery/Execution

Purpose: Align daily project communications with sustainability commitments.

- **In the SMP, this phase adds**: the **Implementation & Monitoring Section**.
  - Records progress against each material topic.
  - Integrates data from project progress reports, safety logs, procurement records, and stakeholder updates.
- **Materiality link**: Provides evidence of *how commitments are implemented and monitored* (GRI **3–3** requirement).
- **Example**: A pharma R&D project records hazardous waste volumes and ethics approvals for clinical trials, linked to commitments in the SMP.

What the project manager does

- Aligns sustainability monitoring with regular progress reviews.
- Reviews SMP updates during status meetings.
- Escalates risks and ensures commitments are tracked.

What the team does

- Collects performance data (OHS incidents, emissions, waste, hiring).
- Updates dashboards and reports.

- Flags deviations from commitments.

What goes into the SMP

- Implementation & Monitoring Section populated with real-time performance data.
- Progress reported against commitments and KPIs.

3.5 Closure

Purpose: Verify that sustainability commitments have been fulfilled.

- **In the SMP, this phase adds**: the **Verification Checklist**.
  - Confirms each material topic against commitments.
  - Attaches evidence (certificates, reports, regulatory approvals, community validation).
- **Materiality link**: Demonstrates accountability at project close, consistent with GRI **3–3**.
- **Example**: An energy project verifies biodiversity offsets by attaching regulator-approved restoration reports.

What the project manager does

- Leads a sustainability close-out review.
- Ensures evidence is collected for all commitments.
- Signs off with stakeholders and sponsors.

What the team does

- Provides documentation (safety reports, audit certificates, regulator approvals).
- Supports verification checks.

What goes into the SMP

- Verification Checklist completed.
- Evidence attached for each material topic.

3.6 Post-Project Benefits Realization

Purpose: Track outcomes and prove benefits over time.

- **In the SMP, this phase adds**: the **Benefits Tracker**.
  - Compares baseline → target → actual outcomes.
  - Incorporates stakeholder validation (surveys, audits, assurance).
- **Materiality link**: Provides data for disclosures such as GRI 201 (Economic performance), 305 (Emissions reductions), and 413 (Community programs).
- **Example**: A smart city project confirms that energy efficiency is 20% above design target, validated by an independent audit, and records it in the SMP.

What the project manager does

- Coordinates long-term tracking with operations or PMO.
- Schedules benefits realization reviews (6–12 months after delivery).
- Communicates outcomes back to stakeholders.

What the team does

- Monitors outcomes (energy savings, biodiversity recovery, employee satisfaction).
- Collects data for long-term KPIs.
- Supports independent validation (audits, community surveys).

What goes into the SMP

- Benefits Tracker updated with baseline → target → actual performance.
- Outcomes validated and ready for ESG disclosure.

3.7 Agile Add-In: Applying the SMP in Iterative Environments

Not all projects follow a traditional linear lifecycle. Many teams, especially in IT, digital, and R&D, use **Agile or hybrid methods**, structured around **sprints, backlogs, and continuous delivery**.

The **Sustainability Management Plan (SMP)** is still valid in Agile projects — it simply evolves incrementally, just as the project deliverables do.

How the SMP Fits Agile Cycles

Backlog Grooming / Sprint Planning

- *What the Scrum Master/Product Owner does*: Ensures sustainability impacts identified in the Impact Register are converted into backlog items or acceptance criteria.
- *What the team does*: Writes user stories that reflect sustainability needs (e.g., energy monitoring, accessibility requirements).
- *What goes into the SMP*: Impact Register and Material Topics Management Table entries broken into sprint-sized work items.

Sprints / Iterations

- *What the Scrum Master/Product Owner does*: Allocates sustainability tasks into sprint backlog.
- *What the team does*: Executes sustainability-related tasks alongside functional work.
- *What goes into the SMP*: Progress against commitments updated in the **Implementation & Monitoring Section** after each sprint.

Sprint Reviews / Demos

- *What the Scrum Master/Product Owner does*: Invites relevant stakeholders (users, regulators, community reps) to demos.
- *What the team does*: Presents both product features and sustainability progress (e.g., energy use reduction).
- *What goes into the SMP*: Stakeholder feedback recorded, re-validating significance for the materiality test.

Retrospectives

- *What the Scrum Master/Product Owner does*: Facilitates discussion on how sustainability was managed during the sprint.
- *What the team does*: Identifies lessons learned and process improvements.
- *What goes into the SMP*: Lessons captured like mini **Verification Checklists**, ensuring incremental accountability.

Release / Program Increment (PI) Planning

- *What the Scrum Master/Product Owner does*: Reviews long-term sustainability commitments against outcomes at release level.

- *What the team does*: Validates whether project increments delivered measurable sustainability outcomes (e.g., efficiency, safety, emissions).
- *What goes into the SMP*: Updates to the **Benefits Tracker**, the Agile equivalent of post-project benefits realization.

Agile Example

Case: Cloud Migration Project

- **Backlog** includes: "Migrate 25% workloads to renewable-powered data centers," "Implement encryption to meet GDPR compliance."
- **Sprints** deliver partial migrations, with energy-use KPIs tracked in each increment.
- **Reviews** capture stakeholder feedback from IT security, compliance officers, and sustainability officers.
- **Retrospectives** document lessons on balancing speed vs. carbon footprint.
- **Release Planning** confirms avoided emissions and compliance metrics, feeding results into the SMP's **Benefits Tracker**.

Key Guidance for Agile Teams

- Don't wait until "Closure" — update the SMP **every sprint**.
- Use backlog items and acceptance criteria to make sustainability visible in **daily work**.
- Treat the SMP as a **living artifact** within Agile tools (Jira, Trello, Azure DevOps), not just a Word/Excel file.
- Re-apply the **materiality test** periodically to ensure emerging risks and stakeholder priorities are captured.

Key Takeaway from Part 3

- The SMP grows as the project progresses:
    - Pre-Project/Initiation → Preliminary Impact Screening
    - Discovery/Planning → Impact Register + Materiality Matrix
    - Design/Planning → Material Topics Management Table
    - Delivery/Execution → Implementation & Monitoring Section
    - Closure → Verification Checklist
    - Post-Project Benefits Realization → Benefits Tracker
- The SMP aligns with **GRI 3–1, 3–2, and 3–3** for material topics.
- Routine project communications double as sustainability data when aligned with the SMP.
- Verification and accountability are built-in: commitments are monitored, evidenced, and tracked through benefits realization.
- Agile projects apply the same principles:
    - Material topics become backlog items, acceptance criteria, and sprint goals.
    - The SMP is updated incrementally during sprints and retrospectives.
    - Benefits are validated at release or program increments.

By project end, the SMP contains everything needed for project-level materiality and connects directly to organizational disclosures under GRI, ISSB, TCFD, SDGs, and Kunming-Montreal.

A Day in the Life of a Project Team Using the P5 Impact Analysis and SMP

A project team managing a new facility project adopted the **Sustainability Management Plan (SMP)** to ensure their work supported the organization's sustainability goals. Here is how their experience unfolded across the lifecycle:

Discovery phase: The project manager convened members of the project team, safety officers, facility managers, and representatives from corporate sustainability to share the impacts they recorded in the **P5**

Impact Analysis (P5IA). Potential impacts across People, Planet, Prosperity, Product, and Process were discussed. Results — such as ergonomics risks, water use, and emissions hotspots — were entered into the

Impact Register and scored for significance.

Design phase: The project sustainability lead worked with engineering and procurement to translate the highest-scoring material issues into commitments. Worker safety was documented as a material topic with a commitment to "zero lost-time injuries," while energy performance was captured as "achieve LEED certification." These commitments, with responsibilities and KPIs, were recorded in the **Material Topics Management Table**.

Delivery phase: As construction progressed, the team revisited the **P5IA** each month to monitor changes and adjust scoring — for example, elevating noise and traffic impacts after community feedback. Adjusted material topics were updated in the SMP, and weekly data (safety incidents, training hours, energy use) was recorded in the **Implementation & Monitoring Section**.

Closure phase: At handover, the project manager led a sustainability close-out review. Using the **Verification**

Checklist, the team confirmed that commitments were fulfilled, supported by evidence such as safety audits, LEED certification documents, and waste diversion certificates.

Post-Project Benefits Realization phase: Six months later, the project office performed another **P5IA** to test whether impacts had changed over time. The **Benefits Tracker** showed measurable improvements: lower incident rates and energy use 18% below baseline. These outcomes were reported directly into the company's ESG disclosures.

This narrative shows how the **P5IA and SMP work together** — the P5IA ensures materiality is continually assessed and rescored, while the SMP records commitments, monitoring, verification, and benefits. Together, they provide the **link between project execution and sustainability reporting**.

Part 4. Bridging P5 to Materiality

Why This Section Matters

Projects are full of moving parts. They generate countless pieces of data and potential impacts — some minor, some transformational. Without structure, project teams risk either drowning in data or overlooking critical sustainability issues.

This is where the **bridge** comes in:

- **P5** gives us the wide-angle lens — capturing all possible impacts across Product, Process, People, Planet, and Prosperity.
- The **materiality test** focuses our attention — asking which issues matter most to stakeholders and which could affect project success.
- The **Sustainability Management Plan (SMP)** documents and manages those material topics through the lifecycle.
- Finally, **global frameworks** (GRI, ISSB, TCFD, SDGs, Kunming-Montreal) ensure the project's data contributes to organizational-level reporting.

This bridge turns raw project data into structured sustainability commitments and, ultimately, into disclosures that stakeholders trust.

4.1 From P5 to the Impact Register

Every project begins with a flood of possible impacts. The P5 framework ensures nothing important is missed.

- **Product** – Will this output generate waste, require recycling, or carry health/safety risks?
- **Process** – Are procurement, contracting, and decision-making efficient, fair, and transparent?
- **People** – How will this project affect workers, communities, customers, and human rights?
- **Planet** – What are the impacts on air, water, land, biodiversity, and emissions?
- **Prosperity** – Does this project create value, resilience, and long-term economic benefits?

However, **P5 alone does not tell us whether impacts are sustainable**. It identifies *what* to measure, not *what the measurement means* relative to carrying capacity thresholds.

This section shows how to integrate P5 (impact identification) with context-based sustainability (threshold assessment) to move from:

- We identified 50 impacts → We identified 50 impacts and assessed 8 material ones against thresholds
- We reduced emissions → We reduced emissions from $S_{(env)} = 2.4$ to $S_{(env)} = 1.7$, closing 29% of the gap to sustainability
- We created value → We created value across all five capitals, not just financial capital

The integration happens in phases:

1. **P5IA → Impact Register** (all projects)
2. **Materiality Test** (stakeholder + financial + *threshold proximity* for Level 2+)
3. **Threshold Research** (Level 2+: identifying N in S = A/N)
4. **Sustainability Quotient Calculation** (Level 2+: measuring A/N)
5. **Target Setting** (closing the gap to $S_{(env)} \leq 1.0$ or achieving $S_{(env)} < 1.0$)

All these potential impacts are captured in the **Impact Register** inside the SMP during the **Discovery/ Planning phase**.

💡 *The Impact Register is like a project sustainability "inventory." It captures the full breadth of what might matter before anything is filtered out.*

4.2 Applying the Materiality Test

Not all impacts are equal. Some are urgent and high-stakes; others are less critical.

The **materiality test** provides the filter:

- **Significance to stakeholders** – what matters most to communities, employees, regulators, customers, or investors.
- **Financial relevance** – what could meaningfully affect the project's costs, revenues, timeline, or resilience.

Impacts are assessed against both dimensions, often visualized in a **Materiality Matrix**:

- High significance + high relevance → becomes a **material topic**.
- Medium significance/relevance → tracked but not prioritized.
- Low significance/relevance → monitored at a lighter level.

💡 *This process is critical because it makes decisions transparent. It explains why certain issues (like carbon emissions or community resettlement) are treated as material while others are deprioritized.*

Dual Materiality Matrix (Project Level)

Projects assess impacts through two complementary lenses:

- **Stakeholder significance** – outward impacts on people, planet, and prosperity (GRI materiality).
- **Financial relevance** – inward impacts on project costs, schedule, risk, or long-term value (ESRS/ISSB materiality).

The **Dual Materiality Matrix** below helps visualize these dimensions and record how each potential impact is prioritized. Use it to flag items rated **High** in either dimension; these become *material topics* for management in the SMP. High–high intersections feed directly into **organizational ESRS 1** materiality assessments. Projects using this matrix contribute directly to organizational double materiality assessments under ESRS 1 as required by the CSRD. Example table shown below — entries shown for illustration only; each project customizes this matrix using P5 Impact Register data and stakeholder scoring results.

Impact Category	Stakeholder Significance	Financial Relevance	Material Topic	Related GRI Disclosure	Related ESRS Disclosure	Priority Level
Energy use in data centers	High	Medium	Climate and Energy Efficiency	GRI 302, 305	ESRS E1 (Energy & Emissions)	High
Worker Health and Safety	High	High	Occupational Health & Safety	GRI 403	ESRS S1 (Workers)	High
Procurement transparency	Medium	High	Responsible Procurement	GRI 205, 308	ESRS G1 (Business Conduct)	Medium
Biodiversity loss near site	High	Low	Biodiversity Protection & Offsets	GRI 304	ESRS E4 (Biodiversity)	High

Table 13. Dual Materiality Matrix

💡 **Tip:** Once this matrix is complete, transfer the "High" items into the **Material Topics Management Table** (Section 4.3). They become the commitments tracked through the SMP lifecycle and reported under GRI **3–3** and ESRS E/S disclosures.

Why Threshold Proximity Matters: The Case for Three-Dimensional Materiality

Traditional dual materiality asks: (1) How significant is this to stakeholders? (2) How financially relevant is this? These are important questions, but they miss a critical dimension: **proximity to carrying capacity limits**.

An impact may score medium on stakeholder significance and low on financial relevance—yet be existentially material if it's at or beyond a threshold. Consider:

Example 1: Aquifer Depletion

- **Stakeholder significance:** Medium (farmers concerned, but not yet crisis-level)
- **Financial relevance:** Low (water costs are 0.5% of project budget)
- **Threshold proximity: Critical** (regional aquifer at 140% sustainable extraction rate; project adds 8% more)
- **Materiality determination: Automatically material** due to threshold proximity, regardless of stakeholder/financial scores

Why? Because **once an aquifer collapses, recovery takes centuries**. The project may appear low-impact in the short term while pushing an ecosystem past a tipping point.

Example 2: Biodiversity in Fragmented Habitat

- **Stakeholder significance:** Low (no charismatic megafauna; limited public awareness)
- **Financial relevance:** Low (no immediate regulatory pressure)
- **Threshold proximity: Critical** (habitat already at 85% loss; project fragments remaining 15%)
- **Materiality determination: Automatically material** due to threshold proximity

Why? Because biodiversity loss is non-linear—fragmentation accelerates extinction risk exponentially. The project may push species past viability thresholds.

Three-Dimensional Materiality Protocol for Natural Capital (Level 2+):

1. **Calculate S = A/N for all P5 impacts** (or estimate using proxy data)
2. **Apply threshold proximity rule for environmental materiality:**
    - **$S_{(env)} < 0.5$:** Safe zone (low materiality unless stakeholder/financial scores are high)
    - **$0.5 \leq S_{(env)} < 0.8$:** Caution zone (elevated to material if *any* other dimension is high)
    - **$S_{(env)} \geq 0.8$:** Critical zone (**automatically material** regardless of other scores)
3. **Plot on three-dimensional matrix** (or use threshold proximity as a "flag" on the traditional 2D matrix)
4. **Prioritize interventions:**
    - Tier 1: Impacts in critical zone ($S_{(env)} \geq 0.8$) → immediate action required
    - Tier 2: Impacts in caution zone + high stakeholder/financial → action planned
    - Tier 3: All other material impacts → monitored

Note: For non-environmental materiality where sustainability is about meeting minimum obligations such as safety score, the above interpretation is reversed, such that $S_{(non\text{-}env)} > 1.5$ will be a safe zone and $1.5 \geq S_{(non\text{-}env)} > 1.2$ will be caution zone and $S_{(non\text{-}env)} \leq 1.2$ will be the critical zone.

This approach ensures that projects do not overlook impacts that are **thresholds-material** even if they're not yet **stakeholder-material** or **financially-material**. By the time stakeholders raise alarms or costs spike, it may be too late to prevent irreversible damage.

4.3 From Material Topics to SMP Commitments

The materiality test results flow directly into the SMP's Material Topics Management Table.
For each material topic, the project records:

- **Policy commitment** – the organizational or project-level policy or standard that applies.
- **Actions** – what will be done to manage the issue, including due-diligence or remedy steps where relevant.
- **Targets / KPIs** – measurable, time-bound goals (SMART).
- **Roles & Resources** – who is accountable and what support, budget, or competencies are assigned.
- **Grievance / Concern Mechanisms** – how affected stakeholders can raise issues and how these are addressed.
- **Monitoring Methods & Indicators** – how progress and outcomes will be tracked, verified, and reported.
- **Topic Boundary (Value Chain)** – where the impact occurs (e.g., upstream suppliers, own operations, downstream users).

Together, these elements form the **GRI 3–3 Management of Material Topics worksheet**, ensuring the project's commitments feed directly into the organization's disclosure on how material topics are managed.

This section of the SMP transforms stakeholder concerns and project risks into formal, traceable commitments — the point where sustainability stops being abstract and becomes operational.

💡 *In practical terms, this is the point where sustainability stops being abstract and becomes operational.*

4.4 Lifecycle Integration

Once in the SMP, material topics don't just sit in a document — they move with the project.

- **Delivery/Execution**: Progress against each material topic is recorded in the Implementation & Monitoring Section.
- **Closure**: Commitments are checked off in the Verification Checklist, with evidence attached.
- **Benefits Realization**: Actual outcomes are tracked in the Benefits Tracker, compared against baselines and targets.

This creates a closed loop: from *identification → prioritization → commitment → implementation → verification → results*.

