Green Public Procurement in India

Progress, challenges, and opportunities

IISD REPORT

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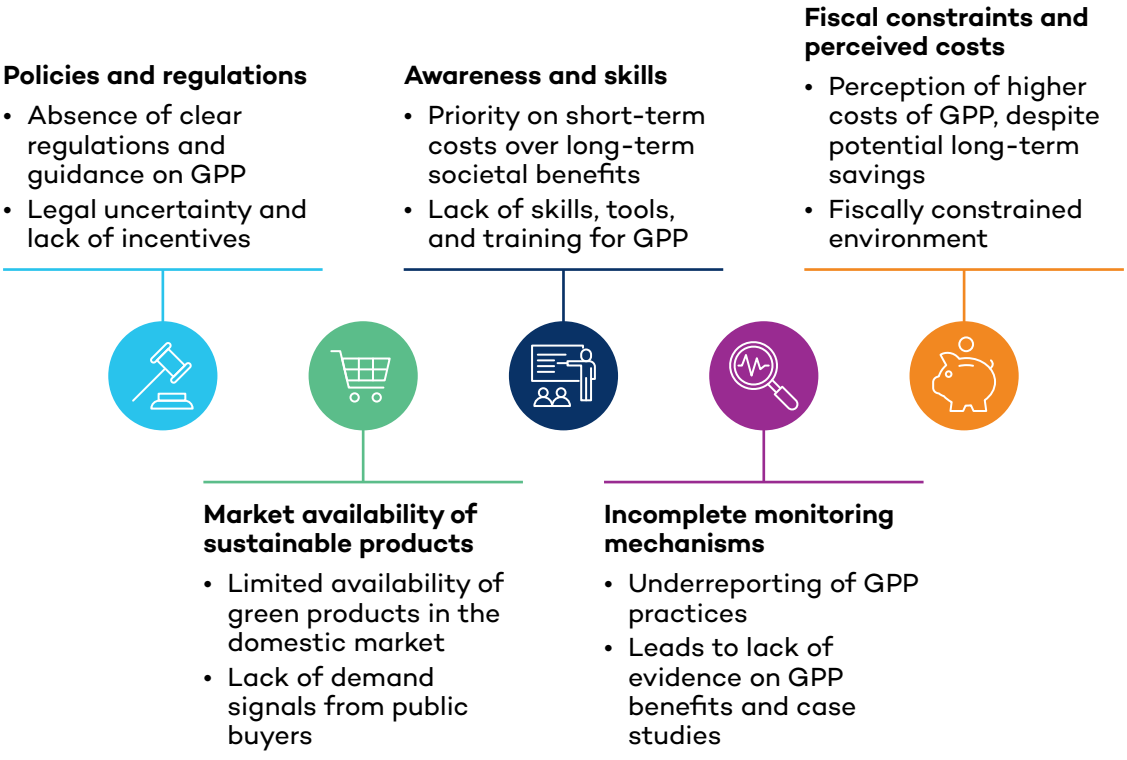
Executive Summary

As the world's fifth-largest economy, India faces the critical challenge of balancing economic growth with environmental sustainability. Green public procurement (GPP) has emerged as a powerful tool to help address this challenge, leveraging the country's significant public spending, which accounts for nearly 30% of its GDP.

While India has not yet established a comprehensive national GPP policy, various initiatives have been undertaken to promote sustainable procurement practices across different levels of government and sectors. These efforts include the establishment of a Task Force on Sustainable Public Procurement (SPP), the integration of sustainability criteria in the Government e-Marketplace, and the adoption of eco-labelling schemes and energy efficiency standards. Several states, central ministries, and state-owned enterprises incorporate environmental considerations into their procurement policies, demonstrating a growing commitment to GPP principles.

However, India's GPP implementation faces several challenges, including limited policy frameworks, minimal awareness and skills among stakeholders, a perception of higher costs for green products, limited availability of sustainable alternatives, weak monitoring mechanisms, and fiscal constraints (see Figure ES1).

Figure ES1. Challenges for GPP in India



Source: Authors.

To address these challenges and advance GPP in India, key recommendations include establishing clear objectives and a robust regulatory framework, enhancing capacity-building and training initiatives, developing and scaling up GPP tools, and developing comprehensive monitoring and evaluation systems. By implementing these recommendations and learning from international best practices, India can significantly contribute to its climate goals while fostering sustainable economic development and innovation across economic sectors.

Figure ES2. Recommendations for advancing GPP in India

Source: Authors.

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Abbreviations and Acronyms

ADB	Asian Development Bank
BEE	Bureau of Energy Efficiency
CDM	Clean Development Mechanism
CFLs	compact fluorescent lamps
CII	Confederation of Indian Industry
EMS	environmental management systems
GeM	Government e-Marketplace
GFR	General Financial Rules
GHG	greenhouse gas emissions
GPP	green public procurement
IMF	International Monetary Fund
ISO	International Organization for Standardization
LCC	life-cycle costing
MDB	multilateral development bank
MoEFCC	Ministry of Environment, Forest, and Climate Change
MoF	Ministry of Finance
NABCB	National Accreditation Board for Certification Bodies
PSU	public sector undertaking
SDGs	Sustainable Development Goals
SOE	state-owned enterprise
SPP	sustainable public procurement
TERI	The Energy and Resources Institute
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

1.0 Introduction and Purpose of the Study

The global push toward sustainability has brought public procurement into focus as a powerful tool for achieving environmental goals. With public spending contributing to approximately 15% of global greenhouse gas (GHG) emissions and representing 13% to 20% of GDP on average, procurement practices have a substantial impact on climate change mitigation efforts (World Economic Forum, 2022; World Bank, 2022). In this context, green public procurement (GPP) has emerged as a critical strategy for countries striving to meet their climate targets while promoting sustainable economic growth.

GPP harnesses the public sector's purchasing power to drive environmental improvements (World Bank, 2022). The European Commission (2008) defines GPP as a process where public entities seek to procure items with reduced environmental footprints compared to conventional alternatives. While GPP specifically targets the reduction of environmental impacts throughout the life cycle of goods, services, and works procured by public authorities, the broader concept of sustainable public procurement (SPP) also includes wider social goals.

The UN Environment Programme (UNEP) emphasizes the holistic nature of sustainable procurement, describing it as a process that generates benefits for organizations, society, and the economy while minimizing environmental damage (UNEP, n.d.). This approach aligns with the UN's Sustainable Development Goals (SDGs), particularly SDG 12, which focuses on sustainable consumption and production patterns (Interreg, 2018). The definitions of "sustainability" and "green" are context-specific and need to consider the social and economic goals of the country (The Energy and Resources Institute [TERI], 2024b). By implementing SPP strategies in India, public agencies can create demand for environmentally friendly products and services, incentivizing businesses to adopt greener practices whilst also promoting social goals, thereby accelerating market transformation toward sustainability.

In India, public procurement accounts for almost 30% of its GDP, presenting a huge opportunity for the country to contribute to climate goals by incorporating environmental considerations into public procurement (Asian Development Bank [ADB], 2023).

The purpose of this study is to

- understand the current state of GPP in India,
- provide recommendations for advancing GPP, and
- explore GPP tools necessary for implementing GPP at scale.

The study was prepared as part of a project about using the CO_2 Performance Ladder as a low-carbon procurement tool, funded by the Foundation for Climate Friendly Procurement and Business (SKAO). While researching the wider context for GPP in India, we therefore paid specific attention to the interest and opportunities for applying tools like the CO_2 Performance Ladder.

2.0 Research Methodology

This report draws on desk reviews of existing literature, policy documents, and previous studies on GPP within India and similar contexts. In addition, we have conducted interviews with experts in India:

- Sanjay Kumar, global expert on SPP
- Confederation of Indian Industry (CII)
- TERI
- World Bank in India
- ADB

In addition to the desktop review, these interviews provided a deeper understanding of India's climate commitments, priority sectors for decarbonization, and the existing GPP efforts and barriers to further implementation. A detailed list of the interview questions used in this study is provided in Appendix B.

3.0 Policy Priorities and Environmental Objectives

India's soaring population and rapid economic growth have positioned the country to become the world's fifth-largest economy, with a $4.11 trillion nominal GDP in 2023 (International Monetary Fund [IMF], 2023). While this growth offers opportunities for the 1.4 billion people living there, it also contributes to global GHG emissions. India is the third biggest carbon emissions emitter, having released 2.7 billion metric tons of CO_2 in 2021, constituting 7% of the world's total emissions (Global Carbon Atlas, n.d.). This places India at a critical juncture, facing the complex challenge of balancing economic development that supports its massive population with the social needs of the country and the global urgency to address climate change.

