

The Role of Public Procurement in Deploying Sustainable Infrastructure

IISD DISCUSSION PAPER



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International Affairs

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November 2016



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Published by the International Institute for Sustainable Development.

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Preamble

This chapter discusses the pivotal role of public procurement in deployment of sustainable infrastructure. The discussion will commence with an introduction to sustainable public procurement and the importance of optimizing value for money across the asset life cycle. The next section will outline the many stakeholders involved in the deployment of infrastructure and discuss their responsibilities in the procurement phase of infrastructure projects. The discussion will then move to the “carrots and sticks” that can be offered by government to promote sustainable infrastructure, and how these laws and policies can influence, promote and implement the procurement of sustainable infrastructure. The paper will conclude with reflections on how sustainable public procurement can be implemented more efficiently.



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Acronyms and Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
DB	development bank
DFI	development finance institutions
ECR	Environment Conservation Rules
EDC	Export Development Canada
EIA	environmental impact assessment
EMP	environmental management plan
EP	Equator Principles
EPC	engineering-procurement-construction
FAST	Fixing America's Surface Transportation Act
GW	gigawatts
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
LEED	Leadership in Energy and Environmental Design
MDB	multilateral development banks
PPP	public-private partnerships
RfP	requests for proposals
SPV	special purpose vehicle
TCO	total cost of ownership
UNCITRAL	United Nations Commission on International Trade Law
VfM	value for money
VGF	Viability Gap Funding



1. The Case for Sustainable Public Procurement

The procurement phase of the infrastructure deployment cycle presents perhaps the most critical opportunity to deploy sustainable infrastructure. It is the point at which governments, the originators of the project, go to market and issue public tenders in an effort to seek out bidding consortiums that offer the best for value for money (VfM).

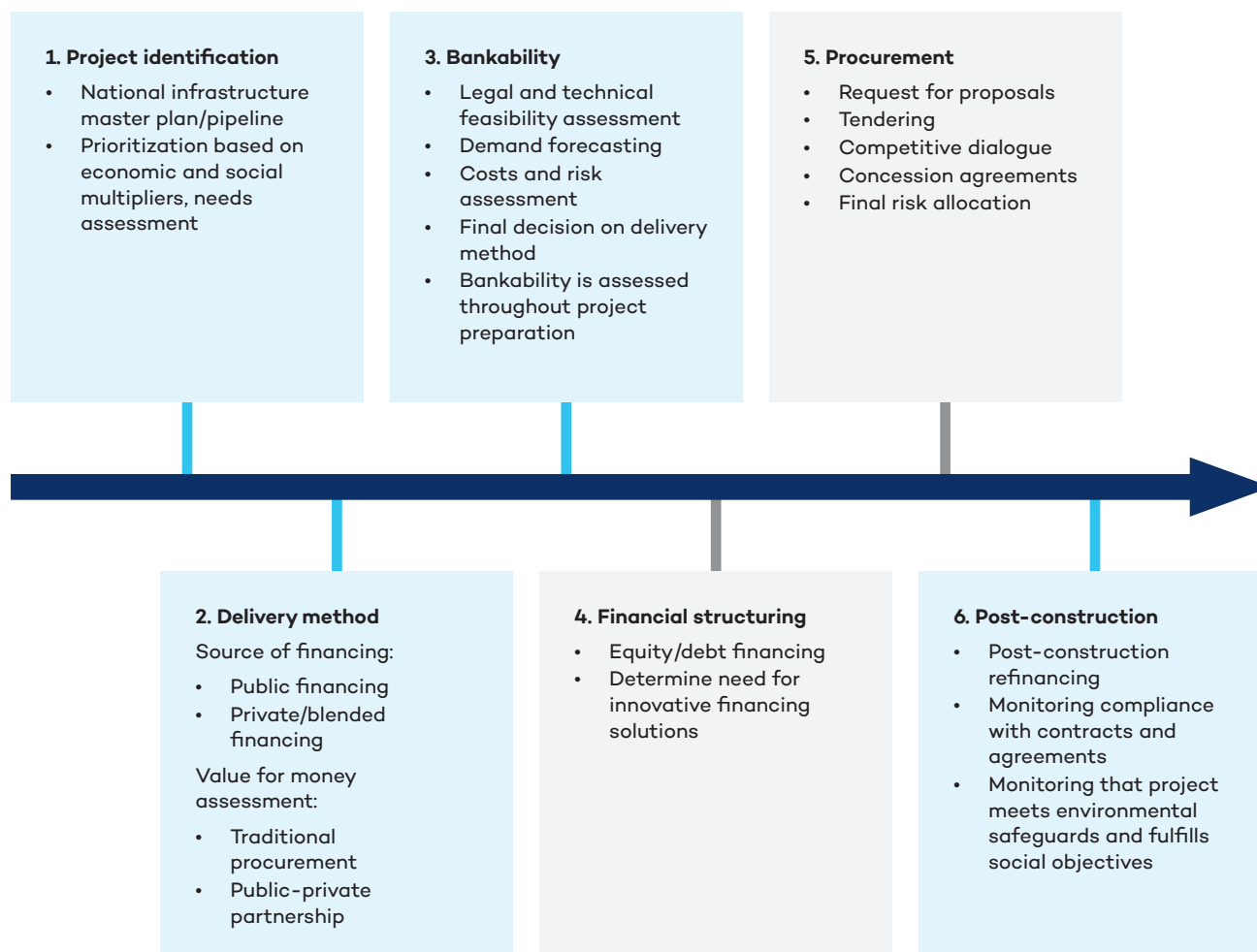


Figure 1. Infrastructure deployment cycle

When seeking to deploy sustainable infrastructure, VfM takes on a whole new meaning. Together with transparency, competition and fairness, VfM makes up one of the four major principles governing public procurement. As public procurers are custodians and bursars of public funds, they are bound to ensure that public spending is carefully targeted towards options that optimize VfM for citizens and taxpayers. The issue with the traditional approach is that VfM is often interpreted as the cheapest bid. The downside with selecting the lowest priced bid is that it often compromises on quality, durability and sustainability and results in assets that ultimately can be more expensive to finance and cost more to build, manage, maintain and dispose of. Such assets often also cause increased environmental and social impacts as developers seek all means to reduce costs. This can cause compromises on compliance with safeguards, and even shortcut technical designs, quality construction practices, environmental, health and safety procedures and much more.

Basing procurement decisions on the lowest price also severely undermines opportunities to deploy assets that embed sustainability. Approaches such as design for the environment, material and resource efficiency,



durability, circular economy and the integration of greener technologies can make assets more expensive to plan and build, but can bring significant increases in productivity and reduce maintenance and operating costs during the operations phase.

The better approach is therefore to base public procurement decisions on the total cost of ownership (TCO): options that optimize VfM not simply at the time of purchase but across the asset life cycle. TCO refers to practices that take into account all the direct and indirect costs associated with the purchase of an asset over its life cycle. It therefore enables procurers and investors to determine the total cost of the asset—including costs of financing, planning, designing, constructing, operating, maintaining, managing and, if relevant, decommissioning.

Let us take the example of a Leadership in Energy and Environment Design (LEED) rated building or a road rated under the Greenroads Rating System. While these assets may require more capital to plan, design and build, they can be cheaper and easier to operate and maintain. Better design features may also make these assets more agreeable and safer to use, resulting in productivity gains during its use. Indeed, the increase in capital costs during the planning, design and construction phases may well be offset by savings in operating expenditure and productivity gains when the asset is in operation. Procurement decisions based on TCO can hence yield better VfM than decisions based on the cheapest purchasing price.

This rationale lies at the core of sustainable public procurement—procurement that is based on the environmental and social performance of assets and how much they cost to plan, design, build, manage and maintain as opposed to how much they cost to purchase alone.

Box 1: Defining sustainable public procurement

Sustainable public procurement is about laws, policies and practices to integrate economic, social and environmental risks into public procurement processes and decisions. It is about achieving “value for money” across the asset life cycle (Perera, 2014).



2. Roles and Responsibilities of Stakeholders in the Commissioning and Financial Structuring of Sustainable Infrastructure

The implementation of sustainable public procurement is a complex process and requires the participation of all stakeholders involved in the deployment of infrastructure. The ensuing discussion will introduce the stakeholders involved in the deployment of infrastructure and discuss their roles in the procurement phase of the project.

