



EJAYITA JOY IMONIORO

THE TRIPLE BOTTOM LINE IN PROCUREMENT AND
CONTRACTING: A PATHWAY TO A SUSTAINABLE AND
PROFITABLE BUSINESS MODEL

SCHOOL OF MANAGEMENT
PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

MSc
Academic Year 2024–2025

Supervisor: PATRICK STRAUSS
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This thesis is submitted in partial fulfilment of the requirements for
the degree of MSc

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Academic integrity declaration

I declare that:

- The thesis submitted has been written by me alone.
- The thesis submitted has not been previously submitted to this university or any other.
- That all content, including primary and/or secondary data, is true to the best of my knowledge.
- That all quotations and references have been duly acknowledged according to the requirements of academic research.

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Abstract

Procurement is a strategic arena in which the triple bottom line (TBL), comprising economic, environmental, and social performance, is embedded and contested. This thesis systematically examines how TBL dimensions are integrated into procurement and contracting, and how these practices contribute to the development of sustainable and profitable business models. While the review spans multiple industries, the oil and gas (O&G) sector, particularly in Nigeria and comparable economies, is the focal point, given its high risks and institutional complexity.

A systematic literature review covering 2015–2025 was conducted across four databases and grey literature, with librarian support and snowballing . Sources were screened and appraised using consistent criteria, classified into three tiers, and analysed with a data extraction framework.

The findings highlight five key dynamics that shape procurement. Governing stakeholder influence is exercised through regulation, fiscal levers, international standards, and community expectations; however, fragmented enforcement limits its effectiveness. Managing trade-offs remains a challenge, as lowest-price logics dominate; still, LCC and multi-criteria evaluation demonstrate how resilience and competitiveness can align with sustainability. Collaboration and inclusivity provide opportunities for progress. Supplier development, partnerships, and local content foster innovation and community benefits, although smaller firms often face capability gaps and dependency risks. Tools such as decision-support models, traceability mechanisms, and digital platforms provide evidence-based pathways to sustainable procurement but are constrained by measurement gaps and resource limitations. Ethical accountability, expressed through compliance clauses, transparency, and audits, is also important; however, inconsistent monitoring reduces its impact.

The study reframes procurement as a contested space where TBL principles are negotiated, extending stakeholder and sustainable supply chain theories to contexts with weak governance. Managerially, it highlights enforceable

contracts, long-term evaluative tools, supplier capability building, and inclusive digitalisation. Future research should deepen analysis of O&G procurement in Africa, assess emerging technologies, and address the underdeveloped social pillar of sustainability.

Keywords:

Oil and Gas Industry; Nigeria; Supply Chain Management; Value Creation; Lifecycle Costing; Ethical Accountability.

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List of Abbreviations

AHP	Analytical Hierarchy Process
DEF	Data Extraction Form
ESG	Environmental, Social, and Governance
ICV	In-Country Value
IOCs	International Oil Companies
JOAs	Joint Operating Agreements
KPIs	Key Performance Indicators
LCC	Lifecycle Costing
O&G	Oil and Gas
PPP	Public-private Partnership
PSCs	Production Sharing Contracts
PTVP	Procurement-TBL Value Pathway
SCM	Supply Chain Management
SDGs	Sustainable Development Goal(s)
SLR	Systematic Literature Review
SMEs	Small and Medium Enterprises
SSCM	Sustainable Supply Chain Management
TBL	Triple Bottom Line

1 INTRODUCTION

1.1 Overview

The integration of sustainability into procurement practices has become a central concern across industries worldwide. Organisations face increasing expectations to embed environmental stewardship, social responsibility, and long-term economic value into their operations. The triple bottom line (TBL) framework (Elkington, 1997, 2018) provides a foundation for this shift, broadening performance evaluation beyond profit to include people and the planet.

Within this agenda, procurement and contracting play pivotal roles. Procurement decisions determine how sustainability commitments are implemented in practice. This thesis uses a systematic review to examine how TBL is operationalised in procurement and contracting, identifying pathways for sustainable value creation. The analysis spans multiple industries, with the oil and gas (O&G) sector, particularly in Nigeria and comparable economies, providing a focal lens due to its high sustainability risks and strategic importance.

