The Role of Multilateral Development Banks for Low-Carbon Procurement in the Infrastructure Sector

IISD REPORT

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Written by Sharmila Erizaputri and Ronja Bechauf

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Executive Summary

This brief examines the critical role of multilateral development banks (MDBs) in advancing low-carbon procurement within the infrastructure sector. As major financiers of infrastructure projects in developing countries, MDBs are uniquely positioned to drive the transition toward sustainable and climate-friendly infrastructure development practices. The analysis reveals that MDBs increasingly integrate sustainability considerations into their procurement policies and practices, recognizing public procurement as a strategic tool for achieving climate objectives.

Figure ES1. Challenges and recommendations for advancing low-carbon infrastructure procurement of MDBs

CHALLENGES	RECOMMENDATIONS
Competing priorities and disconnection between MDBs and borrowers' needs	• Showcase how low-carbon procurement contributes to socio-economic development priorities
Limited capacity of borrowers	• Expand and improve capacity-building initiatives • Support policy reforms on SPP • Provide easy-to-use low-carbon procurement tools
Procedural complexity in MDB-funded projects	• Streamline and harmonize internal procurement standards and systems
Lack of market readiness for low-carbon procurement in infrastructure	• Build supplier capacity • Engage the market through transparent procurement practices • Facilitate technology transfer through pilot projects
Lack of monitoring in MDBs' sustainable procurement practices	• Develop systematic monitoring for sustainable and low carbon procurement practices

Source: Authors' diagram.

Despite this progress, significant challenges persist, including competing priorities, a lack of comprehensive monitoring and reporting on sustainable procurement practices, limited capacity of borrowing countries to implement complex sustainability requirements,

procedural complexity, and varying levels of market readiness for low-carbon solutions across regions (see Figure ES1).

To enhance MDBs' impact on low-carbon procurement, the brief recommends several strategies, including showcasing how low-carbon procurement can contribute to socio-economic development priorities, streamlining and harmonizing internal procurement standards, and expanding capacity-building initiatives. It also highlights the importance of facilitating market engagement, building supplier capacity, promoting technology transfer through pilot projects, and providing easy-to-use low-carbon procurement tools. Additionally, the brief emphasizes improving the monitoring and reporting of sustainable procurement practices to ensure alignment with development goals.

By addressing these challenges and implementing these recommendations, MDBs can significantly accelerate the adoption of low-carbon procurement practices in infrastructure projects, contributing to global climate mitigation efforts.

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Abbreviations and Acronyms

ADB	Asian Development Bank
AfDB	African Development Bank
CEB	Council of Europe Development Bank
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
GHG	greenhouse gas
GPP	green public procurement
IDB	Inter-American Development Bank
KPI	key performance indicators
LCC	life-cycle cost
MDBs	multilateral development banks
OECD	Organisation for Economic Co-operation and Development
SPP	sustainable public procurement
UNEP	United Nations Environment Programme
WEF	World Economic Forum

1.0 Introduction and Purpose of the Brief

Infrastructure plays a pivotal role in global development, supporting the achievement of 92% of the Sustainable Development Goal targets across all 17 Goals (Thacker et al., 2019). Its importance cannot be overstated, particularly in emerging and developing countries where the need for new infrastructure development is most acute—an estimated 75% of the infrastructure required in developing countries by 2030 was yet to be built in 2020 (Bull et al., 2020). However, progress in financing continues at a slow pace compared to the massive needs (World Bank, 2024c). The broader financing gap for achieving all the Sustainable Development Goals is estimated at USD 4 trillion annually, with infrastructure alone requiring a significant share of this investment to meet global development targets (United Nations, 2024).

However, addressing infrastructure deficits is not just a financial challenge; it also presents significant environmental risks. The infrastructure sector contributes significantly to global greenhouse gas emissions, accounting for 79% of the world's total emissions (United Nations Office for Project Services, 2021). This underscores the urgent need to integrate sustainable practices into infrastructure projects from their inception, making low-carbon procurement a cornerstone of future development strategies.

Low-carbon procurement focuses on reducing the carbon footprint of purchased goods, services, and works throughout their life cycle. This approach is part of the broader concept of **green public procurement (GPP)**, which considers all environmental impacts of purchases, not just carbon emissions. Both practices fall under the umbrella of **sustainable public procurement (SPP)**, which takes the most comprehensive approach. According to the United Nations Environment Programme (UNEP) (2021), SPP ensures that public sector organizations purchase goods, services, and works that provide value for money while benefiting society and minimizing environmental harm throughout their life cycle. Through SPP, procurement decisions consider a wide range of factors beyond just environmental impact. These concepts form a nested set, with low-carbon procurement as a specific type of GPP and GPP as a component of the broader SPP framework.

By prioritizing low-carbon alternatives in infrastructure development—and specifically through procurement plans and processes—countries can make substantial progress toward meeting the targets set by the Paris Agreement (World Economic Forum [WEF], 2024a).[1] Embracing low-carbon procurement in infrastructure thus represents a critical pathway for harmonizing development needs with urgent climate action, potentially transforming one of the largest sources of emissions into a powerful lever for sustainability.

However, translating this vision into reality presents significant challenges, particularly in the context of large-scale infrastructure projects in developing countries. These projects

[1] This paper considers major MDBs, including those that joined the 2023 Working Group on Sustainable Public Procurement: the Asian Development Bank (ADB), African Development Bank (AfDB), Asian Infrastructure Investment Bank, Black Sea Trade and Development Bank, Caribbean Development Bank, Council of Europe Development Bank (CEB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank, International Fund for Agricultural Development, Islamic Development Bank, and the World Bank.

often involve complex international collaborations and substantial financial investments, requiring coordinated efforts across multiple stakeholders. Implementing low-carbon procurement practices in such environments demands not only technical expertise but also considerable financial resources and policy support. In this complex landscape, MDBs emerge as pivotal actors, uniquely positioned to drive the transition toward low-carbon infrastructure development.

MDBs have the financial leverage and policy influence to drive changes in how all projects, including infrastructure projects, are conceived, designed, and implemented in developing countries (Crishna Morgado et al., 2019). Compared to many other agencies, such as bilateral institutions, MDBs can provide aid on a larger scale, generating scale in both knowledge and lending (Congressional Research Service, 2020). MDBs collectively channel billions of dollars into infrastructure development, playing a pivotal role in providing essential services, such as electricity, clean water, and sanitation, to hundreds of millions of people in developing nations (Asian Infrastructure Investment Bank, 2021).

Recent research by Avellán et al. (2024) indicates that MDBs participate in approximately 14% of total infrastructure transactions in low-income developing and emerging economies. The average transaction value of infrastructure projects in these economies is around USD 485 million, and MDBs contribute an average of USD 119 million per project when they are involved. This significant financial involvement gives MDBs considerable influence over project standards. At the most fundamental level, MDBs can leverage their financing power to set environmental requirements for project funding and stimulate development (Kahn et al., 2012).

This brief explores how MDBs can accelerate the implementation of low-carbon procurement specifically for infrastructure projects. It examines current low-carbon procurement initiatives among the banks, identifies challenges, and proposes targeted recommendations for accelerating the adoption and effectiveness of low-carbon procurement strategies.

In the following sections, we will

- examine existing MDB policies and initiatives related to SPP/GPP, with a focus on low-carbon procurement in infrastructure
- examine tools used in low-carbon procurement
- identify key challenges in advancing low-carbon procurement in MDB-funded infrastructure projects
- recommend steps for strengthening the role of MDBs in promoting low-carbon procurement in the infrastructure sector.