2.1 Stakeholders in the Deployment of Infrastructure

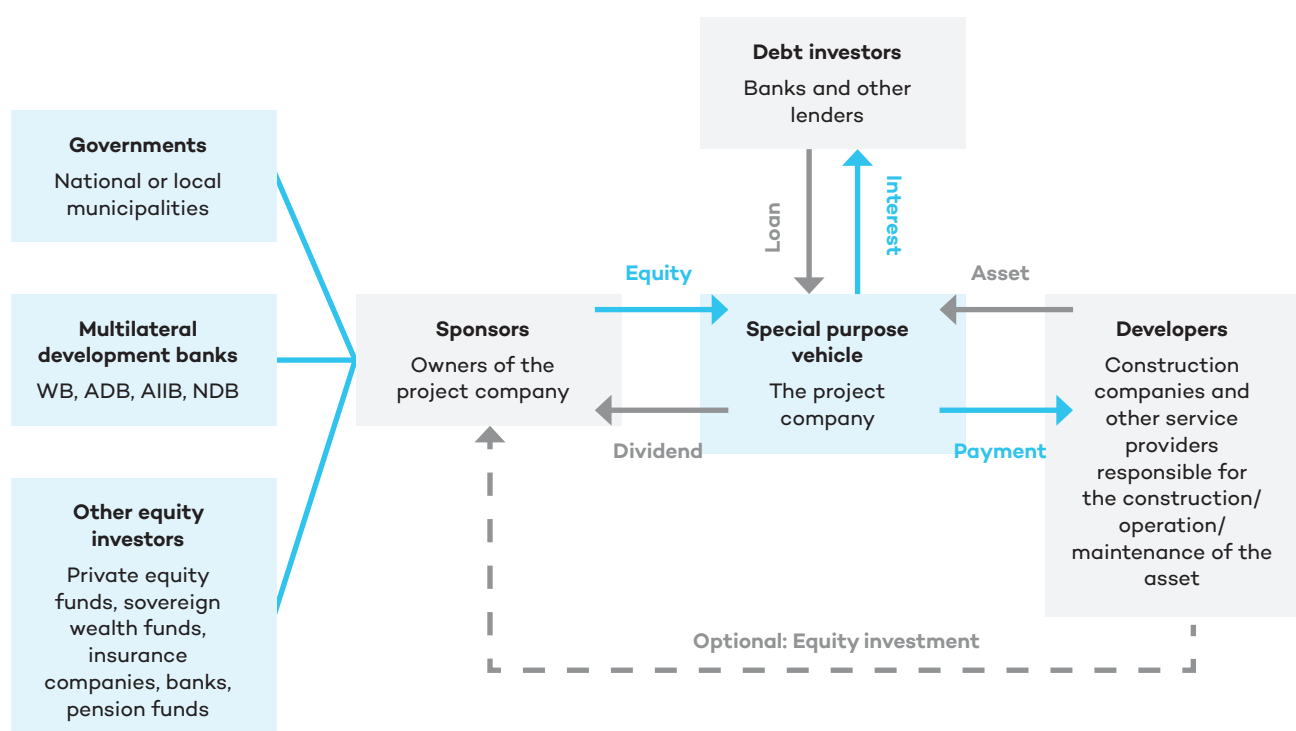


Figure 2. Stakeholders in the Deployment of Infrastructure

Sponsors

Sponsors are the owners (i.e., the equity holders) of the project company—or in other words, the shareholders. While all sponsors have a strong interest in the project’s success, their motivation for participation as well as their involvement in the different phases of the project life cycle can differ significantly. The shareholding structure usually remains constant during the project life cycle. This is especially true for strategic sponsors, who are key for the success of the project (e.g., developers, government). Often, a default can be triggered by a strategic sponsor leaving the project. However, changes in pure financial sponsors (e.g., investors and multilateral development banks) are more frequent and have a much smaller impact on the continued operation of the project. All changes in the shareholder structure need to be approved by the lenders (i.e., banks and other investors providing debt capital).

Governments

Governments (national or local) commission infrastructure to implement their economic policies, exercise their sovereign responsibilities and to realize other important social and environmental benefits. The government also



has a special role among sponsors by being the *principal* (also called promoter) of the project. This role entails initiating the tender, deciding on the specifications and standards that the bidders (i.e., the developers) need to meet as part of the tendering process, and choosing the successful bidder.

Development Banks

Development banks (both national and multilateral) participate in infrastructure deals to have a development impact in their target regions and countries by providing risk capital (by becoming sponsors) and other credit enhancement solutions. Development banks (DBs) can take an active role in the design and implementation of the project in the form of technical assistance, especially if the host country lacks the necessary capacities to structure bankable deals. However, DBs usually take a passive role during the operation phase. In fact, they often have an exit strategy in place already at the time of investment, so they can divest either through an initial public offering or by selling their stake to the other sponsors and employ their capital in other projects.

Equity Investors

Equity investors are financial investors, including private equity funds, sovereign wealth funds, insurance companies, banks and pension funds. Among capital market participants, these institutional investors have the necessary expertise and risk appetite to invest in infrastructure projects. Even as sponsors, their involvement in the design, implementation and operation of the asset is limited. Their sole objective is to find bankable, financially attractive deals to maximize their risk-adjusted return and cover their long-term liabilities. In other words, they commit capital if the project's internal rate of return is favourable for the underlying project risks and is in line with their investment mandate. Equity investments in infrastructure are generally considered to be high-risk investments, especially for greenfield projects due to the construction risks involved and the lack of cash flow until the asset is fully operational. Therefore, investors might need additional reassurances, for example in the form of credit enhancement, to provide equity capital if the project risks are too high.

Developers

Developers include construction companies and other service providers responsible for the construction, operation and maintenance of the asset. They are essentially the bidders, or a prominent player in the bidding consortium, during the tendering process. Their exact role can vary significantly based on the setup of the project. Under the traditional procurement model, these companies might only be responsible for the construction and timely delivery of the asset.

On the other hand, under public-private partnership (PPP) arrangements their responsibilities can also include the design (i.e., engineering), financing, operation and maintenance of the asset. Indeed, developers can also provide equity capital and become sponsors, expressing their long-term commitment to the project. This can be an important consideration for other investors when evaluating the project's bankability, especially if the underlying technology and construction risks would be particularly high, increasing the overall cost of financing. Contractors often use Engineering-Procurement-Construction (EPC) contracting agreements. In this case, the developer takes the responsibility for designing the asset, procuring the materials needed and construction on a turn-key basis (i.e., taking on the construction risk by being financially responsible for any construction delays and cost overruns).

Special Purpose Vehicles

When a project finance structure is used, a dedicated special purpose vehicle (SPV) needs to be set up for the project. SPV is the legal entity (i.e., the project company) that borrows the funds from investors and lenders on a non-recourse basis. It also owns the asset and is responsible for the management of the project. The shareholders of the SPV are the sponsors discussed above. Non-recourse borrowing means that the assets and future cash flows of the SPV serve as the only collateral for the financing. Beyond their equity investment, the sponsors are not legally liable to cover any potential losses incurred by the SPV.



Debt Investors

Banks are still the main lenders for infrastructure, but other institutional investors as well as MDBs are also playing an increasingly important role. Debt investments (including loans and project bonds) can provide stable long-term returns and by ranking higher in the capital structure (i.e., being more senior), they are safer than equity in case of the project's default. Private lenders play an even smaller role in the design and implementation of the project than sponsors do. Their influence on the project design is more indirect, as the project has to be structured in a manner that debt investors consider it bankable with a sufficient equity layer to absorb any potential losses.

Box 2: Example of the different players in project finance

The Manila Water Project illustrates well the roles of the different players in project finance. The state-run water provider Metropolitan Waterworks and Sewerage System (the government) in the Philippines has awarded a 25-year concession to Manila Water Co. (the SPV), a consortium of Ayala Corporation (sponsor – financial investor), Bechtel Enterprises of the U.S. (sponsor – EPC developer), United Utilities Inc. of the U.K. (sponsor – water utility) and Mitsubishi Corporation (sponsor – project operator). As per the concession agreement, the project company is responsible for the operation of the water service utility and the collection of revenues from tariffs. The government remains the owner of the water utility (Rivera, 2014). In 2003, the International Finance Corporation (debt investor) provided a USD 30 million loan to the project with an additional USD 30 million loan and USD 15 million in equity (sponsor – MDB investor) in 2004 (International Finance Corporation, 2016).

2.2 Roles and Responsibilities of Stakeholders in Implementing Sustainable Public Procurement

Managing environmental and social risks is essential for the success of any infrastructure project. Failure to comply with local and international standards could not only have a significant financial impact at the time of construction, but throughout the life cycle of the asset. Indeed, it is in the interest of all stakeholders that the relevant regulations are respected and the sustainability impact of the asset is minimized. While this can increase the capital expenditure of the project, the World Bank estimates that the benefits could outweigh these. As environmental benefits, the World Bank identified the better management of environmental, social, health and safety risks; improved community and government relations and access to funding; enhanced reputation; brand value; and market potential that is associated with improved sustainability performance. On the other hand, relevant social benefits include a reduction in accidents or health damages, improved safety standards for the population, enhanced developmental opportunities, protection of usage rights from common property resources and improved livelihood opportunities (World Bank, 2010).

The Role of Governments

Governments should always aim to structure infrastructure projects that deliver the most VfM across the life cycle to ensure effective, efficient and sustainable infrastructure development. VfM includes all the costs, revenues and related risks and uncertainties that occur during the different stages of the project: design, building, operation and maintenance, and end-of-life disposal and decommissioning of the asset. Governments and their procurement agencies have a mandate to maximize VfM for taxpayers when planning and implementing infrastructure projects.

Governments are the primary buyers of infrastructure; therefore, they have a strong leverage on the sustainability credentials of the project. During tendering, procurers can specify the environmental and social performance or award additional points to bids that prioritize the same. Also, as part of the pre-qualification criteria, they can set requirements on environmental and social performance, and thus ensure that only bidders with a commitment to and expertise on sustainability can bid for the tender. Beyond the procurement



phase, governments are also responsible for enforcing compliance with legislation on environmental and social safeguards.

The Role of Development Banks

DBs (both national and multilateral) were set up to provide financial and technical assistance in order to boost development, with often a strong focus on infrastructure. Since 2015, they have also played a leading role in delivering the Sustainable Development Goals. To do this, multilateral development banks (MDBs) have developed environmental and social safeguard policies, which are discussed in detail in Section 3. The mainstays of these safeguard policies are related to land acquisition and the environmental impact assessment.

DBs play an important role in influencing the environmental and social footprint of infrastructure projects. Especially in developing countries, or for projects lacking stable cash flows, infrastructure deals are often not bankable without some form of credit enhancement. In addition, governments and procurers often lack the necessary technical and financial capacities to design complex financial structures (e.g. public-private partnerships), and therefore they rely on the expertise of DBs during project preparation. As a condition of DB assistance, the projects have to comply with the environmental and social safeguard policies before financing arrangements are finalized. DBs might also play a role in the monitoring of compliance with safeguards. Their involvement can be more prominent if their own safeguards are used during procurement instead of the country systems. Similarly, if DBs commit capital to the project, they will get more involved with monitoring during construction.

In 2016 the World Bank revised its safeguard policies, and its procurement rules and guidelines. Sustainable public procurement, VfM and fitness-for-purpose lie at the heart of the reforms of the latter (World Bank, 2016a). Similar initiatives are also being implemented across many other MDBs.

The Role of Equity and Debt Investors

Due to the sensitivity of project valuations to environmental risk, compliance with safeguards is also important to both equity and debt investors. However, as the owners of the asset, equity investors' interest goes beyond the minimum compliance with safeguards and can certainly include finding ways to further decrease the overall environmental footprint of the asset. For major international projects, the environmental and social safeguard policies issued by the World Bank are recognized as the accepted framework. A number of investors no longer fund projects that fail to meet these requirements (Weber & Alfen, 2010).

The environmental footprint of projects could also be an important consideration for investors due to their internal corporate social responsibility or sustainability guidelines. These policies are a form of self-regulation that go beyond the legal obligation of the company and give guidance on managing the environmental and social impacts of the entity's operations, including its asset allocation decisions. While corporate social responsibility might be completely voluntary for private investors, the mandates of public investors often specifically limit investment in projects that are not in line with their internal sustainability standards.

For example, the mandate of the Government Pension Fund Global, the Norwegian sovereign wealth fund, includes a specific framework for responsible investment that the fund needs to comply with when making investment decisions. The fund believes that managing the environmental, social and governance risk is important for achieving its objective of highest possible return with a moderate level of risk. The fund not only recognizes a set of key international standards, but actively contributes to the development of new standards. Based on its assessment of environmental and social risk factors, the fund divested from 73 companies in 2015.

