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COST-NEUTRAL SOLUTIONS FOR GREEN/ SUSTAINABLE PUBLIC PROCUREMENT IMPLEMENTATION

Acknowledgement

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Table of Contents

Abbreviations and Acronyms

CESL	Convergence Energy Services Limited
EPC	Energy Performance Contracting
EPD	Environmental Product Declaration
EPEAT	Electronic Product Environmental Assessment Tool
ESCO	Energy Service Company
ESPC	Energy Service Performance Contracting
FAME	Faster Adoption and Manufacturing of Electric Vehicles
FSC	Forest Steward Council
GCC	Gross Cost Contract
GHG	Green House Gas
GPP	Green Public Procurement
G/SPP	Green/Sustainable Pubic Procurement
HVAC	Heating, Ventilation and Air Conditioning
ICT	Information and Communication Technology
IFMIS	Integrated Financial Management Information System
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
MCA	Model Concession Agreement
MDBs	Multilateral Development Banks
M&E	Monitoring & Evaluation
MPJN	Madhya Pradesh Jal Nigam
M&V	Measurement & Verification
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
PaaS	Product-as-a-Service
PEFC	Programme for the Endorsement of Forest Certification
PFM	Public Financial Management
RoHS	Restriction of Hazardous Substances
SDGs	Sustainable Development Goals
SEC	Specific Energy Consumption
SMEs	Small and Medium Enterprises
SOE	State Owned Entreprise
SPP	Sustainable Public Procurement
STUs	State Transport Undertakings
TCO	Total Cost of Ownership
UNEP	United Nations Environment Programme
WEEE	Waste from Electrical and Electronic Equipment

List of Tables

List of Figures

Executive Summary

Public procurement is one of the most powerful yet strikingly underutilised policy levers available to governments. Beyond acquiring goods, works and services, procurement shapes markets, influences investment decisions and can accelerate national developmental objectives such as climate action, circular economy transition, social inclusion and industrial competitiveness. Adopting Green and Sustainable Public Procurement (G/SPP) represents a government's conscious shift in approach to systematically internalise environmental stewardship and societal well-being as core criteria in public decision making. Despite uptake in adoption of G/SPP policy by countries, the transformative potential of G/SPP is routinely constrained by a persistent belief that sustainable alternatives cost more and therefore are not affordable. This perception transcends geographic boundaries but is stubbornly pervasive in low-income and developing economies. In these economies, G/SPP is practically a non-starter because of the perception of higher costs of sustainable alternatives, coupled with tight budgets and political pressure to prioritise economic growth, job creation and poverty reduction. This knowledge product, however, responds to that challenge by reframing the debate from "green is expensive" to "green is economical long-term", and presenting practical, cost-neutral pathways that allow contracting authorities to mainstream sustainability without overwhelming procurement budgets.

A central insight of this report is that the perceived "green premium" is often true at the point of bid opening but frequently false when assessed through a broader cost lens. Procurement systems commonly compare bids using upfront purchase price, even when the largest costs are incurred later for many products and services through energy and fuel consumption, maintenance, downtime, consumables and end-of-life disposal. In many cases, sustainable options reduce these downstream costs and therefore offer lower Total Cost of Ownership (TCO) over the asset's life. Where the "green premium" perception persists, it is often driven by structural issues. These include budget silos that separate capital and operating expenditures, a disconnect where the public entity paying more upfront price rarely captures the savings downstream, and procurement performance metrics focus on adherence to sanctioned budget rather than generating long-term value. These misalignments mean that what appears to be a G/SPP's shortcoming is often a wider public financial management and governance issue that needs redressal.

The report proposes five practical cost-neutral solutions/models for G/SPP implementation that are grounded in open, competitive and technology-neutral procurement design and process optimisation, and are already practised in different countries. First, using **TCO or Life Cycle Costing (LCC) as award criteria** enables contracting authorities to evaluate bids on whole-life cost rather than on upfront purchase price alone, thereby allowing sustainable products to compete on real value. Second, **Energy Performance Contracting (EPC)** enables infrastructure upgrades to be financed from verified savings, reducing the need for upfront capital while making efficiency gains through enforceable contract. Third, **Product-as-a-Service (PaaS)** shifts procurement from asset ownership to service outcomes, transferring performance risk to suppliers and incentivising durability, repairability and life-cycle management. Fourth, **Demand Aggregation and Framework Agreements** reduce the "green premium" perception by creating scale and predictability, lowering supplier risk premiums, standardising requirements and reducing transaction costs for both buyers and suppliers. Fifth, **Circular Procurement Models**, including take-back, refurbishment and remanufactured products with warranty, convert end-of-life from a cost into an asset, reduce replacement frequency and often improve resilience of supply.

To demonstrate that these approaches are not theoretical, the report analyses four diverse case studies from both developed and developing contexts. The Czech Republic's PaaS model for printers and multi-functional devices illustrates how service-based procurement can embed circularity through refurbishment and reuse while also supporting social objectives through contract design and verification. Helsinki's framework agreements of energy-efficient ICT demonstrate how aggregation and standardised criteria can improve performance and reduce life-cycle costs at scale. Ujjain's EPC model for drinking water schemes shows how guaranteed-savings contracting can modernise municipal infrastructure without large upfront budgets while highlighting the water-energy nexus where leakage reduction becomes a high-impact energy efficiency strategy. India's Grand Challenge for electric buses demonstrates how demand aggregation, standardised framework agreements and service-based contracting can reduce cost and risk, accelerate market transition

and mainstream women in the workforce. Across these cases, the most credible outcomes emerged when procurement- aligned commercial incentives with public outcomes, embedded measurable Key Performance Indicators (KPIs) and verification, and used structured market engagement to design ambitious but achievable objectives.

Recognising the constraints faced by most economies, the report sets out a well-defined pathway to institutionalise cost-neutral G/SPP through five implementation pillars. The pathway starts with unlocking life-cycle value using simple TCO tools and prioritising categories with short, demonstrable paybacks. It then focuses on pragmatic capacity building, emphasising hands-on training, mandatory checklists and reusable templates. A third pillar uses procurement to shape markets through demand aggregation, framework agreements, forward procurement plans and early supplier dialogue. The fourth pillar strengthens policy and legal frameworks by progressively normalising best-value approaches, explicitly permitting innovative models and removing barriers such as restrictions on multi-year commitments where applicable. The fifth pillar promotes simple, fit-for-purpose data systems that track key categories, document success stories and use framework agreement data to build evidence without imposing heavy reporting burdens on contracting authority.

The report also distinguishes between what is feasible immediately and what requires deeper systems readiness. While financial cost-neutrality can often be achieved within existing procurement systems, scaling towards **fiscal cost-neutrality** (cross-budget neutrality) requires stronger budget integration, cross-portfolio cost accounting and administrative delegation to recognise and reallocate savings across entities. Moving further, social **cost-neutrality**, where environmental and social externalities are monetised, requires valuation methodologies, legal permission to apply non-price criteria and reliable data systems. Many countries are already integrating carbon into procurement through staged approaches using ecolabels, Environmental Product Declarations (EPDs), Life Cycle Assessment (LCA)-based tools and supplier carbon plans while examples of monetised social value remain more limited and are typically pursued through direct procurement design measures.

Finally, the report highlights a constructive role for development partners. They can reduce upfront barriers by supporting project preparation, model documents and procurement standardisation; de-risk investments through guarantees and blended finance; strengthen verification and monitoring capability; convene demand aggregation and market dialogue; and invest in capacity building for both procurers and suppliers. This support can preserve open, competitive procurement while making sustainable solutions financially bankable and operationally deliverable under the fiscal constraints typical of developing and poor economies.

The overarching conclusion is that whether the “green premium” barrier is real or imaginary depends on one’s perspective but it is not insurmountable. G/SPP in resource-constrained settings will not scale through narrative appeals alone. It will scale when governments demonstrate contract-by-contract and category-by-category that sustainability can deliver better services at lower whole-life costs. The path to institutionalising G/SPP begins with just three things: a priority category, a cost-neutral model, and a documented success story. Together, they create the credibility and momentum to embed this as a fiscally-prudent, locally-owned practice. It proves a critical point: sustainability and fiscal responsibility are not always a zero-sum game but mutually reinforcing.

1. Public Procurement as a Strategic Tool

Governments across the world spend approximately 10 to15 per cent of national GDP on average and about 13 per cent of global GDP, amounting to approximately USD 13 trillion[1] on procurement of goods, works and services for meeting their own operational needs and delivering public services to citizens. It has increasingly been acknowledged that this mammoth public budget needs to be spent strategically to deliver not just the public authority's immediate needs but also to advance cross-cutting public policy goals for greater environmental and societal impact. Thus, using this public exchequer strategically serves twin objectives of the government, namely, delivery of goods, works and services, and cross-cutting public policy goals.

Such strategic use of public-procurement spends to mitigate environmental externalities of procurement decisions is referred to as Green Public Procurement (GPP); and to mitigate environmental externalities and enhance positive social externalities it is termed as Sustainable Public Procurement (SPP). United Nations Environment Programme (UNEP) has defined SPP[2] as

"a process where organizations use their purchasing power to meet the needs for goods, services, works, and utilities in a way that achieves value for money on a whole-life basis, generating benefits for society and the economy while minimizing damage to the environment."

Thus, SPP attempts to optimise procurement process for delivering economic, social and environmental outcomes by internalising operational impacts of procurement in the decision matrix. This ensure that broader societal costs (negative environmental externalities) and benefits (positive social externalities) become integral to price discovery and supplier evaluation during the competitive bidding process. By actively promoting G/SPP policy and demanding greener or more sustainable products, works and services, public authorities can push industries to invest and upgrade their manufacturing facilities and develop green technologies and products. This can potentially have a spillover effect on the private sector that increases demand for greener products and services across the whole market, channelises investment in sustainable industries, and transforms market towards cleaner production.

The concept of G/SPP has evolved significantly over the past three decades, becoming firmly established in the policy frameworks of the Organisation for Economic Co-operation and Development (OECD) and European nations. Recognising its potential as a powerful demand-side, market-based instrument, a growing number of developing countries across Asia, Latin America and Africa have also adopted G/SPP to advance environmental and socio-economic national priorities. These priorities are diverse, encompassing climate action (e.g., Green House Gas (GHG) emission reduction), resource stewardship (improved energy, water and material efficiency; reduced hazardous substances; circularity) and inclusive development (employment generation, support for SMEs, women-owned businesses, domestic industries and local economies).

In its 2022 Global Review of SPP, UNEP underscores the increasing significance and versatility of public procurement as a strategic tool for advancing the Sustainable Development Goals (SDGs). The integration of G/SPP principles into a broad spectrum of national policies, both overarching and sector-specific, marks notable progress. This advancement, however, has been uneven across geographical regions. The result from the first data collection by UNEP for SDG 12.7.1 target shows that even among member states of the European Union, the maturity of GPP implementation varies considerably. Even though the concept has travelled to developing and lower-income economies, governments in these contexts often remain hesitant to adopt G/SPP policies, and even when they do, implementation lags. Progress thus remains limited despite policy adoption.

Multilateral Development Banks (MDBs), including the World Bank, European Bank for Reconstruction and Development, Asian Development Bank, African Development Bank, and others, have revised their

1 https://documents1.worldbank.org/curated/en/157141636056129273/pdf/Green-Public-Procurement-An-Overview-of-Green-Reforms-in-Country-Procurement-Systems.pdf

2 Second Edition of UNEP's Sustainable Public Procurement Guidelines, UNEP (2021), Page 15. Available at https://www.unep.org/resources/publication/second-edition-uneps-sustainable-public-procurement-guidelines#:~:text=Second%20Edition%20of%20UNEP's%20Sustainable,in%20our%20various%20SPP%20projects.

procurement frameworks to unlock transformative potential of their development finance to governments for market transformation. These interventions are strategically designed to shape markets, strengthen domestic industries, and deliver inclusive, climate-resilient infrastructure and services. Acknowledging this transformative potential, 12 MDBs[3] issued a joint statement recognising public procurement as a critical lever for achieving the SDGs. To operationalise this vision, they have established a joint working group mandated to develop an action plan and measurement framework for tangible sustainability outcomes. The statement further asserts the need for developing new tools, building institutional capacity, adopting a common approach, and enhancing outreach and partnerships to maximise the potential for "building back better".

Despite the push by development banks and many countries adopting G/SPP policy on their own, such uneven geographical spread in adoption and maturity in implementation shows that countries still face several barriers to adopting and implementing G/SPP policy. These barriers often arise from multiple sources, including gaps in legal and policy frameworks, weak institutional coordination, limited market capacity and supplier readiness, insufficient technical skills among procurers, lack of reliable data and monitoring systems, and persistent budget rules that prioritise lowest upfront price over life-cycle value. Among several barriers, the perception that greener or sustainable choices are inherently more expensive remains one of the most pervasive and persistent barriers. It transcends economic contexts, influencing decision making not only in low-income and developing nations but also in many developed countries. Therefore, understanding the rationale behind persistence of such a perception (or otherwise) and how it manifests differently across contexts, is essential for addressing it effectively.

To develop a sound understanding, this report examines various costs associated with any product, work and service, and attempts to move beyond simply acknowledging the "green perception" barrier, instead subjecting it to rigorous scrutiny. The objective is threefold: first, to determine whether the perception that sustainable goods and services are more expensive is factually correct, and if yes, to assess the extent to which this holds true under accounting frameworks and time horizons (Chapter 2); second, to identify and validate the existence of cost-neutral sustainable solutions/models (Chapter 3): and third, to demonstrate practical application of these potential solutions in real world contexts through case studies (Chapter 4). Finally, Chapter 5 proposes a range of policy instruments, institutional reforms and market-based pathways to enable developing and poor economies to adopt such cost-neutral solutions for implementing G/SPP.

3 These MDBs are ADB, AfDB, AIIB, BSTDB, CDB, CEB, EBRD, EIB, IADB, IFAD, IsDB and the World Bank.

2. Price vs. Cost: The True Scale to Measure Cost

Public procurement decisions are never neutral; every product, work and service procured by the government carries embedded economic, environmental and social costs throughout its life cycle (FIG 2.1). Traditionally, governments take a departmental approach to addressing these impacts. The Ministry responsible for managing finance, often limits itself to focus purely on the economic aspect of purchase decisions. The Ministry responsible for environment and climate change uses regulatory, fiscal and compliance measures to keep environmental impacts within permissible limits, whereas some other ministries design policies and programmes to enhance social value. As a result, economic, environmental and social impacts of procurement and supply chain operations are often managed separately by different ministries, creating fragmentation that undermines progress towards cross-cutting public policy goals.

