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Attributes and Framework for Sustainable Infrastructure

Consultation Report

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IDB Group

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Note:

This document is intended to foster a common understanding of the key attributes and set out a framework for Sustainable Infrastructure, building on previously conducted work. The paper aims to provide the basis for a broad discussion among different stakeholders, including MDBs, other international institutions, standard setters, public and private sector and relevant academic institutions, in order to reach a shared understanding and agreement.

The paper does not aim to replace existing standards, safeguards, or other procedures currently used by MDBs or other global or professional institutions.

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Executive Summary

Sustainable Infrastructure (SI) is now recognized as an essential foundation to achieve inclusive and sustainable growth, deliver on the Sustainable Development Goals (SDGs), and meet the targets of the Paris Agreement of the United Nations Framework Convention on Climate Change. The world needs to ramp up investments in sustainable infrastructure to tackle large deficits in infrastructure services especially in emerging markets and developing countries, respond to the structural changes that are underway —especially urbanization—, and accelerate the replacement of aging and polluting infrastructure. Altogether, around $90 trillion of infrastructure investment is needed worldwide between 2015 and 2030, which exceeds the current capital stock (NCE, 2016). With that scale of required investment and the short window to arrest climate change, we cannot afford to lock-in polluting technologies and inefficient capital (IPCC, 2018).

We have a small window of opportunity to realize the potential benefits that may come with making the shift to this new sustainable development growth path (NCE 2018; OECD, World Bank and UN Environment 2018). This urgency is further underscored by a shrinking global carbon budget that is consistent with commitments to stay well below 2°C in order to avoid dangerous levels of climate change, coupled with the fact that the later emissions peak, the more costly and potentially more disruptive it will be to reach the goal of net zero emissions by mid-century.

Despite the central importance of sustainable infrastructure, most countries and the world at large are unable to deliver on the quantity and quality of investment needed. This reflects two fundamental and persistent gaps. First, countries are often unable to transform the tremendous needs and opportunities into a concrete pipeline of projects, and a significant proportion of new investment is not as sustainable as it should be. This is due to the inherent complexities of infrastructure investment (long-term nature, interconnectedness, social impacts, and positive and negative externalities), and policy and institutional impediments. Second, despite the large pools of available savings, mobilizing long-term finance at reasonable cost to match the risks of the infrastructure project cycle and ensuring that finance is well-aligned with sustainability criteria remains a widespread challenge.

Tackling these two challenges will require concerted efforts on several fronts and enhanced partnerships including strong involvement of the private sector. First, there is a large unfinished agenda to strengthen the upstream policy and institutional framework in most countries that needs to be consolidated in order to unlock investments, attract the private sector, and ensure a sharp focus on sustainability from the outset. Second, each individual project needs to be designed, built, operated and decommissioned based on sustainability criteria. There has been a long-standing focus on safeguards to ensure

that projects do no social or environmental harm and have good governance arrangements. Over the last decade, more incentive and education-based rating and assessment tools have been developed and refined. These are being used in different jurisdictions, but as they are not widely deployed and differ in their approaches, are insufficient to create a coherent framework to guide investments and assess sustainable infrastructure assets. Third, there is a need to develop better platforms for project preparation and for upstream financing support. Finally, given the large and complex financing needs for infrastructure, it is essential to develop better structures to mobilize and utilize all pools of finance, especially private finance from long-term institutional investors, and to ensure that these pools of finance are aligned with sustainability criteria.

All these efforts would be facilitated and better aligned with a shared understanding of what sustainable infrastructure is. While sustainability has long been discussed and some proposed definitions of sustainable infrastructure have been put forward, there is not yet a sufficiently detailed and well-specified definition that sets out its core attributes. This paper is a contribution to develop such a shared understanding of the key dimensions and attributes that together define sustainable infrastructure. It is based on a thorough assessment of the literature, a review of the wide-ranging tools and standards that have been developed, in-depth discussions within the Inter-American Development Bank (IDB) and with other multilateral development banks (MDBs), and the analytical work of the authors.

The proposed definition of sustainable infrastructure in this paper is based on two main propositions. First, the sustainability of infrastructure must take into account the benefits and costs of the investment over the entire life cycle of the project, including all externalities, positive and negative. Second, sustainability must be assessed across all relevant dimensions. There is a long-standing agreement that sustainability must integrate the economic/financial, social and environmental impacts of a project. The paper adds the additional dimension of institutional sustainability, given its importance for the other three dimensions and for the long-term effectiveness and impact of the project. In addition, the paper recognizes the more prominent role that resilience and technological innovation must play in the design and operation of infrastructure assets given growing spatial vulnerabilities and the already evident impact of climate change. Finally, sustainable infrastructure must give special attention to preserving and rebuilding natural capital and to nature-based solutions.

> Sustainable infrastructure refers to infrastructure projects that are planned, designed, constructed, operated, and decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire life cycle of the project.

The paper then sets out the detailed attributes that constitute the elements of each of these four dimensions and that together provide the framework for assessing the sustainability of an infrastructure investment. The comprehensive IDB Framework for Sustainable Infrastructure (prepared in collaboration with colleagues from Brookings and the Zofnass program at Harvard) is included as annex.

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Sustainability, Sustainable Infrastructure, Inclusive Growth, Environmental, SDGs, Low carbon, Climate

Note:
This document is intended to foster a common understanding of the key attributes and set out a framework for Sustainable Infrastructure, building on previously conducted work. The paper aims to provide the basis for a broad discussion among different stakeholders, including MDBs, other international institutions, standard setters, public and private sector and relevant academic institutions, in order to reach a shared understanding and agreement.

The paper does not aim to replace existing standards, safeguards, or other procedures currently used by MDBs or other global or professional institutions.

Acronyms and Abbreviations

ASCE
American Society of Civil Engineers.

CEEQUAL®
Standard for civil engineering environmental quality assessment and award scheme.

Envision®
Envision rating system.

ESG
Environmental, Social and Governance.

GHG
Greenhouse gas.

IDB
Inter-American Development Bank.

ICE
Institution of Civil Engineers.

IFC
International Finance Corporation.

IPCC
Intergovernmental Panel on Climate Change

IFIs
International Financial Institutions.

IS-Scheme
Infrastructure Sustainability Scheme.

MDBs
Multilateral develpoment banks.

NCE
New Climate Economy.

NDCs
Nationally determined contributions.

NGFS
Central Banks and Supervisors Network for Greening the Financial System.

OHCHR
Office of the United Nations High Commissioner for Human Rights.

Paris Agreement
Paris Agreement of the United Nations Framework Convention on Climate Change.

SDGs
Sustainable Development Goals.

SI
Sustainable infrastructure.

SuRe®
Standard for Sustainable and Resilient Infrastructure.

TBL
Triple bottom line.

TCFD
Task Force on Climate-related Financial Disclosure.

UN
United Nations.

UNCSD
United Nations Commission on Sustainable Development.

UNSD
United Nations Statistics Division.

UN ESCAP
United Nations Economic and Social Commission for Asia and the Pacific.

WEF
World Economic Forum..

WCED
World Commission on Environment and Development.

1. Why do we need this Framework?

Sustainable infrastructure is now well recognized as an essential foundation to support inclusive growth and productivity, enhance the coverage and quality of services embodied in the Sustainable Development Goals (SDGs), and meet the targets of the Paris Agreement of the United Nations Framework Convention on Climate Change (Paris Agreement). Sustainable infrastructure is key to accelerating the transition toward low-carbon and climate-resilient economies, and of critical importance for environmental sustainability in general (NCE, 2016 and NCE, 2018).

While there has been a long-standing discourse on sustainability and aggregate definitions of sustainable infrastructure have been put forward, there is not yet a shared understanding or agreement on a definition and its core attributes. The initial framing of sustainable development goes back to the 1970s and there has been growing recognition of the importance of improving the sustainability of infrastructure investments. However, it was the milestone agreements of 2015 —the Addis Ababa Action Agenda on financing for development, the SDGs and the Paris Agreement— in particular that highlighted the central role of sustainable infrastructure and spurred deliberations and initiatives on how to unlock and scale up finance for sustainable infrastructure.

A wide range of initiatives are currently underway to enhance the delivery of sustainable infrastructure. These include the enunciation of high-level principles (including notably the G7 Ise-Shima Principles on Quality Infrastructure and currently being further developed by the G20); the introduction and refinement of tools

and rating methodologies to guide project design and execution; platforms for project preparation (particularly SOURCE, the advanced project preparation platform set up by the multilateral development banks [MDBs]); revamping of project preparation facilities, including the setting up of the Global Infrastructure Facility; new institutional structures for cooperation to drive the sustainable infrastructure agenda, including the Global Infrastructure Forum, the G20 Infrastructure Hub, and the OECD Forum on Governance of Infrastructure; an extensive work program and action agenda in the G20, including the G20 roadmap on quality infrastructure with a focus on creating infrastructure as an asset class; a related cooperation platform among the international financial institutions (IFIs) covering data, guarantees, project preparation and standardization; extensive work by international organizations on key aspects of the sustainable infrastructure agenda, including many seminal pieces of work by the OECD, the United Nations (UN), the Inter-Agency Taskforce on Financing for Development, and the MDBs individually and collectively (for example on public-private partnerships); the focus on the role of the private sector including the Blended Finance Taskforce, the WEF Sustainable Development Investment Partnership, the Principles for Responsible Investment, and the IDB-Mercer initiative; much stronger links to the climate agenda since the Paris Agreement (including mitigation, increased focus on resilience, and the links to the nationally determined contributions [NDCs]); green and sustainable finance, including through the work of the UNEP Inquiry, the sustained efforts of the Climate Bond Initiative, and the work programs on green/sustainable finance from the G20, the Central Banks and Supervisors Network for Greening the Financial System (NGFS) and the European Union; and the work and follow-up to the Task Force on Climate-Related Financial Disclosure (TCFD). Several special initiatives have also been focused on sustainable infrastructure including the New Climate Economy (NCE) (through the work streams of the Sustainable Finance and Growth Initiative and the Coalition of Urban Transitions) and the Energy Transitions Commission. Think tanks and the academic community have also been undertaking policy research on different aspects of the delivery challenge, and civil society has focused increasing attention on enhancing the sustainability of infrastructure and the role of natural capital (including The Nature Conservancy and the World Wildlife Fund). Finally, sustainable infrastructure has figured more prominently in the national discourse in both advanced and emerging economies, with several initiatives on tackling institutional, policy and financial constraints.

