Inter-American Development Bank

IDBG Framework for Planning, Preparing, and Financing Sustainable Infrastructure Projects

IDB Sustainable Infrastructure Platform

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Abstract

This paper introduces a framework of sustainability criteria that covers an integrated spectrum of economic, financial, environmental, social, and institutional dimensions for infrastructure projects. The framework addresses three key stages of infrastructure delivery: policy and planning (or upstream level), project preparation and design, and financing. The framework was developed by reviewing and building upon existing sustainability rating systems, tools, and multilateral development bank frameworks, safeguards, and policies.

The framework consolidates the fundamental environmental, social, institutional, economic, and financial principles for implementing sustainable infrastructure investments and is applicable throughout the entire project cycle and across different sectors and regions. By integrating the four dimensions of sustainability across the project cycle, the framework provides a holistic structure for sustainable infrastructure that will help avoid fragmented, uncoordinated efforts that overlook opportunities.

The framework will inform decision-makers, developers, and investors about the needs, benefits, and significant opportunities in developing sustainable infrastructure throughout the project cycle. It will help identify institutional gaps, so that they can be addressed in order to develop better-planned infrastructure project pipelines and achieve the SDGs and climate goals as part of the Paris Agreement more effectively. It also emphasizes the benefits of maximizing sustainability opportunities during the very early planning stages, which can reduce the need for substantial modifications that delay projects and increase costs during later stages.

Our review of existing evaluation tools identifies major gaps in the coverage of sustainability principles at the upstream level, as most focus mainly or entirely on the design stage. This exemplifies the need for an overarching framework that standardizes sustainability throughout the entire infrastructure project cycle. Within the various sustainability dimensions, environmental and social aspects are addressed more extensively. Yet, the range of environmental impacts to be addressed is often specified without comprehensive requirements for action plans to manage these impacts in later stages. This is reflected in the lack of strong overlaps between rating systems and environmental and social aspects at the financing stage, where projects need explicit plans to address the identified impacts, such as an environmental commitment and liability management plans. Financial and economic sustainability is least covered in all three project stages, as existing tools and frameworks do not focus on these aspects.

The framework also highlights aspects of technology and innovation, including business practices and financial structures, which should be more prominent throughout the infrastructure development project cycle in order to facilitate the transition towards sustainable infrastructure more efficiently. Overall, the framework provides an all-encompassing structure for the concept of sustainable infrastructure that can help stimulate discussions among different stakeholder groups on sustainable infrastructure, illustrate the prevailing institutional gaps to planning, designing, and implementing sustainable infrastructure projects, and inform better-planned project pipelines in the LAC region.

JEL Classification: Q50, Q51, Q56
Keywords: Infrastructure, Framework, Policy Planning, Sustainability, Safeguards

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Abbreviations

CDM: Clean Development Mechanism
ENVISION: Envision Rating System for Sustainable Infrastructure
ESG: Environmental, Social, and Governance
GDP: Gross Domestic Product
GHG: Greenhouse Gas
HSAP: Hydropower Sustainability Assessment Protocol
IDB: Inter-American Development Bank
IFC: International Finance Corporation
INVEST: Infrastructure Voluntary Evaluation Sustainability Tool
IS-Rating: Infrastructure Sustainability Rating Scheme
MDB: Multilateral Development Bank
NDC: Nationally Determined Contribution
RISE: SE4All Regulatory Indicators for Sustainable Energy Tool
SDG: Sustainable Development Goals
STAR: Sustainable Transport Appraisal Rating
SuRe: Standard for Sustainable and Resilient Infrastructure
WB: World Bank

1. Introduction

1.1 The Need for Sustainable Infrastructure Projects

There is a pressing need to increase investments in infrastructure in order to promote economic growth, realize the United Nations Sustainable Development Goals (SDGs), close the infrastructure gap, and expand access to basic services. Worldwide, the infrastructure gap grows annually by $1 trillion[i]. In Latin America and the Caribbean (LAC), the required annual investments to close the infrastructure gap are estimated at 5% of the region's Gross Domestic Product (GDP) (approximately US$150 billion)[ii], but currently, only 2% of GDP is invested in infrastructure.[iii]

At the same time, these required investments should be increasingly targeted towards low-carbon, sustainable infrastructure projects that ensure economic, financial, social, environmental (including climate resilience), and institutional sustainability[iv]. Sustainable infrastructure investments avoid negative impacts on the environment, enhance the quality of life of local communities, provide for economic growth and productivity, and promote climate-resilient infrastructure assets. Sustainable infrastructure investments are key in helping governments achieve their Nationally Determined Contributions (NDC) as part of the 2015 Paris Agreement.

Infrastructure assets should move beyond a "do no harm" approach, promoted by conventional environmental impact assessment and safeguard approaches. They should embrace innovation and technology, and streamline programs that share value and provide social and economic co-benefits to communities. This is particularly crucial for the LAC region, as it is most vulnerable to the impacts of a changing climate.[v] In the first half of 2017, LAC experienced severe losses from natural events, such as floods in Peru that cost US$3.1 billion, and in Colombia that resulted in 329 fatalities.[vi]

The IDB's Institutional Strategy Update 2016-2019 defines the key development challenges and issues that need to be addressed to facilitate low-carbon sustainable economic development: social inclusion, productivity and innovation, and economic integration. The strategy also defines key cross-cutting issues that must be addressed in Bank operations: gender equality and diversity, climate change and environmental sustainability, and institutional capacity. The development of infrastructure that is environmentally, socially, economically, financially, and institutionally sustainable can help meet all the stated goals above. In fact, the IDB Sustainable Infrastructure Strategy, approved in 2013, emphasizes the importance of sustainable infrastructure in order to tackle these issues.[vii]

However, there are many different approaches to and definitions of sustainable infrastructure[viii], as sustainability can be an "umbrella" term used in various ways across different infrastructure sectors and regions. Moreover, each approach covers a different set of sustainability principles and criteria and is applicable to specific project stages, not considering the entire infrastructure project cycle. This leads to fragmented, uncoordinated efforts to incorporate sustainability in infrastructure asset pipelines, and multiple missed opportunities to implement sustainability practices while planning, designing, and implementing projects.

1.2 The Significance of Developing a Framework of Sustainability Principles

A general framework for sustainable infrastructure can provide an all-encompassing structure, with integrated and harmonized principles and criteria. It can stimulate discussions among different stakeholders, and illustrate the most significant aspects to consider in implementing sustainable infrastructure investments. It is important to note that the proposed framework does not intend to replace existing sustainability rating systems and tools, but rather build upon them and provide a shared understanding of the sustainable infrastructure concept to promote more sustainable infrastructure project pipelines.

Perhaps most importantly, the framework helps identify the prevailing institutional gaps that hinder sustainable infrastructure investments. This can, in turn, help specify capacity building initiatives and financial instruments to address these gaps, scale up infrastructure investments, and implement sustainable infrastructure project pipelines. Currently, as illustrated by Figure 1, sustainability opportunities upstream, during the very early planning stages, are not maximized. Sustainability is often an afterthought, considered only during later stages, which may result in the need for substantial modifications that miss opportunities, delay projects, and increase costs. Clear and transparent sustainable infrastructure frameworks that cover the entire infrastructure project cycle will help inform decision-makers and investors about the needs, benefits, and opportunities in developing sustainable infrastructure.

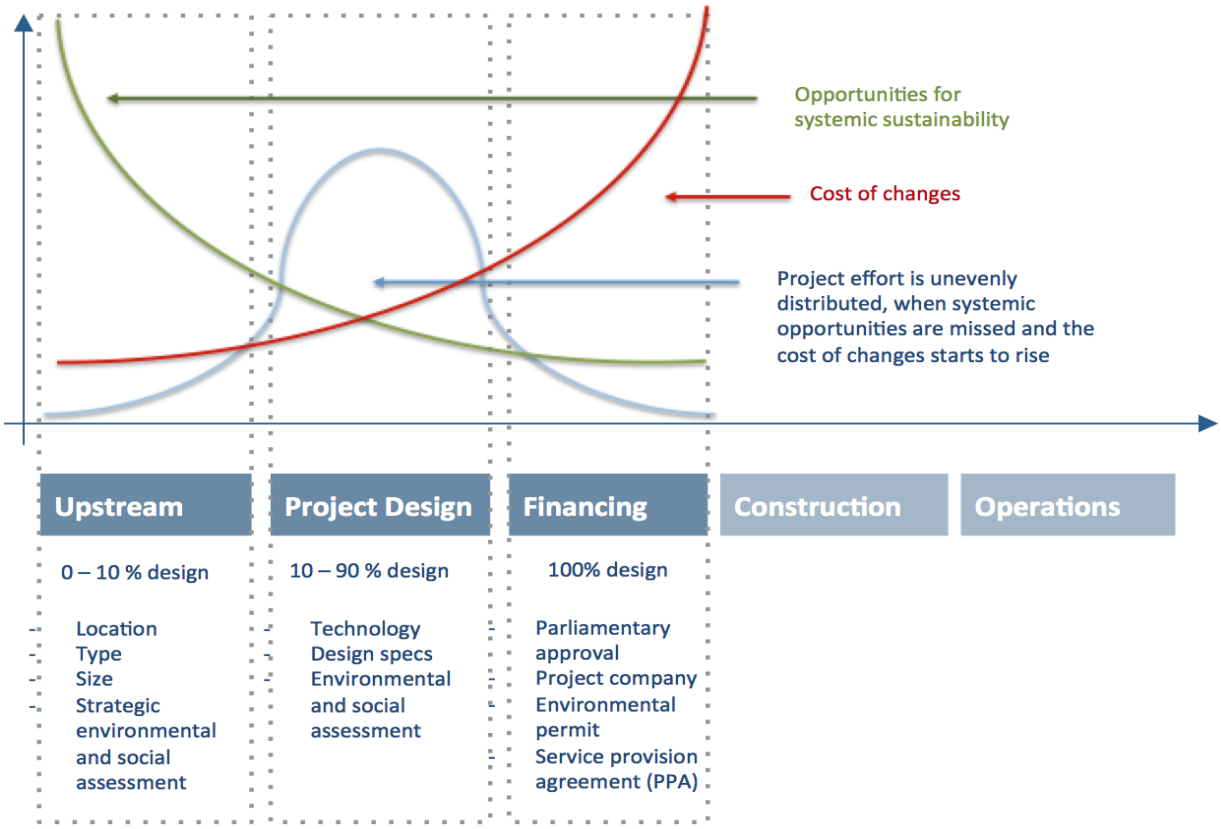

Figure 1. Opportunities and costs for incorporating sustainability in the infrastructure project cycle.

The proposed framework would also help multilateral development banks (MDBs) better integrate sustainability in their tools and approaches in scaling up sustainable infrastructure investments. For instance, the framework could be used to standardize and support the incorporation of sustainability in project preparation facilities, such as the SOURCE project preparation initiative.[ix] It could also help better evaluate and report on sustainability performance at the portfolio level, similar to the STAR[x] methodology that is used by MDBs to report on sustainability performance in the transport sector.

In the case of the IDB, the framework can be used to better address sustainability in the NDC Invest platform[xi], which is used to help countries implement their NDCs by mobilizing funds and developing sustainable investment strategies. Furthermore, given that the IDB focuses extensively on providing climate finance[xii], having recently established an ambitious goal to increase its volume of financing for climate-resilient projects in LAC from 22% to 30% of all approvals by 2020[xiii], the framework would help identify the institutional gaps to be addressed in order to increase sustainable infrastructure investments in LAC. A comprehensive framework would help the IDB achieve its 30% climate-related financing by 2020 target, implement sustainability and climate resiliency throughout its operations, and improve efficiency by removing bottlenecks in infrastructure project preparation and implementation.

2. The Sustainability Framework

2.1 The Goal of the Framework

Our work focused on developing a framework that defines a comprehensive concept of sustainable infrastructure and is applicable throughout the entire project cycle and across multiple sectors. Within this, we consolidated the fundamental environmental, social, institutional, economic, and financial principles that would help the IDB address prevailing institutional gaps and plan, design, and implement sustainable infrastructure projects in the LAC region more effectively. In order to compile the most comprehensive framework possible, we reviewed and compared existing frameworks and tools, and conducted literature reviews. In the next section, we outline the process of developing this framework in more detail.

The framework's comprehensive list of criteria may be used throughout the project cycle to ensure adherence to best practices, reduce the possibility of overlooking key steps or elements that may lead to costly corrections or delays later in the process, and harmonize operations Bank-wide so that execution and reporting are standardized and the IDB will be able to more effectively document and demonstrate its progress toward fulfilling its commitments to increasing its levels of climate-related finance and attaining the SDGs.

2.2 The Four Principles of Sustainable Infrastructure

The proposed framework encompasses four major pillars of sustainability: economic and financial, environmental, social, and institutional. The principles are defined below.

Economic and Financial: Sustainable infrastructure is economically sustainable if it generates a positive net economic return, taking into account all benefits and costs over the project lifecycle including positive and negative externalities and spillovers. In addition, for infrastructure to be financially sustainable, it 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. Sustainable infrastructure must be designed to support inclusive and sustainable growth and boost productivity, and deliver high quality and affordable services. Risks must be fairly and transparently allocated to the entities most able to control the risk or to absorb its impact on the investment outcomes over the lifecycle of the project.

Environmental: Sustainable infrastructure preserves, restores and integrates the natural environment, including biodiversity and ecosystems. It supports the sustainable and efficient use of natural resources, including energy, water, and materials. It limits all types of pollution over the lifecycle of the project and contributes to a low-carbon, resilient, and resource-efficient economy. Sustainable infrastructure projects should be sited and designed to ensure resiliency to climate and natural disaster risks. Sustainable infrastructure often depends on national circumstances, where the overall performance will need to be gauged relative to what could have been built or developed instead.

Social: Sustainable infrastructure is inclusive – it serves all stakeholders, including the poor – and contributes to enhanced livelihoods and social wellbeing over the lifecycle of the project. Projects must be constructed according to good labor, health and safety standards. Benefits generated by sustainable infrastructure projects should be shared equitably and transparently. Services provided by sustainable infrastructure projects should promote gender equity, health, safety, and diversity while complying with human and labor rights. Where it is unavoidable, displacement, and relocation of people must be managed in a fair and equitable manner and integrating cultural and heritage preservation.

Institutional: Sustainable infrastructure is aligned with national and international commitments and based on transparent and consistent governance systems over the project cycle. Robust institutional capacity and clearly defined procedures for project planning, procurement, and operation are enablers for institutional sustainability. Developing local capacity, including providing knowledge transfer mechanisms and promoting innovative thinking and project management, enhances sustainability and systemic change. Sustainable infrastructure must develop technical and engineering capacities as well as systems for data collection, monitoring and evaluation.

These principles can be applied at any stage of the infrastructure project cycle. It is important to note that the framework currently covers the policy and planning, preparation and design, and financing stages. Execution, operations, and maintenance sustainability aspects will be evaluated through additional work and Excel tables covering the procurement and operations and maintenance project stages.

In order to operationalize infrastructure's sustainability – meaning to translate a theoretical description into a practical realization – it is absolutely crucial to define the key criteria of all four sustainability dimensions for all the above-mentioned stages of the project cycle. The sustainability indicators would enable decision-makers to reduce costly project decisions with regard to sustainability during later stages, and align project decisions further upstream.

2.3 Policy and Planning Stage (Upstream Level)

The policy and planning stage includes 64 sustainability criteria distributed along the four sustainability principles. We analyzed and expanded upon the selected sustainability rating tools, general sustainability frameworks, and ESG safeguards in order to define the upstream criteria. Since most of the evaluated sustainability assessment tools and ESG safeguard frameworks are primarily applicable at the project preparation and design stage, we also conducted a literature review to identify relevant papers and guidelines that address sustainability aspects at the policy and planning stage. Please see Appendix D for the list of publications.

In general, the upstream planning stage includes the legislation, laws, and regulations that encourage and enable projects to consider sustainability aspects at later stages. We chose a broad range of tools and frameworks that have been developed by diverse stakeholders involved in the development of infrastructure projects, including public agencies, MDBs, and research institutions to adequately cover the four sustainability principles.

Table 1 summarizes the upstream level sustainability criteria along the four sustainability principles. Please see Appendix A for detailed descriptions of the upstream stage criteria.