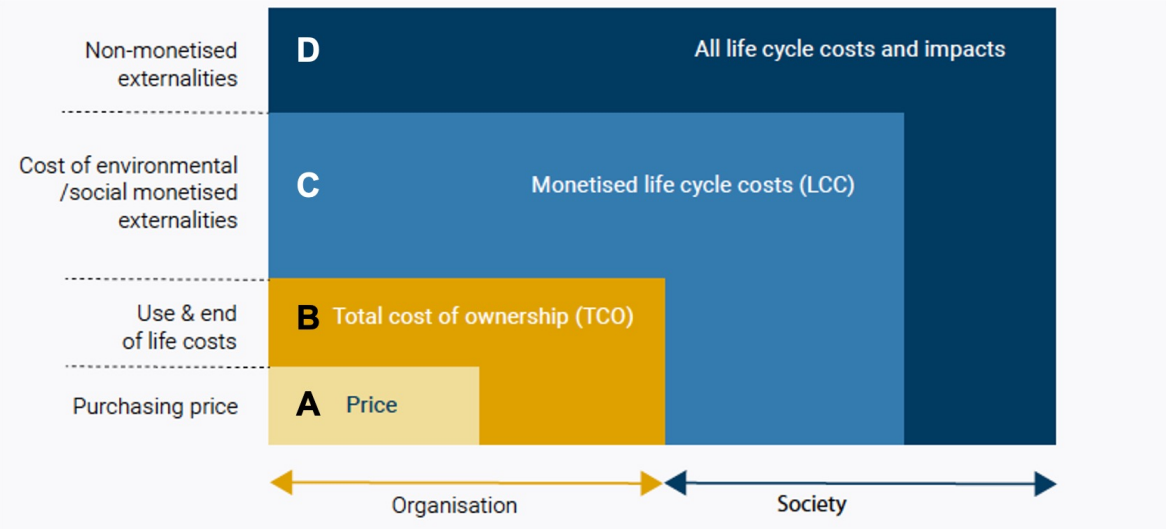

Figure 2.1: Elements of Cost of Purchasing Goods, Works and Services

Source: ISO 20400: 2017, Sustainable Procurement Guide

Therefore, in countries accustomed to departmental working, contracting authorities often confine their role to procuring goods, works and services at the lowest upfront price, without adequately considering broader economic, environmental and social impacts in decision making. As a result, the societal and environmental costs of procurement decisions are rarely included in the decision-making matrix. These costs are not borne by contracting authorities but are shifted to the society at large. Because the contracting authority does not bear these costs, the **lowest market price** is mistakenly equated with the **lowest cost,** which is far from the truth**.**

Thus the traditional procurement system, based on the lowest upfront price, often incentivises vendor and contractor who have mastered the art of shifting onto society the social and environmental costs, such as carbon footprint, pollution of all kinds or labour standards violations. As a consequence, such procurement approach channelises public resources to industries and sectors which compromise pollution norms, violate labour rights, produce unsafe and unhealthy materials, and weaken local supply chain and economic resilience. Such a procurement approach not only poses serious challenges to the efforts of sister ministries and institutions responsible for cross-cutting sustainability objectives but also conflicts with the government's broader national objectives such as achieving SDGs, advancing climate ambition and promoting socially inclusive growth.

In contrast, GPP or SPP represents a strategic approach to procurement, which is grounded in a whole-of-government perspective and long-term cost-benefit assessment. Both aim to maximise positive social externalities while mitigating negative environmental impacts associated with public purchasing decisions. This approach corrects the shortcomings of traditional procurement by internalising full life-cycle costs and

impacts into bid evaluations, basing decisions not on the initial price or cost to organisation but on the true cost to society, that is, to taxpayers.

Under this approach, vendors, contractors and service providers compete with each other not only on the basis of the lowest upfront price (represented by the smallest rectangle '**A**' in Figure 2.1) but also on their performance against broader societal goals such as energy and resource efficiency, biodiversity preservation, greenhouse gas emission reduction, job creation and local economic development (reflected in the larger rectangles '**B**', '**C**' and '**D**' in Figure 2.1). This broader approach to evaluation of bids makes the full spectrum of costs associated with purchasing goods or services transparent and visible to citizens, **thereby creating the perception of a "green premium" for choosing greener or more sustainable options**. It clarifies that the additional costs have not appeared suddenly from nowhere but that they were previously not part of the decision-making process and thus remained invisible.

This perceived "green premium", however, is not an increase in cost but rather the revelation of previously hidden or externalised costs to society such as environmental degradation, long-term maintenance or social impacts that traditional procurement overlooks. By making these dimensions explicit, the approach reframes "value for money" not as the lowest upfront price but as a long-term benefit to society and the taxpayer. Since all costs are ultimately borne by taxpayers' money, regardless of which government arm spends it, the true measure of procurement cost is not the initial upfront price (depicted by the smallest rectangle), but the total life-cycle costs and impacts (depicted by the largest rectangle '**D**' in Figure 2.1).

2.1. Examining the Validity of Cost Perception

The perception that sustainable products and services are more expensive is highly contingent on what is being measured, over what timeframe and against which baseline. A more nuanced examination reveals that this perception could be correct in narrow contexts in the short term but misleading or incorrect when the analytical lens is expanded to include the entire costs and benefits associated with purchasing goods, works and services as depicted by the largest rectangle '**D**' in Figure 2.1.

2.1.1. Short-Term and Direct Costs

When the comparison is confined strictly to **the lowest purchase prices,** sustainable or greener options will likely to carry a "green premium" and cost more to the organisation. This is often evident in both developed and developing countries, as seen in the following cases:

- **Certified products and services**: Organic food, Fair Trade coffee, Energy Star labelled electrical products and sustainably harvested timber, such as those certified by the Forest Steward Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC), often command price premiums over conventional equivalents.
- **Advanced-efficiency technologies**: Electric vehicles, LED lighting systems and high-efficiency Heating, Ventilation and Air Conditioning (HVAC) equipment typically have higher sticker prices than their conventional counterparts. This gap becomes narrower as technology gets more mainstreamed and more and more producers shift to the new technology over the years.
- **Specialised materials**: Recycled-content plastics, biodegradable plastics, low-VOC paints, and bio-based lubricants remain more expensive than virgin or conventional alternatives in many markets, particularly where production volumes are low and products are in the nascent stage of their product life cycle.

In this narrow, price-centric frame, the perception associated with greener or sustainable alternatives appears to be empirically correct. However, a decision based solely on the lowest purchase price, as discussed earlier, ignores everything that happens after the product is bought, that is, operation and maintenance costs, cost of spare parts, cost of breakdown and the cost of disposal at the end of life. Therefore, one needs to examine if the comparison between conventional and greener/sustainable options based on "initial price" is right; whether one is comparing apples to apples or apples to oranges.

G/SPP policy leverages purchasing power not just to meet a public authority's immediate needs but also to advance cross-cutting public policy goals for greater societal impact. For example, procurement of school meals from small rural farmers or their associations, thus supporting sustainable agriculture policy and local area development; procurement of energy efficient products, thus supporting industry transition of sustainable production and country climate mitigation effort; and procurement of cleaning services from firms employing vulnerable groups, thereby supporting social inclusion and local economic development.

In GPP/SPP, public bodies aim to achieve twin objectives simultaneously -- delivery of goods, works or services **PLUS cross-cutting public policy goals**. Therefore, the initial price obtained for a sustainable or greener product or service cannot be compared with that obtained for a conventional product or service in public tendering. This amounts to consciously or unconsciously comparing the smallest rectangle, that is, '**A**' with the larger rectangles '**B**', '**C**' & '**D**' in Figure 2.1, which is like comparing the price of apples with that of oranges.

2.2.2. Whole Life-Cycle Costs

When the analytical framework expands to include TCO or LCC, operational performance, co-benefits to society and avoided externalities, the cost calculus often shifts decisively in favour of sustainable alternatives. This shift happens because the full spectrum of costs associated with purchasing goods or services and their dynamic interactions over the life cycle becomes embedded in decision making (Table 2.1).

Table 2.1: Dynamics of Various Cost Elements Over Life Cycle

Cost Components	Conventional Products	Sustainable Alternatives	Net Impact Over Time
Upfront Price	Lower	Higher	Negative at the time of purchase
Energy Consumption	Higher electricity consumption	Lower electricity consumption	Recuring saving over the life of product
Water Usage	Standard flow rates	Reduced flow	Savings in utility bill
Maintenance Frequency	Short intervals	Longer intervals	Labour, spare parts saving
Durability	Shorter life	Longer life	Deferred capital expenditure
Health and Safety	Potential hazards	Reduced toxicity	Lower risks of liability
Disposal Cost	Landfill cost, if applicable	Recyclable/ decomposable	Lower cost of disposal
Regulatory Exposure	Subject to future restrictions	Compliance-ready	Avoided cost of retrofit

While the cost dynamics described in Table 2.1 apply across a wide range of products and services, they are most readily observable in energy- and water-efficient goods. This is because these categories benefit from well-established, standardised methodologies for quantifying savings in electricity and water consumption, savings that can be measured, verified and translated directly into quantifiable monetary terms. For other products or services, the advantages of purchasing greener or sustainable options are clear yet difficult to monetise, owing either to the absence of a proven methodology or long realisation horizons.

However, the logic of life-cycle benefits remains intuitively compelling. It is reasonable to assume, for example, that durable furniture reduces replacement costs, or that non-toxic cleaning products improve health outcomes. However, demonstrating these benefits with the same level of empirical rigour is often

significantly more challenging. Credible methodologies for quantifying indirect benefits such as avoided health expenditures, productivity gains or reduced environmental liabilities are either underdeveloped, context-specific or resource-intensive to apply. This asymmetry in measurability creates a perception gap: savings that are easily measured and quantifiable are easily believed; savings that are difficult to measure and quantify are easily dismissed. The following examples demonstrate how these play out in actual procurement cases.

Consider the contrast between two categories: energy-efficient lighting and green cleaning products. In the case of lighting, an LED fixture typically carries a higher upfront cost than a comparable CFL. However, when reduction in energy consumption is combined with reduced maintenance cost over the product's lifetime, total cost of ownership savings for LED typically exceeds 40 per cent.[4] An additional benefit, which can potentially be monetised in some jurisdictions, is the reduction in GHG emissions. In the European Union countries, for example, the average carbon emissions price was EUR 64.74 per tonne CO2e during 2024,[5] meaning that energy savings translate directly into avoided carbon costs.

By contrast, consider the use of sustainable cleaning products in schools or hospitals. These products typically carry a "green premium" of 5 to 15 per cent compared to conventional alternatives. However, they eliminate the need for hazardous waste disposal protocols, reduce exposure to volatile organic compounds among schoolchildren, and contribute to improved indoor air quality. In Massachusetts, documented case studies have shown that switching to green cleaning products led to a 10 to 20 per cent reduction in respiratory-related absenteeism among students and staff.[6] These health outcomes carry tangible economic value through reduced substitute teacher costs, fewer nurse visits and improved learning environments. Yet integrating them into procurement decisions remains challenging under frameworks that rely solely on quantitative economic parameters. Overcoming this requires amending procurement regulation to explicitly allow for the use of qualitative (non-price) parameters in decision making.

The critical distinction between these two examples lies in **measurability of impacts**. For energy-efficient products, savings are readily quantified using standard proven methodologies and appear directly on utility bills. For green cleaning products, the benefits are real and documented but they are diffused, accrue to different budgets (health, facilities, human resources), and require proven methodology to verify. This asymmetry helps explain why the perception of "green premium" is strong in some categories than in others. This also explains why energy-efficient products are prioritised when launching a new G/SPP programme in any country. For others such as furniture, textiles, vehicles, construction materials, the evidence base remains fragmented, context-specific or underdeveloped. This does not mean the benefits are absent; it requires the contracting authority to rely on alternative procurement methods such as evaluation based on qualitative criteria, proxy indicators, ecolabels or precautionary principles[7] to justify the purchase of greener or sustainable alternatives.

The perception, thus, that sustainable products are more expensive is correct for certain certified products and services in the short term and at the point of purchase, but frequently incorrect in the medium-to-long term and from a whole-life, cross-departmental or societal perspective. The persistence of this perception reflects a fundamental misalignment between cost incidence and benefit realisation. The entity that pays the "green premium" (contracting authority) is rarely the entity that captures the savings (facilities management, health services, operations, citizens). This problem of fragmented accounting is a structural problem and it requires structural remedies -- a task for the SPP community, policy makers and researchers.

4 energy.gov/eere/ssl/publications
5 https://icapcarbonaction.com/system/files/ets_pdfs/icap-etsmap-factsheet-43.pdf
6 Massachusetts Department of Public Health, *Green Cleaning in Schools: A Guide to Cost and Health Benefits* (Boston: MDPH, 2020), 12–15.
7 An approach that allows decision makers to act in favour of sustainability even in the absence of full scientific or economic certainty.

3. Cost-Neutral Sustainable Solutions/ Models

The previous chapter presented how the lack of a credible methodology for measuring impact plays a key role in driving home the perception about "green premium" for greener or sustainable alternatives. While the measurability gap presents a universal challenge, its effects are profoundly amplified in developing and poor economies due to severe budget constraints. Governments in these countries prioritise maintaining basic services; the immediate pressure to minimise upfront expenditure overwhelms any consideration of long-term savings. Procurement officials operating under extreme fiscal scarcity cannot afford to pay a "green premium" today in exchange for savings that may materialise years later, especially when their own performance is measured by adherence to budget provisions and not by value delivered over years. In such a situation, the higher purchase price of a greener/sustainable product, however modest, can be an absolute disqualifier, regardless of the business case for SPP policy based on life-cycle costs and impacts.

This chapter presents five cost-neutral solutions/models that can be adopted to address concerns regarding the price premium for sustainable or green alternatives. While these solutions/models are already practised in many parts of the world and are universally applicable, they are particularly relevant for developing and poor economies, which persistently face dilemmas in adopting sustainable alternatives under tight fiscal situations. This chapter further highlights how development partners can recalibrate their investment strategy in these countries to promote such solutions/models that lead to long-term benefits for people and the planet.

3.1. What are Cost-Neutral Sustainable Solutions?

At this stage, it is important to define cost-neutral in the context of sustainable procurement as its meaning changes depending on the scale of measurement (accounting practices), time horizon and the scope of costs considered. Depending on these parameters, cost-neutrality can be defined in three ways, each strengthening the case for cost-neutral procurement; however, they vary in difficulty and adoption level.

Financial cost-neutrality refers to neutrality at the level of a public entity, typically assessed through total cost of ownership or life-cycle costing over the asset or service life. **Fiscal cost-neutrality** refers to neutrality across public budgets, where higher upfront spending in one budget line may be offset by savings in energy, maintenance, health or service-delivery budgets over time. **Societal cost-neutrality** refers to neutrality when environmental and social externalities and broader public impacts are included through welfare economics and social cost-benefit analysis. Accordingly, a procurement option may appear more expensive at the point of purchase from a financial lens while being fiscally neutral across government budgets and/or societally beneficial once externalities are included.

A country could begin by using the financial cost-neutrality (TCO-based definition) because it is comparatively easy to apply and does not require sophisticated procurement techniques, skilled professionals or advanced data systems. Depending on the readiness of countries, the other two definitions of cost-neutrality (Table 3.1) could be progressively applied where the regulatory framework permits the use of qualitative parameters and where institutional capacity exists to monetise environmental and social externalities, such as carbon emissions, health impacts and resource depletion.

