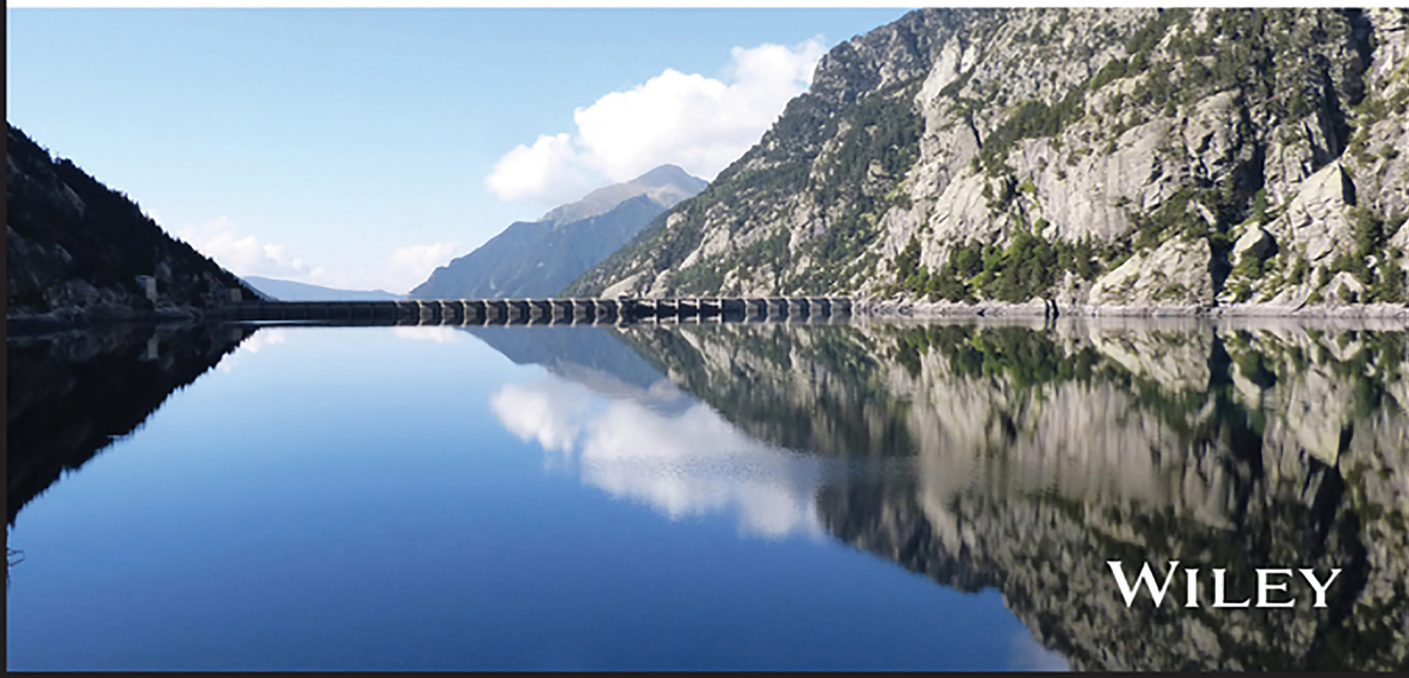




WAYNE MCPHEE, M.ENG, P.ENG, MBA • SABRINA M. DIAS, MES, P.ENG

# INTEGRATING **SUSTAINABILITY** INTO MAJOR PROJECTS

BEST PRACTICES AND TOOLS FOR PROJECT TEAMS



WILEY



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**Best Practices and Tools  
for Project Teams**

Wayne McPhee, M.Eng., P.Eng., MBA

Sabrina M. Dias, MES, P.Eng.

**WILEY**

This edition first published 2020

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*Library of Congress Cataloging-in-Publication Data is Available:*

ISBN 9781119557906 (hardback)

ISBN 9781119557920 (ePDF)

ISBN 9781119557890 (ePub)

Cover Design: Wiley

Cover Images: Shanghai Road intersection © ansonmiao/Getty Images,

Open pit mining © Fertnig/Getty Images,

Windmills © Santiago Urquijo/Getty Images,

Dam Pond Hydroelectric Production Dam Of Cavallers © makamuki0/Pixabay

Set in 10/14pt, ElectraLTStd by SPi Global, Chennai, India.