Economic and Financial Sustainability		
Economic and Social Returns	1	National and sectoral productivity growth strategy
	2	National and sectoral frameworks and incentives to maximize social returns of infrastructure
	3	Trade policies for sustainability transformation
	4	Taxation and pricing to address perverse subsidies and price distortions
	5	Level playing field for public and private enterprises
	6	Certification schemes for infrastructure providers
Financial Sustainability	7	Multi-year budgeting of infrastructure programs
	8	Sustainability risk analysis and management in investment evaluation
	9	Life-cycle costing of infrastructure assets
	10	Transparent national infrastructure procurement and PPP processes
	11	Holistic evaluation of bids in procurement
	12	Frameworks for private investments in infrastructure
Policy Attributes	13	Local capital markets in infrastructure
	14	Green bonds
	15	Carbon markets

Environmental Sustainability and Climate Resilience		
Climate and Natural Disasters	1	National and sectoral strategies and incentives to reduce GHG emissions
	2	National, regional and sectoral plans for climate resilience and adaptation
	3	National, regional and sectoral frameworks for disaster risk management
	4	Standards and strategies for durability, flexibility and recovery of infrastructure systems
Pollution	5	National, regional and sectoral frameworks and strategies for air pollutant emissions
	6	Project design and systems optimization to minimize water contamination
	7	Soil and other pollution management
Preservation of the Natural Environment	8	National and regional plans for biodiversity and ecosystem services
	9	National and regional plans of ecological connectivity
	10	Preservation of greenfields, areas with high ecological values, and farmland
	11	National, regional and sectoral plans for management of invasive species
	12	Commitment and capacities for soils management
Efficient Use of Resources	13	National, regional and sectoral frameworks for the efficient management of water resources
	14	National, regional and sectoral frameworks for efficient use of material resources

	15	National, regional and sectoral frameworks for sustainable use of energy resources
	16	National, regional and sectoral frameworks for sustainable waste management

Social Sustainability		
Social Impact and Community Engagement	1	Institutional understanding and monitoring of social needs and trends
	2	Updated and reliable demographic data
	3	Formal and functioning frameworks for stakeholder engagement
	4	Formal and functioning frameworks for community consultation
	5	Established framework for fair benefit sharing and compensation to project affected communities
	6	Established standards and processes for fair resettlement and displacement
	7	Regional strategies and municipal plans for public amenities
	8	Regional strategies and municipal plans for community mobility and connectivity
Human and Labor Rights	9	Universal accessibility standards and codes for non-discrimination because of disabilities
	10	Standards and capacities for community health, safety, and security
	11	Commitment and capacities to ensure adherence to occupational health, safety and labor standards
	12	Standards and capacities for the protection of vulnerable groups
	13	Commitment and capacities to ensure gender inclusion
Cultural Preservation	14	Commitment and capacities to ensure adequate community access to resources
	15	Commitment and capacities to ensure the efficient management of cultural resources and heritage
	16	Commitment and capacities to ensure engagement of indigenous and traditional peoples

Institutional Sustainability		
Global and National Strategies	1	Rule of law, transparency, and stability over time
	2	National and sub-national infrastructure policies and plans to scale up infrastructure services
	3	Commitment and capacities for effective sector planning
Governance and Systemic Change	4	Integrated planning for economic, territorial, and urban development
	5	Integrated planning for natural, environment and social development
	6	National frameworks and incentives for corporate governance and transparency
	7	Capacities for environmental regulation, supervision, and enforcement
	8	Social management systems
	9	Framework and incentives for sustainable procurement
	10	Capacities and policies for anti-corruption and governance

Management Systems, Accountability and Capacity Building	11	Institutional context for sustainability innovation
	12	Project preparation support for incorporating sustainability
	13	Project design and planning to ensure optimal implementation
	14	Commitment and capacities to ensure project feasibility
	15	National and sectoral frameworks and standardized project agreements
	16	Data collection, management, and analysis to support infrastructure investments
	17	Project design and engineering studies for sustainability performance

Table 1. Sustainability criteria under all four sustainability principles at the upstream stage.

2.4 Project Preparation and Design Stage

The policy and planning stage includes 67 sustainability criteria, distributed along the four sustainability principles. The criteria were chosen from an analysis of the selected tools, general sustainability frameworks, as well as MDB Environmental, Social, and Governance (ESG) Safeguards. A broad range of tools and frameworks developed by diverse stakeholders involved in the development of infrastructure projects was selected to adequately cover the four overarching sustainability principles.

Table 2 summarizes the upstream level sustainability criteria along the four sustainability principles. Please see Appendix B for the descriptions of the selected criteria for the project preparation and design stage.

Economic and Financial Sustainability		
Economic and Social Returns	1	Project design for optimal development growth
	2	Economic and social return over project lifecycle
	3	Increase of local investment
	4	Service access and affordability
	5	Service efficiency, quality, and reliability
	6	Infrastructure asset maintenance and optimal use
Financial Sustainability	7	Positive net present asset value
	8	Adequate risk adjusted rate of return
	9	Clarity on revenue streams
	10	Operating profitability
	11	Asset profitability
	12	Debt and fiscal sustainability

	13	Liquidity ratios
	14	Solvency ratios
Policy Attributes	15	Efficient risk allocation
	16	Commercial incentives for sustainability in project agreement
	17	Climate Finance

Environmental Sustainability and Climate Resilience		
Climate and Natural Disasters	1	Project design for low GHG emissions
	2	Understanding of climate risks and project resilient design
	3	Project design and systems optimization for disaster risk management
	4	Durability, flexibility and recovery of design elements and technological systems
Pollution	5	Project design and systems optimization to minimize air pollutant emissions
	6	Project design and systems optimization to minimize water contamination
	7	Project design and systems optimization to minimize soil and other pollution
Preservation of the Natural Environment	8	Environmental assessment of project impacts
	9	Project design for maximum ecological connectivity
	10	Preserve greenfields and areas with high ecological values, and farmland
	11	Project design and technology to minimize invasive species
	12	Project design and technology to optimize soils management
Efficient Use of Resources	13	Efficient use of water resources
	14	Material use and recycling
	15	Project design to minimize energy consumption and maximize use of renewable
	16	Waste management and recycling
	17	Hazardous materials

Social Sustainability		
Social Impact and Community Engagement	1	Social Impact Assessment of project
	2	Social sustainability and development plan
	3	Stakeholder engagement process
	4	Community consultation and participation
	5	Project design for fair benefit sharing and compensation to project affected communities
	6	Project design for optimal resettlement and displacement
	7	Provision of public amenities within project's area of influence
	8	Project design to maximize community mobility and connectivity
Human and Labor Rights	9	Universally accessible project design and technologies
	10	Community health, safety, and security, and crime prevention
	11	Occupational health, safety and labor standards throughout the project
	12	Project design that preserves the rights of vulnerable groups

	13	Gender inclusive project design
Cultural Preservation	14	Project design that does not limit communities' access to resources
	15	Cultural resources and heritage
	16	Indigenous and traditional peoples

Institutional Sustainability		
Global and National Strategies	1	Project contribution to national and international commitments for sustainable development
	2	Project alignment with national and sectoral infrastructure plans
	3	Land use and urban planning integration
Governance and Systemic Change	4	Project alignment with economic, territorial, and urban strategies
	5	Project alignment with natural, environment and social strategies
	6	Establishment of corporate governance structures
	7	Environmental management systems
	8	Social management systems
	9	Project design and systems selection in alignment with certified providers
	10	Anti-corruption and transparency framework
Management Systems, Accountability and Capacity Building	11	Project design and systems to promote institutional capacity building
	12	Local capacities and awareness
	13	Project design and planning to ensure optimal implementation
	14	Project design and systems for engineering and technological feasibility
	15	Project organization to ensure accountability, collaboration and innovation
	16	Project information monitoring, and sustainability tracking
	17	Project design and engineering studies for sustainability performance

Table 2. Sustainability criteria under all four sustainability principles at the project preparation and design stage.

2.5 Financing Stage

The financing stage is comprised of 68 sustainability criteria distributed along the four overarching sustainability principles. Notably, none of the evaluated sustainability rating tools and MDB ESG frameworks covers explicitly the financing infrastructure project stage, thus missing a wide range of financial indicators important for infrastructure sustainability. As such, we identified and further analyzed MDB financial and economic guidelines and policies that broadly address sustainability aspects related to the financing stage in order to specify and define the applicable sustainability criteria, such as the IFC and IIC Investment Proposal requirements.[xiv]

Table 3 summarizes the sustainability criteria along the four sustainability principles applicable at the financing stage. Please see Appendix C for the descriptions of the selected criteria for the financing stage.

Economic and Financial Sustainability		
Economic and Social Returns	1	National and sectoral productivity growth strategy
	2	National and sectoral frameworks and incentives to maximize social returns of infrastructure
	3	Trade policies for sustainability transformation
	4	Taxation and pricing to address perverse subsidies and price distortions
	5	Level playing field for public and private enterprises
	6	Certification schemes for infrastructure providers
Financial Sustainability	7	Multi-year budgeting of infrastructure programs
	8	Sustainability risk analysis and management in investment evaluation
	9	Life-cycle costing of infrastructure assets
	10	Transparent national infrastructure procurement and PPP processes
	11	Holistic evaluation of bids in procurement
	12	Frameworks for private investments in infrastructure
Policy Attributes	13	Local capital markets in infrastructure
	14	Green bonds
	15	Carbon markets

Environmental Sustainability and Climate Resilience		
Climate and Natural Disasters	1	National and sectoral strategies and incentives to reduce GHG emissions
	2	National, regional and sectoral plans for climate resilience and adaptation
	3	National, regional and sectoral frameworks for disaster risk management
	4	Standards and strategies for durability, flexibility and recovery of infrastructure systems
Pollution	5	National, regional and sectoral frameworks and strategies for air pollutant emissions
	6	Project design and systems optimization to minimize water contamination
	7	Soil and other pollution management
Preservation of the Natural Environment	8	National and regional plans for biodiversity and ecosystem services
	9	National and regional plans of ecological connectivity
	10	Preservation of greenfields, areas with high ecological values, and farmland
	11	National, regional and sectoral plans for management of invasive species
	12	Commitment and capacities for soils management
Efficient Use of Resources	13	National, regional and sectoral frameworks for the efficient management of water resources
	14	National, regional and sectoral frameworks for efficient use of material resources
	15	National, regional and sectoral frameworks for sustainable use of energy resources

	16	National, regional and sectoral frameworks for sustainable waste management

Social Sustainability		
Social Impact and Community Engagement	1	Institutional understanding and monitoring of social needs and trends
	2	Updated and reliable demographic data
	3	Formal and functioning frameworks for stakeholder engagement
	4	Formal and functioning frameworks for community consultation
	5	Established framework for fair benefit sharing and compensation to project affected communities
	6	Established standards and processes for fair resettlement and displacement
	7	Regional strategies and municipal plans for public amenities
	8	Regional strategies and municipal plans for community mobility and connectivity
Human and Labor Rights	9	Universal accessibility standards and codes for non-discrimination because of disabilities
	10	Standards and capacities for community health, safety, and security
	11	Commitment and capacities to ensure adherence to occupational health, safety and labor standards
	12	Standards and capacities for the protection of vulnerable groups
	13	Commitment and capacities to ensure gender inclusion
Cultural Preservation	14	Commitment and capacities to ensure adequate community access to resources
	15	Commitment and capacities to ensure the efficient management of cultural resources and heritage
	16	Commitment and capacities to ensure engagement of indigenous and traditional peoples

Institutional Sustainability		
Global and National Strategies	1	Rule of law, transparency, and stability over time
	2	National and sub-national infrastructure policies and plans to scale up infrastructure services
	3	Commitment and capacities for effective sector planning
Governance and Systemic Change	4	Integrated planning for economic, territorial, and urban development
	5	Integrated planning for natural, environment and social development
	6	National frameworks and incentives for corporate governance and transparency
	7	Capacities for environmental regulation, supervision, and enforcement
	8	Social management systems
	9	Framework and incentives for sustainable procurement
	10	Capacities and policies for anti-corruption and governance
o u n	11	Institutional context for sustainability innovation

	12	Project preparation support for incorporating sustainability
	13	Project design and planning to ensure optimal implementation
	14	Commitment and capacities to ensure project feasibility
	15	National and sectoral frameworks and standardized project agreements
	16	Data collection, management, and analysis to support infrastructure investments
	17	Project design and engineering studies for sustainability performance

Table 3. Sustainability criteria under all four sustainability principles at the financing stage.

3. Process of Developing the Framework

3.1 Approach

Our research started with analyzing existing infrastructure sustainability rating systems, MDB safeguards, and guidelines on sustainable infrastructure. We then built upon, refined, and highlighted the most relevant aspects under the economic, financial, environmental, social, and institutional principles to consider while developing sustainable infrastructure, focusing on the three identified project stages: upstream planning, preparation and design, and financing.

The final set of selected principles is applicable throughout the entire life cycle of infrastructure projects, and across different infrastructure sectors and regions. Subsequently, we structured the principles in three separate Excel files covering each project stage. Furthermore, we highlighted whether and how the selected principles are covered in the evaluated rating systems, guidelines, and/or safeguards.

3.2 Research Questions

Our work was driven by the following questions:

I. What criteria most holistically cover the environmental, social, economic, and financial, and institutional dimensions of sustainable infrastructure?
II. How do these criteria align and evolve across the project lifecycle?
III. What are the linkages and references to these criteria in existing rating systems and related frameworks?
IV. What can we learn about the overlaps, magnitude, and respective emphases of the sustainability criteria within all four categories, as they exist in other systems?

3.3 Summary of Methodology

I. Review general framework, approach and goals with the IDB;
II. Review existing work conducted by the IDB on indicators;
III. Expand, modify and edit indicators;
IV. Distribute indicators across three project stages;
V. Benchmark indicators with existing rating systems and frameworks;
VI. Prepare concluding report.

3.4 Systems Benchmarking

The systems we chose to benchmark against the proposed framework are listed in Table 4, including each system's applicability along the project cycle.[xv]

Sustainability rating systems and tools	Applicability
Envision Rating System for Sustainable Infrastructure (Envision)	Design
Infrastructure Sustainability Rating Scheme (IS)	Design
Infrastructure Voluntary Evaluation Sustainability Tool (INVEST)	Upstream Planning, Design
Standard for Sustainable and Resilient infrastructure (SuRe)	Design
Sustainable Transport Appraisal Rating (STAR)	Upstream Planning, Design
Hydropower Sustainability Assessment Protocol (HSAP)	Upstream Planning, Design
SE4All Regulatory Indicators for Sustainable Energy Tool (RISE)[xvi]	Upstream Planning
Inter-American Development Bank (IDB) Safeguards and Policies[xvii]	Design, Financing
International Finance Corporation (IFC) Performance Standards[xviii]	Design, Financing
World Bank (WB) Environmental and Social Framework and Policies[xix]	Design, Financing

Table 4. The evaluated rating systems along with the project stage they were designed for.

3.5 Limitations of Research

It is important to note some of the limitations of this work. First, our research focused on three infrastructure project stages: I) the policy and planning stage (upstream level), II) the project preparation and design stage, and III) the financing stage of the project cycle. Although the framework is applicable throughout the entire infrastructure project cycle and across multiple infrastructure sectors, the procurement and operations and maintenance project stages are not explicitly covered. Additionally, the selection of specific sustainability rating systems and tools by design may leave out other systems that could provide insights on the framework in general, or in any of its specific indicators.

Finally, the identified frameworks to review and benchmark against within the MDB space do not include all documents and frameworks that MDBs have for each and every specific dimension of the framework. This is the outcome, first, of the time constraints of this work, and second and most important, of the proprietary nature of policies and frameworks related to certain dimensions of our framework, and in particular the financing and economics.

Further work on the above limitations can help address them in a future revision of the framework, which by design is aimed to stimulate discussion and lead to several collective efforts within the IDB and the entire MDB space to edit, complement, and improve it.

4. Benchmarking Against Existing Systems

Several systems exist already for guiding and planning sustainable infrastructure projects, but as our benchmarking analysis reveals, no one existing system provides comprehensive coverage of the entire project cycle, as the proposed framework would do. See Appendix E for detailed descriptions of the existing systems used in this analysis, and Appendix F for comprehensive comparative tables.

4.1 Upstream Planning Stage

The upstream planning stage of infrastructure projects is often where sustainability opportunities can be implemented efficiently without requiring significant modifications and cost overruns, which occur when project design is already completed and needs to be revised later. In this stage, national, sub-national, and sectoral entities establish and enforce national and sectoral policies, legislation, and regulations to facilitate sustainable infrastructure. Yet, most of the assessed sustainability rating systems and frameworks were designed to be primarily applicable at the project preparation and design stage, and cover only a small fraction of upstream planning sustainability aspects. For instance, of the evaluated tools and frameworks, only the RISE tool was designed to be directly applicable to the upstream stage. The HSAP tool has some specific credits, and the INVEST tool has a different module specifically for the upstream planning stage, while the STAR methodology covers this project stage broadly but not extensively. Therefore, the upstream planning stage is the stage where the lowest overall coverage of sustainability criteria under all four sustainability principles was observed.

The assessed sustainability rating systems, tools, and ESG frameworks covered on average 12% of the criteria under the Environmental Sustainability and Climate Resilience sustainability principle. The strongest overlaps were identified with the INVEST and HSAP rating systems, which covered 31% and 25% of criteria, respectively. Strong gaps were also identified in the criteria under the Institutional Sustainability, Social Sustainability, and Financial and Economic Sustainability principles, as the assessed tools and frameworks covered on average 12% of Institutional criteria, 11% of Social criteria, and 10% of Economic and Financial criteria.

Figure 2 displays the overlaps and gaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the upstream planning stage.