Table 3.1: Definitions of Cost-Neutral Solution/Model

Definition	Explanation	Example
Financial Cost-Neutrality	The sustainable option costs the same or less over its life cycle when considering only direct financial flows visible to the procuring entity and its budget holders (purchase price + energy + maintenance + disposal).	Purchase of LED over CFL or incandescent bulb

Definition	Explanation	Example
Fiscal Cost-Neutrality (Cross-Budget)	The sustainable option is cost-neutral from the perspective of the consolidated government budget, even if costs and savings fall across different departments or budget lines. Savings in health, facilities or social services offset the "green premium" paid during procurement decisions.	Green cleaning products cost schools more but reduce health spending on asthma; overall government expenditure is either unchanged or reduced.
Social Cost-Neutrality (Including Externalities)	The sustainable option is cost-neutral or beneficial when monetised environmental and social externalities (e.g., carbon emissions, health impacts, resource depletion, increased employment opportunity) are included in the calculation.	A diesel vs. electric vehicle comparison that includes the monetised cost of carbon; the electric vehicle may show net societal savings even if direct government costs are slightly higher.

For a practical application of the above definitions by contracting authorities, the report suggests the following operational test to ascertain a cost-neutral solution. A sustainable bid may be considered cost-neutral for award purposes if:

A. A TCO analysis using standard, verifiable inputs demonstrates that its total cost over a defined period does not exceed that of the conventional benchmark; or
B. Any net "green premium" is fully offset by documented, quantifiable savings elsewhere in the government's budget (with a mechanism to recognise such cross-departmental savings); or
C. Any net financial cost is justified by corresponding monetised environmental or social benefits that the government has committed to valuing (e.g., carbon price, health cost avoidance).

These definitions practically correspond to rectangles '**B**', '**C**' & '**D**' respectively in Figure 2.1.

The next section describes different practical financial cost-neutral solutions/models that can often be implemented within existing procurement systems with minimum effort.

3.2. Cost-Neutral Solutions/Models for G/SPP Implementation

The previous section discussed the definition of cost-neutral solutions. The discussion that follows focuses exclusively on cost-neutral solutions and models for sustainable procurement that correspond to the first definition: those where the total cost of ownership over the product's life cycle is equal to or less than that of the conventional alternative, based on direct financial flows visible to the public entity. This narrower scope is consciously chosen to ensure that the analysis remains immediately actionable within the existing budgetary and administrative constraints facing procurement officials in these contexts. Among the several cost-neutral solutions/models practiced globally, the five discussed here offer particularly promising results.

3.2.1. Total Cost of Ownership/Life-Cycle Costing as Award Criteria

Overview of Concept

Total Cost of Ownership is an evaluation methodology that shifts the basis of bid evaluation from the initial purchase price to the sum of all significant costs associated with a product, service or work over its entire life cycle (Rectangle '**B**' in Fig. 2.1). In some contexts, it is also referred to as evaluated cost or LCC (Rectangle '**C**' in Fig. 2.1).

A comprehensive TCO model typically encompasses:

- Acquisition costs: Purchase price, delivery, installation and commissioning
- Operating costs: Energy, water or fuel consumption over the expected life
- Maintenance costs: Scheduled servicing, spare parts and consumables
- End-of-life costs: Decommissioning, disposal or residual value.

In its basic form, TCO focuses on direct financial flows visible to the public entity or its budget holders. Externalities such as carbon emissions or health impacts are excluded unless they have been formally monetised and integrated into government accounting.

Rationale

The cost-neutrality rationale for TCO is straightforward as can be visualised in Figure 3.1. While sustainable products often carry a higher purchase price, they are typically designed to consume less energy, require fewer repairs, last longer and cost less to dispose of than conventional alternatives. When these future savings are aggregated and discounted at present value, they frequently offset or exceed the initial premium.

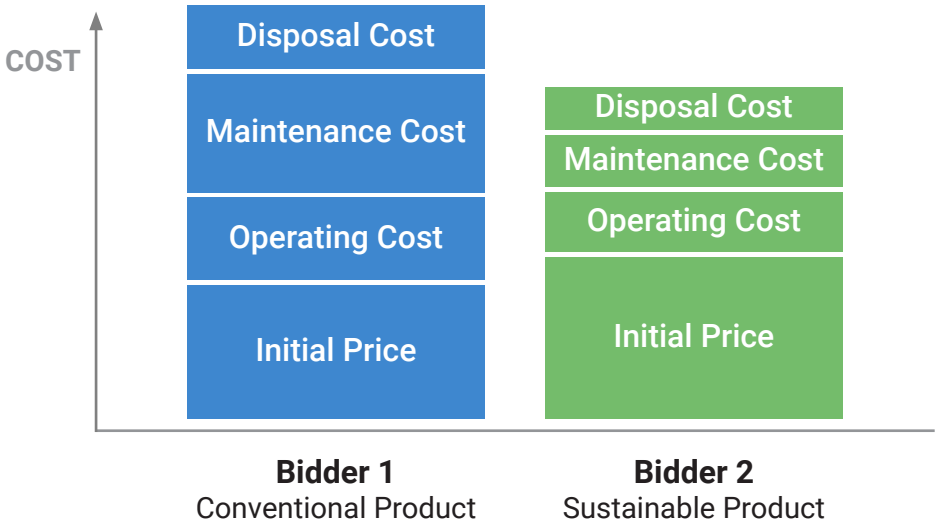

Figure 3.1: Costs Associated with Sustainable and Conventional Products

A crucial advantage of TCO is that it operates entirely within existing financial flows, though these may be fragmented across different budget lines. This makes TCO the most immediately accessible cost-neutrality model specifically for developing and poor economies as it does not demand a small or prior procurement reform.

Procurement Process Design for TCO

Implementing TCO requires careful design of technical specifications, award criteria and verification mechanism.

Technical Specifications

The specifications should establish minimum performance thresholds to ensure functional comparability across bids and prevent suppliers from offering cheap, inefficient products that have a lower initial price but a high TCO. For example,

- Minimum energy efficiency class, for example, IE3 for motors
- Minimum durability or warranty period, for example, five-year warranty on LED
- Repairability requirements, for example, availability of spare parts for 10 years
- Maximum allowable consumption, for example, litres per flush for water fixtures.

Award Criteria

The award is decided based on a published TCO formula that translates data provided by the bidder into a comparable cost figure. The operation, maintenance, spare parts and disposal costs need to be discounted at an appropriate rate to express the present value of future expenditures. For large equipment or machinery (e.g., construction plant, transformers, buses), these costs are typically incurred at the end of each year; therefore, when calculating TCO, contracting authorities should treat them as end-of-year cash flows and discount them to present value accordingly.

The net present value (NPV) of future expenditure can be calculated using the following formula:

$$\mathrm{NPV} = \sum_{t=0}^{n} \frac{C_t}{(1+r)^t}$$

Where:

Ct = Cash flow (or cost) in year t
r = Discount rate (expressed as a decimal, e.g., 5% = 0.05)
t = Year (from 0 to n)
n = Total number of years (the life cycle or lifespan of the asset)

In case the annual charge is a fixed sum, the NPV can be calculated as

$$\mathrm{NPV} = A \times \left[\frac{1-(1+r)^{-n}}{r}\right]$$

Where*:*

A = Annual payment or annuity
r = Discount rate (expressed as a decimal, e.g., 5% = 0.05)
n = Number of years

Verification Mechanisms

To ensure reliability of bidder-provided inputs, the bid document should specify acceptable forms of evidence, such as standards, test reports from a third party or manufacturer data, to ensure that LCC comparisons rest on accurate and comparable data.

Applicability and Key Advantages

Total Cost of Ownership or evaluated price or LCC as an award criterion is a highly suitable cost-neutral model for G/SPP in categories where acquisition price represents only a part of the total cost and where differences in energy use, consumables, maintenance, durability, replacement cycles and end-of-life costs are significant over the life of the asset or service. This approach is especially suitable for energy-using products and systems such as **lighting**, **HVAC**, **pumps**, **motors**, **appliances** and **ICT equipment**; for **vehicle**s and **fleet assets** where fuel, maintenance and residual value are major cost drivers; for **medical equipment** and diagnostics where consumables, uptime, calibration and servicing affect long-term cost; and for **building systems** and **retrofit** components with long asset lives and significant operating cost implications. By contrast, it is less suitable for low-value, short-life or low-usage items where life-cycle cost differences are minimal and the transaction cost of applying LCC may outweigh the benefits.

A major advantage of TCO/LCC is that it directly addresses the perception that green products are “too expensive” by shifting the basis of comparison from purchase price alone to the total cost over the relevant life of the product or service. It is also one of the most practical entry points for cost-neutral G/SPP because it can often be implemented within the procurement process itself, without requiring immediate reform of the broader public financial management system. TCO/LCC improves price discovery and competition by requiring bidders to disclose life-cycle-relevant parameters such as energy consumption, maintenance schedules, consumables, warranty terms, service commitments and replacement intervals. In doing so, it converts what appears to be a “green premium” into a value-for-money assessment. This increases transparency and encourages competition on performance, reliability and durability. It also helps the contracting authorities avoid hidden downstream costs, such as high utility bills, frequent breakdowns or repeated replacement needs, which are common when procurement decisions are made solely on lowest upfront price.

Limitations and Mitigation Approaches

TCO/LCC is a practical and scalable cost-neutral model for G/SPP, but its effectiveness depends on design and implementation. Key limitations include weak or inconsistent data (e.g., energy use, maintenance,

service life and end-of-life costs), unclear evaluation methods, limited procurement capacity, annual budget constraints that favour lower upfront prices, and the risk of bidders overstating performance or understating maintenance costs. These limitations can be managed through a pragmatic approach. Contracting authorities should use category-specific TCO/LCC templates with clearly defined assumptions (evaluation period, discount rate, operating profile, tariffs, maintenance, replacement cycles and disposal/residual value) while fixing major variables to ensure comparability and reduce manipulation. Implementation should start with high-impact categories where life-cycle costs are material and data is more readily available, such as for lighting, appliances, vehicles, ICT, HVAC systems, pumps and selected medical equipment. Verification requirements should be built into technical specifications and contracts through test reports, certifications, declared performance, warranty terms and post-award checks. Capacity building and practical guidance are essential, as is administrative support from finance and oversight authorities to justify higher upfront spending where lower life-cycle cost is demonstrated. In contexts with limited data or legal maturity, governments could begin with core financial TCO/LCC and treat monetised environmental and social externalities as a later-stage enhancement.

The European Commission has developed sector-specific LCC calculation tools for several products such as street lighting and traffic signals, office IT equipment, imaging equipment (printers, copiers), and water-using products (taps, showers, toilets). Notably, several developing countries, such as Cambodia, Malaysia, Thailand, Philippines and Vietnam, also provide for incorporating life-cycle cost considerations into their procurement evaluation frameworks. They represent important entry points for expanding the use of TCO/LCC in practice. Only investment required for mainstreaming TCO is to equip procurement officials with the necessary tools, training and political support to move from enabling provisions to routine application.

Overall, TCO/LCC helps shift procurement decisions from upfront price to life-cycle value and can significantly reduce the perceived "green premium" when applied in suitable categories with standardised methods, reliable data and credible verification.

3.2.2. Energy Performance Contracting

Overview of Concept

Energy Performance Contracting, also referred to as Energy Savings Performance Contracting (ESPC), is an innovative financing-cum-contracting mechanism that enables public authorities to implement energy efficiency and water conservation upgrades without requiring upfront capital expenditure. Under the scheme, an Energy Service Company (ESCO) designs, finances and implements efficiency improvements, and the public authority repays the capital investment over time using the verified cost savings generated by the upgrades (Fig. 3.2).

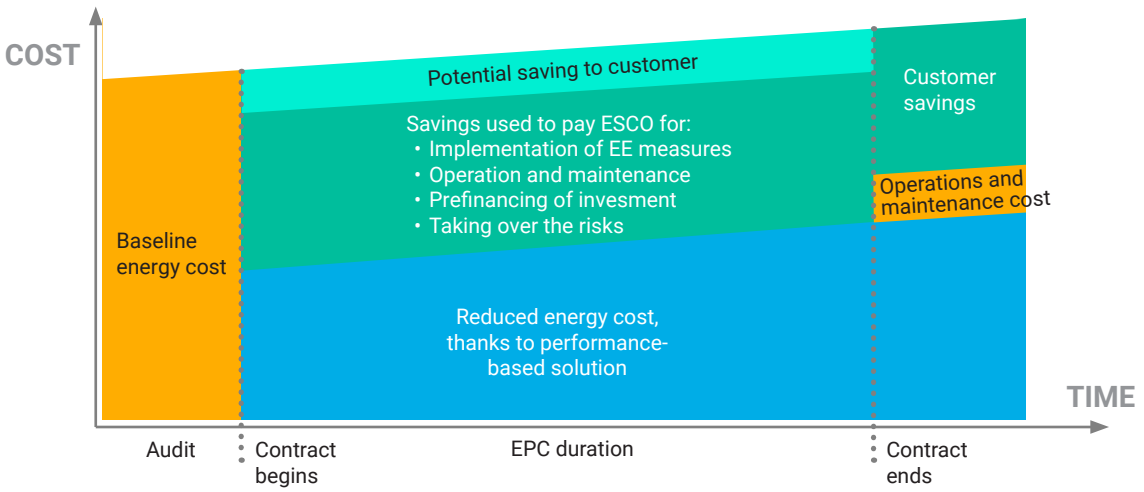

Figure 3.2: Energy Performance Contracting (EPC) Business Model

Source: International Energy Agency[8]

8 Global Green Growth Institute & TERI. (2021). Module 3: ESCO business models and financing energy efficiency. SWITCH-Asia: Promoting Sustainable Energy Practices in the Garment Sector in Cambodia. https://alcbt.gggi.org/wp-content/uploads/2025/02/4.2-ESCO-Business-Models.pdf

Rationale

The cost-neutrality of EPC rests on the following interconnected mechanism:

"Pay-from-savings" structure: The ESCO provides or arranges the upfront capital investment required for carrying out energy efficiency or water conservation upgrades. The public entity is required to make periodic payments to the ESCO from its existing utility budget, normally less than or equal to the documented savings achieved in utility bills. The entity's net expenditure on energy remains unchanged from the pre-upgrade baseline during the contract duration and decreases after the contract period.

Performance guarantee: The ESCO contractually guarantees a minimum level of energy or water savings. This guarantee transfers the technical and performance risks from the public sector to the private contractor, addressing a key concern that often blocks public investment in efficiency measures.

Bundling of services: The ESCO provides a comprehensive package that includes energy audits, detailed engineering, equipment procurement, installation, commissioning, training, and ongoing measurement and verification of savings. This bundling reduces transaction costs and ensures that all elements of the project are optimised for delivering performance objectives.

Applicability and Key Advantages

EPC is most effective in cases with significant and predictable energy expenditure, and where technically feasible efficiency opportunities and institutional stability to support multi-year contracts exist. Some of the sectors, where this model has proven its success are given in Table 3.2.