India already faces a wide array of climate change effects, including floods, droughts, heat waves, and glacier melting (Ministry of Environment, Forest, and Climate Change [MoEFCC], 2023). Moreover, the country grapples with numerous environmental issues, such as air and water pollution, biodiversity loss, and food insecurity caused by ecosystem degradation (MoEFCC, 2023).

3.1 Climate Change Mitigation

India aims to achieve net-zero emissions by 2070. In 2022, the country updated its nationally determined contribution, setting targets that include a 45% reduction in GHG emissions per unit of economic output by 2030. Additionally, it aims to meet half of its energy needs from renewable sources by 2030 and reach net-zero emissions in all construction projects by 2050.

India is undertaking various economy-wide and sector-specific initiatives to mitigate climate change, aiming to decouple its economic growth from GHG emissions (Press Information Bureau, 2022). India's Long-Term Low-Carbon Development Strategy (MoEFCC, 2022) identifies key sectors with high emissions intensity that require focused initiatives for the transition to low-carbon development, including the power, industrial, and transport sectors.

3.1.1 Power Sector

India's power sector is dominated by coal and accounts for nearly 40% of the country's GHG emissions (Chateau et al., 2023). The power sector is key for enabling India's goal of becoming *Aatmanirbhar Bharat* (Self-Reliant India). The government is focusing on assessing low-carbon options, shifting focus to renewable energy and adopting advanced technologies to improve coal plant efficiency (MoEFCC, 2022). Significant investments are being made in infrastructure, including solar parks, smart grids, and the green energy corridor, a project aimed at facilitating the integration of renewable energy into the national grid, alongside incentive schemes to boost domestic manufacturing of renewable energy components (Chateau et al., 2023).

3.1.2 Industrial Sector

India's industrial sector, responsible for around 22% of the country's GHG emissions, faces significant challenges due to its reliance on coal, particularly in high-emission sub-sectors like metals, minerals, machines, and plastics (Chateau et al., 2023). To decarbonize this sector, the Government of India has implemented various strategies, including the Perform, Achieve and Trade program, which allows companies to trade Energy Savings Certificates earned from exceeding energy efficiency targets with those who fail to meet their targets, alongside initiatives by the Energy Efficiency Services Limited to enhance efficiency. Special focus is placed on micro, small, and medium enterprises through financial support and subsidies for adopting energy-efficient technologies. Additionally, new energy standards under the Energy Conservation Building Code aim to halve energy use by 2030.

3.1.3 Transport Sector

India's transport sector, heavily reliant on fossil fuels, accounts for about 9% of the country's GHG emissions, with road transport contributing approximately 90% (Chateau et al., 2023). Without policy interventions, emissions are expected to rise with increasing vehicle ownership and air travel. To address this, India is employing various measures to develop an inclusive low-carbon transport system, such as policies on fuel efficiency, electric vehicles, and efforts for electrifying the railway network and achieving net-zero emissions in the rail sector by 2030 (Chateau et al., 2023).

3.2 Green and Low-Carbon Procurement Priorities and Initiatives

Public procurement in India, accounting for nearly 30% of its GDP, presents a significant opportunity to contribute to the country's climate goals. NITI Aayog, the government's policy think tank, also identified SPP and GPP as crucial strategies for improving national resource efficiency (ADB, 2023). Recognizing this potential, the Government of India launched several initiatives and policies. For example:

- The General Financial Rules (GFR) now include provisions supporting micro and small enterprises and environmental criteria in procurement decisions (TERI, 2024a).
- The National Indicator Framework on SDGs includes a broad objective for states to develop and adopt GPP (TERI, 2023).
- The Department of Expenditure established a Task Force on SPP in March 2018. This body was tasked with examining international best practices, assessing the current state of SPP in India, drafting a Sustainable Procurement Action Plan, and identifying product and service categories suitable for initial SPP implementation (Ministry of Finance [MoF], 2020). However, this task force is currently inactive.
- The state of Punjab has developed dedicated GPP guidance documents (TERI, 2024b).

- Indian Railways has emerged as a leader in GPP, prioritizing carbon emission reduction in its Vision and Mission 2020 (Modak & Kahlenborn, 2021).
- The MoEFCC and the Bureau of Energy Efficiency (BEE) have incorporated sustainability criteria into their procurement processes.

The private sector is also recognizing the benefits of green procurement. According to the CII Green Business Centre, companies are greening their supply chains and procurement processes, indirectly stimulating the market for environmentally friendly products and services.

While GPP implementation in India is still in its early stages, this series of initiatives provides a foundation for future development. Despite the current inactivity of the Task Force on SPP, the various efforts across government levels and sectors demonstrate ongoing commitment.

4.0 Legal and Governance Framework for GPP

4.1 The Legal Framework for GPP

India does not have an overarching law or legislation that specifically governs SPP or GPP. However, there are some provisions enshrined in administrative guidelines and other legislation, guidelines, and administrative orders issued by various ministries that collectively make up the SPP framework in India (Kumar, 2022). These are summarized in Table 1.

Table 1. Summary of the legal framework for GPP

Regulations/guidelines	Description of GPP content	Link to document
The National Environment Policy of 2006	Emphasizes the need for the public sector to prioritize purchases of goods, services, and works that adhere to general environmental standards. Encourages adoption of procurement preferences for goods, services, and works to meet ISO 14000 standards for environmental management systems (EMS).	https://ibkp.dbtindia.gov.in/DBT_Content_Test/CMS/Guidelines/20190411103521431_National%20Environment%20Policy,%202006.pdf
The 2017 GFR	Establishes groundwork for incorporating environmental criteria into tender documents. Rule 173 provides for consideration of environmental criteria in procurement decisions, mandates BEE star ratings for electrical appliances. Rule 136 highlights life-cycle cost principle in works procurement.	https://doe.gov.in/files/circulars_document/GFR2017_0_11zon_1.pdf
Manual for Procurement of Goods 2017	Incorporates provisions to promote environmentally friendly practices at different stages of the procurement cycle. Includes life-cycle cost and value for money concepts.	https://doe.gov.in/files/manuals_documents/Manual_for_Procurement_of_Goods%202017_0_0.pdf
Manual for Procurement of Works 2019	Mandates social and environmental impact assessments before procurement. Requires health, safety, and environment practices at construction sites and compliance with legal requirements for workers.	https://doe.gov.in/files/procurement-policy-division/Revision_of_Manual_for_Procurement_of_Works_2019.pdf

Regulations/guidelines	Description of GPP content	Link to document
Manual for Procurement of Consultancy and Other Services 2022	Provide guidelines for government entities on procuring consultancy and other services. Includes value for money, life-cycle cost, and total cost of ownership concepts.	https://doe.gov.in/files/manuals_documents/Manual_for_Procurement_of_Consultancy_%26_Other_Services_Updated%20June%2C%202022_1.pdf

Source: Compiled by authors.
Note: ISO = International Organization for Standardization.

1. The National Environment Policy of 2006

The National Environment Policy of 2006 marks a significant step in India's commitment to sustainable practices in public procurement. This policy emphasizes the need for the public sector to prioritize the purchase of goods and services that adhere to environmental standards. Specifically, it encourages the adoption of procurement preferences for products and services that meet ISO 14000 standards for EMS (Hasanbeigi et al., 2019).

2. The 2017 GFR and Manuals

The 2017 GFR and Manuals provide the legal foundation for incorporating environmental criteria into tender documents (ADB, 2023). The GFR is a compendium of regulations and directives that public authorities in India must adhere to when managing matters related to public finance. The GFR lays down fundamental principles such as efficiency, economy, fairness, equity, and the promotion of competition in public procurement processes. While the GFR does not explicitly state environmental sustainability as a primary goal of public procurement, several of its rules support its integration.

Rule 173:

- Criteria for determining procurement decisions should consider performance, efficiency, and environmental characteristics.
- When purchasing electrical appliances, ministries or departments must ensure that the appliances meet or exceed the minimum star rating set by BEE.

Rule 136:

- Highlights the life-cycle cost principle in the design phase for works procurement, stating that "a properly detailed design has been sanctioned; while designing the projects etc., principles of Life Cycle cost may also be considered" (MoF, 2017).

In line with the GFR, the government also issued the Manual for Procurement of Goods 2017 and the Manual for Procurement of Works 2019, and the Manual for Procurement of Consultancy and Other Services 2022.

The Manual for Procurement of Goods 2017 incorporates specific provisions to promote environmentally friendly practices at different stages of the procurement cycle. For instance, it

encourages procurers to incorporate life-cycle costs and the concept of value for money into the procurement cycle.