These wide-ranging initiatives have often stemmed from different perspectives of the growth, development, sustainability and financing agendas, without a shared understanding of what sustainable infrastructure is or a common framework of what it will take to deliver on sustainable infrastructure.

Given the urgent need to scale up sustainable infrastructure, a shared definition and understanding as well as a common framework can ensure that these efforts are well aligned and can enhance its delivery.

This paper puts forward a proposed definition of sustainable infrastructure with its key dimensions and attributes to help reach a shared understanding. Such an understanding will help to: (i) provide a conceptual base for change and clarify what the goals are across different stakeholders; (ii) develop better projects, individually and through alignment of platforms; (iii) promote and support upstream policy and institutional strengthening; (iv) establish clearer financing ground rules; and (v) standardize tools and indicators (IDB and IDB Invest, 2017; Bhattacharya, Contreras and Jeong, 2019) (See Box 1).

The paper also provides a brief overview of an integrated framework to deliver on sustainable infrastructure based on a companion paper.

Box 1: Why do we need a shared understanding of what sustainable infrastructure is?

Provide a conceptual base for change
Sustainable infrastructure is complex and multifaceted, and the different dimensions of sustainability interact with each other, requiring these synergies and trade-offs to be taken into consideration. Defining the attributes of sustainable infrastructure will better clarify what we are trying to achieve across stakeholder groups and will create an arena for strengthening the business case.

Develop better projects
Having a clear, shared understanding of sustainable infrastructure ensures that all parties are heading towards the same objectives. A shared understanding will allow us to measure progress and to receive effective feedback from peers. Likewise, it will result in better-quality and scalable infrastructure investments. A shared understanding of key dimensions and attributes can also guide project preparation platforms (most notably SOURCE) and project preparation facilities.

Support upstream institutional strengthening
The shared framework will help identify implications for the upstream policy agenda and institutional capacity building (policy, legislation, regulation, and organizational capacity), which would thereby ensure systemic and long-lasting changes that lead to quality infrastructure project pipelines and better delivery of infrastructure services.

Establish clear financing ground rules

The framework will give clarity to private investors in regards to investment in sustainable infrastructure. This will help to align financial systems and will incentivize and mobilize the necessary financing to drive transformation and to increase the scale of investments.

Standardize tools and indicators

There are transactional costs associated with the proliferation and fragmentation of tools and the varied approaches to delivering sustainable infrastructure. The framework will aid in the analysis and standardization of tools and approaches to accelerate adoption. Note that the framework is not intended to replace tools but rather to provide a context for their development and improvement.

2. Defining Sustainable Infrastructure

2.1. From Sustainable Development to Sustainable Infrastructure

Thirty years have passed since sustainable development was first defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Today, sustainable development is a widely accepted concept and subsequent agreements over the last three decades have highlighted its importance worldwide. Established approaches include the sustainable management of forests (UNSD, 1992), the development of indicators for sustainable development (UNCSD, 2001), and, most recently, the 2030 Agenda for Sustainable Development (UN, 2015).

Figure 1: Evolution of the definition of sustainable development

2.2. What is Sustainable Infrastructure?

Sustainability has long been viewed as the interconnection among social, environmental, and economic dimensions of development.

In 1998, the International Finance Corporation (IFC) published what was called "Procedures for Environmental and Social Review of Projects", making specific reference to "IFC's commitment to environmentally sustainable and socially responsible projects" (IFC, 1998). Previous to that –in 1984– the World Bank adopted environmental sustainability principles (Goodland, 1995), however this lacked an integrated approach to what is now understood as The Triple Bottom Line (TBL).

The term "sustainable infrastructure" began to appear in international conferences as "infrastructure in harmony with the continuation of economic and environmental sustainability" (UN ESCAP, 2006).

In 2003, the Institution of Civil Engineers (ICE) in the UK published the first approach to sustainability assessment for infrastructure projects. This early version would lead to what is known today as the CEEQUAL® rating scheme.

Meanwhile, the MDBs, through their safeguard policies, have sought to ensure that the projects they finance adhere to good environmental, social and governance practices. These have been formalized through environmental, social and governance (ESG) standards, which have now been adopted more widely by the private sector, and financial institutions. IFC elaborated a comprehensive set of Performance Standards in 2006, later revised in 2012 (IFC, 2012). However, barriers for ESG's integration –such as lack of data, or lack of coordination among standards– still exist today (Rendlen and Weber, 2019).

More recently, international institutions and tool providers have developed high-level principles, good practices, and standards referring to sustainable, quality, or resilient infrastructure (see Figure 2).

These approaches reaffirmed the importance of the three traditional dimensions of sustainability: economic, social, and environmental. However, additional elements should be taken into account, such as considering financial sustainability as separate from economic sustainability, particularly in the context of attracting private investors; the cross-cutting importance of institutional sustainability, often documented as management and governance systems; the need for a much sharper focus on resilience and technological innovation given growing spatial vulnerabilities and the already evident impact of climate change; and the need to preserve and restore natural capital and give much greater importance to nature-based solutions. Current global discussions of sustainable infrastructure have recognized the importance of adopting an integrated view; looking at the broader context in which the investment was undertaken (a systematic view); and considering long-term aspects, such as spillovers and externalities, throughout the project cycle. Each of these elements has been integrated into the framework proposed in this paper.

Figure 2: Definition of sustainable infrastructure and its attributes

1990s — IFC/ WB EARLY REFERENCES
Early Procedures for Environmental and Social Review of Projects

2003 — CEEQUAL® SCHEME
Launch of the first sustainability rating scheme (CEEQUAL)

2003 — EARLY ESG FRAMEWORKS
Equator Principles are published

2006 — IFC PERFORMANCE STANDARDS
Performance Standards on Environmental and Social Sustainability

2006 — UN ESCAP
First policy forum of the Seoul Initiative on Green Growth

2008 — SIAP - (2009-2011)
Sustainable Infrastructure Action Plan of the World Bank Group

2012 — INFRASTRUCTURE RATING SCHEMES
Launch of Envision rating system (USA) and IS-Scheme (Australia)

2014 — MDBs AND IMF
Statement of the Heads of the MDBs and IMF pointing the need for quality infrastructure spending

2015 — INFRASTRUCTURE RATING SCHEMES
Launch of SuRe® (Switzerland)

2016 — G7 ISE-SHIMA PRINCIPLES
Launch of Quality infrastructure principles for infrastructure investment

2016 — FIRST GLOBAL INFRASTRUCTURE FORUM
Bringing together UN, MDBs and other stakeholders on the global infrastructure agenda

2018 — THIRD GLOBAL INFRASTRUCTURE FORUM
MDB's commitment to Sustainable Infrastructure (Bali)

3. An Integrated Framework for Sustainable Infrastructure

Despite the well-recognized importance of sustainable infrastructure, the world is unable to deliver on the quantity and quality of investment needed. As previously mentioned, most countries have been unable to capitalize on the needs and opportunities for sustainable infrastructure, and a significant proportion of the current investment is not as sustainable as it should be. This is largely due to the inherent complexities of infrastructure investment (long-term nature, interconnectedness, social impacts, and positive and negative externalities) and policy and institutional impediments. Additionally, mobilizing long-term finance at reasonable cost to match the risks of the infrastructure project cycle and ensuring that finance is well-aligned with sustainability criteria remains a widespread challenge.

As noted earlier, a wide array of initiatives are underway to unlock and enhance the quality and sustainability of infrastructure investments. These initiatives emphasize particular aspects that have come to prominence, such as governance and public sector management, project prioritization and procurement, public private partnerships, project preparation platforms and facilities, climate sustainability and resilience, mobilization of private finance, and the promotion of infrastructure as an asset class. An integrated framework can help link and better align these efforts.

Figure 3 presents such an integrated framework for the delivery of sustainable infrastructure based on the detailed analysis of a companion paper (Bhattacharya, Contreras and Jeong, 2019). It identifies the main pillars that can help unlock and scale up investments, ensure that projects are sound, and mobilize and utilize finance from all sources most effectively and sustainably.

The first pillar is the upstream policy and institutional framework. In most countries, there is a large unfinished agenda to strengthen this framework to unlock investments, attract the private sector, and ensure a sharp focus on sustainability from the outset. The policy and institutional underpinnings necessary for the sound design of programs and selection of infrastructure projects are complex, encompassing upstream planning and project prioritization, regulations and legislation, supportive fiscal and structural policies, sound frameworks for procurement and public-private partnerships, and effective institutional capacities and governance. A focus on sustainability at the outset will bolster quality and avoid subsequent costs and the risk of stranded assets. These requirements have become more challenging as an increasing proportion of investments are now undertaken at the local and municipal levels.