Table 3.2: Suitable Applications and Sectoral Opportunities for ESCO

Sector / Application	Typical Measures
Street Lighting	LED retrofits, smart control, dimming systems
Public Buildings	HVAC upgrades, lighting retrofits, building envelope improvements, controls and energy management systems
Hospitals and Health Facilities	Combined heat and power unit, sterilisation equipment efficiency, lighting, HVAC, water heating
Universities and Educational Institutions	Campus-wide energy retrofits, district heating/cooling, laboratory ventilation optimisation
Water and Wastewater Utilities	Pumping system optimisation, variable speed drives, leak detection, aeration efficiency improvements
District Energy Systems	Boiler/chiller replacements, insulation, controls, fuel switching

EPC offers particular advantages for economy where upfront capital constraints and limited technical capacity often impede investments in efficiency improvement. The model directly addresses these barriers by financing the capital investment and bringing in technical expertise, eliminating the need for scarce upfront capital while compensating for limited in-house capacity within public institutions. Crucially, payments to ESCO are structured to come from existing utility budgets, requiring no additional appropriations, and functioning effectively even within fragmented budgetary systems. The ESCO typically provides training and ongoing maintenance support, addressing the weak post-installation capacity that frequently undermines project sustainability in resource-constrained settings.

Limitations and Mitigation Approaches

While EPC can be implemented under general procurement law, its practical feasibility is significantly enhanced by several enabling factors. Legal recognition of EPC contracts through legislation authorising multi-year obligations against utility budgets provides the necessary regulatory foundation. Standard contract

templates and guidance, developed by countries and international organisations, reduce transaction costs and build confidence among contracting authorities. The World Bank has supported EPC project in several countries, namely, China[9], Ukraine[10] and Vietnam[11], among others. UNEP provides project preparation grants to developing countries to support feasibility studies, energy audits and pre-investment work necessary to develop pipelines of bankable projects.[12] These resources could be used by countries desirous of implementing EPC for enhancing energy efficiency. Finally, local capacity for measurement and verification in accordance with established national protocols is essential for credible savings verification and trust in EPC.

EPC, through its pay-from-savings structure, performance guarantee and transfer of technical risk to the private sector, represents a mature, globally proven mechanism for achieving cost-neutral sustainable procurement in the energy- and water-efficiency sectors. For public entities with significant energy or water expenditures, it offers a practical, immediately actionable pathway to align sustainability with fiscal responsibility.

3.2.3. Product-as-a-Service or Product Service Systems

Overview of Concept

Product-as-a-Service (PaaS), also referred to as Product-Service Systems, represents a fundamental shift in procurement approach. Instead of purchasing physical assets, the public entity procures a **service outcome** delivered by those assets. Under the model, the procuring authority pays for the function or performance it needs while the service provider retains ownership of the equipment and assumes responsibility for its maintenance, performance and eventual end-of-life management. For example, a contracting authority does not acquire printers but it contracts for managed printing services (measured in number of pages printed). It does not purchase cleaning products and equipment but procures cleaned facilities (measured against performance specifications).

In a traditional outright purchase of products by a public entity, a fundamental misalignment of incentives exists between the supplier and the purchaser (FIG 3.3). The supplier benefits from increasing the quantity of products sold, while the purchaser seeks to decrease the quantity procured to meet a given requirement. Both parties operate with opposing objectives, even when the functional need is identical. Conversely, in a service-based contract, where the supplier is paid to deliver an outcome or perform a function rather than to supply discrete units of a product, the dynamic shifts. Here, the supplier has an incentive to decrease the quantity of physical products required to fulfil the specified need. This directly aligns the supplier's motivation with the purchaser's goal of reducing product consumption while still meeting the same requirement.

The service provider, in turn, designs, finances, installs, maintains and recovers the assets, embedding efficiency and durability into their business case because they retain ownership and bear operating and maintenance costs. This approach promotes circularity by aligning supplier incentives with public policy objectives of resource efficiency, waste reduction and life cycle optimisation.

How PaaS Achieves Cost-Neutrality

The cost-neutrality of Product-as-a-Service models rests on several interconnected mechanisms that reallocate costs, risks and incentives across the contract period. This is highlighted in Table 3.3.

9 https://documents.worldbank.org/
10 https://projects.worldbank.org/
11 https://projects.worldbank.org/
12 https://unep.org/gef

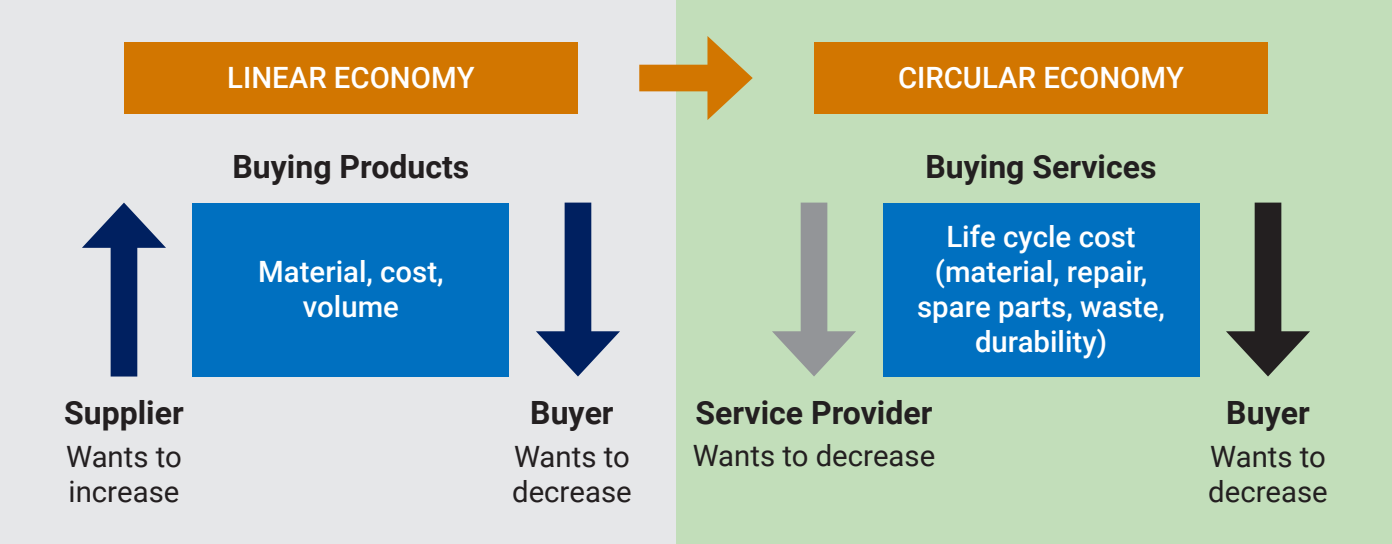

Figure 3.3: Product-as-a-Service Model[13]

Table 3.3: Examples of PaaS Model and Its Impact on Cost-Neutrality

Mechanism	Description/Operational Details	Cost-Neutrality Impact
Capital Expenditure (CAPEX) Reduction	The public entity pays for outcomes through operating budgets rather than outright purchase of assets.	Upfront budget relief; payments spread over time matching availability of operating funds
Bundled Maintenance and Support	All maintenance, repairs and consumables are included in the service fee, eliminating unpredictable future expenditures and reducing administrative burden.	Predictable payments of service charges; no unplanned breakdown expenses
Extended Asset Life	Service providers retain ownership and therefore it motivates manufacturers to design for durability, repairability and upgradeability	Lower replacement frequency; reduced lifecycle cost
Supplier Accountability for Efficiency	Service providers bear energy and consumables costs, creating direct incentive to enhance efficiency of equipment.	Operating cost savings shared with public entity through lower service fee.
End-of-life Management	Supplier is responsible for take-back, refurbishment or recycling, eliminating public entity disposal costs and liabilities.	Avoided disposal expenditures and compliance with waste regulations without administrative effort.

In most cases, PaaS model works out to be advantageous for the contracting authority and entails a service fee that is lower than the total cost of ownership of a conventional product while simultaneously delivering superior performance and sustainability outcomes.

Applicability and Key Advantages

Product-as-a-Service models are most viable where the function can be clearly specified and measured, where the asset base is significant, and where supplier markets have developed appropriate offerings. Some of the sectors where this model has proven its success are given in Table 3.4.

13 Kumar, S. (2022). Evolving Role of Sustainable Procurement in Coming Decades (Page 357) . In: Understanding Sustainable Public Procurement. Public Administration, Governance and Globalization, vol 21. Springer, Cham. https://doi.org/10.1007/978-3-031-08258-0_7

Table 3.4: Typical Application of PaaS Model

Sector/Application	Application's Description
Lighting	Lighting-as-a-Service[14]: Supplier installs and owns LED fittings; public entity pays monthly fee based on light output
Imaging and Printing	Managed Print Services[15]: Supplier provides printers, consumables, maintenance; public entity pays per page
ICT Equipment	Device-as-a-Service[16]: Supplier provides laptops/desktops with full life-cycle support; public entity pays per user per month
Furniture	Furniture-as-a-Service[17]: Supplier provides and maintains furniture; public entity pays rental on a monthly basis
Medical Equipment	Medical Device-as-a-Service[18]: Supplier provides, maintains and upgrades equipment; public entity pays based on usage or availability
Waste Services	Circular Waste Contracts[19]: Supplier manages waste streams and is rewarded for recycling rates rather than tonnage of landfill

In this model, the key is to specify outcome specification that the function must deliver. This gives flexibility to suppliers to deliver the required outcome in an innovative way without being bound by technological limitations. Further, since the suppliers retain ownership of the assets throughout the contract term, they have a clear financial motivation to select durable, energy-efficient equipment that minimises operating and maintenance costs over the contract period. They are also motivated to perform preventive maintenance that extends asset life and avoids costly failures; to design for repairability and upgradeability, ensuring assets remain functional and valuable; and to recover and refurbish assets at contract end, capturing residual value for future use. These incentives align supplier behaviour with public sector sustainability goals without requiring detailed oversight by the contracting authority as the supplier's own financial interests drive performance optimisation.

Limitations and Mitigation Approaches

While PaaS models offer significant advantages, they are not universally applicable and present the following limitations that must be carefully considered.

- PaaS typically requires longer contract terms of five to 10 years to allow supplier cost recovery, which may exceed typical public sector commitment horizons.
- Supplier markets for PaaS offerings may be limited in many developing countries, reducing competition.
- Performance measurement requires robust specification and monitoring, demanding upfront investment and technical capacity that may be challenging for some procuring entities.
- Contracts must also address termination and transition risks, including supplier failure or early exit, with clear provisions for asset transfer or alternative service arrangements.
- Additionally, multi-year service fees constitute future budgetary obligations that must be managed within fiscal rules.

14 https://www.assets.signify.com/is/content/Signify/Assets/signify/global/20210428-connected-lighting-and-light-as-a-service-insights.pdf
15 US EPA provides a template for Sustainable Print Management Policy. It is available at https://www.epa.gov/sites/default/files/2015-09/documents/federalprintmgmttemplate.pdf
16 https://devicenow.com
17 https://www.ahrend.com/en/services/furniture-as-a-service/
18 https://nhm.gov.in/New_Updates_2018/NHM_Components/Health_System_Stregthening/BEMMP/Biomedical_Equipment_Revised_Guidelines.pdf
19 https://link.springer.com/article/10.1007/s43615-021-00004-5

These limitations, however, can be effectively managed through careful contract design, pilot programmes and phased market development.

In summary, PaaS models represent a paradigm shift in public procurement -- from acquiring assets to purchasing outcomes. By transferring ownership, maintenance and performance risk to suppliers, these models align private incentives with public sustainability goals while preserving scarce capital and eliminating unpredictable costs. For developing countries, PaaS offers particular promise as it directly addresses capital constraints, maintenance gaps and fragmented budgets without requiring sophisticated institutional frameworks. As supplier markets mature and contract models become standardised, PaaS is poised to become an increasingly important tool for cost-neutral sustainable procurement across a widening range of sectors.

3.2.4. Demand Aggregation and Framework Agreements

Overview of Concept

While the "green premium" associated with greener or sustainable alternatives is real in some markets, it is often less a function of underlying production costs and more a function of market fragmentation and small procurement volumes. When sustainable products are purchased in small quantities, suppliers have little incentive to invest in efficient production systems, offer competitive pricing or have dedicated supply chains. The volume is not enough to send a strong signal for market transformation.

To understand why demand aggregation is effective, it is useful to examine the underlying components of the "green premium", that is, the additional cost often associated with sustainable products. The "green premium" is not a fixed cost but consists of several elements, each magnified under fragmented purchasing and diminished through demand aggregation. Production setup and input costs, fixed testing, certification and verification expenses, and supplier risk premium are disproportionately high for small, uncertain orders that get spread across larger quantities under framework agreements, reducing per-unit impact. Framework agreements provide revenue certainty that reduces or eliminates investment risks. Further, distribution inefficiencies from scattered deliveries give way to optimised logistics, while marketing and bidding costs decline sharply when a framework agreement replaces dozens of individual tenders. Together, these factors mean that the "green premium", which appears insurmountable to a public entity purchasing alone, can largely and sometimes entirely disappear when procurement is consolidated at scale.

How Demand Aggregation Achieves Cost-Neutrality

Demand aggregation and framework agreements contribute to cost-neutral sustainable procurement through several interconnected mechanisms as detailed in Table 3.5.

Table 3.5: Mechanism Under Framework Agreement Contributing to Cost-Neutrality

Mechanism	Description	Cost-Neutrality Impact
Economies of scale in production	Larger, predictable orders allow suppliers to invest and optimise production, reducing per-unit manufacturing costs.	Lower input prices passed to pubic buyers
Reduced transaction costs for suppliers	One framework agreement replaces dozens or hundreds of individual tenders, lowering supplier bidding and contract management costs.	Suppliers can offer better prices reflecting lower transaction costs
Logistics and distribution efficiencies	Consolidated volumes enable optimised shipping, warehousing and distribution, reducing per-unit logistics costs.	Lower logistics costs
Increased supplier competition	Large, visible framework agreements attract more bidders, including those who might ignore small, fragmented tenders.	Larger competition

Mechanism	Description	Cost-Neutrality Impact
Longer-term predictability	Framework agreements spanning two to four years give suppliers revenue certainty, justifying investment in sustainable product lines.	Suppliers can monetise investment over large volumes
Specialisation and learning	Suppliers serving aggregated demand develop expertise and efficiency in sustainable product categories over time.	Cost improvement occurs through learning curves

In essence, demand aggregation transforms G/SPP from a series of marginal, niche purchases into a **mainstream market force** that shapes supplier behaviour, investment and pricing. When public buyers float framework agreement tenders for certain products, suppliers recognise the underlying opportunity for growth and respond by adjusting product lines, investing in sustainable production capacity and offering competitive pricing that reflects the scale and predictability of public sector demand.

Applicability and Key Advantages

Demand aggregation is most effective for standardised products that are regularly purchased in high volume and have sustainability attributes benefitting from scale. Office paper, IT equipment, cleaning products, vehicles and lighting all offer high aggregation potential due to common specifications and recurring demand across agencies. Furniture, uniforms and construction materials offer medium potential. In each case, consolidating demand enables economy of scale, consistent sustainability standards and reduced transaction costs.