This brief is a result of a literature review of academic papers, policy documents, and reports on low-carbon procurement in infrastructure. We examined procurement guidelines and sustainability frameworks from various MDBs. We also conducted interviews with representatives from the World Bank and the ADB to gain insights into current practices and challenges in implementing GPP strategies, with a specific emphasis on low-carbon initiatives. The brief was reviewed by experts from the World Bank, the ADB, and a working group of MDBs on SPP, as well as colleagues from IISD and the Foundation for Climate Friendly Procurement and Business.

2.0 MDBs' Role in Advancing Sustainable and Low-Carbon Infrastructure Procurement

2.1 The Role of MDBs in Public Procurement

MDBs often play a crucial role in their borrowing countries' finances. The MDBs channel billions of dollars annually in loans and grants, significantly impacting recipient countries' procurement processes and infrastructure development (Williams-Elegbe, 2017). Their involvement is closely tied to developing countries' development strategies, typically outlined in 5-year plans. These plans identify goals, priority sectors, and projects that require financing, and governments decide on the financing sources for each project, choosing between state budgets and external financing from bilateral and multilateral donors and lenders, and private financing (Martínez-Galán & Proença, 2023).

Countries frequently opt for MDB financing because of the various advantages it offers, such as access to foreign currency, the ability to secure financing during economic downturns, lower-cost funding options, extended repayment periods, and assistance with project preparation and capacity-building efforts (Martínez-Galán & Proença, 2023). Furthermore, MDBs play a role in providing global know-how and solutions to global challenges (Prizzon et al., 2024). Over the past 20 years, the role of MDBs has expanded considerably, with the 13 largest MDBs holding approximately USD 800 billion in aggregate development assets across developing countries, of which around USD 700 billion is directed to government lending (Kessler, 2022).

However, it is important to note that an increasing reliance on external borrowing to meet infrastructure and development needs can heighten debt risks for borrowing countries. The debt burden on developing nations remains a pressing concern, with these countries spending a record USD 443.5 billion on public debt servicing in 2022—a situation further intensified by rising global interest rates (World Bank, 2023b). This underscores the need for careful debt management and the importance of MDBs remaining mindful of how financing structures affect borrowers' debt sustainability, especially as they continue to support critical infrastructure investments.

MDBs involvement in procurement processes[2] varies depending on the financing instrument used. In some cases, procurement relies on the client country's own regulations and systems, such as with the World Bank's Program-for-Results and Development Policy Financing. However, in other instances, MDBs may require that procurement for funded projects aligns with their own regulations, as seen in the World Bank's Investment Project Financing. While

[2] In this report, we take a broad view of the procurement process in MDB-financed projects, encompassing early project phases—such as planning and project selection—as well as subsequent procurement practices, including specification development, bid evaluation, and review and monitoring, given the influence of MDBs on early project phases and their key role for carbon emissions.

proponents argue that the latter approach aims to ensure proper and efficient use of funds (Williams-Elegbe, 2017), it also introduces complexity to the procurement process.

The procurement process in MDB-funded projects centres around a creditor–debtor relationship between the MDBs and the borrower, typically a developing country's public agency (Williams-Elegbe, 2017). While MDBs provide funds, they are not a party to the contract between the borrower and the contractor implementing a project. Instead, MDBs play a supervisory role, ensuring compliance with their policies and proper use of funds. In practice, the borrower's designated agencies—often line ministries or specialized government departments—lead the procurement procedures for works, goods, and services (Martínez-Galán & Proença, 2023).

MDBs also play a multifaceted role that extends far beyond their function as creditors. As development institutions, MDBs provide critical support to borrower countries in achieving their development objectives through various means (Prizzon et al., 2024). For instance, they offer policy and regulatory guidance, leveraging their global expertise to help countries design and implement effective development strategies. MDBs also bring technical knowledge and best practices from diverse global experiences, facilitating knowledge transfer and capacity building in borrower countries. They also play a role in mobilizing additional resources, often catalyzing private sector investments and coordinating with other donors (Prizzon et al., 2024).

2.2 MDBs' Commitments and Initiatives on SPP/GPP and Low-Carbon Infrastructure

Building on their influential role in public procurement, MDBs have increasingly integrated sustainability into their operations over the past two decades. Recognizing the significant financial influence of public procurement, MDBs view SPP and GPP as strategic tools to achieve environmental, social, and economic objectives (Williams-Elegbe, 2017). While approaches vary, some MDBs have adopted specific sustainability policies within their procurement frameworks, and others have updated project guidelines to align with sustainability priorities (UNEP, 2022).

In October 2023, several MDBs made strides in harmonizing their procurement procedures, including integrating sustainable procurement. In a joint statement, 12 MDBs[3] pledged to promote sustainable procurement as a strategic tool for supporting the Global Climate Change Agenda and the goals of the Paris Agreement and Greenhouse Gas Protocol (Heads of Procurement of MDBs, 2023). The Heads of Procurement identified several priorities to drive sustainable procurement forward, including raising awareness through outreach and partnerships, developing a common approach to embed sustainability into procurement processes, enhancing training and resource development, and establishing mechanisms to monitor and communicate the impact of these initiatives (Heads of Procurement of MDBs, 2023).

[3] The 12 MDBs are ADB, AfDB, Asian Infrastructure Investment Bank, Black Sea Trade and Development Bank, Caribbean Development Bank, CEB, EBRD, EIB, Inter-American Development Bank (IDB), International Fund for Agricultural Development, Islamic Development Bank, and the World Bank.

In terms of advancing low-carbon procurement specifically, a dedicated sub-working group on carbon measurement and reduction under the MDB Heads of Procurement Working Group on Sustainable Procurement has been established. This sub-working group is coordinating efforts across MDBs to develop unified approaches to low-carbon procurement, with a working paper scheduled for release in 2025 that will outline key focus areas and upcoming activities (ADB, personal communication, November 8, 2024).

Infrastructure has long been central to MDBs' climate strategies, with institutions like the World Bank having a well-established history of promoting sustainable infrastructure development (Rydge et al., 2015). These examples of MDB initiatives demonstrate their active role in strengthening sustainable and low-carbon procurement practices across various domains:

- policy and regulatory support: MDBs actively assist countries in reforming their procurement systems to incorporate sustainability priorities. For example, ADB supported Indonesia in developing a new sustainable procurement guideline, a technical reference focused on infrastructure construction, and an update of standard bidding documents (Taylor, 2024).
- emission measurement and reduction: Some MDBs have begun requiring contractors to measure and report carbon emissions in infrastructure projects. The ADB, for example, has started requesting contractors to measure carbon emissions in recent infrastructure projects in India (ADB, personal communication, June 13, 2024).
- knowledge sharing, capacity building, and technical assistance: MDBs play a critical role in building capacity for low-carbon procurement by sharing best practices, developing sector-specific resources, and offering targeted training to help countries adopt sustainable procurement practices effectively. For instance, the World Bank has a Global SPP training program to support the publication of its SPP guidance and has an e-learning module on SPP (World Bank, 2023b). Additionally, MDBs also offer hands-on technical assistance in project planning and feasibility studies and facilitate twinning arrangements to enable knowledge transfer between more and less experienced countries.
- private sector mobilization: MDBs facilitate public–private partnerships to mobilize substantial financial resources for addressing climate change. This includes scaling up carbon finance and expanding the reach of carbon fund mobilization to the private sector, creating tangible opportunities for sustainable infrastructure development (Avellán et al., 2024).

