

# Chapter 7

## Evolving Role of Sustainable Procurement in Coming Decades



### 7.1 Introduction

Ever since the focus of public procurement shifted from a simple resource procurement tool to a set of capabilities that can generate multiple values for an organization, its role has constantly been evolving. After being established as an important SDG component (SDG12.7), the advancement of sustainable procurement as a vital component of global effort to achieve sustainable consumption and production patterns is guaranteed, even more so considering the linkage and interdependence of different SDGs. It is also certain that policymakers and other stakeholders will increasingly consider using public procurement for meeting diverse objectives in the coming decades.

However, sustainable procurement policy will have to compete with other economic, fiscal, and market tools and prove its efficacy in addressing emerging global challenges to remain relevant as a preferred choice for policymakers. Today, policymakers and leaders articulate SPP policy as a tool for achieving green economy, circular economy, ending poverty, achieving gender equality, reducing the incidence of Antimicrobial Resistance (AMR); the list goes on. This chapter discusses ongoing deliberations related to various uses of sustainable procurement and reflects on how sustainable procurement will evolve from here in the context of sweeping changes taking place in various fields.

#### *7.1.1 Sustainable Procurement in the Context of International Trade*

International trade is a powerful tool for creating jobs, enabling efficient use of resources, providing incentives to industries, and improving the well-being of people; it thus has substantial influences on global sustainability (UNCTAD 2014). The use of

public procurement in this domain for achieving sustainability goals should be seen as a complementary instrument. In reality, public procurement to support national broader interests is perceived as a non-tariff barrier to free trade. Therefore, using public procurement to support national development efforts has become an essential part of the agenda in bilateral and multilateral trade negotiations. The main focus of such negotiations has been to facilitate the participation of international suppliers at par with local suppliers of goods and services in public procurement above certain thresholds to promote an open-market economy.

The Agreement on Government Procurement (GPA), which is a plurilateral agreement within the WTO framework, regulates public procurement. It came into existence in 1979 under the General Agreement on Tariffs and Trade (GATT) and was later revised in 1996 and 2012. The provision of GPA applies to the procuring entities specified by each country in the “schedule” of goods and services and to procurement contracts exceeding a given financial threshold. In totality, the revised GPA provides market access opportunities amounting to US\$1.7 trillion annually.<sup>1</sup>

The critical question at the centre of conversations is whether the pursuit of social and environmental concerns in public procurement is in line with the GPA provisions. Alternatively, does the pursuit of horizontal objectives by Member States of GPA hinder international trade? To find the answers to these questions, one needs to understand the basic GPA framework. The GPA provides a framework of rights and obligations. Parties agree that suppliers in signatory countries will not be treated less favourably than domestic suppliers in procurement covered by the Agreement. However, many developing and emerging economies have viewed this as an obstacle in pursuing national development objectives. They fear that opening a government procurement market to foreign suppliers might adversely impact their industries and job creation opportunities. That is why only a few countries have signed on to this Agreement despite it guaranteeing access to a trillion dollars market!

During the 1990s, GPA was perceived as a safeguard mechanism to discourage the pursuit of secondary policy goals through procurement because they can potentially be abused as disguised protectionism, besides distorting markets and competition. However, a lot has changed since then in public procurement, and many signatory countries of the GPA have adopted a legal framework on sustainable public procurement. The Preamble to Marrakesh Agreement Establishing the World Trade Organization highlights “the optimal use of the world’s resources in accordance with the objective of sustainable development” as an overarching goal of the system. Article III, the WTO GPA, mentions “nothing in this agreement shall be construed to prevent any Party from imposing or enforcing measures necessary to protect human, animal, or plant life or health.” A broader interpretation of this article, thus, means that public procurement policy could be used for achieving strategic objectives such as protection of the environment, biodiversity, forest cover, prevention of pollution and waste generation, protection of the health of humans and animals, etc. Therefore, the revised GPA 2012 is not only about trade liberalization and good governance but also about sustainable development.

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<sup>1</sup> WTO, Geneva (Switzerland): <https://e-gpa.wto.org/en/GPAInBrief>. Accessed 17 February 2021.

Article X of the GPA states that technical specification should be set out in terms of performance rather than design or descriptive characteristics and based on international standards, national regulations, or recognized national standards. It further elaborates that contracting authority may use a technical specification to promote the conservation of natural resources and protect the environment. Article X.9 further allows contracting authority to set price and other cost factors, quality, technical merit, environmental characteristics, and delivery terms as evaluation criteria. Thus, it gives flexibility to contracting authority to use environmental characteristics and set appropriate relative weight for evaluating a tender. These provisions strengthen the hands of contracting authorities in integrating environmental concerns in procurement decisions, provided the condition of non-discrimination is satisfied. Thus, the GPA does not place any barrier in integrating environmental concerns in purchasing decisions by national and sub-national governments; instead, it promotes such practices.

There are no explicit provisions regarding social issues in the GPA. In the absence of such a support, many have relied on the general principle of non-discrimination, which is the cornerstone of international trade, to argue in favor of the GPA supporting inclusion of social considerations in procurement decisions. The EU has come up with its own set of rules for promoting social dimensions of sustainability through procurement, although the primary objective of the EU's procurement directive is to create a single market. The WTO GPA prohibits origin-based discrimination only when procurement value is above the threshold limit and falls within the scope and coverage of the agreement. Casier (2019) supports this argument and has noted that the Agreement does not cover origin-based procurement below the threshold limit, or the exception explicitly listed in its Annex 7 General Notes. The WTO GPA even permits preferential treatment to specific groups (such as SMEs, women-owned businesses, or social enterprises) in procurement, based on characteristics other than the origin, provided it is not used to favor local suppliers implicitly. Semple Abby (2017) has argued that USA and Canada have used these features of the GPA and entered certain limitations to its coverage in its Annex 7 General Notes. Accordingly, they have been pursuing their national development objectives—favoring small or minority-owned businesses, including set-asides, price preference, and exclusive rights to provide goods and services—by explicitly listing them as exempt in the annexes or not linked to national origin (Casier 2019).

Therefore, it could be seen that a contracting authority in any signatory country to the GPA has the freedom to decide its requirement in terms of what is to be purchased. The GPA generally enforces how those purchases are made by prescribing a detailed procedure. Similarly, the GPA only cares about how standards, public or private, are made rather than their substance. The use of the words “or equivalent” in tender description acts as an effective guarantee to vendors to establish compliance to the label or standard specified in a tender in alternative manners. Therefore, the use of ecolabel/voluntary standards in the tender description would not invite any sanction from the GPA unless an ecolabeling program effectively denies market access or discriminates against another country's goods.

In a nutshell, the technical specifications and award criteria in the GPA explicitly endorse environmental concerns in procurement decisions for promoting national

objectives. Although there is no explicit mention of social concerns in the GPA (as discussed), provision regarding international standards provides enough opportunity to use social standards like Fair Trade, SA 8000 for procurement of goods and services. Steiner (2018) has argued that even if social aspects are not explicitly mentioned, one can use them as long as procurement is consistent with the basic principle of the GPA, such as non-discrimination and transparency. There is “constructive ambiguity” surrounding social aspects, which means that though there is no complete agreement on everything, a program has been put in place to discuss this in more detail and arrive at a consensus. Thus, it gives flexibility to signatories to the GPA to use social aspects in procuring goods and services.

Most members of the WTO GPA, such as the EU, the USA, Canada, Australia, Japan, Republic of Korea, New Zealand, China, and Hong Kong, have a long history of sustainable procurement programs. They have well-established legal policies and institutional frameworks to promote sustainability in their procurement decisions. They can leverage their public procurement power to enhance their procurement decisions’ environmental and social sustainability outcomes while still being a party to the GPA. Steiner (2018) has noted that EU’s directives on public procurement regarding sustainability issues are, in a sense, interpretations of the GPA. Such a broad use of procurement to pursue the environmental and social objectives shows that at a macro-level, there is no conflict in promoting sustainability objectives through government procurement and promoting international trade and market access through a binding agreement such as the GPA. Therefore, based on the overwhelming evidence, opinions, and literature, it can be concluded that the GPA does not in any way prohibit the inclusion of environmental and social sustainability in procurement decisions. However, it is also noted that, despite the GPA’s existence since 1979, only 20 parties representing 48 WTO members have ratified it. This demonstrates that public procurement remains a highly sensitive issue in all countries, including industrialized ones. For example, President of the USA signed an Executive Order in January 2021 to maximize the use of taxpayer dollars on domestic products and services in order to strengthen the industrial activities and create local jobs. Political pressures to do more for domestic industries through public procurement exist in most countries. Therefore, argument for harmonizing product standards throughout nations to accelerate SPP implementation now no longer makes a tremendous experience due to the fact that default response of governments would be to stall imports of services and products and shield domestic industries and employments. Such arguments will make sense only if these countries are already a member of an economic trade block. Therefore, creation of a trade block is a precondition for the success of harmonization of standards with a view to scale up SPP implementation.