Demand aggregation and framework agreements offer particular advantages for developing and poor economies, where fragmented purchasing power and limited market influence often perpetuate the "green premium". By pooling purchasing power across multiple entities, aggregation creates volumes sufficient to attract supplier attention and command scale pricing that individual agencies could not achieve alone. Framework agreements eliminate the high administrative burden of each agency conducting separate tenders for common products while ensuring consistent sustainability standards across all participating entities. For procurement officials who may be risk-averse, pre-negotiated frameworks with established sustainable options make it procedurally safe and operationally easy to choose green options. Importantly, demand aggregation can be implemented progressively, starting with a few high-volume product categories and expanding as capacity and supplier markets develop over time.

Limitations and Mitigation Approaches

While demand aggregation and framework agreements offer significant advantages, they are not without challenges.

- Effective implementation requires coordination capacity, which can be built progressively starting with simple, high-volume categories.
- Framework design must balance scale benefits with local supplier access, using lots or regional sub-lots to enable participation.
- Risks of supplier lock-in can be mitigated through multi-supplier frameworks and periodic re-tendering.
- Finally, specification rigidity can be avoided through functional specifications and periodic review mechanisms.

These limitations, while real, are manageable through careful design, stakeholder engagement and phased implementation. Contracting authorities may use a guidance note by the World Bank on how to design, establish and operate a framework agreement in investment project financing.[20]

20 https://thedocs.worldbank.org/en/doc/965231529950446871-0290022018/original/GuidanceFrameworkAgreementsJune252018.pdf

In summary, demand aggregation through framework agreements represents one of the most powerful and underutilised tools for achieving cost-neutral G/SPP implementation. By consolidating fragmented purchasing volumes, public sector buyers can enhance economy of scale that reduces unit prices for sustainable products, signals market demand clearly to encourage supplier investment in sustainable product lines, reduces transaction costs for both buyers and suppliers, ensures consistent sustainability standards across all participating entities, and lowers administrative barriers by making sustainable choices the default option. Importantly, this approach requires no additional budget, no sophisticated accounting frameworks, and no monetised externalities. It needs only coordination, commitment and a willingness to buy smarter rather than simply buying cheaper.

3.2.5. Circular Procurement: Take-Back, Refurbishment and Remanufactured Products with Warranty

Overview of Concept

Circular procurement represents a departure from the traditional linear "take-make-dispose" model of public purchasing. Instead of acquiring new products and assuming responsibility for their entire lifecycle, circular procurement embeds value recovery mechanisms into the purchasing process. These mechanisms ensure that products, components and materials retain their value and remain in use for as long as possible, with the public entity benefiting financially from this extended lifespan.

The core concept encompasses three interrelated strategies.

- **Take-back provisions:** Suppliers are contractually obligated to recover products at the end of life, creating closed-loop systems and transferring end-of-life responsibility back to the manufacturers.
- **Refurbishment:** Products are restored to fully functional condition, often with performance equivalent to new products but at significantly lower cost and environmental impact.
- **Remanufactured products with warranty:** Products are manufactured using recovered components, restored to original specifications and sold with warranties equivalent to new products, offering performance as good as of new products at reduced prices.

These strategies are not mutually exclusive and can be combined. A contracting authority might require suppliers to offer remanufactured options, provide take-back for end-of-life products, and guarantee refurbished equipment with full warranty coverage.

How Circular Procurement Achieves Cost-Neutrality

Circular procurement with value recovery contributes to cost-neutral G/SPP through several mechanisms (see Table 3.6) that directly reduce expenditure while maintaining equivalent or improved performance.

Table 3.6: Mechanism Under Circular Procurement Contributing to Cost-Neutrality

Mechanism	Description	Cost-Neutrality Impact
Lower purchase price of remanufactured goods	Remanufactured products typically cost less than equivalent new products while meeting the same performance specifications.	Immediate saving on procurement expenditure
Avoided disposal costs	Take-back provisions transfer end-of-life responsibility to suppliers, eliminating costs for collection, treatment and disposal by public entity.	Direct reduction in operating and disposal costs
Extended asset life through refurbishment	Refurbishment restores functionality at a small fraction of replacement cost, delaying or avoiding capital expenditure for new assets.	Extended intervals between two purchases

Mechanism	Description	Cost-Neutrality Impact
Residual value capture	Take-back arrangements often include payments by vendors for returned products that retain value as inputs for remanufacturing.	Offset against new purchases
Reduced procurement frequency	Durable, repairable and upgradeable products last longer, reducing the frequency of re-procurement.	Lower transaction costs and less administrative burden over time
Warranty coverage	Remanufactured products supplied with full warranties transfer performance risk to suppliers, eliminating the perceived risk regarding performance of products.	Enables confident selection of lower-cost circular options

The combination of lower upfront cost, avoided downstream expenditures and potential revenue recovery results in a total cost of ownership significantly below that of purchasing new, linear-economy alternatives.

Key Elements of Circular Procurement Models

Take-back provisions, refurbishment and remanufacturing constitute the core elements of circular procurement and value recovery approach. Take-back provisions require suppliers to accept returned products at the end of their useful life, shifting end-of-life responsibility from the public entity to manufacturers who have stronger incentives and capabilities to recover value through remanufacturing or recycling.

Contractually, take-back clause can be handled in the following ways (see Table 3.7).

Table 3.7: Options to Use Take-Back Clauses in Contract

Model	Description	Examples
Mandatory take-back at no cost	Contract conditions stipulate that vendor must accept return without any charges to the public entity.	IT equipment supplier takes back old devices when new ones are delivered
Financial incentive for return	Contracting authority demands credit from suppliers for returned products at the time of bid evaluation.	Vehicle batteries
Lease/service model integration	Take-back clause is in-built in Product-as-a-Service model.	Supplier owns and recovers at the end of contract period

Refurbishment involves restoring used products to fully functional condition through cleaning, repair and component replacement. While not identical to new products, refurbished products must meet specified performance standards. Successful procurement requires clear quality standards (e.g., “equivalent to new”), warranties comparable to those for new products, disclosure of refurbishment history and non-original components, and acceptance of cosmetic imperfections that do not affect functionality of products.

In contrast, remanufacturing is a more rigorous process than refurbishment, involving complete disassembly of products, inspection and testing of all components, replacement of worn or obsolete parts, and reassembly to original specifications. It offers the same performance and warranty coverage equivalent to that for new products. Remanufactured products offer significant cost advantages as compared to new products, and equivalent performance and full warranty coverage ensuring vendors stand behind product quality.

Applicability and Key Advantages

Circular procurement with value recovery is most viable for products that possess significant embodied value, can be reliably restored to functional condition, have established remanufacturing or refurbishment markets, and are often subject to take-back regulations or producer responsibility schemes. In highly mature

markets with established refurbishment industry, IT equipment (laptops, desktops, servers) offers savings of 40 to 60 per cent[21]; imaging equipment achieves 20 to 40 per cent[22]; and office supplies, particularly remanufactured toner cartridges, yield 30 to 60 per cent[23] through extensive refurbishment and reuse networks. In mature but more specialised categories, medical equipment such as diagnostic and surgical devices, achieves savings of 40 per cent[24]. In growing markets with emerging circular models, furniture refurbishment and take-back for remanufacturing offers substantial savings. In emerging categories, textiles and uniforms also demonstrate potential savings through take-back for fibre recycling or refurbishment. These varying levels of market maturity suggest that procurement strategies should prioritise categories with well-established remanufacturing markets for immediate, high-impact savings while simultaneously supporting market development through pilot programmes in emerging categories to expand circular procurement opportunities over time.

Circular procurement with value recovery offers distinct advantages for developing economies, where budget constraints often impede procurement of sustainable alternatives.

- Remanufactured products provide equivalent functionality at 20 to 60 per cent lower cost, directly addressing limited budgets.
- Local refurbishment creates jobs and builds technical skills where manufacturing capacity is weak.
- Take-back provisions transfer end-of-life responsibility to suppliers, avoiding the need for local waste infrastructure.
- Lower-cost remanufactured goods reduce import expenditure, easing foreign exchange constraints.
- Warranties on refurbished products shift performance risk to suppliers, reducing the local maintenance burden.

Procurement Process Optimisation

To effectively implement circular procurement, contracting authorities should carefully design specifications, evaluation criteria and contract terms. In specification design, bids should explicitly permit remanufactured or refurbished products, with performance requirements defined in outcome-based terms. For example, specifying “printer cartridges meeting ISO/IEC 19752 yield standards” rather than requiring “new cartridges”. Specifications must include warranty requirements equivalent to those for new products and clearly define take-back obligations, such as requiring suppliers to recover all products at end of life at no cost to the contracting authority. Evaluation criteria should assess bids on life-cycle cost, giving credit for residual value at the end of life. Additionally, contract terms must include clear warranty provisions for remanufactured products, specify take-back logistics and responsibilities, establish quality standards and verification mechanisms, and define remedies for non-performance.

Limitations and Mitigation Approaches

While circular procurement offers significant benefits, several limitations must be addressed through careful design.

- Perceived quality risk among the public entity can be mitigated by requiring full warranties equivalent to those for new products, performance data and establishing pilot programmes.
- Where supplier markets are limited in certain categories, authorities should start with mature remanufacturing sectors, such as IT equipment, printer cartridges and vehicle parts, while signalling demand to encourage market entry.

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21 https://www.marknteladvisors.com/press-release/refurbished-computers-laptops-market-size#:~:text=Grade%20A%20refurbished%20computers%20and%20laptops%20hold,better%20performance%2C%20latest%20hardware%20&%20processors%2C%20etc.

22 https://www.ricoh-usa.com/en/insights/articles/performance-cost-savings-carbon-reduction-remanufactured-technology

23 https://apps.ecology.wa.gov/publications/documents/1307001.pdf

24 Eze, S., Ijomah, W. & Wong, T. Remanufacturing: a potential sustainable solution for increasing medical equipment availability. Journal of Remanufacturing, 10, 141–159 (2020). https://doi.org/10.1007/s13243-020-00080-0

- Verification of remanufactured quality can be ensured through recognised certification schemes, test reports and performance testing.
- Compatibility with existing equipment should be addressed by specifying requirements and considering trial periods.
- Where procurement regulation favours new purchases, education of policy makers on life-cycle economics and amendments to procurement guidance can gradually shift practice.
- Finally, warranty enforcement challenges can be managed by using established suppliers with proven track records, and requiring performance bonds or guarantees.

These limitations, although real, are manageable through careful procurement design and supplier qualification.

The five cost-neutral solutions/models discussed above are grounded in open, competitive and technology-neutral procurement design. Each model has its own advantages and disadvantages and no model is recommended for all situations. These models provide public entities with a range of choices that can be applied depending on how well each model suits their specific contexts. Besides being beneficial to the public entities, these solutions/models have a spillover positive impact on markets. By shifting procurement towards life-cycle value, performance guarantees, service quality and circularity outcomes, they may also create market opportunities for suppliers with advanced sustainable technologies and delivery capabilities, such as European firms and their local partners. In sectors where engineering quality, reliability, monitoring and after-sales service are critical, this can generate additional co-benefits to development partners through investment, technology transfer and stronger local service ecosystems, while preserving the core principles of fairness, transparency and non-discrimination in public procurement.

4. Case Studies on Cost-Neutral Solutions

Chapter 3 of this report presented five distinct cost-neutral solutions/models, namely, Life-cycle Costing, Energy Performance Contracting, Product-as-a-Service, Framework Agreements, and Circular Procurement with Value Recovery. Each of these models offers public entities a practical pathway to integrate sustainability into purchasing decisions without incurring excessive financial burden upfront. These models, while conceptually robust, derive their true value from effective implementation. Accordingly, this chapter moves from theory to practice, examining how each of these solutions has been deployed in real-world contexts across both developed and developing economies. Drawing on documented case studies, the chapter presents concrete examples of implementation and highlights the enabling conditions that contributed to the success of the projects. By focusing on how these models have been adapted to resource-constrained settings and what adaptations proved essential, this chapter provides actionable insights for policy makers, procurement officials and development partners seeking to move from policy aspiration to routine practice.

4.1. Czech Republic: Procurement of Service and Operation of Printers and Multi-Functional Devices

Context and Relevance for Developing Economies

The Ministry of Labour and Social Affairs of the Czech Republic moved from purchasing printers and multi-functional devices against a supply contract to procuring service and operation of these devices against a service contract.[25] This procurement experience demonstrates how moving from purchasing a product to Product-as-a-Service can lead to multiple sustainability benefits such as inclusive employment, circular economy practices and environmental protection.

Public institutions across the globe, such as federal and regional ministries, municipal governments, hospitals, and universities typically operate large fleets of printers and multi-functional devices. Procurement of these devices, consumables, engaging manpower and managing waste disposal represent a significant and recurring expenditure for the organisation. This model offers a strategic entry point for bundling all these products and services into a service contract, and advancing social inclusion and environmental sustainability through public procurement.

Approach and Implementation

In this case, procurement focused on maintaining printer functionality while embedding strong social and environmental criteria throughout the contract life cycle. The contractor was required to conduct routine maintenance, provide compatible and refurbished consumables, and ensure environmentally-sound waste disposal. Critically, the procurement design also promoted inclusive employment through targeted supplier qualification and workforce composition requirements.

Key measures adopted included

- Comprehensive Service Model**:** The contractor was responsible for regular inspections, repairs, and replacement of toners, fusers and other components, including transportation and environmentally sound disposal of used parts.
- Circular Procurement Practice**:** At least 40 per cent of toner cartridges were required to be refurbished or remanufactured, minimising waste and supporting reuse markets.
- Inclusive Employment**:** Bidding was restricted to firms employing over 50 per cent of persons with disabilities, and 30 per cent of contract delivery staff were also required to be persons with disabilities.
- Environmental Requirements: Contractors were responsible for the collection and eco-friendly disposal of used cartridges and defective parts, ensuring that waste management costs were internalised and part of the evaluation decision.

25 https://www.iso20400.org/servicing-and-operation-of-printers-and-multi-functional-devices/

- Verification and Enforcement**:** Compliance was verified through affidavits, supporting documentation (payroll records, disability certification), and enforceable penalties for contract breaches.

Procurement Criteria and Specifications

Key features of the optimisation of procurement design to achieve sustainability objectives are presented in Table 4.1.

Table 4.1: Stage-wise Criteria and Specifications for the Czech Republic Project

Procurement Stage	Criteria/Provision
Technical Criteria	Minimum 40% of toner cartridges to be refurbished or remanufactured
Qualification Criteria	Bid participation limited to firms employing at least 50% of persons with disabilities
Award Criteria	Evaluation based on best economic value, including technical quality, sustainability performance and life-cycle cost
Special Conditions	• At least 30% of employees engaged in service delivery must be persons with disabilities • Used consumables and parts must be disposed of in an environmentally sound manner • Contractors must submit affidavits and evidence of workforce composition • Non-compliance leads to contractual penalties.