4.5 Alignment with Global Frameworks

The bridge ensures project-level sustainability data connects seamlessly into organizational reporting:

- **GRI**:
  - Impact Register → GRI 3–1 (how material topics are determined).
  - Materiality Matrix → GRI 3–2 (list of material topics).
  - Management Table → GRI 3–3 (management of material topics).
- **SASB/ISSB**:
  - Financially relevant topics are linked to sector-specific standards (e.g., IT → cybersecurity, Energy → emissions intensity, Pharma → clinical trial ethics).
- **TCFD/IFRS S2**:
  - Climate-related risks identified in the Register → recorded as material topics if significant.
  - SMP documents governance, strategy, risk management, and climate metrics.
- **SDGs**:
  - Material topics can be mapped to relevant SDG targets (e.g., waste → SDG 12, decent work → SDG 8).
- **Kunming-Montreal**:
  - Biodiversity topics in the SMP align with restoration and conservation targets.

💡 *The key insight: you don't create separate systems for projects vs. reporting. The SMP, fed by P5 and filtered by materiality, already provides what GRI, ISSB, and TCFD require.*

4.6 Example Flow: Urban Transit Project

1. **P5 Scan** (Impact Register):
   - Product → recyclability of construction materials.
   - Process → procurement fairness.
   - People → community displacement, worker safety.
   - Planet → GHG emissions, noise, biodiversity.
   - Prosperity → local jobs, ROI.
2. **Materiality Test**:
   - High stakeholder significance → noise, displacement.
   - High financial relevance → GHG emissions (carbon tax), procurement risks.
   - Elevated to material topics.
3. **SMP Commitments** (Design):

- 85% waste diversion.
- 20% local hiring.
- Noise barriers for communities.
- Biodiversity offsets.

4. **Lifecycle Tracking**:
   - Delivery → monthly monitoring of waste, hiring, noise complaints.
   - Closure → verification of biodiversity offsets and hiring commitments.
   - Benefits → confirmation of reduced emissions and economic multipliers.

Key Takeaways from Part 4

- **P5** identifies all potential impacts.
- **Impact Register** captures them in the SMP.
- **Materiality Test** filters by stakeholder significance + financial relevance.
- **Material topics** are documented in the SMP with actions, targets, and monitoring.
- **Lifecycle integration**: topics move from identification → monitoring → verification → benefits.
- **Framework alignment**: GRI **3–1/3–2/3–3**, SASB/ISSB, TCFD/IFRS S2, SDGs, Kunming-Montreal.
- **Agile projects**: impacts become backlog items, tested and updated each sprint, with benefits validated at releases.

Part 5. Sector Modules

Why Sector Modules Matter

Every industry faces different sustainability challenges.

- **IT projects** grapple with data privacy, cybersecurity, and e-waste.
- **Construction projects** are heavy on materials, waste, land use, and community disruption.
- **Pharma R&D** must address ethics, health & safety, and hazardous waste.
- **Mega-projects** involve displacement, biodiversity, governance, and long-term resilience.

Sector modules provide **practical, tailored guidance** for these contexts while keeping the same core structure.

5.1 Structure of a Sector Module

Each module follows the same format:

1. **Sector Introduction**
   - Why the sector is sustainability-critical.
   - Key regulatory and stakeholder expectations.
2. **Materiality Hotspots**
   - Common P5 impacts that often test as *material*.
   - Risks and opportunities unique to the sector.
3. **Lifecycle Guidance (SMP lens)**
   - What the SMP captures for the sector in each phase:
     - Impact Register (Discovery)
     - Commitments (Design)
     - Monitoring (Delivery/Execution)

- Verification (Closure)
- Benefits (Post-Project Realization)

4. **Disclosure Mapping**
    - Sector-specific alignment to GRI, SASB/ISSB, TCFD/IFRS S2, SDGs, and Kunming-Montreal (where relevant).
5. **Case Example**
    - A short illustration of how one project in this sector applied the Guide.

5.2 Initial Sector Modules

Projects come in many shapes and sizes. A small IT project may last weeks with a handful of team members; a mega-infrastructure project may span decades and involve thousands. Some projects are digital and intangible; others move earth, materials, and people.

What they all have in common is **materiality**.

- Every project creates **impacts outward** — on people, communities, ecosystems, and economies.
- Every project faces **impacts inward** — risks and opportunities that can shape its cost, schedule, quality, and long-term value.

The form those impacts take depends on the sector, but the principle remains the same: **materiality is universal**. This is why the Guide provides sector-specific modules: to show how the same framework (P5 → Materiality Test → SMP → Disclosures) applies in very different contexts.

Below are the **first 10 sector modules** we propose. Each illustrates how materiality emerges in projects, even when their outputs, processes, and stakeholders look completely different.

Sector Module Structure: Maturity-Sensitive Guidance

Each sector module in this Guide provides **three tiers of guidance** to support projects at different maturity levels:

Tier 1: Level 1 (Incremental) Guidance

- Focus: Relative improvements, intensity metrics, trend tracking
- Suitable for: Organizations beginning sustainability journey; projects with limited historical data
- Example: Reduce data center energy intensity by 20% (MWh per TB processed)

Tier 2: Level 2 (Context-Based) Guidance

- Focus: Sustainability Quotient (S = A/N) calculations, threshold alignment, science-based targets
- Suitable for: Organizations with mature programs; projects with 5+ years data and stakeholder engagement
- Example: Data center energy $S_{(env)}$ = 1.6 (60% above fair allocation based on regional grid capacity). Target: $S_{(env)} \leq 1.0$ by year 20xx.

Tier 3: Level 3 (Regenerative) Guidance

- Focus: $S_{(env)} < 1.0$ achievement, active capital restoration, stakeholder co-governance
- Suitable for: Organizations with transformative mandates; projects explicitly designed for regeneration
- Example: Data center achieves $S_{(env)}$ = 0.6 (40% below allocation), exporting surplus renewable capacity to grid. Contributing to regional energy resilience.

How to Use Sector Modules:

1. Identify your current maturity level (1, 2, or 3)
2. Focus on the tier corresponding to your level
3. Use the next tier as your "North Star"—understanding what progression looks like
4. Do not attempt to skip tiers (e.g., Level 1 → Level 3) without building foundational capacity

Example Navigation: IT Project at Level 1

- **Read Tier 1 guidance** → Implement energy tracking, set % reduction targets
- **Skim Tier 2 guidance** → Understand that threshold assessment will require: regional grid capacity data, fair allocation methodology, 5-year trend data
- **Note Tier 3 aspirations** → See that regenerative IT involves net-zero energy + grid contribution
- **Set progression timeline** → We will build toward Level 2 by 2027 by establishing data systems and partnering with regional energy authority for threshold research

5.3 Sector Module: IT & Digital Projects

IT and digital projects are sometimes seen as "low impact" because they don't involve heavy construction or physical assets. But in reality, they have **clear materiality**: they consume large amounts of **energy**, generate **electronic waste (e-waste)**, handle sensitive **personal data**, and increasingly raise questions about **responsible AI**.

- **Examples of projects**: data center construction, cloud migrations, software development, AI/ML deployments, cybersecurity upgrades.
- **Stakeholder expectations**: efficiency, data security, privacy, accessibility, and responsible technology.

💡 **Glossary Callout**: *Material topic* — a sustainability issue that is significant in terms of impacts on people, planet, or prosperity (GRI **3–2**).

Materiality Hotspots (P5 Lens)

- **Product**
  - Disposal of obsolete servers, devices, and e-waste.
  - Lifecycle impacts of software (updates, decommissioning).
- **Process**
  - Agile delivery methods: integrating sustainability into sprints.
  - Sustainable procurement of cloud and IT services.
- **People**
  - Cybersecurity and customer privacy (GRI 418).
  - Workforce skills development and digital inclusion.
  - Accessibility of digital products for vulnerable groups.
- Planet **- Energy Use in Data Centers (GRI 302)**

Tier 1 (Incremental) Approach:

- **Metrics:** Absolute consumption (MWh/year), intensity (MWh per TB), % renewable energy
- **Target example:** Reduce energy intensity by 20% and source 50% renewables by 20xx
- **Reporting:** Data center consumed 45,000 MWh in 20yy, down 12% from 20xx. 35% from renewables.

Tier 2 (Context-Based) Approach:

- **Metrics:** Sustainability Quotient (S = A/N) based on fair energy allocation
- **Threshold determination:** N (fair allocation) = Regional renewable capacity × (Project GDP contribution / Regional GDP)

Adjust for: Grid carbon intensity, regional energy stress, renewable availability *Data sources*: Regional energy authority, national renewable targets, organizational financials

- **Target example:** Reduce energy $S_{(env)}$ from current 1.8 to $S_{(env)} \leq 1.0$ by 20xx (100% gap closure) through efficiency (20%), renewable procurement (50%), on-site generation (10%)

- **Reporting:** Data center energy $S_{(env)}$ = 1.8 (80% above fair allocation in region with 60% coal-dependent grid). We are 45% toward our $S_{(env)} \leq 1.0$ target. Third-party limited assurance provided by [firm].

Tier 3 (Regenerative) Approach:

- **Metrics:** $S_{(env)} < 1.0$ achievement + contribution to grid decarbonization
- **Target example:** Achieve $S_{(env)}$ = 0.7 (30% below allocation) through 120% on-site renewable generation, exporting 20% surplus to grid
- **Reporting:** Data center energy $S_{(env)}$ = 0.7. We generate 12,000 MWh more than we consume, exported to regional grid supporting 3,500 households. Verified by [independent auditor]. Our operations actively contribute to regional energy transition.

Critical for IT Sector: Data centers are responsible for approximately 1-2% of global electricity demand and growing. **Incremental efficiency improvements (Tier 1) are insufficient to align with 1.5°C pathways.** Context-based targets (Tier 2) ensure IT projects take fair responsibility for decarbonization, not just marginal gains.

Planet - Water Consumption for Cooling

Tier 1 (Incremental) Approach:

- **Metrics:** Total m^3 withdrawn, Water Use Effectiveness (WUE: L/kWh)
- **Target example:** Reduce WUE from 1.8 to 1.2 L/kWh by 20xx
- **Reporting:** Facility withdrew 180,000 m^3, WUE improved 15% year-over-year

Tier 2 (Context-Based) Approach:

- **Metrics:** Sustainability Quotient based on watershed carrying capacity
- **Threshold determination:** N (fair allocation) = (Watershed renewable capacity - environmental flows) × (Facility economic output / Watershed total economic output)

Critical adjustment: In high or extremely high stress basins (WRI Aqueduct 3-4), apply precautionary factor (reduce N by 50-100%) *Data sources*: WRI Aqueduct, regional water authority, watershed studies

- **Target example:** Reduce water $S_{(env)}$ from current 3.2 in high-stress basin to $S_{(env)} \leq 1.5$ by 20xx (53% gap closure) via closed-loop cooling. Full $S_{(env)} \leq 1.0$ requires capital-intensive zero-discharge system budgeted for 20xx.
- **Reporting:** Water $S_{(env)}$ = 3.2 in critically stressed basin (220% overshoot). We have reduced withdrawal by 40% since baseline but remain unsustainable. Committed to $S_{(env)} \leq 1.0$ by 20xx operations phase. Compensatory investment: $200k to regional watershed restoration trust.

Tier 3 (Regenerative) Approach:

- **Metrics:** $S_{(env)}$ = 0 (zero net withdrawal) + contribution to watershed restoration
- **Target example:** Achieve zero net freshwater withdrawal via closed-loop + rainwater harvesting. Contribute 30,000 m^3/year treated wastewater to aquifer recharge.
- **Reporting:** Water $S_{(env)}$ = 0 (closed-loop system, no net freshwater withdrawal). We contribute 30,000 m^3/year to regional aquifer recharge partnership, reducing regional water stress from $S_{(env)}$ = 1.4 to $S_{(env)}$ = 1.38. Verified by [hydrologist].

Critical for IT Sector: Water-cooled data centers in stressed regions face $S_{(env)}$ values of 2.0-5.0 (100-400% overshoot). **Without context-based accounting, facilities can claim 'water efficiency' while worsening regional crises.** Tier 2 assessment ensures IT sector takes proportionate responsibility for water stewardship.

- **Prosperity**
    - Business continuity and resilience.
    - Local economic value of IT hubs.
    - Responsible innovation (AI fairness, bias prevention).

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Capture baseline: projected server energy use, e-waste volumes, data privacy risks.
- Engage stakeholders: regulators (GDPR, CCPA), customers, compliance officers, and community reps (near data centers).

Design/Planning – Material Topics Management Table

- Translate impacts into commitments:
    - 100% renewable energy sourcing by go-live.
    - ISO 27001 compliance for data security.
    - Certified e-waste recycling program.
    - Accessibility compliance with WCAG standards.

Delivery/Execution – Implementation & Monitoring

- Record progress in the SMP each sprint or increment:
    - % workloads migrated to renewable-powered cloud.
    - Number of data privacy incidents.
    - Volume of e-waste recycled.

Closure – Verification Checklist

- Confirm evidence:
    - Renewable Energy Certificates from providers.
    - GDPR/ISO audit pass.
    - Receipts from certified e-waste vendors.

Post-Project Benefits Realization – Benefits Tracker

- Track outcomes vs. baselines:
    - Actual energy efficiency achieved.
    - Verified reductions in carbon footprint.
    - Long-term privacy/security performance.

Disclosure Mapping

- **GRI**: 302 (Energy), 305 (Emissions), 418 (Customer Privacy).
- **SASB/ISSB**:
    - *TC-SI (Software & IT Services)* — data privacy, cybersecurity, user trust.
    - *TC-SV (Hardware)* — energy use, product end-of-life, e-waste.
- **TCFD/IFRS S2**: resilience of IT infrastructure to physical climate risks (heat, floods) and transition risks (carbon pricing).
- **SDGs**:
    - SDG 7: Affordable & Clean Energy.
    - SDG 9: Industry, Innovation, Infrastructure.
    - SDG 16: Strong Institutions (data governance, privacy).
- **Kunming-Montreal**: applicable for land/water use in large-scale data centers.

Agile Add-In for IT Projects

- **Backlog Grooming**: sustainability impacts become user stories (e.g., “As a customer, I want my data encrypted to protect my privacy”).

- **Sprint Planning**: materiality test determines which items enter the sprint backlog.
- **During Sprints**: SMP updated incrementally with progress on energy use, privacy compliance, e-waste reduction.
- **Sprint Reviews/Retrospectives**: verify commitments with stakeholders, capture lessons for the SMP.
- **Release/Program Increment**: validate realized benefits (efficiency, emissions reduction) in the SMP Benefits Tracker.

💡 **Glossary Callout**: *Backlog item* — a work item in Agile projects that can include sustainability requirements as acceptance criteria.

Case Example: Cloud Migration Project

Context: A multinational migrates 40% of workloads from on-prem servers to the cloud.

- **Discovery**: SMP notes baseline energy use, e-waste, privacy risks.
- **Design**: Commitments include renewable energy sourcing, GDPR compliance, certified e-waste disposal.
- **Delivery**: Each sprint updates the SMP with energy intensity data, privacy incident logs, recycling results.
- **Closure**: Verification includes Renewable Energy Certificates, GDPR audit pass, vendor receipts.
- **Benefits**: SMP Benefits Tracker confirms 28% energy savings and 35% carbon footprint reduction after one year.

Key Takeaways for IT & Digital Projects

- Even "intangible" projects have materiality: energy, e-waste, privacy, ethics.
- Agile projects integrate sustainability by treating impacts as backlog items and updating the SMP every sprint.
- The SMP ensures commitments (like renewable sourcing or data privacy) are managed, verified, and reported.
- IT disclosures align with GRI (302, 305, 418), SASB/ISSB (software, hardware), and TCFD/IFRS S2.

5.4 Sector Module: Construction & Infrastructure Projects

Construction and infrastructure projects are highly visible, long-lasting, and resource-intensive. They almost always create **materiality** because of their physical footprint, resource demand, and direct community impacts.

- **Examples of projects**: bridges, housing, transport systems, airports, hospitals, net-positive buildings.
- **Stakeholder expectations**: safety, emissions reduction, biodiversity protection, local hiring, and positive community outcomes.

💡 **Glossary Callout**: *Net-positive project* — one that goes beyond reducing harm to actively create measurable environmental and social benefits.

Materiality Hotspots (P5 Lens)

- **Product**: embodied carbon in concrete and steel; construction and demolition waste.
- **Process**: sustainable procurement, transparent contracts, safe working conditions.
- **People**: worker health and safety (GRI 403), displacement risks, community disruption, labor rights.
- **Planet**: biodiversity and habitat disturbance, air pollution (dust, emissions), water stress.
- **Prosperity**: economic multipliers through local suppliers, long-term resilience, social return on investment (SROI).

Lifecycle Guidance (SMP Lens)

- **Discovery/Planning (Impact Register)**: log carbon intensity of design, potential biodiversity risks, worker safety baselines, stakeholder concerns.

- **Design/Planning (Material Topics Management Table)**: commitments could include 25% reduction in embodied carbon, 90% waste diversion, biodiversity offset ratio of 3:1, zero fatalities on site, local hiring targets.
- **Delivery/Execution (Implementation & Monitoring Section)**: track % of waste diverted, number of safety incidents, carbon performance, hours of community disruption.
- **Closure (Verification Checklist)**: evidence like safety audits, waste diversion certificates, biodiversity offset documentation, community sign-off.
- **Benefits Realization (Benefits Tracker)**: outcomes measured after completion — biodiversity restored, carbon sequestered, new community green spaces, resilience to flooding.

Disclosure Mapping

- **GRI**: 301 (Materials), 305 (Emissions), 306 (Waste), 403 (OHS), 413 (Communities).
- **SASB/ISSB**: Engineering & Construction Services — workforce safety, waste, materials.
- **TCFD/IFRS S2**: climate risks to asset resilience, transition risks from new building codes.
- **SDGs**: 9 (Infrastructure), 11 (Sustainable Cities), 13 (Climate Action), 15 (Life on Land).
- **Kunming-Montreal**: biodiversity offsets and restoration.