However, there is a need to dispel this notion that international trade and achievement of national development objectives through public procurement is a zero-sum game, not in favor of the latter. Six years have already passed since adopting the 2030 Agenda for Sustainable Development. The GPA is yet to conclude its Work Program on sustainability consideration in procurement and participation in SMEs. Such a crucial multilateral global organization cannot risk being seen as standing in the way

of achieving SDGs that move away from a narrow perspective on economic development to an integrative agenda, simultaneously pursuing ecological, social, and economic goals. International trade and foreign investment are critical economic sectors that can support many of these goals. It would be interesting to watch how international trade negotiations embrace SDGs, and the GPA concedes further policy space to countries to leverage government procurement to achieve sustainable development.

### ***7.1.2 Procurement in the Context of Circular Economy***

Circular procurement can be broadly understood as procurement that supports the transition from a linear economy to a circular economy. Thus, it creates demands for products that leave no harmful external impacts/waste; promotes durability, repair, and reuse at the end of life; eliminates toxic elements; promotes the use of renewable energy; and minimizes harmful substances. There is no universally accepted standard definition of circular procurement. Countries and organizations have adopted a particular definition to suit their own context. EU (2017) has defined.

Circular procurement as the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle.

Thus, it can be seen that circular procurement enables contracting authorities to consider maximizing a product's life span through repair and reuse, including how to reuse or recycle products once they reach their end-of-life stage so that businesses do not always need virgin resources to meet their consumption needs. The definition adopted by the Netherlands emphasizes on recovering valuable materials at the end-of-life stage and increasing the product's life by employing various methods.

This perspective has far-reaching impacts. Indeed, traditional public procurement processes with a transactional approach cannot achieve circular economy objectives. Therefore, moving to circular procurement will necessitate a change in how the procurement process is managed, making contract management a critical stage in the procurement cycle for achieving circularity goals. Moreover, it requires flexibility in designing tender conditions so that a vendor offering the best circular solutions gets the contract. In a nutshell, circular procurement could be considered a mindset rather than a concrete well-defined discipline, thus leaving much scope for creativity, innovations, and experiments across a broad spectrum of supply chains.

Some authors have argued that sustainable procurement is a tool or a strategy for a linear economy where one is trying to embed sustainable practices for better outcomes. If we take this to be true, then in contrast, circular procurement is about approaching the production-consumption cycle with a multi-dimensional mindset aimed at making system change, buying and using things differently, and enhancing product life. Therefore, it is more like a system approach and in line with the circular

economy concept. The traditional focus of sustainable procurement has been buying sustainable products and using them in a sustainable manner to reduce life cycle impacts. In circular procurement, it is not just these aspects, but it also involves going back to the design stage; procurement based on performance specification does the same in sustainable procurement. While pursuing sustainable procurement for advancing environmental benefits, contracting authority sometimes has to trade-off between environmental benefits and socio-economic benefits. However, in circular procurement approach, contracting authorities can deliver all three objectives simultaneously.

Despite some differences in details between the two, EU (2017) views circular procurement as an approach for greening procurement that emphasizes leveraging procurement power to accelerate transition from a linear economy to a circular economy. On the other hand, UNEP (2018) considers the concept of circular procurement as being a part of and contributing to the broader notion of sustainable procurement. Among different approaches for integrating circularity in public procurement, none of them are unique to the extent that they were not a part of the narrative to adopt a sustainable procurement policy. Therefore, it is challenging to separate sustainable and circular procurement from each other, and in fact, they complement each other.

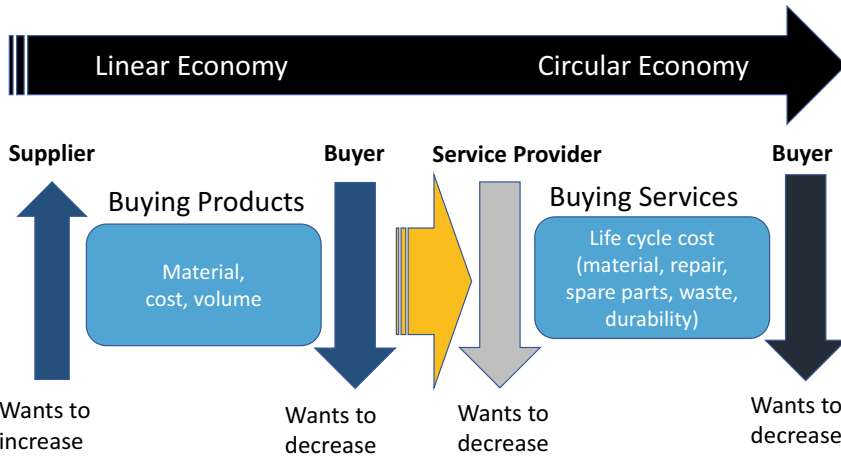
Contracting authorities can follow different approaches to transition to the circular economy depending on how one drafts specifications and requirements in RFPs and RFIs at the tender inviting phase.<sup>2</sup> Apart from technical aspects of the products, the “use” phase of products plays a crucial role in determining how circular a procurement process is. Therefore, successful circular procurement requires a strong collaboration between purchasers and suppliers to achieve circularity in the design and manufacturing of products (going back to the design stage). In addition, it also requires collaboration with key stakeholders within the organization to ensure longevity of products by reuse, refurbishing, and remanufacturing. Alhola et al. (2018), based on circular procurement experiences in the EU, suggested four approaches for integrating circularity in the procurement process depending on the national context and maturity of the market for innovation. They are:

- a. procurement of product or services as per circular criteria in tender specification;
- b. moving from procurement of product to procurement of services;
- c. procurement of new and innovative solutions aimed at achieving a circular economy; and
- d. procurement promoting industrial symbiosis and circular ecosystem.

In fact, shifting from procurement of products to services is one of the most popular approaches for encouraging circularity and has a very high impact. It starts with a rethink of our need—do we want to purchase a product, or do we want to buy the function or outcome that the product provides? How could the contracting authority ensure that the right incentive is in place for vendors to deliver the most resource-efficient solution? These questions lead contracting authorities to think of performance-based procurement and procurement of services instead of a product.

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<sup>2</sup> Request for Proposal and Request for Information.



**Fig. 7.1** Product-service system

Exercising choices at the design stage of a product has an enormous impact on whether the product at the end of its life is suitable for repair, refurbishment, or reuse. Therefore, using functional product specifications in a tender by contracting authority provides an excellent opportunity for vendors to innovate and design a product that respects circularity principles.

Importantly, in this approach, ownership of products rests with vendors, thus incentivizing vendors to satisfy customers with fewer units, supply the most resource efficient solutions, and take back materials used in the cycle, thereby reducing environmental impact of production. Contrast this with regular traditional procurement options. As shown in Fig. 7.1, in case of a product purchase, while a vendor wants to sell a higher unit of product to the purchaser, the contracting authorities want to buy a fewer unit of products from the vendor to meet their requirement. Thus, the business interest of purchaser and vendor is diametrically opposite. When one moves from purchasing a product to purchasing a service, the business interest of both purchaser and vendor gets aligned, and a better sustainability outcome is achieved. Since the vendor is paid based on per unit of service provided to the contracting authority, the vendor has a potential economic interest in reducing the amount of resources consumed (UNEP 2000). Having greater control over a product that manufacturer produces also means that they keep ownership of the embodied energy and materials at the end of life, thus enabling design for dis-assembly, availability of spare parts, easy maintenance, reconditioning, reuse, and recovery. Besides, it will also motivate producers to extend product life through higher reliability, maintenance, repair, and upgrading.

Buyers' shift from "ownership" to "access to" service is at the core of the circular economy, and it has been around for quite some time. However, this approach rose in prominence only when the concept of the circular economy started getting traction in business and government. One of the widely talked about cases of this approach

has been procurement of “Lighting as a Service” by Schiphol Airport, Netherlands, for its 9,000 square meter terminal building from Philipps in 2016 to promote a circular economy. Schiphol pays only for the light it uses in this contract, but Philips owns the terminal’s 3,700 lighting fixtures and installations (Philips 2016). Today, this approach has become very popular, and many services such as “photocopying as a service,” “printing as a service,” “office space as a service,” etc., have become mainstream in many parts of the world. Encouraging rental and leasing solutions via product-service systems has a solid potential to decouple consumption from economic growth. They offer the possibility of meeting needs with fewer resources and lesser energy requirements.

Contracting authorities also benefit because they need to pay only for uses and thus are able to better control the outflow of expenditure. Further, they do not have to deal with assets that depreciate with time and become waste at the end of life. The responsibility for waste management rests with producers, thus taking the benefits of extended producer’s responsibility. Since the product in this approach is taken back by the OEM, they have the opportunity to reuse, refurbish, remanufacture, and thus recover the remaining economic value in the product and at the same time extend the life of the product. This approach thus offers a win-win for both purchasers and vendors while encouraging closed-loop production and consumption cycles.

While embedding circularity principles in purchasing decisions, it must be appreciated that various markets have different maturity levels and the best model suited to create circular demand and solutions depends on prevailing conditions and options available to market players and supply chain partners (SPP Regions 2017). Depending on the context, market maturity, and products, one may use different approaches to decouple resource use and environmental degradation while simultaneously improving human well-being. The system-level changes for closing the material loop would require a very high degree of collaboration between the contracting authority and vendors, resulting in complex contract management.