3.0 Guidelines and Tools for Low-Carbon Procurement

MDBs have developed a range of guidelines and tools to support SPP and GPP initiatives. While these tools can broadly aim to promote sustainability across various environmental and social dimensions, they also play a significant role in facilitating low-carbon procurement specifically. By leveraging these guidelines and tools, MDBs and their borrowers can ensure that low-carbon criteria are effectively integrated into procurement processes.

3.1 Approaches to Low-Carbon Procurement Specifications

When incorporating sustainability into procurement, MDB projects can follow either conformance-based or performance-based specifications (World Bank, 2024b). Conformance-based specifications require suppliers to adhere to detailed technical requirements, such as the use of specific low-carbon materials or adherence to eco-labels. This approach ensures that bidders meet predefined standards but leaves little room for innovation. In contrast, performance-based specifications focus on the outcomes (Turley et al., 2014), such as reduced greenhouse gas (GHG) emissions or improved energy efficiency, giving suppliers the flexibility to propose innovative solutions. Both approaches are essential in low-carbon procurement and can be supported by various tools that facilitate the integration of environmental criteria at different stages of the procurement cycle.

3.2 Guidelines and Criteria

MDBs have established comprehensive frameworks and criteria to help procurement teams systematically evaluate sustainability aspects throughout the procurement cycle, from planning to contract management. For instance, the World Bank has introduced specific guidance on using rated criteria to evaluate bids. Rated criteria enable procurement teams to assess both price and non-price factors, such as environmental and social impacts, during the evaluation process. Since September 2023, the use of rated criteria has been mandatory for international procurement in World Bank-financed projects (World Bank, 2023c).

- The World Bank also introduced its 2024 SPP guidance, which emphasizes reducing emissions from construction-related contracts within its Investment Project Financing portfolio. This guideline encourages borrowers to consider the embodied carbon of materials, explore alternative project designs that minimize emissions, and collaborate with contractors to implement feasible carbon reduction strategies (World Bank, 2024a).
- Similarly, ADB has developed a guidance note designed to assist ADB staff and borrowers on how to incorporate aspects of sustainability in their public procurement process (ADB, 2021).

- The AfDB has also developed its own Guidance Note, primarily designed to assist Bank staff and project professionals in implementing sustainability considerations throughout the procurement cycle, from planning to contract implementation (AfDB, 2020).
- Additionally, the IDB has developed its Framework for Sustainable Infrastructure, which outlines approaches for both public and private sectors. This framework describes examples and possibilities to incorporate various environmental aspects into infrastructure projects, such as greenhouse gas reduction, renewable energy implementation, and waste management (IDB, 2018).

3.3 Tools for Implementation

MDBs employ a wide range of tools to integrate environmental and low-carbon criteria into their procurement processes, as outlined in their respective procurement operational guidelines. These tools generally fall into three broad categories: product-specific standards or labels, organization/project-level certifications, and assessment tools. Each category serves a distinct purpose and can be applied at various stages of the procurement process, from prequalification to contract management. To ensure credibility and promote market inclusivity, MDBs typically recommend selecting tools from reputable, internationally recognized certification bodies while also allowing for equivalent certifications to be considered.

Product-Specific Standards or Labels

Product-specific standards or labels play a crucial role in verifying a product's sustainability credentials. These standards demonstrate that a product or material meets predetermined sustainability criteria and can be used to standardize technical specifications. For example, the World Bank (2024b) encourages using various eco-labels such as the EU Ecolabel, Forest Stewardship Council (FSC) certification for sustainable timber, and ENERGY STAR for energy-efficient products. These labels simplify the procurement process by clearly indicating that a product adheres to specific environmental requirements, eliminating the need for buyers to assess each product's environmental impact individually.

Box 1. Case study: Application of green materials in Uttarakhand Urban Development

ADB financed a USD 200 million project for the Uttarakhand Integrated and Resilient Urban Development in India, incorporating sustainable procurement practices. The project prioritized the use of green cement and energy-efficient equipment to reduce GHG emissions. As part of this effort, the project elaborated on the specification of sustainable construction materials, including standards for low-carbon cement and implementing India's GreenPro eco-label. By selecting low-carbon cement for its procurement, the project can potentially reduce GHG emissions by 67,850 tons of CO_2-equivalent.

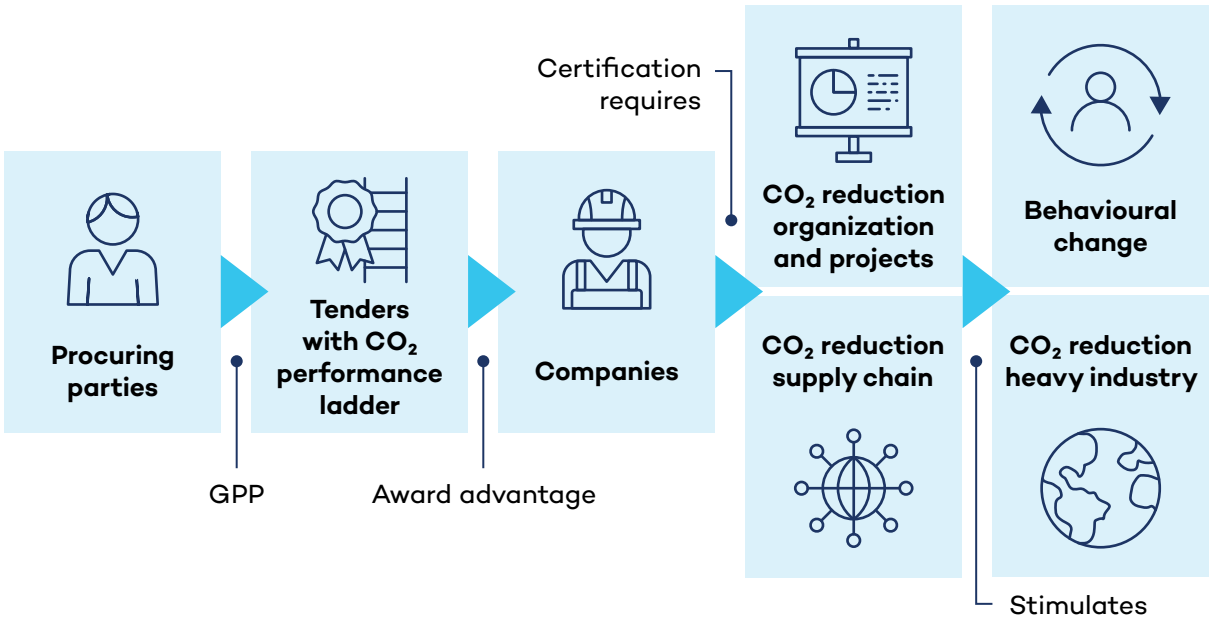
Source: ADB, 2023, Taylor, 2024.

Organizational/Project-Level Standards or Certifications

Organizational and project-level certifications help evaluate the sustainability practices of entire entities and the management of large-scale initiatives. For instance, ISO 14001 offers a broad Environmental Management System framework applicable across industries, allowing organizations to measure and enhance their overall environmental performance. Leadership in Energy and Environmental Design certification has gained widespread recognition in the construction sector for its specific focus on energy-efficient and sustainable building practices. Similarly, Building Research Establishment Environmental Assessment Method is another widely recognized certification system for built environment and infrastructure, which supports various sustainability goals, including achieving net-zero carbon emissions.