Another notable risk management framework is the Equator Principles (EP). It is used by financial institutions for determining, assessing and managing environmental and social risk in projects, while providing a standard for due diligence to support responsible investment decision making. EP is especially relevant for infrastructure, as it is designed to be applied in project finance and related transactions. There are currently 84 financial institutions worldwide who adopted the EP, including the biggest players in project finance. Members are not allowed to provide financing to projects that are not able to meet the environmental and social standards of the EP (Equator Principles, 2011).



The Role of Developers

As discussed earlier, developers can have different roles in the project, which can determine how much influence and interest they have in the asset meeting local and international environmental safeguards. If developers are only responsible for the construction, without becoming sponsors, their responsibilities are limited to meeting the environmental specifications in the contract agreement. In this case, the project company (i.e., the SPV) is responsible for monitoring the sustainability performance of the asset.

If the developer is also committing capital to the project, in principle becoming an investor, then the points discussed earlier for financial investors would also apply here. In this case, developers would also bear the cost of non-compliance with safeguards (e.g., potential fines, lower productivity while necessary modifications are implemented, etc.) and the consequences of high environmental risk, including difficult operating conditions due to public opposition and potentially higher cost of capital throughout the life cycle of the asset. For example, in India, the Bangalore Metro Rail Transit System Project Contractors were responsible for site health, safety and environmental issues (Asian Development Bank, 2011).

The Role of the SPV

The SPV, the project company, is responsible for monitoring the project's compliance with environmental and social safeguards, as defined as part of the design specifications of the asset during the procurement process. However, the SPV's monitoring responsibilities are not limited to the construction phase, but also cover the operating phase, where it needs to identify and address any unforeseen issues until the end of the asset's life cycle. As environmental and social risks could have a material impact on the overall financial viability of the project, the SPV's interest is to ensure compliance and implement internal policies that decrease the asset's footprint.

For example, in Bhutan for the Dagachhu hydropower project, the Dagachhu Hydropower Corporation (the SPV) was required to provide oversight for the implementation of the environmental management plan by all contractors. For the Rural Reconstruction and Rehabilitation Sector Development Project in Nepal, environmental safeguard requirements were included in the construction contracts, but contractors had some flexibility on their environmental management arrangements (Asian Development Bank, 2015).

For any stakeholder with financial interest in the project, the compliance with relevant environmental and social safeguards should always be a priority due to its significant impact on the bankability of the project. Indeed, minimizing the asset's environmental footprint could be highly beneficial for both public and private stakeholders, although for different reasons. While for private players it is a matter of prudent long-term risk management, for public entities their public mandate requires them to think beyond the project and consider the asset's wider impact on their communities, countries, or, in the case of MDBs, on their target regions.



3. The Enabling Environment for Procuring Sustainable Infrastructure

Public entities need a legal basis to demand sustainable infrastructure and integrate sustainability performance across the procurement cycle. Thus, the laws, regulations and policies that govern and regulate the procurement of infrastructure have to also prioritize sustainable development and promote concepts such as VfM across the asset life cycle and the total cost of ownership.

The procurement of public infrastructure is regulated by many legal instruments, the most critical being:

- Laws and policies on public procurement, concessions and PPPs
- Laws and policies pertaining to minimizing environmental and social risks and impacts of infrastructure

This section will introduce these instruments and their approaches to sustainability, and discuss challenges and current practices in their enforcement.

This section will also examine the additional conditions imposed when MDBs and development finance institutions (DFIs) finance and co-finance the infrastructure project. These conditions play a critical role in developing and emerging countries, where the enforcement of laws and regulations may be under-resourced.

Just as governments provide “sticks” and set standards for environmental and social performance, they can also provide “carrots”—incentives to promote and reward entities that seek to move beyond compliance and make environmental and social performance a priority. This section will also discuss current practice on the use of investment incentives for sustainable infrastructure.

3.1 Laws and Policies on Public Procurement, PPPs and Concessions

Laws Governing Public Procurement

To provide public procurers with the mandate to integrate environmental and social performance in the procurement process, public procurement laws and regulations also need to prioritize the same.

In the global quest towards smart and sustainable government, many countries are reforming and modernizing public procurement laws, and the principle of optimizing value for money across the asset life cycle has had wider uptake in this regard.

Let us consider the two most pivotal global examples: the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Public Procurement, revised in 2011, and the World Trade Organisation Government Procurement Agreement, revised in 2015.

UNCITRAL is the core legal body of the United Nations system in the field of international trade law and, as such, has an important influence on modernization and reform of national laws on all trade-related aspects. The UNCITRAL Model Law on Public Procurement 2011 includes the following provisions:

- **Article 2 (o) on Definitions clarifies: “Socioeconomic policies”** means “environmental, social, economic and other policies of this state authorized or required by the procurement regulations or other provisions of law of this state to be taken into account by the procuring entity in the procurement proceedings. *[The enacting State may expand this subparagraph by providing an illustrative list of such policies.]”*
- **Article 9 (2a) on Qualifications of suppliers and contractors** requires that: “They [the suppliers] have the necessary professional, technical, and environmental qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and personnel to perform the procurement contract.”
- **Article 11 (2b) on Rules concerning evaluation criteria and procedures** suggests that evaluation criteria may include: “The cost of operating, maintaining and repairing goods or of construction; the



time for delivery of goods, completion of construction or provision of services; the characteristics of the subject matter of the procurement, such as the functional characteristics of goods or construction and the environmental characteristics of the subject matter [...]"

- **Article 25 (1i) on Documentary record or procurement proceedings** suggests that: "If any socio-economic policies were considered in the procurement proceedings, details of such policies and the manner in which they were applied."
- **Article 30 on Conditions for the use of methods of procurement** allows for procurement: "[...] from a particular supplier or contractor [when] necessary in order to implement a socio-economic policy of this State, provided that procurement from no other supplier of contractor is capable of promoting that policy."

In a similar spirit, the World Trade Organization Government Procurement Agreement (2015) includes the following:

- **Article X (6) on Tender Specifications and Tender Documentation:** "For greater certainty, a Party, including its procuring entities, may, in accordance with this Article, prepare, adopt or apply technical specifications to promote the conservation of natural resources or protect the environment."
- **Article X (9) on Tender Specifications and Tender Documentation:** "The evaluation criteria set out in the notice of intended procurement or tender documentation may include, among others, price and other cost factors, quality, technical merit, environmental characteristics and terms of delivery."

Moving to a regional level, the EU presents some of the most progressing thinking on sustainable public procurement to date. Given below are excerpts from the Directive on Public Procurement, revised in 2014 and transposed into the national laws of EU member states in April 2016.

Article 67.2 on Contract award criteria states: "The **most economically advantageous tender** from the point of view of the contracting authority shall be identified on the basis of the price or cost, using a cost-effectiveness approach, such as life-cycle costing in accordance with Article 68, and may include the best price-quality ratio, which shall be assessed on the basis of criteria, including qualitative, environmental and/or social aspects, linked to the subject-matter of the public contract in question. Such criteria may comprise, for instance:

- quality, including technical merit, aesthetic and functional characteristics, accessibility, design for all users, social, environmental and innovative characteristics and trading and its conditions;
- organisation, qualification and experience of staff assigned to performing the contract, where the quality of the staff assigned can have a significant impact on the level of performance of the contract; or
- after-sales service and technical assistance, delivery conditions such as delivery date, delivery process and delivery period or period of completion.

The cost element may also take the form of a fixed price or cost on the basis of which economic operators will compete on quality criteria only.

Member States may provide that contracting authorities may not use price only or cost only as the sole award criterion or restrict their use to certain categories of contracting authorities or certain types of contracts."

Turning to the laws and regulations at a national level, governments around the world have upgraded or are in the process of upgrading their public procurement laws to provide for increased transparency, accountability, fair competition and, indeed, VfM across the asset life cycle. Considering examples from countries that are likely to be working with the One Belt One Road Initiative, the Government Procurement Law (2002) of the People's Republic of China makes the strongest commitment to sustainable public procurement. **Article 9** states:

Government procurement shall be conducted in such a manner as to facilitate achievement of the goals designed by State policies for economic and social development, including but not limited to environmental protection, assistance to underdeveloped or ethnic minority areas, and promotion of the growth of small and medium-sized enterprises.

Kyrgyzstan has also worked to modernize their public procurement laws. As reported by the State Agency on Public Procurement and Material Public Procurement and Material Reserves Reserves under the Government



of the Kyrgyz Republic (2015), the public procurement law was modernized in 2015 to improve the “maximum effectiveness and cost-efficiency of procurement,” increase competition, ensure the equal treatment of suppliers and establish procurement systems to increase transparency. At the point of writing, the authors are not able to ascertain if the amendments included a provision on fitness for purpose and VfM across the life cycle.

Similarly, in Kazakhstan, the Public Procurement Law was amended in 2014. It introduces the use of e-procurement to enhance transparency, centralizes public procurement under one state agency and establishes a reference database for maximum prices of goods, services and works. It also provides for a “national regime” based on which the government reserves the right to determine the conditions of access of foreign goods, services and works to public procurement contracts. Finally, the law allows the evaluation of tenders to be more quality oriented, and not based on price alone (Morgan Lewis, 2014).

Laws Governing Concessions and PPPs

Laws governing the procurement of infrastructure under PPPs are also important to deploying sustainable infrastructure. Governments and MDBs sometimes seek to use PPPs to deploy infrastructure, as they provide for the sharing of financing, design, construction and operational risks with private counterparties. Best practice on sustainability in this regard can be drawn from the UNCITRAL and the EU.

The UNCITRAL Model Legislative Provisions for Privately Financed Infrastructure Projects (2014) provides for integrating environmental and social sustainability into both procurement specifications and award criteria. The model provisions are given below.

Model Provision 11: Content of the Request for Proposals:

“To the extent not already required by [*the enacting State indicates the provisions of its laws on procurement proceedings that govern the content of requests for proposals*], the request for proposals shall include at least the following information:

[...]