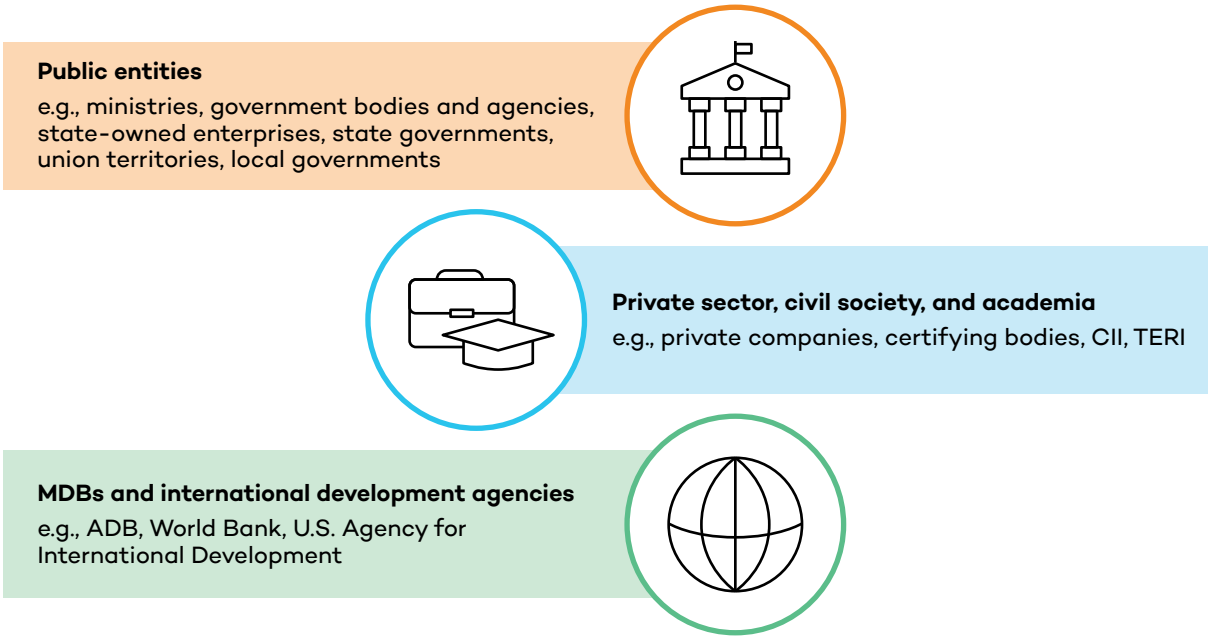
The Manual for Procurement Works 2019 requires social and environmental impact assessments before the procurement process begins. It also requires the implementation of health, safety, and environment practices at construction sites and that all legal requirements concerning deployed workers are met.

The Manual for Procurement of Consultancy and Other Services 2022 provides guidelines for government entities on procuring consultancy and other services, including the concepts of value for money, life-cycle cost, and total cost of ownership.

4.2 Governance System and Key Stakeholders

The governance system for GPP in India involves a complex network of stakeholders across various sectors and levels of government. This multifaceted approach reflects the country's diverse administrative structure and the cross-cutting nature of sustainable procurement initiatives. Such complexity also may contribute to challenges in establishing a comprehensive, overarching national policy or action plan for GPP implementation. Key players in this system include public entities at both central and state levels, private sector organizations, civil society, academia, and international development agencies, as shown in Figure 1.

Figure 1. Key procurement stakeholders in India



Source: Authors.

Note: MDBs = multilateral development banks.

4.2.1 Public Entities

Public procurement in India involves several entities across different levels of government, including national-level entities such as ministries and central public sector enterprises, as well as state governments, union territories, local governments, and their subordinate or attached offices (Hazarika & Jena, 2017).

Ministries

Several ministries play crucial roles in shaping and implementing GPP policies in India. These ministries were previously part of the Task Force on SPP.

- The MoF is responsible for formulating public procurement policies, rules, and guidelines in India. In its pivotal role, the MoF also convenes the inter-ministerial Task Force on SPP.
- The Ministry of Railways, which administers Indian Railways has taken several initiatives in advancing SPP. For instance, it launched the Indian Railways Vision 2020 document, which aims to increase energy efficiency and reduce carbon emissions.
- The MoEFCC plays a crucial role in promoting sustainable development and addressing environmental challenges in India.

Government Bodies and Agencies

In addition to the ministries, various government bodies and agencies play a key role in advancing GPP/SPP in India, such as by developing standards, promoting energy efficiency, and ensuring the credibility of certifications used in public procurement processes.

- **BEE**, under the Ministry of Power, is responsible for promoting energy efficiency and conservation in India. It has developed energy efficiency standards and labelling programs for various appliances and equipment, which are being incorporated into public procurement processes.
- **Bureau of Indian Standards** is the national standards body that develops and promotes voluntary standards for various products and services in India. It has established eco-labelling schemes, such as the Ecomark, to encourage the production and procurement of environmentally friendly products.
- **National Accreditation Board for Certification Bodies (NABCB)** is a public entity under the Quality Council of India, which operates under the Ministry of Commerce and Industry, Government of India. The NABCB is responsible for accrediting certification, inspection, and verification bodies in accordance with international standards. The accreditation provided by the NABCB ensures that these bodies are competent to carry out their assessments, providing credibility and trust in the certifications issued across various sectors, including quality management, environmental management, and product certification.

State and Local Governments

A significant portion of public procurement occurs at state and local levels, giving sub-national governments considerable influence over the adoption of GPP. State governments also

sometimes develop and enforce state-specific guidelines and regulations to promote sustainable procurement practices. For instance, in 2023, the Government of Punjab launched a guidance note on Sustainable and Green Public Procurement, which aims to provide a holistic approach to procurers, enabling them to incorporate GPP in their procurement processes (Government of Punjab, 2024). Another example comes from the Rajasthan Electricity Regulatory Commission, which published a Green Procurement Policy aimed at promoting sustainable practices and minimizing environmental impacts throughout all supply chain activities. This policy emphasizes the adoption of green building practices and extends to all purchases and procurement processes conducted by the commission and its supply chain partners (Gupta, 2024).

Public Sector Undertakings or State-Owned Enterprises

Public sector undertakings (PSUs) or state-owned enterprises (SOEs) are government-owned corporations that undertake commercial activities on its behalf. Some examples of SOEs include Indian Oil Corporation, Steel Authority of India, and National Thermal Power Corporation, and many others.

They can play a pivotal role in advancing GPP in India, largely due to their extensive operations and substantial procurement budgets. Their large-scale adoption of sustainable procurement can significantly influence market trends for eco-friendly products and services. Some PSUs have begun incorporating environmental and energy efficiency standards into their procurement processes. For example, Bharat Heavy Electricals Limited, a state-owned engineering and manufacturing company specializing in power and industrial equipment, has started initiatives for more sustainable, decentralized procurement, such as the purchase of energy efficient equipment (Hasanbeigi et al., 2019).

Listed SOEs are increasingly required to comply with emission reduction targets and adhere to regulations in international markets, especially when they export to regions with strict environmental standards. These factors position SOEs as key players in driving the adoption of GPP practices, further underscoring their potential to lead by example in India's transition toward sustainable procurement.

4.2.2 Private Entities

Private entities play a multifaceted role in advancing GPP in India. As suppliers of environmentally friendly products and services, they can drive innovation and market transformation to meet GPP criteria. Private entities also contribute by providing eco-labels and certifications, offering consultancy services for GPP implementation, and developing technological solutions to facilitate sustainable procurement processes. Key stakeholders in this arena include private companies, industry associations, certification bodies, and specialized councils.

The CII plays a crucial role in promoting sustainable and inclusive development in India. The CII brings industry perspectives and expertise to the table and facilitates public-private collaboration in SPP. The CII Green Business Centre has been at the forefront of this effort, promoting sustainability through its Green Pro eco-label, which was launched specifically for building products. Based on a collaboration with the Centre, about 12 of 30 state-level public works departments use the Green Pro criteria in tender documents. The CII also collaborates

with SOEs, such as the State Bank of India and various metro projects, which have recognized the importance of green procurement.

Certification bodies such as SGS India, TUV India, and Bureau Veritas can play a crucial role in verifying compliance with environmental standards. Their verifications can provide valuable assurance to public procurers about the sustainability credentials of potential suppliers and service providers in the GPP ecosystem.

Parallel to public sector initiatives, some private companies in India are also adopting green procurement practices, indicating a growing market readiness for environmentally friendly products and services. For instance, Godrej Industries established a Sustainable Procurement policy in 2017, which goes beyond legal compliance by incorporating globally recognized best practices into their procurement processes (Modak & Kahlenborn, 2021). Similarly, Tata Steel, one of the largest steel producers in India, invested in producing green steel and is working toward achieving carbon neutrality by 2050 (TERI, 2023). These private sector efforts suggest an evolving market landscape that could potentially support and complement government GPP initiatives.