1.2 Background

1.2.1 Global Supply Chain Complexity and Sustainability Risks in Procurement

Procurement sits at the centre of tensions between cost-efficiency and sustainability in industries such as infrastructure, manufacturing, and extractives. Globalised supply networks have enhanced efficiency but also create systemic fragility, with sustainability risks often concentrated in lower-tier suppliers where oversight is weakest (Tuni et al., 2020).

The pursuit of low cost often undermines long-term responsibility; even “green” initiatives are price-driven, limiting collaboration and resilience (Hasan et al., 2019). Procurement and contracting are inseparable: supplier selection is

formalised through contracts, and weaknesses in drafting, monitoring, or compliance can exacerbate sustainability risks and erode long-term value.

These dynamics are evident in Nigeria's Niger Delta, where the United Nations Environment Programme (UNEP, 2011) documented groundwater contamination in Ogoniland at levels far above safety thresholds. Despite a billion-dollar remediation fund, subsequent reports highlighted contract mismanagement and stalled progress (Amnesty International, 2020). This case illustrates how weak procurement and contract oversight can derail sustainability commitments, particularly in high-risk sectors

1.2.2 TBL and Procurement

Elkington's (1997, 2018) TBL framework redefined corporate performance by extending it beyond profit to environmental and social outcomes. In procurement, evaluation has shifted from lowest-cost to supplier sustainability, contractual obligations, and long-term value creation.

The literature, however, remains fragmented. Many studies focus narrowly on environmental performance, such as green purchasing and closed-loop supply chains (Das, 2020; Niu et al., 2019), while others explore trade-offs or synergies between economic and social aspects, including supplier development in traditional industries (Gupta et al., 2018). Adjacent frameworks such as environmental, social, and governance (ESG) reporting are increasingly used, especially in infrastructure and logistics (Safuan et al., 2023).

This thesis reviews studies that address the social, environmental, and economic elements of the TBL framework to build a comprehensive view of how procurement operationalises these principles in practice.

1.2.3 Sustainable and profitable business model

This thesis views sustainable and profitable business models through the lens of value creation, where value extends beyond financial returns to encompass long-term resilience, social equity, and environmental stewardship, while also ensuring profitability and competitiveness (Bocken et al., 2014). Procurement is

a strategic lever, not merely a transactional function, as it determines how value can be realised through supplier relationships, contractual design, and partnerships. Embedding TBL goals into procurement has been shown to strengthen resilience, enhance competitiveness, and increase stakeholder value (Agwu et al., 2022; Rezaee, 2018).

1.2.4 Research gap

The TBL framework is widely recognised as critical for embedding sustainability in business models (Bocken et al., 2014). Yet within procurement research, emphasis remains skewed: environmental and economic dimensions dominate, while the social pillar is comparatively underexplored, though gaining visibility (Lou et al., 2023). Many studies also frame procurement within the broader supply chain management (SCM), leaving sustainable procurement practices largely environmentally focused (Meehan & Bryde, 2011). Moreover, evidence is concentrated in developed economies, with emerging contexts receiving limited attention (Sánchez-Flores et al., 2020). Despite its potential for long-term value and profitability, the integration of TBL into procurement and contracting remains under-researched. This thesis addresses these gaps through a cross-sector systematic review that examines how procurement and contracting operationalise TBL principles in practice.

1.3 Aim and objectives

1.3.1 Aim

To systematically examine how the TBL dimensions are integrated into procurement and contracting practices across industries, and to assess how such practices contribute to sustainable and profitable business models.

1.3.2 Objectives

RO1: To identify the key drivers that influence the adoption of TBL principles in procurement practices.

RO2: To evaluate procurement strategies for balancing cost-efficiency with environmental and social sustainability.

RO3: To examine the challenges and trade-offs that limit the integration of TBL into procurement and contracting practice.

RO4: To analyse how a price-dominant procurement approach conflicts with the pursuit of value creation in procurement and contracting.

1.4 Research questions

RQ1: What are the key drivers that influence the adoption of TBL principles in procurement practices?

RQ2: What strategies have organisations employed to balance cost-efficiency with environmental and social sustainability in procurement decisions?

RQ3: What are the key challenges in integrating TBL principles into procurement decisions?

RQ4: How does a price-dominant procurement approach conflict with the pursuit of value creation in procurement and contracting?