- (b) Project specifications and performance indicators, as appropriate, including the contracting authority’s requirements regarding safety and security standards and environmental protection” (UNCITRAL, 2004, p. 12)

Model provision 14. Evaluation criteria

“1. The criteria for the evaluation and comparison of the technical proposals shall include at least the following:

- (a) technical soundness;
- (b) compliance with the environmental standards;
- (c) operational feasibility;
- (d) quality of services and measures to ensure their continuity.” (UNCITRAL, 2004, p. 14)

Turning to the EU, Article 36 on Technical and Functional Requirements of the 2014 EU Concessions Directive states (EU, 2014b):

“Technical and functional requirements shall define the characteristics required of the works or services that are the subject-matter of the concession contract. They shall be set out in the concession documents. Those characteristics may also refer to the specific process of production or provision of the requested works or services provided that they are linked to the subject-matter of the contract and proportionate to its value and its objectives. The characteristics may for instance include quality levels, environmental and climate performance levels, design for all requirements (including accessibility for disabled persons) and conformity assessment, performance, safety or dimensions, terminology, symbols, testing and test methods, marking and labelling, or user instructions.”



3.2 Laws and Regulations Pertaining to Minimizing Environmental and Social Risks and Impacts

The public procuring entity and the winning bidder are also required to comply with environmental and social safeguard laws and regulations pertaining to the siting, design, construction and management of infrastructure. The most important of these is related to scope, development and presentation of a social and environmental impact assessment (EIA) and its corresponding social and environmental management plan (EMP). These assessments are critical to identifying environmental and social risks that are associated with the planned infrastructure projects and putting in place measures to mitigate and manage these risks moving forward. In some cases, the findings of these assessments may require changes to both the siting and design of infrastructure projects. This, in turn, has serious consequences for the financial feasibility and the optimization of VfM for investors and governments alike.

The objective of EIAs and EMPs is to ensure that the proposed infrastructure project will be compliant with national laws and regulations on acquiring land, maintaining clean water, avoiding pollution, degrading land, deforestation, conserving habitats and wildlife, handling hazardous materials, managing wastes, complying with labour rights, offering decent work and resettling communities. Given this broad spectrum, EIAs and EMPs need to correlate to the type, location, nature, scale and potential impact of each infrastructure project, and assess impacts and risks accordingly. Indeed, it is the responsibility of the public procuring entity to conduct a preliminary screening during the project preparation phase, alongside the technical feasibility analysis to determine the scope of the EIA that will need to be conducted. In addition, the public procurement entity must make certain that the plans and designs included in tender documents comply with laws and policies related to the above—thus, the EIAs and EMPs are fundamental to integrating environmental and social issues into the procurement process. EIAs and EMPs also form the basis for granting environmental permits and as a condition precedent to the final approval or authorization of the project by the host country.

Drawing from the EIA, the EMP focuses on outlining how the effects identified in the EIA will be managed and mitigated.

Most laws and regulations on EIA typically focus on the following:

- Identifying projects considered to have significant effects on the environment and therefore requiring a mandatory EIA. These projects include long-distance railway lines, motorways, airports, hazardous waste treatment plants, wastewater treatment plants and waste treatment plants.
- Identifying projects that require screening to determine its environmental effects on the basis of thresholds, other criteria or, indeed, that require case-by-case examination. Based on this screening, the procuring and contracting entities can determine the scope of the EIA that will be required. Examples of these projects include railways, roads, waste disposal installations, urban development projects, irrigation infrastructure and flood protection infrastructure.
- The processes through which an EIA should be conducted and how its effects should be measured and recorded.
- Content of an EIA report. This typically includes a description of the location and physical environment of the project; a forecast and assessment of the likely environmental and social impacts; a description of environmental protection and social cohesion measures that need to be incorporated into the project, including a corresponding technical and economic feasibility analyses; and recommendations for implementing environmental monitoring.
- The contents of an EMP and how its effects and mitigation measures need to be recorded
- Modalities for public review and stakeholder consultation.
- How the EIA and EMP will be reviewed by the public sector (the procuring and contracting entities and other public sector agencies); time frames within which the approvals and refusals need to be conveyed.
- Level of transparency and public disclosure during the development of the EIA.
- Legal liability and sanctions for non-compliance with the EMP during construction.



Box 3: Reforms in EIA laws and policies

Over the recent years, many governments have reformed laws and policies related to EIA. Many of these reforms have focused on expanding the scope of EIAs; expanding the type of projects that require EIAs and introducing new screening and assessment criteria, new screening and assessment arrangements and minimum information requirements that will improve the quality, content, relevance and objectivity of EIAs and EMPs.

Since 2005 there also has been a move towards streamlining EIA procedures. As stated by the European Union in announcing the revised EIA Directive (2014/52/EU), the objective is to: “Simplify the rules for assessing the potential effects of projects on the environment. It is in line with the drive for smarter regulation, so it reduces the administrative burden. It also improves the level of environmental protection, with a view to making business decisions on public and private investments more sound, more predictable and sustainable in the longer term. The new approach pays greater attention to threats and challenges that have emerged since the original rules came into force some 25 years ago. This means more attention to areas like resource efficiency, climate change and disaster prevention, which are now better reflected in the assessment process” (European Commission, 2016).

Member states now have the mandate to simplify the EIA procedures and adhere to time frames: screening decisions are to be taken within 90 days, public consultations should be open for a minimum of 30 days and final decisions are taken within a “reasonable period of time.” In the same vein, the Directive requires that:

- EIA reports are made “more” understandable to the public, especially those parts that describe the prevailing state of the environment and alternatives to the proposed project.
- Development consent decisions (on granting of permission for infrastructure developments) are made more clear and transparent.
- Additional monitoring is conducted on projects that adversely affect the environment, and winning bidders are required to use additional measures to reduce and mitigate effects.

Box 4: The Environmental Impact Assessment Law of the People’s Republic of China, 2003

The 2003 EIA Law of China applies to all construction projects. Project-level EIAs are mandatory for hydroelectric dams and airports, while strategic EIAs are required for all government plans and programs, including industrial developments, agriculture, energy, transportations, tourism, natural resource development and urban development. EIA documentation requirements are categorized by the potential environmental impact of the project (projects having “major potential environmental impacts” require the most comprehensive documentation).

The Chinese procedure for project-based EIAs includes: investigation design or scoping; evaluation of existing environmental quality; estimation of potential environmental impacts; and assessment and analysis (a cost-benefit analysis) of the environmental impacts. Winning bidders must coordinate the project-based EIA documents, which are prepared by independent licensed impact assessment organizations.

With the 2003 law, Chinese citizens were guaranteed the right to participation in the EIA process and the scope of the EIA was expanded.

Additional monitoring is conducted on projects that adversely affect the environment, and winning bidders are required to use additional measures to reduce and mitigate effects.



One of the biggest challenges related to EIA is that, in many countries, they are administratively cumbersome and hence time- and resource-intensive. Given that EIAs can involve many public agencies at different levels of government and indeed many stakeholders with diverse views and opinions, much energy can be spent on administrative red tape rather than the rigorous assessment of potential environmental impacts and what solutions could be employed to mitigate them. This is especially true when projects involve controversies related to the acquisition of land and the resettlement of local communities. As a result, many stakeholders, including public agencies, financiers and winning bidders, have little confidence in EIAs and EMPs as valuable mechanisms to address environmental and social risks and indeed de-risk projects across their life cycle. Reforms to streamline the EIA process are aimed at addressing this issue and, at the time of writing, it is too early to comment on if these reforms will improve the administrative efficiency and prompt the winning bidders to improve the relevance, quality and integrity of the EIA and the EMP. There is always the risk that, in the haste to increase efficiency, the development of a quality assessment is compromised, and bidders, financiers and taxpayers stand to lose, as infrastructure will not deliver on VfM across the asset life cycle.

Box 5: 2015 US FAST Act: Expediting Environmental Permitting in Infrastructure Projects

On December 4, 2015, the United States enacted the Fixing America's Surface Transportation (FAST) Act with the aim to boost infrastructure development in the country. The act provides for long-term funding certainty for surface transportation and aims to increase the efficiency and effectiveness of permit procedures and environmental reviews.

Title XLI of the FAST Act, Federal Permitting Improvement, intends to improve the way in which federal agencies evaluate environmental impacts from, and issue permits for, large infrastructure projects. Those projects covered under Title XLI go beyond mere surface transportation projects, but also include activities "involving construction of infrastructure for renewable or conventional energy production, electricity transmission, surface transportation, aviation, ports and waterways, water resource projects, broadband, pipelines, manufacturing, or any other sector as determined by a majority vote of the Council" (US Department of Transportation, Federal Highway Administration, 2015).

FAST establishes an Interagency Council, comprised of the different federal agencies that will develop:

(a) "(...) recommended performance schedules, including intermediate and final completion dates, for environmental reviews and authorizations" (FAST § 41002(c)(C)) for each category of projects covered by the FAST Act, aligning agencies' reviews of projects and reducing permitting and project delivery time. The act also created a time limit—180 days—for agencies' decisions when the applicant is the actor collecting all the information.

(b) Best practices for environmental reviews and permit processes. Among other factors, recommendations should ensure timely decisions through the development of performance metrics, and reduce information collection requirements and other administrative burdens.

The process of applications and reviews will be publicly tracked on an online Permitting Dashboard for each infrastructure project.

Of particular concern however, is the fact that the FAST Act also imposes limitations on the judicial review processes of the National Environment Policy Act. Actions challenging a federal authorization must be filed within two years of the final agency decision or approval. Given that the construction period for many infrastructure projects lasts for several years and negative environmental and social impacts can manifest throughout the construction period, the ability of affected stakeholders to seek legal recourse is restricted.

Sources: Arnold & Porter LLP (2015); Holland & Knight LLP (2015); US Department of Transportation, Federal Highway Administration (2015)



Another very real challenge in the implementation of EIAs and EMPs, especially in middle- and lower- income economies, is that the public sector does not have the necessary expertise and technologies to monitor compliance. Environment ministries and their agencies are often poorly funded and lack the scientific knowledge and the necessary tools and technologies to conduct scientifically valid testing and monitoring. As a result, they can find it difficult to command due respect from developers and gain access to the necessary records to complete site inspection due diligence in a rigorous manner. Unless the public sector is able to monitor compliance and have robust evidence of noncompliance, holding developers responsible for environmental and social performance is exceedingly difficult.

3.3 The Role of Procurement and Safeguard Policies of MDBs

The procurement and safeguard policies of the multilateral development banks have been pivotal in the global debate on sustainable infrastructure. The 2016 World Bank policy document *Procurement in IPF and Other Operational Procurement Matters* makes important inroads into promoting the implementation of sustainable public procurement. Value for Money is included as a core procurement principle: “The principle of value for money means the effective, efficient, and economic use of resources, which requires an evaluation of relevant costs and benefits, along with an assessment of risks, and non-price attributes and/or life cycle costs, as appropriate. Price alone may not necessarily represent value for money” (World Bank, 2016b, p. 2).