Agile/Lean Add-In

For construction projects using Lean or Agile-hybrid methods (e.g., design-build, rolling wave):

- **Backlog-style work packages**: sustainability commitments broken into increments.
- **Short-cycle verification**: weekly site inspections and audits serve as "sprint reviews."
- **Rolling updates in SMP**: waste diversion, OHS, and carbon performance updated continuously rather than at phase gates.

💡 **Glossary Callout**: *Rolling wave planning* — planning in detail for near-term work while leaving flexibility for later stages.

Case Example: Net-Positive Public Building Project

Context: A municipality commissions a new civic building designed not just for net-zero but to achieve *net-positive performance* across energy, carbon, water, and biodiversity.

- **Discovery**: SMP Impact Register highlights embodied carbon in steel, biodiversity disruption, and long-term energy use as key risks.
- **Design**: Commitments in the SMP include:
  - Generate 20% more renewable energy than the building consumes.
  - Divert 95% of construction waste.
  - Restore twice as much habitat as disturbed during construction.
  - Train and certify 100% of workers in advanced green construction methods.
- **Delivery**: SMP records monthly data: renewable energy capacity installed, % waste diverted, safety metrics, biodiversity restoration actions underway.
- **Closure**: Verification includes renewable energy output certificates, independent biodiversity audit, OHS compliance reports, and regulator approvals.
- **Benefits Realization**: After 12 months of operation, the Benefits Tracker confirms:
  - Building generated 25% more energy than it consumed.
  - Native species biodiversity increased by 18% compared to baseline.
  - Community survey shows 90% satisfaction with new green spaces integrated into the project site.

Key Takeaways for Construction & Infrastructure

- Materiality is highly visible — especially safety, waste, emissions, and community impacts.
- Net-positive projects set new expectations: they don't just minimize harm, they create additional value.
- The SMP makes these commitments traceable from Impact Register → Monitoring → Verification → Benefits.
- Lean/Agile approaches work by treating sustainability KPIs as iterative deliverables.
- Reporting aligns with **GRI (materials, emissions, safety, communities)**, **ISSB (sector KPIs)**, **TCFD (climate resilience)**, and **SDGs 9, 11, 13, 15**.

5.5 Sector Module: Giga/Mega Projects

Mega or "giga" projects — such as smart cities, national infrastructure corridors, hydroelectric dams, or large-scale industrial complexes — are enormous in scale, complexity, and visibility. They can last decades, cost billions, and affect millions of people and ecosystems.

Because of their scale, they almost always attract scrutiny: communities, investors, regulators, NGOs, and the media track them closely. Their **materiality is amplified**: both the risks of harm and the potential for long-term positive impact are larger than in smaller projects.

- **Examples of projects**: smart cities, mega-ports, high-speed rail, national energy corridors.
- **Stakeholder expectations**: fairness, transparency, biodiversity protection, community inclusion, and long-term prosperity.

💡 **Glossary Callout**: *Net-positive project* — one that contributes more benefits than it consumes in terms of environmental, social, and economic capital.

Materiality Hotspots (P5 Lens)

- **Product**
  - Long-term lifecycle of massive infrastructure (maintenance, decommissioning).
  - Materials intensity (concrete, steel, rare earths).
- **Process**
  - Governance and anti-corruption safeguards.
  - Multi-stakeholder decision-making and transparency.
- **People**
  - Large-scale displacement and resettlement (GRI 413).
  - Indigenous rights and Free, Prior and Informed Consent (FPIC).
  - Worker safety across thousands of contractors.
- **Planet**
  - Significant biodiversity loss (forests, wetlands, habitats).
  - Water use and diversion (hydropower, irrigation).
  - GHG emissions from construction and operation.
- **Prosperity**
  - National and regional economic transformation.
  - Just transition considerations for communities affected.
  - Resilience and adaptation to climate change.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Identify large-scale risks: biodiversity displacement, community resettlement, corruption risks, massive carbon footprints.
- Engage stakeholders: governments, Indigenous groups, NGOs, community leaders, multilateral funders.

Design/Planning – Material Topics Management Table

- Translate issues into commitments:
    - Restore 200% of biodiversity lost during project footprint.
    - Zero forced displacement: resettlement guided by FPIC and livelihood restoration.
    - Climate-positive design: net emissions reduction through renewables and offsets.
    - Independent anti-corruption oversight with public reporting.

Delivery/Execution – Implementation & Monitoring

- Track at scale:
    - Biodiversity metrics (hectares restored).
    - Resettlement outcomes (% of households with improved livelihoods).
    - GHG emissions vs. baseline.
    - Independent governance audits.

Closure – Verification Checklist

- Third-party assurance of biodiversity and resettlement outcomes.
- Transparency reports on procurement and anti-corruption safeguards.
- Final audit of climate commitments.

Post-Project Benefits Realization – Benefits Tracker

- Evidence over time:
    - Net increase in biodiversity (measured against baseline).
    - Socioeconomic uplift for resettled communities.
    - Long-term emissions reductions (e.g., modal shift to rail reducing car traffic).
    - Enhanced resilience to climate shocks.

Disclosure Mapping

- **GRI**:
  - 305 (Emissions).
  - 306 (Waste).
  - 403 (OHS).
  - 413 (Communities).
  - 419 (Socioeconomic compliance).
- **SASB/ISSB**: cross-sector metrics (construction, transport, energy).
- **TCFD/IFRS S2**: climate risk assessments critical for investors and funders.
- **SDGs**: 9 (Infrastructure), 11 (Sustainable Cities), 13 (Climate Action), 15 (Life on Land), 16 (Peace & Justice).
- **Kunming-Montreal**: explicit biodiversity restoration targets.

Case Example: Net-Positive Mega Rail Project

Context: A government undertakes a high-speed rail project crossing multiple states.

- **Discovery**: SMP identifies biodiversity loss, land acquisition, emissions, and corruption risks.
- **Design**: Commitments include:
  - Restore twice as much habitat as impacted (net-positive biodiversity).
  - FPIC-based resettlement program with livelihood improvements.
  - Achieve climate-positive outcomes by displacing car and air travel.
  - Transparent procurement system monitored by independent body.
- **Delivery**: SMP monitors hectares of land restored, resettlement progress, emissions avoided, and governance audits.
- **Closure**: Verification includes biodiversity audits, independent governance reports, and regulator sign-offs.
- **Benefits**: Benefits Tracker confirms:
  - 220% habitat restoration achieved.
  - Resettled households reporting 30% higher incomes.
  - 40% reduction in national car/air emissions in corridor after 5 years.

Key Takeaways for Giga/Mega Projects

- Materiality is magnified — both risks and opportunities are larger than in typical projects.
- Net-positive framing is essential for legitimacy: biodiversity, livelihoods, and emissions must show measurable gains.
- The SMP makes it possible to manage complexity by structuring impacts, commitments, and verification.
- Independent assurance and transparent governance are critical.
- These projects directly link to global frameworks: **GRI, ISSB, TCFD, SDGs, Kunming-Montreal**.

5.6 Sector Module: Energy Projects

Energy projects sit at the heart of sustainability debates. They can drive climate progress through renewable expansion or exacerbate risks through fossil dependency. Because they influence emissions, land, water, and community well-being, **their materiality is always high**.

- **Examples of projects**: solar farms, offshore wind, hydropower dams, oil & gas exploration, nuclear facilities, transmission grid expansion.
- **Stakeholder expectations**: decarbonization, biodiversity protection, water stewardship, just transition for workers, community benefit-sharing.

💡 **Glossary Callout**: *Just Transition* — ensuring that the shift to low-carbon energy is fair and inclusive for workers and communities.

Materiality Hotspots (P5 Lens)

- **Product**
  - Lifecycle emissions of energy generation assets.
  - Decommissioning of plants (coal, nuclear).
- **Process**
  - Transparent procurement and land acquisition.
  - Worker health & safety in high-risk environments.
- **People**
  - Community displacement for large projects.
  - Worker transition from fossil to renewable jobs.
  - Energy affordability and access.
- **Planet**
  - GHG emissions (fossil projects).
  - Biodiversity impacts (wind turbines, hydropower).
  - Water use for cooling or hydropower.
- **Prosperity**
  - Local economic development and supplier opportunities.
  - Resilience of energy systems under climate stress.
  - Innovation in storage, grid stability, and green hydrogen.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Capture high-level impacts: emissions, biodiversity, water, displacement, labor transition.
- Engage stakeholders: regulators, utilities, local communities, Indigenous groups, labor unions.

Design/Planning – Material Topics Management Table

- Translate impacts into net-positive commitments:
  - Generate 10% more renewable power than displaced fossil capacity.
  - Achieve biodiversity net-gain ratios (e.g., restore 150% of impacted habitat).
  - Implement just transition programs: retraining and redeployment for fossil workers.
  - Ensure community benefit-sharing (e.g., local revenue funds).

Delivery/Execution – Implementation & Monitoring

- Track metrics like:
  - Renewable capacity installed vs. baseline.
  - Biodiversity restoration hectares.
  - Worker retraining numbers and success rates.
  - Community fund disbursements.

Closure – Verification Checklist

- Evidence includes:
  - Renewable energy certificates.
  - Independent biodiversity audit reports.
  - Worker transition program outcomes.
  - Community satisfaction surveys.

Post-Project Benefits Realization – Benefits Tracker

- Long-term validation:
  - Confirmed emissions reductions.
  - Biodiversity improvement indicators.
  - Energy affordability outcomes.
  - Resilience of infrastructure under climate stress.

Disclosure Mapping

- **GRI**:
  - 302 (Energy).
  - 305 (Emissions).
  - 306 (Waste and effluents).
  - 403 (OHS).
  - 413 (Community).
- **SASB/ISSB**:
  - *Electric Utilities & Power Generators* — emissions, water, grid reliability, worker transition.
- **TCFD/IFRS S2**:
  - Climate governance, physical risks (storms, floods), transition risks (carbon pricing, policy).
- **SDGs**:
  - SDG 7 (Clean Energy).
  - SDG 8 (Decent Work).
  - SDG 13 (Climate Action).
  - SDG 15 (Life on Land).
- **Kunming-Montreal**:
  - Explicitly relevant for hydropower, wind, solar land use, and biodiversity restoration.

Case Example: Net-Positive Wind & Solar Hybrid Project

Context: A national utility builds a hybrid wind-solar farm to replace coal capacity.

- **Discovery**: SMP Impact Register highlights biodiversity risks (bird strikes), community land-use concerns, and workforce transition needs.
- **Design**: Commitments include:
  - Restore 2 hectares of habitat for every hectare used.
  - Retrain 500 coal workers for renewable roles.
  - Create a community development fund from 2% of project revenues.
  - Generate 15% more renewable energy than the coal plant it replaces.
- **Delivery**: SMP tracks renewable capacity installed, workers retrained, biodiversity restoration progress, and fund allocations.
- **Closure**: Verification includes biodiversity audit, worker redeployment outcomes, and community fund disbursement reports.
- **Benefits**: After two years, the Benefits Tracker confirms:
  - National GHG emissions reduced by 1.2 million tCO_2e/year.
  - Biodiversity indicators (bird and pollinator populations) show measurable net gains.
  - 75% of retrained workers employed in renewables.
  - Community infrastructure projects (schools, clinics) funded from project revenues.

Key Takeaways for Energy Projects

- Energy projects are always material: emissions, biodiversity, water, and people.
- Net-positive framing (emissions, biodiversity, livelihoods) shifts legitimacy from harm-reduction to **value creation**.
- SMP ensures impacts are managed transparently across discovery to benefits realization.
- Just transition and community benefit-sharing are essential for credibility.
- Alignment with **GRI, ISSB sector metrics, TCFD, SDGs, and Kunming-Montreal** ensures disclosures meet global standards.

5.7 Sector Module: Mining & Extractives Projects

Mining and extractives projects are among the most sustainability-critical. They involve large land areas, heavy water use, biodiversity disturbance, and complex relationships with local and Indigenous communities. Their operations create **inevitable materiality**, often in controversial ways.

Because of this, extractives must move beyond "do no harm" to **net-positive commitments**: restoring ecosystems, creating lasting community value, and ensuring transparency in governance.

- **Examples of projects**: metal mining, rare earths extraction, oil & gas exploration, quarrying, tailings dam projects.
- **Stakeholder expectations**: safe tailings management, biodiversity restoration, Indigenous rights, transparency in contracts, and long-term community benefit.

💡 **Glossary Callout**: *Free, Prior and Informed Consent (FPIC)* — the right of Indigenous Peoples to give or withhold consent to projects that may affect them or their territories.

Materiality Hotspots (P5 Lens)

- **Product**
  - Tailings and waste rock management.
  - Closure and decommissioning impacts.
- **Process**
  - Corruption, governance, and contract transparency.
  - Worker health & safety in high-risk environments.
- **People**
  - Indigenous rights and FPIC.
  - Community displacement and resettlement.
  - Labor rights and decent work.
- **Planet**
  - Biodiversity and land degradation.
  - Water withdrawal, consumption, and contamination.
  - GHG emissions from operations and logistics.
- **Prosperity**
  - Local economic development and jobs.
  - Long-term land rehabilitation.
  - Social Return on Investment (SROI).

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Capture issues: water use, biodiversity risks, tailings stability, Indigenous rights, corruption exposure.
- Engage stakeholders: governments, NGOs, Indigenous councils, workers' unions, affected communities.

Design/Planning – Material Topics Management Table

- Net-positive commitments:
  - Restore 150% of ecosystems disturbed (e.g., reforestation, soil rehabilitation).
  - Treat 100% of wastewater before discharge.
  - FPIC agreements for all Indigenous lands affected.
  - Public disclosure of contracts and royalty payments.

Delivery/Execution – Implementation & Monitoring

- Track:
  - Tailings dam safety metrics.
  - Water withdrawal and treatment.
  - Indigenous participation in decision-making.
  - OHS indicators for workers.

Closure – Verification Checklist

- Independent audits: land restoration, tailings stabilization, community compensation delivered.
- Evidence of FPIC agreements honored.
- Financial disclosures verified by third-party.

Post-Project Benefits Realization – Benefits Tracker

- Long-term monitoring:
  - Reforested land survival rates.

- Water quality improvement.
- Community wealth funds operating effectively.
- Transition of local economies beyond extractives.

Disclosure Mapping

- **GRI**:
  - 303 (Water).
  - 305 (Emissions).
  - 306 (Waste & tailings).
  - 403 (OHS).
  - 411 (Indigenous Rights).
  - 419 (Socioeconomic compliance).
- **SASB/ISSB**:
  - *Metals & Mining*, *Oil & Gas* — water, tailings, emissions, community impacts.
- **TCFD/IFRS S2**:
  - Transition risks (carbon pricing, stranded assets).
  - Physical risks (floods, droughts affecting tailings safety).
- **SDGs**:
  - SDG 6 (Clean Water).
  - SDG 8 (Decent Work).
  - SDG 13 (Climate Action).
  - SDG 15 (Life on Land).
  - SDG 16 (Peace, Justice & Strong Institutions).
- **Kunming-Montreal**:
  - Directly relevant: ecosystem restoration, net-positive biodiversity commitments.

Case Example: Net-Positive Rare Earths Mining Project

Context: A consortium develops a rare earths mine critical for renewable energy supply chains.

- **Discovery**: SMP identifies high biodiversity loss, water stress, tailings risks, and Indigenous land concerns.
- **Design**: Commitments include:
  - Restore 200% of affected ecosystems (wetlands + forest corridors).
  - Achieve zero untreated wastewater discharge.
  - FPIC-based agreements with Indigenous groups, including royalty-sharing.
  - Publish all contracts in line with Extractive Industries Transparency Initiative (EITI).
- **Delivery**: SMP monitors water quality, biodiversity restoration progress, worker safety, and Indigenous employment.
- **Closure**: Verification includes independent biodiversity audits, tailings stability certification, and FPIC agreements validated by Indigenous councils.
- **Benefits**: Benefits Tracker confirms after 5 years:
  - Biodiversity net-gain achieved (species diversity increased by 15%).
  - Local water quality improved compared to pre-project baseline.
  - Royalty fund supporting schools, clinics, and renewable microgrids in Indigenous territories.

Key Takeaways for Mining & Extractives

- Materiality is unavoidable: biodiversity, water, tailings, and human rights are always critical.
- Net-positive framing is essential for legitimacy: communities and ecosystems must come out ahead.
- The SMP provides transparency from baseline → commitments → monitoring → closure → benefits.
- FPIC, anti-corruption, and independent assurance are non-negotiable.
- Disclosures align with **GRI (water, waste, Indigenous rights)**, **ISSB (sector metrics)**, **TCFD (climate risks)**, **SDGs**, and **Kunming-Montreal**.

5.8 Sector Module: Transport & Mobility Projects

Transport and mobility projects directly shape daily life. They connect people, goods, and markets — but they also contribute significantly to **emissions, air pollution, noise, and land use change**. Because they affect millions of people every day, their **materiality is highly visible and heavily scrutinized**.

- **Examples of projects**: metro lines, airports, highways, high-speed rail, electric vehicle (EV) infrastructure, logistics hubs.
- **Stakeholder expectations**: cleaner air, lower emissions, safety, affordability, accessibility, and community inclusion.

💡 **Glossary Callout**: *Accessibility* — ensuring transport systems are usable by all, including vulnerable groups (e.g., persons with disabilities, elderly, low-income households).

Materiality Hotspots (P5 Lens)

- **Product**
  - Emissions from transport modes (fossil vs. EV/rail).
  - Lifecycle of vehicles, batteries, and infrastructure.
- **Process**
  - Fair procurement in large contracts.
  - Safety culture in construction and operation.
- **People**
  - Passenger and worker safety (GRI 403).
  - Accessibility and affordability for all users.
  - Noise, vibration, and community disruption.
- **Planet**
  - Air quality impacts from combustion and dust.
  - Land use and habitat fragmentation.
  - GHG emissions and modal shift opportunities.
- **Prosperity**
  - Economic inclusion via better mobility.
  - Reduced congestion and productivity gains.
  - Regional integration and resilience.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Identify high-priority issues: emissions, safety, accessibility, noise, land acquisition.
- Engage stakeholders: commuters, regulators, local governments, vulnerable groups.