1.5 Scope and Boundaries

The dataset is global and cross-sectoral, with about half of the reviewed papers situated in developing economies. Within this, Nigeria's oil and gas sector is treated as the focal case due to its high sustainability risks, economic dependence on hydrocarbons, and governance challenges, which make procurement practices particularly consequential. While few studies examine

Nigeria directly, the sector offers a valuable lens for understanding how procurement engages with TBL principles in resource-dependent developing countries. Insights are reinforced with evidence from comparable economies operating under similar institutional and socio-economic conditions, making the findings transferable to economies comparable to Nigeria.

1.6 Thesis structure

Chapter 1: Introduction – Establishes the relevance of TBL in procurement, outlines the background, research gap, aim, objectives, research questions, and scope.

Chapter 2: Methodology – Explains the systematic literature review (SLR), including rationale, search strategy, screening, inclusion and exclusion criteria, quality assessment, tier classification, and data extraction framework (DEF). Supplementary materials are provided in the appendix.

Chapter 3: Descriptive Analysis – Profiles the reviewed studies and grey literature by type, tier, publication year, research method, geography, sector, sustainability dimensions, and value creation, and presents keyword network analysis.

Chapter 4: Thematic Analysis – Synthesises findings across five themes: governing stakeholder influence, trade-offs in decision-making, collaboration and inclusivity, tools for sustainable procurement, and ethical accountability.

Chapter 5: Discussion – Interprets the thematic findings and their responses to the research questions, with an emphasis on O&G in Nigeria and comparable economies.

Chapter 6: Conclusion – Summarises the findings in relation to the research questions, highlights theoretical and managerial contributions, notes limitations, and suggests future research.

2 METHODOLOGY

2.1 Overview

This chapter outlines the methodology adopted to address the research questions in Chapter 1. It explains the rationale for using an SLR, the search strategy and database selection, and the screening and quality assessment procedures that guided article inclusion. The chapter also describes the categorisation of studies, DEF, and how these informed the thematic synthesis presented in Chapter 4.

2.2 Systematic literature review

This study adopts an SLR methodology to investigate the integration of TBL principles into procurement and contracting as a pathway to value creation. The SLR is a structured, transparent, and replicable approach for synthesising existing literature to answer clearly defined research questions. It is widely used in management research because it minimises bias, enhances transparency, and enables comprehensive evaluation of complex topics (Kraus et al., 2009; Petticrew, 2001).

SLR originated in medicine and has been established in management research (Rojon et al., 2021; Pittaway et al., 2004). Unlike narrative reviews, SLRs use rigorous protocols that reduce bias and improve reliability (Kraus et al., 2020; Snyder, 2019). This reduces selection bias and improves the reliability and generalisability of the findings.

The use of SLR in this study serves four objectives:

1. To synthesise evidence on how TBL principles are applied in procurement and contracting;
2. To evaluate the quality and relevance of existing research;
3. To identify key themes, gaps, and trends in the literature; and
4. To generate insights that inform theory-building and managerial recommendations.

While the SLR ensures transparency and replicability, it also has limitations. Boell and Cecez-Kecmanovic (2015) cautioned that rigid protocols risk reducing reviews to procedural exercises, overlooking interpretive depth. This is particularly relevant in sustainability research, where valuable insights may lie in interdisciplinary or grey literature sources that do not always fit neatly within strict inclusion criteria.

2.3 Distinctive features of SLRs Compared to traditional literature reviews

SLRs differ fundamentally from traditional reviews in terms of purpose, process, and reliability. SLRs are designed to address clearly defined research questions through transparent protocols covering search, screening, quality appraisal, and synthesis (Kraus et al., 2020; Snyder, 2019). This reduces bias and ensures replicability. In contrast, traditional reviews are often broader in scope, descriptive in nature, and shaped by the reviewer's subjective judgement, making them less systematic and more vulnerable to selection bias (Finfegeld-Connett & Johnson, 2013; Hart, 1998).

SLRs apply predefined criteria, ensuring reliability, while traditional reviews adapt criteria, offering flexibility but limiting transparency (Boell & Cecez-Kecmanovic, 2015; Jalali & Wohlin, 2012). SLRs typically employ structured synthesis methods, either qualitative (e.g., thematic analysis) or quantitative (e.g., meta-analysis), supported by standardised DEFs, while traditional reviews often rely on narrative summaries.

A detailed comparison between traditional and systematic literature reviews is presented in Appendix B (Table B-1).