Though in the realm of public procurement, circular procurement is still in its infancy in most parts of the world, the circular economy as a concept has taken hold, and everyone is excited about it. Many countries worldwide are trying to internalize the circular economy concept in policymaking, with some already advancing the circular economy in the context of the full spectrum of benefits it can provide. However, it requires creative thinking by both suppliers and purchasers—by suppliers regarding how to innovate and create value; and by purchasers regarding how to reward innovation and value offered by competing bids. If handled in a collaborative process, it can shift the market by triggering a strong innovation cycle at the vendor’s end to respond to the new market demands. These developments allow us to look at broader opportunities within production and consumption to further environmental, social, and economic benefits. In the coming decades, it would be interesting to watch how different organizations adopt circular procurement to enable the circular business model to flourish in the market for the benefit of all.



### ***7.1.3 Sustainable Procurement and Industry 4.0***

We have come a long way since 1649 when Blaise Pascal invented the Pascaline, a prevalent mechanical computer capable of adding, subtracting, multiplying, and dividing two numbers. Today, it is difficult to visualize anything or any sector that has not been impacted by information technology. The current COVID-19 pandemic has prioritized and accelerated digital shift in all sectors. More and more businesses and governments are exploring ways to organize their core processes by leveraging emerging technologies. According to the World Bank (2021), new emerging digital technologies have a significant potential to strengthen the strategic function of public procurement within governments and society at large.

Earlier, many governments shifted to an e-tendering/e-procurement platform to create process efficiency, enhance transparency and control, and reduce purchasing price through better competition. What distinguishes the current digitization trend from earlier one is the arrival of a range of digital changes in industrial sectors such as Internet of Things (IoT), Artificial Intelligence (AI), and Robotics, often known as Industry 4.0. As the Fourth Industrial Revolution (Industry 4.0) gathers steam, digital innovations are becoming faster, efficient, and accessible to all. It is a no-brainer then that bringing this digital prowess in the realm of sustainable procurement and supply chain must be at the forefront of strategic thinking to minimize impacts of purchasing decisions on environment and society. As per the report published by PwC, the most straightforward application of these technologies could be—bringing transparency in supply chains and sustainable sourcing of raw materials (PwC 2018). These technologies will inform procurers what is being procured, where the product is being manufactured, who is involved in the production process, how it is transported, and how it is stored.

Table 7.1 summarizes the potential use of different technologies in public procurement. It is often a combination of these technologies, such as Blockchain with IoT that yields positive results and economic savings. Using the ability of IoT devices to generate, capture, and transmit data from connected devices offers the opportunity to improve sustainability. The ability of getting data from IoT devices means that it is possible to use this information for tracing the origin of products. Various organizations such as Capgemini (Robey 2020), Enevo (Enevo 2020), Plastic Bank,<sup>3</sup> Phillips (Phillips 2016), etc., are already embracing digital technologies to drive additional values from existing supply chain setups.

#### **7.1.3.1 Use of Blockchain in Improving Sustainability**

Among various technological developments in recent times, blockchain technology has profound implications for supply chain sustainability. As per IBM, blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. The key elements of a blockchain

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<sup>3</sup> Plasticbank, Vancouver (Canada): <https://plasticbank.com/haiti/>, Accessed 26 Nov 2020.

**Table 7.1** Potential uses of digital technologies in public procurement source: based on (EC 2020)

SN	Technology	Potential uses in public procurement
1.	Blockchain	<ul style="list-style-type: none"> <li>• A trusted, secure, and transparent data backbone</li> <li>• Ensuring transparency and reducing the scope for corruption</li> <li>• Automation through smart contracts</li> </ul>
2.	Big data and data analytics	<ul style="list-style-type: none"> <li>• Support to decision-making—analysis and evaluation</li> <li>• Analysis of corruption</li> <li>• Transparency through data visualization</li> </ul>
3.	Artificial intelligence	<ul style="list-style-type: none"> <li>• Analysis and evaluation—procurement data, government spending, and stakeholder sentiments</li> <li>• Categorization of government spending</li> <li>• Contract preparation and management</li> <li>• Automation of procurement process</li> </ul>
4.	Robotics process automation	<ul style="list-style-type: none"> <li>• Gathering and verifying information about suppliers</li> <li>• Invoice generation and payment</li> </ul>
5.	Internet of Things	<ul style="list-style-type: none"> <li>• Assess tracking</li> <li>• Forecasting, inventory, and automated ordering</li> </ul>
6.	3D printing	<ul style="list-style-type: none"> <li>• Production of prototype</li> <li>• Production of supplies</li> </ul>
7.	Robots and drones	<ul style="list-style-type: none"> <li>• Delivery of materials and supplies</li> <li>• Monitoring of project progress</li> </ul>

are—Distributed Ledger Technology, Immutable Records, and Smart Contracts. All network participants have access to the same distributed ledger and its immutable record of transactions. Thus, no participant can change or tamper with the transaction once a transaction has been recorded to the shared ledger. Furthermore, all transactions are governed by a set of rules—called a smart contract mutually agreed to by network members, stored on that blockchain, and executed automatically without human intervention.

Each block represents a packet of transaction records (who, what, when, where, how much, and condition such as product temperature) related to any assets—tangible or intangible as it moves from one place to another or from one supply chain participant to another. Each transaction creates a new permanent block of information that can only be read but not altered. Further, each block is sent to all supply chain participants to verify, and only after verification it is added to the chain. These blocks are connected in chronological order and prevent any new block from being inserted between two existing blocks. Finally, these transactions are recorded in a digital ledger over a network of computers in a decentralized manner, thus removing any possibility of tampering by any participant and building a ledger of transactions that the network participants can trust.

The use of blockchain in the supply chain comes with many benefits. In the past, many businesses were unable to push their sustainability goals into practices because they had no visibility of their supply chain beyond tier 1 vendors. With blockchain,

the moment a transfer of goods is registered on a digital ledger, the same information regarding quality, price, date, and transaction location is available to all parties, thus improving visibility across the supply chain. It would eliminate the need to seek evidence and verify data related to a vendor's sustainability practices. One can get an untampered record of the entire product history, which proves that products under consideration come from ethically sound sources, thus giving assurance of fair work practices and eliminating the need for third-party verification. Such visibility will help early detection of sustainability risks such as counterfeits, unethical sourcing practices, and deviation from standards in the supply chain; and ensure efficient and transparent transactions. The early detection of deviation from standard in the upstream supply chain will minimize the occurrence of a product recall, thus minimizing GHG emission during transportation and saving other resources.

It is only a matter of time before governments and corporations will commence applying a carbon tax on GHG emissions occurring in a supply chain. However, to ensure that such a tax is applied correctly, the quality and traceability of GHG emission data needs to be trustworthy. Blockchain will ensure that GHG emission taking place in a supply chain is correctly reported and taxed. Similarly, there are many areas where blockchain technology could be found very useful for enhancing sustainability. Based on the various researches such as Ahlstrand (2018), Chandan, A. et al. (2020), EC (2020), and World Bank (2021), Table 7.2 summarizes how blockchain technology can address different aspects of sustainability in the supply chain.

Though different experiments on the use of blockchain technology in improving supply chain sustainability are being carried out, there is yet to emerge a credible model for its adoption by contracting authority in procurement decisions to enhance sustainability outcomes. Furthermore, since the information available on blockchain networks would be fully transparent, a robust governance framework would be required to ensure a secure data exchange among various partners that gives confidence to stakeholders in using this technology.

There is no doubt that transparency and immutable characteristics of blockchain can empower contracting authorities to get acquainted with a product's history and decide what best suits their sustainability requirements. However, various researchers have pointed out issues such as scalability (Croman et al. 2016) and interpretability of data (Saber et al. 2018) that need to be addressed before its application in actual use case scenarios. Besides, there is a regulatory challenge as governments worldwide are yet to come up with laws governing the use of blockchain technology (Chandan et al. 2020). The challenge for innovators, businesses, and governments is to scale up use of such technologies by making sustainability considerations central to their broader development and use.