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

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# Acknowledgments

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Many major projects around the world are built on indigenous lands and impact indigenous peoples. We acknowledge this and will continue to learn from indigenous peoples about true sustainable development. The authors would like to thank the indigenous communities with whom we have worked over the years for sharing their traditional knowledge and the wisdom of generational thinking for sustainability.

The authors would like to thank the team at Wiley, in particular Margaret Cummins and Kalli Schultea, who have provided guidance and support for the development of the book, from approach and strategy through to production and marketing.

Wayne would like to thank his wife, Eileen, who not only provided enthusiastic support for the book but also provided design guidance, editing of the early draft, and design of the figures in the book. Also, thanks to my three daughters, Lucy, Hannah, and Theresa, for their support in the ongoing challenge of integrating sustainability into every part of our life. I would like to thank all of the sustainability colleagues who have shared their experiences and knowledge, especially Alan MacDonald, who provided invaluable insights and feedback on the initial book concept. And thank you to all of the many people I have worked with on project teams over the last 30 years for sharing their insights, experiences, and knowledge. My opinions are my own and not those of my employer.

Sabrina is most thankful to her husband, Jeffrey, and son, Theophil, whose unconditional support and patience while writing this book continues to provide endless reasons for gratitude. I have much appreciation for colleagues I have worked with and learned from over the years, and lovely friends who guided and encouraged my writing practice. I especially want to thank Jacques Gérin and David Wheeler, mentors and friends who were early champions of sustainable development and consistently demonstrate how to live and work with integrity. And finally, immense gratitude to Benoit Taillon, who, with one conversation and a cup of tea, changed the trajectory of my career – for the better.



# **INTEGRATING SUSTAINABILITY INTO MAJOR PROJECTS**





# CHAPTER 1

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## Introduction

Sustainability books typically start with dire warnings about the future of the planet and a “call to arms” to fix all of the world’s problems. In considering a book about sustainability for major projects, we have purposefully decided to take a pragmatic project management view of sustainable development and provide a set of processes and tools that can help project teams create better, more sustainable projects: projects with a smaller environmental footprint, projects that maintain support from the local community, and projects that achieve financial goals now and in the future. And, over time, a collection of better projects around the world can help to ensure a more sustainable future for the planet.

Integrating sustainability into major projects is still an emerging field of practice. No two projects are the same, so using scorecards and checklists can only get you so far. Project teams need to explore all the sustainability tools and tricks of the trade to create custom solutions that fit the location, the technology, the industry, owners of the project, and the groups of people who have a vested interest in the project.

We have tried to provide a logical and structured approach for integrating sustainability into project delivery that can be used to build alignment across an entire project team. In addition to the typical goal of getting government approvals for the project, good sustainability programs can help ensure that budgets and schedules are met, projects risks are understood and managed, and projects can obtain the necessary development financing.

It is important to understand that sustainability should not be a standalone discipline off to the side, separated from the rest of the project organization. Rather, sustainability must be integral to every aspect of project delivery. We have made every effort to demonstrate how sustainability is a team sport where everyone on the project team contributes.

This book will lead project teams through the various types of major projects, explain how sustainability can be integrated into traditional project management functions, and demonstrate how sustainability can play a critical role throughout the project lifecycle.

## 1.1 Terminology

There are many ways to describe the integration of environmental, social, and economic development challenges and opportunities into a project. Here are some of the most common terms:

- Sustainability
- Sustainable development
- Responsible development
- Corporate citizenship
- Corporate social responsibility
- Creating shared value

Although there are subtle differences in definition, all of the terms are basically capturing the same concepts. This book uses the term “sustainability,” but project teams can and should use whatever terminology allows them to create a better project. If your organization or industry primarily uses other terminology, then it is best to stick with what is familiar and accepted. Managing sustainability on major projects is hard enough without trying to introduce new terminology to your organization or industry.