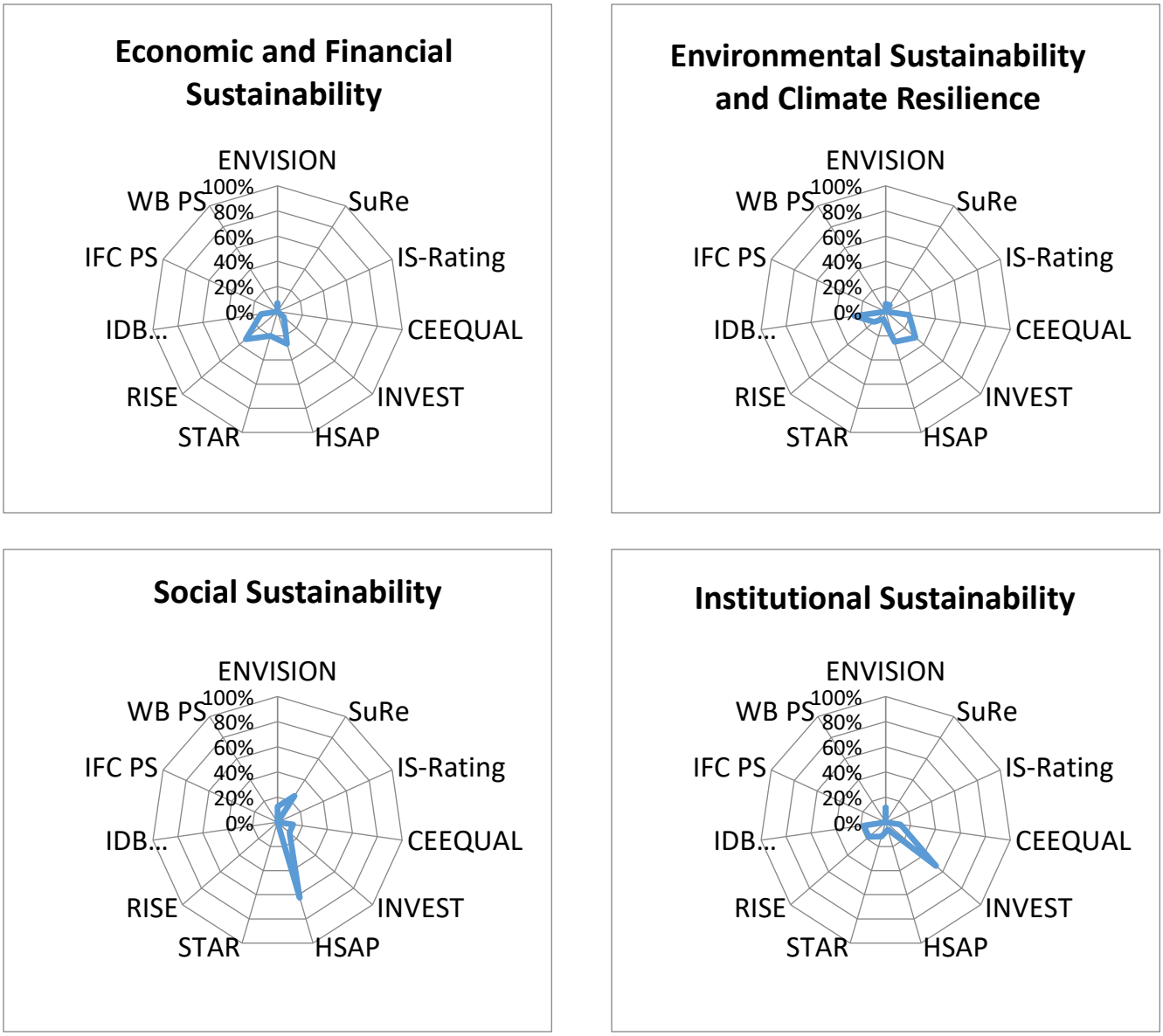

Figure 2. Overlaps and gaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the upstream planning stage.

Overall, 27 out of the 64 total criteria were not covered by any of the evaluated sustainability rating systems and frameworks.

4.2 Project Preparation and Design Stage

At the project level stage, the assessed sustainability rating systems, tools, and ESG frameworks adequately covered the criteria under the Environmental Sustainability and Climate Resilience principle, as overlaps were identified with 80% of the criteria on average. Notably, the Envision and SuRe rating systems covered 100% of the sustainability criteria. Furthermore, strong overlaps were identified with the criteria under the Social Sustainability principle, primarily with the MDB ESG Safeguard frameworks and the Envision and SuRe rating systems. Overall, the assessed tools and frameworks covered 53% of Social Sustainability criteria on average.

Fewer overlaps were identified with the criteria under the Institutional Sustainability principle (42%), primarily with the sustainability rating systems. Notably, the MDB safeguard frameworks covered less than half of the criteria. The lowest coverage was observed with the criteria under the Economic and Financial Sustainability principle. The assessed tools and frameworks, covered on average 34% of Economic and Financial Sustainability criteria with the notable exception of the IDB Safeguard framework and IDB policies that covered 76% of the total criteria.

Figure 3 displays the overlaps and gaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the project preparation and design stage.

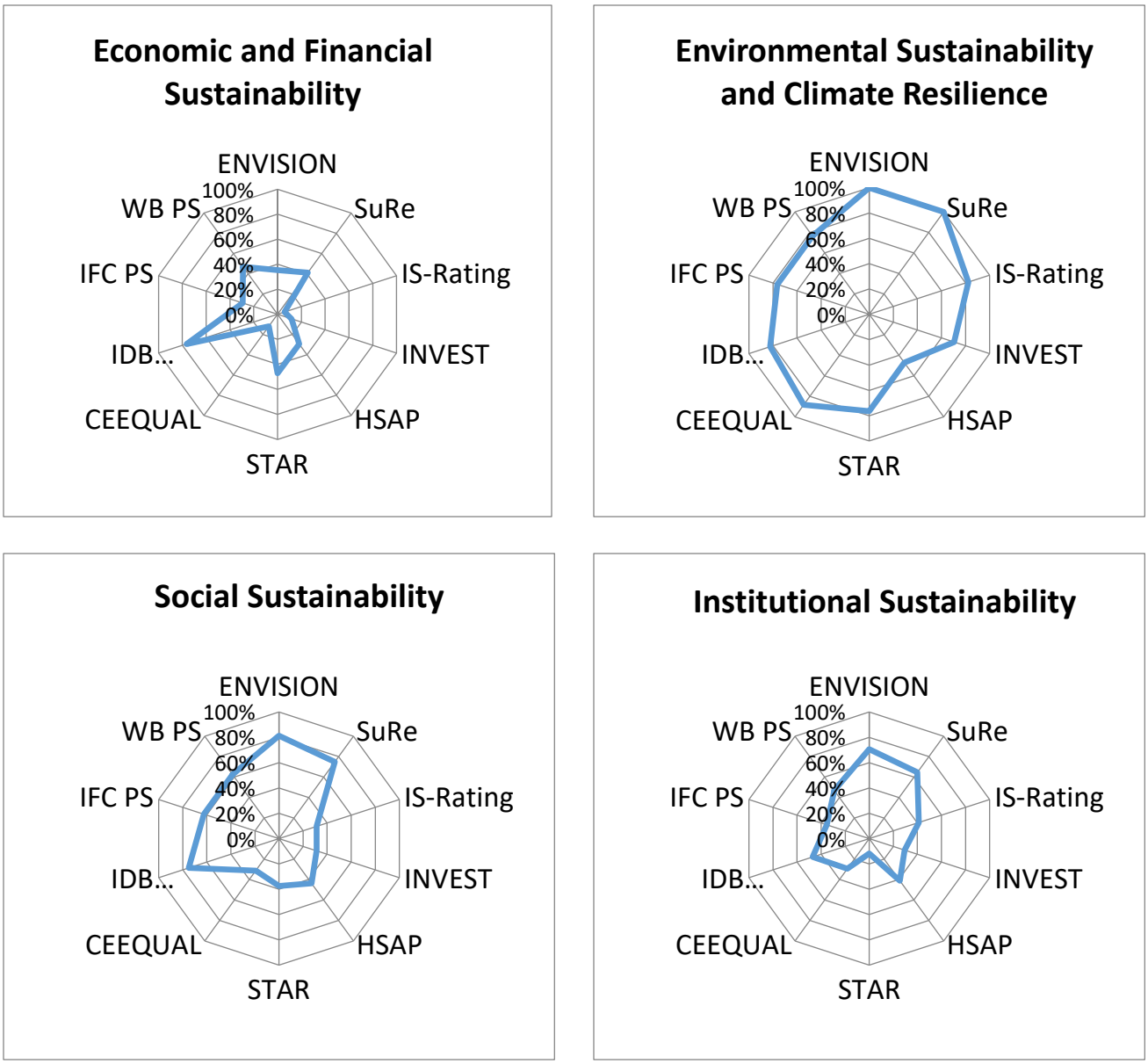

Figure 3. Overlaps and gaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the project preparation and design stage.

At the project preparation and design stage, the most comprehensive tools according to this analysis are CEEQUAL, SuRe and Envision, although each one follows a different approach. The HSAP, INVEST and STAR tools are focused on a single infrastructure sector and project type, thus restricting coverage to certain credits. However, it appears that most standards prioritize credits in the Environmental Sustainability and Climate Resilience and Social Sustainability criteria, as they do not comprehensively address criteria under the Economic and Financial and Institutional Sustainability principles.

In terms of overlaps with the evaluated tools, 8 out of the 67 total sustainability criteria in the project preparation and design stage were not covered by any of the evaluated sustainability rating systems and frameworks. The gaps were identified in Economic and Financial Sustainability (three criteria), in Social Sustainability (two criteria), and in Institutional Sustainability (three criteria). Economic and Financial Sustainability aspects not covered relate to efficient risk allocation, commercial incentives for sustainability in project agreement, and climate finance.

Social Sustainability aspects not covered by the evaluated sustainability tools relate to project design for fair benefit sharing and compensation to project affected communities, and implementing a project design that does not limit communities' access to resources. Finally, Institutional Sustainability aspects not covered by the tools relate to project design and planning to ensure optimal implementation, project design and systems for engineering and technological feasibility, and project design and engineering studies for sustainability performance.

4.3 Project Financing Stage

In the project financing stage, the strongest overlaps overall were identified in the Environmental Sustainability and Climate Resilience principle, where 69% of the criteria were covered by the assessed systems on average. As in the project design and preparation stage, the Envision and SuRe rating systems covered most of the sustainability criteria under the Environmental Sustainability and Climate Resilience principle. Under the Social Sustainability principle, the assessed tools covered 39% of the criteria on average. The strongest overlaps were identified with the MDB ESG Safeguard frameworks and the Envision SuRe, and HSAP rating systems.

The assessed tools covered 24% of criteria under the Institutional Sustainability principle on average, where most overlaps were observed primarily with the sustainability rating systems. As is the case in the institutional planning and project design and preparation stages, the weakest coverage was observed with the criteria under the Economic and Financial Sustainability principle. Overlaps were identified with 14% of Economic and Financial criteria on average. Notably, although the MDB safeguards are directly applicable at the financing stage, safeguard policies do not focus on addressing several of the economic and financial indicators included in the project financing stage. MDBs have specific guidelines and policies that likely cover extensively many of the economic and financial indicators that are addressed at the project financing stage, but these documents are not publicly available, and therefore, it was not possible to include them in the analysis.

Figure 4 displays the overlaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the financing stage.

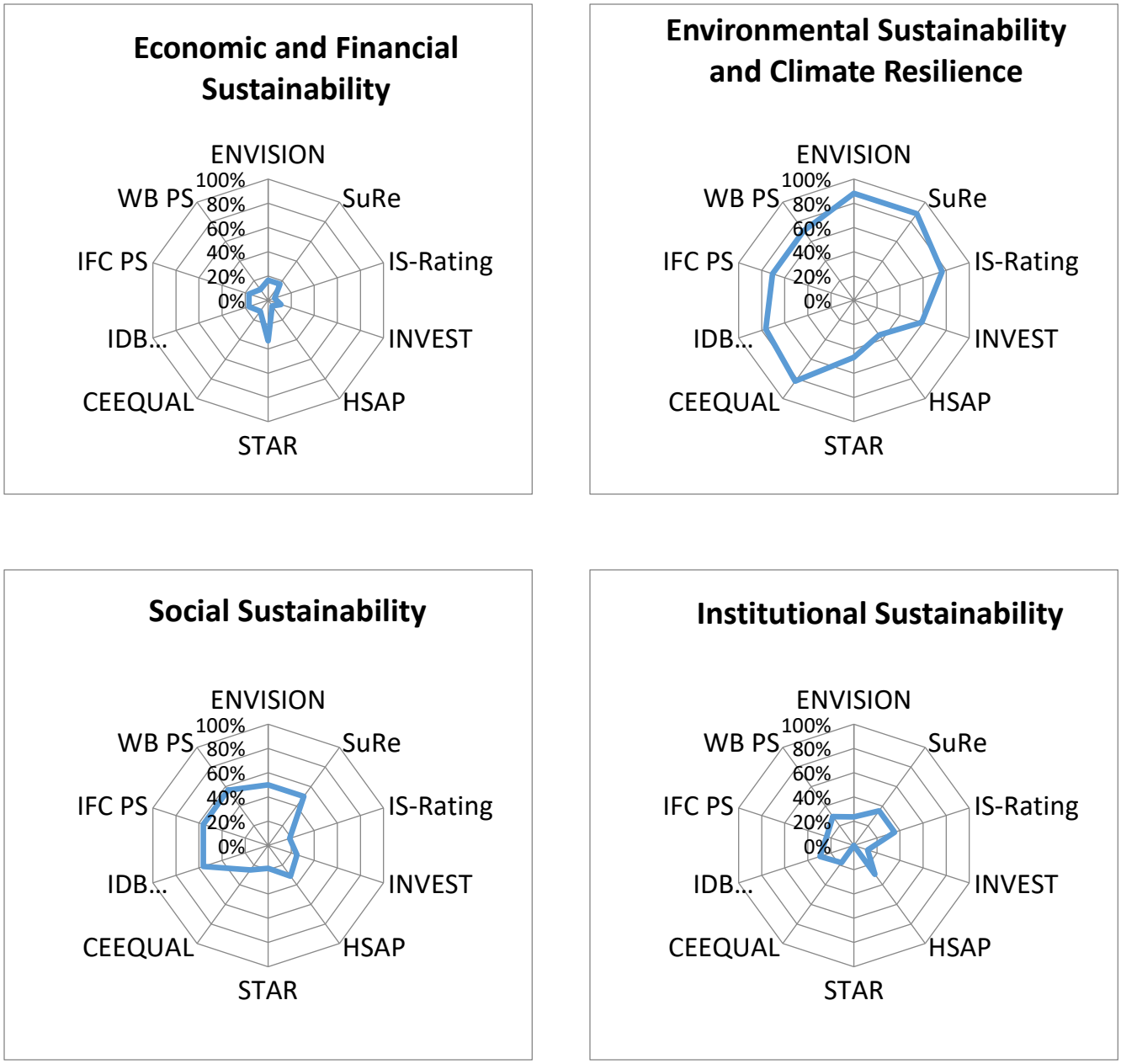

Figure 4. Overlaps and gaps between the evaluated rating systems and frameworks and the sustainability criteria under all four sustainability principles at the financing stage.

Overall, 29 out of the 68 sustainability criteria along the four sustainability principles were not covered by any of the evaluated sustainability rating systems and frameworks. The strongest gaps were observed with criteria in the Economic and Financial and Institutional principles,

where overlaps were identified with eight of the 18 criteria, and seven of the 17 criteria, respectively.

5. General Findings

5.1 Lack of Guidance in Incorporating Sustainability at the Upstream Planning Stage

Our analysis demonstrates that strong gaps exist in the availability of guidance and coverage of strategies, regulations, and principles at the upstream level to guide the implementation of sustainability aspects during later stages. From the evaluated sustainability rating systems and frameworks, only four -the SE4all RISE tool, STAR, HSAP, and INVEST- explicitly cover the upstream planning stage, which is evident in the number of criteria for which no overlap was observed with the evaluated tools. Overall, a very small number of criteria at the upstream stage are covered by current sustainability rating systems, as most are applicable to the project design phase, highlighting the need for an overarching framework that standardizes sustainability throughout the entire infrastructure project cycle.

5.2 Strong Coverage of Environmental and Social Criteria, Primarily at the Project Preparation and Design Stage

The evaluated sustainability rating systems and frameworks covered more extensively the environmental and social sustainability aspects throughout the three project stages. The overlaps are strongest at the project design and preparation stage, where the evaluated sustainability rating systems and tools covered all available criteria. However, in many cases, the sustainability rating systems and frameworks specify the key range of environmental impacts to be addressed during project design and preparation, yet without specifying equally comprehensive requirements for action plans to address these impacts. This is reflected in the lack of overlaps between rating system criteria and specific environmental and social aspects at the financing stage, where the project needs to include an explicit plan to address the identified impacts, such as a benefit sharing and compensation plan or an environmental commitment and liability management plan.