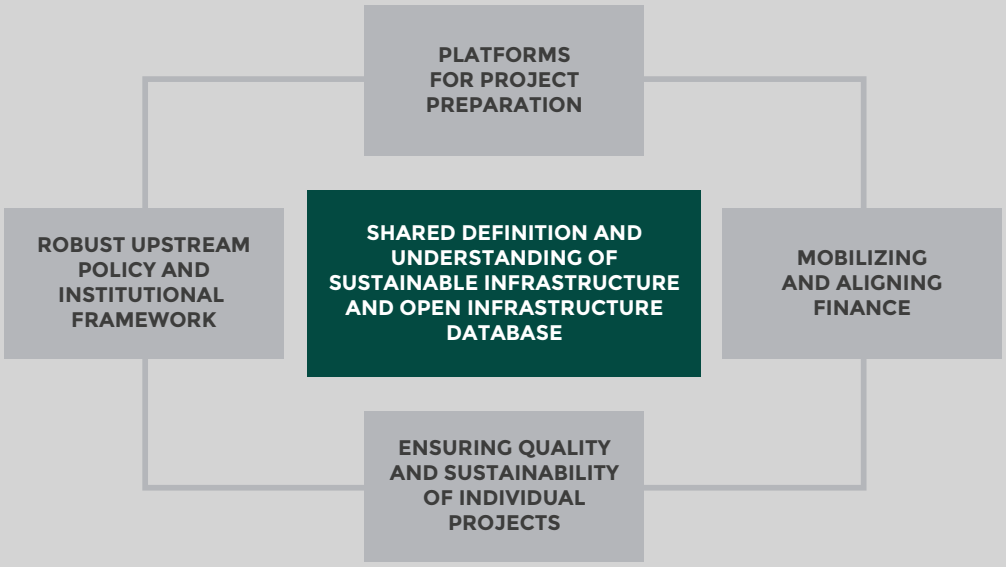
The second pillar refers to the way in which each individual project needs to be designed, built, operated and decommissioned based on sustainability criteria. There has been a long-standing focus on safeguards to ensure that projects do no social or environmental harm and have good governance arrangements. Over the last decade, more incentive and education-based rating and assessment tools have been developed. These are being used in different jurisdictions, but as they are not widely deployed and also differ in their approaches, are insufficient to create a coherent framework within which assets can be well prepared and readily assessed. Most of these tools have undergone recent revisions with a much greater emphasis on sustainability and resilience.

The third pillar is the need to develop better platforms for project preparation and to support upstream financing. The MDBs established a multilateral project development platform, SOURCE, in 2012 that is aimed at enhancing project preparation, engaging all stakeholders, including the private sector, and enabling the collection of information and data. SOURCE can bring about systemic change in the way governments define, develop and manage their infrastructure projects. There are also a range of project preparation facilities to support and finance project preparation. For instance, the G20 and the MDBs have enunciated principles and are in the process of developing guidance and benchmarks for project preparation.

Finally, given the large and complex financing needs for infrastructure, the last pillar recognizes the importance of developing better structures to mobilize and utilize all pools of finance, especially private finance from long-term institutional investors, and ensuring that these pools of finance are aligned with sustainability criteria. There has been some progress in this regard. For example, green finance has gained traction and the market has expanded dramatically through proactive initiatives. Meanwhile, the G20 has launched a work program to develop infrastructure as an asset class. There are also systematic efforts underway to enhance the sustainability of finance, and specific recommendations on assessment and disclosure of climate risk, notably through the work and recommendations of the Taskforce on Climate Related Disclosure (TCFD) and the EU Expert Group on Sustainable Finance.

All these pillars require a shared understanding of sustainable infrastructure and its attributes. They also require a much more robust and comprehensive set of information and data on infrastructure, including spending and assessment of needs, data on projects for the main sectors and sub-sectors across countries and regions, benchmarks on performance, and financial information and rates of return (Rozenberg and Fay, 2019).

Figure 3. Integrated framework for delivery of sustainable infrastructure



4. Tools and Standards Mapping

The broad interest in delivering sustainable infrastructure has led to a plethora of related principles, guidelines, tools, and protocols. The approach and level of detail of those tools range substantially, including: (i) high-level definitions and principles; (ii) sustainability reporting guidelines; (iii) safeguard standards and good practices; (iv) infrastructure sustainability rating systems or assessment schemes; and (v) databases and benchmarking tools (Figure 4).

High-level definitions and principles include aggregate definitions (Bhattacharya et al, 2015; NCE, 2016) and the G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment. These do not include comprehensive sustainability attributes or indicators and may be more broadly targeted. These principles constitute a significant body of knowledge and serve as a basis for other tools.

Sustainability reporting guidelines include the Global Reporting Initiative and provide homogeneous and transparent reporting procedures by which sustainability can be tracked and shared amongst different stakeholders. These do not specifically focus on infrastructure.

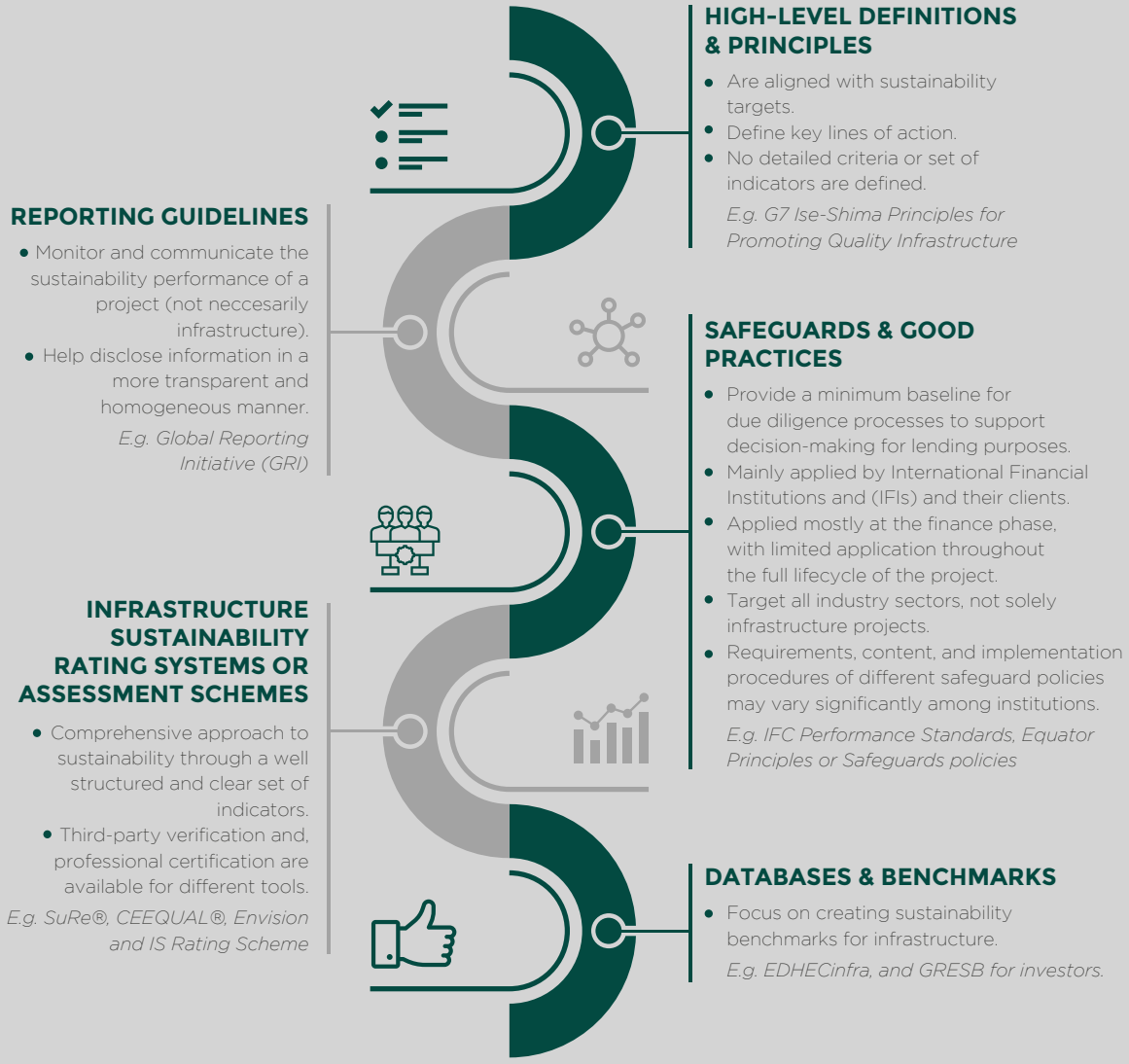
Safeguard standards and good practices include MDB safeguard policies and the IFC Performance Standards. These tools are mainly applied by IFIs and are the basis for due diligence in ensuring that the project meets ESG benchmarks. Through their identification and

management —by way of design, construction and execution— they are able to address project level environmental and social risks. Safeguards do not apply specifically to infrastructure projects but to all the productive sectors financed by the different financial institutions. The requirements and content of different institutions may differ significantly.

Sustainability rating systems or assessment schemes include SuRe®, Envision®, CEEQUAL®, and the IS-Scheme amongst others. The American Society of Civil Engineers (ASCE) is also in the process of developing a standard for sustainable infrastructure. These tools and rating systems provide a comprehensive approach to sustainable infrastructure through a well-defined structure and clear set of indicators that can be quantified and monitored. Many of these tools were developed to assess the design phase of the project, but have been extended to different phases of construction, operation, and maintenance.

Databases and benchmarks such as Global ESG Benchmark for Real Assets focus on creating benchmarks for infrastructure assets and real estate portfolios. These are generally developed around ESG criteria and aim to promote decision-making that optimizes risk/return and improves investment management.

Figure 4. Existing frameworks by approach



5. Definition of Sustainable Infrastructure

This paper, based on our review of the literature, discussions with experts, and an analysis of existing tools and standards (Figure 4), proposes a framework and a definition with attributes for sustainable infrastructure. This should not be considered a definitive proposal, but rather a contribution to ongoing dialogue.

Box 2: Definition of Sustainable Infrastructure

Sustainable infrastructure refers to infrastructure projects that are planned, designed, constructed, operated, and decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire life cycle of the project.

Figure 5. The four dimensions of sustainable infrastructure

For an infrastructure asset to be considered sustainable, it is important that each of the four dimensions are addressed. To achieve this, it is vital to have effective and transparent management systems in place. These management systems should guarantee alignment with other higher-level strategies and support capacity building, while permitting effective consideration of synergies and tradeoffs among sustainability attributes (IDB and IDB Invest, 2017). The attributes of each of the four dimensions of infrastructure sustainability are presented in the following section.