Extending beyond individual buildings to larger infrastructure projects, several frameworks provide comprehensive assessment tools for evaluating sustainability in large-scale infrastructure projects. For example, the Sustainable and Resilient Infrastructure Standard SuRe® offers a voluntary, global framework for assessing sustainability and resilience. The FAST-Infra label, an internationally recognized certification, highlights infrastructure projects and assets that showcase strong sustainability performance, allowing developers and operators to highlight the positive impact of their infrastructure and attract investors interested in assets that contribute to the Sustainable Development Goals. The Envision framework offers a flexible system for identifying sustainable strategies throughout an infrastructure project's life cycle, from planning to end-of-life. Another innovative tool in this category is the CO_2-Performance Ladder, which functions as both a carbon management system and as a GPP instrument (see Box 2).

Figure 1. Theory of change of the CO_2 Performance Ladder



Source: Bechauf et al., 2023.

Box 2. CO_2 Performance Ladder for low-carbon procurement

The CO_2 Performance Ladder (the Ladder) is both a carbon management tool and a GPP instrument.[4] Developed in the Netherlands, it is widely used across Europe, particularly in the Netherlands and Belgium, with growing adoption in Ireland, France, Germany, Portugal, and the United Kingdom. The Ladder helps organizations reduce emissions and rewards certified suppliers with advantages in public tenders, promoting CO_2 reduction in their operations and supply chains (see Figure 1).

As a carbon management system, the Ladder employs a five-level certification scheme. Each level evaluates organizations on four key areas: insights into energy flows and emissions, emission reduction targets, transparency, and cooperation within the supply chain. The first three levels focus on direct emissions from an organization's operations (Scopes 1 and 2), while levels 4 and 5 extend to include indirect emissions across the entire value chain (Scope 3). To ensure data quality and stimulate continuous improvement, certified organizations undergo annual audits by independent third parties.

In its role as a GPP instrument, the Ladder is utilized as an award criterion in public tenders. Companies with higher CO_2 ambition levels receive greater advantages in the bidding process, such as additional points or fictitious discounts on their bids. This system is designed to be flexible, allowing organizations to choose one of the five ambition levels and present either a CO_2 Awareness Certificate for their entire organization or provide project-specific proof. This flexibility is particularly valuable in diverse markets, where organizations may be at different stages of their sustainability journey. As the Ladder is used as a voluntary award criterion, organizations can also bid for the contracts without a CO_2 ambition level.

The impact of the CO_2 Performance Ladder is significant, with over 5,000 organizations achieving certification. Most certified organizations report a 20%–40% decrease in their direct and indirect energy-related emissions since initial certification, with an average annual reduction of about 7.7% (CE Delft, 2023). Beyond emission reductions, the Ladder drives competition among contractors, as those with higher certification levels gain a competitive edge in public tenders. This creates a ripple effect, encouraging widespread adoption of sustainable practices across industries.

Furthermore, the Ladder simplifies the procurement process for public authorities. The third-party certification ensures the quality and comparability of bids, reducing the need for deep technical expertise among procurers. By integrating this tool into procurement processes, public authorities can effectively reduce the carbon footprint of sectors such as construction and manufacturing while also promoting inclusivity and encouraging organizations at all stages of their sustainability journey to begin reducing their emissions.

[4] For more information, see the official CO_2 Performance Ladder website: https://www.co2performanceladder.com/

While the Ladder is successfully used across Europe, implementing it in MDB borrowing countries, particularly in low-income countries, requires careful consideration. The Ladder's effectiveness relies on several enabling factors typically present in mature markets: robust institutional frameworks, technical capacity for carbon measurement and GPP, well-developed third-party certification systems, and sufficient supplier capabilities. To make the tool suitable for developing countries, adaptations may be necessary, including simplified requirements aligned with local capacities, phased implementation approaches, increased capacity-building, and consideration of local market conditions. Collaborating with local civil society organizations could support the uptake of the Ladder in low-income countries, with the Ladder's managing foundation supervising how the tool is adapted to the context while maintaining its core principles.

Box 3. Case study: Application of the Green Building Standard for the Xiangtan Low-Carbon Transformation Sector Program

The Xiangtan Low-Carbon Transformation Sector Development Program in China's Hunan Province focuses on transforming Xiangtan's urban infrastructure into low-carbon, resilient systems, with the goal of peaking carbon emissions in 2028. Supported by a USD 150 million loan from the ADB, the program involves transforming over 60 km of urban roads to create flood-mitigation infrastructure while shifting toward people-centred mobility systems. This includes implementing public transit solutions like peak-hour curbside bus lanes and enhanced bus stops with real-time digital information, as well as adding or upgrading bicycle lanes alongside pedestrian pathways to integrate non-motorized transportation options. Green infrastructure will be integrated to enhance urban resilience and manage stormwater, improving safety and convenience for pedestrians and cyclists.

Key buildings, such as the new hospital and the Asia Low-Carbon Training Center, will achieve Excellence in Design for Greater Efficiencies certification, ensuring at least 20% savings in energy, water, and materials. The project also incorporates environmental, social, and health safety standards to ensure adherence to sustainability principles. Additionally, the Asia Low-Carbon Training Center will promote knowledge sharing, enabling other cities across Asia to replicate these low-carbon models, making the city of Xiangtan a leader in sustainable urban transformation.

Source: ADB, 2024.

Assessment Tools

Assessment tools refer to various methods, software, and models used to measure and evaluate the environmental, social, and economic impacts associated with products, services, or entire organizations. These tools help organizations evaluate the broader sustainability implications of their procurement decisions.

For example, life-cycle cost (LCC) and life-cycle analysis tools are widely used to assess both financial and environmental performance over the entire lifespan of a product or project. One such tool, the SMART Sustainable Procurement Tool, not only evaluates total costs but also tracks the environmental footprint of procurement decisions, including carbon emissions. Another example is the ÖBB total cost of ownership-LCC CO_2 Calculator, which integrates CO_2 emissions into project costs, monetizing environmental impacts across production, construction, and use phases to support sustainable procurement decisions (Landgraf & Schirmer, 2021).

Similarly, DuboCalc, a tool from the Netherlands, calculates an Environmental Cost Indicator value using project data and the National Environmental Database, enabling contracting authorities to select tenders with the lowest environmental impact in civil engineering projects. DuboCalc is widely used in procurement processes in the Netherlands and supports procurement agencies in identifying the bid with the best value for money when taking into account the environmental impacts of a proposed infrastructure project.

Box 4. Case study: World Bank's LCC analysis in water infrastructure project

The World Bank applied LCC analysis to evaluate bids for a design, build, and operate water treatment plant project in the Europe and Central Asia region. The World Bank-financed project spanned a 15-year operational life cycle, and performance-based specifications were used to select the contractor. Major cost categories considered over this period included land use, labour, chemicals, and power consumption. Among the three bidders, the winning proposal did not have the lowest upfront cost but was projected to be the most cost-effective over the full 15-year lifespan. Conversely, the bid with the lowest initial cost was assessed to be the most expensive long-term option. This case study demonstrates how LCC analysis can reveal hidden costs and benefits that might be overlooked in traditional procurement processes, ultimately leading to more sustainable and economically efficient infrastructure investments.

Source: World Bank, 2024b.

4.0 Key Challenges and Recommendations for Advancing Low-Carbon Procurement in MDB-Funded Infrastructure Projects

While MDBs have made strides in advancing low-carbon procurement, several key challenges persist in implementing these practices, especially in infrastructure projects. This section outlines these challenges and proposes targeted recommendations to address them.

4.1 Competing Priorities Between MDBs and Borrowers' Needs

One of the key challenges in advancing low-carbon procurement in MDB-financed projects is the misalignment between the global climate objectives of MDBs and the immediate socio-economic priorities of borrowing countries. MDBs increasingly emphasize climate action, but borrowing countries often prioritize pressing issues like job creation, education, and poverty alleviation (Morries et al., 2023). For instance, World Bank country opinion surveys in India and China reveal that stakeholders in these countries view climate change as a secondary concern (Morries et al., 2023).