Design/Planning – Material Topics Management Table

- Commitments for net-positive mobility:
    - Modal shift targets: 30% of commuters move from car to rail.
    - Accessibility compliance (universal design standards).
    - Biodiversity offsets for fragmented habitats.
    - Air quality improvement zones in surrounding areas.

Delivery/Execution – Implementation & Monitoring

- Monitor:
    - GHG reductions vs. baseline.
    - Noise/vibration levels and complaints.
    - Safety incidents and lost-time injury rates.
    - Accessibility features delivered (ramps, signage, pricing models).

Closure – Verification Checklist

- Confirm evidence:
    - Verified emissions reduction reports.
    - Accessibility audit results.
    - Community satisfaction surveys.
    - Regulator-approved safety certifications.

Post-Project Benefits Realization – Benefits Tracker

- Long-term validation:
    - Cleaner air (PM2.5 and NOx reductions).
    - Increased use of affordable, safe transport by vulnerable groups.
    - Measured biodiversity restoration in offset areas.
    - Economic benefits from time saved and reduced congestion.

Disclosure Mapping

- **GRI**:
    - 305 (Emissions).
    - 306 (Waste).
    - 403 (OHS).
    - 413 (Community).
- **SASB/ISSB**:
    - *Transportation sectors* — emissions, safety, accessibility, customer satisfaction.
- **TCFD/IFRS S2**:
    - Climate risks to infrastructure (floods, heatwaves, storms).
    - Transition risks from fuel shifts, EV adoption, and carbon regulation.
- **SDGs**:
    - SDG 3 (Health & Wellbeing).
    - SDG 9 (Infrastructure).
    - SDG 11 (Sustainable Cities & Communities).
    - SDG 13 (Climate Action).
- **Kunming-Montreal**:
    - Biodiversity offsets for land-use impacts (rail, roads, airports).

Case Example: Net-Positive Metro Expansion Project

Context: A city expands its metro network to reduce traffic congestion and pollution.

- **Discovery**: SMP Impact Register identifies high car dependency, poor air quality, limited accessibility, and biodiversity risks along corridors.
- **Design**: Commitments include:
  - Shift 35% of commuters from cars to metro.
  - Reduce NOx and PM2.5 emissions in corridor zones by 40%.
  - Ensure 100% of stations meet universal accessibility standards.
  - Restore habitats at 2:1 ratio for land affected.
- **Delivery**: SMP tracks ridership uptake, construction safety incidents, accessibility features installed, and noise complaints.
- **Closure**: Verification includes regulator sign-offs, community satisfaction survey, and biodiversity offset audits.
- **Benefits**: After 3 years, the Benefits Tracker confirms:
  - Traffic congestion reduced by 28%.
  - Local air quality improved (PM2.5 levels dropped 35%).
  - Biodiversity net-gain verified by independent audit.
  - 92% commuter satisfaction, especially among vulnerable groups.

Key Takeaways for Transport & Mobility Projects

- Transport projects are always material due to visible impacts on health, equity, and environment.
- Net-positive framing means not just reducing congestion/emissions but **actively improving air quality, safety, and accessibility**.
- SMP captures impacts from baseline → commitments → monitoring → verification → benefits.
- Stakeholder trust depends on accessibility, affordability, and transparency.
- Reporting aligns with **GRI, ISSB (sector metrics), TCFD (climate risk), SDGs, and Kunming-Montreal**.

5.9 Sector Module: Healthcare & Public Health Projects

Healthcare and public health projects directly affect human wellbeing, often in life-or-death terms. From hospital construction to vaccination campaigns, they are highly visible, deeply personal, and **always material**. Beyond minimizing risks, these projects can be framed as **net-positive** when they improve access, equity, and long-term resilience of health systems.

- **Examples of projects**: building hospitals and clinics, vaccine rollout, community health programs, pandemic preparedness.
- **Stakeholder expectations**: safe care, equitable access, affordability, ethical conduct, and community trust.

💡 **Glossary Callout**: *Health equity* — ensuring that all people have fair access to health services and outcomes regardless of income, gender, ethnicity, or geography.

Materiality Hotspots (P5 Lens)

- **Product**
  - Safety of medical equipment and facilities.
  - Lifecycle management of health technologies.
- **Process**
  - Ethical procurement of medicines and supplies.
  - Transparent governance of public funds.
- **People**
  - Worker health and safety (GRI 403).
  - Patient safety and privacy (GRI 416, 418).
  - Equity of access to services.
  - Community trust and engagement.
- **Planet**
  - Medical waste and biohazards (GRI 306).
  - Water and energy use in health facilities.
  - Climate resilience of health infrastructure.
- **Prosperity**
  - Public health benefits (disease prevention, longer life expectancy).
  - Reduced economic burden of poor health.
  - Capacity building for local health systems.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Identify: access gaps, equity issues, waste streams, community concerns.
- Stakeholders: health ministries, regulators, patients, communities, NGOs.

Design/Planning – Material Topics Management Table

- Commitments for net-positive health:
  - 100% compliance with patient safety standards.
  - Universal accessibility in facility design.
  - Zero untreated biohazard waste.
  - Free or subsidized care for low-income populations.

Delivery/Execution – Implementation & Monitoring

- Monitor:
  - Patient safety incidents.
  - Waste disposal compliance.
  - Worker OHS data.
  - Access metrics (patients served by income group, gender, region).

Closure – Verification Checklist

- Confirm:
  - Patient safety protocols implemented.

- Biohazard waste certificates.
- Community feedback sessions completed.
- Equity targets audited.

Post-Project Benefits Realization – Benefits Tracker

- Track:
  - Improved community health outcomes.
  - Reduced disease burden.
  - Increased equity in service use.
  - Enhanced resilience (facilities functional during climate events).

Disclosure Mapping

- **GRI**:
  - 306 (Waste — medical waste, effluents).
  - 403 (OHS).
  - 416 (Customer health & safety).
  - 418 (Customer privacy).
- **SASB/ISSB**:
  - *Healthcare Delivery, Biotechnology & Pharma* — patient safety, affordability, data privacy.
- **TCFD/IFRS S2**:
  - Climate resilience of healthcare systems (heatwaves, flooding, pandemics).
- **SDGs**:
  - SDG 3 (Good Health & Wellbeing).
  - SDG 5 (Gender Equality).
  - SDG 10 (Reduced Inequalities).
  - SDG 13 (Climate Action — resilient health systems).
- **Kunming-Montreal**:
  - Applicable where facility construction intersects with biodiversity (e.g., rural expansion).

Case Example: Net-Positive Rural Hospital Project

Context: A government partners with NGOs to build a rural hospital in an underserved region.

- **Discovery**: SMP notes lack of access, untreated medical waste, and equity barriers (low-income patients excluded).
- **Design**: Commitments include:
  - Universal accessibility design (ramps, signage, inclusive services).
  - Free care for lowest-income groups.
  - Waste sterilization and treatment facility on-site.
  - Solar backup power for resilience.
- **Delivery**: SMP tracks worker OHS, patient safety incidents, % of low-income patients served, waste volumes treated.
- **Closure**: Verification includes equity audit, medical waste certification, regulator sign-off.

- **Benefits**: Benefits Tracker confirms after 2 years:
    - 45% reduction in preventable diseases locally.
    - 60% of patients served from lowest-income groups.
    - 100% medical waste treated on-site.
    - Facility remains operational during regional heatwave and flood events.

Key Takeaways for Healthcare & Public Health Projects

- Health projects are always material due to direct human impacts.
- Net-positive framing = beyond "safe hospitals" to **health equity, access, and resilience**.
- SMP ensures commitments are traceable from ethics to waste management to patient outcomes.
- Trust and transparency with communities are essential.
- Disclosures align with **GRI, ISSB healthcare metrics, TCFD (resilience), SDGs**, and biodiversity goals where land use is relevant.

5.10 Sector Module: Public Sector & Development Projects

Public sector and development projects — whether funded by governments, multilateral organizations, or aid agencies — are uniquely material. They use public funds, affect broad populations, and often aim to reduce inequality.
The risks are equally significant: poor governance, corruption, or exclusion can undermine legitimacy. To build trust and deliver true value, these projects must aim for **net-positive outcomes**: stronger institutions, empowered communities, and equitable access to benefits.

- **Examples of projects**: education reform, social protection programs, climate adaptation initiatives, public infrastructure funded by aid, international development grants.
- **Stakeholder expectations**: transparency, anti-corruption, community participation, human rights protection, and inclusive access to outcomes.

💡 **Glossary Callout**: *Accountability* — the obligation of an organization or project to explain, justify, and take responsibility for its impacts and decisions.

Materiality Hotspots (P5 Lens)

- **Product**
    - Effectiveness and sustainability of delivered public goods (schools, roads, health services).
- **Process**
    - Governance quality, anti-corruption safeguards, transparent contracting.
    - Inclusive planning and participatory decision-making.
- **People**
    - Equity of access (gender, ethnicity, income).
    - Respect for human rights.
    - Community empowerment and voice.
- **Planet**
    - Environmental safeguards in public works (emissions, waste, land use).
    - Climate resilience in adaptation projects.
- **Prosperity**
    - Poverty reduction and shared value.
    - Strengthening of institutions and capacity.
    - Long-term policy and social benefits.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Identify governance risks, potential inequities, environmental risks, and human rights concerns.
- Engage stakeholders: local communities, NGOs, oversight bodies, minority groups.

Design/Planning – Material Topics Management Table

- Commitments for net-positive governance and equity:
    - 100% public disclosure of contracts and budgets.
    - Zero tolerance on corruption with independent oversight.
    - Equity audits to ensure inclusion of vulnerable groups.
    - Climate-proofing all infrastructure investments.

Delivery/Execution – Implementation & Monitoring

- Monitor:
    - Number of beneficiaries reached disaggregated by gender/income.
    - Compliance with human rights standards.
    - Governance and anti-corruption audit results.
    - Climate adaptation milestones achieved.

Closure – Verification Checklist

- Evidence:
    - Independent audit reports.
    - Human rights compliance certificates.
    - Community validation workshops.
    - Public reporting on use of funds.

Post-Project Benefits Realization – Benefits Tracker

- Long-term validation:
    - Poverty and inequality reduction.
    - Strengthened institutional capacity.
    - Climate resilience improvements.
    - Trust and legitimacy indicators (public satisfaction, reduced corruption perception).

Disclosure Mapping

- **GRI**:
    - 205 (Anti-corruption).
    - 206 (Anti-competitive behavior).
    - 411 (Indigenous rights).
    - 413 (Communities).
    - 419 (Socioeconomic compliance).
- **SASB/ISSB**:
    - Public sector not fully covered, but governance, labor, and community impacts align with cross-sector metrics.

- **TCFD/IFRS S2**:
  - Climate resilience of public investments.
- **SDGs**:
  - SDG 1 (No Poverty).
  - SDG 10 (Reduced Inequalities).
  - SDG 13 (Climate Action).
  - SDG 16 (Peace, Justice, and Strong Institutions).
- **Kunming-Montreal**:
  - Environmental safeguards in land-use, biodiversity offsets in public infrastructure.

Case Example: Net-Positive Climate Adaptation Program

Context: An international development bank funds a coastal adaptation program in a developing country.

- **Discovery**: SMP notes corruption risks, inequitable access to benefits, and biodiversity impacts from new seawalls.
- **Design**: Commitments include:
  - Transparent procurement with public disclosure.
  - FPIC engagement with Indigenous fishing communities.
  - Restoration of mangroves (net-positive biodiversity).
  - Gender-sensitive design for relocation housing.
- **Delivery**: SMP tracks climate adaptation milestones, equity in housing allocation, audit reports, and biodiversity restoration progress.
- **Closure**: Verification includes independent governance audit, biodiversity reports, and community sign-off.
- **Benefits**: Benefits Tracker confirms:
  - Coastal resilience increased, protecting 120,000 people.
  - Mangrove ecosystems expanded by 40% over baseline.
  - Community trust scores improved by 25%.
  - Reduced corruption perception in the project area.

Key Takeaways for Public Sector & Development Projects

- Materiality is built-in: governance, rights, and equity are central.
- Net-positive framing = stronger institutions, empowered communities, restored ecosystems.
- SMP ensures commitments are traceable from governance risks to long-term benefits.
- Transparency and independent assurance are essential for legitimacy.
- Disclosures align with **GRI (governance, equity, rights)**, **ISSB (cross-sector relevance)**, **TCFD (climate resilience)**, **SDGs**, and **Kunming-Montreal**.

5.11 Sector Module: Manufacturing & Industrial Projects

Manufacturing and industrial projects — such as new factories, industrial parks, or chemical plants — are central to economic development, but also some of the most impact-heavy projects. They typically involve large-scale material use, high energy demand, hazardous waste, and significant workforce considerations.

Because of this, their materiality is always high. The opportunity is to move from risk mitigation ("reduce pollution, manage waste") to net-positive commitments — circular production models, equitable workforce development, and cleaner industrial ecosystems.

- Examples of projects: automotive assembly plants, electronics factories, chemical production facilities, industrial park developments.
- Stakeholder expectations: clean production, safe working conditions, fair labor, pollution prevention, and innovation for circularity.

💡 Glossary Callout: Circular economy — an approach where materials and products are designed to stay in use, eliminating waste and reducing reliance on virgin resources.

Materiality Hotspots (P5 Lens)

- **Product**
  - Design for reuse, recyclability, and circularity.
  - Product lifecycle impacts, especially hazardous goods.
- **Process**
  - Ethical supply chain and procurement practices.
  - Energy efficiency and clean technology adoption.
- **People**
  - Worker health and safety in high-risk industrial environments (GRI 403).
  - Diversity, equity, and inclusion in workforce and management.
  - Labor rights across supply chains.
- **Planet**
  - Pollution prevention (air, water, soil).
  - Waste reduction and hazardous waste treatment.
  - GHG emissions from operations.
- **Prosperity**
  - Local economic development and job creation.
  - Fair wages and pay equity.
  - Innovation in industrial processes (automation, green chemistry).

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

- Identify major impacts: hazardous waste streams, emissions, water demand, labor rights risks.
- Engage stakeholders: regulators, workers' unions, local communities, NGOs.

Design/Planning – Material Topics Management Table

- Net-positive commitments may include:
  - Zero hazardous waste to landfill.
  - Closed-loop water and material systems.
  - 50% renewable energy sourcing.
  - Pay equity certification for workforce.

Delivery/Execution – Implementation & Monitoring

- Monitor:
  - Energy intensity per unit of output.
  - Waste diverted to reuse/recycling.
  - OHS performance (injuries, near-misses).
  - Workforce inclusion metrics.

Closure – Verification Checklist

- Confirm:
  - Independent waste audits.
  - Emissions compliance records.
  - Equity audits.
  - Worker safety certifications.

Post-Project Benefits Realization – Benefits Tracker

- Track:
  - Circularity KPIs (% of materials cycled).
  - Long-term emissions reductions.
  - Community economic benefits (local jobs, supply chain participation).
  - Workforce development outcomes (training, upskilling).

Disclosure Mapping

- **GRI**:
  - 301 (Materials).
  - 302 (Energy).
  - 305 (Emissions).
  - 306 (Waste, hazardous waste).
  - 403 (OHS).
  - 405 (Diversity & Equal Opportunity).
- **SASB/ISSB**:
  - *Industrial sectors* — energy intensity, hazardous materials, worker safety, product lifecycle.
- **TCFD/IFRS S2**:
  - Climate transition risks (carbon pricing, energy costs).
  - Physical risks (supply chain disruptions).
- **SDGs**:
  - SDG 8 (Decent Work).
  - SDG 9 (Industry, Innovation, Infrastructure).
  - SDG 12 (Responsible Consumption & Production).
  - SDG 13 (Climate Action).
- **Kunming-Montreal**:
  - Waste and pollution commitments that protect ecosystems.

Case Example: Net-Positive Electronics Factory Project

Context: A global electronics company builds a new factory in Asia to produce semiconductors.

- **Discovery**: SMP Impact Register highlights high water demand, hazardous chemicals, worker safety, and energy intensity.
- **Design**: Commitments include:
  - 100% closed-loop water recycling system.
  - Zero hazardous waste to landfill.
  - 60% renewable electricity supply.
  - Gender pay equity across all roles.
- **Delivery**: SMP monitors water reuse efficiency, hazardous waste treatment, energy mix, and workforce safety.
- **Closure**: Verification includes waste audits, pay equity certification, regulator-approved environmental reports.
- **Benefits**: After 3 years, the Benefits Tracker confirms:
  - 98% of wastewater recycled.
  - 85% of energy from renewable sources.
  - Zero hazardous waste to landfill achieved.
  - Workforce gender diversity increased by 20%.

Key Takeaways for Manufacturing & Industrial Projects

- Materiality is high due to waste, emissions, safety, and labor issues.
- Net-positive framing focuses on **circularity, equity, and clean production**.
- The SMP ensures transparency from baseline → commitments → monitoring → closure → benefits.
- Independent audits (waste, equity, safety) are crucial for trust.
- Disclosures align with **GRI (materials, energy, waste, labor, equity)**, **ISSB sector metrics**, **TCFD**, **SDGs**, and **Kunming-Montreal**.

5.12 Sector Module: Information, Media, and Telecommunications (IMT)

Information, media, and telecommunications projects build and operate the connectivity and content systems that societies rely on. They carry significant sustainability considerations: network energy use, e-waste, digital inclusion, privacy, and responsible content practices.

Examples of projects: 5G / fiber rollouts, satellite communications, broadcast facility upgrades, streaming platform launches, rural connectivity programs.