Overall, we observed that deconstruction and decommissioning aspects are not explicitly and adequately covered through the sustainability rating tools and frameworks. Strong gaps were also observed in regards to community access to resources while planning, designing, and implementing infrastructure projects, which can be one of the most prominent drivers of community grievances. Furthermore, benefit-sharing aspects were expanded to cover some of the most significant benefits that should be evaluated, such as environmental benefits (reforestation, restoration of previously degraded environments, general environmental improvements).

5.3 Financial and Economic Sustainability Aspects are Least Covered in All Three Evaluated Project Stages

Our analysis shows that the evaluated sustainability rating tools and frameworks do not focus extensively on financial and economic sustainability aspects. Under the Financial and Economic principles, the tools include criteria focused on better capturing opportunities for co-benefits and the sustainable development of host and affected communities when developing projects. Yet, in the proposed framework, criteria descriptions were expanded to emphasize the importance of considering disadvantaged and vulnerable groups to support social equity and inclusion. In addition, the criteria were developed with a more explicit reference in the time aspect of the project, both from the regulator and the owner through efficient planning. Having project delays for years (or decades) due to long review times or other issues is an unsustainable approach, leads to technological obsolescence and loss of capital, among others.

Notable gaps were identified in the availability of criteria and aspects covering local capital markets for infrastructure. For example, a criterion encouraging local investments in infrastructure, and incentivizing projects to, where possible, use innovative financial structures to increase investments locally and mobilize local sources of finance (pension/ insurance funds) was not identified. Furthermore, financial criteria covering well-capitalized project sponsors, where the project sponsors have adequate financial resources on their balance sheets, and are adequately invested in the project to avoid stranded asset risks were not covered. Moreover, there is no specific information about Innovative Finance or Climate Finance in the evaluated tools and safeguards, where the project is financially structured in order to attract, mobilize, or access sustainable finance sources of capital (Clean Development Mechanism -CDM, green bonds, impact investors, among others).

5.4 No Emphasis on the Technological Innovation Needed to Drive Sustainable Investments

Through our analysis, we observed that the evaluated sustainability rating systems and frameworks do not cover the actions that must be taken at the upstream, project preparation, and financing stages of infrastructure projects to promote innovation and ease the transition towards more sustainable infrastructure. The major issue in all sustainability systems and/or frameworks is that project costs could increase with the additional requirements for sustainability. This can be dealt with through technological advancement, innovation, and better or a different design that embraces the principles of sustainability from the start. The framework highlights and focuses extensively on aspects of technology and innovation (technological, business practices, and financial structures) that need to become more prominent in infrastructure development in order to address these aspects.

6. Conclusion

Our research introduces a framework of overarching sustainability criteria that cover the economic and financial, environmental, social, and institutional sustainability dimensions of sustainable infrastructure projects, for the policy and planning stage (upstream level), the project preparation and design stage, and the financing stage of the infrastructure project cycle. The framework is applicable across different sectors and regions, designed to provide an all-encompassing structure to the concept of sustainable infrastructure that can stimulate discussions among different stakeholder groups and help illustrate the prevailing institutional gaps to planning, designing, and implementing sustainable infrastructure projects in the LAC region more effectively.

Pilot case study applications in infrastructure projects and national planning systems would help test and refine the framework through the lessons learned in practice. In addition, the scale of the required investments to facilitate the transition towards sustainable infrastructure requires strong engagement and consultation among different stakeholder groups important in developing and implementing infrastructure projects, including government policy makers, regulators, investors, MDBs, developers, and the general public.

For instance, the framework can work as the starting ground for MDBs to work collaboratively to develop a shared framework for sustainable infrastructure investments to develop and promote a shared understanding of sustainable infrastructure. Furthermore, capacity building initiatives can focus on helping countries in LAC use the framework to address institutional arrangements for procuring infrastructure projects.

Specifically for the IDB Group, the framework illustrates some sustainability aspects under the four sustainability principles that are not explicitly covered by existing Bank sustainability policies and safeguards. Further research can focus on how these gaps can be addressed in infrastructure projects through the application of existing or new policies and tools. The IDB can also build upon its STAR methodology for reporting the sustainability performance of project portfolios in the transport sector to better address the sustainability gaps that were identified through the framework. Similar methodologies can be developed to report on sustainability performance at the portfolio level in other infrastructure sectors in accordance with the framework's sustainability principles.

Appendices

Appendix A: Upstream Planning Stage Framework Descriptions

CRITERION	DESCRIPTION
Economic and Financial Sustainability	
National and sectoral productivity growth strategy	National, sub-national, and sectoral entities should implement strategies for enhancing productivity growth, so infrastructure project pipelines are planned to address relevant identified bottlenecks, promote inclusive and sustainable growth, and boost productivity.
National and sectoral frameworks and incentives to maximize social returns of infrastructure	National and sectoral Infrastructure frameworks should clearly define and incentivize the application of cost-benefit analysis techniques that adequately evaluate all externalities to ensure holistic cost-effectiveness of project pipelines and that infrastructure projects result in the highest possible social return. National and sectoral infrastructure frameworks should indicate the proposed methodology for conducting cost-benefit analyses, ensuring its alignment with international good practices.
Trade policies for sustainability transformation	Trade barriers against sustainability goods and services can affect within country costs of sustainability technologies and slow investment uptake in sustainability technologies e.g., low carbon energy generation and urban mobility. National and sectoral entities should identify and address such barriers, implementing trade policies for sustainability transformation.
Taxation and pricing for perverse subsidies and price distortions	Tax, trade, and innovation policies, legislation, and regulations can create price distortions and perverse subsidies favoring non-sustainable over sustainable choices. For example those that favor fossil fuels over low carbon energy generation, reduce incentives for water and energy efficiency or material recycling. Tax incentives, see subsidies and carbon prices - but tax frameworks other than fossil fuel subsidies and carbon pricing can be perverse, e.g., corporate income tax and technology taxes.
Level playing field for public and private enterprises	Market distortions may be created if state owned enterprises have a privileged status and do not have to face the same competitive challenges as private infrastructure contractors and so crowd out private investment or increase costs of capital due to higher perceived risks. Thus, national governments should ensure that public and private enterprises are governed under the same laws and regulations, and that state-owned entities are not directly or indirectly incentivized in regards to receiving access to capital or project contracts under preferential terms not offered to private competitors.
Certification schemes for providers	National governments should establish national sustainability certification schemes that identify and certify sustainable products, materials, and practices followed by providers that could be used while developing and implementing infrastructure projects. National governments should incorporate sustainability certification schemes in their national public investment systems and aim to specify mandatory minimum requirements for developers to use certified sustainable products, materials, and providers.
Multi-year budgeting of infrastructure projects	National and sub-national entities should evaluate infrastructure proposals over multi-year time lines and adopt multi-year budgets to match the time frames for infrastructure projects. National governments should incentivize national and sectoral entities to adopt multi-year

	budgets in the context of a national multi-year budget framework, ensuring its alignment with international good practices.
Sustainability risk analysis and management in investment evaluation	National entities should establish and implement risk assessment standards that require and guide public and private sector infrastructure projects to undertake or support sustainability risk analysis as an element of the investment evaluation. This analysis should include climate risk and the risks of stranded assets and ensuring transparency of the results of these analyses.
Life-cycle costing of infrastructure assets	Institutional requirements for infrastructure should include the application of cost-benefit analyses including understanding positive and negative externalities over the whole project life cycle to ensure cost-effectiveness and the highest possible social return even under circumstances of incomplete information. Infrastructure projects should incorporate adequate design and operation standards to ensure optimal asset use and service provision, discourage overuse and deterioration, and ensure service costs are covered through user fee schemes.
Transparent national infrastructure procurement and PPP processes	National and sub-national entities should make publically available in long-term, transparent, and prioritized infrastructure project pipelines that can motivate developers to engage over the longer term and help to develop infrastructure markets. Improve regulatory and institutional framework for PPPs - transparency, structuring, credibility, incorporate sustainability. Transparent bidding procedures will foster market efficiency.
Holistic evaluation of bids in procurement	National and regional systems for tendering infrastructure projects should ensure that the total lifecycle costs of a project as well as the demonstrated capacity to implement projects are fully reflected in the evaluation of bids. This requires sufficient capacity of staff, high transparency, technical excellence, project management excellence and good corporate governance
Frameworks for private investments in infrastructure	National and sub-national institutional frameworks should be designed with infrastructure investments in mind and seek to manage risks for private investments. Risk management should include enhancing transparency and reliability of processes to reduce political risks, increasing predictability through enhancing disclosure of sustainability risks, increasing capacities to distribute risks efficiently through fair contractual arrangements, clarify that ESG requirements are integral to fiduciary duty to beneficiaries, and manage regulatory limitations on investments in sustainability including innovative best in class projects. National and sub-national entities can provide guarantees, insurance, or credit enhancement or direct development finance or concessional finance towards these ends, facilitate co-financing and access to financing for sustainability, expand possibilities for syndication, portfolio opportunities, and pooling vehicles for groups of sustainable infrastructure projects.
Local capital markets in infrastructure	Creating an enabling environment for long term investments (national pension and insurance funds in particular) requires the development and/or enhancement of local capital markets. This can be done by easing portfolio restrictions for institutional investors in (sustainable) infrastructure, including establishing infrastructure as an asset class, allowing institutional investors to create and/or participate in infrastructure funds, and managing financial stability limitations on long term investments in infrastructure.
Green bonds	National and sectoral entities should establish policies, laws, and regulations that promote and set clear and mandatory standards for green bonds, and/or climate bonds and /or renewable energy

	investments and/or investments in sustainable infrastructure.
Carbon markets	National governments should develop carbon markets to discourage unsustainable infrastructure and mitigate GHG emissions, either by establishing an official carbon price or by implementing an Emissions Trading Scheme. Carbon pricing can also serve as a source of potential financing in addition to being a mechanism to reduce subsidies to fossil fuels.
Environmental Sustainability and Climate Resilience	
National and sectoral strategies and incentives to reduce GHG emissions	National and sub-national entities should have strategies and stable policy, legislative, and regulatory requirements to measure, document, and reduce carbon emissions in accord with nationally established emissions standards and binding national and sub-national emissions reduction targets, such as the NDCs submitted and ratified as part of the 2015 Paris Agreement.
National, regional, and sectoral plans for climate resilience and adaptation	National and sectoral entities should establish and enforce national, regional, and sectoral strategies for climate resilience and adaptation. National, sub-national, and sectoral entities should ensure incorporation of climate risk assessment and adaptation requirements and considerations in infrastructure investment evaluations, as well as climate impact assessment and management plans during construction, operations, and decommissioning.
National, regional, and sectoral frameworks for disaster risk management	National, sub-national, and sectoral entities should establish and enforce national and sectoral frameworks and strategies for managing disaster risk in infrastructure. National, sub-national, and sectoral entities should require systematical assessment and management of disaster risks, (including climate risks) that may affect projects and surrounding areas in infrastructure investment evaluations.
Standards and strategies for durability, flexibility, and recovery of infrastructure systems	National and sub-national entities should develop and enforce standards to assess, evaluate, and incorporate in project designs durability, flexibility, and rapid recovery aspects while implementing infrastructure projects.
National, regional, and sectoral frameworks and strategies for air pollutant emissions	National, sub-national, and sectoral entities should implement national frameworks and strategies for managing air pollutant emissions, and establish and enforce stable policy, legislative, and regulatory requirements to measure, document, and manage air pollutant emissions that may affect projects and surrounding areas.
Management of water quality	National or sub-national regulation should require standards to assess, evaluate, and manage adverse impacts on human health and the environment from excess use of water or water pollution resulting from infrastructure project activities during construction, operations, and decommissioning.
Soil and other pollution management	National and sub-national entities should establish and enforce standards for, and prevent or minimize pollution and contamination on, land and in the air, including soil pollution, noise and vibration, light, dust, visual effects, and particulate matter, amongst others.
National and regional plans for biodiversity and ecosystem services	National and sub-national entities should develop and enforce national and regional plans for biodiversity and ecosystem services, requiring avoidance of negative impacts on biodiversity and the assessment and management of any unavoidable impacts to ensure maintenance of biodiversity functions and ecosystem services, seeking net positive gain
National and regional plans for ecological connectivity	National and sub-national entities should require avoidance of negative impacts on ecological connectivity zones and the assessment and management of any unavoidable impacts to ensure maintenance of ecological corridors and connectivity functions, seeking net positive

	gain.
Preservation of greenfields, areas with high ecological values, and farmland	National and sub-national entities should require avoidance of negative impacts on biodiversity and the assessment and management of any unavoidable impacts to ensure maintenance of biodiversity functions and ecosystem services, seeking net positive gain.
National, regional, and sectoral plans for management of invasive species	National and sub-national entities should require avoidance of invasive species introduction and the assessment, management, and elimination of existing invasive species during project development.
Commitment and capacities for soils management	National and sub-national entities should provide standards for minimizing or avoiding disturbance of soils during project development. Where disturbance of soils is unavoidable, the restoration of disturbed topsoil and subsoil should be required.
National, regional, and sectoral frameworks for the efficient management of water resources	National, sub-national and sectoral entities should promote and enforce standards for the sustainable use of water resources including maximizing water resource efficiency and minimizing use of critical water resources.
National, regional, and sectoral frameworks for efficient use of material resources	National and sub-national entities should promote standards and requirements in projects for the sustainable use of raw materials, including materials with a recycled content and materials with lower energy and water content, and incentivize the use of local materials and the integration of recycling practices during the lifecycle of projects.
National, regional, and sectoral frameworks for sustainable use of energy resources	National or sub-national policy, legislation, and regulations should promote standards for energy and fuel use efficiency and the use of renewable energy in infrastructure, buildings, and vehicles including measurement and documentation.
National, regional, and sectoral frameworks for sustainable waste management	National and sub-national entities should provide standards for minimizing waste generation through reuse and recycling, avoid landfill disposal, and especially avoid generation of hazardous wastes.
Social Sustainability	
Institutional understanding and monitoring of social needs and trends	National and sub-national entities should regularly assess and monitor social needs and trends in order plan infrastructure pipelines that address these needs most effectively. Infrastructure projects should be planned to maximize benefit inclusion for disadvantaged groups and improve social cohesion.
Updated and reliable demographic data	National and sub-national entities should regularly collect, assess, and update demographic data at national and sub-national levels, ensuring that infrastructure project benefits and impacts on the environment, the community, and the economy are properly assessed and quantified during infrastructure project investment evaluation and implementation.
Formal and functioning frameworks for stakeholder engagement	National and sub-national entities should establish, monitor, and enforce standards for effective engagement with stakeholders through public consultation throughout the infrastructure project cycle to ensure public support and guarantee project-affected parties the access to raise issues and grievances.
Formal and functioning frameworks for community consultation	National and sub-national entities should establish, monitor, and enforce standards for effective consultation with local communities through public consultation throughout the project cycle to ensure public support and guarantee project-affected parties the access to raise issues and grievances. The Free, Prior, and Informed Consent (FPIC) of the community should be required while developing high-impact projects that affect the natural resources and territory of local communities.
Established framework for fair	National and sub-national entities should establish and enforce

benefit sharing and compensation to project affected communities	standards to guarantee that benefits beyond one-time compensation payments or resettlement support for project affected communities are agreed through dialogue with affected communities and delivered accordingly.
Established standards and processes for fair resettlement and displacement	National and sub-national entities should establish and enforce standards to avoid, or minimize, the need for resettlement or economic displacement of people as a result of infrastructure projects, ensuring that where displacement occurs people are treated equitably.
Regional strategies and municipal plans for public amenities	National and sub-national entities should implement, monitor, and enforce regional and municipal strategies to promote the preservation, or enhancement, of critical public amenities including public spaces or recreational spaces.
Regional strategies and municipal plans for community mobility and connectivity	National and sub-national entities should implement regional and local strategies for enhancing community mobility and connectivity to guide the implementation of more effective and targeted community mobility and connectivity strategies at the infrastructure project level.
Universal accessibility standards and codes for non-discrimination because of disabilities	National and sub-national entities should establish, monitor, and enforce universal accessibility standards and codes for infrastructure projects to ensure that infrastructure assets and services are fully accessible to disabled and disadvantaged users.
Standards and capacities for community health, safety and security	National and sub-national entities should establish and enforce standards that minimize negative project impacts on community health and safety including exacerbation of existing climate or natural disaster risks, as well as standards that minimize crime and security risks for local populations from project activities during construction, operations, and decommissioning.
Commitment and capacities to ensure adherence to occupational health and safety and labor standards	National and sub-national entities should establish standards that promote healthy working conditions and adherence to global good practices in occupational health and safety. National and sub-national entities should establish core labor standards and ensure that they are respected and workers are protected through fair treatment, nondiscrimination, and equal opportunity.
Standards and capacities for the protection of vulnerable groups	National and sub-national entities should have stable policy, legislative, and regulatory requirements for infrastructure projects to comply with human rights agreements preventing and mitigating adverse impacts over the lifecycle of the infrastructure assets to vulnerable groups - indigenous peoples, women, and children.
Commitment and capacities to ensure gender inclusion	National and sub-national entities establish and enforce standards that prevent, or mitigate against, adverse gender related impacts resulting from project activities. Compliance with international agreements should be required while planning and implementing infrastructure projects.
Commitment and capacities to ensure adequate community access to resources	National and sub-national entities should establish, monitor, and enforce standards and/or specific requirements for infrastructure projects to ensure that community access to resources remains at pre-project-development levels.
Commitment and capacities to ensure the efficient management of cultural resources and heritage	National and sub-national entities should establish and enforce standards that preserve tangible and non-tangible cultural heritage that may be affected by project activities during construction, operations, and decommissioning.
Commitment and capacities to ensure engagement of indigenous and traditional peoples	National and sub-national entities should establish and enforce standards that protect the rights of indigenous and traditional peoples, and require compliance with international commitments and agreements that protect the rights of indigenous and traditional peoples.
Institutional Sustainability	
Rule of law, transparency, and	The national legal and administrative system should observe the