5.1. Economic and Financial Sustainability

Box 3: Definition of Economic and Financial Sustainability

Infrastructure is economically sustainable if it generates a positive net economic return bearing in mind all benefits and costs over the project life cycle, including positive and negative externalities and spillovers. In addition, infrastructure must generate an adequate risk-adjusted rate of return for project investors. Sustainable infrastructure projects must therefore generate a sound revenue stream based on adequate cost recovery, and supported, where necessary, by availability payments through tapping spillovers. Sustainable infrastructure must be designed to support inclusive and sustainable growth, to boost productivity, and to deliver high-quality and affordable services. Sustainable infrastructure seeks to maximize the value of the asset over the entire life cycle, including through adequate attention to operations and maintenance. Risks must be fairly and transparently distributed to those entities that are most able to control it, or those most capable of absorbing the impact it has on investment outcomes over the life cycle of the project. Fiscal liabilities must be fully accounted for and investments must take into account debt and fiscal sustainability.

5.2. Environmental Sustainability and Climate Resilience

Box 4: Definition of Environmental Sustainability and Climate Resilience

Sustainable infrastructure preserves, restores, and integrates the natural environment, including both biodiversity and ecosystems, and must be anchored in sound land use planning. Sustainable infrastructure supports the sustainable and efficient use of natural resources, including energy, water, and materials and promotes nature-based solutions*. It limits all types of pollution over the project life cycle, and contributes to a low-carbon, resilient, and resource-efficient economy. Sustainable infrastructure projects are positioned and designed to ensure resilience to climate and natural disaster risks.

5.3 Social Sustainability

Box 5: Definition of Social Sustainability

Sustainable infrastructure is inclusive and should have the broad support of those communities which may be affected. It serves all stakeholders, including the poor and vulnerable, and contributes to enhanced livelihoods and social well-being over the life cycle of the project. Projects must be constructed according to good labor, health, and safety standards. Benefits generated by sustainable infrastructure services should be shared equitably and transparently. Services provided by such projects should promote gender equity, health, safety, and diversity, while complying with human and labor rights. Involuntary resettlement should be avoided to the extent possible and, when avoidance is not possible, displacement should be minimized by exploring alternative project designs. Where economic displacement and relocation of people is unavoidable, resettlement must be managed in a consultative, fair, and equitable manner, and must integrate cultural and heritage preservation as well.

* Nature-based solutions are structures and facilities that underpin power and other energy systems (including upstream infrastructure, such as the fuel production sector), transport, telecommunications, water, and waste management. It includes investments in systems that improve resource efficiency and demand-side management, such as energy and water efficiency measures. Infrastructure includes both traditional types of infrastructure (including energy to public transport, buildings, water supply and sanitation) and, critically, also natural infrastructure (such as forest landscapes, wetlands and watershed protection).

Box 6: Definition of Institutional Sustainability

Sustainable infrastructure is aligned with national and international commitments, including the SDGs and the Paris Agreement, and is based on transparent and consistent governance systems over the project life cycle. Robust institutional capacity and clearly defined procedures for project planning, procurement, and operation are enablers for institutional sustainability. The development of local capacity, including mechanisms of knowledge transfer, promotion of innovative thinking, and project management, is critical to enhancing sustainability and promoting systemic change. Sustainable infrastructure must develop technical and engineering capacities, along with systems for data collection, monitoring, and evaluation, with the aim of generating empirical evidence and quantifying impacts and benefits.

6. The Proposed Framework and its Attributes

Sustainable infrastructure requires sustainability across four dimensions: (i) economic and financial sustainability, (ii) environmental sustainability and climate resilience, (iii) social sustainability and, (iv) institutional sustainability. For each of these dimensions, several sub-dimensions have been defined, providing areas of action for the delivery of sustainable infrastructure. These 14 sub-dimensions are the basis for organizing attributes into coherent groups (Figures 6 and 7).

Figure 6. Levels of detail in the sustainable infrastructure framework

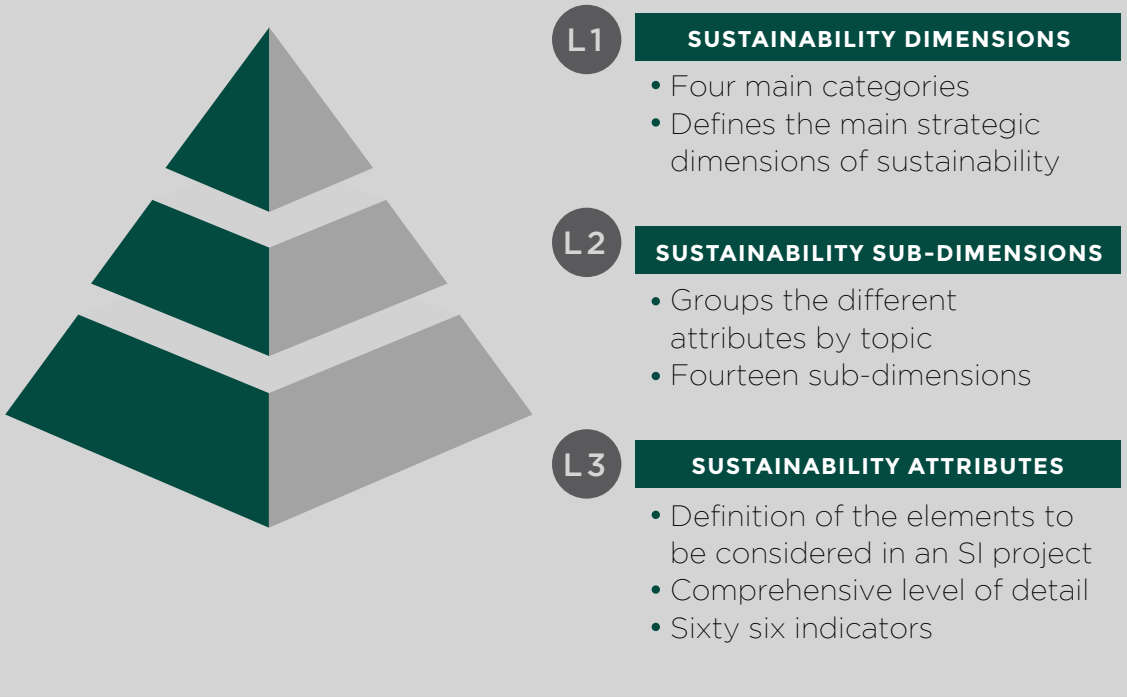
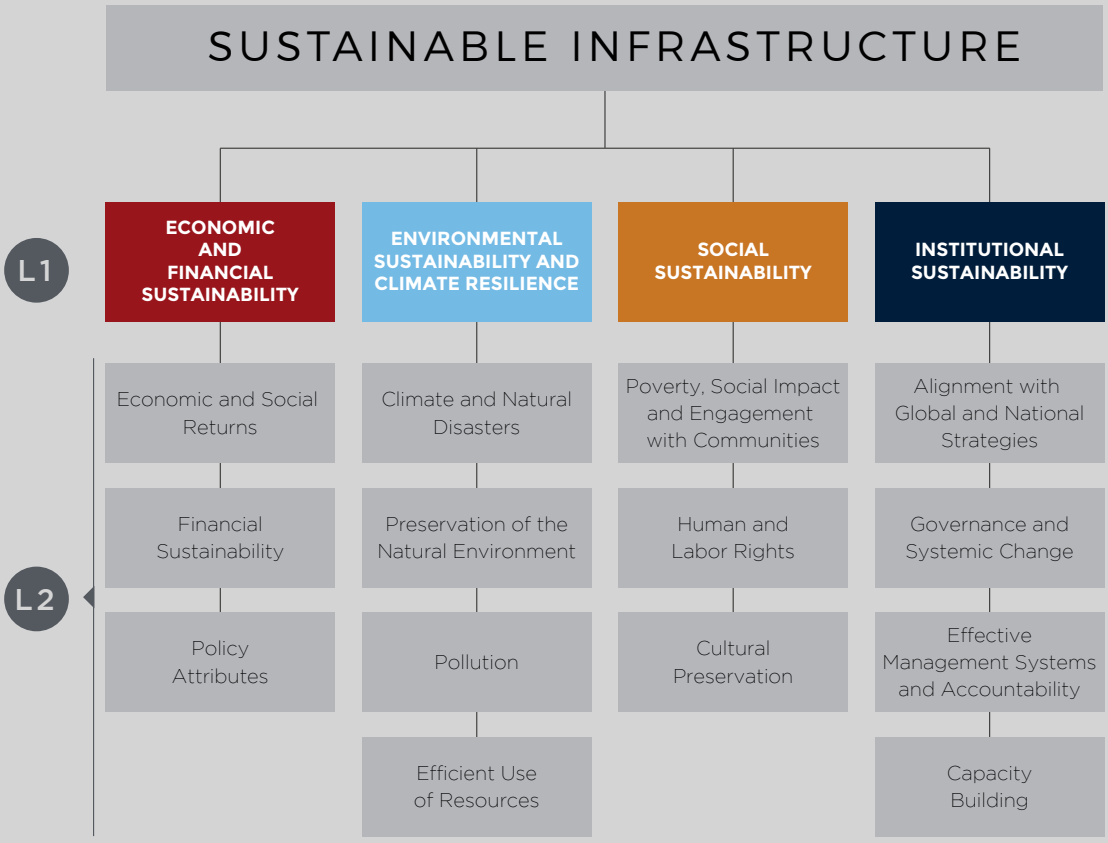


Figure 7. Sub-dimensions of the sustainable infrastructure framework



6.1 Economic and Financial Sustainability

Ensuring economic and financial sustainability requires (i) clear articulation and assessment of the economic and social returns of the project, (ii) a well-defined financial model that ensures financial viability and adequate risk-adjusted rates of return, (iii) addressing policy-related attributes that underpin economic and financial viability, as well as (iv) robust analytical processes to determine the optimal procuremet option for each scenario (PPPs vs traditional procurement).

The connection between infrastructure investment and economic growth has been well established (e.g., see Bhattacharya et al, 2016). The direct economic and social impacts are typically well addressed during the evaluation phase of an infrastructure project, but less so are the indirect effects such as job creation, increase in productivity and spillovers in economic activity. Revenue models that tap into these spillovers may be key to the financial viability of infrastructure (Yoshino, Helble and Abidhadjaev, 2018). More generally, it is essential to have a well-specified revenue model that generates adequate risk-adjusted rates of return to attract private investment.