Adding to this complexity, MDBs' technical expertise drives their high standards for project design and specifications. Although these standards are intended to ensure robust and sustainable project outcomes, borrowers sometimes perceive them as excessive and costly (Morries et al., 2023). These standards are frequently seen as driven by MDB headquarters' global agendas rather than shaped through meaningful collaboration with borrowers (Morries et al., 2023).

Figure 2. Recommendations on addressing competing priorities

CHALLENGE	RECOMMENDATION
Competing priorities and disconnection between MDBs and borrowers' needs Competing priorities such as climate action, job creation, economic growth, education, and poverty reduction	**Showcase how low-carbon procurement contributes to socio-economic development priorities** • Highlight importance of climate adaptation and mitigation and interconnectedness of climate action with development goals • Use case studies of low-carbon projects contributing to local socio-economic priorities

Source: Authors' diagram.

These competing priorities are particularly evident during the early stages of project planning and design, which serve as the foundation for subsequent procurement practices. The

divergence in priorities can hinder the integration of low-carbon criteria into procurement processes, as borrowers may view such requirements as externally imposed and less aligned with their immediate development needs.

Recommendation: Showcase how low-carbon procurement contributes to socio-economic development priorities

MDBs should enhance their engagement with borrowers during the project design phase to better align with the socio-economic priorities of borrowing countries. During these engagements, MDBs can highlight the risk of stranded assets—where high-carbon infrastructure investments may lose value as the world transitions to a low-carbon economy—and explain how low-carbon procurement can help borrowers avoid this risk.

Economic expressions of climate-related damage, such as infrastructure losses or agricultural impacts, can also help convince borrowers to integrate low-carbon and environmental criteria into their procurement processes. Moreover, MDBs can explain how these climate-focused actions are closely interrelated with other key development goals like job creation, poverty reduction, and education. By doing so, MDBs can demonstrate that low-carbon procurement delivers co-benefits beyond environmental sustainability. A systems thinking approach can be applied to frame low-carbon infrastructure projects not only as vital environmental solutions but also as catalysts for job creation and economic growth. Systems thinking helps analyze how different elements, such as renewable energy and green building materials, interact with broader development goals like poverty reduction and health improvement. By understanding these interconnections, MDBs can better identify where low-carbon initiatives will deliver the greatest co-benefits.

To further strengthen this alignment, MDBs can showcase successful examples of low-carbon initiatives contributing to local economic priorities. By highlighting these case studies and encouraging peer learning and best practice sharing among borrowing countries, MDBs can help address concerns that climate action might detract from other pressing development needs. This knowledge exchange can build confidence among borrowers that climate-focused projects can simultaneously advance their broader socio-economic objectives.

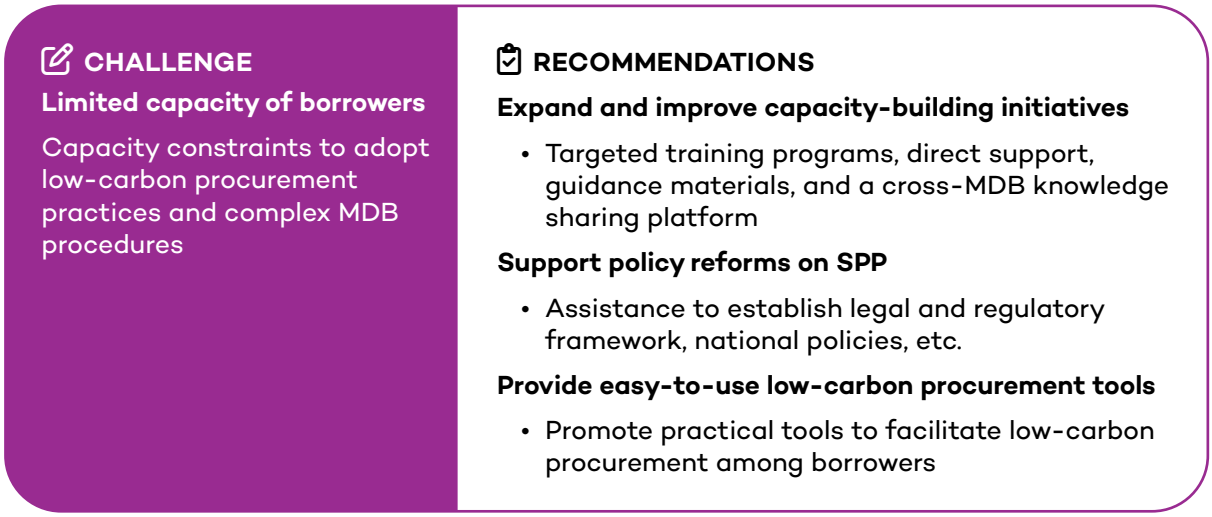
4.2 Limited Capacity of Borrowers

The research indicates that borrowers, particularly in developing countries, face significant challenges in adopting and integrating low-carbon procurement practices. These countries often lack the necessary capacity to incorporate low-carbon objectives into their procurement practices. This includes knowledge and technical expertise for setting green or low-carbon procurement criteria, conducting life-cycle assessments, and using tools like eco-labels to evaluate bids (Bidin et al., 2019). Institutional capacity constraints further exacerbate the problem, as procurement agencies frequently lack the resources to update policies, train staff,

or implement monitoring and evaluation systems for low-carbon procurement (Cheng et al., 2018).

Such barriers hinder the effective operationalization of low-carbon procurement policies, leading to missed opportunities to align infrastructure projects with climate objectives (Dunford et al., 2021).

Figure 3. Recommendations on addressing the limited capacity of borrowers



Source: Authors' diagram.

Recommendation: Expand and improve capacity-building initiatives

Expanding and improving existing capacity-building initiatives to equip borrowers with the necessary skills is necessary to implement sustainable procurement practices. This can be achieved through targeted training programs, direct support, and comprehensive guidance.

For example, ADB actively supports the development of SPP policies by ensuring their implementation through facilitating access to information, expertise, and capacity-building opportunities for borrowers (ADB, 2021). Another example is the World Bank's Hands-on Expanded Implementation Support program, which provides procurement advice and project implementation support upon request. The program has demonstrated its effectiveness in helping borrowers expedite project delivery, attract more bidders, and improve the overall quality of projects (World Bank, 2024b).

Capacity-building initiatives should target government stakeholders who are involved in project design, implementation, and compliance with procurement policies. This includes ministries or departments responsible for overseeing strategic decisions, such as ministries of finance, energy, or infrastructure, as well as public procurement authorities and regulatory agencies. It is also crucial to scale up training for agencies responsible for executing the MDB projects.

Furthermore, MDBs can collaborate with local universities or specialized training centres to deliver these trainings, ensuring that they cover essential topics such as low-carbon procurement strategies, LCC analysis, and the integration of sustainability criteria in procurement processes. Training should be delivered in the local language and adapted to the specific procurement contexts of the borrowing countries, ensuring greater accessibility and relevance for local stakeholders. This collaboration will help build the necessary technical expertise across all relevant stakeholder groups. For instance, the World Bank has pioneered the Green Public Procurement Master Classes in Central and West Africa, in collaboration with the Ghana Institute of Management and Public Administration, which are tailored to regional needs. In India, a variety of GPP/SPP training programs have been launched in partnership with local institutions, ranging from short-duration training sessions to 18-month diploma courses.