4.2.3 Civil Society and Academia

Civil society and academia play an important role in advancing GPP in India through advocacy, research, and capacity building. A prime example is TERI, which actively monitors and promotes GPP in the country. TERI has collaborated with the government and international partners like UNEP to suggest a list of environmentally sustainable products for India's Government e-Marketplace (GeM).

While overall capacity building remains limited in scope, some organizations like the Public Procurement Professional Association of India (PPPAI), the Institute for Supply Management India, and the World Bank provide trainings on GPP and link GPP research with policy and practice in India.

4.2.4 MDBs and International Development Agencies

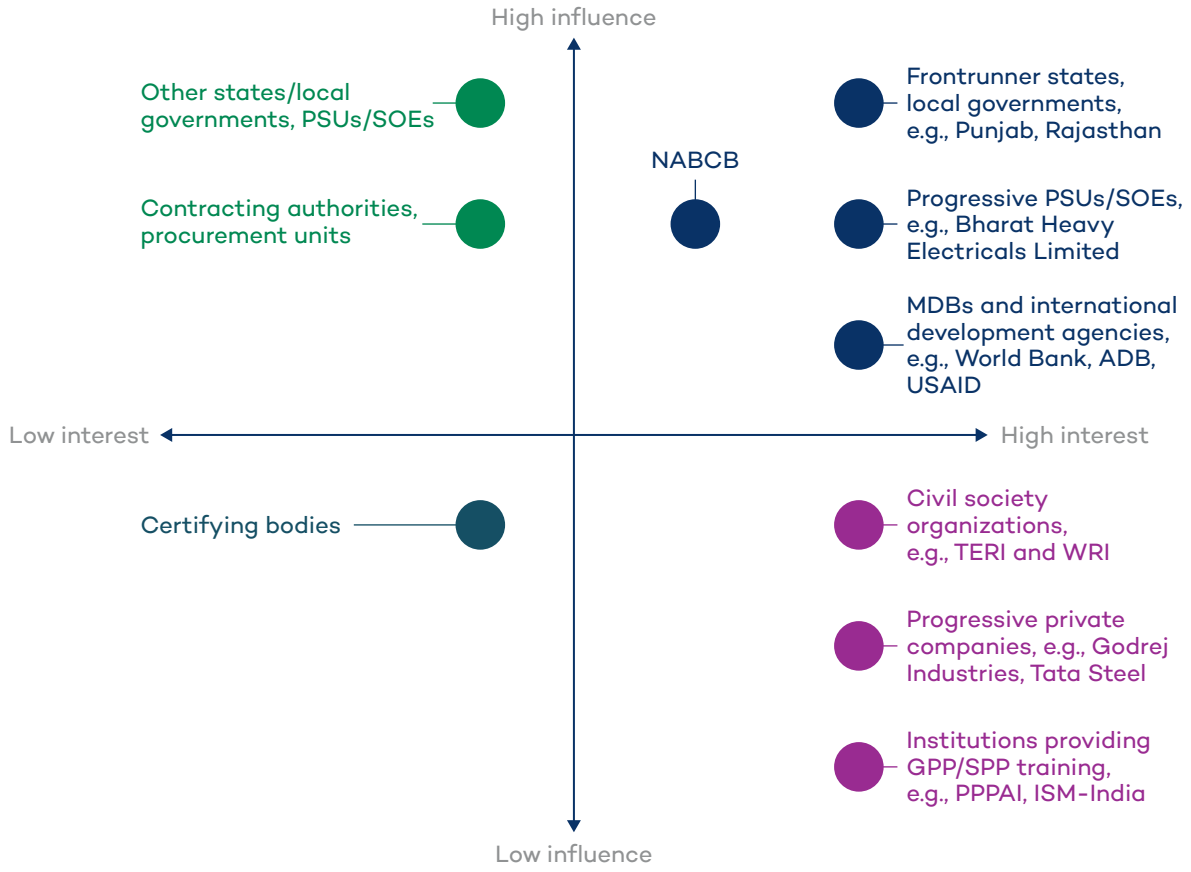
MDBs and international development agencies have also been playing an important role in advancing GPP in India. They provide a range of support, from policy guidance and capacity building to direct project implementation. These include but are not limited to:

- The World Bank integrates green procurement into its work in India, focusing primarily on advocacy through knowledge sharing, best practices, and studies.
- The ADB has started requiring contractors to monitor the carbon emissions of its projects in India. While the ADB has not yet mandated emission reductions, conversations indicated that the emission monitoring is a first step toward more stringent criteria on emissions reductions.
- The United States Agency for International Development (USAID) has collaborated with the Indian government to design procurement specifications, develop standard bidding documents, and enhance consumer management for GPP in the energy sector (United States Energy Association, 2022).

4.2.5 Mapping Influence and Interest of GPP Stakeholders in India

Figure 2 presents a stakeholder map for GPP in India, plotted on a matrix of influence versus interest.

Figure 2. GPP India stakeholder map



Source: Authors.

Note: WRI = World Resources Institute; ISM-India = Institute for Supply Management India.

The map reveals a complex ecosystem where stakeholders' roles and engagement levels vary significantly:

- High influence, high interest:
    - Frontrunner state and local governments (e.g., Punjab, Rajasthan) and PSUs/SOEs (e.g., Bharat Heavy Electricals Limited) demonstrate high engagement and influence in GPP implementation.
    - MDBs, international development agencies, and multilateral organizations (e.g., UNEP, World Bank, ADB, USAID) also show high interest and influence, highlighting their important supporting role.
- High influence, lower interest:

    - Contracting authorities and procurement units occupy this quadrant, indicating their critical role in implementation despite potentially lower enthusiasm for GPP.
    - Other states/local governments and some PSUs/SOEs are also positioned here, suggesting varying levels of engagement across different regions and organizations.

- Medium influence, high interest
    - Local civil society organizations and think tanks such as TERI and WRI India are positioned here, indicating their interest and advocacy role for SPP.
- Medium influence, medium interest:
    - The NABCB occupies a central position, indicating its role in ensuring quality and credibility in the certification process.
- Lower influence, high interest:
    - Progressive private companies (e.g., Godrej Industries, Tata Steel) show high interest but potentially less direct influence on policy.
    - Institutions providing GPP/SPP training (e.g., PPPAI, ISM-India) are also in this quadrant, reflecting their role in capacity building.
- Lower influence, lower interest:
    - Certifying bodies are positioned here, suggesting a supporting role in the GPP ecosystem but with less direct involvement in policy-making. Their primary function is to verify compliance with standards rather than to actively influence or shape the policies behind GPP. As a result, their direct involvement in the broader strategic goals or policy discussions of GPP might be limited.

4.3 Procurement Systems and Platforms for GPP/SPP

India's public procurement landscape includes several systems and platforms, with the GeM playing a key role in GPP and SPP. Introduced in 2017 as a major reform, GeM is a digital public procurement portal managed by the Directorate General of Supplies and Disposals under the Ministry of Commerce and Industry. It facilitates procurement for all central government and state government ministries, departments, PSUs, and affiliated bodies (GeM, 2024). The use of GeM is mandatory for central government ministries and departments, and optional for state governments (GeM, 2024).

GeM operates as an online marketplace that promotes sustainable practices by increasing the participation of micro, small, and medium enterprises and women-led businesses, prioritizing environmentally friendly products and services, and facilitating a "completely paperless, cashless, system-driven e-market with minimal human interface" (MoF, 2019). The platform's digital approach also resulted in significant environmental benefits, saving an estimated 550 million paper sheets (Singh & Lal, 2022).

The use of GeM not only makes public procurement more efficient and accountable but also enhances resource efficiency. The platform's success is evident in its rapid growth, with procurement through GeM crossing INR 3 trillion (approximately USD 36 billion) in FY 2023–2024 (Press Information Bureau, 2024). GeM has implemented several initiatives in collaboration with UNEP, TERI, and other agencies to support SPP. These include features promoting eco-friendly products, such as green room air conditioners, solar-powered products, and the Green Gold Collection showcasing bamboo products (Ministry of Commerce & Industry, 2022). The platform also offers sustainable services like leasing electric vehicles, energy efficiency services, and waste management (Ministry of Commerce & Industry, 2022).

A notable upcoming addition to GeM is the Green Transition Service, which will provide a structured framework for buyers aiming to achieve carbon neutrality in their operations. GeM's efforts extend to promoting the circular economy with functionalities like "forward auction" and "buyback option" for safe disposal of obsolete machinery. As GeM evolves, it aims to increase its share of environmentally friendly products and services, further support micro and small enterprises and women-led suppliers, and set an example for SPP globally (Singh & Lal, 2022).