Implementation Challenges and Considerations for Developing Countries

While the Czech case demonstrates strong social and environmental integration, replicating similar approaches in other countries requires careful attention to contextual factors. The following considerations are particularly relevant:

- *Verification and Monitoring of Inclusion Targets*

  Many countries lack established systems for certifying disability status or monitoring workforce composition. To address this deficiency, procurement entities could develop standard templates for affidavits, workforce composition reports, and guidance on acceptable forms of third-party verification. Partnerships with ministries of labour and social affairs and organisations of persons with disabilities can strengthen credibility and reduce administrative burden.

- *Market and Supplier Readiness*

  In some economies, the market for service providers that employ significant proportions of persons with disabilities may be limited. Similarly, suppliers of refurbished or remanufactured printer consumables may not yet be established. Targeted supplier development programmes, supported by development partners or through dedicated funding, can help build capacity among inclusive enterprises. Phased approaches, such as starting with lower inclusion targets and gradually increasing them as the market matures, appear the most appropriate.

- *Standardisation of Refurbished Products*

  The absence of technical standards for remanufactured or compatible consumables can raise concerns among users about quality, performance and warranty coverage. National standards agencies can play a critical role by developing or adopting international standards for refurbished ICT products. This provides assurance to procuring entities and users, and creates a level playing field for suppliers.

- *Capacity-Building for Procuring Entities*

  Procurement officers in developing countries often lack training in designing bid documents for PaaS system. Integrating practical guidance on inclusive procurement and circular economy criteria into national procurement training and certification programmes is essential for building long-term institutional capacity. Peer-learning exchanges with countries that have successfully implemented similar models can also accelerate learning.

- *Policy Integration and Coordination*

  This kind of procurement cuts across multiple policy domains -- social welfare, disability rights, environment and public financial management. Effective implementation requires coordination among the ministries responsible for these areas. Establishing inter-ministerial working groups or joint circulars can help align objectives, clarify roles and ensure that procurement decision supports broader national strategies.

- *Data Collection and Reporting*

  Developing countries should consider integrating SPP indicators into existing e-procurement systems or central monitoring dashboards to support tracking progress on inclusion and circular procurement indicators, thus improving accountability and transparency.

Box 4.1: Key Sustainability Benefits Achieved in the Czech Case Study

Key Sustainability and Social Benefits

- **Inclusive Employment:** Created meaningful job opportunities for persons with disabilities, directly supporting social equity and inclusive growth.
- **Circular Economy Promotion:** Use of refurbished toners reduced waste generation, extended product life and reduced demand for virgin materials.
- **Environmental Protection:** Eco-friendly disposal of used parts prevented toxic waste accumulation and reduced emissions associated with manufacturing new consumables.
- **Economic Efficiency:** Combining refurbished materials and efficient servicing lowered total operational costs and optimised life-cycle value.
- **Policy Coherence:** Aligned procurement decisions with broader social protection, disability inclusion and environmental sustainability policies.

4.2. Helsinki, Finland: Procurement of Energy-Efficient ICT Equipment through Framework Agreement

Context and Relevance for Developing Countries

The City of Helsinki's Procurement Centre acts as a central purchasing body for 34 city administration departments, consolidating procurement needs and establishing framework contracts.[26] A core objective of Helsinki City Administration is to integrate environmental sustainability and energy efficiency into all purchasing activities, contributing to the city's broader climate-neutrality targets.[27]

As public administrations across Africa, Asia and Latin America undergo digital transformation, ICT equipment accounts for a growing share of public procurement budgets. Computers, monitors, printers and associated devices are now essential across ministries, hospitals, schools and local governments. Simultaneously, many developing countries have adopted G/SPP policies, green growth strategies or climate commitments that support integrating environmental considerations into purchase decisions.

The Helsinki framework agreement model demonstrates how sustainability criteria can be embedded into high-volume ICT procurement without compromising cost competitiveness or operational reliability. It shows that G/SPP is not only compatible with value-for-money objectives but can actively advance them through reduced life-cycle costs.

26 https://sustainable-procurement.org/case-studies/
27 https://procuraplus.org/about-procura/public-authorities/helsinki

Approach and Implementation

To meet its ICT equipment requirements, the City of Helsinki adopted a multi-supplier framework agreement with three vendors to provide approximately 7,000 desktop computers, 2,000 laptops and 2,000 monitors over a 24-month period. The total estimated contract value was EUR 50 million (excluding taxes).

Sustainability criteria were designed through early market dialogue, ensuring that environmental goals were ambitious yet achievable and that supplier participation remained competitive.

Key features of the approach included:

- **Centralised Framework Agreement:** A single procurement process established terms, pricing and sustainability criteria applicable to all city departments, eliminating the need for repeated tenders by individual agencies.
- **Multi-Supplier Model:** Multiple suppliers were chosen to ensure competition at the call-off stage, preventing lock-in with a single supplier.
- **Early Market Engagement:** Prior to tendering, the city engaged with potential suppliers to understand market capabilities, test the feasibility of sustainability requirements and refine specifications.
- **Life-cycle Perspective:** The bids were evaluated based on energy consumption, warranty coverage and environmental certifications alongside price, recognising that higher upfront costs could be offset by long-term operational savings.

Procurement Criteria and Specifications

Key features of the optimisation of procurement design to achieve sustainability objectives are presented in Table 4.2.

Table 4.2: Stage-wise Criteria and Specifications for Helsinki Project

Procurement Stage	Criteria/Provision
Technical Criteria	• All ICT equipment must comply with Waste from Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances (RoHS) directives, limiting hazardous substances and ensuring recyclability • Equipment must meet the latest Energy Star efficiency level • Products must have a minimum life cycle of 12 months after market launch **Verification:** Compliance verified through manufacturer documentation
Qualification Criteria	Bidders must demonstrate compliance with environmental and occupational safety standards and maintain relevant environmental certifications
Award Criteria	Evaluation considered: • Energy consumption (during use and in idle mode) • Three-year on-site warranty • Environmental certifications and details of recycling processes • Weightage for environmental aspects: 6 of 100 points
Special Conditions	• Compliance with WEEE and RoHS clauses is mandatory • Contractors must collaborate with the authority to support continuous environmental performance improvement • Long-term supplier engagement to explore further emissions and energy reductions

Implementation Challenges and Considerations for Developing Economies

While the Helsinki case demonstrates best practice, implementing similar approaches in other countries may require careful attention to contextual factors. The following considerations are particularly relevant.

- *Limited Availability of Energy-Efficient ICT Products*

  In many developing economies, the domestic market for certified, energy-efficient ICT products such as Energy Star standards may be limited. Early market engagement, as practised in Helsinki, is essential to understand actual market capabilities and to signal demand for energy efficient products. Where domestic supply is inadequate, framework agreements can be structured to allow participation of international suppliers.

- *Higher Upfront Costs Versus Long-Term Savings*

  Combining a framework agreement with life-cycle costing provides a good strategy for ensuring energy efficient products, which often carry a higher initial price. The procurement frameworks in many countries already permit or encourage the use of LCC as evaluation criteria and, therefore, the challenge is to build the capacity of procurement officials to apply the strategy effectively.

- *Data and Monitoring Challenges*

  Measuring the benefits of energy-efficient ICT procurement, such as reductions in energy cost and GHG emissions, requires data collection and technical expertise that may be limited in some countries. Developing countries can start with simple indicators, such as energy saving, and gradually enlarge the scope of measurement as capacity grows.

- *Resistance to Change and Awareness Gaps*

  End-users and procurement officials may prioritise familiar brands or perceived performance over energy efficiency, particularly if they are unaware of the cost and climate benefits. Regular sensitisation, training and communication of documented savings from early adopters can build acceptance and shift the organisational culture. Involving end users in the specification design process can also address concerns and ensure that efficiency requirements do not compromise functionality.

- *Supplier Compliance and Product Verification*

  Ensuring that suppliers meet sustainability claims requires robust verification mechanisms. Reliance on internationally recognised standards (e.g., Energy Star, Electronic Product Environmental Assessment Tool (EPEAT), RoHS compliance) simplifies verification, as compliance can be demonstrated through manufacturer documentation or third-party certification.

Box 4.2: Key Sustainability Benefits Achieved in the Helsinki Project

Key Sustainability and Economic Benefits

The City of Helsinki's GPP approach resulted in substantial measurable benefits. Using the GPP 2020 Calculator for ICT equipment, the city achieved:

- **Energy savings:** Approximately **3.9 million kWh** across the life cycle of procured ICT devices
- **GHG emissions reduction:** An estimated **693 tonnes of CO_2-equivalent (27.4% reduction** compared to the previous procurement cycle)
- **Cost savings:** Lifetime electricity savings of **EUR 288,000** achieved through energy-efficient equipment
- **Policy impact:** The project demonstrated how framework-based procurement can drive both **fiscal efficiency** and **climate benefits**, establishing ICT procurement as a key lever for urban sustainability.

4.3. Ujjain, India: Energy Efficiency in Drinking Water Scheme using EPC Model

Context and Relevance for Developing Countries

The Madhya Pradesh Jal Nigam (MPJN), the authority responsible for providing safe potable water to the residents of the city of Ujjain in India, faced a critical challenge of high electricity bill for water supply.[28] Inefficiencies in aging pumping stations and piping infrastructure also led to significant energy waste. In 2020, MPJN sought to address this challenge by entering into an Energy Performance Contract with an Energy Service Company to modernise the Ujjain Drinking Water Scheme.

For developing economies, this case offers a practical, replicable model for infrastructure modernisation without high upfront capital expenditure. As cities across developing countries grapple with rapid urbanisation and aging water infrastructure, the financial burden of upgrading pumping stations, reducing water leakage and improving energy efficiency can be prohibitive. Also, countries have committed to Nationally Determined Contributions under the Paris Agreement, which often include targets for emissions reductions in the energy and water sectors.

The Ujjain ESCO model demonstrates how a performance-based contracting mechanism can unlock private sector expertise and financing to upgrade drinking water infrastructure and achieve guaranteed energy savings without any initial investment.

Approach and Implementation

To improve the energy efficiency of its drinking water scheme, MPJN invited a bid for an EPC to implement comprehensive energy-saving measures. The project covered the assessment, retrofitting and monitoring of pumping infrastructure across the city's water supply network. The core objective was to reduce the Specific Energy Consumption (SEC), measured in kiloWatt-hours per kilolitre (kWh/kl) of water treated and distributed.

The EPC model was central to the procurement approach. Instead of the utility paying upfront for new pumps and monitoring systems, the ESCO financed the investment and was repaid through the guaranteed cost savings generated by efficiency improvements. This performance-based structure de-risked the project for MPJN and ensured the ESCO remains highly motivated to achieve and maintain savings.

Key features of the approach included:

- **Performance-based ESCO Contract:** An ESCO was engaged to identify, implement and finance energy-efficiency measures. The ESCO's remuneration was directly tied to the verified energy savings achieved, guaranteeing a minimum 5 per cent reduction in baseline SEC.
- **Technology-driven Retrofitting:** The project involved the implementation of energy-saving measures in pumps, including impeller trimming, variable frequency drives and high-efficiency motor replacements to match pump output more accurately with system demand.
- **Web-based Monitoring for Transparency:** A key requirement was the installation of a centralised, web-based monitoring solution. This system allowed for real-time tracking of individual pump performance, energy consumption and flow rates, providing unprecedented data visibility to both the utility and the ESCO.
- **Comprehensive System Maintenance:** Beyond hardware upgrades, the contract included the maintenance of pumps, and leakage and repair surveys in the pipe network.

Procurement Criteria and Specifications

Table 4.3 summarises how the technical and performance criteria were integrated into the procurement process for the Ujjain ESCO project.

28 https://www.securemeters.com/case_studies/energy-efficient-technology-and-solutions-provider-large-category-award/

Table 4.3: Stage-wise Criteria and Specifications for the Ujjain Drinking Water Project

Procurement Stage	Criteria/Provision
Technical Criteria	• Guaranteed minimum reduction of 5% in baseline SEC measured in kWh/kl • Must maintain the notified hydraulic flow and pressure levels required for the city's water supply • Implementation of a web-based solution for real-time monitoring of pump performance and energy use • Savings and performance verified through the installed monitoring system against an established baseline.
Qualification Criteria	• Bidder must be an ESCO registered with the Bureau of Energy Efficiency, New Delhi, India • Bidder must demonstrate prior experience in implementing water or energy-efficiency projects.
Special Conditions	• Performance-based payment structure: ESCO is paid from the verified energy cost savings • Duration of contract allows ESCO to recover investment and earn a return • Ongoing collaboration to maintain equipment and ensure sustained savings over the contract period.

Implementation Challenges and Considerations for Developing Economies

While the Ujjain model demonstrates a successful application of the ESCO model, replicating it in other countries requires careful attention to contextual factors. The following considerations are particularly relevant.

- *Establishing a Credible Energy Baseline*

  The foundation of any ESCO project is the Measurement & Verification (M&V) of savings, which requires a reliable energy consumption baseline. In many cities, historical energy data for specific pumps or stations may be poorly documented. Ujjain's success relied on establishing a clear baseline SEC against which future performance was measured.

- *Navigating Procurement and Legal Frameworks*

  The performance-based nature of an ESCO contract can be unfamiliar to procurement officials and legal departments. Developing countries may need to develop specific EPC bid documents that accommodate shared savings or guaranteed savings models, ensuring they are legally sound and compliant with public financial management regulations.

- *Access to Financing and Creditworthiness of Utilities*

  ESCOs typically need to raise capital to fund the upfront investment in equipment. The willingness of an ESCO to do so depends heavily on the creditworthiness of the client utility. If a utility has a history of financial instability or delayed payments, credit enhancement mechanisms such as guarantees from a national government, multilateral development banks or dedicated energy efficiency funds may be necessary to attract private investment.

- *Technical Capacity for Specification and Oversight*

  Utilities need in-house technical capacity to define the scope of work, evaluate ESCO proposals and oversee the M&V process. In the Ujjain case, MPJN had a clear objective to reduce SEC by a minimum of 5 per cent. In contexts where such technical expertise is limited, engaging external consultants to assist with project preparation, bid documentation, evaluation and validation of savings can be a worthwhile investment to ensure project success.

- *Ensuring Long-Term Sustainability of Savings*

  The Ujjain model included pump maintenance as a key requirement, ensuring that the ESCO was responsible for performance throughout the contract. For continued energy saving after the end of the contract period, contracts must clearly define hand-over procedures and training for utility staff at the end of the term to ensure efficient operation continues.

Box 4.3: Key Sustainability Benefits Achieved in the Ujjain Project.

Key Sustainability and Economic Benefits

The Ujjain approach resulted in substantial measurable benefits.

- **Energy savings:** Approximately **950 MWh** units saved in 6 months
- **GHG emissions reduction:** Reduction of **580 MT** of CO_2-equivalent
- **Improved Reliability:** An uninterrupted water supply.