2.4 SLR process overview

2.4.1 Research scope

This review examines the integration of TBL principles into procurement as a means of creating value. The search focused on three core ideas: TBL, procurement, and value creation, covering the period from 2015 to 2025. To

maximise breadth, no sector or geography filters were used at the search stage. O&G relevance was applied during the screening.

Because procurement is enacted through contracts, the analytical lens was widened during screening to include tendering, contract design, and compliance governance, even though “contracting” was not initially included in the database strings.

The O&G lens was adopted due to the sector’s strategic importance and heightened sustainability risks. Studies were prioritised where they addressed procurement practice (e.g., sourcing, supplier selection, tendering, supplier engagement) and linked TBL integration to value creation.

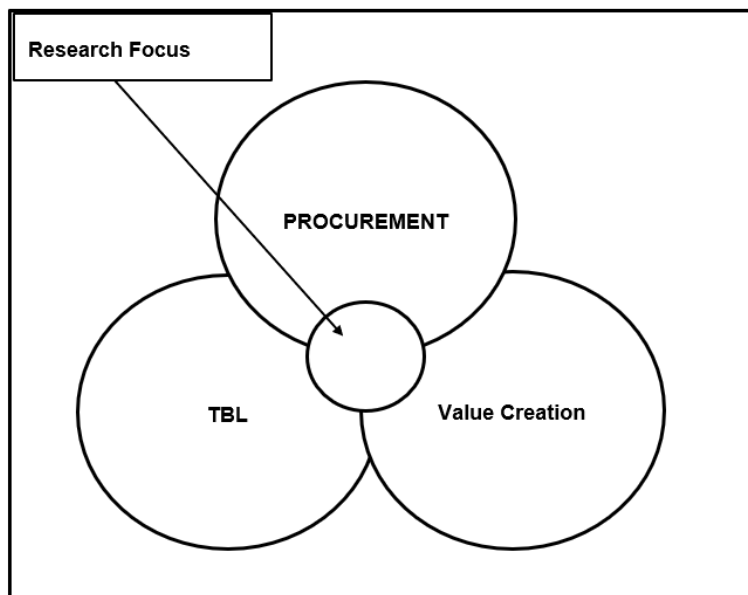


Figure 2-1 Field of Study (Imonioro, 2025)

- TBL: people, planet, profit.
- Procurement: sustainable procurement, sourcing, supplier selection, tender evaluation, contract governance
- Value creation: as defined in Chapter 1.

2.4.2 Search strategy

2.4.2.1 Database selection

To ensure comprehensive coverage and reduce single-database bias, four databases were used: Scopus, Web of Science, ProQuest (ABI/INFORM), and EBSCOhost. These databases are widely used in postgraduate research within the logistics, procurement, and SCM disciplines at Cranfield University and are also readily accessible through the university's library.

Table 2-1 Selected Databases and Their Relevance

Database	Key features	Rationale
Scopus	Broad abstract and citation coverage with analytics	Extensive management/operations coverage; strong citation tools
Web of Science	Multidisciplinary; strong environment/energy	Complements Scopus; access to high-impact journals
ProQuest (ABI/INFORM)	Business journals, theses, and some grey literature	Practitioner/sector insights relevant to procurement
EBSCOhost	Aggregated management/sustainability journals	Targeted queries on procurement and sustainability

2.4.2.2 Classification of keywords

Keywords were organised around the three concept anchors from 2.4.1—TBL, procurement, and value creation—to keep the search tightly aligned to the thesis focus. SCM was treated as an adjacent term only to improve breadth.

Table 2-2 Keyword Classification

Category	Keywords/phrases
Theoretical constructs	triple bottom line.
Functional focus	procurement.
Performance/drivers	value creation.
Contextual boundaries	oil and gas

Table 2-3 Keywords for Database Search

Concept Anchor	Core Terms	Synonyms
TBL	TBL	3Ps, “people, planet profit”, sustainability
Procurement	procurement, purchasing, sourcing, buying	“sustainable procurement”, “green procurement”
Value creation	“value creation”, “business value”	“economic sustainability”, “financial sustainability”, “economic performance”

Note: “contracting” was not included in the database queries, but was incorporated at the screening phase. This is because procurement is enacted through contracting.

2.4.2.3 Formulation of search string

The search covered 2015–2025 and was executed on 16 July 2025. Strings combined the three concept anchors using Boolean operators and database-specific fields.