stability over time	principles of rule of law and transparency to enable coordinated policy implementation, insulate long term infrastructure decisions from short term political pressures, and minimize corrupt, irrational, and incoherent infrastructure decisions. For the sake of investment, certainty and minimization of political risks national legislation, regulations, and planning requirements should be based on a solid and broad political consensus and a long term development strategy, taking into account the necessary steps towards a low carbon economy, thereby minimizing the danger of misinvestments and stranded assets Institutional stability and long term development perspective.
National and sub-national infrastructure policies and plans to scale up infrastructure services	The national obligations under multilateral environmental agreements including the 2015 Paris Agreement and Sustainable Development Goals should be integrated into binding national and sub-national development and infrastructure plans that are developed in consultation with stakeholders to guide long term pipelines of national and regional infrastructure projects and minimize contradictions between national and sub-national planning and procurement signals.
Commitment and capacities for effective sector planning	Transparent and well structured planning and permitting processes should guarantee that projects are effective solutions to meet demonstrated development needs in an efficient, safe, multi-modal, and affordable way while ensuring accessibility of infrastructure sources and alignment with the plans of related sectors. Long term plans should be informed by scientific and technical analysis and rational long term development and growth scenarios while being adaptable to future changes in demand or conditions.
Integrated planning for economic, territorial and urban development	National and sub-national transparent long term planning and permissioning processes should encourage and facilitate sustainability and guarantee that projects are integrated with existing and planned infrastructure and land use across different jurisdictional scales, including land rights acquisition and clarity of tenure issues.
Integrated planning: natural, environment, and social development	National and sub-national long term planning and permitting processes should be supportive of the local community's vision and goals and integrate ecological considerations into the planning process. National or sub-national regulations should require appropriate planning before taking decisions on siting to avoid infringing national parks, biodiversity hotspots, indigenous land, critical ecosystems, or ecological connectivity and avoid greenfield development where possible.
National frameworks and incentives for corporate governance and transparency	National and sub-national entities should implement and enforce appropriate standards for corporate governance mandating the separation of policy and executive roles and clearly defined organizational sustainability roles. National regulations and processes should incentivize effective corporate governance and transparency.
Capacities for environmental regulation, supervision, and enforcement	National and sub-national entities should have procedurally clear, efficient, adequate, and enforceable national and sub-national environmental legislation and regulations. Countries should also have independent, capable, and sufficiently staffed institutions to supervise and enforce the implementation of national and sub-national environmental legislation and regulations.
Commitment and capacities for regulating, supervising, and enforcing social sustainability	National and sub-national entities have adequate and enforceable legislation and regulation on access to information, stakeholder engagement, redress of grievances, social inclusion, and benefit sharing. National and sub-national entities have independent, capable, and sufficiently staffed institutions to supervise and enforce the implementation of legislation and regulations on social topics.
Framework and incentives for	National regulations and processes should improve transparency

sustainable public procurement	(including of sustainability elements) and efficiency of procurement and introduce mandatory minimum sustainability standards for public procurement of materials and services for construction, operations, and maintenance.
Capacities and policies for anti-corruption and governance	National and sub-national infrastructure planning should include anticorruption programs to enhance transparency and reduce corruption. This could be accomplished by implementing anti-money laundering and anti-bribery management systems, stringently evaluating illicit financial flows, preventing corrupt companies from winning public contracts and public complaint mechanisms to encourage oversight.
Institutional context for sustainability innovation	Institutional support for innovative business structures, innovative technologies, and new approaches in implementing sustainable infrastructure can help to address skills gaps, adoption of new labor market policies, investments in research and development, and scaling up of investments in sustainability innovation.
Project preparation support for incorporating sustainability	Government capacity needs to be built within agencies to support project preparation, or institutional mechanisms established to bring in external support for preparation and design incorporating sustainability elements. National regulations and processes should promote sustainable design of projects fully mitigating climate change and disaster related risks and build in the flexibility to satisfy changing demands in the future.
Commitment and capacities for technical planning and implementation	An adequate buildup of national and sub-national institutional, organizational, and individual capacities for national, sector, urban, and rural infrastructure planning is required to ensure sufficient capabilities and experience in technical, project management, contractual, financial, ESG, and climate change related aspects.
Commitment and capacities to ensure project feasibility	National regulations and processes should guarantee sufficiency in infrastructure project investment evaluation and project design and preparation, including transparent, rational, and independent evaluation of feasibility from engineering, financial, and social perspectives.
National and sectoral frameworks and standardized project agreements	National and sub-national entities should implement and enforce standards that promote standardized project agreements in infrastructure to enhance transparency and the effectiveness of the project procurement process.
Data collection, management, and analysis to support infrastructure investments	National, sub-national, and sectoral entities should ensure the collection, management, and analysis of data related to infrastructure investments including on economic & financial, environmental, social, and institutional sustainability to improve the effectiveness of planning. Furthermore, national and sectoral entities should incentivize the collection, management, and analysis of data on infrastructure asset sustainability performance during construction and operations, for example through an annual sustainability report, to evaluate the impact of sustainable infrastructure investments.
National and sectoral frameworks for sustainability and climate risks disclosure	National and sub-national entities should require disclosure of climate related risks in public procurement processes and as part of financial architecture for corporate reporting within countries. Disclosures by firms and financial institutions of material information on sustainability issues should be further strengthened to avoid stranded assets; this information is critical to management, investors, employees, lenders, supervisors and other stakeholders. It should include relevant considerations of policies, risks and opportunities as well as performance and impacts.

Appendix B: Project Design and Preparation Stage Framework Descriptions

CRITERION	DESCRIPTION
Economic and Financial Sustainability	
Project design for optimal development growth	Infrastructure projects should be planned, designed, and operated to address specific bottlenecks, promote inclusive and sustainable growth, and boost productivity. Sustainable infrastructure should seek to maximize co-benefits, create quality employment opportunities, and identify, assess, and minimize negative spillovers. especially for disadvantaged and vulnerable groups - thus supporting social equity and inclusion.
Economic and social return over project lifecycle	Infrastructure projects should apply cost-benefit analysis techniques that adequately evaluate all (positive and negative) externalities to ensure holistic cost-effectiveness and the highest possible social return.
Increase of local investment	Infrastructure projects should, where possible, use innovative financial structures that address sustainability risks to increase investments locally and mobilize local sources of finance, such as pension and insurance funds.
Service access and affordability	Infrastructure projects should broaden access to infrastructure services, especially for disadvantaged and vulnerable groups– thus supporting social equality and inclusion.
Service efficiency, quality and reliability	Infrastructure projects should broaden access to high quality, efficient, and reliable infrastructure services.
Infrastructure asset maintenance and optimal use	Infrastructure projects should include adequate design and operation standards and action plans to ensure optimal asset utilization and service provision, and discourage overuse and abnormal deterioration.
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.
Adequate risk adjusted rate of return	Infrastructure projects - in addition to a net positive economic return - should generate an adequate risk adjusted rate of return by identifying and assessing relevant project risks to attract commercial investment.
Clarity on revenue streams	Infrastructure projects should provide clarity on the ultimate source of revenue that would cover operating costs, in order to mitigate risks and ensure financial viability.
Operating profitability	Infrastructure projects should be financially structured such that revenues cover running costs and operations turn out profits, before deduction of taxes, interest, amortization, and depreciation of capital investments (and remuneration of capital.)
Asset profitability	Infrastructure projects should be financially structured such that asset profitably (return on assets; return on equity) is sufficient to attract private capital.
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.
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.
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.
Efficient risk allocation	Infrastructure projects should be structured such that project related risks (technical, social, environmental, political) are allocated to the party most able to control the likelihood of the risk occurring, and best able to control the impact of the risk on the project outcome, by assessing and anticipating a risk well and responding to it.
Commercial incentives for sustainability in project agreement	Infrastructure projects should be designed and implemented to align with and utilize commercial incentives for incorporating sustainability during construction and operations, such as using energy efficient equipment or materials with lower embodied energy and water content.
Climate Finance	Infrastructure project should be financially structured to attract, mobilize, or access sustainable sources of capital (Clean Development Mechanism, green bonds, impact investors, among others), thus accessing sufficient capital, achieving risk-adjusted returns and contributing to inclusive, resilient, and sustainable development.
Environmental Sustainability and Climate Resilience	
Project design for low GHG Emissions	Infrastructure projects should result in the net reduction of GHG emissions during construction, operations, and decommissioning, thus contributing towards the realization of the 2015 Paris Agreement GHG reduction commitments. Project developer should calculate the anticipated amount of GHG emissions through a lifecycle carbon assessment and implement clearly defined action plans to reduce or minimize them.
Understanding of climate risks and project resilient design	Infrastructure projects should be designed to be resilient to climate change and contribute to enhancing adaptation. Project developer should systematically assess and manage climate change risks through a climate impact assessment and adaptation plan. Infrastructure projects should ensure that they do not introduce risks that jeopardize climate change resiliency, such as increasing flooding risks in case of water reservoir projects.
Project design and systems optimization for disaster risk management	Infrastructure projects should systematically assess and manage potential disaster risks that may affect the project and stakeholders such as workers and potentially-affected local communities, in accordance with national disaster management frameworks. In addition to specifying mitigation and adaptation measures to address disaster risks, infrastructure projects should include sound disaster risk monitoring and management plans indicating the actions to be taken in case of natural disasters.
Durability, flexibility and recovery of design elements and technological systems	Infrastructure projects should be designed to be durable and flexible, allowing easy reconfiguration, deconstruction, and recycling of project components to extend project useful life and improve resiliency.
Project design and systems optimization to minimize air pollutant emissions	Project developer should monitor air quality, air emissions, and minimize adverse impacts from pollution from project activities during construction, operations, and decommissioning. Infrastructure projects should include comprehensive air pollutant emissions management

	plans that define actions to be taken to avoid air emissions, as well as to minimize emissions in case regulatory thresholds are exceeded.
Project design and systems optimization to minimize water contamination	Project developer should assess, evaluate, and manage adverse impacts on human health and the environment from excess use of water or water pollution resulting from project activities or storm water runoff.
Project design and systems optimization to minimize soil and other pollution	Infrastructure projects should assess, evaluate, and manage adverse impacts from pollution and contamination on land and in the air, including noise and vibration, light, dust, visual effects, and particulate matter amongst other anthropogenic effects. Infrastructure projects should avoid risks of soil pollution - or other kinds of pollution such as seabeds - due to spills, use of chemicals, or bad practices. Remediation procedures and cleanup programs should be put into place in case that the land being developed was previously contaminated.
Environmental assessment of project impacts	Infrastructure projects should include a comprehensive environmental impact assessment that identifies, assesses and proposes actions for mitigation of all relevant environmental impacts. The environmental impact assessment should be approved by relevant public authorities. Infrastructure projects should avoid negative impacts on biodiversity and assess and manage any unavoidable impacts to ensure maintenance of biodiversity functions and ecosystem services, seeking net positive gain.
Project design for maximum ecological connectivity	Infrastructure project should assess and avoid negative impacts on habitats, wildlife corridors, and sediment transport, and include clearly defined action plans to manage unavoidable impacts, to ensure maintenance of ecological connectivity.
Preserve greenfields, areas with high ecological values, and farmland	Project developer should avoid greenfield development where possible and favor development on previously developed greyfield sites and brownfield sites. Infrastructure projects should avoid impacts on farmland, and where possible, restore previously degraded farmland to productive state.
Project design and technology to minimize invasive species	Project developer should use locally appropriate and noninvasive species to avoid the introduction of invasive species, and ensure that invasive species would be properly managed and/or eliminated during construction, operations, and decommissioning.
Project design and technology to optimize soils management	Infrastructure projects should avoid disturbance of soils, and where not possible, restore disturbed topsoil and subsoil during construction, operations, and decommissioning. Infrastructure projects should also aim to restore soils disturbed during previous development.
Efficient use of water resources	Infrastructure projects should monitor and promote the sustainable use of water resources including maximizing water reuse or efficiency and minimizing use of critical water resources or consumption of potable water during the lifecycle of the project. Infrastructure projects should utilize stormwater, greywater, or recycled water to cover project water needs.
Material use and recycling	Infrastructure project should monitor and promote the efficient use of materials, including materials with a recycled content and materials with lower energy and water content, and incentivize the integration of recycling practices during the lifecycle 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.
Project design to minimize energy consumption and maximize use of renewables	Infrastructure projects should monitor energy use and promote energy efficiency and the use of renewable energy to minimize energy consumption, thus avoiding the use of more polluting non-renewable energy sources and the generation of greenhouse gas emissions. Infrastructure projects should aim to reduce annual project energy

	needs in accordance with applicable industry norms.
Waste management and recycling	Project developer should implement a waste management plan to monitor and minimize wastes 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 finally disposal of wastes.
Hazardous materials	Infrastructure projects should avoid the use of chemicals and where possible and necessary apply integrated pest management approaches and monitoring during the lifecycle of the project to avoid the use of pesticides, fertilizers, and herbicides.
Social Sustainability	
Social impact assessment of project	Infrastructure projects should assess and ensure that negative social impacts are avoided or minimized. Infrastructure projects should include a comprehensive social impact assessment that identifies, assesses, and proposes actions for mitigation of all relevant social impacts. The social impact assessment should be approved by relevant public authorities.
Social sustainability and development plan	Infrastructure projects should be planned, designed, executed, and operated for maximum benefit inclusion for 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.
Stakeholder engagement process	Infrastructure projects should identify and effectively engage with stakeholders throughout the project cycle to ensure public support. Stakeholder engagement should be pursued through a clearly-defined stakeholder engagement plan that includes provisions for soliciting stakeholder feedback and grievances.
Community consultation and participation	Potentially affected communities should be effectively consulted on project developments and engaged during the project development process through official public consultations and targeted initiatives to avoid conflicts and ensure community support. In 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 (FPIC) of the community. Community consultation efforts should be continuous and include provisions for soliciting community feedback and grievances during operations and decommissioning.
Project design for fair benefit sharing and compensation to project affected communities	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.
Project design for optimal resettlement and displacement	Infrastructure projects should be designed and implemented so as to avoid or minimize the need for resettlement or economic displacement of people as a result of the project, ensuring that where displacement occurs people are treated equitably. Alternative project designs that minimize resettlement and displacement should be evaluated. Resettlement and displacement should be managed through sound and clearly defined displacement management plans.
Provision of public amenities within project's area of influence	Project developer should ensure the preservation, or enhancement, of critical public amenities including public spaces or recreational spaces to improve quality of life and help local communities develop sustainably. Where possible, infrastructure projects should aim to restore existing

	degraded public space, or consider initiatives that expand public access to private space.
Project design to maximize 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 alternative non-motorized forms of transportation.
Universally accessible project design and technologies	Infrastructure project should ensure that infrastructure services are fully accessible to disabled and disadvantaged users. Infrastructure projects should be designed and implemented in accordance with universal accessibility norms and regulations, and include provisions to solicit feedback from disabled and disadvantaged users during construction and operations.
Community health, safety, and security, and crime prevention	Project developer should assess, evaluate, and manage project impacts on community health and safety including exacerbation of existing climate or natural disaster risks. Project developer should ensure that project activities do not increase security risks for local populations during construction and operations.
Occupational health and safety and labor standards throughout the project	Project developer should promote healthy working conditions and adherence to occupational health and safety standards. Core labor standards should be respected and workers protected through fair treatment, nondiscrimination, and equal opportunity avoiding under any circumstances forced and child labor.
Project design that preserves the rights of vulnerable groups	Infrastructure project should comply with human rights agreements preventing and mitigating adverse impacts over the lifecycle of the infrastructure assets. Such prevention should address vulnerabilities or any kind of discrimination against vulnerable groups - indigenous peoples, women, and children.
Gender inclusive project design	Project developer should prevent, or mitigate against, adverse impacts due to gender resulting from project activities. 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.
Project design that does not limit communities' access to resources	Infrastructure projects should be designed and implemented so as 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.
Cultural resources and heritage	Infrastructure projects should assess, evaluate, and preserve tangible and non-tangible cultural heritage that may be affected by project activities.
Indigenous and traditional peoples	Project developer should, in consultation with potentially affected indigenous and traditional peoples, assess, evaluate, and manage any potential impacts and risks from project activities.
Institutional Sustainability	
Project contribution to national and international commitments for sustainable development	Infrastructure projects should evaluate the extent to which the development is aligned with national and global commitments and obligations. These may include, inter alia, ratified multilateral environmental agreements including the 2015 Paris Agreement and Sustainable Development Goals and robust sector strategies or national climate change actions to achieve the Paris Agreement.
Project alignment with national and sectoral infrastructure	Infrastructure projects, as designed, should be optimal and effective solutions to meet demonstrated development needs identified through