In addition to GeM, the Central Public Procurement Portal aids in public procurement-related monitoring. Designed, hosted, and maintained by the National Informatics Centre in association with the Procurement Policy Division, Department of Expenditure, MoF, the Central Public Procurement Portal complements GeM's efforts in promoting transparent and efficient procurement processes. As these platforms continue to develop and integrate sustainability across the procurement process, they are poised to play an increasingly crucial role in advancing SPP in India.

Currently, India lacks a comprehensive framework for monitoring the effectiveness of GPP policies and practices and the implementation of monitoring mechanisms remains limited across the country (RMI, 2024). Some progress is being made toward SDG target 12.7 on SPP, which is being tracked at a national level. More specifically, the Ministry of Statistics and Programme Implementation is tasked with tracking the development and adoption of green procurement policies by central ministries, states, and union territories (TERI, 2023). According to the Ministry of Statistics and Programme Implementation, the MoF is listed as the data source for tracking progress on this indicator. However, the baseline report and the latest progress report do not yet provide data for this indicator, indicating gaps in the current monitoring framework (TERI, 2023).

5.0 GPP Tools and Case Studies

India's journey toward implementing GPP has been marked by a mix of policy initiatives, tool development, and sector-specific efforts. While the country has made strides in establishing frameworks and guidelines for sustainable procurement, the practical application of these principles remains in its nascent stages. This section delves into the current landscape of GPP practices in India by examining available tools and case studies.

Public and private stakeholders in India have developed and implemented various tools and initiatives to support GPP practices across different sectors. These tools range from eco-labelling schemes and certifications to life-cycle costing (LCC) approaches, including:

- Indian EcoMark scheme
- BEE Standards
- LCC
- Other eco-labels, certifications, and management systems, such as ISO 14001 and GreenPro

Our research on the GPP tools and case studies suggests that the uptake of green procurement is still very limited in India and that information about these existing practices is not widely shared.

5.1 Indian EcoMark Scheme

The MoEFCC launched the Indian EcoMark Scheme in 1991 with the goal of promoting environmentally friendly products across the country. The scheme is administered by the Bureau of Indian Standards, which certifies products that meet specific environmental criteria alongside the quality standards defined in relevant Indian Standards. The scheme covers approximately 16 product categories, including food, medicines, electronic goods, chemicals, lubricating oils, paper, and packaging materials (International Green Purchasing Network [IGPN], 2021).

Figure 3. The EcoMark logo

Source: Kumar, 2022.

Despite the potential of the EcoMark scheme to drive sustainable practices, its adoption has been limited. Out of the 292 Indian Standards codes that include EcoMark criteria, only a few manufacturers have registered their products, and many have allowed their certifications to lapse (Kumar, 2022). Several factors contribute to the scheme's limited success, including low consumer awareness, the availability of cheaper, non-eco-friendly alternatives, and minimal demand from both the government and private sectors (Kumar, 2022). Furthermore, in order to achieve EcoMark certification, products must meet both environmental standards, which ensure eco-friendliness, and quality standards set by the Bureau of Indian Standards. These dual requirements—covering environmental impact as well as product performance and durability—have made it more challenging for manufacturers to qualify their products for certification (IGPN, 2021).

As a result, the EcoMark scheme falls short of achieving its goal of promoting sustainable consumption and production at scale in India. Integrating EcoMark criteria into GPP in India could help overcome these hurdles by creating demand for eco-labelled products, sending a clear signal to the market that investments in environmental innovations pay off.

5.2 BEE Standards and Labelling Scheme

BEE launched the energy star rating program for electrical appliances in 2006, starting with air conditioners and refrigerators. The program now covers 26 items, with 10 under a mandatory scheme requiring a minimum 1-star rating, and 16 remaining voluntary. Products are rated from 1 to 5 stars, with 5-star products being the most energy-efficient. This program is one of India's most successful eco-labelling initiatives, raising consumer awareness and influencing purchasing decisions (Kumar, 2022). In 2013, the MoF mandated that all ministries and government departments purchase only appliances meeting minimum BEE star ratings for key items like air conditioners, refrigerators, ceiling fans, and water heaters.

Figure 4. BEE Energy Star Rating label

Source: Bureau of Energy Efficiency, n.d.

BEE also targets energy efficiency in buildings through the Energy Conservation Building Code, introduced in 2007 and updated in 2017. The Energy Conservation Building Code sets energy performance standards for commercial buildings. Additionally, BEE's energy star rating program for buildings rates office buildings on energy performance, considering factors like energy and water usage, indoor air quality, and sustainable materials. BEE's zero-energy building program, also known as BEE Shunya ("shunya" meaning "zero" in Hindi), promotes the adoption of net-zero energy buildings in India.

Box 1. Case Study: Implementation of BEE star rating by Indian Railways

Indian Railways has integrated the BEE star rating into its GPP strategies to boost energy efficiency and sustainability across its operations (Indian Railways, 2022). The Indian Railways Energy-Efficiency Action Plan & Policy specifically targets reducing non-traction energy consumption by adopting energy-efficient appliances that meet BEE ratings (Indian Railways, 2022). To achieve this, Indian Railways mandates the procurement of BEE 5-star rated equipment.

However, recognizing potential market constraints, the policy allows flexibility: the star rating requirement can be lowered until at least three eligible vendors are available, ensuring both energy efficiency and competitive procurement. This approach demonstrates Indian Railways' commitment to balancing sustainability with practical market realities (Indian Railways, 2022). By adopting these energy-efficient procurement measures, Indian Railways expects to save energy, cut carbon emissions, and reduce operational costs (Indian Railways, 2022).

5.3 LCC

LCC is an approach that considers all costs associated with a product or service from its inception to disposal, including purchase, operation, maintenance, and end-of-life costs. By revealing the true cost of ownership, LCC supports more economically advantageous and sustainable procurement decisions. This is particularly relevant in government spending, where LCC can act as a soft policy tool to promote the market for sustainable products and encourage investment in innovative technologies.

In India, the GFR briefly mention LCC for estimating costs in engineering projects. However, despite the MoF's 2019 emphasis on considering LCC in project design, clear guidelines for integrating LCC into procurement processes, such as tender evaluations, are still lacking (Kumar, 2022, p. 208).

LCC can be particularly valuable when evaluating bids. For example, sustainable buildings may have higher upfront costs due to energy-efficient technologies and renewable energy generation, but they offer significantly lower operating costs over time. Similarly, an electric vehicle, though more expensive initially than a combustion engine car, incurs lower operating costs and avoids the external costs associated with carbon emissions and pollution, depending on the local power generation mix. These examples highlight how LCC can help public authorities make procurement decisions that provide better long-term value for money while reducing environmental impacts.

Box 2. Case Study: Indian Railways' initiative for energy-efficient lighting

In 2008, Indian Railways launched an initiative to reduce peak lighting loads in its residential quarters by replacing inefficient incandescent lamps with compact fluorescent lamps (CFLs). The project team utilized LCC to demonstrate the long-term benefits of energy-efficient CFLs, despite their higher upfront costs (Organisation for Economic Co-operation and Development, 2015). The primary objective was to encourage stakeholder involvement in adopting greener products and services, resulting in reduced power demand and GHG emissions. A secondary objective was to showcase the use of the Clean Development Mechanism (CDM) under the Kyoto Protocol to finance energy-efficiency projects in emerging economies.

The project was administered at the ministry level and implemented by units across the country. Through a globally advertised tender, CQC Malaysia Limited was selected to supply high-quality CFLs, recover costs through trading certified emission reductions, and manage the CDM registration process. Indian Railways was responsible for distributing the lamps, recordkeeping, and disposing of the lamps at the end of their life. Stakeholders, including Indian Railways employees residing in residential quarters, were briefed on the project and encouraged to install CFLs in high-usage areas to maximize benefits.

The project successfully distributed 1.41 million CFLs across India by December 2009 and was registered with the UN Framework Convention on Climate Change as a CDM project in November 2010. It contributed to sustainable development by reducing CO_2

emissions by approximately 90,000 tonnes per year and raising awareness about energy conservation among households. The project led to direct energy savings of 112,500 MWh per annum, benefiting over 400,000 households with reduced energy bills. Despite challenges such as justifying the higher initial cost of CFLs, financing through the CDM, and ensuring consumer adoption, the project demonstrated the importance of stakeholder involvement and the potential for governments to influence consumer behaviour toward greener products and services.