### 7.1.3.2 Use of Internet of Things (IoT) for Improving Sustainability

As per Oracle, the Internet of Things (IoT) describes a network of physical objects—"things"—that are embedded with sensors, software, and other technologies to

**Table 7.2** Potential use of Blockchain in improving sustainability outcome

Sustainability issues	How blockchain can improve sustainability outcome
Credential of vendor's sustainability record	By making available credible and verifiable historical performance and sustainability data related to vendor
Supplier development	The recorded information related to knowledge and other support given to suppliers can be used for performance measurement of supplier development program
Purchasing	<ul style="list-style-type: none"> <li>• Data related to materials and movement of product could be used to verify sustainability credentials of products</li> <li>• Ability to track the source of products could be used to access loss of biodiversity and resource depletion</li> </ul>
Transportation	Data related to mode of transportation, number of transshipments, etc., can provide visibility about GHG emission
Waste management	Tracking the information related to where and how waste is disposed could help minimization of waste and safe disposal of hazardous waste
Take back of materials	Information related to location, quantity, OEM, etc., of product at the end of life could improve the efficiency of the process for managing return flows
Circularity of resources	Information regarding purchase date of a product, repair history, etc., can assist in determining correct value of product
Child labor	IoT along with blockchain can provide information regarding whether child labor has been employed in production process
Employee wages	Payment made to employee is recorded onto blockchain in an immutable way
Sourcing from local source	Using blockchain technology, it is possible to find correct information about the origin of the product
Safety of food products	Information regarding product content, expiry date, etc., ensures that product is safe from the health point of view

connect and exchange data with other devices and systems over the internet.<sup>4</sup> In the last two decades, it has emerged as the most critical technology of the twenty-first century that can facilitate seamless communication among people, processes,

<sup>4</sup> Oracle, Redwood City (USA): <https://www.oracle.com/internet-of-things/what-is-iot/>, Accessed 3 March 2021.

and things by connecting everyday objects with the internet. The primary purpose of IoT is to collect data from the real world and translate that data into information, thus facilitating decisions by the users/systems. By combining IoT devices for collecting and communicating captured information with blockchain certifying its authenticity, one can assure the viability of supplies along the entire supply chain. For example, in a pharmaceutical supply chain, it is possible to know whether a particular vaccine was stored at optimum temperature at various stages during transportation from manufacturing to hospital and identify potential fraud and manipulation during transit. The health worker administering the vaccine to the patient has a full view of the product, i.e., provenance, transformation process, transportation, etc., on the blockchain network pertaining to that particular batch of vaccines.

In 2019, the European Commission commissioned a study on the uptake of emerging technology in public procurement. EC (2020) took inventories of how emerging technologies such as AI, Big Data, Data Analytics, Blockchain, Robotics Process Automation, Augmented and Virtual Reality, IoT, and Drones are applied to public procurement by organizations worldwide. It found that out of the 96 such initiatives in digital technologies, none was exclusively aimed at improving sustainability in public procurement decisions. Earlier in 2018, a finding by Deloitte was quite revealing about the use of these technologies in the supply chain despite many potential benefits. Deloitte (2018) highlights that currently, only a few industry leaders and front runners are adopting these technologies to improve procurement decisions' efficiency and effectiveness. However, in today's fast changing world, this number is increasing day by day. It is up to the governments and organizations to come up with appropriate rules and regulations around these technologies so that stakeholders in their jurisdictions gain confidence about using them optimally without fear of running afoul of local laws.

### 7.1.3.3 Sustainability Concerns in Using Technologies

While the increased use of digital technology in procurement can significantly enhance sustainability benefits, ironically their use is also a matter of concern from other sustainability points of view. For example, IoT devices generate a massive amount of data, require a way bigger size of a data center, and as a consequence require more energy. PwC, in its report 2018, highlighted a similar concern on energy usage and resulting GHG emission as a result of cryptocurrency, Bitcoin. It stated that servers' global energy consumption for running software for blockchain-powered Bitcoin is almost that of Ireland. Similarly, there is also concern regarding waste generated as a result of 3D printing. In our rush to adopt new technologies for addressing sustainability concerns, the resulting sustainability issues cannot be wished away. We thus need to look at net sustainability gain while adopting a new technology. In the same vein, before passing any judgment on using these technologies for improving the sustainability outcome of a procurement decision, the net gain must be considered. While the use of blockchain with IoT offers an excellent opportunity to scale up SPP implementation by empowering contracting authorities

to verify sustainability claims of vendors, it is still early days for adopting these technologies in the supply chain. Only when tangible examples of overall success become evident, will the use of these technologies start mainstreaming.

Another genuine concern regarding the use of these technologies is in relation to SMEs. There is no doubt that, at least in the short run, mainstreaming sustainability concerns in purchasing decisions disproportionately affects SMEs' ability to win contracts for sustainable products, works, and services, and their profitability. For blockchain and IoT to become fully functional and start giving potential sustainability benefits, all stakeholders in the supply chain need to embrace these tech. This might require extra cost and knowledge for digitization of the process at the vendor's end, which adds to SMEs' burdens. For example, to audit whether a particular SME has been paying minimum wages to its workers, monthly salary data of workers need to be digitized and linked to a blockchain platform. There could also be concerns about the interpretability of data and standardization of different blockchain platforms.

Similarly, vendors would be required to install IoT devices at different locations and at different stages of production to capture and transmit data to stakeholders in the blockchain network. Added to this is the cost of application development. The cost of IoT application development will vary depending on development complexity, number of features, etc. According to Shrivastava (2021), developing a simple IoT application costs around \$30,000 to \$40,000. Therefore, one would need to put in frameworks for sharing the cost between contracting authority and vendors. Putting these together might act as an additional barrier for SMEs' participation in government tenders.

Integration of blockchain and other technologies will have impacts on procuring authorities too. Implementation of SPP policy puts an extra layer of complexity in public procurement decisions, requiring procurement officials to train on sustainability issues. It also creates a role for sustainability professionals, hitherto having no role in procurement decisions, at various purchasing decisions, thus making procurement officials dependent on advice from sustainability professionals. While this is good for overall sustainability outcomes; nevertheless, it results in delayed decision-making. With the advent of new tech, the worry is—will the integration of blockchain technology, IoT, AI, etc., in purchasing decisions add another layer of complexity, requiring additional training and further diffusing procurement responsibility? While there is no doubt about the transformational nature of these technologies in bringing sustainability benefits, their deployment requires a far more nuanced sustainability strategy that considers the impacts of their deployment not only on different stakeholders but also their economic, social, and environmental impacts.

Recent decades have seen the emergence of new technologies clubbed together as Industry 4.0, and more recently Industry 5.0, with profound impacts on all sectors. This includes significant impacts on sustainability outcomes of purchasing decisions too, some of which has already been discussed. Current sustainable procurement policies will change in keeping with the times. As laws related to data protection, AI, blockchain, etc., get formulated, they will directly influence public procurement

legislations (World Bank 2021). As explained earlier, the use of blockchain in sustainable procurement practices has immense potential in terms of reducing environmental impacts and incentivizing vendors to undertake environmentally sustainable action. However, to realize the opportunities that blockchain and other technologies can create, governments will need to invest in innovation and digital infrastructure, develop/reform laws, and build robust data protection and maintenance regimes.

#### ***7.1.4 Recent Trends in the Use of Public Procurement for Achieving Sustainability Objectives***

Public procurement is, a bit belatedly, emerging as the new darling of policymakers and multilateral organizations. They are increasingly becoming imaginative, innovative, and ambitious in using public procurement for achieving diverse objectives focusing in specific sectors. As a result, the number of initiatives focused on using public procurement to mitigate a particular risk in specific sectors such as health, tourism, textile is growing. For example, the One Planet Network SPP Program has identified constructions, health, and IT as priority areas for actions in its strategic program for 2019–22 (UNEP 2019b). Similarly, several initiatives on using public procurement to address particular areas of environmental and social concerns such as circularity, climate mitigations, human rights, modern slavery, etc., have been growing. Though it is impossible to catalog all initiatives, a few need to be highlighted.

##### **7.1.4.1 Public Procurement for Home-Grown School Feeding Programme**

Many governments worldwide have school feeding programs to improve enrollment in schools and provide access to nutritious and safe food to growing children. According to FAO & WFP (2018), three hundred and sixty-eight million children in the world are getting benefitted daily through school feeding programs in their country. As a next step, FAO has started promoting Home-Grown School Feeding Programme (HGSFP) in Africa, intending to increase the market participation of smallholder farmers besides the conventional objective to increase school children's access to fresh and diversified food (FAO & WFP 2018). The program has additional objectives such as moving people out of poverty (SDG 1) and hunger (SDG 2), contributing to the empowerment of women (SDG 5), increased income to local communities (SDG 8), and reduction in inequalities (SDG 10), thus, achieving multiple SDGs.

The concept of HGSFP was launched by the New Partnership for the African Union in 2003 (FAO & WFP 2018). Public procurement intervention is central to this program. It is used to purchase food from local farmers or their associations to

supply schools with the necessary inputs for school meals. Unfortunately, typical requirements of public procurement regulations and processes hinder the participation of smallholder farmers. Recognizing the possibility of procuring food from smallholder farmers is often not accompanied by recognizing the need to align public procurement rules and practices and create mechanisms to address barriers to the entry of smallholder farmers in this commendable initiative. Therefore, the critical challenge of SPP for HGSFP is how to make procurement rules and practices that enhance the participation of smallholder farmers and their associations.

Under this program, many countries in Africa have taken administrative, legal, regulatory, capacity building, and supply-side measures to facilitate smallholder farmers' access to HGSFP through procurement. Some of the important ones are given below:

- optimizing size of contract to the amounts that smallholders or their organizations are capable of supplying;
- increasing tender opening time so that farmers or their organizations can respond to tender opportunities;
- giving a price preference to smallholders or their organizations for procurement under the HGSFP;
- obliging contracting authorities to make payment to smallholders or organizations linked to them within certain days of supply;
- providing support to smallholders or their organizations in preparing tender documents and proposal.