Given the nature of risks and potential fiscal implications of infrastructure projects, particular attention needs to be given to debt and fiscal sustainability. A core element of sustainable infrastructure is the long-term approach; a project is only considered sustainable if the asset's long-term sustainability has been ensured (World Bank, 2015). Accordingly, elements such as clarity of revenue streams, a positive net asset present value, and adequate risk allocation should be clearly defined in a project's earliest phases. This is critical not merely to guarantee the viability of the asset in the long term, but to unlock financing and to attract private investment as well.

To ensure that economic and financial elements are correctly addressed, transparent and effective regulatory frameworks, along with enforcement mechanisms, should be in place to guarantee the sound operation of the project. Schemes for determining and adjusting prices to maintain financial viability while ensuring social affordability are also key. Adequate design and operation standards should similarly be considered, along with pricing and other incentives to ensure efficient use and viability of the assets in the long term.

Figure 8. Sub-dimensions and attributes of economic and financial sustainability

6.2 Environmental Sustainability and Climate Resilience

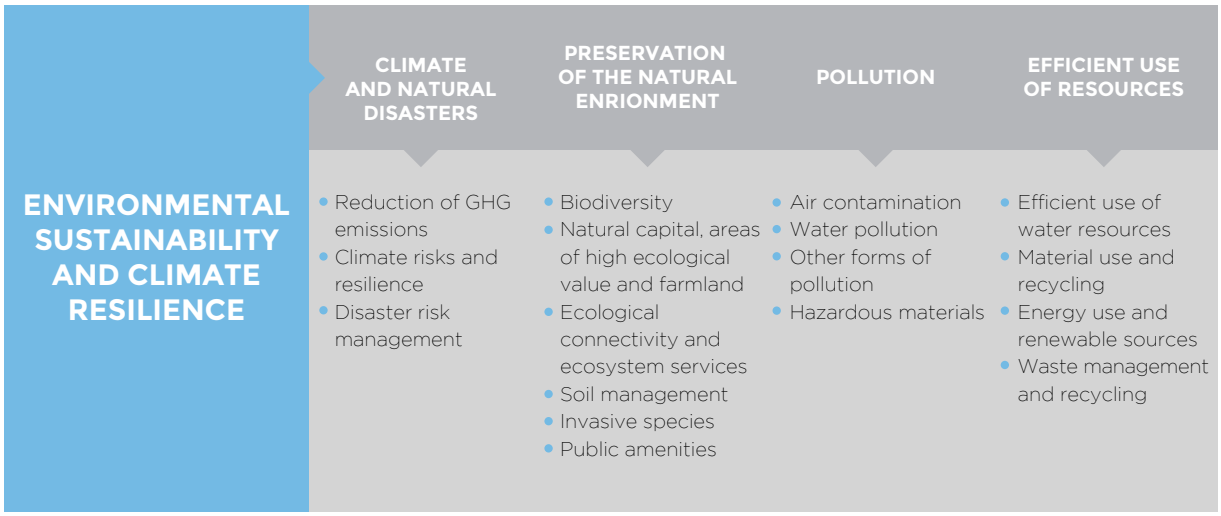
The environmental consequences of infrastructure projects are well recognized. Addressing environmental sustainability has become increasingly prominent considering the widespread environmental degradation and intense pressures being placed on the global commons. Sustainable infrastructure should (i) integrate climate and natural disaster strategies, (ii) preserve the natural environment, (iii) reduce pollution, and, (iv) optimize the use of resources.

The Paris Agreement has underscored the urgent challenge of aligning existing and future infrastructure with the goal of sharply cutting back greenhouse gas (GHG) emissions to limit global warming to no more than 2°C. At the same time, given the already evident impacts of climate change, a stronger focus is needed on the resilience of all infrastructure. Therefore, existing and future infrastructure must be designed taking into account resilience and mitigation, while systematically assessing and managing disaster risks which could affect the project, stakeholders and local communities.

Infrastructure projects should aim to minimize environmental disruption by preserving areas with high ecological value, biodiversity, and ecosystem functions. To minimize the potential negative impact on the global commons and the natural environment, air, water and other forms of pollution should be monitored throughout the entire life cycle of infrastructure projects. Management plans and specific mitigation strategies should be defined to avoid exceeding regulatory thresholds.

The depletion of natural resources is highlighted in the Stockholm Declaration of 1972, which points out that "non-renewable resources of the Earth must be employed in such a way as to guard against the danger of their future exhaustion" (United Nations, 1972). Considering the large scale of materials required for the design and operation of an infrastructure asset, special strategies should be defined to minimize the use of resources as well as to integrate more efficient solutions. These strategies should take into consideration the principles of circular economy, the use of renewable energy sources, adequate plans for the recycling of materials, and closed-loop waste management, among others.

Figure 9. Sub-dimensions and attributes of environmental sustainability and climate resilience



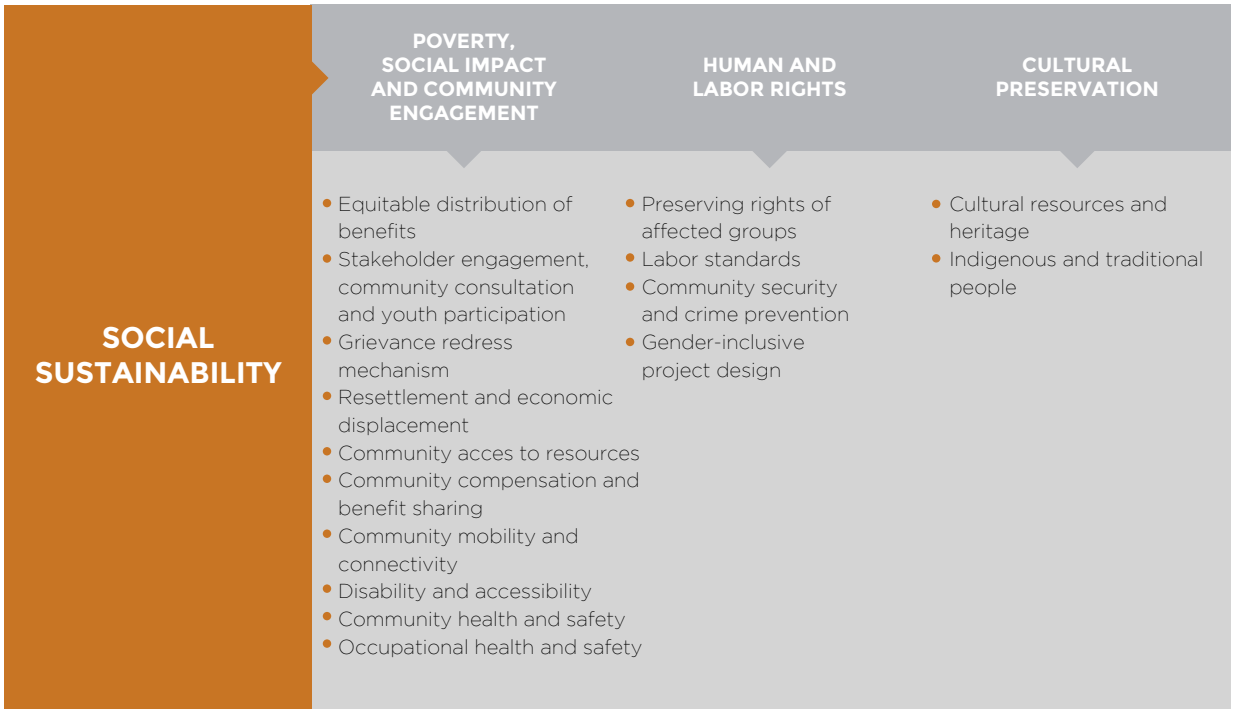
6.3 Social Sustainability

Social sustainability builds upon (i) an understanding of the social impact of infrastructure assets, and the promotion pf social benefits and cohesion from the outset (ii) the integration of human and labor rights, especially of indigenous and traditional populations, and (iii) special attention to cultural preservation. Infrastructure projects should seek to be socially sustainable during the entire life span of the project. Addressing social sustainability proactively helps to diminish eventual costs along with potential conflicts in the area of influence (Watkins et al, 2017).

Social impacts of infrastructure projects and the importance of stakeholder engagement and public consultation are central to sustainability. Nevertheless, social concerns consistently arise in infrastructure projects (OHCHR, 2017). The minimization of unintended social impacts requires that special consideration be given to poverty and social inclusion, and that adequate channels of communication enable stakeholder consultation and engagement. A clearly defined grievance redress mechanism should be in place as an element of ongoing engagement. Special attention should be devoted to resettlement and economic displacement due to the potential disruption and long-lasting effects they can have on local communities and vulnerable groups. Road safety, minimization of mobility disruption and close attention to possible health effects (for workers and for communities) should be addressed as well.

Infrastructure projects should comply with agreements on human and labor rights, so as to ensure equal opportunities, fair treatment, a gender-inclusive project design, and an absence of discrimination. Due to the significant potential for infrastructure projects to drive change (both positive and negative), the need to integrate special groups, such as indigenous communities and other traditional peoples, should be identified in the early phases of the project. Likewise, the preservation of tangible and intangible cultural heritage should be a priority.

Figure 10. Sub-dimensions and attributes of social sustainability



6.4 Institutional Sustainability

Policy coherence and regulatory certainty is a key challenge for scaling up investment in sustainable infrastructure. To deliver sustainable infrastructure, the institutional arrangements must be sound and fully operational, ensuring i) alignment with global and national strategies, ii) the existence of effective management and accountability systems, iii) the promotion of systemic change, and iv) a contribution to institutional capacity building (Bhattacharya et al, 2016).