Finally, a knowledge-sharing platform that would offer easy access to resources, case studies, and best practices for low-carbon procurement can help with knowledge management and outreach across MDBs. It could serve as a forum for borrowers to share experiences and learn from each other, fostering a community of practice around sustainable procurement. For instance, the SPP Resource Hub by the ADB and IDB is a good start and provides governments and stakeholders with centralized tools and information on sustainable procurement. In addition to the SPP Resource Hub, platforms such as the Supply Chain Sustainability School disseminate resources and provide training in low-carbon procurement across industries.

Recommendation: Support policy reforms on sustainable public procurement

MDBs should assist borrowers in developing and implementing overarching policy reforms necessary for successful SPP, which also includes low-carbon procurement. This policy-level support should focus on helping countries establish comprehensive legal and regulatory frameworks and could include assistance in drafting national sustainable procurement policies, developing sustainable public procurement guidelines, establishing environmental standards, and creating institutional mechanisms for policy enforcement.

Such policy reforms are crucial as they provide the necessary legal backing and institutional structure for implementing sustainable and low-carbon procurement approaches at the operational level. One example is the AfDB's and the World Bank's support for Madagascar in reforming its public procurement system to enhance sustainability, transparency, and efficiency (AfDB, 2024).

Recommendation: Provide easy-to-use low-carbon procurement tools

To support borrowers in overcoming capacity constraints, MDBs should continue developing and promoting accessible tools that simplify the adoption of low-carbon procurement practices. These tools can help procurement officers navigate complex technical processes, such as evaluating bids and setting sustainability criteria.

One effective solution is the promotion of eco-labels, which provide predefined environmental criteria for products and services. Eco-labels streamline the procurement process by offering ready-made benchmarks for sustainability, enabling procurement officers to select environmentally friendly options quickly and confidently. MDBs should collaborate with local stakeholders to identify and promote regionally relevant eco-labels, ensuring their availability and recognition in procurement markets.

Another promising approach is the adoption of the CO_2 Performance Ladder (see Box 2), a performance-based tool that incentivizes contractors to improve their carbon management. By relying on third-party certification, the Ladder ensures the quality and comparability of bids, significantly reducing the technical burden on procurers. This tool not only simplifies the evaluation process but also encourages suppliers to align with climate objectives.

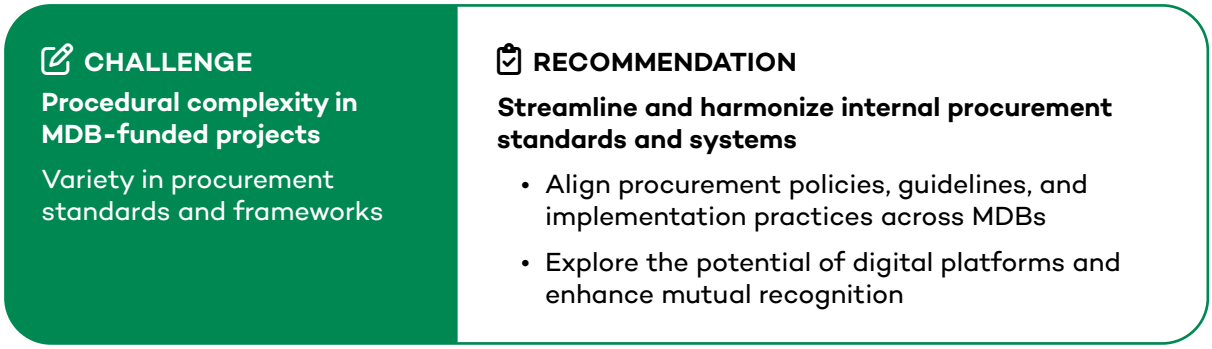
Building on these innovations, AI-powered tools represent another emerging technology with significant potential. These tools can support decision-making in the procurement process, particularly for complex projects and instances where life-cycle assessments need to be carried out. By automating data analysis and providing real-time insights, AI can enhance the accuracy and efficiency of procurement decisions, reducing the technical burden on officers.

These tools must, however, be complemented by efforts to localize their application and account for market availability and maturity. MDBs should ensure that the tools align with the specific procurement frameworks, languages, and capacities of borrowing countries while also considering the availability of low-carbon alternatives and the readiness of local markets to meet sustainability criteria. Without addressing these factors, tools risk being impractical or underutilized.

4.3 Procedural Complexity in MDB-Funded Projects

Procurement practices in MDB-funded projects are often hindered by procedural complexity, creating significant challenges for borrowers. Despite broadly similar objectives across MDBs, their safeguarding rules, procurement standards, and frameworks vary widely. Borrowers frequently need to navigate multiple rules when working with different MDBs, particularly in co-financed projects. These lead to confusion, delays, and increased administrative burdens (Getzel & Humphrey, 2024).

Figure 4. Recommendations on addressing procedural complexity in MDB-funded projects



Source: Authors' diagram.

The lack of mutual recognition or harmonization among MDBs adds to this challenge. Borrowers must often duplicate efforts to meet the procurement requirements of multiple institutions, increasing both costs and project implementation times (Getzel & Humphrey, 2024). These inefficiencies might detract from the developmental goals of MDB-funded projects and can discourage borrowers from engaging in large-scale or innovative initiatives.

Recommendation: Streamline and harmonize internal procurement standards and systems

To address the procedural complexities faced by borrowers, MDBs should prioritize the harmonization of their procurement standards and systems, building on their 2023 joint commitment to sustainable procurement. Aligning procurement policies, guidelines, and implementation practices across MDBs can minimize inconsistencies, reduce administrative burdens, and accelerate project timelines, particularly for borrowers with limited institutional capacity.

A key step in this process is the development of standardized templates, shared frameworks, and digitalized systems that borrowers can adopt across projects. For instance, harmonized tender documents and e-government platforms have already been adopted by some MDBs to improve efficiency (Getzel & Humphrey, 2024). These efforts not only streamline processes but also foster transparency and consistency in procurement practices.

Harmonization efforts should extend to co-financed projects, where borrowers often face the challenge of meeting multiple sets of requirements from different MDBs. Establishing mutual recognition agreements between MDBs can allow borrowers to comply with procurement standards once rather than duplicating efforts for each institution. For example, several MDBs, including the CEB, the EBRD, the EIB, and the World Bank, recently concluded an agreement in Ukraine to align their operational and procurement policies for co-financed projects (Heads of Procurement of MDBs, 2024). While progress has been made, there is a need to expand such initiatives to other regions and projects.

Additionally, MDBs should explore the potential of digitalization to streamline procurement processes. Integrated digital platforms can facilitate the adoption of harmonized frameworks, automate repetitive tasks, and enhance real-time communication between MDBs and borrowers. Such platforms could also incorporate tools for sustainability assessments, enabling borrowers to meet low-carbon procurement goals more efficiently.

4.4 Lack of Market Readiness for Low-Carbon Procurement in Infrastructure

A significant challenge in advancing low-carbon procurement for MDB-funded infrastructure projects is presented by the varying levels of market readiness across different regions and countries. The World Bank has raised concerns about the capacity of producers to meet the rising demand for low-carbon alternatives in infrastructure sectors, with many markets, especially in developing regions, lacking the necessary supply chains to support these efforts (World Bank, 2023b). This creates bottlenecks for borrowers seeking to implement low-carbon solutions in their infrastructure projects.

Additionally, access to affordable low-carbon technology remains a significant barrier, particularly in emerging markets. As noted by the WEF (2024b), while manufacturers in developed countries may absorb the initial costs of developing novel low-carbon technologies, the challenge lies in ensuring that these technologies become accessible globally. In sectors such as aluminum, the WEF (2024b) highlights that the lack of widespread access to decarbonization technologies poses a considerable risk to global emission reduction efforts. Without strong support, it could take decades for developing countries to access these innovations, potentially delaying low-carbon procurement practices in MDB-funded projects.