plans	national and sectoral development and infrastructure plans. Infrastructure projects should transparently indicate the contribution(s) towards national and sectoral infrastructure plans, such as expanding access to potable water services.
Land use and urban planning integration	Infrastructure projects should be demonstrated to be integrated with existing and planned infrastructure and land use across different jurisdictional scales. Infrastructure projects should pursue synergies with adjacent infrastructure systems or facilities to improve efficiencies and reduce waste and costs.
Project alignment with economic, territorial, and urban strategies	Infrastructure projects should be demonstrated to be in alignment with national and regional economic, territorial, and urban strategies, ensuring that infrastructure assets are effective solutions in achieving national goals to promote economic empowerment and inclusive, sustainable territorial and urban development.
Project alignment with natural, environment, and social strategies	Infrastructure projects should be demonstrated to be in alignment with natural, environment, and social strategies, ensuring that projects are aligned with environmental restoration or enhancement efforts, as well as social strategies to enhance community quality of life and reduce poverty and inequality.
Establishment of 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.
Environmental management systems	Infrastructure projects should ensure development of environmental management plans that address the environmental impacts identified through the environmental impact assessment, and their implementation during construction, operations, and decommissioning. The resources - human and economic capital - to achieve this target should be clearly identified.
Social management systems	Infrastructure projects should ensure development of social management plans that address the social impacts identified through the social impact assessment, and their implementation during construction, operations, and decommissioning. The resources - human and economic capital - to achieve this target should be clearly identified. Infrastructure projects should provide project-affected parties with accessible and inclusive access to raise issues and grievances for these to be managed.
Project design and systems selection in alignment with certified providers	Infrastructure projects should establish an approach to efficient and sustainable procurement of materials for construction, operations, and maintenance. Infrastructure projects should use certified suppliers that implement sustainability practices in the context of a public sustainable procurement certification scheme.
Anti-corruption and transparency framework	Infrastructure projects should develop and implement an anti-bribery management system for the project throughout the lifecycle and other measures that promote integrity and increase transparency in the infrastructure development process.
Project design and systems to promote institutional capacity building	Infrastructure projects should include opportunities to improve institutional capacity to plan and implement sustainable projects, and manage environmental and social impacts effectively.
Local capacities and awareness	Infrastructure projects should include opportunities to improve local capacities and broaden understanding of the importance of sustainable use of infrastructure assets and properly evaluating sustainability risks and impacts in the context of a comprehensive socio-economic analysis.

Project design and planning to ensure optimal implementation	Infrastructure projects should ensure that institutional, organizational, and individual capabilities for infrastructure planning and design are enough to ensure sufficient management of technical, project management, contractual, financial, Environmental, Social, and Governance (ESG), and climate change related aspects and risks.
Project design and systems for engineering and technological feasibility	Infrastructure projects should ensure the feasibility of project design, engineering and technological systems, as transparently evaluated by independent entities.
Project organization to ensure accountability, collaboration and innovation	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.
Project information monitoring, and sustainability tracking	Infrastructure projects should establish a sustainability management system with clearly defined strategy, policy, targets, metrics, monitoring, evaluation, and independent verification, appropriate to the nature and scale of the project and commensurate with the level of social and environmental risks and impacts.
Project design and engineering studies for sustainability performance	Infrastructure projects should establish mechanisms to build and maintain capacities for design, engineering and technological innovation that can lead to exceeding sustainability requirements.

Appendix C: Project Financing Stage Framework Descriptions

CRITERION	DESCRIPTION
Economic and Financial Sustainability	
Project productivity growth and contribution plan	Infrastructure projects should include relevant productivity growth and contribution plans and programs explicitly demonstrating how the project maximizes co-benefits, provides quality employment opportunities, and minimizes negative spillovers, in accordance with national development goals and international commitments.
Infrastructure service provision agreement	Infrastructure projects should include a well-defined and structured infrastructure service provision agreement (for example a Power Purchasing Agreement in the case of energy projects), approved by relevant public authorities.
Monetization and accounting for project environmental and social liabilities	Infrastructure project sponsors should monetize and include in relevant financial balance sheets the short and long-term financial implications of social and environmental liabilities, for example due to commitments to restore degraded natural environments or implement resettlement plans.
Pricing, budgeting, and incentives alignment	Infrastructure projects should properly quantify and evaluate infrastructure project usage or demand risks in order to determine the need for usage guarantees and other government incentives, enhancing clarity on project financial viability.
Operating risks and service efficiency plan	The impacts from operating risks, such as environmental risks, technology risks, and supply and demand risks, on service efficiency should be properly evaluated. Infrastructure projects should demonstrate through a service efficiency plan that the design and operation and maintenance standards are adequate to mitigate such risks and ensure optimal asset utilization and service provision.
Asset quality, reliability, and affordability plan	Infrastructure projects should explicitly demonstrate how they broaden access to high quality and reliable infrastructure services. Infrastructure projects should include well-defined affordability assessments and quality control management plans to ensure adequate and inclusive access to infrastructure services for all users, including disadvantaged and vulnerable groups.
Financial structure, sources of funds, and due diligence	Infrastructure projects should include documentation indicating the financial structure of the project and the expected sources and terms of debt and equity financing. Infrastructure project sponsors should provide documentation demonstrating that relevant independent entities have conducted comprehensive financial due diligence.
Project team (sponsor and key off-takers and suppliers) creditworthiness and financial information	Infrastructure projects should evaluate, where applicable, the creditworthiness of project participants including equity providers, turnkey contractors, and off-takers and/or suppliers. Infrastructure projects should include documentation indicating the history and business fundamentals of sponsors, and relevant financial information, including revenue growth, financial outlook, profitability, and debt service coverage.
Sponsor Credit Rating	Infrastructure project sponsors should provide documentation indicating their credit rating, evaluated by relevant credit rating agencies.
Detailed cash flow analysis and financial model with downside and breakeven testing	Infrastructure projects should include a financial model analysis demonstrating that they are financially structured such that revenues cover running costs and operations turn out profits, before deduction of taxes, interest, amortization, and depreciation of capital investments. Infrastructure projects should evaluate potential downturns on

	operational profitability when input, output, and macroeconomic factors are changed, such as higher interest rates and late construction completion, and the impacts on breakeven scenarios.
Competition/Revenue risk assessment	Infrastructure projects should evaluate the financial risks from increased competition and loss of revenue to other projects and/or competitors.
Construction risk assessment	Infrastructure projects should include comprehensive construction risk assessments indicating that potential risks during construction have been evaluated, and an action plan indicating the actions to be taken in order to avoid disruptions and delays during the construction process.
Syndication risk assessment	Infrastructure projects should evaluate whether the project's financial structure would allow loan syndication, and the financial risks from obtaining or failing to obtain syndicated loans.
Concession risk assessment	Infrastructure projects should properly evaluate the risks from early termination of the concession, or failure to secure concession contract extensions, on the financial viability of the project.
Country and macroeconomic risks	Infrastructure projects should identify, quantify, and evaluate country risks, including risks resulting from unilateral measures taken by governments to restrict movements of capital and modify project contract and/or concession terms. Infrastructure projects should assess exposure to macroeconomic shocks and regulatory controls to evaluate macroeconomic risks and ensure reasonable market projections.
Industry Sector and Market Analysis	Infrastructure projects should include industry and market analyses identifying the project sponsor's main services, suppliers, customers, and competitors. The analyses should provide relevant industry outlook and market share estimates.
Commercial incentives for sustainability in project agreement	Infrastructure project agreements should include through specific clauses minimum requirements for implementing sustainability practices in the project during construction and operations, such as using energy efficient equipment.
Climate Finance	Infrastructure project agreements should indicate the contractual obligations that would allow the project to access sustainable sources of capital (Clean Development Mechanism, green bonds, impact investors, among others).
Environmental Sustainability and Climate Resilience	
Lifecycle carbon assessment and management plan	Infrastructure projects should include a lifecycle carbon assessment and management plan to manage, reduce or minimize GHG emissions during construction, operations, and decommissioning, demonstrating that the infrastructure project results in the net reduction of GHG emissions.
Climate impact assessment and adaptation plan	Projects should include a climate impact assessment and adaptation plan through which climate change risks are systematically assessed and managed. The plan should be conducted by appropriately resourced and qualified consultants or government entities, and be approved by relevant public authorities.
Project compliance with national standards and codes for disaster risk management	Infrastructure projects should include a disaster risk assessment that identifies and assesses relevant disaster risks and provides an action plan indicating the measures to be taken in case of disasters. The assessment should demonstrate that the project complies with national standards and codes for disaster risk management.
Comprehensive durability, flexibility and recovery plan with system testing	Infrastructure projects should include a durability, flexibility, and recovery plan and all project systems and mechanical equipment should be assessed and tested by independent entities to ensure that they would be able to perform as planned.
Air pollutant emissions	Infrastructure projects should include air pollutant emissions

management plan and systems tested	management plans indicating the proposed measures to manage and minimize adverse impacts from air pollutant emissions.
Water contamination prevention and management plan and systems tested	Infrastructure projects should include a plan that assesses, evaluates, and provides an action plan for managing adverse impacts on human health and the environment from excess use of water or water pollution resulting from project activities or storm water runoff. The plan and the proposed initiatives should be approved by relevant public authorities.
Pollution prevention and management plan and systems tested	Infrastructure projects should include management plans to manage adverse impacts from pollution and contamination on land and in the air, including noise and vibration, light, dust, visual effects, and particulate matter amongst other anthropogenic effects. Infrastructure projects should include an accident prevention, control, and management plan to avoid risks of soil pollution - or other kinds of pollution such as seabeds - due to spills, use of chemicals, or bad practices.
Environmental commitments and liabilities management plans, permits and approvals	Infrastructure projects often include provision of environmental benefits, such as reforestation and/or environmental restoration, as part of environmental management plans to mitigate and or compensate for environmental impacts. In such cases, all relevant agreements along with a plan indicating the party responsible for implementing such actions, the required budget, and the expected timeframe for completion should be provided. Infrastructure projects should include documentation demonstrating that pre-existing environmental liabilities that might indirectly or directly affect the project have been properly assessed.
Ecological connectivity management plan	Infrastructure projects should include comprehensive plans indicating how ecological connectivity would be maintained and/or enhanced through the development of the project. Relevant documentation should include approvals by the appropriate public authorities demonstrating that the proposed initiatives are feasible and comply with applicable law and regulations.
Management plan for the preservation of greenfields and areas with high ecological values and farmland	Infrastructure projects should include management plans to preserve greenfields and areas with high ecological values. The management plans should specify initiatives to avoid impacts on farmland.
Invasive species management plan	Infrastructure projects should include comprehensive invasive species management plans to avoid the introduction of invasive species and ensure that invasive species would be properly managed and/or eliminated during project development and decommissioning.
Soils management plan and systems testing	Infrastructure projects should include a soils management plan demonstrating the initiatives that would be implemented to avoid disturbance of soils, and where not possible, restore disturbed topsoil and subsoil.
Water resource management plan, systems testing, approvals, and permits	Infrastructure projects should include a water resource management plan to monitor and promote the sustainable use of water resources during the lifecycle of the project. Infrastructure projects should include relevant water approvals and permits, while water systems should be tested by independent entities to ensure that they would perform adequately.
Sustainable sourcing of materials and systems	Infrastructure projects should specify the estimated amount and source of materials required for project activities. Materials with a recycled content and materials with lower energy and water content should be prioritized and clearly indicated, along with relevant evaluations of embodied water and embodied energy.
Lifecycle energy assessment management plan, systems	Infrastructure projects should include a life cycle energy assessment that indicates the project's energy needs, any energy efficiency

testing, approvals, and permits	initiatives and whether renewable energy would be utilized to minimize energy consumption. Infrastructure projects should include relevant approvals and permits for the use and/or production of energy, while energy systems should be tested by independent entities to ensure that they would perform adequately.
Waste management plan, systems testing, approvals and permits	Infrastructure projects should include a waste management plan to monitor and minimize wastes 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 finally disposal of wastes. The location, technical specifications, and relevant permits approved by public authorities, for the development and operation of waste management facilities and/or equipment within the project site should be provided. In case the waste disposal facilities to be used for project waste management activities are not located on site, relevant permits for the use of such facilities approved by public authorities should be provided.
Hazardous materials management plan and systems testing	Infrastructure projects should include a hazardous material management plan that explicitly indicates actions to avoid the use of banned chemicals and minimize the use of pesticides, herbicides, and fertilizers. Hazardous materials management equipment and systems should be tested by independent entities to ensure that they would perform adequately.
Social Sustainability	
Social impact mitigation and compensation program	Infrastructure projects should include a comprehensive social impact mitigation plan to avoid, minimize, or compensate for negative impacts. Infrastructure projects should include documentation demonstrating whether and how benefits beyond one-time compensation payments or resettlement support for project affected communities would be delivered. The plans should specify the parties responsible for implementing the proposed initiatives, the required budget, and the expected timeframe for completion.
Management plan for existing grievances and social liabilities	Infrastructure projects should include documentation demonstrating that existing grievances and social liabilities that might indirectly or directly affect the project are identified and assessed. Management plans should be provided indicating the party responsible for managing these liabilities, and the required budget and timeframe for completion.
Documented stakeholder engagement analysis and action plan	Infrastructure projects should include documentation demonstrating that a stakeholder engagement analysis has been conducted, outlying plans to identify and engage with stakeholders.
Finalized community consultation agreements	Infrastructure projects should include finalized consultation agreements. In case of high-impact projects that affect the natural resources and territory of local communities, infrastructure projects should have obtained the Free, Prior, and Informed Consent (FPIC) of the community, in accordance with the principles of international conventions such as ILO Indigenous and Tribal Peoples Convention 169. Relevant agreements and commitments should be approved by relevant public authorities.
Benefit sharing and compensation plan	Infrastructure projects should include benefit sharing and compensation plans indicating how benefits or resettlement support would be provided to project affected communities. The plans should indicate the parties responsible for implementing the plan, the budget required, and the timeframe for completion.
Resettlement and displacement management	Infrastructure projects should include a resettlement and displacement management plan demonstrating that the negative impacts from

plan	resettlement or economic displacement of people as a result of the project are avoided or minimized.
Public amenities management plan	Infrastructure projects should include management plans to ensure the preservation, or enhancement, of critical public amenities including public spaces or recreational spaces. In case projects might indirectly or directly impact public amenities, infrastructure projects should include relevant permits from public authorities that would allow project development and construction activities to commence.
Community mobility and connectivity management plans and permits	Infrastructure projects should include management plans to ensure connectivity and avoid mobility disruptions. Relevant permits approved by public authorities should be provided.
Universal accessibility management plan and certification	Infrastructure projects should include accessibility management plans and certifications demonstrating that infrastructure services are fully accessible to disabled and disadvantaged users. All documents, plans, and permits should be approved by relevant public authorities.
Community health, safety, and security, and crime prevention	Infrastructure projects should include plans to manage project impacts on community health and safety. The management plans should demonstrate that project activities do not increase security risks for local populations. A community security plan should be provided, indicating the actions to be taken in order to minimize security risks from project activities for local populations.
Occupational health and safety and labor standards and permits	Infrastructure projects should demonstrate compliance with healthy working conditions and occupational health and safety standards. Infrastructure projects should demonstrate that core labor standards are respected and workers are protected through fair treatment, nondiscrimination, and equal opportunity avoiding under any circumstances forced and child labor. Documentation should include relevant permits approved by public authorities.
Human rights and vulnerable groups safeguard plans and systems	Infrastructure project should demonstrate compliance with human rights agreements and vulnerable groups safeguard plans to prevent and mitigate adverse impacts. Documentation should be provided approved by public authorities demonstrating that the project complies with such agreements.
Gender inclusion safeguard plans and systems	Infrastructure projects should include gender inclusion safeguard plans demonstrating that adverse impacts due to gender resulting from project activities would be prevented or mitigated. Documents, plans, and/or commitments should be approved by public authorities.
Commitment and agreements to ensure community access to resources	Infrastructure projects should include relevant agreements with local communities indicating that community access to food, land, and water resources would be protected. Such agreements should be approved by relevant public authorities.
Cultural resources and heritage management plans and permits	Infrastructure projects should include plans to manage tangible and non-tangible cultural heritage that may be affected by project activities. Infrastructure projects should include documentation demonstrating permits by relevant cultural and archaeological authorities that would allow project development and construction works to commence.
Indigenous and traditional peoples management plan and agreements	Infrastructure projects should include management plans and, where applicable, consultation agreements demonstrating how potential impacts and risks to indigenous and traditional peoples from project activities would be managed.
Institutional Sustainability	
Public and governmental approvals and permits	Infrastructure projects should include relevant parliamentary approvals and permits allowing project development and construction works to commence.