5.4 Other Eco-Labels, Certifications, and Management Systems

In addition to the instruments mentioned before, procurers can use various other eco-labels, certifications, and management systems for GPP.

The GreenPro eco-label, developed by the CII, helps to identify sustainable products for the building and manufacturing sectors. GreenPro, a Type-1 eco-label recognized by the Global Ecolabelling Network, has certified over 8,000 products from approximately 298 companies (CII, n.d.). Several government tender documents have incorporated GreenPro-certified products as a criterion for selecting products in their projects (CII, 2021b).

EMS have become increasingly important in promoting sustainability within procurement processes. The GFR 2017 explicitly allow the use of EMS, such as ISO 14001, as qualification criteria in public procurement. As noted by Kumar and Dua (2021), the number of organizations with ISO 14001 certification has grown significantly, from just 400 in 2001 to 8,446 in 2019. The GeM platform supports the use of EMS in procurement by allowing buyers to filter suppliers based on certifications like ISO 14001:2015, thereby integrating sustainability considerations directly into procurement decisions (Kumar, 2022, p. 331).

In addition to eco-labels and management systems, building rating systems are also used in procurement to contribute to sustainable construction practices. Programs such as Leadership in Energy and Environmental Design and the Green Rating for Integrated Habitat Assessment drive the adoption of low-carbon materials in construction projects. These initiatives have created a growing market for sustainable materials like recycled steel and low-carbon concrete.

Box 3. Case Study: Bamboo construction project in Maharashtra, India

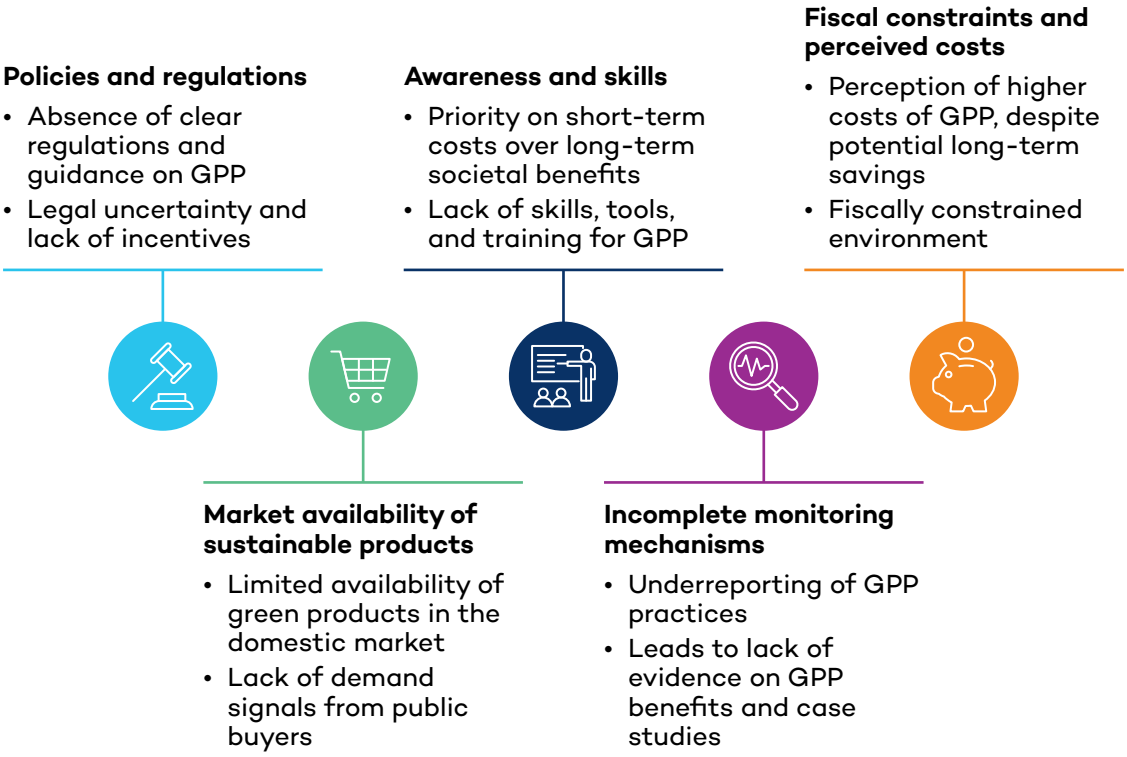
The Public Works Department of Maharashtra, India, implemented GPP practices in their Bamboo Research & Training Centre project in Chandrapur. This USD 3.69 million initiative, encompassing various buildings, showcases several key GPP principles. Primarily, it mandates the use of pressure-treated bamboo as the main construction material, promoting a renewable and eco-friendly alternative to conventional options. The project's qualification criteria require bidders to have specific experience in bamboo construction and possess approved treatment plants, ensuring that contractors have the necessary experience and adhere to environmental standards.

Furthermore, the project incorporates long-term sustainability measures and community engagement. It mandates a 5-year annual maintenance contract for the bamboo structures, to contribute to their longevity and continued performance. The tender also includes a condition requiring the training of the local community in operation and maintenance, promoting knowledge transfer and long-term sustainability of the green initiative. By integrating these sustainability criteria into the procurement process, the Maharashtra Public Works Department leverages its purchasing power to foster innovation in sustainable construction, creating lasting environmental and social benefits (Kumar, 2020).

6.0 Challenges of GPP

While India has made strides in promoting GPP, several challenges persist that hinder its widespread adoption and effective implementation (see Figure 5).

Figure 5. Challenges for GPP in India



Source: Authors.

6.1 Limited Policies and Regulations on GPP

One of the key challenges for GPP in India is the limited policy and regulatory framework. As Rawat and Raju (2023) highlight, there is a critical need for robust procurement frameworks that explicitly integrate or even mandate GPP. Although the GFR include some GPP elements, they lack specific technical specifications and criteria to guide green purchasing decisions effectively (TERI, 2024a).

Our findings indicate that India's GPP framework does not measure up to the standards set by other countries excelling in this field. While India's existing provisions provide a starting point, they do not match the depth and specificity of GPP frameworks seen in many other nations. Countries with more advanced GPP systems typically feature dedicated GPP action plans, clear institutional responsibilities, extensive training initiatives, and policies that cover a wide range of sustainability criteria in procurement processes.

For instance, Thailand has developed a more comprehensive approach to GPP. The country has implemented a specific GPP National Action Plan, which serves as a practical roadmap for implementing the nation's green procurement strategy (SWITCH-Asia, 2022). It aims to guide various sectors—including central and local governments, SOEs, academic institutions, and private businesses—in adopting environmentally friendly purchasing practices.

This comparison highlights the potential areas for improvement in India's approach to GPP, particularly in establishing a comprehensive GPP framework and national action plan. It suggests that there is significant room for developing more targeted and comprehensive strategies to fully leverage public procurement as a tool for sustainable development.

Without clear guidelines and legal certainty, public agencies hesitate to apply sustainability criteria, fearing scrutiny for possible cost implications and subjective decision-making. This situation effectively leaves procurers without clear incentives or directives to reduce the environmental impacts of their purchases (TERI, 2024a).

In addition, the absence of strong regulations and targets for GPP fails to send a clear signal to the market. Companies are less likely to invest in green certifications or environmentally friendly technologies if they do not see a consistent demand for green solutions.

6.2 Lack of Awareness and GPP Skills

GPP in India is significantly hampered by limited awareness and skills among key stakeholders. According to our conversations with experts, many procurers and decision-makers prioritize immediate economic considerations over environmental benefits due to a lack of understanding of GPP's long-term advantages, such as cost savings through LCC. Procurers also seem to underestimate their strategic role for achieving overarching objectives related to climate mitigation or reducing environmental pollution. This leads to a "chicken and egg" situation, where low awareness hinders GPP implementation, and the low uptake of GPP means that procurers and suppliers have limited opportunities to gain GPP experiences and showcase successful initiatives.

Procurement officials also often lack the necessary tools, skills, and training to implement GPP effectively (RMI, 2024). They need access to ready-to-use GPP criteria, case studies, and training opportunities to help them incorporate sustainability into their procurement processes. In countries that have faced similar challenges, targeted training campaigns and the development of practical guidance materials have proven essential in scaling up GPP.

Additionally, the market does not seem to be accustomed to responding to green criteria in tenders, and suppliers may not be prepared to meet these requirements. This skills gap extends beyond the public sector, as manufacturers and consumers also show limited awareness of sustainability (Centre for Responsible Business, n.d.). Suppliers may need additional support and time to prepare for GPP.

6.3 Fiscal Constraints and Perception of Higher Costs

One of the main challenges in adopting GPP in India is the perception that sustainable purchases are more expensive than conventional ones. This belief, coupled with fiscal constraints faced by policy-makers and procurers, leads to hesitation in implementing GPP (Rawat & Raju, 2023).