This provision is historic in that it aligns, for the first time, both the procurement practice and procurement mind set of the World Bank towards sustainable development. At the time of writing, some other MDBs were in the process of revising their procurement policies to align with the World Bank’s 2016 revisions. Stakeholders can therefore expect environmental and social performances to be incrementally included in the procurement decisions of MDBs moving forward.

Safeguards are obligations imposed by MDBs on host countries and, subsequently, on the winning bidder relating to the identification, assessment and mitigation of environmental and social risks associated with infrastructure projects financed by them.

In some countries, MDBs can choose to use “Country and Corporate Systems” in place of their own environmental and social frameworks. Indeed, it is the mandate of MDBs to strengthen country systems and capacities on the management of environmental and social risks. But before stating that the country systems are equivalent to those of the MDBs, banks conduct rigorous assessments of domestic legal frameworks pertaining to environmental and social risk mitigation and public and private sector capacities in their implementation and monitoring.

Given that MDBs are key financiers of infrastructure, the revision of the World Bank Environmental and Social Framework in 2015–16 and the public consultation that was conducted in the run up to this revision highlighted the growing concern of both investors and tax payers of finding reliable ways to reduce the legal, environmental and social risks of infrastructure projects. The review consisted of perhaps the most extensive public consultations the World Bank had ever conducted, lasting almost four years, involving consultations with thousands of policy-makers, development professionals and civil society groups in almost 63 countries. It also marked an important step by the World Bank group to improve the sustainable development outcomes of its work around the world.



Box 6: The revised World Bank Environmental and Social Framework (2016a) and the revised International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012)

The World Bank's *Environmental and Social Framework*, revised in 2016, requires that projects supported by the World Bank through investment project financing meet standards on the assessment and management of environmental and social risks and impacts, labour and working conditions, resource efficiency, pollution prevention, community health and safety, land acquisition, restrictions on land use and involuntary resettlement, biodiversity conservation, Indigenous Peoples'/sub-Saharan Africa's historically underserved traditional local communities, cultural heritage, the performance of financial intermediaries, stakeholder engagement and information disclosure. The revisions provide extended protection to labour and working conditions, community health and safety, emergency response and disaster mitigation. It also includes a responsibility to include stakeholder engagement throughout the project cycle, and a non-discrimination principle augmented by a new mandatory World Bank Directive that lists examples of vulnerable and disadvantaged groups and explicitly requires staff to assist the borrower to consider, mitigate and manage related issues. To note, however, is that the responsibility of compliance with the framework is passed on to borrowers—World Bank staff are mandated to “assist the borrower” in containing risk during the project.

The IFC's Sustainability Framework was revised in 2012. It applies to all investment and advisory clients whose projects go through IFC's initial credit review process. It encompasses eight standards: assessment and management of environmental and social risks; labour and working conditions; environment health and safety; pollution prevention and resource efficiency; community health and safety; land acquisition and involuntary resettlement; biodiversity conservation; Indigenous populations and cultural heritage. Extended coverage was provided for the free prior and informed consent from Indigenous Peoples; protection for migrant workers; strengthening transparency on greenhouse gas emissions; additional disclosure from projects in the extractive sector. Among its shortcomings are, however, the low due diligence requirements for financial intermediaries. The IFC framework makes an explicit commitment to not only “do not harm” but “do good” to improve the development outcomes of its work. To implement this commitment, however, stronger oversight is required over financial intermediaries, which are required to set up an environmental and social management system to manage environmental and social safeguards. While the IFC does commit to ensuring such systems are in place, it does not take responsibility for assessing the success of this system to “do good.”

The most recent debate on safeguards related to the 2016 environmental and social framework of the Asian Infrastructure Investment Bank (AIIB) is a case in point. Committing to a modus operandi of lean, clean and green, the AIIB commits to a small but highly skilled management team, zero tolerance for corruption and respect for the environment. Moreover, the AIIB states that it “will put in place strong policies on governance, accountability, financial, procurement and environmental and social frameworks” (AIIB, 2016b).

Controversies arose, however, as the AIIB published its environmental and social framework. At the very onset, the public consultation period—first planned for just over 30 days—was extended for a longer period given strong push back from civil society groups. (International practice allows for longer consultation periods to enable wide consultation and meaningful feedback that will increase the relevance and efficiency of the draft frameworks.)

With regard to the content of the AIIB framework, stakeholders were also concerned, given that it did not improve upon prevailing practice by the World Bank and the IFC. Given its commitment to lean, clean and green, stakeholders expected higher standards of commitment to implementing safeguards and assistance to beneficiary public agencies to modernize their country systems and improve their implementation.

Similar to the frameworks of the World Bank and the IFC standards, the AIIB commits to screening projects for their environmental and social effects and requiring that an EIA be conducted and an EMP be in place before investments are approved. The AIIB standards focus on Environmental and Social Assessment and Management, involuntary settlement and Indigenous Peoples. Where the framework falls short in light of the sustainable public



procurement is the absence of the commitment “to do no harm,” the extent to which AIIB has oversight over borrowers and the use of country and corporate systems. Details are provided in the table below.

Table 1. The AIIB Environmental and Social Framework (2016) and the World Bank Environmental and Social Framework (revised 2016)

Relevant text from the AIIB Environmental and Social Framework (2016)	Relevant text from the World Bank Environmental and Social Framework (revised 2016)	Comments
<p>Objectives of the Framework include:</p> <ul style="list-style-type: none"> • “Reflect institutional aims to address environmental and social risks and impacts in Projects” • “provide a robust structure for managing operational and reputational risks of the Bank and its shareholders in relation to Projects’ environmental and social risks and impacts.” • “Ensure the environmental and social soundness and sustainability of Projects” 	<p>The section entitled “A Vision for Sustainable Development” includes:</p> <p>“The Bank’s vision goes beyond ‘do no harm’ to maximizing development gains”</p> <p>Overview of the World Bank Environmental and Social Framework:</p> <p>“(…) These Standards establish objectives and requirements to avoid, minimize, reduce and mitigate risks and impacts, and where significant residual impacts remain to compensate for or offset such impacts.”</p>	<p>The AIIB text falls short of making an explicit commitment to “do no harm.”</p>
<p>“Vision Point 11: An Emphasis on Implementation.</p> <p>The Bank considers that the management of environmental and social risks and impacts is central to the success of a Project. The collective experience of the multilateral development banks and bilateral development organizations in assisting their clients to manage environmental and social risks and impacts shows the importance of effective implementation of environmental and social management plans. The Bank supports Clients in the effective implementation of such plans for their Projects, through active field-based supervision, monitoring and verification, implementation support and institutional strengthening.”</p>	<p>The section entitled “Objectives and Principles” includes:</p> <p>Principle 3.</p> <p>“To carry out this Policy, the Bank will: (…)</p> <p>(e) Monitor the environmental and social performance of a project in accordance with the ESCP and the ESSs”</p> <p>Principle 2.</p> <p>“The Bank is committed to supporting Borrowers in the development and implementation of projects that are environmentally and socially sustainable, and to enhancing the capacity of Borrowers’ environmental and social frameworks to assess and manage the environmental and social risks and impacts of projects (…)</p> <p>The Bank will assist Borrowers in their application of the ESSs to projects supported through investment Project Financing in accordance with this Environmental and Social Policy for Investment Project Financing”</p>	<p>The World Bank provides more substantive details on how they will monitor the implementation of safeguards.</p> <p>The World Bank also makes an explicit commitment to assist borrowers to assess and manage environmental and social risks and to improve borrowers’ capacities on the same.</p>



Relevant text from the AIIB Environmental and Social Framework (2016)	Relevant text from the World Bank Environmental and Social Framework (revised 2016)	Comments
<p><i>“Vision point 12: Strengthening of Country and Corporate Systems.</i></p> <p><i>The Bank considers that strong country and corporate systems are crucial to the management of environmental and social risks and impacts and assists in strengthening them through a variety of mechanisms in both the public and the private sectors. The Bank believes that, in many cases, the best way to strengthen these systems is to use them at the operational level, with adequate support to achieve their objectives, which itself may be an important development outcome of the Bank’s financings. As provided in the ESP, the Bank may selectively provide the Client the option of using all or part of such systems for a Project in place of all or part of this ESP and ESSs, provided the Bank has determined that the Client has the ability and capacity to achieve environmental and social objectives materially consistent with the ESSs. This may be on a Project, sectoral or broader basis. In this regard, the Bank coordinates closely with other multilateral development banks, bilateral development organizations and relevant centers of expertise.”</i></p>	<p>The section entitled “<i>Objectives and Principles</i>” includes:</p> <p><i>Principle 3.</i></p> <p><i>“To carry out this Policy, the Bank will:</i></p> <p><i>(e) Undertake its own due diligence of proposed projects, proportionate to the nature and potential significance of the environmental and social risks and impacts related to the project;</i></p> <p><i>(f) As and where required, support the Borrower to carry out early and continuing engagement and meaningful consultation with stakeholders, in particular affected communities, and in providing project-based grievance mechanisms;</i></p> <p><i>(g) Assist the Borrower in identifying appropriate methods and tools to assess and manage the potential environmental and social risks and impacts of the project;</i></p> <p><i>(h) Agree with the Borrower on the conditions under which the Bank is prepared to provide support to a project, as set out in the Environmental and Social Commitment Plan (ESCP); and</i></p> <p><i>(i) Monitor the environmental and social performance of a project in accordance with the ESCP and the ESSs”</i></p>	<p>The AIIB may be over-relying on both country systems and the capacity of borrowers to comply with safeguards. AIIB does not provide sufficient detail on how it would deem country systems to be equivalent to the AIIB framework or that of other MDBs. By contrast, the World Bank outlines processes and commitments.</p> <p>Using country systems at the operation level presents a critical loophole for lowering the rigour of safeguard policies.</p>

Source: AIIB (2016a), plus analysis by authors

3.4 The Procurement and Safeguard Policies of DFIs

In addition to MDBs there are many specialized financial institutions, both at national and international levels, who are active in infrastructure financing. Collectively known as DFIs, these institutions include national development banks (China Development Bank, Korea Development Bank, etc.), bilateral development agencies (FMO Dutch Development Bank, Japan Bank for International Cooperation, etc.), export credit agencies (Export Development Canada, Export-Import Bank of the United States of America, etc.) and regional development agencies (OPEC Fund for International Development, Black Sea Trade and Development Bank, etc.).