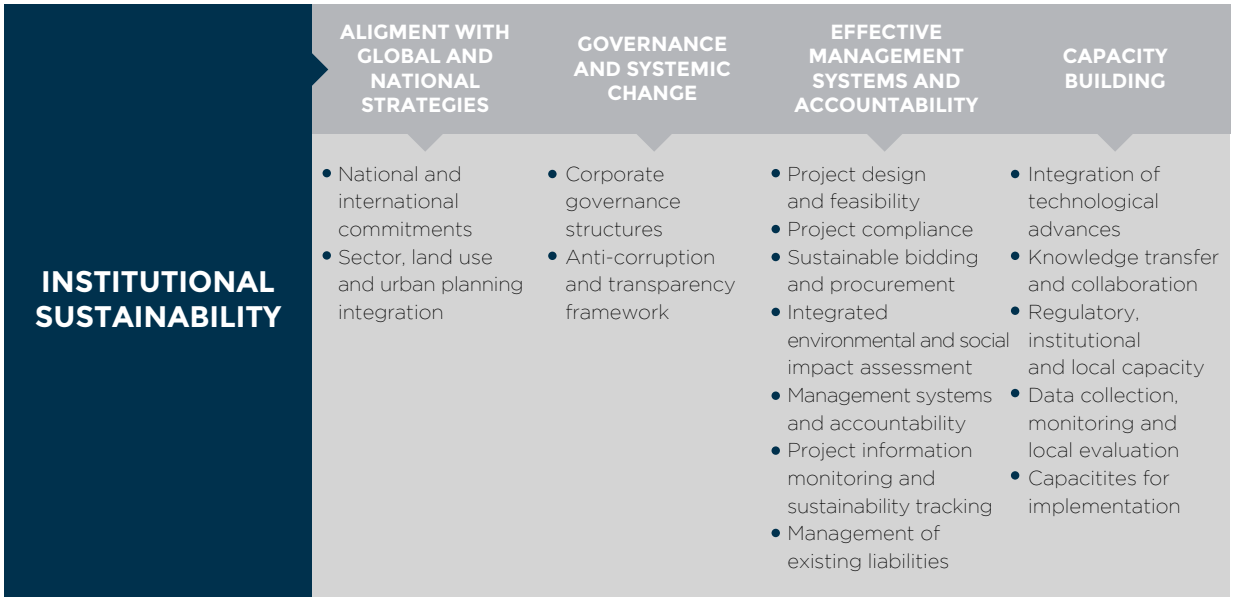
Institutional sustainability needs to be evaluated across different jurisdictional scales, aligning global and national strategies and grounding them in sectoral, territorial, and urban development strategies. This requires independent corporate governance structures, and anti-corruption and transparent frameworks that ensure that infrastructure assets are well planned, designed, constructed and monitored throughout their entire lifecycle.

Following the Paris Agreement, countries have also made commitments that will have implications for decisions on infrastructure. Ensuring that infrastructure plans are aligned with countries own NDCs is therefore an important element of policy coherence.

Lack of adequate planning or poor transparency can aggravate implementation challenges. The need for effective project-level management and monitoring systems has been recognized in many ESG frameworks. Independent early-phase engineering, as well as financial, environmental, and social feasibility studies are key to avoid locking in long-term negative impacts on people and the environment. Furthermore, developing detailed technological risk assessments is a necessary step to avoid early asset obsolescence and/or stranded assets. Incorporating sustainability and technological innovation into bidding and procurement processes, along with comprehensive integrated environmental and social impact assessments, can help to ensure that appropriate subcontractors and materials are selected, and that potential negative environmental and social impacts are avoided or minimized. For progress to be monitored throughout the entire life cycle of the project, necessary human and financial resources as well as best practice in technology innovation should be identified in advance, as should an action plan for their implementation.

Capacity building should address the integration of technological advances, knowledge transfer, and collaboration, as well as mechanisms for robust data collection, and the capacity and expertise to monitor, evaluate, and act on this information.

Figure 11. Sub-dimensions and attributes of institutional sustainability



Conclusion

The present consultation report emphasized the importance of a common definition for sustainable infrastructure and presented detailed attributes that constitute the elements of each of these four dimensions that together provide the framework for assessing the sustainability of an infrastructure investment. The comprehensive IDB Framework for Sustainable Infrastructure (prepared in collaboration with colleagues from Brookings and the Zofnass program at Harvard) is included as annex.

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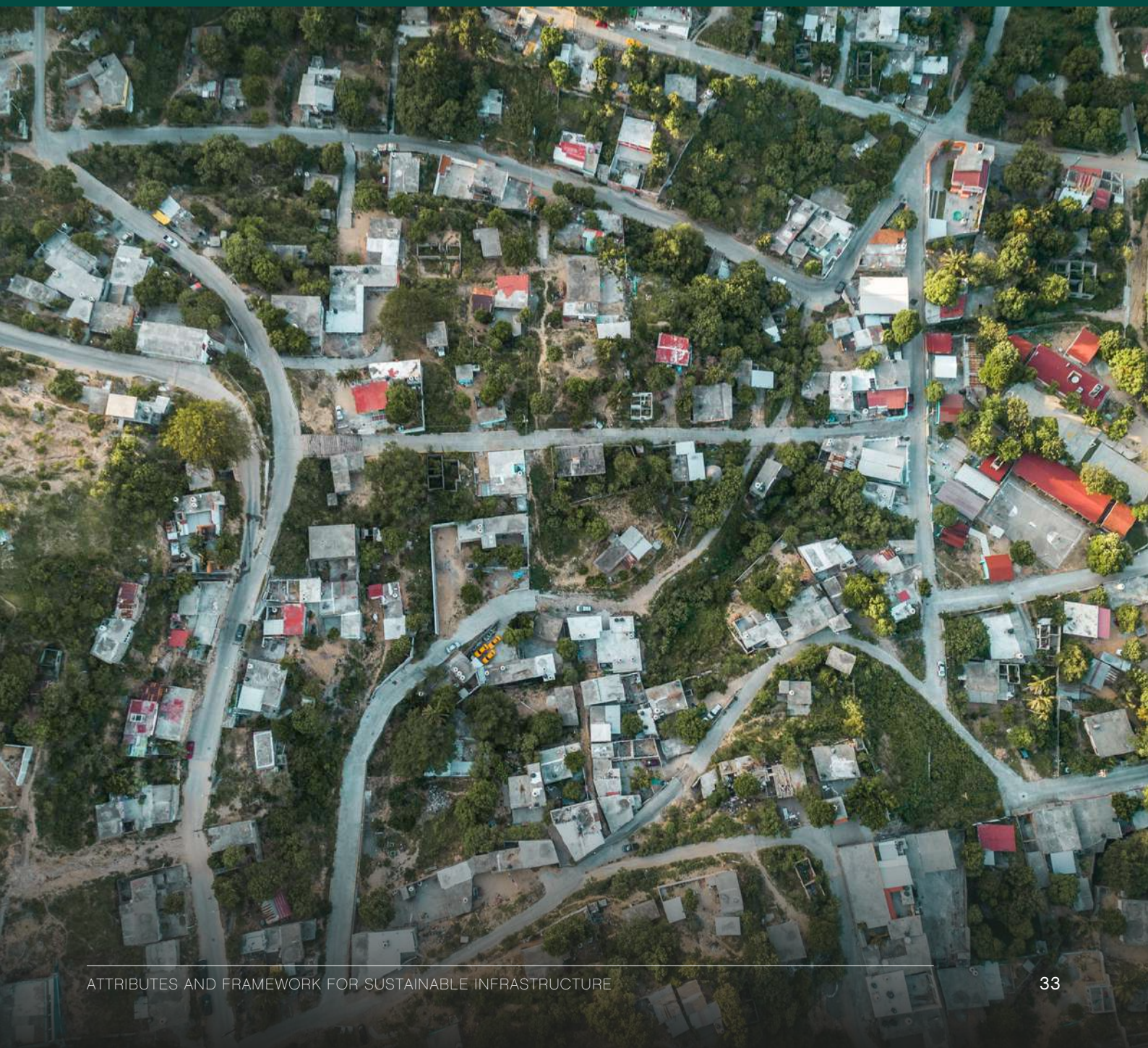

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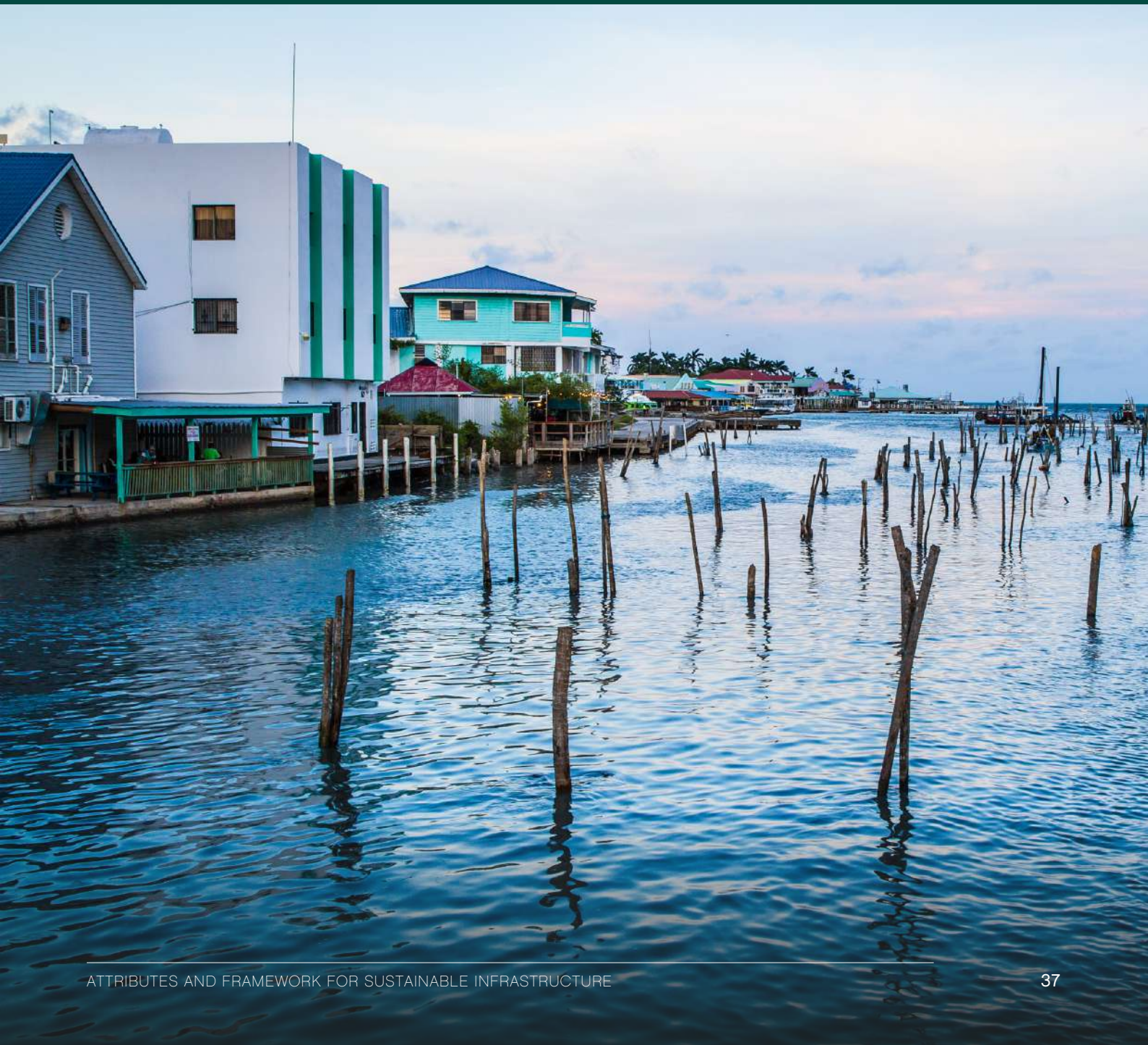
Annex