While the perception that GPP is always costlier is often misleading, it is important to acknowledge that in some cases, sustainable options do come with a "green premium." This initial higher cost is often driven by ongoing technological innovations and smaller economies of scale for newer, greener products. In India, where resource scarcity is a major issue, these green premiums can be particularly challenging (RMI, 2024).

The reality of green premiums creates a complex dilemma for policy-makers who must balance sustainability goals with meeting immediate societal needs. In resource-constrained environments, allocating additional funds for sustainable procurement could potentially lead to difficult trade-offs, such as budget cuts in critical areas like education and health care (Rawat & Raju, 2023).

However, it is crucial to view these challenges through the lens of long-term benefits. The perception that GPP is always costlier overlooks the long-term benefits and savings that come from considering life-cycle costs. Sustainable products often have lower operating costs, longer lifespans, and reduced environmental impacts, making them more cost-effective over time.

Focusing solely on upfront purchase prices can also result in overlooking the broader role of procurement in delivering value for money for taxpayers. Conventional procurement often fails to account for hidden costs such as environmental damage, health impacts, and resource depletion—costs that society ultimately pays for. In addition, GPP can stimulate market demand for green products, driving innovation and eventually reducing costs for all buyers as economies of scale are achieved.

Addressing this challenge requires shifting the focus from short-term costs to the long-term economic and environmental benefits of GPP, for example by implementing total cost of ownership and LCC methodologies. These approaches can help to demystify the costs of GPP and enable widespread sustainable procurement practices.

6.4 Market Availability of Sustainable Products

The limited availability of green products and materials hampers the effective implementation of GPP in India. Several factors contribute to this scarcity of sustainable solutions. Many producers obtain green certifications primarily for export markets in developed countries where demand for these products is higher. There is low domestic consumer demand for green products discouraging local production. In addition, micro, small, and medium enterprises, which are key suppliers in public procurement, often lack the resources and capabilities to meet green product requirements (IGPN, 2021).

This limited availability impacts various sectors. For example, in road construction, the limited supply of green alternatives has become a critical constraint on GPP approaches (Thakur et

al., 2024). The lack of clear demand signals from public buyers further exacerbates the issue, as suppliers have less incentives to invest in sustainable practices without clear goals for green procurement. This situation creates a circular problem: procurers may hesitate to implement GPP due to market unreadiness, while suppliers claim there is no incentive to produce green products due to lack of demand.

Addressing this challenge requires coordinated efforts to stimulate both supply and demand for green products in the domestic market. Moreover, assessing the GPP market readiness could help identify those sectors and regions where GPP is feasible in the short term and those where more support is needed to scale up sustainable procurement practices.

6.5 Incomplete Monitoring Mechanisms

GPP monitoring systems form a key part of GPP efforts in countries around the world, making it possible to track the institutional uptake, practical implementation, and environmental benefits of green procurement (Erizaputri et al., 2024). Yet, India currently lacks a comprehensive monitoring and evaluation framework, which makes it difficult to assess the impact and effectiveness of GPP initiatives.

While experts report that many projects in India already incorporate sustainability aspects, they are often not properly registered as GPP and are underreported (ADB, 2024). Current monitoring efforts primarily focus on reporting SDG 12.7, but lack the necessary disaggregated data, especially for SOEs which are major players in public procurement (Kedia et al., 2021). This gap in monitoring mechanisms hinders the ability to showcase successful GPP initiatives and learn from their implementation.

The incomplete monitoring system in India has clear consequences across various sectors. For example, officials at Indian Railways lack comprehensive records on GPP practices and their positive environmental impacts (Modak & Kahlenborn, 2021). This absence of data creates a substantial barrier to fully understanding and showcasing the benefits of GPP implementation. Without concrete evidence of the positive outcomes, it becomes challenging to justify and expand sustainable procurement practices within the organization. This situation in Indian Railways likely reflects a broader issue across different sectors in India, where the lack of robust monitoring and data collection hinders the advancement and recognition of sustainable procurement initiatives.

7.0 Recommendations

To address the challenges described above and leverage the potential of SPP in India, the government could strengthen the legal and policy framework, build awareness and skills for GPP, provide user-friendly GPP tools, and improve the GPP monitoring system (see Figure 6). These four recommendations are strongly interlinked and can create valuable synergies if implemented in parallel.

Figure 6. Recommendations for advancing GPP in India

Source: Authors.

7.1 Recommendation 1: Strengthen the legal and policy framework for GPP

To implement GPP at scale and maximize its environmental benefits, India requires a robust regulatory and policy framework. An effective framework can include national or state legislation that embeds environmental objectives in procurement laws, as well as dedicated action plans or strategies for GPP. Internationally, many countries also enhance

GPP by integrating it into sector-specific regulations, such as climate laws or building codes. Additionally, individual contracting authorities can incorporate GPP into their own purchasing strategies and guidelines.

Policy-makers should strengthen the existing regulatory framework by articulating the country's commitment to using procurement strategically to achieve sustainability objectives. This may include amendments to the GFR or Procurement Manuals and the development of a dedicated GPP strategy and/or action plan with a roadmap for expanding GPP practices across sectors and levels of government. This approach will provide legal certainty and incentives for procurers while sending a clear signal to the market about the ambitions of sustainability in public procurement. A revised legal and policy framework should also include clear time-bound, measurable targets for GPP and a monitoring system to track progress.

7.2 Recommendation 2: Build awareness and skills for GPP

The government, in collaboration with other stakeholders, should increase capacity-building efforts for GPP and raise awareness on its benefits. Developing the business case for GPP will be key to convince stakeholders who are hesitant to adopt it. This could be done with the support of civil society and academic stakeholders, and could be led by the MoEFCC.

For building institutional structures that enhance GPP skills, the government could consider establishing a National SPP Competence Centre. This centre would serve as the focal point for comprehensive capacity-building initiatives, providing procurement officers, policy-makers, contractors, and auditors with the necessary training and resources. The centre could offer robust training programs covering GPP's environmental and economic benefits, LCC methodologies, practical applications, and best practices in green procurement. Additionally, collaborating with academic institutions to integrate GPP concepts into relevant courses can further ensure a steady pipeline of procurement professionals equipped with sustainability knowledge.

7.3 Recommendation 3: Develop and scale up GPP tools

GPP is still new to many procurers and suppliers in India, making it essential to develop and scale up GPP tools that facilitate seamless integration into existing procurement processes. The tools should be user-friendly to help procurers incorporate green criteria without requiring extensive training.

One effective approach is to foster the use of third-party verified systems, such as EMS and eco-labels. In India, policy-makers, procurers, and the private sector could take measures to increase the uptake of independent certifications and management systems like Green Pro, ISO 14001, and BEE ratings. This can help ensure the quality and comparability of environmental claims while limiting the burden on procurers. GPP could also be a chance to increase the uptake of the Indian EcoMark scheme. The GeM can play a very important role in further uptake and integration of sustainability criteria across spending categories.

To maximize the benefits of GPP, practical instruments are particularly important in procurement areas with large environmental impacts, such as the carbon-intensive sectors

of buildings, transport, and public works. Procurers, policy-makers, and the private sector should specifically explore tools that can be applied in these sectors. For example, the CO_2 Performance Ladder has a proven track record for reducing the climate impacts of infrastructure projects while being practical for public procurers (see Appendix A for details).

7.4 Recommendation 4: Establish a comprehensive GPP monitoring system

To advance GPP in India, policy-makers should establish a comprehensive monitoring and evaluation framework. Effective monitoring of GPP practices offers several key benefits: it provides evidence to support the adoption of sustainable procurement, helps to identify and replicate successful initiatives, and drives continuous improvement across the country. Such a framework would also enhance transparency and accountability in SPP implementation.

To implement an effective monitoring system, policy-makers can consider several interrelated steps:

- review existing GPP data systems to identify gaps and analyze the current status of GPP through a baseline assessment
- define GPP goals and key performance indicators in line with a strengthened policy framework, for example, tracking the institutionalization of GPP, the number of green tenders issued, and (ultimately) outcomes like measured energy savings
- establish a robust data collection system, collaborating with key stakeholders and leveraging existing e-procurement platforms to automatically track relevant data
- adopt a multi-stakeholder approach for monitoring to ensure the system is comprehensive, widely supported, and practical for various users
- regularly analyze GPP data and progress toward the defined goals, complementing quantitative analysis with qualitative research to understand the underlying motivations and challenges

8.0 Conclusion

India stands at a critical juncture in its journey toward sustainable development, with GPP emerging as a powerful tool to balance economic growth with environmental stewardship. The nation has made significant strides in this direction, as shown by the launch of the GeM, the development of tools, and various sector-specific initiatives across different levels of government.