These are important sources of global infrastructure funding, and thus play significant roles in delivering sustainable infrastructure. According to IJ Global League Table, during Q1–Q4 of 2016, the top 10 MDBs and DFIs in terms of project finance jointly provided USD 25 billion of project financing, of which six DFIs combined provided USD 16 billion, representing 71 per cent of the infrastructure funding of DFI and MDB together.

**Table 2. 2016 Project Finance League Table (MDBs and DFIs)**

Rank	Company	Total (USD million)	Type
1	China Development Bank	8,665.51	DFI
2	Japan Bank for International Cooperation	4,314.12	DFI
3	European Investment Bank	3,874.36	MDB
4	KfW	1,460.08	DFI
5	International Finance Corporation	1,186.60	MDB
6	Export Development Canada	737.08	DFI
7	European Bank for Reconstruction and Development	731.21	MDB
8	Inter-American Development Bank	619.53	MDB
9	Export Finance and Insurance Corporation Australia	450.00	DFI
10	Export Import Bank of the United States	400.00	DFI
	TOTALS:	22,438.49	

Source: <https://ijglobal.com>

Most of these DFIs are owned and capitalized by governments and MDBs, and as such are subject to the procurement policies of their fund providers. Take the case of the Infrastructure Development Company Limited (IDCOL) of Bangladesh, which was established to provide long-term limited or non-recourse project financing for domestic infrastructure projects in Bangladesh. IDCOL uses the lines of financing provided by MDBs such as the WB and the Asian Development Bank (ADB). As such, IDCOL ensures that the safeguard policies of these MDBs have been followed when procuring an infrastructure project.

Box 7: Environmental and social safeguard compliance of 110 MW HFO based power plant of Summit Barisal Power Limited, Bangladesh

Summit Barisal Power Limited was awarded the contract to develop and operate a 110 MW Power Plant in Bangladesh, to generate and supply electricity to Bangladesh Power Development Board under a 15-year power purchase agreement. IDCOL, along with some other financial institutions, are being considered to finance the project. According to the Environment Conservation Rules (ECR) (1997) of the Bangladesh government, industrial projects in Bangladesh have been categorized into four classes—Green, Amber A, Amber B and Red. The Summit Barisal Power Limited project been classified as a Red project under ECR. On the other hand, under the ADB's Safeguard Policy statement (2009), this project falls into category B due to the localized impact.

IDCOL decided to apply the requirements of both the Bangladesh government and the ADB, under their respective categories: the ECR requires an EIA and ADB requires an Initial Environmental Examination report. Interestingly, aside from the ADB's public consultation requirements, the content of both reports is similar. This project shows how DFIs can play an important role in applying both national and MDB safeguards in infrastructure projects.

Source: <http://idcol.org/home/ens>

However, in cases where the DFIs are not funded by the MDBs, they tend to follow national safeguard requirements, their internal safeguard policies or a combination of both. Export Development Canada (EDC), for example, applies both national and internal safeguard policies for funding infrastructure projects globally. The Environmental and Social Review Director of EDC ensures that it adheres to Section 10.1 of the Export



Development Act of Canada before entering into a transaction that is related to a project. In addition to this directive and as part of its commitment to carry out its mandate in a socially responsible manner consistent with its corporate values, EDC also has an Environmental and Social Risk Management Policy.¹

In the absence of any unifying safeguard policies among these DFIs, they follow their own policies, which may or may not be as standard and rigorous as those of MDBs. However, OECD has made efforts toward establishing a common approach of environmental and social due diligence among the export credit agencies, an important sub-group of the DFIs. On June 28, 2012, the OECD Council published a set of recommendations² for export credit agencies to apply while conducting/reviewing environmental and social due diligence of projects they are involved in. It is expected that over time, the ECAs will converge into a common approach towards safeguard issues with respect to infrastructure projects.

3.5 Compliance with Environmental and Social Law Regulations in Contracts and Loan Agreements

Procuring and contracting entities and MDBs include requirements for compliance with environmental and social performances (as detailed in the tender specifications) in contracts and loan agreements. This can be in the form of:

- Conditions precedent: conditions imposed by financial institutions before the disbursement at any phase of the project. For example, before the preliminary disbursement, the winning bidder can be required to demonstrate compliance with environmental permits and clearances and have completed the EMP.
- Covenants: borrowers/winning bidders undertake to perform the stipulated environmental and social improvements. Borrowers and winning bidders are also bound by covenants to refrain from modifying the EMP after the signing of the contract/agreement and during the construction phase of the project.
- Events of default: the MDB reserves the right to cancel disbursement or demand immediate repayment of the loan if the borrower/winning bidder does not comply with its sustainability obligations or breaches environmental or social covenants.

Most countries also establish grievance and dispute resolution mechanisms for infrastructure projects. For example, India established a National Green Tribunal 2010 with the mandate to address cases related to environmental protection and handle environmental disputes. The IFC and the Multilateral Investment Guarantee Agency of the World Bank Group have established the Office of the Compliance Advisor/Ombudsman to serve as the independent recourse mechanism for projects supported by these agencies.

3.6 Incentives to Promote the Deployment of Sustainable Infrastructure

Just as governments regulate how environmental and social impacts can be minimized across the infrastructure development cycle, they can also choose to offer incentives to encourage the private sector to move beyond compliance, continuously improve on sustainability performance and investment, and innovate on green and clean technologies. Performance-based incentives in the form of tax credits, allowances or accelerated depreciation can be used to realize this goal. In the same vein, green bonds, green loans and green technology grants are also valuable.

Tax credits and allowances provide for a fixed percentage of an investment to be deducted from taxable profit (in addition to depreciation). In the case of allowances, the value of the allowance is usually the product of the allowance and the tax rate, so its value will (unlike a tax credit) vary among investors.

¹ See the policy here: <http://www.edc.ca/EN/About-Us/Corporate-Social-Responsibility/Environment/Documents/environment-social-review-directive.pdf>

² See recommendations here: <http://www.oecd.org/tad/xcred/environmentalandsocialduediligence.htm>



Box 8: Examples of tax credits in North America

New York City offers developers and property owners a tax credit up to USD 200,000 for the inclusion of a green roof on at least 50 per cent of a structure. In Philadelphia, businesses are eligible for a credit of 25 per cent (to a maximum of USD 100,000) of green roof installation costs.

Source: National Resources Defense Council (2013)

Accelerated depreciation provides for the on-balance-sheet depreciation of assets at a faster schedule than is available for the rest of the economy. It has been widely used to promote renewable energy solutions across the world. This is most often done by allowing higher first-year depreciation allowances or increased depreciation rates. It is availed through the tax code—by reducing the taxes that an organization would otherwise be charged. For example, in India, the Jawaharlal Nehru National Solar Mission, launched in 2010, aims to deploy 20,000 gigawatts (GW) of grid-connected solar power by 2022. In September 2016, India's total installed capacity was reported to be 8.1 GW, with ambitions to add a further 21 GW in 2016. Fuelling this growth was an accelerated depreciation allowance. The Indian government was offering 80 per cent accelerated depreciation—which means that developers and real estate owners could save the tax they would otherwise have paid on 80 per cent of the value of the system.

Loans have always been widely used to promote new technologies breaking into markets. In March 2014, the California State Water Resources Control Board approved low-interest financing terms to incentivize water recycling projects, making USD 800 million available at 1 per cent interest. Among the projects eligible for funding are recycled water treatment, distribution and storage facilities. The financing will help California reach its goal of recycling 150,000 acre-feet of water annually (US Environmental Protection Agency, 2014; US Environmental Protection Agency & Clean Water State Revolving Fund, 2015).

There has been a notable rise in the use of green bonds, which are used to finance projects with positive environment benefits. The Climate Bonds Initiative reports that, in 2016, there are USD 694 billion of climate-aligned bonds outstanding, an increase of USD 96 billion from 2015 (Climate Bond Initiative, 2015).

Box 9: Transport for London issues green bonds

Transport for London, U.K., issued its first green bond in April 2015. The bond was oversubscribed by 50 per cent, with the GBP 400 million offering receiving orders for GBP 600 million. As reported by the Climate Bonds Initiative, 69 per cent of investment came from green funds. The bond offering also enabled Transport for London to diversify its investor base, with 61 per cent of the investor funds from the U.K., 18 per cent from continental Europe, 15 per cent from Asia and 6 per cent from the Middle East. The proceeds are directed to finance low-carbon transport projects from Transport for London's business plan to 2021, including station and line upgrades on rail and Underground, low-emission hybrid buses and cycling improvements.

Source: Green Bonds Initiative 9(2015)

Grants continue to be valued as an important incentive, especially to fund research and development on design for the environment and to introduce new technologies and solutions to the market. For example, the New York State Environmental Facilities Corporation's Green Innovation Grant Program provides developers with grants that cover up to 90 per cent of eligible project costs relating to eight green infrastructure technologies/designs, including day lighting and rain gardens. In 2015 the program has awarded USD 115.3 million to 53 small pilot projects across New York State.



Grants are also significantly valuable to help procuring and contracting authorities prepare financially feasible sustainable infrastructure projects and bring them to market. To this end, project developing funds and viability gap funds are particularly noteworthy.

Infrastructure projects often fail, turning out to be financially unviable, due to the lack of sufficient project preparation. Indeed, the costs of developing a project can be substantial at a time when project funding is not yet available. Project development funds are designed to cover this funding gap by providing grants for the technical feasibility and bankability studies, the environmental and social impact assessments, and for the design and financial structuring of the project. The role of project development funds often goes beyond pure financing and, in addition, investors seek to be actively engaged in project development by providing the specialized resources and guidance needed during this crucial period.

Viability Gap Funding (VGF) is used if essential infrastructure projects in priority sectors cannot be financed any other way. Generally, VGF is a one-time or deferred grant, just enough to make the project bankable by decreasing the cost of capital and attracting private financing. VGF can also take other forms, such as interest subsidy, subordinated loans or a mix of capital and revenue support. The maximum size of the VGF is usually capped (e.g., 40 per cent of project cost in India). The majority of the funds are sourced at the construction phase. It is important to note that VGF is only disbursed after sufficient private investors are selected and have committed their share of the financing.