### **DEFINITION: SUSTAINABILITY**

We cannot discuss sustainability for major projects without clarifying what we mean by the term. We use “sustainability” as the shortened version of “sustainable development,” a term classically defined by the World Commission on Environment and Development:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

## 1.2 Creating Value by Integrating Sustainability

Value creation on major projects is traditionally assessed by a strict financial analysis: Was the project delivered on-budget? These days, most organizations and financial institutions are evolving how they see “value.” And they are now incorporating concepts of brand and reputation, risk minimization, and responsible investing into the evaluation of an organization’s or project’s success.

Project sustainability efforts are often seen as an additional cost, a negative line item on the project budget. If managed properly, however, sustainability becomes a critical component of creating value out of the project.

Sustainability programs can:

- Drive innovation that can reduce overall project costs.
- Reduce the risk of project delays that can increase budgets and delay revenue generation from the finished project.
- Help secure and maintain community support that can streamline approvals.
- Reduce project risks, which can improve access to capital and lower financing costs.
- Create a better, more attractive project that draws potential buyers and increases project valuation.

## Attracting Investors

One of the most powerful tools to gain executive-level support for integrating sustainability into major projects is to demonstrate how sustainability can have a positive impact on project financing. This is true for industrial projects that rely on stocks, bonds, and debt financing, as well as government projects where financing could come from project-specific bonds, green bonds, or financing strategies like public-private partnerships (P3s). A strong sustainability program will help improve the project's access to capital, reduce the cost of borrowing money, and improve overall project profitability. Studies have shown that industrial firms “with better sustainability who disclosed their strategies to pivotal stakeholders enjoyed higher stakeholder trust and lower capital access restraints.”<sup>1</sup>

Globally, financial institutions have recognized that one of the largest risks for major projects is environmental, social, and governance (ESG) risks and this has led to the adoption of standards for sustainability and ESG management. Financial institutions often perform extensive due diligence prior to providing capital to develop a project. It is now becoming increasingly common for institutions to require an ESG review as part of due diligence and to include regular audits after financing has been approved. This helps to ensure that ESG commitments are being met and that project risks are being managed on an ongoing basis.

A strong sustainability program and project team is essential to addressing ESG risks and providing concrete evidence to financial institutions and their auditors that these risks are being managed. A traditional view of projects may see sustainability and environmental programs as an unnecessary cost or an annoying delay in getting construction started. But most projects require outside financing, and with financial institutions requiring strong risk and sustainability management before making an investment, a well-integrated sustainability program is essential for many projects to proceed.

## Attracting Buyers

Many projects (resource extraction projects, in particular) are developed with the intent of selling the asset once it has been built and commissioned. Whether the acquiring organization is a larger organization, a pension fund, or a stock market investor, the project will need to demonstrate that there is strong community support for the project and that environmental and social risks are being managed effectively.

Project teams should develop their sustainability program not just to meet the minimum needs of local approvals, but also to consider how the sustainability program will fit with the requirements of the potential

future owners. Like most elements of good project management, it is better to structure the project correctly at the beginning than it is to try to fix it at the end.

## **Developing Future Projects**

Whether the organization is considering a future expansion to the current project or developing other projects in the future, it is critical to maintain a strong reputation and build community support. With the expansion of social media to all corners of the world, issues at one site can damage the ability of the organization to pursue projects at new locations. Communities located near a new project site might not know the organization but can quickly find out how they have performed on other projects. With this knowledge they can take action either to protect their community by blocking the new project or to welcome an organization that has proven it can develop sustainable projects.

A strong sustainability program can ensure that the project helps the organization build credibility and a reputation to support the success of the current project and to ensure that the organization is well-prepared for future projects.

## **Avoiding Rework**

Integrating sustainability into project planning and engaging with local stakeholders can help the team understand design constraints and potential issues early in the project development, which can avoid rework and redesign later in the project. People who live and work in the area of the proposed site can help the project team understand the context of the local area, local regulatory requirements, and potential social and environmental impacts. Engaging with local communities can help the team get a sense of whether the project will be supported and, if not, how they can revise and improve the design and development plans early in the project. Engaging with local communities can also create value by accessing local knowledge that can be used to improve designs and reduce costs.