One may point out that there could be a trade-off between preferential procurement schemes with the principle of fair competition. However, countries have managed this trade-off within the legal regime by establishing safeguards that have led to a win-win outcome.

The program has many benefits. It connects smallholder farmers to markets in the nearby locality, thus increasing both supply and demand. The program provides local farmers with a ready market for their produce, leading to a stable income and higher productivity. Children get benefitted from eating fresher, healthy, nutritious, and diversified foods. It can spur significant economic development outcomes when integrated with other school-based health and nutrition, environment, and water and sanitation interventions.<sup>5</sup>

The program can contribute significantly to SDG2 (ending hunger, achieving food security and improved nutrition, promoting sustainable agriculture) and SDG4 (quality education). HGSFP is a relatively new concept, but it is increasingly becoming popular with national governments and donor agencies. In Brazil, the National School Feeding Programme is catering to approx. 41 million children, with important positive impacts on their nutrition and a significant impact in terms of rural development and improved small-scale farmers' incomes (Schneider, S. et al., 2016). The World Food Programme (WFP), Food & Agriculture Organization (FAO),

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<sup>5</sup> WFP, Rome (Italy), HGSFP Fact Sheet: <https://documents.wfp.org/stellent/groups/public/docume nts/newsroom/wfp260972.pdf> Accessed 03 July 2021.



and others have joined hands to create a Resource Framework to design and implement a government-led Home-Grown School Feeding program. Till now, WFP has supported 46 countries in developing their Home-Grown School Feeding program.<sup>6</sup> The program has grown so much that Swensson et al. (2021) have come up with two volumes on “Public food procurement for sustainable food systems and healthy diets” in which more than 100 authors have contributed; it is a great resource for understanding nuances of the Home-Grown School Feeding program.

The program is yet another successful example of how governments are leveraging public procurement for achieving diverse objectives. It would thus be myopic to relate sustainable procurement to only environmental considerations; use of public procurement for achieving diverse social objectives had originated long before the green procurement concept came knocking on the doors of developed countries.

#### 7.1.4.2 Sustainable Procurement in Health Sector (SPHS)

The need for a robust and resilient health sector, as has been more than amply highlighted by the current pandemic, cannot be emphasized enough for a flourishing economy and society. An effective health system is essential for not only providing care and medication to patients suffering from various diseases, but also making institutional efforts to promote holistic wellness to prevent these diseases. Any expenditure on the healthcare system is, in fact, an investment with a high positive return as it directly results in economic growth; it facilitates more numbers of people to participate in economic activities. Over the years, the world has made rapid progress in improving human health. As a result, life expectancy has improved, mortality rate has declined, and several diseases have been eradicated. However, we have also seen a rise in the frequency of pandemics like SARS, COVID-19, etc. There is scientific evidence suggesting that human activities have led to a loss of biodiversity, extinction of many species, air and water pollution, and waste generations, leading to breach of many planetary boundaries. The COVID-19 pandemic has highlighted the disturbing reality of the fragility of our global economy, the insufficiency of our social safety net, and the interconnectedness of the health of people with the health of the planet. Therefore, even a small action that can contribute to reversing this trend is worth trying to prevent the world from going off track in achieving SDG3—good health and well-being—and other interconnected SDGs.

There is a growing realization that the health sector and its supply chain significantly impact the environment and society, both upstream and downstream. Delivering healthcare services also contributes negatively to climate change, chemical contamination, resource depletion, biodiversity loss, air and water pollution, and hazardous waste generation. It is estimated that healthcare systems in different countries are responsible for approx. 5% to 10% of their national GHG emission, amounting to about 4.4% of the world’s total GHG emission (Karliner et al. 2019). National governments and the UN agencies together, largest buyers of healthcare

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<sup>6</sup> WFP, Rome (Italy): <https://www.wfp.org/home-grown-school-feeding>. Accessed 27 Feb 2021.

products and services, can contribute significantly towards decoupling healthcare impacts from healthcare delivery by leveraging their procurement power. The UN organizations have already acknowledged the vital role of public procurement as an entry point for bringing transformational changes in the healthcare supply chain. In order to tap this opportunity and exploit their combined purchasing power of around US\$ 3.9 billion annually (UNDP 2020a), seven UN agencies and three Multilateral Health Financing Institutions have started a new initiative called the UN Sustainable Procurement in Health Sector (SPHS) to move markets towards sustainable consumption and production. The United Nations Development Programme, the secretariat of the UN SPHS, and Health Care Without Harm have launched the Sustainable Health in Procurement Project (SHiPP) in ten countries to transform this objective into actual practices in the health sector.

Since its inception, the UN SPHS has developed several initiatives for capacity building, networking, and developing best practices guidelines in the health sector. As a result, they have a formidable voice in sustainable procurement in health sector in less than a decade. However, what is commendable is their attempt to develop a Sustainable Procurement Index for Health (SPIH), a common framework for determining the desired sustainability outcome that can provide confidence to buyers and suppliers. The initiative is unique because it has not been attempted before in a public procurement setting. It strives to establish a globally recognized Index to measure and communicate the sustainability credentials of the supply in the health system across selected key sustainability aspects. It, thus, aims to provide a platform for buyers to have complete visibility of suppliers' sustainability performance while making a purchasing decision. Further, it would thus fulfill the long-perceived void by stakeholders on the need to have standardized sustainable procurement criteria and measurement tools for health products.

When UN SPHS began this project, they did not have a clear idea of how the final Index will look. Therefore, one of the vital components of the Terms of Reference (TOR) for engaging consultants in Request for Proposal (RFP) was identifying key environmental and social areas relevant to sustainable health procurement, defining the components, relative weighting, and scoring mechanism for the Index and measuring the overall score of the Index (UNEP 2019a). Since such work was being done for the first time, UN SPHS nominated a multi-stakeholder expert group to provide technical decisions, review deliverables, and steer the development of the Index. Members of this group come from diverse sectors and disciplines representing national governments, multilateral institutions, universities, and NGOs.

The work on SHIP has progressed well, and the conceptual framework of the SHIP—key indicators and criteria and scoring mechanism—has been finalized in the form of a spreadsheet where inputs provided by vendors are used to determine the outcome. While developing the Index, it has been kept in mind that suppliers across different markets are at different levels of development in terms of their sustainability practices. Therefore, while encouraging and rewarding excellence in sustainability, the Index should not become a significant entry-level barrier for them. The SHIP has identified four core areas, namely GHG emissions, resource depletion, chemical/toxicity, and human and labor rights, for inclusion in the Index. It has

adopted a progression-based approach, meaning suppliers must fulfill all criteria in one level before progressing to the next. It will use both data provided by suppliers and those obtained from external sources as inputs to determine the outcome. As per the current understanding, the SHIP will inform decision-makers during the procurement process—pre-qualification, contract management, or performance enhancement (UNDP 2020b). The work of the project has come to an end, and SPHS is currently in the process of disseminating information on SPIH through webinar (SPHS 2021) and running pilots in selected countries.

The Index attempts to capture the organizational sustainability performance of vendors at the lower level of the Index and gradually moves to capture product sustainability performance at the higher level of the Index. Combining sustainability criteria of two stages namely specification definition and selection criteria in a single Index may invite legal challenges in some countries while positioning it within the procurement requirements. For instance, EU's procurement directives do not give unrestricted freedom to contracting authorities to choose any technical capabilities as exclusion criteria. Thus, the contracting authority cannot exclude a firm based on not following sound environmental policies in managing its business unless it has a connection with anything required in delivering the goods and services under the contract. Similarly, the considered view on provisions of EU Directives 2014/24/EU and 2014/25/EU has been that technical specification of a particular work, supply, or service being purchased needs to relate to characteristics and not to the general capacities or qualities of the economic operator (EC 2016). A similar legal framework on public procurement in other parts of the world cannot be ruled out. Therefore, more extensive use of SPIH for procurement decisions by contracting authorities at the national level might face some roadblocks in future in some countries. It would be interesting to watch the pilot phase of actual application of SPIH in the SHiPP countries and how it later spreads out to other parts of the world in terms of health procurement. Based on their success, other sectors may develop their own Index for procurement in the future.

The proposed SPIH represents an effort towards creating a new tool for measuring the sustainability performance of vendors and using such an Index for procurement decisions in a transparent way. However, the potential costs of implementing it across the globe is not yet immediately clear. Currently, vendors' inputs must be validated by buyers or by a third party to ensure transparency and objectivity of the tender procedure. If it is to be verified by purchasers, then it puts extra pressure on them (as they are not very conversant with sustainability aspects) and thus limiting their enthusiasm to wholeheartedly adopt this Index for their procurement needs. This could also result in delays in the procurement process. If, on the other hand, it is to be verified by a third party, it would increase the cost and would require a working mechanism to share this cost between procurers and UN SPHS.

Further, vendors are likely to incur some cost on SPIH compliance, thus putting small vendors at a disadvantage compared to the bigger ones. It is to be seen if national governments or UNDP would be willing to develop some financial intervention around this issue.