Infrastructure agency management plans and permits	Infrastructure projects should have obtained relevant infrastructure agency management plans and permits allowing project development and construction works to commence.
Planning agencies management plan and permits	Infrastructure projects should have obtained relevant planning agencies' management plans and permits allowing project development and construction works to commence.
Law and regulation stabilization mechanisms	Adverse impacts from changes in law and regulations should be properly assessed and avoided through stabilization mechanisms or other appropriate incentives, while relevant compensation mechanisms should be provided in case of such changes during project development.
Effective project structuring and organization, at both executive and board levels	Infrastructure projects should clearly define and report the project and organizational structure at both executive and board levels, as assessed by independent entities.
Project company governance systems and formal registration	The project company should provide clear governance systems reports and documentation demonstrating formal registration approvals issued by relevant public entities.
Environmental management plan, staffing and certification	Infrastructure projects should include environmental management plans to address the associated environmental impacts identified through the environmental impact assessment. The resources - human and economic capital - to implement the plan should be clearly identified.
Social management plan, staffing and certification	Infrastructure projects should include a social management plans to address the associated social impacts identified through the environmental impact assessment. The resources - human and economic capital - to implement the plan should be clearly identified.
Sustainable procurement program and bids program	Infrastructure projects should include a comprehensive sustainable procurement program, indicating whether and how sustainable procurement of project materials would be pursued.
Anti-corruption and transparency plan, with grievance redress mechanisms	Infrastructure projects should include explicit commitments to develop an anti-bribery management system for the project throughout the lifecycle and other measures that promote integrity and increase transparency in the infrastructure delivery process. Infrastructure projects should include explicit requirements for developing a grievance redress mechanism to provide project-affected parties with accessible and inclusive access to raise issues and grievances for these to be managed.
Skills, knowledge, and innovation platforms, systems and plans	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.
Local capacities and awareness	Infrastructure projects should include opportunities to improve local capacities and broaden understanding of the importance of sustainable use of infrastructure assets, as well as to improve capacities for effective project financial structuring and financial sustainability assessment.
Integrated project delivery strategy and action plan	Infrastructure projects should demonstrate integrated project delivery strategy and action plan, clearly indicating the steps to be taken for the project to be delivered effectively and on time.
Project procurement and technology management plan and systems testing	Infrastructure projects should include a comprehensive project procurement and technology management plan. The procurement process and technology testing should be guided and evaluated by independent entities demonstrating that project components and systems would perform adequately.
Master project agreement and sub-contracts aligned with sustainability performance	Infrastructure projects should demonstrate that the project contract and any sub-contracts signed with contractors are clearly aligned with sustainability performance requirements through specific clauses and

	requirements for implementing sustainability.
Comprehensive project data collection systems, staffing and certification.	Infrastructure projects should include documentation demonstrating the establishment of a data collection and management system with strategy, policy, targets, metrics, monitoring, evaluation, and independent verification, sufficient to cover complex and large infrastructure projects and identify, address, and monitor social and environmental risks and impacts.
Established, auditable and integrated reporting on material sustainability issues	Infrastructure projects should demonstrate reporting and disclosure transparency and accountability on organizational and project sustainability aspects and financial transactions.

Appendix D: Publications Used to Specify Criteria at the Upstream Planning Stage

1	United Nations Environment Programme Inquiry and Global Infrastructure Basel Foundation. (2015). Sustainable Infrastructure and Finance: How to Contribute to a Sustainable Future.
2	OECD. (2015). Aligning Policies for a Low-carbon Economy.
3	OECD. (2017). Investing in Climate, Investing in Growth: A Synthesis.
4	G20/OECD. (2013). High-level Principles of Long-term Investment Financing by Institutional Investors.
5	Qureshi, Z. (2016). The Role of Public Policy in Sustainable Infrastructure.
6	EU High-level Expert Group on Sustainable Finance. (2017). Financing a Sustainable European Economy. Interim Report by the High-Level Group on Sustainable Finance.
7	Task Force on Climate-related Financial Disclosures. (2017). Recommendations of the Task force on Climate-related Financial Disclosures.
8	New Climate Economy. (2016). The Sustainable Infrastructure Imperative: Financing for Better Growth and Development: The 2016 New Climate Economy Report.

Appendix E: Sustainability Rating Systems

CEEQUAL

CEEQUAL is a sustainability assessment standard developed by the BRE group in the United Kingdom that covers all types of civil engineering projects, focusing extensively on the environmental performance of projects. Overall, CEEQUAL offers one of the most extensive sustainability assessments among the compared tools and frameworks. From the Economic and Financial Sustainability point of view, CEEQUAL focuses on providing benefits to the society by promoting beneficial development, productivity and growth, in addition to job creation. Service efficiency and the optimal use of projects are stimulated, from strategic planning to the operational phase. The tool incentivizes the efficient use of resources, and requires teams to exceed targets and benchmarks. From the Social Sustainability perspective, stakeholder engagement and redress mechanism requirements are among the assessed sustainability criteria. Other criteria focus on community health and safety and making the project accessible to disabled and diverse local community members. CEEQUAL also presents many opportunities for projects to value and safeguard local cultural resources and heritage.

Under the Environmental Sustainability and Climate Resilience principle, CEEQUAL has many credits describing how a project can achieve environmental sustainability goals, focusing particularly on water resources, material use, energy use, waste and soils. The second best covered principle is Institutional Sustainability. Project management, sustainability tracking, management systems, and leadership structures are criteria that the tool covers extensively. It also guides projects to build sound management systems, promoting transparency and access to information.

HSAP

The Hydropower Sustainability Assessment Protocol (HSAP) is a sustainability standard that assesses hydropower projects, developed by the International Hydropower Association (IHA) in collaboration with a multi-stakeholder group, known as the Hydropower Sustainability Assessment Forum. The tool covers four stages of the project cycle through the following sub-tools: (i) Early Stage Assessment Tool, (ii) Preparation Assessment Tool, (iii) Implementation Assessment Tool, and (iv) Operation Assessment Tool. The strongest overlaps were identified with the Social and Institutional criteria, but aspects related to national commitments, innovation, existing liabilities, gender inclusion, occupational health and safety standards, and disability and accessibility are not covered comprehensively.

On the Environmental side, the tool focuses on safeguarding water resources and biodiversity and avoiding water pollution and invasive species. Disaster and climate risks are assessed, as well as the resiliency of the project and the surrounding communities. Under the Economic and Financial sustainability principle, the tool focuses on maintenance and optimal use, and service access quality and reliability. Cost effectiveness, operational profitability, and social returns are assessed as well.

INVEST

The Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) is a sustainability rating system developed by the US Federal Highway Administration (FWHA). The tool is a collection of 33 good practices to promote sustainability in transportation projects. Under the Economic and Financial Sustainability principle, the tool focuses on project maintenance and optimal use, as well as service efficiency. Local capacities and sustainability awareness are also evaluated, promoting access to public spaces for the surrounding communities. Under the Environmental Sustainability and Climate Resilience principle, the tool evaluates impacts on biodiversity and ecological connectivity, as well as water resource, materials, and energy use. Climate change and disaster risks are also taken into consideration.

Under the Social Sustainability principle, INVEST focuses on community health, safety and security. Community engagement and efforts to preserve the cultural resources and heritage of local communities are encouraged, while universal accessibility is also a critical point for evaluation. In regards to the Institutional Sustainability principle, INVEST focuses the assessment on the institutional context of the projects, analyzing their governance structure, sector planning, project feasibility and compliance with national commitments.

IS Rating

The Infrastructure Sustainability (IS) Rating System was developed by the Infrastructure Sustainability Council of Australia to evaluate the sustainability of infrastructure projects in Australia. The tool focuses primarily on the Environmental Sustainability and Climate Resilience and Institutional Sustainability principles, covering environmental sustainability aspects extensively, except invasive species and water pollution. Under the Institutional Sustainability principle, it focuses on governance, project management, transparency, and innovation. Sustainable procurement is also part of the assessment, as well as addressing conflicting laws and regulations.

Regarding the Economic and Financial Sustainability principle, the tool focuses on service efficiency, project maintenance and optimal use. For Social Sustainability, stakeholder engagement and communication is one of the main points for assessment. Other notable aspects covered are community health, safety and security, and cultural heritage.

SuRe

The Standard for Sustainable and Resilient Infrastructure (SuRe) tool was developed by Global Infrastructure Basel (GIB) to assess the sustainability of infrastructure projects. It is applicable at the project design and preparation stage, but also covers some aspects at the upstream planning and financing stages. At the project stage, the tool addresses all Environmental Sustainability and Climate Resilience criteria and many Social, Institutional and Economic and Financial Sustainability aspects. Under the Economic and Financial principle, the tool does not

address fiscal balance – which most of the tools did not fulfill either –, incentives alignment, and local investment aspects. Similarly, under the Institutional Sustainability principle, innovation and project feasibility are some notable aspects not be evaluated on a project.

STAR

The Sustainable Transport Appraisal Rating (STAR) is a sustainability assessment tool developed by the Asian Development Bank (ADB) that assesses the sustainability of transport projects and project portfolios. It is applicable both at the upstream planning and design and preparation infrastructure project stages. The tool was designed to inform the selection of more sustainable projects, but can also be used to evaluate existing operational projects. The tool covers sustainability criteria under three principles: economic, social, and environmental. Notably, the tool includes a designated section for sustainability risk assessments that cover multiple sustainability risks under all three sustainability principles. The tool does not explicitly cover sustainability criteria under the institutional sustainability principle.

The Envision Rating System

The Envision Rating System was developed collaboratively by the Zofnass Program for Sustainable Infrastructure at Harvard University and the Institute for Sustainable Infrastructure (ISI) to assess the sustainability of infrastructure projects. At the project stage, Envision covers extensively all criteria under the Environmental Sustainability and Climate Resilience principle. Under the Economic and Financial principle, Envision focuses on productivity and growth, enhancing the quality of life of the affected communities, and job creation. Service efficiency and project maintenance and optimal use are also covered.

Under the Social Sustainability principle, Envision focuses on stakeholder engagement and communication, as well as gender inclusion. It assesses community health and safety standards and security, while cultural heritage and accessibility are also covered. Under the Institutional Sustainability principle, the focus is on corporate governance, institutional context, project management and leadership and integration with existing infrastructure. Innovation is encouraged and awarded as extra achievement under all four sustainability principles

Appendix F: Comprehensive Benchmarking Tables

Table 6 highlights the sustainability criteria that were not covered by the evaluated sustainability rating systems and frameworks at the upstream planning stage through an empty circle, and the criteria that were covered through a full circle.

Criteria	STAR	ENVISION	SURE	IS	INVEST	HSAP	SE4All	CEEQUAL	IDB	IFC	WB
Economic and Financial Sustainability											
National and sectoral productivity growth strategy	○	○	○	○	○	○	○	○	○	○	○
National and sectoral frameworks and incentives to maximize social returns of infrastructure	●	○	○	○	○	●	○	○	○	○	○
Trade policies for sustainability transformation	○	○	○	○	○	○	○	○	○	○	○
Taxation and pricing for perverse subsidies and price distortions	○	○	○	○	○	○	●	○	○	○	○
Level playing field for public and private enterprises	○	○	○	○	○	○	○	○	○	○	○
Certification schemes for providers	○	○	○	○	○	○	○	○	○	○	○
Multi-year budgeting of infrastructure projects	○	○	○	○	○	○	○	○	○	○	○
Sustainability risk analysis and management in investment evaluation	●	○	○	○	○	○	○	○	○	○	○
Life-cycle costing of infrastructure assets	●	○	○	○	○	●	○	○	●	○	○
Transparent national infrastructure procurement and PPP processes	○	○	○	○	○	○	○	○	○	○	○
Holistic evaluation of bids in procurement	○	○	○	○	○	○	○	○	○	○	○
Frameworks for private investments in infrastructure	○	○	○	○	○	○	●	●	●	○	○
Local capital markets in infrastructure	○	○	○	○	○	○	○	○	○	○	○
Green bonds	○	○	○	○	○	○	○	○	○	○	○
Carbon markets	○	○	○	○	○	●	●	○	○	○	○
Environmental Sustainability and Climate Resilience											
National and sectoral strategies and incentives to reduce GHG emissions	○	○	○	○	●	○	●	○	○	○	○
National, regional, and sectoral plans for climate resilience and adaptation	○	○	○	○	●	●	○	○	●	○	○
National, regional, and sectoral frameworks for disaster risk management	○	○	○	○	●	●	○	○	●	○	○
Standards and strategies for durability, flexibility, and recovery of infrastructure systems	○	○	○	○	○	○	○	○	○	○	○
National, regional, and sectoral frameworks and strategies for air pollutant emissions	○	○	○	○	○	○	○	○	○	○	○
Management of water quality	○	○	○	○	○	○	○	○	○	○	○
Soil and other pollution management	○	○	○	○	○	○	○	○	○	○	○
National and regional plans for biodiversity and ecosystem services	○	○	○	○	●	○	○	○	●	○	○
National and regional plans for ecological connectivity	○	○	○	○	○	○	○	○	●	○	○
Preservation of greenfields, areas with high ecological values, and farmland	●	●	●	○	○	○	○	●	○	○	○
National, regional, and sectoral plans for management of invasive species	○	○	○	○	○	●	○	○	○	○	○
Commitment and capacities for soils management	○	○	○	○	○	●	○	●	○	○	○

National, regional, and sectoral frameworks for the efficient management of water resources	○	○	○	○	○	○	○	○	○	○	○
National, regional, and sectoral frameworks for efficient use of material resources	○	○	○	○	○	○	○	○	○	○	○
National, regional, and sectoral frameworks for sustainable use of energy resources	○	○	○	○	●	○	○	●	○	○	○
National, regional, and sectoral frameworks for sustainable waste management	○	○	○	○	○	○	○	○	○	○	○
Social Sustainability											
Institutional understanding and monitoring of social needs and trends	○	○	○	○	○	●	○	●	○	○	○
Updated and reliable demographic data	○	○	○	○	○	○	○	○	○	○	○
Formal and functioning frameworks for stakeholder engagement	○	○	○	○	○	●	○	○	○	○	○
Formal and functioning frameworks for community consultation	○	○	○	○	○	●	○	○	○	○	○
Established framework for fair benefit sharing and compensation to project affected communities	○	○	○	○	○	●	○	●	○	○	○
Established standards and processes for fair resettlement and displacement	○	○	○	○	○	○	○	○	○	○	○
Regional strategies and municipal plans for public amenities	○	○	○	○	○	○	○	○	○	○	○
Regional strategies and municipal plans for community mobility and connectivity	○	○	○	○	○	○	○	○	○	○	○
Universal accessibility standards and codes for non-discrimination because of disabilities	○	○	○	○	●	●	○	○	○	○	○
Standards and capacities for community health, safety and security	○	○	○	○	●	○	○	○	○	○	○
Commitment and capacities to ensure adherence to occupational health and safety and labor standards	○	○	●	○	○	●	○	○	○	○	○
Standards and capacities for the protection of vulnerable groups	○	●	●	○	○	●	○	○	○	○	○
Commitment and capacities to ensure gender inclusion	○	●	●	○	○	○	○	○	○	○	○
Commitment and capacities to ensure adequate community access to resources	○	○	○	○	○	●	○	○	○	○	○
Commitment and capacities to ensure the efficient management of cultural resources and heritage	○	○	○	○	○	●	○	○	○	○	○
Commitment and capacities to ensure engagement of indigenous and traditional peoples	○	○	○	○	○	●	○	○	○	○	○
Institutional Sustainability											
Rule of law, transparency, and stability over time	○	○	○	○	○	○	○	○	○	○	○
National and sub-national infrastructure policies and plans to scale up infrastructure services	○	○	○	○	○	○	○	○	○	○	○
Commitment and capacities for effective sector planning	○	●	○	○	●	●	○	○	●	○	○
Integrated planning for economic, territorial and urban development	●	○	○	○	●	○	○	○	○	○	○
Integrated planning: natural, environment, and social development	○	●	○	○	●	○	○	○	○	○	○
National frameworks and incentives for corporate governance and transparency	○	○	○	○	○	○	○	○	○	○	○
Capacities for environmental regulation, supervision, and enforcement	○	○	○	○	●	○	○	○	○	○	○
Commitment and capacities for regulating, supervising, and enforcing social sustainability	○	○	○	○	●	○	○	○	○	○	○
Framework and incentives for sustainable public procurement	●	○	○	○	○	○	○	○	○	○	○
Capacities and policies for anti-corruption and governance	○	○	○	○	○	○	○	○	○	○	○
Institutional context for sustainability innovation	○	○	○	○	○	○	○	○	○	○	○
Project preparation support for incorporating sustainability	○	○	○	●	○	○	○	●	●	○	○
Commitment and capacities for technical planning and implementation	○	○	○	●	○	○	○	○	○	○	○
Commitment and capacities to ensure project feasibility	○	○	○	●	○	○	○	○	○	○	○
National and sectoral frameworks and standardized project agreements	○	○	○	○	○	○	○	○	○	○	○
Data collection, management, and analysis to support infrastructure investments	○	○	○	●	○	○	●	●	●	○	○

National and sectoral frameworks for sustainability and climate risks disclosure	○	○	○	○	○	○	○	○	○	○	○

Table 6. Coverage of sustainability criteria at the upstream planning stage.