4.4 India's Grand Challenge for Developing Economies: Procurement of Electric Buses

Context and Relevance for Developing Countries

In India, road transport is a dominant economic sector, but State Transport Undertakings (STUs) have historically operated under financial losses due to rising fuel and staff costs. By 2030, India will require more than 100,000 electric buses, that is, 100 times the number of electric buses operational in 2022.[29] However, the capital cost of an electric bus is two to four times higher than a diesel or CNG alternative, making outright purchase prohibitive for cash-strapped STUs. Such a financial challenge is common to developing economies across Africa, Asia and Latin America, where public transport is essential but utilities face similar budget constraints.

To ease this situation, the Government of India launched the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme that provides capital subsidies to kickstart electric bus deployment. However, the first phase (FAME-I) revealed significant hurdles such as lack of technical capacity to manage procurement, variation in contract terms leading to inconsistent bid prices, and inability to manage EV buses due to rapid development in technology.

In response, Convergence Energy Services Limited (CESL) designed the "Grand Challenge",[30] an aggregated, national-level tender for 5,450 electric buses across five major cities. This case demonstrates how demand aggregation and framework agreement, and a shift to purchasing "Mobility as a Service" can overcome the barriers to adopting costly but essential clean e-buses. For developing economies, the Grand Challenge offers a replicable model for harnessing economies of scale, attracting private investment and making sustainable public transport financially viable.

Approach and Implementation

The Grand Challenge, launched in September 2021, was a strategic shift from city-level procurement to a consolidated national tender. Instead of each city purchasing buses, CESL acted as a central purchasing body, aggregating demand from Delhi, Kolkata, Bangalore, Hyderabad and Surat. The procurement was structured on a Gross Cost Contract (GCC), a framework agreement where private service providers own, operate and maintain the buses and charging infrastructure for a 12-year period, receiving a fixed per-kilometre payment. The city retains the fare revenue and focuses on service oversight.

This model transferred the technology and operational risk to the private sector, where it could be managed most effectively. Key features of the approach included:

29 https://www.convergence.co.in/public/images/electric_bus/Grand-Challenge-Case-Study-Final-Web-Version.pdf
30 https://www.convergence.co.in/public/images/electric_bus/Grand-Challenge-Case-Study-Final-Web-Version.pdf

- National-level Demand Aggregation: CESL consolidated the requirements of five major cities into a single tender of 5,450 buses. This scale was unprecedented globally and signalled a serious, long-term commitment to the market, encouraging greater supplier participation and investment.
- Standard Framework Agreement: A standard Model Concession Agreement (MCA) formed the non-negotiable core of contract. This created a uniform set of terms, pricing structures and performance expectations across all participating cities, eliminating the need for individual cities to develop complex legal contracts from scratch.
- Multi-City Collaborative Platform: A procurement advisory group was established, comprising all participating STUs. CESL convened regular meetings to harmonise technical and operational specifications across cities with varying local needs.
- Early and Continuous Market Engagement: The tender specifications were developed through an iterative, consultative process involving a wide range of stakeholders. A pre-bid conference was also held with potential bidders to address queries and refine the final Request for Proposal.
- Mobility as a Service: The 12-year framework moved beyond the upfront capital cost. By paying a fixed per-kilometre charge that covered the bus, charging infrastructure, maintenance, drivers and electricity (up to a defined efficiency), the model internalised the full life-cycle cost, making long-term financial planning clearer for cities and aligning the operator's incentives with reliable, efficient service delivery.

Procurement Criteria and Specifications

Table 4.4 summarises how the technical, eligibility and sustainability criteria were integrated into the Grand Challenge framework agreement. Crucially, many of these specifications were homogenised across all participating cities for the first time.

Table 4.4: Stage-wise Criteria and Specifications for the Grand Challenge e-Bus Project

Procurement Stage	Criteria / Provision
Technical Specifications	• Vehicle Types: Homogenised specifications for 12m and 9m, AC and Non-AC, low-floor and standard-floor buses • Range & Efficiency: Mandated minimum daily range (e.g., 225 km for 12m buses) and energy efficiency (e.g., 1.3 kWh/km for 12m AC buses) • Safety & Standards: Compliance with the latest All India Standards for EV safety, battery and component performance • Verification: Specifications vetted and approved by the Automotive Research Association of India
Eligibility Criteria	• Bidders could be Original Equipment Manufacturers (OEMs) or financial aggregators with a letter of support from a certified OEM • Compliance with the Phased Manufacturing Programme to meet 'Make in India' local content requirements and qualify for FAME-II subsidy
Award Criteria	• Primary Criterion: The substantially responsive bidder offering the lowest cost per kilometre
Contract Conditions (Framework Agreement)	• 12-Year Term: A 10-year fixed term, extendable by 2 years, aligning with the life cycle of the buses and batteries • Risk Allocation: Cities provide depots with grid connectivity; Operators finance, install and maintain all charging infrastructure and buses • Payment Security: Provisions for payment even during disruptions and for unutilised km (75% payment) to protect operator cash flow and improve bankability • Employment Clause: A mandate that at least 10% of the operator's workforce be women.
Subsidy Integration	• The FAME-II capital subsidy (up to 40% of bus cost) was integrated into the per-km pricing model.

Implementation Challenges and Considerations for Developing Economies

While the Grand Challenge model achieved remarkable success, discovering prices 31-35% lower than diesel/CNG buses with subsidy, its replication in other developing countries requires careful attention to contextual factors. The following considerations are particularly relevant:

- *Institutional Capacity and a Mandated Central Purchasing Body*

  The success of the Grand Challenge relied heavily on CESL, a public sector entity with a strong mandate, prior experience in high-value energy procurements, and a skilled in-house procurement team. For developing economies, establishing or empowering a similar central agency with the technical, financial, procurement and legal expertise to manage complex, cross-jurisdictional tenders is a critical first step.

- *The Difficulty of Harmonising Specifications Across Jurisdictions*

  One of the greatest challenges was harmonising the diverse technical and operational requirements of five different cities, each with its own established practices and local conditions. The solution was a highly collaborative, participatory process involving a dedicated procurement advisory group of city representatives.

- *Moving from Asset Purchase to Service Contract (GCC Model)*

  The shift from buying buses to buying "mobility as a service" is a fundamental mindset change for public procurement officials who are traditionally trained to purchase physical assets. The GCC model transfers significant risk to the private sector but requires robust contract management capabilities within the public agency to monitor performance, verify kilometres and enforce service level agreements.

- *Ensuring Bankability and Payment Security*

  The Grand Challenge improved bankability by capping penalties (at 10%), ensuring payment for unutilised kilometres and clarifying termination payments. For cities with weaker credit ratings, a national-level Payment Security Mechanism could further de-risk contracts. This is a vital lesson: Price discovery is only half the battle; ensuring the financial flows that underpin the contract are secure is essential for attracting long-term, low-cost capital.

- *Managing the Transition and Preparing the Ecosystem*

  The success of the framework agreement depends on factors beyond the contract. Cities must prepare bus depots with adequate civil infrastructure and high-tension power grid connections for charging. Without this upstream preparation, the operator cannot begin service. Scaling this model to a broader range of smaller cities will require substantial capacity building to manage these complex contracts and technical systems effectively.

Box 4.4: Key Sustainability Benefits Achieved in the e-Bus project

Key Sustainability and Economic Benefits

The aggregation and GCC approach resulted in substantial measurable benefits.

- **Financial:** Reduction in per-km costs of e-bus by **31%** as compared to diesel and **18%** as compared to CNG buses
- **Long-term saving:** Saving of approximately **USD 1.27 billion** over the 12-year lifespan of the contract as compared to the previous tender
- **Environmental benefits:** No environmental benefits have been calculated but it will certainly lead to reduction in air pollution and GHG emissions
- **Social benefits:** Employment to women in operation and management of e-buses.

4.5. Learning from the Case Studies

The above four case studies show that cost-neutral solutions/models for implementing G/SPP are not limited to theory but they are actually being implemented in both the developed and developing world to achieve sustainability goals. It has been repeatedly demonstrated in all cases that cost-neutral G/SPP implementation is feasible in developing economies when public entities shift from buying assets at the lowest upfront price to procuring performance, service outcomes and life-cycle value. Across the case studies, the most credible results were achieved where procurement design aligned commercial incentives with public outcomes, reducing operating expenditure, improving service reliability and embedding sustainability through enforceable contractual obligations. Some of the key learnings are discussed below.

a. Guaranteed-savings and performance contracting models can de-risk infrastructure upgrades for budget-constrained public entities. The ESCO approach demonstrates that utilities and municipalities can modernise systems without large upfront capital budgets by using verified future savings to pay for investment. These models are especially relevant in municipal services where efficiency gains are substantial, measurable and quickly realised.

b. The cases also show that sustainability interventions often sit in "non-obvious" parts of the system where savings are largest. For example, reducing water loss through leakage detection and pipe repair is not only water conservation; it is a high-impact energy efficiency strategy, highlighting the water – energy nexus and the value of designing scopes that capture cross-cutting savings rather than focusing narrowly on a single technology.

c. Demand aggregation and framework contracting instruments can fundamentally change market economics and reduce the perceived "green premium". Pooling demand across multiple entities creates scale and predictability, which lowers supplier risk premiums and transaction costs and can bring sustainable options closer to price parity. Framework agreements and model concession templates reduce procurement complexity, shorten timelines, and improve bidder confidence by clarifying risk allocation, service obligations and payment mechanisms.

d. Service-based procurement models, such as mobility-as-a-service and managed printer and multi-functional device services, demonstrate that purchasing a service rather than a product can lower entry barriers for cash-constrained agencies and shift the basis of competition towards uptime, efficiency, maintenance quality and end-of-life responsibility. The Czech PaaS model also illustrates that service contracts can be structured to directly support social equity and economic empowerment objectives while simultaneously enabling circular economy outcomes through refurbishment, redeployment and reuse, often delivering both cost and environmental benefits over the contract term.

e. Across performance-based and service-based models, data and verification mechanisms are essential for accountability and credibility. Guaranteed savings, uptime requirements, circularity obligations and social targets cannot remain aspirational. They need to be translated into measurable KPIs, clear evidence requirements, audit rights and remedies. Monitoring systems and verification protocols are therefore not add-ons; they form part of the financial and governance architecture that makes cost-neutral procurement defensible and scalable.

f. Early and structured market engagement emerged as a decisive success factor across the cases. Iterative dialogue with OEMs, service providers, financiers and technical experts helps set specifications that are ambitious yet achievable, maximises competition and avoids unrealistic requirements that lead to failed tenders or high prices. In markets where supplier readiness is uneven, disciplined pre-tender consultation and phased increase in requirements are a must for the success of tenders.

g. The cases further indicate that scaling cost-neutral models requires policy coherence and collaboration, particularly when savings accrue across budget lines or when sustainability outcomes span multiple mandates (environment, industry, labour, finance, local government). For service-based and circular models such as PaaS, scaling beyond pilots typically depends on consistent rules on evaluation methods, standard contractual clauses and coordinated market development.

h. Finally, sustained implementation depends on capacity development of both buyers and suppliers. Procuring entities need training and practical tools to optimise procurement process, specify performance outcomes, evaluate bids on life-cycle value, manage contracts and verify results. Suppliers may require technical assistance, predictable demand signals and phased targets to invest confidently in service networks, refurbishment systems and compliance assurance.

5. Pathways to Cost-Neutral G/SPP in Developing and Poor Economies

5.1. Cost-Neutrality as the Entry Point

For developing and low-income economies, integrating sustainability into public purchasing is not merely a technical challenge but a structural one. Budgets are constrained, institutional capacity is often limited, supplier markets for sustainable goods and services are underdeveloped, and immediate service delivery pressures frequently outweigh longer-term environmental considerations. In this context, the perception that green products carry an unaffordable "green premium" is not only a perceptual barrier, it is often a binding constraint that slows or prevents progress on G/SPP implementation.

Accordingly, this chapter positions cost-neutrality as the practical entry point for G/SPP in developing and poor economies. This does not mean lowering ambition. It means using procurement approaches that deliver sustainability outcomes without jeopardising procurement budgets while progressively building the institutional and market capability needed to deepen and scale the approach over time. This chapter first focuses on pathways that enable financial cost-neutrality under current constraints, and then outlines enabling conditions required to scale towards fiscal and social cost-neutrality.

5.2. The Five Pillars for Immediate Implementation under Institutional Constraints

Drawing on the analysis in preceding sections and the case evidence presented in this report, the pathway for developing and poor economies can be organised into five interconnected pillars. Each pillar is designed to be implementable within existing institutional constraints, requiring minimal upfront investment while delivering tangible cost savings and service improvements. The pillars are mutually reinforcing: quick wins build confidence and political support; market transformation tools reduce unit costs; policy alignment normalises best-value approaches; and simple data systems make savings visible and G/SPP defensible.

Pillar 1: Unlocking cost savings through life-cycle value

In many developing economies, procurement decisions are driven almost exclusively by the lowest purchase price. Yet life-cycle savings from lower energy bills, reduced maintenance, longer asset life and reduced downtime are real and often substantial. The challenge is that these savings may accrue to different budgets or future years while procurement officials face immediate price scrutiny. The official who pays the "green premium" sees only the cost; the savings remain invisible to the contracting authority.

A practical starting point is to adopt simple, sector-specific TCO/LCC tools for a few high-impact categories. Ready-made tools and guidance (e.g., from international organisations such as the European Commission or UNEP) can be adopted and adapted with local data rather than developed from scratch. The objective is to strengthen decision-making and defensibility, not to create complex models that slow G/SPP implementation.

Countries should also prioritise categories with demonstrable short-term paybacks and easily verifiable performance. Early success is more likely in categories such as energy-efficient lighting, efficient pumps and motors, water-efficient fixtures, remanufactured ICT equipment and remanufactured printer cartridges. Demonstrating success in a few visible categories builds confidence, creates a template for replication, and reduces resistance among finance and oversight stakeholders.

Where capital constraints are severe but operating expenditures are significant, governments can bypass upfront investment barriers through a regulation on EPC. EPC allows public entities to implement efficiency upgrades with limited or no upfront capital by repaying investment from verified savings. In developing contexts, project preparation support from development partners can help utilities and municipalities structure bankable contracts, define baselines, and establish credible monitoring and verification.

Pillar 2: Building pragmatic capacity beyond theoretical knowledge

Shifting from price-based procurement to value-based procurement requires skills that are not yet mainstream in many public procurement systems. Procurement officials are often trained primarily in procedural compliance and contract law. The performance metrics reward speed and cost avoidance rather than innovation, life-cycle value or sustainability outcomes. In such settings, procurers revert to default lowest-price evaluation even when better value is achievable.

Capacity development should therefore focus on a small set of high-impact practices rather than broad theoretical coverage. Early training should be practical and task-oriented -- how to use a TCO calculator, how to write performance-based specifications, how to structure a framework agreement and how to manage a service-based contract. Training should be hands-on and linked to real procurement data, ideally producing actual tender documents and evaluation templates.

Developing countries should also institutionalise behaviour change through simple, mandatory checklists and templates that embed sustainability into routine workflows. For example, a one-page "Sustainability Screening" can require a procuring officer to justify why a sustainable option was not selected for defined categories. Such tools shift default behaviour without requiring deep technical expertise across the entire workforce.