## **Improving Productivity**

Lost productivity is a potential and often overlooked cost to a project, whether it is due to dissatisfied employees, high turnover, or community blockades that delay construction. Integrating sustainability into the project, especially into construction management, can help to keep the local workforce engaged and productive. If there are unresolved issues with the local community then the project could experience a disengaged or angry local workforce that has high absenteeism, low productivity, and high turnover, all of which lead to higher costs of project delivery.

# **1.3 Creating a Sustainability Focus**

There are a number of different ways to think about sustainability. Some people understand sustainability to be only about renewable energy or green buildings. Others think sustainability is about engaging with the

local community or philanthropic donations to a local charity. In our approach we think about sustainability as a focus on creating the maximum positive impact and the minimum negative impact from a project. This goes beyond meeting regulatory requirements and involves all elements of the project.

This section examines some of the models that the project team can use to create a sustainability focus across the entire project. We look at the evolution of organizations from being compliance focused to being sustainability focused, how project teams can focus on managing sustainability, and how to think about complexity and social capital.

## Sustainability versus Compliance

We believe that an impactful focus for project teams is to move beyond a compliance culture and pursue sustainability in design, procurement, and construction. Creating a better, more sustainable project reduces overall risks, improves financial performance, and ensures that the project leaves a positive legacy that everyone on the team can be proud of.

A simple but effective diagram is the sustainability versus compliance graphic (see Figure 1.1), by Wheeler, Colbert, and Freeman (2002).<sup>2</sup> This clearly shows how an organization can shift from a culture of compliance to a culture of relationship management, and eventually to a culture of sustainability where maximum value is created.

This model can be applied to the evolution of delivering major projects. Traditionally, organizations and project teams have focused on getting the required permits for a project with limited engagement with stakeholders and local communities. More recently, projects have moved to a relationship management

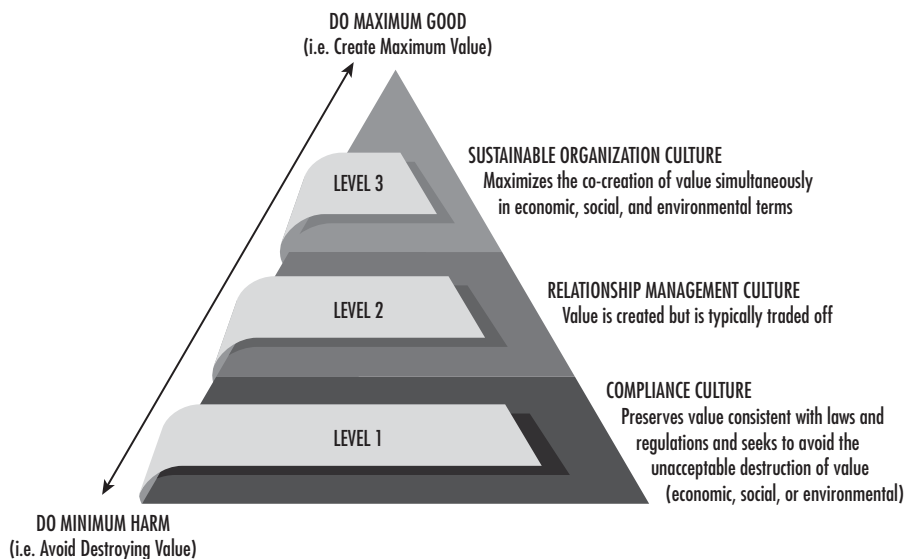


Figure 1.1 Sustainability versus compliance. Adapted from Wheeler, Colbert, and Freeman (2002) reproduced with permission of the *Journal of General Management*.

approach where stakeholder engagement is considered a necessary requirement for major projects. However, the engagement is still typically performed by a small team focused on getting project approvals rather than creating long-term relationships with the local community. Integrating sustainability into major projects is focused on building a culture of sustainability across the entire organization where the team looks at building value for both the project owners and the local community.