In conclusion, while the benefits of such an Index are tremendous in moving the market towards sustainable consumption and production, certain aspects, such as those mentioned above, need to be further discussed and planned before a final rollout. Nonetheless, the Index looks quite promising in the sense that for the first time, UN SPHS is attempting to standardize the criteria for selection of vendors for procurement of goods and services in health sectors globally, and this is sure to throw up many promising outcomes.

### 7.1.4.3 Responsible Antibiotics Manufacturing Platform

Antimicrobial Resistance (AMR) is comparatively a new phenomenon, but it is increasingly spreading worldwide. It is estimated that the global death toll attributed to AMR may reach 10 million per annum by 2050 (de Kraker 2016), exerting a drag on the global GDP of 1.1 to 3.8% points between now and 2050 (World Bank 2017). The former UN Secretary-General, Ban Ki-moon, has described AMR as a fundamental threat to global health and stated that failure to address this issue would put the sustainable development goals in jeopardy (UN 2016). While awareness on the issue has been gathering pace as its impacts on global health are becoming increasingly evident, decisive action to address those impacts has not been effective due to the complexity of the issues involved. The issue is truly global as while most antibiotics manufacturing takes place in China and India, where strict implementation of regulations may not be up to the desired level, their consumption happens all across the world. Therefore, SIWI (2020) has argued that reducing emissions from antibiotics manufacturing is a shared responsibility between stakeholders on supply and demand-side.

While there could be diverse approaches, with their advantages and disadvantages, of addressing this global menace, a practical and straightforward approach for keeping antimicrobial compounds out of the environment would be to prevent them from being present in the industrial discharge above a certain permissible level. To minimize the discharge of antibiotics into the environment from manufacturing plants and to gain broader sustainability objectives, a multi-stakeholder global initiative called Responsible Antibiotics Manufacturing Platform (RAMP) was launched in 2020. It works through a growing network of global pioneers in responsible antibiotics, procurement, and manufacturing, including leading procurers from Europe, UN agencies, and relevant networks in low- and middle-income countries. The core idea of RAMP is to leverage “power of procurement” to provide the right incentives to manufacturers for preventing AMR-triggering emissions of antibiotics from their manufacturing units.

In this case, the progress would depend on knowledge and tools with the procurers to address the specifics of antibiotics manufacturing, the presence/absence of regulatory limits on the discharge of antibiotics, and the level of empowerment of procurers to address these regulatory measures. There is no easy solution as cost impact of compliance with sustainability criteria on procurement expenditure needs to be understood in diverse settings of different nations. The reality is that cost implications

play a crucial role in access to medicine in the low- and middle-income countries in the Global South. Therefore, it is important that selection criteria be set in a phased manner so that the global supply of antibiotics is not affected and the ultimate goal of zero-emission discharge is met without supply and cost disruptions.

Some contracting authorities in developed countries have already started conversations on developing environmental criteria for the procurement of antibiotics to reduce emissions and pollution. For example, the Norwegian Hospital Procurement Trust (Sykehusinnkjøp HF), a nodal agency for procurement of pharmaceuticals in Norway, has decided to give 30% weightage for environmentally friendly production in award criteria procurement of antibiotics (Sykehusinnkjøp (2021).

The UK has identified developing a new procurement methodology for purchasing antibiotics in their Five-Year National Action Plan on AMR to ensure that manufacturers continue investing in sound environmental practices (UK Govt 2019). However, these are early days yet for tackling AMR by leveraging public procurement. What is commendable is that policymakers are increasingly relying on public procurement to address such global health issues through a globalized supply chain.

#### **7.1.4.4 Sustainable Procurement in Tourism Industry**

Tourism has been an important sector of the economy, providing employment and livelihood to millions worldwide. According to UNEP (2019c), it already constitutes approx. 10% of national GDP globally and accounts for one out of 10 jobs. With an increase in global income, the number of international tourist arrivals is expected to reach 1.8 billion by 2030 (UNWTO 2020). In many smaller island developing nations, tourism accounts for approx. 25%–60% of national GDP, representing a dominant sector of the economy. Compare that to the global GHG emissions from the tourism sector which amounts to 8% of total GHG emissions and is likely to double by 2050. Similarly, current consumptions of energy and water are also likely to double by the year 2050. The tourism sector contributes to a significant amount of plastic waste which negatively impacts communities living in tourist destinations. According to Alessi & Di Carlo (2018), more than 200 million tourists visit the Mediterranean every summer, leading to an almost 40% spike annually in plastics entering the sea. A similar contribution from other tourist destinations cannot be ruled out. If not arrested immediately, these impacts will destroy the natural habitat of such destinations and prove disastrous for the sector's survival in a sustainable manner.

In recent times, voices have been growing to transform the tourism value chain to low carbon and resource-efficient operations through sustainable consumption and production practices. Sustainable procurement has been identified as a critical lever for better management of resources and promoting resource efficiency throughout the tourism value chain. UNEP, in its report “Transforming Tourism through Sustainable Procurement,” has deliberated the role of sustainable procurement as a driver for innovation in response to environmental and socio-economic challenges in the

tourism sector (UNEP 2019d). The report has specifically highlighted how sustainable procurement could improve circularity in the tourism sector, sustainable practices in food procurement, energy efficiency of electrical appliances, and reduction in purchase of single-use plastic items.

The tourism industry has its own sets of specific challenges that need to be considered while attempting solutions through procurement. For example, the need to reduce plastic waste through single-use bottled drinking water versus health and safety concerns arises from water-borne diseases. Such unique situations need a detailed understanding of the end use of a product and local regulations, before assessing the suitability of alternative greener options in line with the destination. For achieving this objective, it would be crucial for relevant stakeholders along the tourism value chain to work together, which brings us to the good news: stakeholders in the tourism value chain are already taking measures to reduce the impacts of their operations on the environment and society through procurement. Hotels have begun buying unbleached bed linen with stunning results in terms of reduction in GHG emission (by 32%), reduction in energy consumption (by 42%), and reduction in water consumption (by 28%) during the life cycle of such bed linen (UNEP 2019d). However, such procurement measures alone will not achieve transformative results without behavioral change and traveller's buy-in. Any business or tourist traveler would be familiar with that poster in our hotel rooms related to reusing our bed linen and towels to save water and energy. How many of us actually use the option? There is a positive trend though and an increasing number of travelers are opting for sustainable options during their hotel stay. But more needs to be done to empower travelers with the knowledge and rationale behind such a move and their role as a change agent. This again proves the importance of engaging with stakeholders.

Private ownership dominates the tourism sector worldwide. Therefore, procurement professionals in this sector are not constrained by government rules and regulations for effecting innovative changes and making a difference to the environment and society through their processes. UNEP (2019d) has documented several case studies on how the tourism industry is transforming its operations through procurement and reaping sustainability benefits. However, such successful practices are yet to become a norm across the industry. Going forward, the role of platform like Sustainable Tourism 2030<sup>7</sup> and the United Nations World Tourism Organisation would be crucial in mainstreaming sustainability in purchasing decisions and making the tourism industry a shining example of protecting natural heritage and preserving them for future generations.

#### **7.1.4.5 Low Carbon Procurement**

The Glasgow Climate Pact adopted at the November 2021 COP26 states that by 2030, the global CO<sub>2</sub> emission must decline by 45% from 2010 levels for limiting

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<sup>7</sup> GreenStep Solutions Inc (2021) Take the Sustainable Tourism 2030 Pledge. Kelowna (Canada): <https://www.sustainabletourism2030.com/pledge/> Accessed 09 Jul 2021.

temperature rise to 1.5 °C from pre-industrial level. The Pact, among other things, calls upon member countries to accelerate development, deployment, and dissemination of technologies and adopt policies to transition towards a low emission energy system (UNFCCC 2021). In many ways, efforts to reduce GHG emission in the post-Paris Climate Change Agreement has dominated public debates and shaped public policy, including procurement policy. The scale and reach of public procurement and its ability to cut across SDGs have attracted governments worldwide to use it as one of the effective mechanisms to reduce GHG emission, support innovation, and the industry's transition to low carbon manufacturing (Correia et al., 2013). The "Europe 2020" strategy for sustainable growth, adopted in 2010, highlighted the role of demand-side policy such as green procurement to support Europe's shift towards a low carbon economy (EC 2010).

Using procurement to reduce Scopes 1 and 2 emissions by purchasing energy-efficient alternatives or electricity directly from renewable sources is the most common strategy. However, the ability to reduce Scope 3 emissions—in economic terms, a classic "externality"—makes procurement the most sought-after instrument for managing carbon reduction in any organization or country. Scope 3 emissions, in the supply chain of a product's life cycle, can constitute up to 75% of the organization's footprints. It is interesting to note that attempts to reduce carbon emission through procurement originally started at an individual level. Thankfully, over time, it has developed into a dedicated discipline backed by acts and rules in many parts of the world. The process whereby an organization seeks to procure goods, works, and services with reduced carbon footprints throughout their life cycle is called low carbon procurement. It essentially means demanding products with a reduced carbon content of materials vs. conventionally manufactured products. Life Cycle assessment (LCA), as defined in ISO 14040, is typically used to calculate embodied carbon in materials. In the construction sector, Product Category Rules (PCR) are also prevalent for standardized carbon footprint calculation. For other sectors, there is no standard methodology, and contracting authority will have to rely on LCA to calculate the carbon footprints of offered products.