4. Implementing Sustainable Public Procurement: Integrating environmental and social performance across the infrastructure procurement cycle

The procurement phase is critical to the deployment of sustainable infrastructure, as it encompasses the point at which governments publicly announce that they intend to deploy, that funding and financing arrangements are in place, and that formal tenders will be launched to identify and contract the bidder that offers optimum VfM.

Infrastructure procurement is a complex process. It draws very heavily from preceding stages of the infrastructure project deployment cycle, especially the technical and engineering feasibility studies, the bankability analyses, and the preliminary risk allocation and financial structuring of the project. (A flow diagram of the infrastructure deployment cycle was introduced in Section 1.)

The first phase in the infrastructure procurement cycle is prequalification. In industrialized countries, tenders for even relatively small projects—between USD 250,000 and 500,000—are only open to prequalified bidders. Additional prequalification is usually required for non-residential works greater than USD 50 million to 100 million. In the case of roads, bridges, transport, and information and communication infrastructure, irrespective of the financial threshold, governments usually demand specialized prequalification requirements and maintain dedicated supplier listings. In the case of complex projects, governments can also launch a Request for Qualification to select and shortlist suppliers that will be invited to bid.

Prequalification is the first critical phase to integrate sustainability performance in the procurement process. If suppliers are directed to improve and provide documentary evidence on their environmental and social performance as a prequalification requirement, governments will automatically raise the bar and do business with companies that are committed to sustainability and have the expertise to design, build and manage assets to optimize environmental and social performance. As a condition for prequalification, governments can ask a supplier to:

- Put in place systems for occupational health and safety, environmental management, social responsibility, quality assurance and the like.
- Have in place appropriate insurances, licences and mandatory technical qualifications.
- Demonstrate compliance with relevant codes and standards. This could include environmental and social performance standards (such as the International Council for Chemical Association's Responsible Care, the International Standards Organisation's 14001 Environment Management and International Standard's Organisations ISO 26000 Social Responsibility) or product standards (such as the Forest Stewardship Council).
- Demonstrate technical and financial capacity to undertake the project. This could include expertise in design for the environment, use of green and clean technologies, track record on sustainable infrastructure, such as the construction of assets that are certified under the LEED benchmark.

Following on from prequalification, governments can include sustainability in all stages of the procurement cycle. Table 3 below charts out a typical infrastructure procurement cycle and indicates how environmental and social performance can be integrated therein.

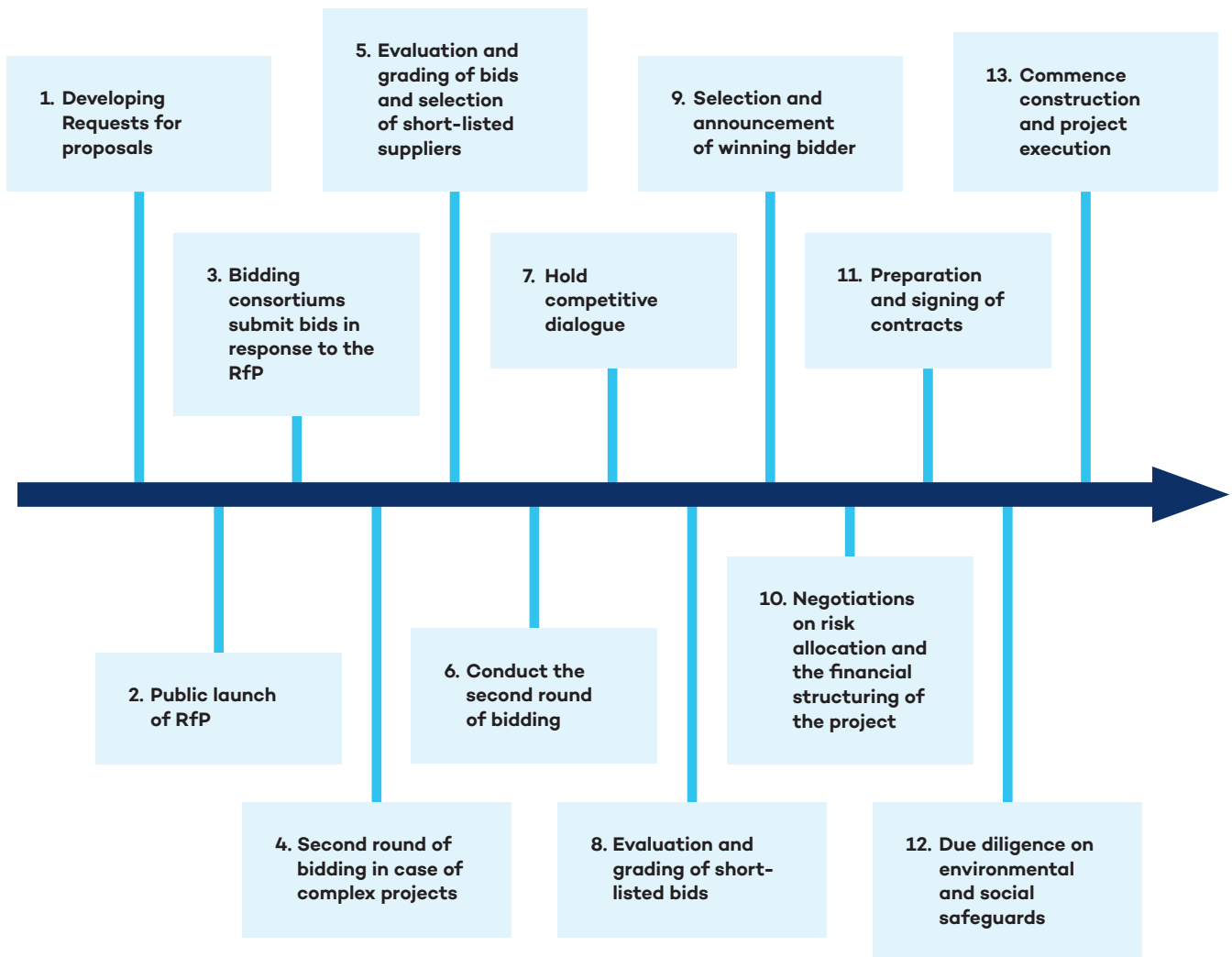


Figure 3. The infrastructure procurement process



Table 3. Integrating environmental and social performance in the infrastructure procurement cycle

Description of the infrastructure procurement cyclew	How environmental and social performance can be integrated in each stage
<p>Stage 1:</p> <p>Develop requests for proposals (RfPs).</p> <p>RfPs are preliminary calls for bids that inform markets of governments’ decisions to deploy infrastructure. These announcements outline the bidding process, the requirement of the project, the terms of the contract and how the bid should be formatted and presented. They also typically include:</p> <ul style="list-style-type: none"> • Baseline technical specifications that describe the outputs, outcomes and functionality that the public sectors seeks to realize through the deployment of the assets. • The evaluation criteria that disclose how bids will be graded. • A statement of work describing tasks and timelines. 	<p>RfPs are designed based on the technical feasibility studies and demand analyses undertaken during the project preparation phase of infrastructure deployment. Preliminary environmental and social screening and decisions on the scope of the environmental impact assessments form a part of the technical feasibility study.</p> <p>Before including sustainability performance in RfPs, is it critical that governments conduct the necessary screening on environmental and social safeguards, make decisions on the scope of the environmental impact assessment and integrate these findings into the technical specification. This then ensures that the baselines of the RfP are designed in a manner that is compliant with the environmental and social laws of the home state or the safeguard policies of the investing MDB.</p> <p>The technical specifications can be further developed to encourage bids that embed design-for-the environment, resource efficiency and such other concepts. To design the RfP in such a manner, procuring entities need to draw heavily from the environmental and social screening, the scope of the environmental impact assessment and indeed all other elements of the technical feasibility study, which were all conducted prior to the procurement phase.</p> <p>In most jurisdictions, technical specifications can be designed to include environmental performance. Some aspects of performance can be included as mandatory performance criteria and others as optional performance criteria on which bidders are awarded additional points. (This is further discussed in Step 5 below.)</p> <p>For example, bidders can be asked to design their proposal based on a low-carbon and low-energy threshold as mandatory criteria, and be awarded additional points if they commit to using given types/volumes of environmentally preferable building materials.</p> <p>However, when suppliers’ capacities are low and markets for sustainable goods and services are in their infancy, environmental and special performance are best included as optional criteria on which higher grades are awarded. In this manner, no bidders are crowded out, but proactive bidders are rewarded.</p> <p>This said, many jurisdictions are moving towards designing specifications that are functional or performance based, wherein bidders are informed of the functionality or the desired outcome of the asset. The finer points on design are left to the creativity of the bidders. The most efficient way to encourage sustainability performance in this case would be to award higher points to sustainable design and to the use of green technologies.</p>
<p>Stage 2:</p> <p>Public launch of RfP</p>	



Description of the infrastructure procurement cyclew	How environmental and social performance can be integrated in each stage
<p>Stage 3:</p> <p>Bidding consortiums submit bids in response to the RfP</p>	
<p>Stage 4:</p> <p>2nd round of bidding in the case of complex projects</p>	<p>In the case of complex projects, a more detailed technical specification can be developed which draws more thoroughly from environmental screening, the requirement on the environment impact assessment, technical and engineering feasibility studies, and bankability analyses. This detailed specification is made available to the suppliers shortlisted for the second round of bidding.</p> <p>More complex requirements on environmental and social performance can be included herein.</p>
<p>Stage 5:</p> <p>Evaluation and grading of bids and selection of short listed suppliers</p>	<p>It is important to award higher scores to environmental and social performance. This sends the signal to bidders that these aspects are a priority to the bidding entity.</p>
<p>Stage 6:</p> <p>Conduct the 2nd round of bidding.</p> <p>Invite full proposals from shortlisted suppliers. In some jurisdictions/projects, the 2nd round of bidding can be replaced by a competitive dialogue.</p>	<p>At this stage, the procuring entities can choose to inform bidders if any aspects of environmental and social performance need to be given more dedicated attention.</p>
<p>Stage 7:</p> <p>Hold competitive dialogue.</p> <p>In the case of complex projects, the shortlisted bidders (usually 2 to 3) are invited to a competitive dialogue. Competitive dialogues are usually held when governments have used functional or performance-based specifications—they know the outcome of what they seek to purchase but seek options from bidders on how these outcomes can best be achieved.</p> <p>Competitive dialogues provide the opportunity to have confidential and technical discussions with bidders on aspects such as:</p> <ul style="list-style-type: none"> • The merits and downsides of the proposed solutions • Tweaks to the original design may be needed to optimize VfM and environmental and social performance • Optimum risk allocation – the extent to which legal, financial, construction, technological, demand, revenue, operations and management risks can be optimally shared between the public sector and the bidding consortium • Options on the financial structuring of the project 	<p>Procuring entities have the opportunity to explore with the bidders how to improve environmental and social performance in the siting, design, construction and operations phases of the asset.</p> <p>In addition, competitive dialogues provide a first opportunity to:</p> <ul style="list-style-type: none"> • Address the scope of the environmental impact assessment • Negotiate on the allocation of risks, in that the bidder agrees to take on design, technology and construction risks and, in some cases, the operation and maintenance risks.