## Sustainable Project Management

Another way to think about project sustainability is outlined in Figure 1.2, which shows how projects can be considered sustainable in two ways. A project is plotted based on its underlying sustainability features (x-axis) where some projects, such as a wind farm, are typically considered to be “sustainable projects” and thus are placed further to the right on the x-axis. On the other hand, nonrenewable resource extraction projects, such as a mine, are considered unsustainable by their fundamental nature (i.e. removing a resource from the earth that will not be replaced) and so are placed further to the left on the x-axis.

An alternative view (on the y-axis) is to look at how the project is managed to improve its overall sustainability. For example, a typical mine that extracts a nonrenewable resource may not be considered fundamentally sustainable, but if development can be managed to mitigate environmental impacts, reduce energy requirements, and create benefits for local communities, then it can still create a positive benefit. In this case, the mining project would move from a low position on the graph to a higher, more sustainable position.

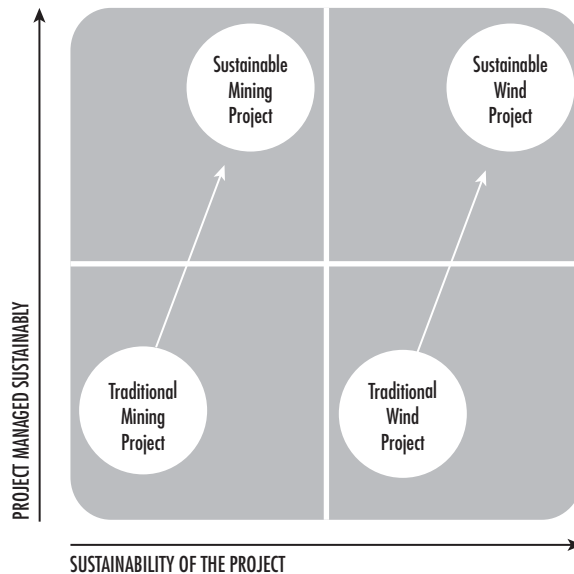


Figure 1.2 Sustainable project management model.

Conceptually, the sustainability focus for the project team should be on how they can move the project as far as possible to the upper right of the graph while maintaining the underlying organizational objectives.

Project teams rarely have control over the underlying sustainability features of the project that they are working on. But they do have the ability to improve project management and delivery to reduce negative impacts and improve benefits. One of the core themes of this book is to help project teams define what sustainability means for their project and then provide tools and systems to help them achieve that vision and focus.

## **Complexity Is the New Reality**

Managing major projects is a messy and complex business. It is getting even more complex with competing priorities for budget, schedule, quality, safety, environment, security, and community. Project teams need to develop the skills, tools, workflows, and thought processes to manage these competing priorities, make informed decisions, and create new solutions that help meet often contradictory project goals. These challenges are also opportunities for innovation, for new approaches, and for collaboration to solve problems.

A key starting point in developing a mindset about sustainability is to be aware that there will be both competing and complementary objectives between the traditional technical and financial goals, and the sustainability goals. Project teams need to embrace this complexity and view sustainability as an opportunity to create a better project, rather than as an annoyance and additional cost. In *Reconstructing Value: Leadership Skills for a Sustainable World*, the authors refer to this approach as a “sustainability Mindset,” where there is a synthesis of these competing challenges rather than just a compromise:

A sustainability mindset holds that the key challenge is in advancing human development in areas such as prosperity, justice and human rights, while at the same time preserving nature and respecting the regenerative limits of the biosphere.<sup>3</sup>

The sustainability mindset understands that new major projects are essential to human development but also looks to ensure that the work is done with respect for the environment and the local communities impacted by the project.

Sustainability is creating more complex business and technical environments, and project teams cannot manage increasing project complexity with the same processes and tools that have been used for years. Project teams need to look for ways to improve existing tools and processes to incorporate sustainability. They need to introduce new tools that help manage the increasing complexity, shift roles and responsibilities, and diversify project teams to bring in new and varying skills sets to ensure that sustainability challenges are managed.

By our nature, we are more comfortable solving problems that are familiar. However, with the rapid changes occurring in the world, project teams are often faced with new problems that don't have proven solutions. If we are going to meet the challenges of this new reality, we will need to adapt and find new ways of collaborating and working together to solve problems.