Stakeholder expectations: reliable access, data privacy and security, digital inclusion and accessibility, responsible content practices, and efficient, low carbon networks.

💡 **Glossary Callout: Digital inclusion** — equitable access to affordable, reliable connectivity and digital services, including accessibility for people with disabilities and underserved communities.

Materiality Hotspots (P5 Lens)

Product

- Lifecycle and end of life management of customer premises equipment (CPE), devices, and network hardware.
- Content distribution impacts (e.g., bandwidth intensity, compression standards).

Process

- Spectrum licensing and transparent procurement.
- Editorial and content governance, advertising transparency, and responsible marketing.
- Information security and incident response processes.

People

- Customer privacy and data protection.
- Digital inclusion and accessibility (affordability, universal design).
- Fieldworker health and safety (e.g., work at heights, electrical safety).

Planet

- Network energy intensity (RAN, core, data centers) and associated emissions.
- E-waste generation and certified recycling.
- Land use and habitat disturbance from towers and rights of way.

Prosperity

- Local economic value from connectivity and media ecosystems.
- Rural access and small business enablement.
- Resilience of critical communications during disasters.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

Capture baseline network energy intensity, e-waste streams, privacy risks, and access gaps; engage regulators, consumer groups, and affected communities.

Design/Planning – Material Topics Management Table

Commitments may include: energy efficiency targets (kWh/GB), certified e-waste recycling, privacy by design controls, accessibility conformance (WCAG), rural access milestones.

Delivery/Execution – Implementation & Monitoring

Track: energy per GB delivered, data privacy incidents, e-waste volumes and certified recyclers, accessibility features delivered, service availability in target geographies.

Closure – Verification Checklist

Evidence: renewable energy certificates or PPAs, ISO 27001/27701 attestations, recycler certificates, accessibility audits, coverage verification.

Post-Project Benefits Realization – Benefits Tracker

Outcomes: reduced energy intensity, increased affordable coverage, improved accessibility scores, verified declines in privacy incidents.

Disclosure Mapping

GRI: 302 (Energy), 305 (Emissions), 306 (Waste/e-waste), 403 (OHS), 418 (Customer Privacy), 413 (Communities).
SASB/ISSB: TCTL (Telecommunication Services), TCIM (Internet Media & Services).
TCFD/IFRS S2: Network resilience to physical climate risks; transition risks from decarbonizing data/traffic.

SDGs: 9 (Industry, Innovation, Infrastructure), 10 (Reduced Inequalities), 11 (Sustainable Cities), 16 (Strong Institutions).
Kunming-Montreal: Relevant where tower siting, ducts, and access roads affect habitats.

Agile AddIn for IMT Projects

- Treat privacy, accessibility, and energy efficiency requirements as **backlog items** with acceptance criteria.
- Update the SMP **each sprint** with privacy incidents, energy intensity, and inclusion metrics.
- Include **security, compliance, and accessibility** stakeholders in demos and retrospectives.

Case Example: National 5G & Rural Fiber Program

Context: A telecom operator expands 5G in cities and deploys fiber to rural communities.
Discovery: SMP Impact Register logs energy intensity baselines, e-waste sources, privacy risks, and rural coverage gaps.
Design: Commitments: 30% energy intensity reduction (kWh/GB), 100% certified e-waste recycling, privacy by design controls, universal design for apps, 95% rural homes passed.
Delivery: Monthly SMP updates on energy per GB, privacy events, equipment recycled, accessibility audits, and coverage.
Closure: Verification includes REC/PPAs, recycler certificates, WCAG conformance, independent coverage testing.
Benefits: After 18 months, energy intensity down 28%; 93% rural homes passed; zero major privacy incidents; accessibility score improved to AA.

Key Takeaways for IMT

- Energy intensity, e-waste, privacy, and inclusion are recurring material issues.
- Treat **privacy and accessibility** as first class requirements.
- SMP links network KPIs and content governance to credible disclosures.

5.13 Sector Module: Financial Services & Investment Projects

Financial services projects mobilize and direct capital. Their sustainability relevance lies in financing decisions, customer fairness, privacy, and the integrity of ESG claims — including taxonomy-aligned financing.
Examples of projects: green bond programs, sustainability-linked loans, lending platform modernization, climate-risk analytics, taxonomy-aligned investment funds.
Stakeholder expectations: fair and responsible finance, transparent ESG claims, privacy and data security, climate risk management, and social safeguards in financing.

💡 **Glossary Callout:** Taxonomy aligned financing — the share of investments or lending that meet the EU Taxonomy's substantial contribution, DNSH, and minimum safeguards criteria.

Materiality Hotspots (P5 Lens)

Product

- Integrity of green/sustainable financial products (use of proceeds, KPIs, verification).
- Customer outcomes (affordability, fair treatment).

Process

- Due diligence on environmental and human rights risks; anticorruption and conflict of interest controls.
- Governance of ESG data and claims (greenwashing risk).
- Model risk management for climate and credit analytics.

People

- Financial inclusion and access (underserved groups, SMEs).
- Customer privacy and data protection.
- Workforce conduct and incentive alignment.

Planet

- Financed emissions and exposure to high impact sectors.
- Positive allocation to climate and nature solutions.

Prosperity

- Capital allocation to resilient, inclusive growth.
- Community investment and just transition financing.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

Identify product integrity risks, customer fairness, privacy, taxonomy eligibility, and climate risk exposures; engage compliance, risk, and affected stakeholders.

Design/Planning – Material Topics Management Table

Commitments: taxonomy screening, DNSH checks, minimum safeguards, UoP tracking, external review/assurance, fair lending controls, privacy by design. Include checks for CSRD/ESRS E1–E5 alignment and CSDDD due diligence on financed activities.

Delivery/Execution – Implementation & Monitoring

Track: % taxonomy eligible/aligned financing, KPI performance for SL loans/bonds, customer outcomes (complaints, affordability), privacy incidents, exclusions applied.

Closure – Verification Checklist

Evidence: second party opinions, post issuance allocation/impact reports, assurance statements, fair lending audits, privacy certifications.

Post-Project Benefits Realization – Benefits Tracker

Outcomes: verified impacts (e.g., tCO_2e avoided, affordable finance access), % aligned financing, portfolio risk shifts.

Disclosure Mapping

GRI: 201 (Economic Performance), 205 (Anticorruption), 206 (Anti-competitive behavior), 418 (Customer Privacy), 413 (Communities).
SASB/ISSB: FNBF (Commercial Banks), FNAC (Asset Mgmt. & Custody), FNIB (Investment Banking & Brokerage).
TCFD/IFRS S2: Governance, strategy, and metrics for climate risk; financed emissions methodologies and targets.
SDGs: 8 (Decent Work & Growth), 9 (Industry/Innovation), 10 (Reduced Inequalities), 13 (Climate Action).
Kunming-Montreal: Financing for nature positive outcomes; safeguards for biodiversity impacts.

Agile AddIn for Financial Services Projects

- Define **ESG data quality** and **taxonomy checks** as backlog items with DoD (definition of done).
- Sprint reviews include **risk/compliance** sign offs on product claims and disclosures.
- SMP updated quarterly with **allocation, impact, and assurance** metrics.

Case Example: TaxonomyAligned Green Bond Program

Context: A bank issues a multiyear green bond program to fund renewable energy and building retrofits.
Discovery: SMP identifies taxonomy eligibility, DNSH, minimum safeguards, UoP controls, and privacy risks in investor reporting.
Design: Commitments: taxonomy screening, external SPO, allocation and impact KPIs, post issuance assurance, fair lending screening.
Delivery: Track allocations, KPI progress (MWh saved, tCO_2e avoided), customer outcomes, and privacy controls for investor data.
Closure: Verification includes assured allocation/impact reports and SPO alignment opinions.
Benefits: After 24 months, 82% allocation achieved; 310,000 MWh/yr saved; 120,000 tCO_2e/yr avoided; zero substantiated greenwashing complaints.

Key Takeaways for Financial Services & Investment

- Product integrity, privacy, and **taxonomy alignment** are the core material issues.
- SMP provides a clear chain of custody from origination → monitoring → reporting → assurance.
- Treat ESG data quality as a **control problem**, not only a marketing claim.
- Project-level data supports **CSRD/ESRS E1/S1** disclosures for EU-based firms

5.14 Sector Module: Digital Transformation & Artificial Intelligence (AI)

Digital transformation and AI projects change how organizations operate and how people experience services. Materiality spans energy use, privacy, algorithmic fairness, workforce impacts, and governance of high-risk systems.
Examples of projects: enterprise data platforms, RPA/automation, predictive analytics, computer vision, recommendation engines, generative-AI assistants.
Stakeholder expectations: privacy and security, explainability and fairness, human oversight, accessible and inclusive design, workforce impacts managed responsibly.

💡 **Glossary Callout: Algorithmic bias** — systematic and unfair outcomes produced by data or models that disadvantage individuals or groups (e.g., by race, gender, disability).

Materiality Hotspots (P5 Lens)

Product

- Model quality, safety, and explainability; customer harms from faulty outputs.
- Lifecycle of models and datasets (versioning, decommissioning).

Process

- AI governance and model risk management (policies, gates, red-teaming).
- Data governance (quality, lineage, minimization, consent).
- Vendor oversight for third-party models and APIs.

People

- Workforce transition (re-skilling, job redesign), fairness and non-discrimination for affected stakeholders.
- Privacy and surveillance risks; psychosocial risks (e.g., content moderation).

Planet

- Compute energy and emissions; water use in data center cooling.
- Hardware lifecycle and e-waste from accelerated upgrade cycles.

Prosperity

- Productivity and innovation gains vs. operational and liability risks.
- Access and affordability of AI enabled services.

Lifecycle Guidance (SMP Lens)

Discovery/Planning – Impact Register

Identify privacy/fairness risks, workforce impacts, compute footprint, vendor dependencies; engage legal, ethics, HR, security, and affected users.

Design/Planning – Material Topics Management Table

Commitments: privacy by design, bias testing and explainability thresholds, human in the loop controls, red-team exercises, energy efficiency targets, responsible-AI policy conformance.

Delivery/Execution – Implementation & Monitoring

Track: privacy incidents, bias test results by cohort, model performance drift, human override rates, energy use per inference/training, vendor compliance.

Closure – Verification Checklist

Evidence: model cards and data sheets, security/privacy assessments, audit trails, red team reports, energy/ emissions records, retirement plans for models.

Post-Project Benefits Realization – Benefits Tracker

Outcomes: validated productivity or service-quality gains, reduced error rates, stable fairness metrics, reduced energy intensity over time, re-skilling outcomes.

Disclosure Mapping

GRI: 302 (Energy), 305 (Emissions), 403 (OHS — psychosocial risks where relevant), 418 (Customer Privacy), 419 (Socioeconomic compliance).
SASB/ISSB: TC-SI (Software & IT Services), TC-IM (Internet Media & Services).
TCFD/IFRS S2: Energy use and transition risks for compute; resilience of digital operations to climate events.
SDGs: 8 (Decent Work), 9 (Industry, Innovation), 10 (Reduced Inequalities), 16 (Strong Institutions).
Kunming-Montreal: Typically indirect; relevant where data center siting and expansion affect habitats.

Agile AddIn for Digital & AI Projects

- Treat **privacy, fairness, and explainability** as **nonfunctional requirements** with testable acceptance criteria.
- Include **ethics and security** stakeholders in backlog refinement and sprint reviews.
- Update the SMP with **bias, privacy, and energy** metrics at each release.

Case Example: GenerativeAI Assistant for Customer Support

Context: A services company deploys a generativeAI assistant to support agents and customers.
Discovery: SMP logs privacy risks, bias in training data, compute footprint, and workforce transition impacts.
Design: Commitments: PII minimization, prompt and output filtering, human in the loop on sensitive workflows, monthly bias testing, energy efficiency targets, re-skilling for agents.
Delivery: Monitor privacy incidents, override rates, bias metrics, latency/energy per request, user satisfaction, and training completion.
Closure: Verification includes model cards, privacy/security assessments, bias test reports, and energy metrics; retiring the pilot model with an archival plan.
Benefits: After 9 months: 18% faster resolution, 22% reduction in escalations, stable bias metrics across core cohorts, 17% drop in energy per request, 85% of agents up-skilled.

Key Takeaways for Digital Transformation & AI

- **Privacy, fairness, and energy** are the recurring material issues.
- Human in the loop and **governance gates** convert principles into practice.
- SMP provides a single place to track model risk, workforce impacts, and efficiency gains end-to-end.
- Project-level data supports **CSRD/ESRS E1/S1** disclosures for EU-based firms

Part 6. Crosscutting Topics

Projects differ in scope, scale, and industry, but some sustainability topics appear everywhere. Whether building an app, a hospital, a highway, or a mine, issues like **climate, equity, biodiversity, and governance** are almost always relevant. When managing cross-cutting topics, project teams must also consider **organizational impact thresholds**. Many companies already determine thresholds for when an impact becomes *significant enough* to disclose under frameworks like GRI. To align with this, project teams may need to **consult with corporate sustainability functions** to understand:

- Which impacts are already considered material at the organizational level.
- What thresholds (quantitative or qualitative) define significance.
- How project-level data should be captured to roll up into corporate reporting.

💡 **Glossary Callout**: *Impact threshold* — the level (scale, scope, severity, or frequency) at which an impact is considered significant enough to report.

6.1 Climate & Energy

Climate and energy are always high on organizational agendas and represents the most extensively researched sustainability threshold. A single project's emissions may seem small but, when aggregated, can push a company beyond its reduction targets.
We know:

- **The ceiling:** 1.5°C warming limit (Paris Agreement) to avoid catastrophic tipping points
- **The budget:** Remaining carbon budget (~300-400 $GtCO_2$ from the start of 2020 for a 67% chance of limiting warming to 1.5°C. and down to 130 billion tons, from the beginning of 2025, IPCC AR6)
- **The allocation:** Each entity's fair share based on contribution to global economy

Yet **most climate commitments remain incremental:** Reduce emissions by 30% by 2030" without reference to whether 30% is sufficient relative to 1.5°C pathways.

In the SMP: capture baseline emissions, set renewable/efficiency commitments, and confirm alignment with the organization's science-based targets.

Thresholds: Check with corporate sustainability on how emissions are consolidated — e.g., organizational threshold may be ">1,000 tCO_2e annually" or "all Scope 1 emissions are significant.

This section provides context-based climate accounting for projects.

The Mono-capitalist Trap in Climate Reporting

Traditional project carbon accounting focuses on **intensity metrics**:

- Emissions per revenue (tCO_2e/$M)
- Emissions per unit produced (tCO_2e/widget)
- Emissions per square foot (tCO_2e/ft^2)

Problem: Intensity improvements can occur while absolute emissions grow. A company can reduce carbon intensity by 40% while emissions increase 20% due to revenue growth. From a mono-capitalist view, this is "success" (more profit per ton carbon). From a climate stability view, it's failure—**the atmosphere responds to absolute emissions, not intensity.**

Context-based climate accounting measures absolute emissions against absolute thresholds.

Calculating Fair Carbon Allocation (N) for Projects

Three primary methodologies (select most appropriate for project context):

1. Science-Based Targets Initiative (SBTi) Sectoral Pathway

- **Best for:** Projects in sectors with established SBTi pathways (e.g., buildings, transport, manufacturing)
- **Methodology:** SBTi provides 1.5°C-aligned decarbonization trajectories by sector. Projects adopt pathway target for their baseline year.
- **Example:** Construction project in 2025 adopts SBTi Buildings pathway: 50% reduction from 2020 baseline by 2030 (absolute)
- **Strengths:** Grounded in climate science, sector-specific, widely recognized
- **Limitations:** Not all sectors have pathways; requires organizational-level SBTi commitment

2. GDP-Proportional Allocation (Economic Responsibility)

- **Best for:** Projects with clear revenue/GDP contribution; corporate or profit-generating projects
- **Methodology:** N (fair allocation) = Remaining global carbon budget × (Project GDP contribution / Global GDP)

Adjusted annually as budget declines (per IPCC updates)

- **Example:** Manufacturing project contributing $500M to global GDP (~0.0005% of $100T global GDP). Fair allocation = 130 billion tonnes CO_2 remaining × 0.0005% × (project lifespan/remaining years to net-zero) = [calculated value]
- **Strengths:** Equity-sensitive (those with larger economic footprint bear larger responsibility)
- **Limitations:** Requires GDP attribution (complex for multi-national supply chains)

3. Population-Proportional Allocation (Equity-Based)

- **Best for:** Public sector projects, nonprofit, community-scale projects without clear GDP attribution
- **Methodology:**
- **N (fair allocation)** = Global per capita carbon budget × Project FTE equivalents Per capita budget = Remaining global budget / Global population / Years to net-zero
- **Example:** Public infrastructure project employing 200 FTE-equivalents over 5 years. Global per capita budget ≈ 2 tCO_2e/person/year (declining). Fair allocation = 200 × 2 × 5 = 2,000 tCO_2e (project lifecycle)
- **Strengths:** Simple, aligns with equity principles (equal per-person allocation)
- **Limitations:** May not reflect economic activity's outsized carbon footprint

Hybrid Approach (Recommended for Most Projects): Use SBTi pathway where available, supplemented by GDP-proportional for Scope 3 or where SBTi lacks coverage.

Sustainability Quotient for Carbon: $S_{(env)} = A / N$

Once N is determined, calculate:

$S_{(env)}$ = (Actual Scope 1+2+3 emissions) / (Fair carbon allocation)

Interpret:

$S_{(env)} > 1.0$ = Unsustainable (overshooting fair allocation, contributing to >1.5°C)

$S_{(env)} = 1.0$ = Threshold (at fair allocation limit, barely sustainable)

$S_{(env)} < 1.0$ = Regenerative (undershooting allocation, enabling others to emit more OR contributing to drawdown)

Scope Boundaries: All Three Scopes Matter

Critical requirement for Level 2+: Projects must measure and report Scope 1, 2, **and** 3.