Table 8 highlights the sustainability criteria that were not covered by the evaluated sustainability rating systems and frameworks at the project preparation and design stage through an empty circle, and the criteria that were covered through a full circle.

Criteria	STAR	ENVISION	SURE	IS	INVEST	HSAP	CEEQUAL	IDB	IFC	WB
Economic and Financial Sustainability										
Project design for optimal development growth	●	●	●	○	○	○	●	●	●	●
Economic and social return over project lifecycle	●	●	●	○	●	●	○	●	●	●
Increase of local investment	○	○	○	○	○	○	○	●	○	○
Service access and affordability	●	●	●	○	○	○	○	●	●	●
Service efficiency, quality and reliability	●	●	○	○	○	○	○	○	○	○
Infrastructure asset maintenance and optimal use1	○	●	●	●	●	○	●	●	○	○
Positive net present asset value	○	○	○	○	○	○	○	●	○	●
Adequate risk adjusted rate of return	●	○	○	○	○	○	○	●	○	●
Clarity on revenue streams	○	○	●	○	○	○	○	●	○	○
Operating profitability	○	○	●	○	○	●	○	●	●	○
Asset profitability	●	○	●	○	○	●	○	●	●	○
Debt and fiscal sustainability	●	○	○	○	○	○	○	●	○	●
Liquidity ratios	●	○	○	○	○	●	○	●	○	●
Solvency ratios	○	○	○	○	○	●	○	●	○	●
Efficient risk allocation	○	○	○	○	○	○	○	○	○	○
Commercial incentives for sustainability in project agreement	○	○	○	○	○	○	○	○	○	○
Climate Finance	○	○	○	○	○	○	○	○	○	○
Environmental Sustainability and Climate Resilience										
Project design for low GHG Emissions	●	●	●	●	○	○	●	●	●	●
Understanding of climate risks and project resilient design	●	●	●	●	●	●	●	●	●	●
Project design and systems optimization for disaster risk management	●	●	●	●	●	●	●	●	○	○
Durability, flexibility and recovery of design elements and technological systems	●	●	●	○	○	○	○	○	○	○
Project design and systems optimization to minimize air pollutant emissions	●	●	●	●	●	○	○	●	●	●
Project design and systems optimization to minimize water contamination	●	●	●	○	●	●	●	●	●	●
Project design and systems optimization to minimize soil and other pollution	●	●	●	●	●	●	●	●	●	●
Environmental assessment of project impacts	●	●	●	●	●	●	●	●	●	●
Project design for maximum ecological connectivity	●	●	●	●	●	○	●	○	○	○
Preserve greenfields, areas with high ecological values, and farmland	○	●	●	●	○	○	●	●	●	●
Project design and technology to minimize invasive species	○	●	●	○	○	●	●	●	●	●
Project design and technology to optimize soils management	●	●	●	●	●	●	●	●	○	○

Efficient use of water resources	●	●	●	●	●	●	●	●	●	●
Material use and recycling	●	●	●	●	●	○	●	○	●	●
Project design to minimize energy consumption and maximize use of renewable	○	●	●	●	●	○	●	●	●	●
Waste management and recycling	●	●	●	●	●	○	●	●	●	●
Hazardous materials	○	●	●	●	○	○	●	●	●	●
Social Sustainability										
Social impact assessment of project	○	●	○	○	○	○	○	○	○	○
Social sustainability and development plan	○	●	●	●	●	○	○	●	○	○
Stakeholder engagement process	○	●	●	●	○	●	●	●	●	●
Community consultation and participation	○	●	●	●	○	●	●	●	●	●
Project design for fair benefit sharing and compensation to project affected communities	○	○	○	○	○	○	○	○	○	○
Project design for optimal resettlement and displacement	○	○	●	○	○	●	○	●	●	●
Provision of public amenities within project's area of influence	●	●	●	○	●	○	○	○	○	○
Project design to maximize community mobility and connectivity	●	●	○	○	○	○	○	●	○	○
Universally accessible project design and technologies	●	●	●	○	●	○	●	●	●	●
Community health, safety, and security, and crime prevention	●	●	●	●	●	●	●	●	●	●
Occupational health and safety and labor standards throughout the project	○	●	●	○	○	●	○	●	●	●
Project design that preserves the rights of vulnerable groups	●	●	●	○	○	○	○	●	●	●
Gender inclusive project design	○	●	●	○	○	○	○	●	●	●
Project design that does not limit communities' access to resources	○	○	○	○	○	○	○	○	○	○
Cultural resources and heritage	●	●	●	●	●	●	●	●	●	●
Indigenous and traditional peoples	○	●	●	○	○	●	○	●	●	●
Institutional Sustainability										
Project contribution to national and international commitments for sustainable development	○	○	●	○	○	○	○	●	○	●
Project alignment with national and sectoral infrastructure plans	○	●	●	○	●	●	○	○	○	●
Land use and urban planning integration	●	●	●	○	●	●	●	●	○	○
Project alignment with economic, territorial, and urban strategies	○	●	○	○	○	○	○	○	○	○
Project alignment with natural, environment, and social strategies	●	●	○	○	○	○	○	○	○	○
Establishment of corporate governance structures	○	●	●	●	●	●	○	○	●	○
Environmental management systems	○	●	●	●	○	●	●	●	●	●
Social management systems	○	●	●	●	○	●	●	●	●	●
Project design and systems selection in alignment with certified providers	○	●	●	●	●	●	○	●	○	●
Anti-corruption and transparency framework	○	○	●	○	○	○	○	●	●	●
Project design and systems to promote institutional capacity building	○	●	○	○	○	○	○	○	○	●
Local capacities and awareness	○	●	●	●	●	○	○	●	○	●
Project design and planning to ensure optimal implementation	○	○	○	○	○	○	○	○	○	○
Project design and systems for engineering and technological feasibility	○	○	○	○	○	○	○	○	○	○
Project organization to ensure accountability, collaboration and innovation	○	●	●	●	○	●	●	○	●	○
Project information monitoring, and sustainability tracking	○	●	●	●	○	○	●	●	●	○
Project design and engineering studies for sustainability performance	○	○	○	○	○	○	○	○	○	○

Table 8. Coverage of sustainability criteria at the project preparation and design stage.

Table 10 highlights the criteria that were not covered by the evaluated sustainability rating systems at the financing stage through an empty circle, and the criteria that were covered through a full circle.

Criteria	STAR	ENVISION	SURE	IS	INVEST	HSAP	CEEQUAL	IDB	IFC	WB
Economic and Financial Sustainability										
Project productivity growth and contribution plan	○	●	●	○	○	○	●	●	●	●
Infrastructure service provision agreement	○	○	○	○	○	○	○	○	○	○
Monetization and accounting for project environmental and social liabilities	○	○	○	○	○	○	○	○	○	○
Pricing, budgeting, and incentives alignment	●	○	○	○	○	○	○	○	○	○
Operating risks and service efficiency plan	●	●	●	●	●	○	●	○	○	○
Asset quality, reliability, and affordability plan	●	●	●	○	●	○	○	●	●	●
Financial structure, sources of funds, and due diligence	○	○	○	○	○	○	○	○	○	○
Project team (sponsor and key off-takers and suppliers) creditworthiness and financial information	○	○	○	○	○	○	○	○	○	○
Sponsor credit rating	○	○	○	○	○	○	○	○	○	○
Detailed cash flow analysis and financial model with downside and breakeven testing	○	○	○	○	○	●	○	●	●	○
Competition/Revenue risk assessment	●	○	○	○	○	○	○	○	○	○
Construction risk assessment	●	○	○	○	○	○	○	○	○	○
Syndication risk assessment	○	○	○	○	○	○	○	○	○	○
Concession risk assessment	○	○	○	○	○	○	○	○	○	○
Country and macroeconomic risks	●	○	○	○	○	○	○	○	○	○
Industry Sector and Market Analysis	○	○	○	○	○	○	○	○	○	○
Commercial incentives for sustainability in project agreement	○	○	○	○	○	○	○	○	○	○
Climate Finance	○	○	○	○	○	○	○	○	○	○
Environmental Sustainability and Climate Resilience										
Lifecycle carbon assessment and management plan	●	●	●	●	○	○	●	●	●	●
Climate impact assessment and adaptation plan	●	●	●	●	●	●	●	●	●	●
Project compliance with national standards and codes for disaster risk management	○	●	●	●	○	○	●	●	○	○
Comprehensive durability, flexibility and recovery plan with system testing	○	○	○	○	○	○	○	○	○	○
Air pollutant emissions management plan and systems tested	●	●	●	●	●	○	○	●	●	●
Water contamination prevention and management plan and systems tested	●	●	●	○	●	●	●	●	●	●
Pollution prevention and management plan and systems tested	●	●	●	●	●	●	●	●	●	●
Environmental commitments and liabilities management plans, permits and approvals	○	○	○	○	○	○	○	○	○	○
Ecological connectivity management plan	●	●	●	●	●	○	●	○	○	○
Management plan for the preservation of greenfields and areas with high ecological values and farmland	○	●	●	●	○	○	●	●	●	●
Invasive species management plan	○	●	●	○	○	●	●	●	●	●
Soils management plan and systems testing	○	●	●	●	●	●	●	●	○	○
Water resource management plan, systems testing, approvals, and permits	○	●	●	●	●	●	●	●	●	●

Sustainable sourcing of materials and systems	●	●	●	●	●	○	●	○	●	●
Lifecycle energy assessment management plan, systems testing, approvals, and permits	○	●	●	●	●	○	●	●	●	●
Waste management plan, systems testing, approvals and permits	●	●	●	●	●	○	●	●	●	●
Hazardous materials management plan and systems testing	○	●	●	●	○	○	●	●	●	●
Social Sustainability										
Social impact mitigation and compensation program	○	○	○	○	○	○	○	○	○	○
Management plan for existing grievances and social liabilities	○	○	○	○	○	○	○	○	○	○
Documented stakeholder engagement analysis and action plan	○	●	●	●	●	●	●	●	●	●
Finalized community consultation agreements	○	●	●	○	○	○	○	●	●	●
Benefit sharing and compensation plan	○	○	○	○	○	○	○	○	○	○
Resettlement and displacement management plan	○	○	○	○	○	○	○	●	●	●
Public amenities management plan	○	○	○	○	○	○	○	○	○	○
Community mobility and connectivity management plans and permits	○	○	○	○	○	○	○	○	○	○
Universal accessibility management plan and certification	●	●	●	○	●	○	●	●	●	●
Community health, safety, and security, and crime prevention	●	●	●	●	●	●	●	●	●	●
Occupational health and safety and labor standards and permits	○	●	●	○	○	○	○	●	●	●
Human rights and vulnerable groups safeguard plans and systems	○	○	○	○	○	○	○	○	○	○
Gender inclusion safeguard plans and systems	○	●	●	○	○	○	○	●	●	●
Commitment and agreements to ensure community access to resources	○	○	○	○	○	○	○	○	○	○
Cultural resources and heritage management plans and permits	●	●	●	●	●	●	●	●	●	●
Indigenous and traditional peoples management plan and agreements	○	●	●	○	○	●	○	●	●	●
Institutional Sustainability										
Public and governmental approvals and permits	○	○	○	○	○	○	○	○	○	○
Infrastructure agency management plans and permits	○	○	○	○	○	○	○	○	○	○
Planning agencies management plan and permits	○	○	○	○	○	○	○	○	○	○
Law and regulation stabilization mechanisms	○	○	○	○	○	○	○	○	○	○
Effective project structuring and organization, at both executive and board levels	○	○	○	○	○	○	○	○	○	○
Project company governance systems and formal registration	○	○	○	○	○	○	○	○	○	○
Environmental management plan, staffing and certification	○	●	●	●	○	●	●	●	●	●
Social management plan, staffing and certification	○	●	●	●	○	●	●	●	●	●
Sustainable procurement program and bids program	○	●	●	●	●	●	○	●	○	●
Anti-corruption and transparency plan, with grievance redress mechanisms	○	●	●	●	○	●	●	●	●	●
Skills, knowledge, and innovation platforms, systems and plans	○	●	●	●	○	●	●	○	●	○
Local capacities and awareness	○	●	●	●	●	○	○	●	○	●
Integrated project delivery strategy and action plan	○	○	○	○	○	○	○	○	○	○
Project procurement and technology management plan and systems testing	○	○	○	○	○	○	○	○	○	○
Master project agreement and sub-contracts aligned with sustainability performance	○	○	○	○	○	○	○	○	○	○
Comprehensive project data collection systems, staffing and certification	○	○	○	○	○	○	○	○	○	○
Established, auditable and integrated reporting on material sustainability issues	○	○	●	●	○	●	○	●	●	●

Table 10. Coverage of sustainability criteria at the financing stage.

Endnotes

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[ii] Serebrisky, T., Suárez-Alemán, A., Margot, D., Ramirez, M.C. (2015). Financing Infrastructure in Latin America and the Caribbean: How, How Much, and by Whom. Retrieved from https://publications.iadb.org/bitstream/handle/11319/7315/Infrastructure%20Financing.%20Definitivo.pdf?sequence=1

[iii] Fay, M., Andres, L.A., Fox, C., Narloch, U., Straub, S., Slawson, M. (2017). Rethinking Infrastructure in Latin America and the Caribbean: Spending Better to Achieve More. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/26390/114110-REVISED-PUBLIC-RethinkingInfrastructureFull.pdf

[iv] Planning, design, financing, construction, operations, and decommissioning.

[v] UN Economic Commission for Latin America and the Caribbean (ECLAC). (2015). The Economics of Climate Change in Latin America and the Caribbean: Paradoxes and Challenges of Sustainable Development. Retrieved from http://repositorio.cepal.org/bitstream/handle/11362/37311/S1420655_en.pdf

[vi] Munich RE. (2017). Munich RE NatCatSERVICE: Natural Catastrophes in the First Half of 2017. Retrieved from https://www.munichre.com/site/corporate/get/params_E-1699924028_Dattachment/1568376/MunichRe-PM-Download-NatCat-first-half-2017_en.pdf

[vii] Serebrisky, T. (2014). Sustainable Infrastructure for Competitiveness and Inclusive Growth. Retrieved from https://publications.iadb.org/bitstream/handle/11319/6398/Sustainable%20infraestructure%20for%20competitiveness%20and%20inclusive%20growth%20-%20IDB%20Infrastructure%20Strategy.pdf?sequence=1&isAllowed=y

[viii] Mercer. (2016). Building a Bridge to Sustainable Infrastructure. Retrieved from https://publications.iadb.org/bitstream/handle/11319/7943/Building-a-Bridge-to-Sustainable-Infrastructure-Mapping-the-Global-Initiatives-That-Are-Paving-the-Way.pdf?sequence=1&isAllowed=y

[ix] SOURCE is a global joint initiative from MDBs to improve project preparation and develop sustainable and bankable infrastructure projects. For more information, please see https://public.sif-source.org.

[x] The Sustainability Appraisal Rating Framework (STAR) methodology was developed by the Asian Development Bank (ADB) in 2014 to assess the sustainability of transport projects and project portfolios.

[xi] https://www.ndcinvest.org.

[xii] IDB provided US$ 2.66 billion (22% of total financing) in climate-related project financing in 2016.

[xiii] Inter-American Development Bank (IDB). (2017). IDB Sustainability Report 2016. Retrieved from https://publications.iadb.org/bitstream/handle/11319/8173/Inter-American-Development-Bank-Sustainability-Report-2016.PDF?sequence=1&isAllowed=y

[xiv] http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/solutions/investment-proposals; http://www.iic.org/en/requirements

[xv] The Principles for Responsible Investment (PRI) framework was excluded from the assessment because a preliminary analysis showed almost no overlaps with the proposed framework.

[xvi] The RISE tool was evaluated only at the upstream planning stage.

[xvii] In addition to the safeguards, we reviewed the IDB Sustainable Infrastructure Policy, the Public Utilities Policy, the IDB Transportation Sector Framework Document, the IIC Environmental and Social Sustainability Policy, and the Transparency, Accountability, and Anti-Corruption segment of the IDB website.

[xviii] The WB Investment Project Financing Economic Analysis Guidance Note, WB Guidelines for the Economic Analysis of Investment Projects, and the WB Infrastructure Strategy FY2012-2015 were also reviewed.

[xix] The IFC Development Impact, IFC Development Goals, and IFC Investment Proposals documents were also reviewed.