IDB Sustainable Infrastructure Framework

(In collaboration with colleagues from Brookings and the Zofnass program at Harvard)



Attributes of Economic and Financial Sustainability

CATEGORY	ATTRIBUTES	DESCRIPTION
1. ECONOMIC AND SOCIAL RETURNS	• 1.1 Economic and social return over project life cycle	• Infrastructure projects should apply cost-benefit analysis techniques that adequately capture the net economic and social returns of the project over its life cycle, taking into account all the externalities — positive and negative.
	• 1.2 Growth, productivity and spillovers	• Infrastructure projects should be planned, designed and operated to promote inclusive and sustainable growth and boost productivity. Sustainable infrastructure should seek to maximize co-benefits and identify, assess, and minimize negative spillovers.
	• 1.3 Job creation	• Infrastructure projects should create quality and local employment opportunities during the project construction and beyond.
	• 1.4 Service access, quality, reliability, and affordability	• Infrastructure projects should broaden access to high-quality and reliable infrastructure services, especially for disadvantaged and vulnerable groups, thus supporting social inclusion and affordability.
2. FINANCIAL SUSTAINABILITY	• 2.1 Adequate risk adjusted rate of return	• In addition to a net positive economic return, infrastructure projects should generate an adequate risk-adjusted rate of return to attract commercial investment.
	• 2.2 Clarity on revenue streams	• Infrastructure projects should provide clarity on the ultimate source of revenue, in order to mitigate risks and ensure financial viability.
	• 2.3 Effective risk allocation and management	• Infrastructure projects should be structured such that project-related risks (technical, social, environmental, and political) are allocated to the party most able to control the risk and its impact on the project outcome, by assessing and anticipating risks and responding to them.
	• 2.4 Operating profitability	• Infrastructure projects should be financially structured such that revenues cover running costs and to ensure operations turn out profits, before deduction of taxes, interest, amortization, and depreciation of capital investments (and remuneration of capital).
	• 2.5 Asset profitability	• Infrastructure projects should be financially structured such that asset profitability (return on assets, return on equity) is sufficient to attract private capital.
	• 2.6 Positive net present asset value	• Infrastructure projects should be financially structured such that the present value of cash inflows is greater than the present value of cash outflows —both discounted at the weighted average cost of capital. Infrastructure project financial assessments should be conducted in accord with international good practices and evaluated by independent entities.
	• 2.7 Liquidity ratios	• Infrastructure projects should be financially structured such that the investment is able to pay off both its current liabilities as they become due, as well as its long-term liabilities as they become current, at any given time.

CATEGORY	ATTRIBUTES	DESCRIPTION
3. POLICY ATTRIBUTES	• 2.8 Solvency ratios	• Infrastructure projects should ensure adequate cash flows in order to be able to make payments and pay off long-term obligations to creditors, bondholders, and banks across the life of the asset. Infrastructure project financial assessments should transparently indicate solvency ratios, in accord with international good practices.
	• 2.9 Mobilization of local financing	• Infrastructure projects should, when possible, promote domestic finance including long-term finance such as pension and insurance funds.
	• 3.1 Effective regulation	• Infrastructure projects should have a transparent and effective regulatory framework and enforcement mechanism to guarantee the sound operation of the project. The needs to be addressed should be clearly established as part of the operating environment of the project.
	• 3.2 Debt and fiscal sustainability	• Infrastructure projects should ensure that service provision costs are covered through carefully designed user fee schemes and, when determined non-viable, should incorporate transparent, predictable and well-targeted availability payments.
	• 3.3 Pricing and incentive alignment	• Infrastructure projects should ensure that pricing and incentives are aligned for efficient use and viability of the assets, and to enhance the focus on sustainability. This should look at two specific elements: adequacy of user charges and pricing of externalities as well as carbon pricing.
	• 3.4 Asset maintenance and optimal use	• Infrastructure projects should include adequate design and operation standards as well as provision for operations and maintenance to ensure optimal asset utilization and service delivery, and discourage overuse and abnormal deterioration.

Attributes of Environmental Sustainability and Climate Resilience

CATEGORY	ATTRIBUTES	DESCRIPTION
1. CLIMATE AND NATURAL DISASTERS	• 1.1 Reduction of GHG emissions	• Infrastructure projects should contribute to low GHG emissions development pathways. Virtuous effects in that regard should be sought, and the risks of carbon lock-in effects avoided. GHG emissions assessments should consider the widest scope and the longest time horizon possible.

CATEGORY	ATTRIBUTES	DESCRIPTION
2. PRESERVATION OF NATURAL ENVIRONMENT	• 1.2 Climate risks and resilience	• Infrastructure projects should contribute to enhancing climate resilience and be consistent with climate-resilient development pathways. Infrastructure projects should be designed to be resilient to climate change-related weather shocks and slow-moving changes. Project developers should systematically assess and manage climate risks through a climate impact assessment and adaptation plan. Infrastructure projects should ensure that they do not introduce risks that jeopardize climate resilience at any level.
	• 1.3 Disaster risk management	• Infrastructure projects should systematically assess and manage disaster risks that may affect the project and stakeholders such as workers and affected local communities, following national disaster management frameworks. In addition, infrastructure projects should include sound disaster risk monitoring and management as well as recovery plans indicating the actions to be taken in the case of natural disasters.
	• 2.1 Biodiversity	• Infrastructure projects should avoid negative impacts on biodiversity and assess / manage any unavoidable impacts to ensure maintenance of biodiversity and ecosystem services and functions, seeking net positive gain.
	• 2.2 Natural capital, areas of high ecological value and farmland	• The infrastructure projects should seek to protect natural capital and avoid the development of agricultural land, floodplains, prime habitat and other in areas with high ecological value, identifying and assessing different alternatives for the placement of the project.
	• 2.3 Ecological connectivity and ecosystem services	• Infrastructure projects should assess and avoid negative impacts on ecological corridors, and sediment and nutrient transport, and include clearly defined action plans to manage unavoidable impacts and to ensure maintenance of ecological connectivity and ecosystem services.
	• 2.4 Soil management	• Infrastructure projects should avoid the disturbance and alteration of the soil (topsoil and subsoil) and its ecologic and hydrologic functions during the lifecycle of the project. When not possible, the restoration of disturbed soil and its functions should be ensured. Infrastructure projects should also aim to restore soils disturbed during previous development.
	• 2.5 Invasive species	• Infrastructure projects should use locally appropriate and noninvasive species to avoid the introduction of invasive species. Where invasive species already exist, they should be properly managed and/or eliminated during construction, operations, and decommissioning.
	• 2.6 Public amenities	• Infrastructure projects should ensure the preservation or enhancement of amenities, including public spaces, natural areas, or other recreational spaces. Where possible, infrastructure projects should aim to restore existing degraded public space or natural environment considerin initiatives that expand public access.

CATEGORY	ATTRIBUTES	DESCRIPTION
3. POLLUTION	• 3.1 Air contamination	• Infrastructure projects should monitor air quality, air emissions, and minimize adverse impacts on human health and on the environment from pollution caused by project activities during the lifecycle of the project. Infrastructure projects should include comprehensive air pollutant emissions management plans that define actions to be taken to avoid air emissions, in case regulatory thresholds are exceeded.
	• 3.2 Water pollution	• Infrastructure projects should avoid, evaluate, and manage adverse impacts on human health and on the environment resulting from project activities, such as from excess use of water or water pollution on oceans, seas, water courses, or from storm water runoff. Infrastructure projects should include comprehensive water pollutant management plans and define actions in case regulatory thresholds are exceeded.
	• 3.3 Other forms of pollution	• Infrastructure projects should avoid, evaluate, and manage adverse impacts on human health and on the environment derived from contamination on land, seabed, and other forms of pollution, including noise and vibration, light, dust, visual effects, and particulate matter. Infrastructure projects should include comprehensive remediation procedures and cleanup programs in case of working on a previously contaminated area or if regulatory thresholds are exceeded.
	• 3.4 Hazardous materials	• Infrastructure projects should avoid the use of hazardous chemicals including pesticides, fertilizers, or herbicides and, where possible and necessary, apply integrated pest management approaches during the lifecycle of the project.
4. EFFICIENT USE OF RESOURCES	• 4.1 Efficient use of water resources	• Infrastructure projects should monitor and promote the sustainable use of water, including maximizing water reuse, reducing consumption of potable water, increasing efficiency, and minimizing the use of water resources during the life cycle of the project. Infrastructure projects should utilize storm water, greywater, or recycled water to cover project water needs.
	• 4.2 Material use and recycling	• Infrastructure projects should monitor and promote the efficient use of materials, including the ones with higher recycled content and lower energy and water content, incentivizing the integration of recycling practices during the life cycle of the project. Evaluation of embodied water and embodied energy should be considered when selecting the optimal materials for the project. The use of local materials should be incentivized when possible.
	• 4.3 Energy use and renewable sources	• Infrastructure projects should monitor energy use, promote energy efficiency and incentivize renewable energy sources, thus avoiding the use of more polluting non-renewable energy sources and the generation of GHG emissions. Infrastructure projects should aim to minimize energy consumption.
	• 4.4 Waste management and recycling	• Infrastructure projects should implement a waste management plan to monitor and minimize residues through recycling and, where possible, avoid generation of hazardous wastes. A waste management hierarchy should be established that considers prevention, reduction, reuse, recovery, recycling, removal, and final disposal of wastes.