When we face changes that encompass several disciplines, there is a need for collaboration with multidisciplinary teams that can bring a broad range of experience and expertise to the problem. These multidisciplinary project teams are comprised not just of technical specialists, but may include new team members who have valuable knowledge of the challenges facing the project, including socioeconomic and

geopolitical experts, academics, stakeholders, and a facilitator who can bring the team together. Complexity is the new reality and project teams need to find ways of working together and with key stakeholders to meet this challenge and create better, more sustainable projects.

## Co-Creating Value

As projects move toward a sustainability focus, stakeholder engagement is shifting from compliance and risk mitigation to looking for opportunities that create positive relationships that can uncover the project's potential to co-create value for both the organization and local communities. This has been named "Creating Shared Value" by Porter and Kramer.<sup>4</sup>

Opportunities for collaborating and co-creating value can be evaluated by answering a number of initial questions aimed at understanding both the planned or current project impacts and the potential for value creation, but also the potential for new activities that can create shared value that neither player could achieve on their own. These questions are:

1. What impact(s) does the project and its activities have on each element of the society?
2. What impacts could we change or improve if we changed how the project was delivered?
3. What impacts could the element of society have on the project?
4. What benefits could we co-create if we work together to address impacts and challenges?

The initial questions are intended as only a first step. True co-creation cannot be achieved by one side of the relationship acting alone. It requires ongoing dialogue and interaction to create understanding and new ideas.

One model for co-creating value is the DART model,<sup>5</sup> which we have adapted from a business model for working in developing economies. DART, which stands for Dialogue, Access, Risk Assessment, and Trust/Transparency, suggests that you need to focus on the four elements to fundamentally change the traditional relationship between the project and the local community, as shown in the sidebar.

### TIP: "DART" MODEL FOR CO-CREATING VALUE

The four elements of the DART model are:

**Dialogue:** Dialogue includes two-way communication (rather than a one-way flow of information), shared learning, and collective problem solving. Project teams need to approach stakeholders as partners in problem identification and problem solving, and not as barriers to be managed. Communities need to engage in the process to create value for their community.

**Access:** Ensure that stakeholders have access to the project team and, in particular, to the right people in the team. This includes active engagement through meetings and participation in the local community. One of the keys to ensuring good access is to ask stakeholders how they would like to communicate and offer them opportunities to try out different methods.



**Risk Assessment:** Risk encompasses not just the potential for harm to the local community but the perception of potential harm. Everyone on the project team should understand that the community's perception of risk is important and should be treated with respect, rather than dismissed as a lack of understanding.

**Trust and Transparency:** The project team controls most of the information about the project, so the local community may feel that they are being misled about the potential negative impacts of a project. Establishing trust requires transparency and honesty so that all players can understand the potential impacts and work together to co-create solutions to these challenges. To ignore or downplay potential impacts not only damages trust but also shuts down any potential for creating solutions and shared value.

## Understanding Community Support

Historically, formal approval for major projects meant convincing government regulators that the project was in the best interest of the government. As local communities and stakeholders gain more influence, it is becoming essential for projects to demonstrate that they have the support of the local community and can maintain that support to successfully deliver the project.

There are a number of different terms that are used to capture this idea of establishing stakeholder support. Depending on your organization or industry you may need to use one or all of these terms, including:

- Social capital
- Good will
- Public support
- Community support
- Social license to operate (SLO)

“Social license to operate” implies that there is an actual license or signed document to demonstrate the project has required support to move forward, but there is no such formal license. SLO is simply shorthand to indicate that there is a positive relationship with the local community and that they support the project, at least at the present time. “Securing an SLO” essentially means earning the trust of the project's local communities and building strong, mutually respectful relationships with them. It is important to understand that SLO is not a legal document and that stakeholders can “revoke” their project support (i.e. the SLO) at any time and without notice.

Social capital and good will are terms that suggest that you can place an economic value on relationships with stakeholders and local communities. Good will can be used in a social context to mean that a person is trusted. In the accounting context it is used to represent the intangible assets that an organization has, such as brand value, reputation, and intellectual property.