Most countries start their GPP/SPP program by purchasing energy-efficient products with the twin aims of reducing energy consumption and GHG emissions. They further extend it to acquiring energy-efficient buildings and other construction projects. However, the challenge they face in internalizing carbon emissions in purchasing decisions is putting a price on carbon emissions. Therefore, carbon pricing can provide an effective, efficient, and equitable tool to guide contracting authorities in procurement decisions. This essentially means determining the GHG emission over the life cycle of products/projects, multiplying these by a shadow carbon price, and then factoring these costs while evaluating bids to steer purchasing decisions. De Graaff et al. (2020) have suggested using carbon pricing in procurement in two ways—(i) for information purposes; and (ii) for ranking bids. In the first method, carbon pricing could be used to understand the carbon footprints of different products during the procurement planning stage so that one may decide to procure the product with the least carbon footprints without distinguishing between suppliers. The second method is used to rank various bids by measuring the specific



carbon footprint of the solutions offered by the vendor in evaluation criteria to factor into procurement decisions. As a result, bidders get additional incentives to provide materials that have the lowest carbon footprints. The CO<sub>2</sub> performance used in the Netherlands for infrastructure procurement is an example of the latter. Along the same lines, Eric Dunford et al. (2021) have suggested a minimum carbon benchmark threshold that bidders must demonstrate, i.e., the carbon content of their products meets or exceeds the threshold set by the contracting authority. For example, California has set a benchmark carbon fuel standard that any fuel supplier must meet to advance vehicle efficiency (Dunford et al., 2021). The inherent disadvantage of the Dunford et al (2021) approach is that bidders are not motivated to improve upon their solutions beyond the minimum benchmark. Therefore, potential of procurement in driving carbon reductions varies with general carbon management maturity and contracting policy and practices in the country or region.

De Graaff et al. (2020) have suggested that carbon pricing works best and leads to practical solutions with reduced climate impacts of products and services when a relatively high carbon price is adopted. However, the use of carbon pricing has other limitations too. For example, it does not yield satisfactory results in many sectors with various products and lacks a standard footprint calculation methodology. Further, private sectors need to be ready to innovate in response to public procurement calls for low carbon solutions to achieve any effective solution. Therefore, going forward, governments need to identify sectors ready for adopting carbon pricing and ones that matter the most from a carbon reduction point of view. For example, most carbon emissions from infrastructure construction are associated with the production of materials (concrete, cement, and asphalt) and from the use of fossil fuels for the transportation of materials. Therefore, a policy that prioritizes procurement of lower carbon concrete, cement, and asphalt, and use of more sustainable transport methods will accelerate the transition to net-zero.

Dunford et al. (2021) have argued that low carbon procurement policy can promote the deployment of innovative products by linking policy goals for decarbonization to the purchasing of materials. However, to make this argument works in actual practices, public authority needs to choose a tender design that includes carbon pricing in the decision matrix for awarding a contract to deliver this goal. The tender design should be such that it can compare different bids transparently and should not inadvertently limit some vendors' participation.

Though goals and targets for GHG emissions are new to many countries, many others have established advanced procurement strategies through continuous interactions with stakeholders. The EU has a dedicated website, GPP 2020, to mainstream low carbon procurement across Europe (EU 2016). The GPP 2020 aims to support EU goals of achieving a 20% reduction in GHG emissions, a 20% increase in the share of renewable energy, and a 20% increase in energy efficiency by 2020. The update on the actual progress is not available but last checked, as of April 2016, more than 40 public authorities in eight countries executed over 100 low carbon tenders, saving an equivalent of 900,000 tons of CO<sub>2</sub> (ICLEI 2021). The approach focused on engaging with the procurement team from the beginning and showing the benefits of low carbon tender to procurers and decision-makers. After the award, all contracts



were monitored to calculate energy and GHG emissions reductions compared to business-as-usual solutions. The project also led to the development of several tools such as Energy Contracting Calculator, Office ICT Calculator, Vehicle Calculator, and Street Lighting Calculator. Similarly, the Buy Clean California Act 2017, notably the most prominent low carbon procurement policy in North America, mandates contracting authorities to specify the maximum acceptable Global Warming Potential (GWP) limits to target carbon emission associated with the production of selected construction materials like steel, glass, certain insulations (DGS 2017). Therefore, only products with Environmental Product Declarations (EPDs) having lower GHG emissions than the benchmark for that category can be used in government-funded projects.

Since low carbon procurement prioritizes carbon reduction, it sometimes compromises other critical environmental issues or socio-economic aspects (Correia et al. 2013). However, as pressures mount on governments to target carbon emissions reductions due to the growing political profile of the climate change agenda, low carbon procurement is sure to get lion attention in the future.

### ***7.1.5 Book Summary***

Any product, service, and work that an institution-government or business purchases has footprints on people's environment, society, economy, and health. These footprints, irrespective of the place where public authorities operate, are not necessarily limited within their geographical boundaries but may spread beyond. Procurement connects institutional purchasers with resources available externally. Through their procurement choice, institutional purchasers choose what world they want to live in, given that the most sustainability challenges and resources often lie outside their boundaries. How can these understandings be internalized into the procurement process to bring meaningful, transformative changes for society? Since public procurement has a lion's share in the government's expenditure, it represents a huge economic value and can become a great driver of sustainability, helping governments and businesses grow their value when procurement and sustainable approaches are combined.

Public procurement regulations follow a set of principles to achieve a set of objectives. Traditionally, these objectives included the best Value for Money (VfM), integrity, accountability, equal opportunities, and efficiency. These objectives are supposed to be achieved through principles of competition, equal treatment, and transparency. The strategic use of public procurement is based on the concept that governments, when using their financial capacity and procurement power to award contracts, can go beyond the immediate scope of simply responding to the state's procurement needs; they can use this to address additional social, environmental, and economic needs that contribute to the overall public good of a state. It does not mean that principles are not valid. They are still valid, but the idea goes beyond the procurement needs and addresses other social, economic, and environmental goals.

This requires a broader interpretation of what constitutes “**best value**” in public procurement.

The strategic use of public procurement to address social issues was ubiquitous in many parts of the world much before “green procurement” occupied center stage in the discourse on sustainable consumption and production. However, those practices were slowly mellowed down and abandoned in the post-Thatcher era in the name of market economy and bringing efficiency; economic considerations (read apparent cost) became the sole determinant for awarding a public contract. This over-emphasis on price alone as the award criterion did not work well, as one can infer, for other socio-economic values. After all, contracting authority has to balance three concerns while exercising procurement decisions:

- i. maximize citizen satisfaction by providing quality products and services;
- ii. maximize growth opportunities for the private sector; and
- iii. efficient spending of government money.

Awarding contracts solely on economic criteria might achieve efficiency in public spending but fails on other parameters—quality, social, and environmental. In fact, public procurement regulations that favored SMEs and local industries were initially criticized as trade impediments. Fortunately, now there is growing appreciation that positive discrimination towards SMEs and local industries in public procurement and protection of worker’s rights are good for equity and balanced economic development. In its new avatar, sustainable procurement not only focuses on SMEs and local industries but also on much broader issues like health and safety of workers, employment, minimum wages, etc., in addition to environmental issues. Interestingly, the practice of using public procurement for promoting social benefits, lost somewhere along the way, regained traction when public procurement was acknowledged as an effective tool for promoting eco-innovative products and mitigating environmental impacts. In a sense, the strategic use of public procurement has come full circle from social issues to environmental issues to the current environmental and social issues in its new avatar. The global experiences of implementing sustainable procurement show prevalence of environmental and economic dimensions in policy objectives, while social equity value has lagged behind. Therefore, there is an urgent need to stimulate integration of equity in purchasing decisions through a unique approach to sustainable procurement that achieves the concurrent goals of environmental sustainability, social equity, and economic development.

By adopting a strategic approach, governments can align limited resources to initiatives that are most likely to generate the maximum sustainability outcome. International agreements and conventions such as SDGs and Paris Climate Agreement have further galvanized the strategic use of public procurement to achieve sustainability objectives. While several countries have embraced it wholeheartedly and are rapidly establishing ambitious policy objectives, many are surprisingly still contemplating its merits to influence governance and sustainability outcomes. Some have even raised concerns about its use in developing and poor economies contexts. Such wide diversity in views among stakeholders towards any new concept is not uncommon and plays a significant role in helping to fine-tune that concept. A few

decades ago, when environmental and social impact assessments were made a part of project planning, procurement, and execution, a similar uproar was witnessed around its practicability in project procurement and implementation. Regardless of the initial hesitation, the world has addressed the concerns of stakeholders, found its effectiveness in bringing environmental and social impacts of project during the planning stage, and have now embraced it fully. A similar trajectory can be expected for sustainable procurement as well.