Attributes of Social Sustainability

CATEGORY	ATTRIBUTES	DESCRIPTION
1. POVERTY AND SOCIAL IMPACT AND ENGAGEMENT WITH COMMUNITIES	• **1.1 Equitable distribution of benefits**	• Infrastructure projects should be planned, designed, executed, and operated for maximum benefit, and inclusion of disadvantaged groups (including, but not limited to, women and the poor), thus improving social cohesion. A social sustainability and development plan should specify social sustainability and development initiatives to help local communities develop sustainably.
	• **1.2 Stakeholder engagement and community consultation and youth participation**	• Infrastructure projects should identify and effectively engage with stakeholders and affected communities - including the youth - through official public consultation throughout the project cycle, avoiding conflicts and ensuring public support. Stakeholder engagement and community consultation should be pursued through a clearly-defined plan that includes provisions for soliciting stakeholder feedback. In the case of high impact projects that affect the natural resources and territory of local communities, project developers should obtain the free, prior, and informed consent of the community.
	• **1.3 Grievance redress mechanism**	• Infrastructure projects should provide project-affected parties with full access to raise issues and grievances and to provide continuous feedback. A clearly-defined grievance redress mechanism should be in place during the lifecycle of the project.
	• **1.4 Resettlement and economic displacement**	• Infrastructure projects should be designed and implemented to avoid or minimize the need for resettlement or economic displacement of people because of the project, ensuring that where displacement does occur people are treated equitably. Alternative project designs that minimize resettlement and economic displacement should be evaluated. Resettlement and economic displacement should be managed through sound and clearly-defined displacement management plans.
	• **1.5 Community access to resources**	• Infrastructure projects should be designed and implemented to not jeopardize community access to food, land, and water resources. Infrastructure projects should ensure that the resource needs of local communities are considered while calculating resources required for project activities during construction, operations, maintenance, and decommissioning.
	• **1.6 Community compensation and benefit sharing**	• Infrastructure projects should be designed to provide fair and adequate benefits (beyond one-time compensation) to project-affected communities, as specified through a clearly-defined community social development plan, implemented in consultation with affected communities.
	• **1.7 Community mobility and connectivity**	• Infrastructure projects should enhance connectivity, prevent urban sprawl, and avoid mobility disruption. When possible, the project should improve walkability and encourage the use of public transport and other sustainable forms of transportation.

CATEGORY	ATTRIBUTES	DESCRIPTION
	• 1.8 Disabilities and accessibility	• Infrastructure projects should ensure that infrastructure services are fully accessible to disabled and disadvantaged users. Infrastructure projects should be designed and implemented following universal accessibility norms and regulations and include provisions to ask for feedback from disabled and disadvantaged users during construction and operations.
	• 1.9 Community health and safety	• Infrastructure projects should assess, evaluate, and manage project impacts on community health and safety over the project cycle. These impacts include but are not limited to climate or natural disaster risks, road traffic risk, noise, vibration, light pollution, or dust.
	• 1.10 Occupational health and safety	• Infrastructure projects should promote healthy working conditions and adherence to occupational health and safety standards.
2. HUMAN AND LABOR RIGHTS	• 2.1 Preserving rights of affected groups	• Infrastructure projects should comply with human rights agreements, preventing and mitigating adverse impacts on affected groups over the life cycle of the infrastructure assets. Such prevention should address special needs of vulnerable groups or any kind of discrimination against indigenous peoples, women, and children.
	• 2.2 Labor standards	• Infrastructure projects should ensure that core labor standards are respected, and workers are protected through fair treatment, nondiscrimination, and equal opportunity; and avoiding under any circumstance forced and child labor.
	• 2.3 Community security and crime prevention	• Infrastructure projects should ensure that project activities do not increase security risks for local populations during the construction and operation of the project.
	• 2.4 Gender inclusive project design	• Infrastructure projects should prevent or mitigate adverse impacts related to gender. Infrastructure projects should provide equal opportunities to both women and men and include initiatives to promote women's economic empowerment beyond the provision of temporary jobs as specified through a clearly defined social development plan.
3. CULTURAL PRESERVATION	• 3.1 Cultural resources and heritage	• Infrastructure projects should assess, evaluate, and manage tangible and non-tangible cultural heritage assets and minimize adverse effects on views and landscape that may be affected by project activities.
	• 3.2 Indigenous and traditional peoples	• Infrastructure projects should, in full consultation with, and consent of affected indigenous and traditional peoples, assess, evaluate, and manage any potential impacts and risks from project activities.

Attributes of Institutional Sustainability

CATEGORY	ATTRIBUTES	DESCRIPTION
1. ALIGNMENT WITH GLOBAL AND NATIONAL STRATEGIES	• **1.1 National and international commitment**	• Infrastructure projects should be aligned with national and international commitments including the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.
	• **1.2 Sector, land use and urban planning integration**	• Infrastructure projects should be integrated with existing national and regional economic, territorial, and urban strategies, policies, and plans across different jurisdictional scales. Infrastructure projects should pursue synergies with adjacent infrastructure systems or facilities to achieve sustainable territorial and urban development.
2. GOVERNANCE AND SYSTEMIC CHANGE	• **2.1 Corporate governance structures**	• Infrastructure projects should comply with national corporate governance regulations, ensuring appropriate corporate governance, including separation of policy and executive roles, effective participation of stakeholders, and clearly defined organizational sustainability roles. This is intended to ensure that the infrastructure asset is well planned, designed, executed and monitored over the project lifecycle.
	• **2.2 Anti-corruption and transparency framework**	• Infrastructure projects should develop and implement an anti-bribery management system for the project throughout its life cycle and other measures that promote integrity and increase transparency in infrastructure development and operations.
3. EFFECTIVE MANAGEMENT SYSTEMS AND ACCOUNTABILITY	• **3.1 Project design and feasibility**	• Infrastructure projects should be demonstrably feasible from engineering, financial, and social perspectives in the context of existing institutional, organizational, and individual capacities evaluated by independent entities.
	• **3.2 Project compliance**	• Infrastructure projects should have procedures and systems that ensure social, environmental, economic and territorial compliance with existing national legislation, regulations, and organizational requirements and be sensitive to future changes in these requirements.
	• **3.3 Sustainable bidding and procurement**	• Infrastructure projects should establish open and transparent procurement processes for the efficient and sustainable procurement of materials for construction, operations, and maintenance. Infrastructure projects should use certified suppliers that implement sustainability practices as a key element in the context of a public sustainable procurement certification scheme.
	• **3.4 Integrated environmental and social impact assessment**	• To ensure that negative social and environmental impacts are avoided or minimized, infrastructure projects should include a comprehensive and integrated social and environmental impact assessment that identifies and proposes actions for mitigation of all significant social and environmental impacts including climate. Relevant public authorities should approve the social and environmental impact assessment.

CATEGORY	ATTRIBUTES	DESCRIPTION
4. CAPACITY BUILDING	• 3.5 Management systems and accountability	• Infrastructure projects should have environmental and social management policies and plans as well as an adequate roadmap for implementation. The resources necessary —human and financial— for implementation should also be clearly identified.
	• 3.6 Project information monitoring and sustainability tracking	• Infrastructure projects should establish a sustainability management system with a clearly defined strategy, policy, targets, metrics, monitoring, evaluation, individual capabilities and independent verification, appropriate to the nature and scale of the project and commensurate with the level of social and environmental risks and impacts.
	• 3.7 Management of existing liabilities	• Infrastructure projects should evaluate and address pre-existing project liabilities, grievances and other legacy matters and create an action plan to tackle them.
	• 4.1 Integration of technological advances	• Infrastructure projects should build and maintain capacities to ensure integration of technological and business innovations during project design and implementation, and increase project durability, flexibility, resource use efficiency, and delivery effectiveness to improve the overall sustainability of the project.
	• 4.2 Knowledge transfer and collaboration	• Infrastructure projects should establish mechanisms for organizational collaboration, teamwork, knowledge sharing, and internal capacity building, including sufficient engineering knowledge and skills for efficient design, preparation, construction, operation, and maintenance of infrastructure assets.
	• 4.3 Regulatory, institutional, and local capacity	• Infrastructure projects should develop adequate regulatory and institutional capacity to integrate long-term sustainability on the infrastructure investment, manage environmental and social impacts effectively, incorporate these practices at the project level and establish close lines of collaboration across different jurisdictional scales. Infrastructure projects should include opportunities to improve local capacities and broaden understanding of the sustainable use of infrastructure assets, as well as strengthen disaster risk governance.
	• 4.4 Data collection, monitoring and evaluation	• Developing robust data collection and the capacity to monitor and evaluate this information for the project as well as the supervisory bodies will be critical for project effectiveness and sustainability.
	• 4.5 Capacities for implementation	• Infrastructure projects should ensure that the institutional, rganizational, and individual capabilities for infrastructure planning and design are sufficient to ensure effective management and implementation of technical, project management, contractual, financial, environmental, social, and governance aspects, so as to ensure long-term sustainability for the infrastructure investment and, where possible, support the incorporation of practices across corporate boundaries and jurisdictional scales, including building local and regional capacities.

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