However, the path to widespread GPP implementation in India is not without obstacles. Key challenges include a limited policy framework, lack of awareness and skills among stakeholders, perceived higher costs of sustainable alternatives, insufficient market availability of green products, and incomplete monitoring mechanisms. These barriers have hindered the full realization of GPP's potential to drive sustainable innovation and contribute to India's environmental goals.

To overcome these challenges and advance GPP practices, we recommend increased efforts in four key areas: strengthening the policy framework, building awareness and skills for GPP, developing and scaling-up tools for GPP, and establishing robust monitoring mechanisms. By implementing these recommendations, India can build on its current efforts, address remaining barriers, and use public procurement as a powerful tool to achieve its environmental and economic goals.

The journey toward comprehensive GPP implementation in India will require sustained effort, collaboration across sectors, and a long-term vision. However, the potential rewards—in terms of environmental protection, resource efficiency, and sustainable economic development—make this endeavour not just worthwhile, but essential for India's future. As the nation moves forward, GPP can serve as a cornerstone in its strategy to achieve a balance between development aspirations and environmental responsibility, contributing significantly to India's commitments under global frameworks such as the Paris Agreement and the SDGs.

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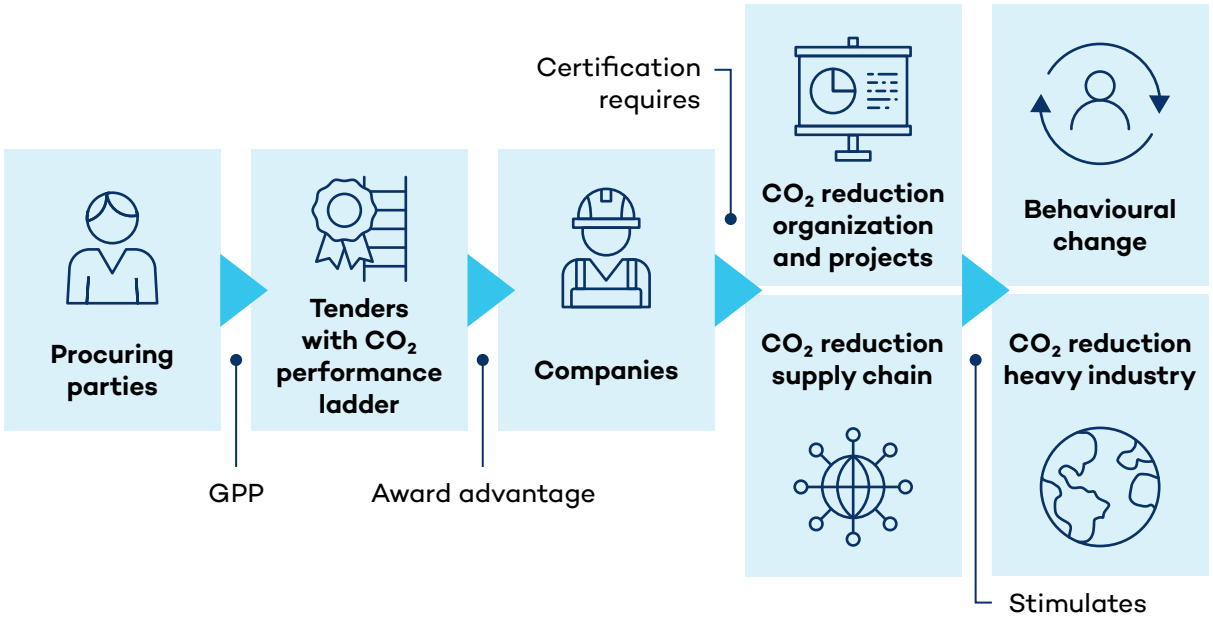
Appendix A. CO_2 Performance Ladder for Low-Carbon Procurement

The CO_2 Performance Ladder (the Ladder) serves both as a carbon management system for companies, as well as a GPP instrument for public authorities.[1] Originally developed in the Netherlands, it has become a widely recognized tool across Europe, particularly in the Netherlands and Belgium, with growing use in Ireland, France, and the United Kingdom. The Ladder helps organizations reduce their carbon emissions and rewards certified suppliers with advantages in public tenders, thereby encouraging CO_2 emission reductions in their organizations, projects, and supply chains (see Figure A1).

Figure A1. Theory of change of the CO_2 Performance Ladder



Source: Bechauf et al., 2023.

How the Ladder Works: Two sides of the same coin

CO_2 management system for companies: The Ladder functions as a certification system with five levels of ambition, each level evaluating companies on four key areas: insights into energy flows and emissions, emission reduction targets, transparency, and cooperation within the supply chain. Certification at the first three levels focuses on direct emissions from a company's operations (Scopes 1 and 2). For levels 4 and 5, companies must also address Scope 3 emissions, which include indirect emissions across their entire value chain. The companies are audited every year by an independent third party, ensuring high-quality data and stimulating continuous improvements.

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

Use of the Ladder in GPP: As a GPP instrument, the Ladder is used as an award criterion in tenders.[2] Companies with higher CO_2 ambition levels receive higher advantages, such as additional points or fictitious discounts on their bids, making it more likely that the more climate-friendly companies win the contract. This system is designed to be flexible, allowing companies to choose one of the five ambition levels of the Ladder and either present a CO_2 Awareness Certificate for their entire organization or provide project-specific proof or equivalent. This flexibility is particularly valuable in diverse markets, where companies may be at different stages of their sustainability journey.

Impact and Benefits of the Ladder

The Ladder has demonstrated significant impact in reducing carbon emissions, with more than 5,000 organizations achieving certification. By integrating this tool into procurement processes, public authorities can effectively reduce the carbon footprint of sectors such as construction and manufacturing. According to CE Delft (2023), the Ladder effectively helps companies reduce their direct (Scope 1) and indirect energy-related (Scope 2) emissions. Most certified organizations reported a 20% to 40% decrease in these emissions since initial certification, averaging an annual reduction of about 7.7%.

The Ladder also 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. Organizations certified on the Ladder also regularly experience direct savings through reduced energy and material use.

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. The tool also accommodates companies at different stages of their sustainability journey, promoting inclusivity and encouraging even those who are new to climate action to begin reducing their emissions.

[2] For guidelines on implementing the Ladder in tenders, see the official procurement guide: https://www.co2-prestatieladder.nl/en/procurement-guide.

Appendix B. Interview Guide

Topic 1. Introductory question

1. Please start by introducing yourself and your involvement/experience with public procurement and/or infrastructure.

Topic 2. Procurement landscape/low-carbon procurement

1. What are current priorities in green and sustainable public procurement in your country/agency?
2. Is low-carbon procurement in particular a priority? If so, in what sectors? Any examples?
3. What factors are hindering the reduction of carbon emissions and the implementation of low-carbon procurement?
4. How do you keep track of green public procurement (GPP) and carbon savings? Is there a tool or system in place to do this?

Topic 3. Tools

1. We would like to know more about what kind of tools are used for GPP in your country. Which, if any, of the tools listed below are currently used for green public procurement? What about certifications or eco-labels in particular? Do procurers and private companies have experience with using GPP tools?

   (Examples include: life cycle, costing-based tools or calculators, International Organization for Standardization standards, sector/product-specific GPP criteria (either the EU GPP criteria directly or bespoke GPP criteria at the national or subnational level), carbon footprint tools, environmental management systems, eco-labels for specific categories of products or services, Environmental Product Declarations, Environmental Spend Analysis, etc.)
2. Are you aware of the use of low-carbon tools in infrastructure procurement, in particular?
3. Could you please elaborate on the specific stage within the procurement process at which sustainability criteria are incorporated? Additionally, is it possible to assess tenders on the basis of environmental criteria within the award criteria?
4. Do you see demand for new tools among procuring agencies and suppliers?
5. What barriers and success factors do you see for establishing new tools for GPP, such as the CO_2 Performance Ladder?

Topic 4. Stakeholders and way forward

1. Do procuring agencies engage with private sector companies through networking, dialogue, and information-sharing? Are there companies/sectors that are particularly keen on GPP?

2. Could you identify specific areas within GPP where progress has been particularly challenging or slower than anticipated? Furthermore, we are interested in understanding the kind of support or advisory services that would be valuable in addressing these challenges. Are there specific types of expertise, tools, or collaborations that you believe could make a significant difference in overcoming obstacles and accelerating your GPP efforts?
3. Is there anything else you find relevant to mention?
4. Are you aware of any people involved in GPP that we should talk to?

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