Scope	Definition	Why It Matters	Typical % of Total
Scope 1	Direct emissions (combustion, process)	Under project control	10-30%
Scope 2	Purchased energy (electricity, heat)	Moderately controllable (procurement)	20-40%
Scope 3	Value chain (supply, transport, use, disposal)	**Largest by far**; often ignored	40-70%

Table 14 Scope Boundaries

Why Scope 3 cannot be optional: A project that achieves S ≤ 1.0 for Scope 1+2 while ignoring Scope 3 has **not achieved sustainability**, it has merely shifted emissions to suppliers or users. This is carbon accounting theater.

Example: Electronics Manufacturing

- Scope 1+2: 5,000 tCO_2e (factory operations)
- Scope 3 upstream: 25,000 tCO_2e (raw materials, components)
- Scope 3 downstream: 15,000 tCO_2e (product use phase, disposal)
- **Total:** 45,000 tCO_2e

If the project reports only Scope 1+2 and claims "$S_{(env)}$ = 0.8 (sustainable!)", it is misleading—true $S_{(env)}$ = 45,000 / 5,500 = **8.2** (720% unsustainable).

Level 2 Minimum for Scope 3:

- **Year 1:** Estimate Scope 3 using industry proxies (e.g., Quantis database, EPA EEIO)
- **Year 2:** Measure Tier 1 supplier emissions directly
- **Year 3:** Expand to Tier 2-3 where material
- **Ongoing:** Engage suppliers to reduce their emissions, improving project's total S value

Climate Targets Across Maturity Levels

Level 1 (Incremental) Example: Reduce Scope 1+2 emissions by 40% from 2022 baseline by 2030. Increase renewable energy procurement from 15% to 60%.

- **Problem:** Does not disclose whether 40% is sufficient. May achieve S = 1.6 (still 60% unsustainable).

Level 2 (Context-Based) Example:

Current carbon $S_{(env)}$ = 2.1 (emissions 110% above 1.5°C-aligned fair allocation). We commit to:

- **2028:** $S_{(env)}$ ≤ 1.5 (50% gap closure) via energy efficiency (15% reduction), renewable procurement (25%), supplier engagement (10%)
- **2032:** $S_{(env)}$ ≤ 1.0 (100% gap closure, sustainable threshold) via full value chain decarbonization
- **Scope 3:** Measured annually for Tier 1-2 suppliers (60% of footprint). Supplier SBT adoption required for new contracts >$1M. Methodology validated by [SBTi partner]. Reported annually with trajectory analysis.
- **Strength:** Transparent about gap, science-based, includes Scope 3, credible pathway.

Level 3 (Regenerative) Example:
Current carbon $S_{(env)}$ = 0.6 (40% below fair allocation). We achieved this through:

- **Operations:** 100% renewable energy + efficiency → Scope 1+2 near-zero
- **Supply chain:** 80% of suppliers have SBT commitments, reducing Scope 3 by 60%
- **Sequestration:** 5,000 tCO_2e/year permanent carbon removal via biochar + reforestation partnerships, verified by [third-party]

We are net-carbon-negative, enabling other actors to remain slightly above $S_{(env)}$ = 1.0 while global budget is preserved. Our surplus allocation ($S_{(env)}$ = 0.6 vs. 1.0) supports community solar projects in underserved regions.

- **Strength:** Not just "net-zero" (which can be achieved with offsets of dubious quality), but genuinely regenerative with verified drawdown + equitable surplus reallocation.

Organizational Impact Thresholds: When Are Carbon Emissions Material?
For Corporate Reporting Alignment: Organizations typically define carbon materiality as:

- **All Scope 1+2 emissions** (no threshold; always disclosed)
- **Scope 3 categories >5% of total footprint** (most organizations)
- **Any emissions source >10,000 tCO_2e annually** (CARB, SEC thresholds)
- **All emissions in jurisdictions with carbon pricing** (EU ETS, California cap-and-trade)

Projects should consult corporate sustainability teams to understand organizational thresholds. A project emitting 8,000 tCO_2e may be "small" in absolute terms but **highly material** if:

- It pushes organizational total above regulatory threshold
- It's in a sector with tight SBT pathway (e.g., steel, cement)
- It operates in a region with carbon pricing ($50-100/$tCO_2e$)

Threshold proximity matters more than absolute magnitude. A 1,000 tCO_2e project at $S_{(env)}$ = 5.0 is more urgent than a 10,000 tCO_2e project at $S_{(env)}$ = 1.1.

6.2 Water & Waste

Water withdrawal and waste are nearly universal impacts. Even if a project's use is small, it may occur in a **water-stressed basin** where corporate thresholds define *any use* as material.
In the SMP: record water/waste data, set treatment/diversion commitments, and verify via audits.
Thresholds: Confirm with corporate sustainability whether impacts are location-based (e.g., "all operations in stressed basins are material").

6.3 Affordability & Access

Access and affordability can shape an organization's license to operate. A project's pricing or access decisions may be small in scope but can impact corporate equity commitments.
In the SMP: document affordability measures, track usage across groups.
Thresholds: Check whether the organization has defined "universal access" or "no more than X% of customers excluded" as thresholds.

6.4 Biodiversity & Ecosystems

Biodiversity thresholds are increasingly strict: companies may adopt **no net loss** or **net-gain** policies. Projects must align.
In the SMP: capture baselines, set offset ratios, track recovery.
Thresholds: Confirm whether the company has set organizational biodiversity commitments (e.g., "restore 120% of impacted habitats").

6.5 Community Rights & Engagement

Community engagement thresholds often focus on **sensitive groups** (Indigenous Peoples, vulnerable populations). Even small projects may trigger mandatory corporate disclosure.
In the SMP: record FPIC processes, grievance mechanisms, and consultations.
Thresholds: Check if corporate policy states, "all projects with Indigenous Peoples must be disclosed."

6.6 Responsible Sourcing & Procurement

Supply chain thresholds may apply universally (e.g., *all suppliers must meet a Code of Conduct*). Even low-value procurement in a project must comply.
In the SMP: include supplier requirements and audits.
Thresholds: Check if thresholds are categorical (e.g., "all sourcing of palm oil is material" regardless of quantity).

6.7 Human Capital & Workforce

OHS, diversity, and inclusion often have **zero-tolerance thresholds** (e.g., *all fatalities must be disclosed*). Projects must align.
In the SMP: commitments for OHS, DEI, and workforce training.
Thresholds: Confirm with corporate sustainability what triggers organizational disclosure (e.g., "all recordable incidents" or "diversity metrics by site").

6.8 Innovation & Product Responsibility

Organizational commitments often focus on product safety or responsible innovation. Even a pilot project that tests new AI tools may exceed thresholds.
In the SMP: commitments to eco-design, responsible AI, safety monitoring.
Thresholds: Confirm whether corporate standards say, "all projects involving new tech must include ethical review."

6.9 Digital Responsibility

Privacy and data security are increasingly zero-tolerance issues: *any data breach is material*.
In the SMP: capture privacy and cybersecurity commitments.
Thresholds: Confirm with corporate whether thresholds are "all breaches" or only those above a certain number of records.

6.10 Governance & Advocacy

Corruption and lobbying thresholds are typically **zero tolerance**. A single case can be material.
In the SMP: anti-corruption commitments, lobbying disclosures.
Thresholds: Confirm corporate definitions (e.g., "all legal cases involving corruption are disclosed").

6.11 Positive Impacts

Some companies define thresholds for avoided emissions, social ROI, or biodiversity gains to be counted in reporting. Projects aiming for net-positive must measure consistently.
In the SMP: record positive impact commitments and results.
Thresholds: Check corporate sustainability on definitions (e.g., "positive impacts must exceed baseline by at least 20% to count").

Key Takeaways for Part 6

- Cross-cutting topics apply in **all projects**.
- Project teams must consult with **corporate sustainability** to understand **impact thresholds** for disclosure.
- The SMP provides a consistent place to record and verify these commitments.
- Net-positive framing emphasizes **value creation beyond compliance**.

6.12 Sufficiency, Degrowth, and the Boundaries of Growth

Context-based sustainability forces an uncomfortable question: Is the project's economic model compatible with ecological and social boundaries, or does it assume infinite growth on a finite planet?
This section is relevant primarily for **Level 3 (Regenerative)** projects, but **Level 2 projects should be aware** of these considerations when setting long-term strategies.
The Growth Puzzle in Sustainability
Scenario: A renewable energy project achieves $S_{(env)} \leq 1.0$ for carbon, water, and materials. It appears sustainable. But:

- The project is designed to enable 5% annual energy consumption growth in a high-income region where per capita consumption is already 10x global average
- Energy is directed toward luxury consumption (mansions, private jets, cryptocurrency mining) rather than sufficiency needs (heating, food, healthcare)
- The business model requires perpetual expansion to maintain investor returns

Question: Is this sustainable?
Context-based answer: The project is **threshold-compliant** ($S_{(env)} \leq 1.0$ for its direct impacts) but **systemically unsustainable** if it enables resource overconsumption elsewhere or reinforces growth-dependent economics incompatible with planetary boundaries.

Sufficiency Principles
Sufficiency asks: How much is enough? It distinguishes between:

- **Needs:** Basic requirements for well-being (nutrition, shelter, healthcare, education, mobility, social connection)
- **Wants:** Consumption beyond sufficiency (luxury goods, status symbols, wasteful practices)

Projects aligned with sufficiency:

- Prioritize enabling universal access to needs over expanding wants
- Design for stable throughput, not perpetual expansion
- Distribute benefits equitably (narrowing inequality) rather than concentrating them

Examples:

- **Sufficiency-aligned:** Affordable housing project designed for energy-efficient, adequate-size dwellings (no McMansions)
- **Sufficiency-misaligned:** Luxury resort expansion project enabling unsustainable tourism consumption patterns

Degrowth in High-Income Contexts

Degrowth is not about "shrinking the economy" everywhere. It is about **selective contraction** of environmentally destructive and socially unnecessary production in regions with consumption far above sufficiency thresholds.

Key Principles:

1. **Not for low-income regions:** Degrowth applies in high-income, high-consumption contexts (OECD, Gulf states). Low-income regions require *development* to meet basic needs.
2. **Sector-specific:** Some sectors must degrow (fossil fuels, private aviation, fast fashion, industrial meat). Others must grow (renewables, healthcare, education, repair services).
3. **Equity-centered:** Degrowth is paired with redistribution where consumption by wealthy declines while access for poor improves.

Relevance for Projects:

- **Level 3 projects in high-income regions should assess:** Does this project enable/require perpetual growth, or is it compatible with steady-state or selective degrowth?
- **Example questions:**
    - Is the project designed for **sufficiency-based demand** or **growth-based demand**?
    - Does the project's business model require 5%+ annual expansion, or can it succeed at stable/declining throughput?
    - Who benefits? Are gains distributed equitably, or concentrated among already-wealthy?

Metrics for Sufficiency Alignment (Level 3)

1. Decoupling Ratio

Decoupling Ratio = (% change in value/service delivered) / (% change in resource throughput)

Interpret:

Ratio > 1.5 = Relative decoupling (value grows faster than resource use, but resources still growing)

Ratio > 1.5 AND absolute resource decline = Absolute decoupling (ideal)

Example: Digital services project increases user base by 40% while reducing server energy by 10%. Decoupling ratio = 1.4 / -0.1 = strong decoupling.

2. Sufficiency-Based Demand Profile

% of project output serving basic needs (UN SDG targets for universal access) vs. % serving luxury/wasteful consumption

Example: Energy project reports: 85% of electricity serves residential, healthcare, education (sufficiency). 10% serves commercial. 5% serves luxury resorts, cryptocurrency mining (non-sufficiency).

3. Distributional Equity

Gini coefficient of benefit distribution (0 = perfect equality, 1 = perfect inequality)

Example: Community solar project reports Gini = 0.25 (low inequality) because 60% of capacity serves low-income households at subsidized rates.

4. Resilience to Zero/Negative Growth

Business model viability test: Can the project maintain financial sustainability if throughput declines 10-20%?

Example: Repair café social enterprise reports: Our revenue model is fee-for-service, not growth-dependent. We remain viable at zero growth or 20% contraction in repair volumes.

When Degrowth Considerations Apply

Level 3 projects should consider degrowth alignment if:

1. **Sector is ecologically destructive:** Fossil fuels, mining, industrial agriculture, aviation, luxury goods
2. **Geography is high-consumption:** OECD, Gulf states (consumption >>global average)
3. **Demand is wants-driven, not needs-driven:** Serving luxury, status, or wasteful markets
4. **Business model requires perpetual expansion:** Investor returns predicated on 5%+ annual growth

Projects in these categories should assess:

- Can we transition toward sufficiency-based models?
- Can we redirect capacity toward underserved populations (needs) rather than oversaturated markets (wants)?
- Can we adopt stable/declining throughput business models (e.g., long product lifespans, repair over replacement)?

Example: Fashion Industry Project

Approach	Description	Degrowth Alignment
Fast Fashion	New clothing lines every 2 weeks, planned obsolescence, high-volume low-quality	❌Unsustainable (perpetual growth, wasteful consumption)
Sustainable Fashion	Organic materials, fair labor, recycling programs	⚠️ Better, but still growth-dependent (need constant new sales)
Degrowth Fashion	Repair services, clothing libraries, long-life designs, zero planned obsolescence, stable/declining production	✅ Aligned with sufficiency (prioritizes longevity over volume)

Table 15. Example: Fashion Industry Project

Only the third model is compatible with planetary boundaries in high-income regions.

Communicating Degrowth (for Level 3 Projects)

Degrowth is politically fraught. Alternative framing:

- **Sufficiency-based development:** (emphasizes needs over wants)
- **Steady-state economics:** (stable throughput, not perpetual expansion)
- **Post-growth resilience:** (financial viability without growth dependency)
- **Selective contraction:** (shrinking harmful sectors while expanding beneficial ones)

Example Reporting (Level 3 Manufacturing Project):

We have transitioned from a growth-dependent revenue model (requiring 8% annual production increases) to a sufficiency-based model focused on product longevity and repair. Our products are designed for 15+ year lifespans with modular upgradability. We generate revenue from long-term service contracts, not planned obsolescence. Our financial projections assume **zero production growth** over the next decade, which we view as ecological success rather than business failure. We are profitable at stable throughput and resilient to declining demand.

Important Caveats

Degrowth is NOT:

- Austerity (forced contraction via budget cuts)
- Poverty (reduction in well-being)
- Universal (applies in high-consumption regions, not low-income regions)

Degrowth Is:

- Planned, equitable reduction of ecologically destructive production
- Paired with redistribution (narrowing inequality)
- Sector-specific (fossil fuels shrink; renewables, care work, repair services grow)
- Compatible with high quality of life (sufficiency ≠ deprivation)

Projects should engage degrowth considerations cautiously and contextually. In many cases, achieving $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$ (Level 2) is the priority before contemplating systemic economic model shifts (Level 3).

Part 7. Tools & Templates

The **Sustainability Management Plan (SMP)** has been the cornerstone of GPM's approach for over 15 years. The current template (v3.0) provides a clear framework: purpose, approach, roles, budgeting, thresholds, KPIs, reviews, and the P5 Impact Analysis (P5IA).

This Guide does not replace the SMP template — it **builds on it**. The SMP remains the central gathering point for sustainability in projects. What changes is:

- **Each SMP should be tailored** to the project type and sector (see Part 5).
- **Each SMP must explicitly link P5 to materiality** (see Parts 2–4).
- **Impact thresholds must be aligned with corporate reporting** (see Part 6).
- **SMP data should be disclosure-ready** for GRI, ISSB, TCFD, SDGs, and Kunming-Montreal.

Reporting principles (quality of information): Apply Accuracy, Balance, Clarity, Comparability, Completeness, Sustainability context, Timeliness, Verifiability when preparing project data that will feed into sustainability reports and ESG disclosures. Document methods, estimates, and limitations.

7.1 Purpose

The SMP's purpose is to help project teams manage projects sustainably.

- **In practice**: Projects should explicitly state that the SMP is their **bridge between project-level impacts and organizational sustainability reporting**.
- **P5 tie-in**: Purpose should acknowledge all five dimensions — Product, Process, People, Planet, Prosperity.
- **Materiality upgrade**: Clarify that the SMP will support identification, prioritization, and management of *material topics* (GRI **3–1** to **3–3**).

7.2 Approach

The SMP approach outlines how sustainability will be planned, tracked, and updated.

- **In practice**: State that impacts will be identified through the P5IA, reviewed regularly in meetings, and updated across lifecycle phases.
- **P5 tie-in**: Explicitly reference that P5 provides the "impact inventory" lens.
- **Materiality upgrade**: Add that the approach includes applying the materiality test (stakeholder significance + financial relevance).
- **Thresholds**: Document that the team will consult with **corporate sustainability** to apply organizational thresholds.

7.3 Roles & Responsibilities

The SMP template defines responsibilities for the project manager, project team, and sustainability impact owners.

- **In practice**: Clarify who is responsible for:
    - Maintaining the Impact Register (Discovery).
    - Updating the Material Topics Table (Design).
    - Recording progress in Implementation & Monitoring (Delivery).
    - Completing the Verification Checklist (Closure).
    - Updating the Benefits Tracker (Post-Project Realization).
- **P5 tie-in**: Assign sustainability impact owners by P5 category (e.g., Planet → Environmental Manager; People → HR/OHS Manager).

- **Materiality upgrade**: Specify that owners are accountable for aligning commitments to reporting frameworks.

7.4 Budget

The SMP template requires budgets for the P5IA, ongoing monitoring, and responses to sustainability impacts.

- **In practice**: Budgets should explicitly fund **material topics** and **threshold-based impacts** flagged as significant.
- **P5 tie-in**: Link funding lines to P5 elements (e.g., Planet → biodiversity offsets; People → community engagement).
- **Materiality upgrade**: Ensure that funded responses are traceable to GRI/ISSB disclosures.

7.5 Response Selection & Tracking

The SMP template already calls for tracking responses to negative impacts identified in the P5IA.