Implementing sustainable procurement comes with its own set of challenges: reducing risk aversion, setting up new forms of coordination and collaboration, improving skills and capacity, encouraging procurement officials to undertake dialogue with suppliers, and enhancing data collection and monitoring of results. However, experts worldwide are optimistic and confident about sustainable procurement as a preferred policy choice for enhancing sustainability outcomes, notwithstanding challenges around its implementation. Many countries, which are high on the SPP maturity curve today, faced similar challenges in the past and have either overcome them or are persisting by tweaking processes to achieve what suits them best. There is no doubt that other countries, currently low on the SPP maturity curve, can replicate the same success on SPP implementation. The concerns regarding sustainable procurement for achieving broader policy objectives are slowly getting petered out, and stakeholders are becoming bolder in applying this principle in various sectors of the economy and different national contexts. Unlike previous decades when the majority of the researches and practices in the area of sustainable procurement were coming from developed countries, new researches and practices in the area have also started emerging from developing and poor economies. It is rapidly evolving to address broader national policy objectives and changing how procurement function is perceived. It has emerged as an overarching policy instrument cutting across different sectors of the economy, like tourism, building and construction, textile, manufacturing. In less than three decades, stakeholders today are finding new applications of it every day. This reflects the growing interest in transforming public procurement into a strategic policy lever for the government.

The biggest drivers for spreading sustainable procurement practices in different parts of the world have perhaps been regulation and motivation. Since public procurement is a highly regulated area of financial management, regulation on sustainable procurement has been the key to its adoption by public authorities. In contrast, private sectors were motivated to reduce sustainability risks, meet customer demand for sustainable products and services, gain competitive advantages, improve brand value, and increase cost-efficiency by optimizing resources in their procurement decisions. While regulation sets a minimum bar for sustainable procurement practices and guarantees minimum uptake, public authorities cannot exploit its full potential unless they start thinking beyond regulations. They can make significant positive impacts on the environment and society only by embracing the sound rationale that motivates private entities to adopt sustainable procurement practices in the first place. Therefore, while regulation on the strategic use of public procurement can give public authorities a head start in its implementation, it is only through motivation that organizations can

make a more considerable impact in the long run. Therefore, success in SPP implementation has as much to do with the government's value, leadership, and strategy as regulatory provisions for purchasing sustainable products, works, and services.

The leadership and professionalization of procurement functions have played and would continue to play an overwhelming role in shaping the extent to which an organization is motivated and empowered for integrating sustainability in purchasing decisions. The leadership sets the ball rolling by clearly communicating intentions, directions, and priorities for the whole organization regarding sustainable procurement. However, beyond a well-intentioned sustainable procurement strategy, what is imperative for its successful implementation is to equip individual procurers with the necessary skills, knowledge, information, and tools to identify, prioritize, and take meaningful actions to mitigate sustainability risks related to procurement activities. An investment made towards the professionalization of procurement gives a better return in terms of sustainability outcome and cost-effectiveness of sustainable procurement. Countries investing in professionalization have moved much ahead on the sustainable procurement maturity curve than those trusting only the prioritized product categories as their SPP strategy. This vital evidence from SPP implementation experiences in European countries is highly endorsed by experts for all countries and organizations embarking or mid-way on the SPP journey.

While the strategic use of public procurement has greater acceptance now than ever before, stakeholders need to be reminded that not everything has gone as per script. Although it is a little more than two decades that sustainable procurement started being discussed and researched, and is currently reasonably well understood, its take-off has been slower than expected. Past experiences in implementing SPP policy show that it takes time for any government to articulate its benefits, harmonize its legal framework, work on capacity building of stakeholders, and actually implement the policy in a real-world scenario. The ground reality is that in most developing countries, public contracts are still perceived as a stand-alone tool to purchase specific goods or services and not as a strategic tool to achieve broader organizational objectives. The economic principle still rules at the cost of effectiveness principle, thus impacting the quality of services received by people. On top of that, advocates and champions have been found wanting in their efforts to dispel the myths around lower cost of conventional products as compared to sustainable products. So who bears the cost? The lower cost paid by consumers—individual or institutional purchasers—for less sustainable options is far more than what it costs the society in terms of externalities.

Further, the inability to demonstrate and communicate significant sustainability gains at the desired scale has dented its image as a preferred policy choice among policymakers and made contracting authorities hesitant in embracing it enthusiastically. The best way to address the cost barrier to sustainable procurement is to communicate indirect environmental, social, and health benefits that can be shown to provide better value to the taxpayer's money even when direct costs—the price paid plus the cost of use, maintenance, and disposal—are higher. Buying a product at a lower upfront price even if the product has higher energy consumption, maintenance, repair, or disposal costs is structurally inefficient, costing billions of dollars

to governments. This inefficiency could be removed only by professional procurement procurers, who could optimize benefits arising from opportunities underlying at different stages of the procurement cycle. Thus, there is a need to reform procurement policy that promotes robust systems and adaptive procurement processes to cater to the demand of the twenty-first century. A clear guideline on how much additional expenditure can be incurred, and under what circumstances to favor sustainable products over conventional products, has the power to address cost barriers to sustainable procurement and increase chances of its adoption by practitioners.

An important reason for tardy progress on SPP in many countries, including India, is that stakeholders have implemented it based on silo-thinking rather than systematic thinking. As a result, different actors and ministries have been making efforts to internalize sustainability in silos without acknowledging their interconnectedness. These complex interdependencies within procurement systems must be addressed efficiently, and not independently. In fact, systemic evaluation of sustainable procurement outcomes remains a challenge in most countries; feedback and learning loops in the system are mostly non-existent. Therefore, there is a need to appreciate the aspect of interconnectedness of the procurement system, creating a common understanding of how the system functions and how it can be geared towards new sustainability goals. To achieve real transformation in the procurement system, reconciling public and organizational interests would be crucial; short-term organizational benefits should not outweigh long-term shared societal benefits while developing any policy.

The true potential and value of sustainable procurement can be unlocked only by addressing issues at the system level. Applying a systematic approach to sustainable procurement will help set cross-cutting priorities to work across existing silos and empower stakeholders to choose appropriate procurement strategies at the very first instance. The requirement of market operators must be at the forefront while developing SPP policy for swift and successful execution. Different actors need to join their hands to reform their frameworks to advance complementary policy objectives and strengthen co-benefits through public procurement. The resulting trust and collaboration among stakeholders will help them design solutions that convert trade-offs into synergies among all three dimensions of sustainable development. Establishing an active monitoring and evaluation system for procurement outcomes will ensure that necessary feedback and learning loops are present in the system. It would further ensure that actors are aware of the impacts of SPP practices on the ground and take timely corrective measures collectively. One possible solution for bringing systematic thinking into the procurement procedure to achieve horizontal objectives is using multi-disciplinary teams working together throughout the entire procurement process cycle. Such an approach would allow greater buy-in on the uptake of the final decision-making, even if it is different from the earlier position held by stakeholders.

The situation is also a clarion call for multilateral agencies to rethink, redesign, and recalibrate their strategy for promoting SPP in different parts of the world. The best available SPP policy framework in the world can be transposed from one

country to another, but a framework without the right tools for implementing it (the country specificities) will lead to nowhere. There is a need to develop a non-prescriptive guideline to support the implementation of national SPP strategies. The current emphasis on identifying “low hanging” product categories with half-baked prioritization study, sometimes bypassing the national standard-setting organization ostensibly to speed up implementation, has not resulted in long-term success. Procurement leadership and people responsible for integrating sustainability considerations in purchasing decisions have primarily been found missing from the SPP governance setup. Their non-inclusion in SPP governance setup has failed to instill in them a sense of ownership, win support base of purchasers, and create capacity among local institutions to steer changes needed for SPP implementation. As a result, though some recipient countries have developed an SPP policy framework, they cannot move beyond a few product categories. The experiences demonstrate that such a myopic approach for mainstreaming sustainability in procurement decisions fails to produce significant sustainability outcomes. Therefore, emphasis needs to be on co-designing a locally fit framework with implementation methods rather than simply transposing a framework that has worked in an industrialized country. Investments directed towards empowering people and institutions to enable them to take command of SPP implementation will do wonders both for donor agencies and recipient countries.

The outcome of any SPP program is proportional to expectations concerning sustainability, climate change, and circular economy. In India, General Financial Rules (GFR) needs to include stipulations on the role of contracting authority to act on opportunities related to improving environmental and social well-being and obligating public authorities to use their public procurement spend to support SDGs, climate change, and circular economy ambitions. The current approach for SPP implementation lacks agility and focus and can yield only incremental results. Even if a few more products are prioritized at the national level in the coming months and years, it would just be a trickle in the ocean of opportunity. India needs to show determination to embrace this opportunity and change to a higher gear for inducing transformational outcome of SPP implementation. This would mean setting up building blocks with adequate resources and a framework to channelize efforts and execute them with realistic expectations. It is incumbent on all stakeholders to make SPP a well-nourished strategic project with a clear pathway that seeks to help transform India's socio-economic profile in the long term. While there is an urgent requirement of a national endeavor for SPP implementation, it is necessary that the spirit and commitment be applied across the states, municipalities, and local programs. Scaling up sustainable procurement from its current meager presence to a mainstream economic tool will make a decisive contribution to achieving SDGs and decoupling economic growth from resource use while ensuring India's long-term equitable, sustainable, and greener growth ensuring no one is left behind.

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