Figure 5. Recommendations on addressing the lack of market readiness

CHALLENGE

Lack of market readiness for low-carbon procurement in infrastructure

Varying market-readiness across countries and regions as bottleneck

Limited access to low-carbon technology in developing countries

RECOMMENDATIONS

Engage the market through transparent procurement practices

- Open and transparent exchange with potential suppliers prior to tendering

Build supplier capacity

- Training on procurement procedures and meeting green criteria

Facilitate technology transfer through pilot projects

- Enhance market readiness with low-carbon technology in key sectors

Source: Authors' diagram.

Recommendation: Encourage transparent market engagement

MDBs should encourage transparent market engagement prior to the tendering process. In practice, (valid) concerns around corruption hinder the use of market engagement. However, these risks can be mitigated if market engagement is open and transparent. This, jointly with the MDB's business integrity programs, will ensure that corruption and integrity risks are properly managed (World Bank, 2023).

Market engagement can take various forms, including organized dialogues and fairs to connect with stakeholders. The ADB Business Opportunities Fair is one example, serving as a platform for transparent market engagement, bringing together suppliers, procurers, and other stakeholders to explore opportunities for collaboration (ADB, 2024).

Such engagement initiatives enable procurers to send clear signals to the market about their ambitions to gradually introduce sustainability criteria in tenders. This can encourage suppliers to align with green criteria and invest in low-carbon solutions, ultimately fostering healthy competition for tenders with low-carbon requirements. In addition, these consultations and dialogues offer a valuable opportunity for procurers to assess the market readiness of potential suppliers. A good understanding of market maturity is key to designing green criteria that are both feasible and ambitious enough to achieve tangible environmental benefits.

Recommendation: Build supplier capacity

MDBs should increase efforts to build the capacities of suppliers and make green tenders accessible to small businesses. One key element of this is to empower companies to navigate public procurement processes through targeted training. Training for suppliers should clearly explain available means of proof for green criteria and provide practical guidance for certification schemes and implementing environmental management systems, empowering companies of all sizes to obtain formal credentials for GPP. MDBs can support this development of low-carbon supply chains through targeted grants, training programs, technical assistance, or co-financing programs aimed at boosting the capacity of existing manufacturers to provide low-carbon alternatives.

MDBs should foster the implementation of GPP in a flexible, incremental way that allows companies in various sectors to gradually build sustainability knowledge and formal certifications. For instance, using environmental tender award or evaluation criteria—such as the rated evaluation criteria employed by the World Bank—may encourage healthier competition than strict selection criteria. This approach can reward a range of low-carbon efforts instead of excluding companies that do not meet the formal requirements.

Recommendation 3: Facilitate technology transfer through pilot projects

MDBs should incrementally scale up low-carbon procurement by facilitating technology transfer through pilot projects. Pilot projects are crucial, particularly for costly, high-impact technologies that are still in the early stages of commercialization (Organisation for Economic Co-operation and Development [OECD], 2022). For example, transferring the technology

for producing low-carbon products, such as green iron, through green hydrogen processes could reduce transition costs while enhancing the steel industry's competitiveness (OECD, 2022). Supporting these smaller-scale initiatives will help address the market readiness gap for low-carbon infrastructure tenders by demonstrating the feasibility of these technologies in key sectors.

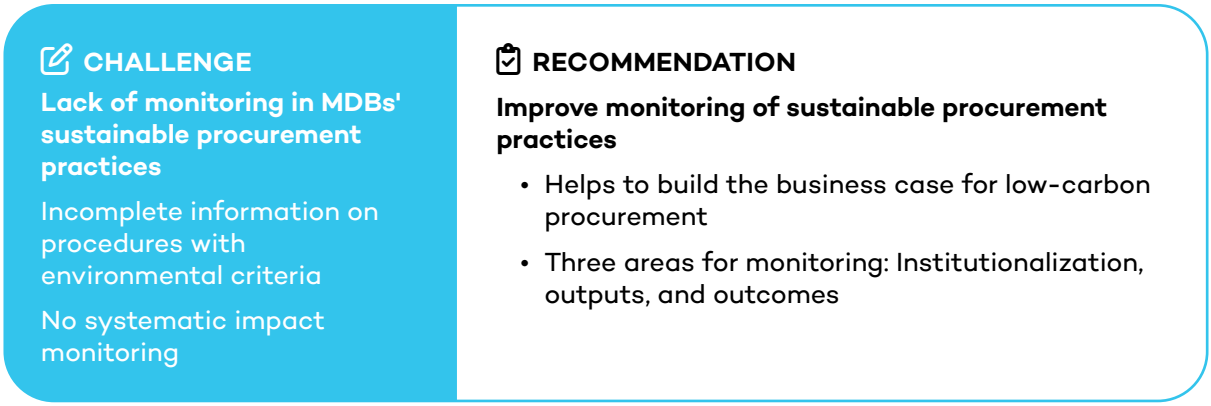
In addition, pilot procurements using innovative low-carbon technologies send a signal to potential suppliers that investing in research, new machinery, energy management systems, and environmental certifications will open valuable business opportunities, thus incentivizing companies to transform their practices.

4.5 Lack of Monitoring in MDBs' Sustainable Procurement Practices

A final challenge in sustainable procurement for MDBs is the lack of comprehensive monitoring and reporting. This issue extends across all MDB-financed projects, including infrastructure projects. UNEP (2022) has highlighted a gap in data regarding the proportion of MDB-financed projects that incorporate sustainability considerations. For instance, no information is available on the percentage of purchases or number of contracts under MDB-financed projects with integrated sustainability criteria.

Moreover, the actual environmental and social impacts of these procurement activities remain largely unmeasured. Among MDBs, the World Bank stands out as the only institution currently tracking and disclosing its progress on sustainable procurement objectives, with a particular emphasis on supporting women-owned businesses (UNEP, 2022). Neunuebel et al. (2023) also highlighted the need for outcome-based metrics in MDB climate finance reporting. Specifically, there is a growing call for MDBs to report on concrete results, such as the total emissions reduced through their funded projects. This shift toward more tangible, impact-focused reporting would provide a clearer picture of how MDB investments contribute to climate goals.

Figure 6. Recommendations on addressing the lack of monitoring



Source: Authors' diagram.

Recommendation: Develop systematic monitoring for sustainable and low carbon procurement practices

MDBs can significantly advance their role in low-carbon procurement by enhancing the monitoring of their procurement practices, particularly in the infrastructure sector. Monitoring can help build a compelling business case for low-carbon procurement by providing quantifiable data on GHG reductions and demonstrating the financial, environmental, and social benefits of sustainable practices. Such evidence can address concerns from borrowers who may be reluctant to adopt low-carbon procurement due to perceived costs or complexity. Moreover, robust monitoring supports MDBs' commitment to transparency in climate reporting, ensuring alignment with the 2024 common approach for measuring climate results.

To effectively monitor their low-carbon procurement practices, MDBs should focus on three key areas: institutionalization, outputs, and outcomes (Erizaputri et al., 2024):

- **Institutionalization** refers to the degree to which green procurement practices are integrated into organizations' internal policies and operational frameworks.
- **Outputs** measure the application of green or low-carbon criteria in procurement.
- **Outcomes** focus on the actual impact of the procurement, for instance economic, social, and environmental benefits.