Description of the infrastructure procurement cyclew	How environmental and social performance can be integrated in each stage
Stage 8: Evaluation and grading of short listed bids	It is very important that environmental and social performance are given higher points at this final stage of evaluation.
Stage 9: Selection and announcement of winning bidder	
Stage 10: Negotiations on the final risk allocation and the financial structuring of the project	
Stage 11: Preparation and signing of contracts	<p>The public procuring authorities and public contracting authorities need to ensure that the contracts include all elements related to the environmental and social performance that were discussed and agreed to during the tender processes. This includes performance during the planning, design and construction phases and, if relevant, the operation and maintenance phases as well.</p> <p>Contracts typically also hold the winning bidder responsible for conducting the EIA, developing an EMP and obtaining all environmental permits and clearances.</p>
Stage 12: Due diligence on environmental and social safeguards.	The winning bidder works with the contracting and procuring authorities to ensure compliance with safeguards.
Conduct environmental impact assessments and develop environmental management plans, obtain clearances and permits related to the mitigation of environmental and social impacts.	<p>The winning bidder works with the contracting and procuring authorities to ensure compliance with safeguards.</p> <p>In some jurisdictions, the winning bidder and the procuring and contracting authorities are required to collaborate to demonstrate compliance with all safeguards before the contracts are signed.</p> <p>The challenge for both the procuring and contracting authorities and the winning bidder is to ensure that the EIAs and EMPs are relevant and comprehensive. In addition, the procuring and contracting authorities should be required to coordinate with other public agencies to ensure that permits and clearances are delivered with minimal administrative challenges and related delays. Only then will the project be realistically de-risked, and the project yield VfM for the bidder and the public sector alike.</p>
Commence construction and project execution	Contracting authorities should liaise with other public agencies to monitor compliance with contract conditions. This includes environmental and social performance.

As indicated in the table above, performance on sustainability needs to be integrated at all stages of the procurement cycle. The most critical points, however, are the design of the RfP, especially the technical specifications and the award criteria. This in turn requires that the technical feasibility studies and the



engineering designs for the asset being procured, undertaken during the project preparation phase prior to the procurement cycle, also prioritize environmental and social performance. Indeed, it is critical that the procuring authority undertakes the environmental and social screening and decisions on the scope of the EIAs as part of the technical feasibility study. This will ensure that the RfP and technical specifications are designed in a manner that encourages bidders to propose designs and solutions that go beyond compliance with safeguards and involve state-of-the-art sustainable designs, technologies and solutions.

4.1 Challenges in Integrating Environmental and Social Performance into the Public Procurement Cycle

The risks and rewards in improving the sustainability performance of an asset lie both with the public sector and the winning bidder. The procuring public authority is responsible for demanding sustainability performance and thus integrating environmental and social performance across the entire procurement cycle. The public procuring and contracting authorities also need to collaborate with the winning bidder to help ensure that all necessary due diligence related to the EIA, the EMP and the permits and clearances on environmental and social performance are obtained in a timely manner.

Performance risks—design, technology, construction and, if relevant, operation and maintenance risks— on the other hand, should ideally lie with the winning bidder. Therefore, the contracts need to hold the bidder responsible for ensuring that the asset is built according to the specifications, as per the agreed timeline, and embed the agreed levels of performance. This includes sustainability performance.

The greatest challenges in risk allocation lie in relation to the safeguards—land acquisition, resettlement, EIA and EMP, permits and clearances. Land acquisition and the resettlement of local and Indigenous communities can involve long disputes. Ensuing protests and demonstrations can significantly delay construction, cause damage to equipment and result in significant financial losses for both governments and investors. Similarly, red tape and administrative delays in the issuance of environmental permits can also hold up the construction phase and affect the bankability of the project. Indeed most of the legal disputes related to the deployment of public assets are related to issues linked to safeguards. This is why investors often cite environmental and social performance as one of the primary risks that affect the bankability of infrastructure projects.

It is indeed a fact that in many countries meeting the safeguard requirements, especially conducting the EIA, can be riddled with red tape and involve long and expensive administrative delays. Procedures become even more difficult when there is little collaboration and coordination between public agencies and when requirements and mind sets are not aligned between federal policy-makers and their counterparts in provincial/state governments and municipalities. Disputes then arise when the bidder is faced with red tape; when construction cannot begin as planned; and when expensive capital, labour and technologies lie idle. This red tape unfortunately also discourages both bidders and the contracting authorities from conducting relevant and comprehensive assessments, and respecting those findings during the final design and construction of the asset.

In an effort to address this challenge, the public procuring and contracting authorities often set up a project development department. This department works with winning bidders to ensure safeguard-related procedures are rigorously conducted and coordinates with other public agencies to minimize administrative delays on permits and clearances. Governments including the EU, China, India, Brazil and South Africa are also in the process of upgrading laws and regulations related to safeguards, and it is anticipated that these risks will also be addressed.

Some governments have also begun to tender large infrastructure projects for which safeguard-related assessments, clearances and permits are to be obtained by the procuring authority before the tender process is complete. For example, in India, mega energy infrastructure projects are being tendered with the intent that the procuring authority will obtain EIA assessments and safeguard clearances before the contract with the winning bidder is signed. In other words, the government conducts the EIA and develops the EMP and the winning bidder is mandated to ensure compliance with it. In this way, the government undertakes the legal risks related to safeguards and the winning bidder takes on the compliance risks during the construction phase.



Conclusion

Public procurement plays a pivotal role in deploying sustainable infrastructure. It encapsulates the moment when governments go to market, to announce their intention to buy and deploy. It includes all the processes through which government communicates with markets to inform them of what they seek to buy, and how they will seek to optimize the best VfM for the public purse. And given the significant sums spent on infrastructure, the public procurement process presents an important opportunity to steer entire value chains towards sustainable development.

Governments, however, have to wake up to both this opportunity and responsibility. If they do not design the procurement process to demand sustainable assets, provide the legal and regulatory frameworks to make the delivery of sustainable infrastructure financially feasible, and provide incentives and rewards to innovative frontrunners, sustainable infrastructure cannot be realized. In waking up to this opportunity and responsibility, governments need to become dealmakers and actively seek VfM across the asset life cycles rather than simply administer projects and award them to the cheapest bidder.

This shift involves a radical change in thinking, for performance on sustainability needs to be integrated at all stages of the procurement cycle. A critical point is, however, the design of the RfP, which includes the technical specifications and the award criteria. This in turn requires that the technical feasibility studies and the engineering designs for the asset being procured, undertaken during the project preparation phase prior to the procurement cycle, also prioritize environmental and social performance. Indeed, it is critical that the procuring authority undertakes environmental and social screening and decisions on the scope of the environmental impact assessment as a part of the technical feasibility study. This will ensure that the RfP and technical specifications are designed in a manner that encourages bidders to propose designs and solutions that go beyond compliance with safeguards and involve state-of-the-art sustainable designs, technologies and solutions.

The critical question that many stakeholders ask is if and how financiers of infrastructure can participate in the procurement phase of the infrastructure project life cycle. In practice, financiers are not typically involved in the procurement phase of infrastructure projects until the winning bidder is announced. Thereafter, equity providers to the winning bidder would have direct oversight on the project and SPVs, including due diligence and compliance with environmental and social laws and safeguards that the asset is built in accordance to the agreed technical specifications, contract conditions and the sustainability performance included therein. Providers of debt financing, on the other hand, do not typically have oversight on the management of the infrastructure projects. They do, however, seek to lend to projects that minimize environmental and social risks. They would therefore require evidence that the winning bidder has the capabilities and track record to develop the asset as per the specifications and contract terms before lending arrangements are finalized. Moreover, they would require documentary evidence of compliance with environmental and social laws and regulations before preliminary disbursement begins.

This only affirms the argument made above. Governments, as the providers and custodians of public assets and services, should ideally lead the way and demand sustainability performance. This can be done by designing tenders that reward front runners on environmental and social performance and by providing incentives for green and clean innovation. Governments need to make poor sustainability performance an expensive risk, and the biggest challenge in this regard is that gains from improved environmental and social performance can be difficult to estimate in monetary terms. Sustainable infrastructure may cost more to plan, build and finance, but be less expensive to operate and reduce risks across the asset life cycle. Sustainable infrastructure also triggers a host of positive externalities across the domestic economy and international supply chains. When these benefits are quantified and assigned monetary values, they can significantly alter the way all stakeholders will value sustainable infrastructure.

At the time of writing, the authors are working on a sustainable asset valuation tool to calculate the monetary value of environmental and social performance, so that these values can be included in the sensitivity analyses of project finance. Such a methodology can be valuable to help governments in the pre-procurement phase to prepare sustainable projects in the first place. Such a methodology will also be useful to financiers and all



stakeholders, as it will demonstrate if and how environmental and social performance can financially de-risk projects across their life cycle. This will then allow both governments and financiers to evaluate projects not only on narrow financial parameters, but on their real risk and reward profiles. This will include the avoided costs and the co-benefits of environmental, social and economic performance that sustainable infrastructure can generate across domestic and global value chains.

Additional challenges arise, as governments in many countries have yet to appreciate the business case for sustainable public procurement. Much needs to be done to upgrade laws and build expertise across the policy and procurement cadre and the civil service at large. The authors have also observed that, even when politicians buy into the concept, transferring this conviction into practical action becomes a considerable challenge.

Financiers have a vital role to play, as the sustainability of the assets they invest in will ultimately determine their risk and reward profiles. As the providers of capital, they have an enormous influence over governments. The challenge is then for financiers to collectively use this influence and ask for certainty and stability in the implementation of policies and practises related to green economic transformation and, indeed, the realization of the Sustainable Development Goals. This will perhaps be the most potent driver for sustainable infrastructure that yields VfM for citizens and investors alike.



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Published by the International Institute for Sustainable Development.

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