To accelerate diffusion, governments can establish regional centres of excellence and peer- learning networks supported by development partners and regional organisations. South-South learning is especially valuable because solutions from comparable contexts are often more transferable than those from high-income settings. In parallel, public entities should leverage existing technical expertise within markets through structured supplier engagement so that specifications reflect what is feasible and competitive.

Pillar 3: Using public procurement to shape markets

Sustainable products are often expensive in developing countries, partly because supplier markets are underdeveloped. Suppliers do not invest in improving capability without consistent demand and buyers hesitate because products are not readily available or appear costly. This chicken-and-egg dynamic perpetuates the "green premium" and slows adoption.

One of the most powerful market-shaping tools is demand aggregation, particularly through framework agreements. Consolidating demand across ministries, agencies or multiple cities creates scale and predictability, which lowers supplier risk premiums and transaction costs, and typically reduces unit prices. Developing countries should start by aggregating demand for a few high-volume, relatively standardised categories across the central government and subsequently expand to sub-national levels. This creates a credible demand signal that attracts suppliers and intensifies competition.

A central procurement agency can establish frameworks with clear sustainability requirements, pre-agreed terms and call-off mechanisms so that individual agencies can purchase quickly and consistently without running separate tenders. This reduces administrative burden, improves compliance and supports market standardisation.

Governments can strengthen market response by publishing forward procurement plannings with phased sustainability thresholds. Clear signalling gives suppliers time to invest in upgrading facilities and service networks and reduces the "surprise compliance" effect that leads to high prices or low responsiveness. In parallel, structured market dialogue should be standard practice to understand cost drivers, test specification feasibility and design realistic but ambitious requirements. Finally, market shaping should not exclude domestic suppliers. Lotting strategies, proportionate qualification requirements and SME-friendly call-offs can support local sustainable suppliers and accelerate domestic green industry development.

Pillar 4: Embedding cost-neutrality in policy and legal frameworks

Many developing countries have adopted SPP policies but implementation often remains aspirational because secondary regulations, standard bid documents and evaluation practices remain anchored in lowest-price logic. Even where procurement laws allow sustainability criteria, implementing rules may not

provide the clarity and incentives needed for routine adoption.

A practical reform is to embed LCC/TCO as a recognised and increasingly normal evaluation method, starting with a phased mandate. Rather than requiring complex LCC across all procurement, governments can mandate LCC/TCO for selected high-impact categories and above defined thresholds initially, supported by simple templates and fixed assumptions. Coverage can expand as data and capacity mature.

Governments should also remove legal and procedural barriers that prevent innovative cost-neutral models, including framework agreements, EPC/ESCO contracts and PaaS. Restrictions on multi-year commitments, leasing or outcome-based payment structures can block these models even when they are fiscally prudent. Identifying and addressing such barriers is crucial to mainstreaming cost-neutral approaches.

Finally, a phased implementation strategy is often more credible than an all-at-once mandate. Most countries should start with clear requirements for the central government, build demonstration effects, and then extend to sub-national entities and SOEs as capacity and market readiness improve.

Pillar 5: Building simple, fit-for-purpose data systems

In low-data environments, the cost perception persists because savings and performance improvements are not documented. While sophisticated monitoring systems can be valuable, developing countries may begin with a minimum viable data approach that makes results visible and usable for decision makers.

A practical starting point is to track spend and basic performance metrics in a few priority categories where sustainable options exist and savings are plausible (e.g., lighting, ICT, vehicles, pumps). Countries should also institutionalise a simple process to document and disseminate success stories. A single well-documented case, such as a municipality reducing electricity bills through LED streetlighting, is often more persuasive than extensive theoretical claims. Standard case templates can help capture baseline, intervention, savings, service improvements and lessons learned.

Where framework agreements are used, the central purchasing body can automatically capture data on volumes, prices, suppliers and sustainability attributes. This reduces reporting burden on individual agencies and creates a credible evidence base for iterative improvement. Finally, development partners can provide targeted support to design and implement simple systems, with an emphasis on building durable national capability.

5.3. Scaling Beyond the Basics: Institutional Enablers for Fiscal and Social Cost-Neutrality

The pillars above can be implemented largely within existing procurement systems and are designed to deliver **financial cost-neutrality** for contracting authorities. However, as countries seek to scale and deepen G/SPP, two more advanced forms of cost-neutrality become increasingly relevant: **fiscal cost-neutrality across government budgets** and **social cost-neutrality including externalities**. The institutional conditions described below can therefore be best understood as enabling conditions for scaling and deepening G/SPP.

5.3.1. Enablers for fiscal cost-neutrality (cross-budget)

In some cases, what appears to be a procurement failure is in fact a broader public financial management (PFM) constraint. Procurement may identify higher-value sustainable options, but budgeting, accounting and delegation systems may not be designed to recognise or reward value creation across departments and over time. To institutionalise cross-departmental fiscal cost-neutrality, where one entity incurs higher upfront expenditure while another captures downstream savings, governments typically need three enabling mechanisms. First, budgetary integration or transfer rules to credit savings back to the entity that incurred the higher cost. Second, cross-portfolio cost accounting, typically through Integrated Financial Management Information System (IFMIS) configurations that enable cost and savings visibility across departments (including, where feasible, avoided costs and realised savings). Third, political and administrative authorisation that permits one department to spend more on the understanding that another will spend less, supported by central budget oversight.

Examples of these building blocks exist but are often partial or sectoral. Savings-retention and recycling arrangements (e.g., revolving funds) have been used to address split incentives in specific contexts. Advanced IFMIS such as Korea's dBrain+[31] and Chile's SIGFE[32] environments provide a backbone for cross-portfolio visibility, though sustainability savings attribution usually requires additional tagging and configuration. The United States federal ESPC[33] framework illustrates a legal and administrative pathway to invest based on guaranteed savings. The United Kingdom's Salix model[34] and municipal revolving funds such as Litoměřice[35] (Czech Republic) illustrate formal savings-retention and recycling arrangements that address split incentives. These examples demonstrate that relevant components exist, but they are rarely integrated into one unified government-wide system. This reinforces the fact that financial cost-neutrality is the most feasible entry point, whereas fiscal cost-neutrality tends to require progressive Public Finanacial Management (PFM) alignment.

5.3.2. Enablers for social cost-neutrality (including externalities)

Applying social cost-neutrality by incorporating environmental and social externalities requires a more advanced analytical architecture. Governments need accepted valuation approaches, including, where feasible, shadow prices for externalities such as carbon emissions, air pollution, health impacts or biodiversity loss. They also need procurement laws and regulations that permit and operationalise non-price criteria or broader value-based evaluation methods. Finally, they need the capacity to generate and verify the underlying data, such as emissions factors, baselines, health incidence data, exposure-response assumptions and local valuation parameters. In many developing contexts, these datasets are unavailable, fragmented or contested, and formal valuation frameworks are still emerging. For that reason, incorporating monetised externalities should typically be treated as a medium-term objective. Countries can begin with core financial TCO/LCC and progressively strengthen carbon and impact valuation through staged measures (e.g., labels, EPDs and benchmarking tools) as policy, legal and data systems mature.

In practice, countries are integrating carbon into procurement in progressive, operational ways that do not require procurers to conduct full LCAs themselves. The most common entry points are: (i) using LCA-informed Type I ecolabel criteria as technical specifications and third-party verification, (ii) requiring Environmental Product Declarations, especially for construction materials to compare embodied carbon on a consistent basis (USA[36]), and (iii) deploying LCA-based tools that translate emissions into procurement-relevant benchmarks and incentives (e.g., DuboCalc[37]). More advanced approaches treat carbon management as a supplier capability by requiring carbon-reduction plans and emissions reporting as part of supplier eligibility (e.g., UK: Public Procurement Note 06/21[38]) and, in a smaller set of jurisdictions, converting stronger carbon performance into award advantages through scoring or "fictitious price" mechanisms (e.g., CO_2 Performance Ladder[39], MyCREST[40]). Together, these approaches show a staged pathway from carbon disclosure and compliance, to carbon benchmarking and incentives, and ultimately towards systematic valuation of externalities as data and legal frameworks mature.

By contrast, examples of countries monetising social value and applying it as a quantified factor in tender evaluation remain limited. In most systems, social objectives are pursued more directly through procurement rules and contract design, such as health and safety requirements, support for local industry and SMEs, lot division to widen participation, sub-contracting provisions, and targeted measures for disadvantaged groups rather than through formal monetary valuation in award calculations.

31 https://www.openfiscaldata.go.kr/op/en/ug/UOPENUGA10
32 https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/07/digital-government-in-chile_6d6e2f7f/d1b72d93-en.pdf
33 https://www.energy.gov/femp/energy-savings-performance-contracts-federal-agencies
34 https://www.salixfinance.co.uk
35 https://energy-cities.eu/best-practice/revolving-energy-saving-fund/
36 https://sftool.gov/learn/about/658/embodied-carbon
37 https://www.dubocalc.nl/en/
38 https://www.gov.uk/government/publications/procurement-policy-note-0621-taking-account-of-carbon-reduction-plans-in-the-procurement-of-major-government-contracts
39 https://www.co2-prestatieladder.nl/wat-is-de-co2-prestatieladder/
40 https://www.cidb.gov.my/eng/mycrest/

5.4. Roadmap: Quick Wins to Institutionalisation

A practical pathway for leveraging cost-neutral solutions/models in any country is incremental and evidence driven. Countries can start with one high-impact category, one simple framework agreement and one documented success story, and scale from there.

- **Phase 1 (0 - 18 months):** Select two or three high-impact categories with short paybacks; adopt a simple TCO tool; run one pilot using a cost-neutral model; and document two or three success stories. Establish a basic monitoring approach focused on a few indicators (volumes, unit prices, basic savings proxy and service reliability).
- **Phase 2 (18 - 36 months):** Expand the number of categories; standardise templates (screening checklist, TCO form, performance specification examples); institutionalise training focused on practical tools; and strengthen market engagement and framework call-off governance. Use data from frameworks and pilots to refine specifications and update assumptions.
- **Phase 3 (36 - 60 months):** Integrate sustainability tagging and reporting into existing systems where feasible (including IFMIS and e-procurement modules); issue budget and audit guidance recognising life-cycle value; expand implementation to sub-national entities and State Owned Entreprises (SOEs); and pilot external valuation approaches in selected sectors where data and legal frameworks support credible application.

The pathway to G/SPP implementation for any country must be grounded in local context and attentive to the constraints under which procurement officials operate. The five pillars above provide a feasible pathway that starts with financially cost-neutral actions and builds towards deeper institutionalisation over time. The “green premium” barrier is real in some cases, but it is not insurmountable. It cannot be overcome by narratives alone; it has to be demolished by demonstrating project by project and contract by contract that G/SPP can save money, deliver better services and build local markets. Over time, these incremental gains accumulate, transforming sustainable procurement from an aspiration into a domestically-owned and fiscally-prudent routine practice.

6. Conclusion

The perception of "green premium" in the context of G/SPP is rarely a simple misunderstanding; it is a rational response to fiscal scarcity, rigid annual budgeting and performance systems that reward short-term compliance over long-term value. When governments (especially developing and poor economies) struggle to maintain basic services, even modest price premium at the point of purchase can be discouraging, regardless of life-cycle benefits.

G/SPP is fundamentally a whole-of-government endeavour, designed to address cross-cutting developmental policy issues through public procurement. Confronting the "green premium" perception of sustainable alternatives is no different: it demands the same coordinated, whole-of-government response. Procurement reforms must be reinforced by budget and accountability systems that recognise life-cycle value, allow savings to be visible across portfolios and enable agencies to adopt higher-value options without being penalised for higher upfront costs. This requires coordinated action across finance, planning, sector ministries, environmental regulators, central procurement bodies and audit/oversight institutions, supported by common tools, standard clauses and shared performance metrics.

This report shows that while sustainable alternatives may indeed cost more upfront in some cases, the perception that they are inherently more expensive is frequently **incorrect** when assessed through total cost of ownership, cross-budget fiscal effects or wider societal benefits. The persistence of "green premium" perception reflects a deeper structural misalignment between who pays and who benefits, an accounting silo problem that procurement reform alone cannot fully solve independently.

At the same time, the report demonstrates that cost-neutral G/SPP is not theoretical. The case studies confirm that governments can make immediate progress by shifting from buying assets at the lowest upfront price to procuring performance, service outcomes and life-cycle value. Guaranteed-savings contracting can de-risk infrastructure upgrades and investment from verified savings. Demand aggregation and framework agreements can change market economics by creating scale and predictability, reducing supplier risk premiums and bringing sustainable options closer to price parity. Service-based procurement models can lower entry barriers for cash-constrained agencies, embed circularity through reuse and refurbishment, and deliver social objectives. Across all models, credible results depend on smart procurement process optimisation supported by early market engagement, pragmatic capacity building and policy coherence across portfolios.

Cost-neutrality can therefore be the practical entry point for G/SPP in developing and poor economies without lowering ambition. Governments can begin with financially cost-neutral approaches that are feasible within current procurement systems, while progressively strengthening the enabling conditions needed to scale into fiscal and social cost-neutrality. Over time, carbon and other externalities can be integrated through staged approaches, starting with labels, declarations and benchmarking tools, and evolving towards more formal valuation as legal frameworks, data systems and institutional capabilities mature. One also needs to be cautious that a cost-neutral approach to procuring sustainable alternatives may not be appropriate in all procurement cases. The contracting authority must therefore exercise discretion in determining whether to adopt a particular approach or a combination of approaches to realise the desired sustainability objectives.

Development partners can accelerate this transition by leveraging their strengths to reduce upfront barriers, lower transaction costs and improve confidence in performance-based and life-cycle-value procurement. They can support project preparation and standardisation, including investment-grade diagnostics, baselines, tender documents, and model contracts for EPC/ESCO, frameworks and service-based procurement so that public agencies are not burdened to reinvent complex instruments case by case. They can crowd in finance through risk mitigation and blended instruments, including guarantees and credit enhancement, enabling pay-from-savings models that require minimal upfront public capital. They can provide technical assistance to deploy TCO/LCC tools, standard templates, verification protocols and simple dashboards that make savings measurable and defensible to finance controllers and auditors. They can also use convening power to structure market engagement and demand aggregation across agencies or cities, increasing scale and predictability and reducing supplier risk premiums that inflate the perceived green premium.

Finally, development partners can invest in capacity building for both procurers and suppliers, and support partnerships between domestic firms and international technology and service providers, strengthening local service ecosystems and enabling circular and service-based business models that deliver lower life-cycle cost.

Ultimately, the way to overcome the "green premium" barrier is not only by arguing that sustainability matters for people and the planet, but by demonstrating contract-by-contract and category-by-category that sustainable procurement can **save money, improve service delivery and build markets**. Starting small with one priority category, one scalable procurement model and one well-documented success story can generate the credibility and momentum required to institutionalise G/SPP as a fiscally prudent, locally-owned practice.

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