- **In practice**: Expand this into the **Impact Register + Material Topics Management Table** (as introduced in this Guide).
- **P5 tie-in**: Ensure every response is linked to a P5 element and impact score.
- **Materiality upgrade**: Responses must document whether they meet organizational thresholds for disclosure.

7.6 Sustainability Impact Thresholds

The SMP template includes a section on consulting the sustainability office to identify thresholds.

- **In practice**: Elevate this to a **mandatory requirement** — thresholds define when a project impact must be escalated to corporate sustainability reporting.
- **Examples**:
    - All fatalities (People → OHS) are material, regardless of scale.
    - Any operations in water-stressed basins (Planet → Water) are material.
    - All projects affecting Indigenous Peoples (People → Rights) are material.
- **Materiality upgrade**: Thresholds are recorded in the Impact Register and carried through to the Material Topics Table.

7.7 Key Performance Indicators (KPIs)

The SMP template specifies 3–10 KPIs aligned with P5.

- **In practice**: KPIs should always be P5-aligned and mapped to disclosure frameworks.
- **Examples**:
    - Planet → GHG emissions reduced (GRI 305, TCFD).
    - People → % local hiring, injury rates (GRI 403, SDG 8).
    - Prosperity → SROI delivered (GRI 201, SDG 10).
- **Materiality upgrade**: Select KPIs that reflect material topics from the SMP.

7.8 Reviews & Reporting

The SMP template requires regular sustainability reviews and reporting.

- **In practice**: Reviews should align with lifecycle gates (or Agile sprints).
- **P5 tie-in**: Reports should summarize performance by P5 dimension.
- **Materiality upgrade**: Reports should map project data to GRI, ISSB, and TCFD disclosures, ensuring the project feeds organizational reporting seamlessly.7.9 P5 Impact Analysis (P5IA)

The SMP template includes a full P5IA spreadsheet.

- **In practice**: P5IA is the entry point to the SMP, feeding directly into the Impact Register.
- **Materiality upgrade**: This Guide adds the **Materiality Test** step to filter P5IA results into material topics.
- **Thresholds**: The P5IA should flag impacts that exceed corporate thresholds for automatic escalation.

Key Takeaways for Part 7

- The SMP template (v3.0) is **retained as the foundation**.
- This Guide **enhances it** with:
    - P5-to-materiality integration.
    - Organizational thresholds as disclosure triggers.
    - Lifecycle tools (Impact Register, Topics Table, Verification Checklist, Benefits Tracker).
- Each SMP should be **tailored to project type and sector** — but the structure remains consistent.
- The result: SMPs are **continuity tools** that are also **future-ready for global disclosures**.

Part 8. Conclusion: From Better to Sustainable to Regenerative

8.1 What's New?

This Guide has introduced a paradigm shift in how projects approach sustainability:
From: Mono-capitalist incrementalism → Reporting relative improvements in financial optimization with environmental/ social add-ons
To: Multi-Capitalist context-based sustainability → Measuring performance against carrying capacity thresholds across all vital capitals
To: Regenerative transformation → Actively restoring depleted capitals and contributing to social-ecological healing

The Core Insights
1. Better ≠ Sustainable

- A project can reduce emissions by 30%, improve efficiency by 40%, and still be fundamentally unsustainable if it exceeds carrying capacity thresholds
- **Incremental improvement** is directional progress; **context-based sustainability** ($S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$) is the destination

2. All Capitals Matter

- Projects inevitably affect natural, human, social, constructed, and economic capitals
- **Mono-capitalism** optimizes financial returns while externalizing costs onto other capitals
- **Multi-capitalism** stewarded through CBS ensures no capital is sacrificed for another

3. Honesty Enables Progress

- Transparent reporting at Level 1 (incremental) with acknowledgment of limitations is **more valuable** than inflated claims of "sustainability" without thresholds
- Organizations build trust by stating: "We are at $S_{(env)} = 2.3$ and committed to $S_{(env)} \leq 1.0$ by [date]" rather than hiding behind vague "eco-friendly" rhetoric

4. Maturity Frameworks Prevent Paralysis

- Not every project can achieve Level 3 regeneration immediately
- **Clear maturity levels** provide a pathway: Level 1 (build capacity) → Level 2 (align with thresholds) → Level 3 (regenerate)
- **Premature leaps fail**; incremental progression succeeds

5. Projects Are Leverage Points

- Organizations make commitments; **projects deliver them** (or don't)
- By embedding context-based sustainability in project management, this Guide positions millions of project professionals as **stewards of transformation**, not just efficiency optimizers

8.2 Implications for Project Professionals

You are not asked to become sustainability experts overnight. You are asked to:

1. **Acknowledge what you don't know:** "We haven't calculated our water Sustainability Quotient yet" is honest and actionable
2. **Use the tools provided:** P5IA → Impact Register → Materiality Test → (for Level 2+) Threshold Research → S = A/N → Transparent Reporting
3. **Progress incrementally:** Start at Level 1, build toward Level 2, aspire to Level 3
4. **Redefine success:** Not just on-time/on-budget, but **on-time/on-budget/within-thresholds**
5. **Be the bridge:** Translate organizational sustainability commitments into operational reality through rigorous project delivery

The alternative—continuing to optimize projects within mono-capitalist, incrementalist frameworks—virtually guarantees sustainability efforts will fall short. Planetary boundaries do not negotiate; carrying capacities do not respond to quarterly earnings targets.

Context-based project management offers a path toward authentic sustainability, not just "less bad."

8.3 Implementation Roadmap

Phase 1: Awareness

- All project teams trained on **"better vs. sustainable"** distinction
- P5IA + SMP implemented at Level 1 baseline (incremental)
- Maturity self-assessment completed for each project

Phase 2: Capacity Building

- 2-3 priority projects pilot **Level 2 context-based assessment** (start with carbon, water, wages)
- Threshold research methodologies developed (partner with CSO, UNRISD, SBTi, regional authorities)
- Data systems upgraded for 5-year trend tracking
- Third-party assurance partnerships established

Phase 3: Scaling

- All major projects (>$10M, >2 years duration) implement **Level 2 assessment** for top 3-5 material impacts
- Smaller projects remain Level 1 with transparent acknowledgment

- Organizational thresholds aligned across project portfolio
- Public reporting includes maturity level declarations

Phase 4: Transformation

- Portfolio-level analysis: What % of projects are at $S_{(env)} \leq 1.0$ for carbon, water, biodiversity, and $S_{(non\text{-}env)} \geq 1.0$ for equity?
- Pilot **Level 3 regenerative projects** in priority sectors (e.g., ecosystem restoration, circular economy, community wealth-building)
- Systemic advocacy: Influence industry standards, regulatory frameworks, investor expectations toward context-based norms
- Open-source contribution: Share threshold methodologies, lessons learned, case studies

8.4 A Call to Stewardship

Project professionals are uniquely positioned to bridge the gap between sustainability commitments and transformative outcomes. You work at the interface where strategy meets reality, where decisions have tangible impacts on people and ecosystems.

This Guide provides the tools. What remains is the courage to use them—to measure honestly, report transparently, and acknowledge when "better" is not yet "sustainable".

The journey from incremental to context-based to regenerative is long. But every project that transparently declares, "We are at $S_{(env)} = 1.8$ and committed to $S_{(env)} \leq 1.0$," moves the profession forward. Every project that achieves $S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$ demonstrates feasibility. Every project that reaches $S_{(env)} < 1.0$ and $S_{(non\text{-}env)} > 1.0$ contributes to healing.

You are the stewards of transformation. The planet, affected communities, and future generations are counting on you to be honest about where we are and rigorous about where we must go.
Welcome to context-based sustainability. Welcome to Multi-Capitalist project management. Welcome to regeneration.

Part 9. Annexes

Annex A: Mapping of the SMP to PMBOK® 8 Performance Domains

The mapping in this annex illustrates how the **Sustainability Management Plan (SMP)** maps directly to the **performance domains** in PMI's *PMBOK® Guide, 8th Edition (2025)*.
Although PMI no longer prescribes strict "phases," the PMBOK 8 performance domains provide a flexible framework that applies across predictive, adaptive, and hybrid delivery approaches. The SMP builds on this by offering a **structured sustainability overlay**: each SMP section aligns with one or more performance domains, ensuring that sustainability is not managed as a separate activity but integrated into the project's core practices.

- **Stakeholders & Planning** are addressed in the SMP through the Impact Register and Materiality Matrix, ensuring sustainability is part of early engagement and planning.
- **Delivery & Project Work** are reflected in the Implementation & Monitoring Section, where progress against sustainability commitments is tracked alongside scope, schedule, and cost.

- **Measurement** is reinforced through Verification Checklists and Benefits Trackers, providing accountability for outcomes.
- **Uncertainty** is captured in the Benefits Realization phase, where resilience and adaptability are key.
- **Tailoring** is supported through SMP thresholds and sector-specific adaptations, consistent with PMBOK 8's emphasis on context-driven approaches.

By aligning the SMP with PMBOK 8, project teams gain a clear bridge between sustainability management and mainstream project management practices. This shows that applying the SMP does not add a separate layer of work but strengthens existing domains with structured, auditable sustainability practices.

This alignment also demonstrates that the SMP complements, rather than competes with, PMI's approach. The performance domains in PMBOK 8 emphasize value delivery, resilience, stakeholder engagement, and benefits realization as universal principles. The SMP provides a concrete mechanism to capture these principles in practice by documenting sustainability impacts, applying materiality, setting commitments, and tracking long-term outcomes. In doing so, it gives project teams a practical way to demonstrate stewardship and accountability while still operating fully within PMI's recognized domains.

SMP Section / Lifecycle Phase	Description in the Guide	Aligned PMBOK 8 Performance Domains	Notes on Alignment
Pre-Project / Initiation → Preliminary Impact Screening	Early identification of sustainability risks and opportunities using P5.	Stakeholders, Planning, Development Approach & Life Cycle	PMBOK emphasizes engaging stakeholders early and defining approach. SMP adds sustainability screening.
Discovery / Planning → Impact Register + Materiality Matrix	Baselines, stakeholder engagement, materiality testing.	Stakeholders, Planning, Measurement	Aligns with PMBOK focus on planning and measurement. Materiality adds outward/inward sustainability focus.
Design / Planning → Material Topics Management Table	Commitments, targets, policies, responsibilities, monitoring methods.	Planning, Project Work, Delivery	PMBOK focuses on tailoring and planning for delivery. SMP operationalizes material topics in line with GRI **3–3**.
Delivery / Execution → Implementation & Monitoring Section	Track progress against commitments with P5-aligned KPIs.	Project Work, Delivery, Measurement, Team	PMBOK calls for executing and monitoring delivery; SMP integrates sustainability KPIs into routine reporting.

Closure → Verification Checklist	Confirm whether commitments were met; evidence attached.	Delivery, Measurement	PMBOK measures outcomes and confirms completion. SMP ensures sustainability accountability through verification.
Post-Project Benefits Realization → Benefits Tracker	Track long-term sustainability outcomes (baseline → target → actual).	Delivery, Measurement, Uncertainty	PMBOK emphasizes value delivery and benefits realization. SMP adds resilience and net-positive framing.
Cross-Cutting: SMP Thresholds & Tailoring	Organizational thresholds, sector-specific adaptations.	Planning, Tailoring Principle (applies across domains)	PMBOK emphasizes tailoring to context; SMP reinforces this for sustainability and materiality.

Table 15. SPM and PMBOK® Guide Version 8 Alignment

Annex B: Glossary of Terms

(This glossary covers the key terms used in the Project Materiality Guide. For the complete and regularly updated list of sustainability and project management definitions, including all P5 elements, refer to the P5 Standard and the GPM Online Glossary.)

Absolute Metrics

Measurements expressing total impacts without normalization to an economic unit (e.g., total tCO_2e, total m^3 water withdrawn, total waste generated). Necessary but insufficient for sustainability—must be compared to thresholds (S = A/N) to determine if absolute levels are sustainable.
Example: A project reports 100,000 tCO_2e absolute emissions. Sustainability assessment requires comparing to fair allocation (N): if N = 50,000, then S = 2.0 (unsustainable).

Accessibility

The degree to which project outputs, services, or environments are usable by all people regardless of ability, age, or socio-economic status. Includes digital accessibility (e.g., WCAG standards) and physical accessibility (e.g., universal design).

Accountability

The willingness of an organization or project team to accept scrutiny for its actions and the duty to respond to that scrutiny. Accountability is foundational to trust in sustainability reporting.

Agile

An iterative, incremental approach to project delivery, structured around sprints, backlog prioritization, and continuous stakeholder involvement. In sustainability, Agile requires embedding impacts and commitments into backlog items and sprint reviews.

Baseline

An initial measurement used as a reference point to assess change or improvement over time. Baselines are critical for tracking project sustainability outcomes such as emissions reductions, biodiversity gains, or diversity in workforce.

Benefits Tracker

A tool used in Post-Project Benefits Realization to monitor long-term sustainability outcomes. Tracks baseline, target, and actual performance on impacts such as emissions, biodiversity, equity, or community well-being.

Better ≠ Sustainable

The principle that incremental improvement (reducing impact relative to a baseline) does not equate to sustainability (operating within carrying capacity thresholds). A project can be "better" year-over-year while remaining fundamentally unsustainable if it exceeds normative thresholds.
Example: Reducing emissions by 30% is "better," but if the project still emits twice its fair carbon allocation ($S_{(env)} = 2.0$), it is not sustainable.

Biodiversity

The variety of life in ecosystems, including species, habitats, and ecological processes. Projects can affect biodiversity directly through land use and resource extraction or indirectly through pollution and supply chains.

Biodiversity Net-Gain

A conservation approach where projects restore or enhance ecosystems so that biodiversity outcomes are measurably greater than the pre-project baseline. Goes beyond “no net loss” to leave ecosystems better off.

Carrying Capacity

The maximum level of impact on a vital capital that can be sustained over time without degrading the capital's ability to support stakeholder well-being. Carrying capacities are determined by scientific research, ecological limits, and social requirements.

Example: A watershed's carrying capacity is the maximum water withdrawal rate that allows ecosystem functions and downstream users' needs to be met indefinitely.

Circular Economy

An economic model designed to keep materials, products, and resources in use for as long as possible through reuse, repair, recycling, and regeneration, minimizing waste and emissions.

Context-Based Sustainability (CBS)

A methodology for measuring the sustainability performance of human social systems and activities at multiple levels of scale: groups, teams, projects, organizations, municipalities, nation-states, etc. CBS differs from other methodologies in that it assesses performance relative to thresholds in the carrying capacities of vital resources (capitals that must humans and non-humans alike rely on for their well-being, and not just in incremental terms. Performance is expressed as a

Sustainability Quotient: S = A/N. CBS is, in other words, anti-incrementalist in its approach and instead takes a more literal approach to the subject. Developed by Mark W. McElroy and the Center for Sustainable Organizations.

Corporate Impact Threshold (CIT)

The level at which an organization defines an impact as significant enough to require disclosure. Thresholds may be quantitative (e.g., emissions above a set value) or categorical (e.g., all fatalities are material).

Cross-Cutting Topic

A sustainability issue that applies across all projects, regardless of sector or size, due to its broad environmental, social, or governance importance. Examples include climate, water, biodiversity, community rights, and governance.

Degrowth

Planned, equitable reduction of environmentally destructive and socially unnecessary production in high-income, high-consumption regions where resource use far exceeds sufficiency thresholds. Degrowth is:

- Sector-specific (fossil fuels, luxury goods shrink; renewables, care work, repair grow)
- Equity-centered (wealthy consumption declines; poor access improves)
- Not universal (applies in OECD contexts, not low-income regions requiring development)

Example: A fashion project transitioning from fast-fashion growth model to repair/longevity model aligned with planetary boundaries.

Decoupling Ratio

A metric measuring the relationship between value/service growth and resource throughput growth. Decoupling Ratio = (% change in value delivered) / (% change in resource use)

- Relative decoupling: Value grows faster than resources (ratio >1), but resources still grow
- Absolute decoupling: Value grows while resources decline (ratio >1 AND resource decline)

Example: A digital service increasing users by 40% while reducing energy by 10% achieves strong absolute decoupling..

Dual Materiality

The principle of considering both the impacts of a project on the world (outward materiality) and the impacts of sustainability issues on the project itself (inward materiality). Outward aligns with GRI; inward aligns with ISSB/TCFD.

Fair Allocation

The equitable distribution of responsibility for maintaining vital capitals among actors based on principles of justice and sufficiency. Fair allocation methodologies include:

- GDP-proportional (responsibility proportional to economic contribution)
- Population-proportional (equal per-capita allocation)
- Historical responsibility (those who depleted capitals have greater restoration duties)
- Needs-based (prioritize those below sufficiency thresholds)

Example: A project's fair carbon allocation under a 1.5°C pathway may be calculated as its GDP share of the remaining global carbon budget.

Free, Prior and Informed Consent (FPIC)

The right of Indigenous Peoples to give or withhold consent to projects that affect them or their territories, based on adequate information provided in advance of project decisions.

Gap Closure

The percentage of the distance between current performance (S = A/N) and the sustainability threshold (S = 1.0) that a project commits to close within a specified timeframe. Used when full threshold achievement (100% gap closure) is not immediately feasible.

Example: A project at $S_{(env)}$ = 2.4 commits to $S_{(env)} \leq 1.5$ by 2028. Gap = 1.4 (from 2.4 to 1.0). Target closes 64% of gap: (2.4-1.5)/(2.4-1.0) = 0.9/1.4 = 64%.

Global Reporting Initiative (GRI)

The world's most widely used sustainability reporting framework. GRI emphasizes outward impacts of organizations and projects on the economy, environment, and people, including human rights.

Health Equity

The principle of ensuring that all people have fair access to healthcare services and outcomes, regardless of income, gender, geography, or identity. In projects, health equity often means addressing affordability, inclusion, and systemic barriers.

Impact

The effect an organization has or could have on the economy, environment, and people, including human rights.