In the context of a major project, social capital and good will relate to the value that exists in the strength of the relationships with the local community, which can be leveraged to help make the project a success.

Strong relationships mean a high level of mutual respect and trust and much of this value is based on how the local community perceives the project and how they feel they are being treated by the project team.

Having a high level of social capital helps projects in many ways, including fewer project delays due to community disputes, faster permitting, and a more engaged local work force. Social capital provides value if there is a problem or an unforeseen environmental or social incident. With strong social capital, the project will be able to address the problem with limited negative backlash and perhaps local support to resolve issues faster.

## **TIP: MANAGING YOUR SOCIAL CAPITAL BANK ACCOUNT**

Discussing the concept of social capital with a traditional project team can be a challenge. The concept of social capital may seem vague or may be seen as irrelevant to the team members focused on design and construction activities.

One analogy we have found to be effective is the metaphor of a “Social Capital Bank Account,” which holds the project’s trust and reputation with the local community. Maintaining a healthy bank account can help to avoid delays and secure approvals on time. When your bank account is full, local stakeholders will not stand in the way of permits/approvals and may even vouch for your project with the local government and regulators.

Every time the team does something positive for the local community, such as taking time to listen and treating people with respect, you are putting “money” into the bank. Every time you mismanage a spill or ignore a complaint, you are losing “money” from the bank. Lose enough and all the social capital is gone.

Each project department should understand that they have a role in filling the Social Capital Bank Account, whether it is engineering who must consider alternate roads to preserve a local sacred site, or construction who must reconsider shift schedules to accommodate local hunting seasons. Everyone on the team has the potential to help fill the bank or to break the bank. The collective objective of the team is to maintain a full Social Capital Bank Account over time so that the project can move ahead smoothly.

The terms “public support” and “community support” focus the idea of social capital on the local community rather than on the broader concepts of support from external stakeholders, including governments and non-governmental organizations (NGOs). With the growth of social media and shifting social expectations, the support of the local community is becoming more and more important for major projects. Traditionally, major projects could get built without community support as long as they had government approvals, but that is no longer possible in most places around the world. To reflect this change, we refer primarily to community support as the focus for building social capital.

## **1.4 Sustainability Is a Team Sport**

As managing sustainability becomes increasingly important to project success and the complexity of meeting such targets increases, sustainability must be embraced by all members of the project team. It cannot be delegated to a separate sustainability department or completely outsourced to external consultants. Meeting sustainability goals and creating a better project requires input from every member of the team and every person on a project.