MDBs can implement several strategies to operationalize and enhance this monitoring framework. First, they should establish clear objectives and key performance indicators (KPIs) to guide low-carbon procurement efforts. MDBs can begin with basic KPIs related to institutionalization, such as assessing whether formal policies on low-carbon procurement are in place. From there, they can track outputs like the percentage of tenders that include low-carbon specifications and adopt more advanced outcome-based KPIs, such as measuring total CO_2 equivalent reductions achieved through procurement activities.

Leveraging e-procurement systems is helpful for the effective monitoring of low-carbon procurement practices. Tagging green procurement in such systems can simplify the collection and tracking of data on sustainability criteria. This approach ensures that relevant information is captured systematically, making it easier to analyze procurement trends and assess performance across projects. Standardized reporting templates aligned with global frameworks, such as the GHG Protocol, are another critical component. These templates should be designed to harmonize data collection and reporting practices across MDBs to ensure consistency and interoperability.

Capacity-building initiatives are also vital to the success of monitoring efforts. MDBs should offer targeted training programs for both staff and borrowers to ensure the effective use of monitoring tools and proper interpretation of data. These programs could incorporate case studies, such as Lithuania's GPP scoreboard, to provide practical examples of successful implementation and foster a deeper understanding of best practices (Erizaputri et al., 2024).

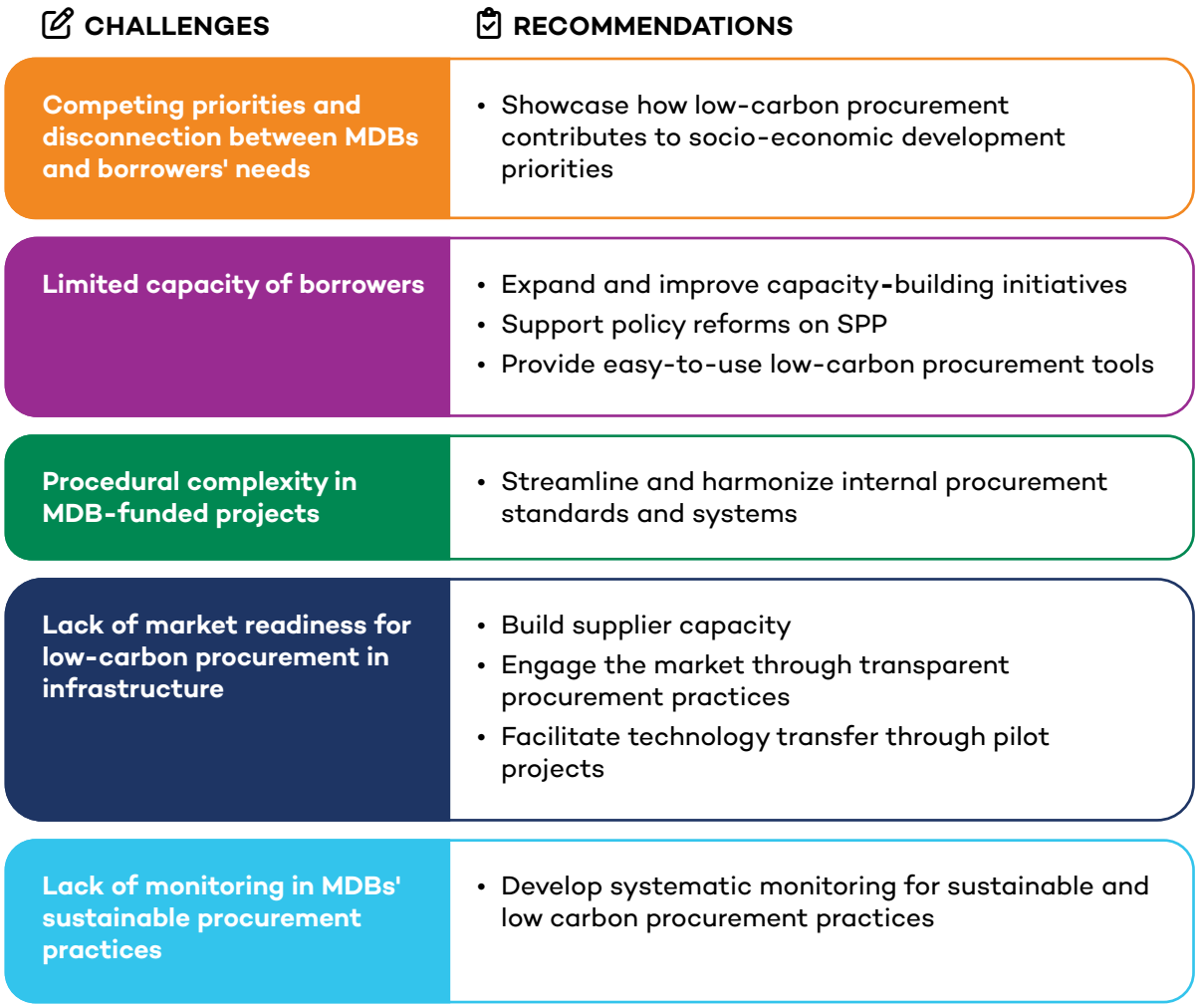
Finally, establishing mechanisms for continuous improvement is crucial. Regular reviews and feedback loops would allow MDBs to refine their monitoring processes and adapt them to evolving needs. By incorporating lessons learned and stakeholder feedback, MDBs can ensure that their frameworks remain effective and relevant over time.

5.0 Conclusion

MDBs play a pivotal role in shaping infrastructure development in emerging and developing economies. As the world grapples with the urgent need to reduce greenhouse gas emissions, the integration of low-carbon procurement practices in infrastructure projects has become increasingly critical.

This brief has highlighted the significant strides MDBs have made in incorporating sustainability considerations into their procurement policies and practices. The adoption of various tools and methodologies for green and low-carbon procurement demonstrates a growing commitment to aligning infrastructure development with climate objectives.

Figure 7. Challenges and recommendations for advancing low-carbon infrastructure procurement of MDBs



Source: Authors' diagram.

However, despite these advances, significant challenges remain. These include aligning MDBs' objectives with local development priorities, building capacity among borrowers, navigating procedural complexity, addressing market readiness issues, and improving monitoring mechanisms.

To address these challenges, MDBs should adopt a multifaceted approach (see Figure 7). First, showcasing how low-carbon procurement supports socio-economic development, such as job creation and poverty alleviation, can make it more attractive to borrowers by addressing their competing priorities. Additionally, supporting policy reforms on SPP is essential to institutionalizing green and low-carbon practices and aligning them with national strategies.

Promoting market engagement through transparent procurement practices and building supplier capacity with targeted technical assistance and training are critical for advancing low-carbon procurement. MDBs can further foster innovation and market readiness by facilitating technology transfer through pilot projects, which also help develop local supply chains.

To simplify the adoption process, MDBs should streamline and harmonize internal procurement standards and systems to reduce procedural complexity. Efforts such as mutual recognition agreements, standardized templates, and digital platforms can help borrowers navigate procurement requirements more efficiently and accelerate project timelines.

Additionally, MDBs should provide easy-to-use low-carbon procurement tools that cater to borrowers' needs. Lastly, robust monitoring systems should be implemented to track and demonstrate the impact of sustainable procurement practices. These systems ensure transparency and measurable benefits, such as reductions in GHG emissions.

By implementing these recommendations, MDBs can not only advance their sustainability goals but also play a transformative role in global climate action. Their efforts can serve as a catalyst for wider adoption of low-carbon practices in infrastructure development, contributing significantly to the global transition toward a more sustainable and resilient future. The path forward requires continued collaboration between MDBs, borrowing governments, and the private sector. By working together, they can create an enabling environment for low-carbon infrastructure development that addresses both climate concerns and local development needs.

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