Impact Severity

Determined by scale, scope, and irremediable character.

Impact Register

A structured list of all potential sustainability impacts identified during Discovery/Planning, organized across P5 dimensions. It forms the foundation for prioritization through the materiality test.

Incremental Sustainability

A maturity level characterized by measuring sustainability performance as relative improvement from past baselines or peer averages, without reference to normative thresholds. Projects report metrics like "reduced by X%" or "improved efficiency by Y%" without assessing whether performance is absolutely sustainable ($S_{(env)} \leq 1.0$ and $S_{(non\text{-}env)} \geq 1.0$).

Suitable for: Projects building capacity, organizations beginning sustainability journey, contexts with limited historical data.

Intensity Metrics

Measurements expressing impacts relative to an economic or operational unit (e.g., emissions per dollar revenue, water per unit produced, waste per square foot). While useful for efficiency tracking, intensity metrics can improve while absolute impacts grow—thus insufficient for sustainability assessment without absolute thresholds.

Example: A company reduces carbon intensity by 30% (tCO_2e/$M) while emissions grow 15% due to revenue expansion—better intensity, worse sustainability.

Intergenerational Equity

The principle that current generations must not compromise the ability of future generations to meet their needs by depleting vital capitals below regeneration thresholds. Requires considering long-term impacts (50+ years) and designing projects that maintain or restore capitals for those who come after.

International Sustainability Standards Board (ISSB)

Established under the IFRS Foundation in 2021, the ISSB sets global sustainability disclosure standards, building on the work of SASB. Its IFRS S1 and S2 standards emphasize financially material ESG issues and climate-related disclosures.

Kunming-Montreal Global Biodiversity Framework

Adopted under the UN Convention on Biological Diversity in 2022. Establishes global targets to halt and reverse biodiversity loss by 2030, including the "30 by 30" goal to protect 30% of land and sea areas.

Materiality Matrix

A two-axis visualization plotting stakeholder significance against financial relevance. Helps project teams prioritize and communicate which impacts are most material.

Material Topics Management Table

A section of the Sustainability Management Plan documenting how material topics will be managed, including commitments, targets, responsibilities, resources, and monitoring methods.

Mono-capitalism

An economic system and management approach that prioritizes financial capital accumulation above all other forms of capital. In project management, mono-capitalism manifests as optimizing for financial returns (on-time, on-budget delivery) while treating natural, human, and social capitals as externalities or constraints to be minimized.

Example: A project that maximizes profit while paying below living wages, depleting aquifers, and fragmenting ecosystems is mono-capitalist.

Multi-capitalism

An economic system and management approach that recognizes the interdependence of multiple capital types and seeks to preserve or regenerate all of them simultaneously. Multi-Capitalist project management measures success across all five vital capitals, not just financial performance.

Example: A project that achieves financial viability while ensuring $S \leq 1.0$ for water, carbon, biodiversity, wages, and equity is Multi-Capitalist.

Net-Positive Project

A project that creates more environmental, social, and economic value than it consumes. Net-positive outcomes may include biodiversity restoration, avoided emissions, and community development benefits.

P5 Impact Analysis (P5IA)

A structured tool for identifying and assessing project impacts across the five P5 dimensions: Product, Process, People, Planet, and Prosperity.

Planetary Boundaries

Nine scientifically defined Earth system processes with thresholds beyond which humanity risks triggering abrupt or irreversible environmental changes: climate change, biosphere integrity (biodiversity), land-system change, freshwater use, biogeochemical flows (nitrogen, phosphorus), ocean acidification, atmospheric aerosol loading, stratospheric ozone depletion, and novel entities (chemicals, plastics). Projects should assess which boundaries their impacts affect and ensure $S \leq 1.0$ for relevant boundaries.

Framework developed by Johan Rockström and colleagues (2009, updated 2025).

Example: A forestry project practicing 200-year rotation cycles (vs. 40-year clear-cuts) embodies intergenerational equity by preserving old-growth habitat for future generations.

Regenerative Sustainability

The point where a project stops trying to "do less harm" and starts **repairing, restoring, and strengthening** the natural and social systems it touches. It goes beyond meeting sustainability thresholds — those are the *floor*,

not the finish line. A regenerative project consistently delivers impacts that fall **within the limits of vital capitals**, and then pushes further to create **net-positive gains** for people, ecosystems, and communities.

It's built on shared governance with stakeholders, transparent accountability, and evidence that the project is returning more value — ecological, social, and economic — than it consumes. This is the maturity level for initiatives designed to leave conditions better than they were found: long-term, transformative efforts with the mandate and the intention to regenerate.

A maturity level in this Guide characterized by achieving $S_{(env)} \leq 1.0$ for all material environmental impacts and $S_{(non\text{-}env)} \geq 1.0$ for material non-environmental (absolute sustainability threshold met), actively restoring depleted natural and social capitals. Includes stakeholder co-governance, multi-capital return on investment measurement, and comprehensive third-party assurance.

Rolling Wave Planning

A project management technique where near-term work is planned in detail while future work is left at a higher level until more information is available. Supports adaptive and iterative planning.

Science-Based Targets (SBT)

Performance targets aligned with the level of decarbonization or resource stewardship required to meet international agreements (e.g., Paris 1.5°C, Kunming-Montreal 30x30) and scientific consensus on planetary boundaries. Contrast with "business-as-usual" targets set by competitive or financial considerations.

Example: A science-based carbon target aligns with 1.5°C pathway requiring 4.2% annual absolute reduction. A non-science-based target might aim for 2% reduction based on peer average.

Scope 1, 2, 3 Emissions

- Scope 1: Direct emissions from owned/controlled sources (combustion, process)
- Scope 2: Indirect emissions from purchased energy (electricity, steam, heating)
- Scope 3: All other indirect emissions in the value chain (upstream suppliers, downstream use, disposal)

Social Foundations

The minimum social and economic conditions required for human well-being and dignity, as articulated in frameworks like Kate Raworth's Doughnut Economics and the UN Sustainable Development Goals. Include: food, water, energy, education, healthcare, income, housing, networks, voice, gender equality, social equity, and political voice. Projects must ensure affected stakeholders maintain access to social foundations (lower threshold) while respecting planetary boundaries (upper threshold).

Stage-Gate

A governance process that divides projects into phases separated by formal review gates. At each gate, progress, risks, and sustainability commitments are evaluated before moving forward.

Stakeholder Co-Governance

A governance model where affected communities and stakeholders participate directly in decision-making about threshold-setting, monitoring, and benefit distribution, rather than being merely consulted. Required for Level 3 (Regenerative) projects. Recognizes that those bearing impacts should have voice in determining acceptable limits.

Example: A dam project establishes a governing board with 50% representation from downstream communities who co-determine water release schedules and compensation structures.

Sufficiency

The principle that consumption and resource use should be calibrated to meet genuine human needs (nutrition, shelter, healthcare, education, mobility, social connection) rather than unlimited wants. Sufficiency asks: "How much is enough?" and distinguishes needs-based demand from luxury/wasteful consumption.

Example: A housing project designed for adequate, energy-efficient dwellings sized to needs (no McMansions) embodies sufficiency principles.

Sustainability Accounting Standards Board (SASB)

Founded in 2011, SASB created industry-specific standards for ESG reporting focused on financial materiality. In 2021, SASB merged into the ISSB, which now maintains its standards.

Sustainability Quotient (S = A/N)

A general specification for context-based metrics in CBS which expresses sustainability performance as actual impacts (A) divided by normative thresholds (N)

For Natural Capital (maximum thresholds):

- $S_{(env)} > 1.0$ →= Unsustainable (exceeding limitsthresholds, depleting capitals)
- $S_{(env)} = 1.0$ → At limit (threshold= Threshold performance (at carrying capacity limits)
- $S_{(env)} < 1.0$ → Sustainable (below limits, conserving capital)

For Human, Social, Economic, and Constructed Capitals (minimum= Regenerative (undershooting thresholds):, restoring capitals)

- $S_{(non\text{-}env)} < 1.0$ → Unsustainable (failing to meet obligations)
- $S_{(non\text{-}env)} = 1.0$ → Meeting obligations (threshold performance)
- $S_{(non\text{-}env)} > 1.0$ → Exceeding obligations (regenerative)

Example: If a project emits 50,000 tCO_2e and its fair allocation is 25,000 tCO_2e, $S_{(env)} = 50{,}000/25{,}000 = 2.0$ (100% unsustainable).

Sustainability Impact Thresholds (SIT)

Pre-defined levels at which an impact must be managed or disclosed. These may be set at project level or corporate level for consistency in reporting.

Sustainability Management Plan (SMP)

The central project subsidiary plan for managing sustainability, first introduced by Joel Carboni, founder of Green Project Management in 2009. The SMP integrates P5 impacts, materiality, organizational thresholds, commitments, monitoring, verification, and benefits tracking across the lifecycle.

Sustainable Development Goals (SDGs)

Seventeen global goals adopted by the United Nations in 2015 as part of the 2030 Agenda. Projects contribute to SDGs through outcomes such as affordable energy, decent work, reduced inequalities, climate action, and ecosystem protection.

Task Force on Climate-Related Financial Disclosures (TCFD)

Established in 2015 by the G20's Financial Stability Board. Developed recommendations for disclosing climate-related risks and opportunities, now embedded in ISSB's IFRS S2 Climate Standard.

Three-Dimensional Materiality

A materiality assessment approach that evaluates impacts across three axes:

- Stakeholder significance (importance to affected parties)
- Financial relevance (potential effect on project costs/risks/returns)
- Threshold proximity (how close impact is to carrying capacity limits, measured as S = A/N)

Impacts scoring high on threshold proximity ($S_{(env)} \geq 0.8$ and $S_{(non\text{-}env)} \leq 1.2$) are automatically material regardless of other scores. Prevents overlooking impacts that are existentially material due to ecological/social limits even if not yet financially or stakeholder-visible.

Threshold-Material

An impact that is material because it approaches, reaches, or exceeds a normative threshold ($S_{(env)} \geq 0.8$ or $S_{(non\text{-}env)} \leq 1.2$), regardless of whether it scores high on traditional materiality criteria (stakeholder significance, financial relevance). Recognizes that some impacts are urgent due to biophysical/social limits, even if stakeholders are unaware or financial costs haven't materialized.

Example: Aquifer depletion at $S_{(env)} = 1.4$ is threshold-material even if water costs are low and public concern is minimal—once depleted, recovery takes centuries.

Threshold (Normative)

The scientifically or ethically determined limit for impacts on a vital capital beyond which the capital's carrying capacity is compromised. Thresholds may be based on:

- Planetary boundaries (climate, biodiversity, nitrogen cycles)
- Regional carrying capacities (watershed limits, airshed capacity)
- Social foundations (living wages, human rights, democratic participation)
- International agreements (Paris Agreement 1.5°C, Kunming-Montreal 30x30)

Also called "normative threshold," "sustainability norm," or "carrying capacity limit."

Threshold Proximity (in materiality assessment)

The degree to which a project's current impact approaches or exceeds a normative threshold, used as a criterion in three-dimensional materiality assessment. Impacts with environmental $S_{((env)} \geq 0.8$ or $S_{(non\text{-}env)} \leq 1.2$ (within 20% of threshold) or $S_{(env)} > 1.0$ or $S_{(non\text{-}env)} < 1.0$ (exceeding threshold) are automatically elevated to material regardless of stakeholder significance or financial relevance.

Example: Water withdrawal at $S_{(env)} = 0.9$ in a stressed watershed is "threshold-proximate" and automatically material, even if it doesn't yet register as financially risky or stakeholder-visible.

Value Chain

Activities carried out by the organization and entities upstream/downstream to deliver products/services.

Verification Checklist

A tool used at project Closure to confirm whether sustainability commitments were fulfilled. Each material topic is reviewed against targets, supported by evidence such as audit reports or certifications.

Vital Capitals (Five Types)

The five categories of resources that stakeholder well-being depends on:

1. Natural Capital - Air, water, biodiversity, climate stability, materials

2. Human Capital - Health, skills, knowledge, well-being
3. Social Capital - Trust, relationships, institutions, equity
4. Constructed Capital - Infrastructure, technology, built environment
5. Economic Capital - Financial resources, productive capacity

Projects impact all five capitals and must steward them responsibly. Also called "multiple capitals."

Annex C: References for Definitions

- **P5 Standard (PMI GPM)** — for full detail on all P5 categories, subcategories, and elements.
  📘 Available at: https://gpm.org/standards-and-publications/p5-standard and https://www.pmi.org/standards/gpm-p5-standard-for-sustainability-in-project-management-v**3–1**
- **GPM Online Glossary** — the official, continuously updated source of definitions for sustainability and project management terms.
  🌐 Available at: https://gpm.org/standards-and-publications/glossary-of-terms

Annex D: EU Taxonomy & DNSH Evidence Table

The EU Taxonomy Regulation (2020/852) defines when an economic activity can be considered environmentally sustainable.
For each relevant project activity, record the environmental objective addressed, confirm substantial contribution, verify compliance with Do No Significant Harm (DNSH) criteria across all other objectives, and demonstrate adherence to minimum safeguards.

Project teams should gather supporting documentation such as permits, audits, supplier certifications, or assurance statements.

Activity	Environmental Objective	Substantial Contribution	DNSH Criteria Met	Minimum Safeguards	Evidence Reference	Status
Solar PV installation at data center	Climate Change Mitigation	Generates renewable electricity replacing fossil grid power	Yes – no significant harm to water, waste, or biodiversity per EIA	OECD Guidelines and UN Guiding Principles on Business and Human Rights compliant	Environmental Impact Assessment (2024); Renewable Energy Certificate (RE100); Supplier Code of Conduct audit report (2025)	Verified

Green building retrofit of corporate HQ	Climate Change Mitigation / Circular Economy	Reduces energy use by 45% and material waste by 60% vs. baseline	Yes – meets EU Taxonomy Circular Economy criteria for reuse and waste reduction	ISO 45001 (OHS), ILO Core Labor Standards, anti-corruption policy in place	LEED Gold Certification; Waste Audit Report; OHS Records	In progress
Biodiversity restoration offset for hydropower project	Biodiversity and Ecosystem Protection (E4)	Restores 150% of habitat lost within project footprint	Yes – no harm to climate mitigation or pollution objectives	FPIC agreement with local community; Human Rights Due Diligence Report	Restoration Plan; Third-Party Biodiversity Audit (2025)	Pending verification
Circular manufacturing pilot – recycled aluminum components	Circular Economy (E5)	80% of materials from recycled sources; design for disassembly	Yes – compliant with pollution and resource use criteria	Supplier social audits (SEDEx), PMI/GPM Sustainability Code adopted	Material Flow Analysis; Supplier Audits; ISO 14001 Certification	Completed

Table 16. Sample EU Taxonomy & DNSH Evidence Table

How to use:

- Complete one row per project activity relevant to EU Taxonomy criteria.
- Use corporate sustainability or legal teams to confirm environmental objective definitions.
- Maintain evidence in the **SMP Verification Checklist** and cross-reference here for assurance or reporting.
- This table also serves as supporting evidence for **CSRD Article 8** disclosures on Taxonomy alignment.

Why this example works

- Covers all six Taxonomy columns with practical examples across sectors (energy, building, biodiversity, manufacturing).
- Keeps the "Evidence Reference" column grounded in real documentation your SMP already produces.
- Matches the Guide's visual and instructional tone.
- Ready for auditors or sustainability officers to integrate into organizational ESRS E1–E5 and DNSH disclosures.

Annex E: References

Primary Standards and Frameworks

- **Global Reporting Initiative (GRI)**. *GRI 1: Foundation 2021*. Amsterdam: GRI, 2021.
- **Global Reporting Initiative (GRI)**. *GRI 301: Materials 2016; GRI 305: Emissions 2016; GRI 306: Waste 2020; GRI 403: Occupational Health & Safety 2018; GRI 418: Customer Privacy 2016; GRI 3: Material Topics 2021*. Amsterdam: GRI.
- **International Sustainability Standards Board (ISSB)**. *IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information, IFRS S2: Climate-related Disclosures*. IFRS Foundation, 2023.
- **Sustainability Accounting Standards Board (SASB)**. *SASB Standards (by sector)*. SASB, 2018.
- **Task Force on Climate-Related Financial Disclosures (TCFD)**. *Final Recommendations Report*. Financial Stability Board, 2017.

- **United Nations**. *Sustainable Development Goals (SDGs)*. UN General Assembly, 2015.
- **Convention on Biological Diversity (CBD)**. *Kunming-Montreal Global Biodiversity Framework*. Adopted at COP15, Montreal, 2022.
- McElroy, M.W. (2019). Making Materiality Determinations: A Context-Based Approach. UNRISD Working Paper 2019-6.
- Center for Sustainable Organizations (2022). Best Practices in Context-Based Sustainability (v1.4).

GPM Standards and Guidance

- **PMI-GPM**. *The P5 Standard for Sustainability in Project Management v3.1*. GPM Global, 2021.
- **PMI-GPM**. *Sustainability Management Plan Template v3.0*. GPM Global, 2023.
- **GPM**. *GPM Online Glossary of Terms*. Available at: https://gpm.org/standards-and-publications/glossary-of-terms

Supplementary Guidance

- **Project Management Institute** *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), 8th Edition*. Newtown Square, PA: PMI, 2025.
- ***UN Guiding Principles on Business and Human Rights (UNGPs).** United Nations, 2011.
- Authentic Sustainability Assessment: A User Manual for the Sustainable Development Performance Indicators, UNRISD.
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- **OECD**. *OECD Guidelines for Multinational Enterprises*. OECD, 2011 (updated 2023).
- Thomas, M. P., & McElroy, M. W. (2016). **The MultiCapital Scorecard**: Rethinking organizational performance. Chelsea Green Publishing.
- McElroy, M. W., & Van Engelen, J. M. L. (2012) Corporate Sustainability Management – The Art and Science of Managing Non-Financial Performance. Earthscan/Routledge.