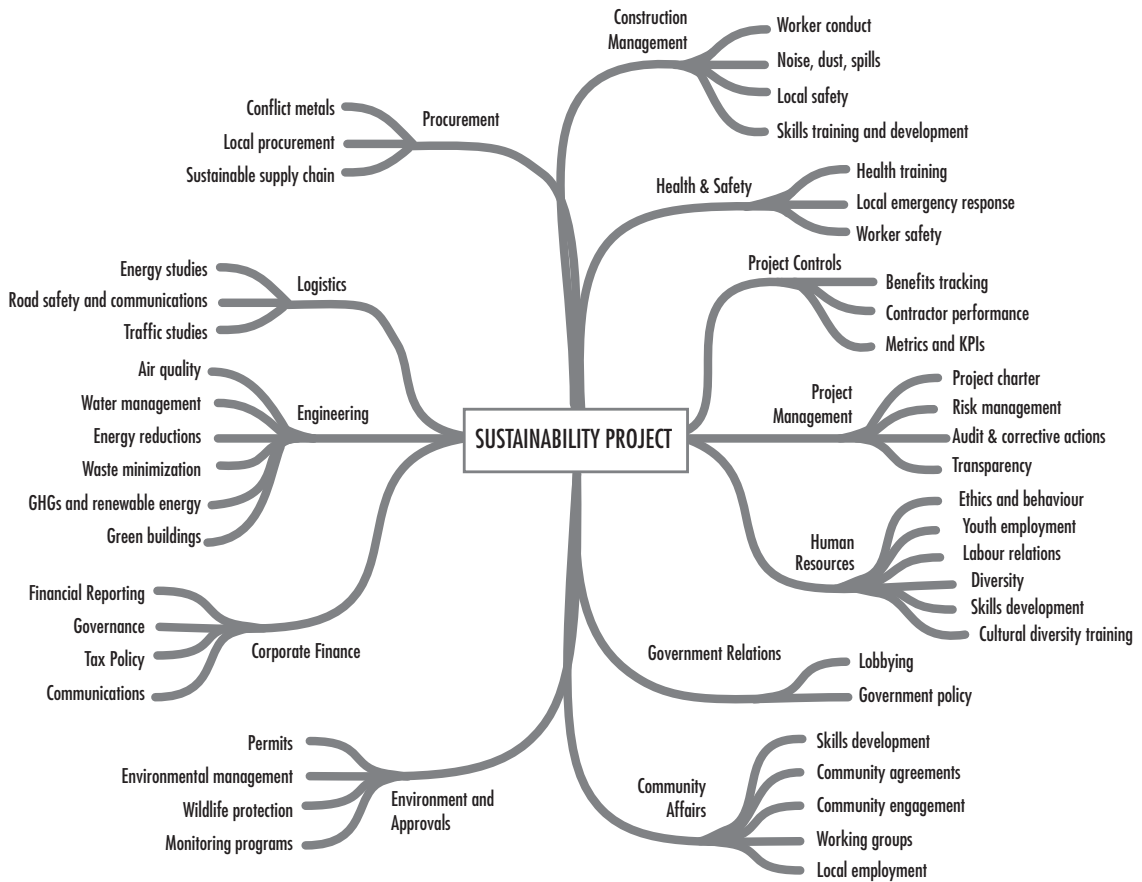


Figure 1.3 Sustainability as a team sport.

The diagram in Figure 1.3 shows how sustainability can fit into the entire project. Each department can influence sustainability issues and have a positive effect on the project. The diagram is by no means complete and will change from project to project but shows how sustainability is truly a team sport and not just the responsibility of the sustainability team.

It is also important to remember that sustainability issues are not specific to one group or department. In many cases, more than one group across the project team may need to be involved to have an influence on activities and issues. Take, for instance, providing training and skills development to the local community in order to increase the opportunity to hire as many local workers as possible. This objective can be influenced by:

- Human resources, which develops training programs
- Construction management, which runs the job training
- Health and safety, which gets involved in improved health or safety training

- Procurement, which incorporates training requirements into contractor Request for Proposals (RFPs) and contracts
- Indigenous affairs, which ensures local indigenous communities get training in transferable skills that create benefits for the community
- Project controls, which would be tasked with tracking training metrics as part of project key performance indicators (KPIs)

One effective way to create the sustainable team sport diagram for your project team is to hold a series of meetings with each of the departments or groups to discuss the basic concept and overall project sustainability objectives. Each group is then encouraged to find creative ways that they can contribute to the sustainability of the project.

## 1.5 Who Is This Book For?

With the rapidly changing social and environmental responsibilities that major projects are facing, project teams need to have the background knowledge, strategic insights, and skills to ensure that their organization is proactively managing sustainability.

This book is intended for the project leadership team responsible for all aspects of the project, the sustainability team responsible for managing the project's sustainability program, and for the entire project team involved in delivering aspects of the sustainability program.

This book will help everyone involved in the delivery of major projects, including:

- **Project owners** who want to manage risks and optimize project value
- **Project directors and managers** responsible for creating a successful project that meets budget, schedule, and sustainability objectives
- **Engineering** discipline leads and teams tasked with creating designs
- **Procurement** teams responsible for bringing the best contractors and suppliers to the project
- **Construction** management teams that want to ensure their workforce is engaged and that there are no unexpected delays in their schedule
- **Sustainability, environment, and communications** teams that want to improve their engagement with the entire project team
- **Financing agencies** that want to ensure the projects they invest in can manage risks, achieve institutional requirements, and deliver projects that will not make the news and damage the financial institute's brand
- **Consultants and contractors** who need to understand how their work can support the project team with delivering a successful project
- **Government regulators** who want to understand the challenges of delivering major projects
- **Students** who are looking for careers in project management and project delivery