Generic final string (field codes applied per database):

(“triple bottom line” OR TBL OR 3Ps OR “people planet profit” OR sustainability) AND (procurement OR purchasing OR sourcing OR buying OR “sustainable procurement” OR “green procurement”) AND (“value

creation” OR “business value” OR “economic sustainability” OR “financial sustainability”)

Field codes used: Scopus TITLE-ABS-KEY; Web of Science TS (Topic); ProQuest (ABI/INFORM) NOFT (All fields); EBSCOhost AB (Abstract) Database-specific syntax was applied to accommodate search functionality.

Table 2-4 Final search strings and results (conducted on 16 July 2025)

Database	Results	After in-database screening
Scopus	321	156
ProQuest (ABI/INFORM)	216	45
EBSCOhost	374	72
Web of Science	1,383	598
Total	2,294	871

2.4.3 Screening process

Screening followed a staged protocol aligned to procurement (and contracting), TBL, and value creation:

- Database filters applied the inclusion/exclusion criteria at the query stage.
- Deduplication: Records were exported and merged in Excel, and duplicates were removed.
- Title/abstract screening (manual): Studies were retained if they addressed procurement or contracting (e.g., sourcing, supplier selection, tender evaluation, contract design/clauses, compliance governance) and engaged ≥ 1 TBL dimension with a credible link to value creation. This is the stage at which the O&G lens was applied (studies were retained if focused on O&G or clearly transferable to O&G contexts).
- Full-text retrieval and quality appraisal: Articles that passed abstract screening were retrieved in full and assessed under the quality assessment framework.

- Librarian support and snowballing were used to strengthen O&G coverage. The articles were screened and appraised using the same criteria as the database results.
- Grey literature (e.g., company sustainability reports) was treated as core and screened and appraised using the same criteria as database results

2.4.4 Inclusion and exclusion criteria

A defined set of inclusion and exclusion criteria was applied to ensure that only studies of appropriate quality, relevance, and alignment with the research focus and objectives were selected.

Table 2-5 Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion	Rationale
Credibility	Peer-reviewed journal articles	Non-peer-reviewed (blogs, editorials, opinion pieces)	Ensures academic quality
Publication Year	2015–2025	Pre-2015	Captures recent and relevant work
Language	English only	Non-English	Translation not feasible
Access	Full-text available	Full-text unavailable	Ensures transparency
Relevance	Procurement studies addressing ≥ 1 TBL/ESG dimension	CSR/ESG only without procurement/TBL	Keeps focus aligned
Sectoral	All sectors, O&G prioritised	Unrelated to procurement or sustainability	Broadens evidence base
Disciplinary Scope	Business, management, energy, environment, engineering, economics	Pure sciences with no procurement/TBL link	Ensures relevance
Study Type	Empirical and non-empirical with theoretical or practical contribution	Opinion pieces, descriptive-only	Ensures impact and rigour

Note: Expanded rationale is provided in Appendix B (Table B-1).

2.4.5 Quality assessment

All studies were appraised using a 15-point framework (Pittaway et al., 2004). A $\geq 10/15$ threshold applied, though some items were excluded if thematically irrelevant.

Criteria	0 - Absent	1 - Low	2 - Moderate	3 - High
Thematic Relevance	Off topic, unrelated to TBL, procurement, or O&G	Partially related but weakly aligned with thesis themes or sector	Related but with some gaps in sector or functional focus	Strongly aligned with thesis scope, including TBL, procurement, and O&G or extractive industry focus
Methodological Rigour	No clear methodology; lacks data or design	Methodology unclear or poorly justified; lacks robustness	Generally sound, with minor gaps or insufficient detail	Documented, robust, and appropriate methodology
Integration of TBL Dimensions	No mention of economic, environmental, or social dimensions	Addresses only one TBL dimension superficially	Addresses two TBL dimensions in a meaningful way	Fully integrates all three TBL dimensions with depth and balance
Focus on Sustainable Value Creation	No discussion of value creation or sustainability	Mentions value creation or sustainability vaguely	Discusses sustainable value creation, but with limited detail	Explicitly demonstrates sustainable value creation
Practical Implications	No practical implications or applications discussed	Vague or limited practical implications	Some practical insight, but limited generalisability	Clear and actionable insights for practitioners and industry stakeholders

Figure 2-2 Quality Assessment Framework

2.4.6 PRISMA diagram

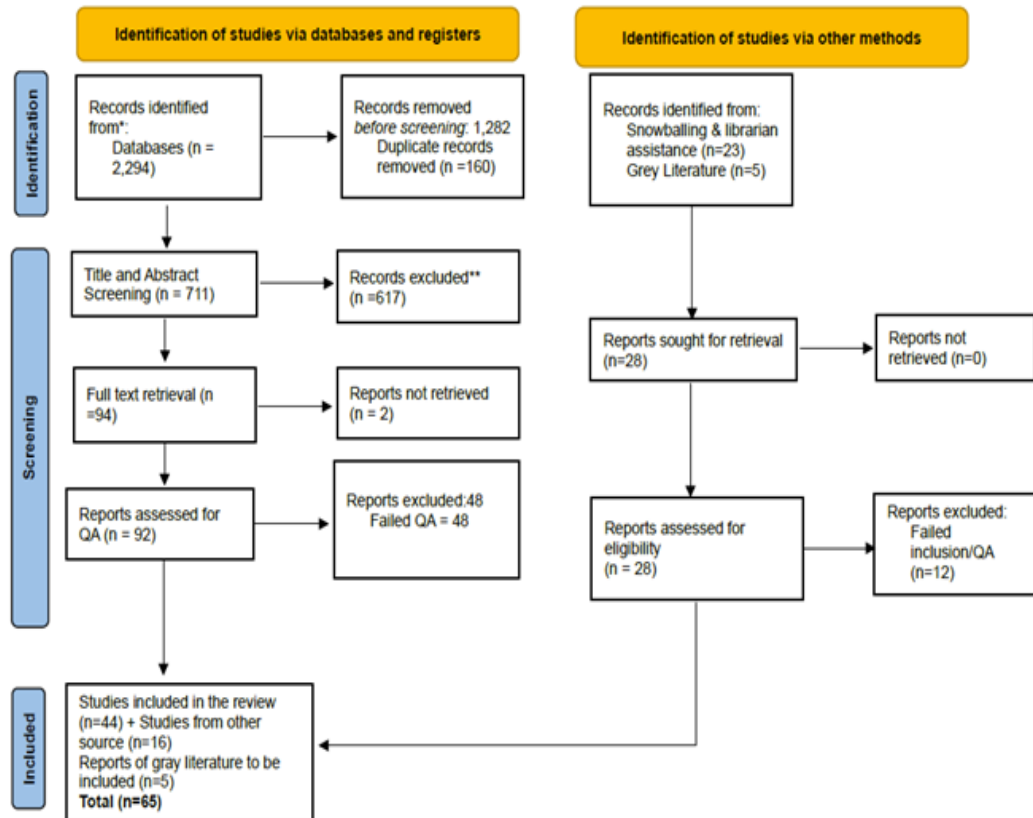


Figure 2-3 PRISMA 2020 diagram for study selection: Adapted from Page et al. (2021)

2.4.7 Study categorisation

To manage study diversity and guide depth of analysis, papers were grouped into three analytic tiers by the strength of their procurement/contracting focus, integration of TBL, and explicit link to value creation.

- Tier 1: Core procurement/contracting; ≥ 1 TBL pillar and a clear link to value creation.
- Tier 2: Procurement-relevant / SSCM studies; ≥ 1 TBL pillar; clear link to value creation.
- Tier 3: Sector-specific O&G or extractives studies; ≥ 1 TBL pillar; clear link to value creation.

Coding. A single-coding approach was used.

2.5 Data extraction form

A DEF was used to capture all relevant information for the included studies; the fields are shown in **Error! Reference source not found.**. The extracted data underpinned the thematic synthesis in Chapter 4, where the findings were organised around the research questions and the key themes emerging from the literature.

Sr. No.	
Author Name	
Article Title	
Source Type	
Year of Publication	
Country of Study	
Industry	
Research Methodology (Quantitative or Qualitative)	
Research Method Used (such as interviews, surveys, or mixed)	
Paper Type	
Sustainability Focus (economic, environmental, or social)	
Journal of Study	
Key Findings	

Figure 2-4 Data Extraction Form

2.6 Chapter summary

This chapter sets out the SLR methodology for examining procurement/contracting through the TBL lens and its links to value creation. It detailed the search process (four databases, 2015-2025), in-database filters, staged screening, with O&G relevance, and quality appraisal. The chapter also introduced the three-tier categorisation and the DEF that underpin the thematic synthesis in Chapter 4.

3 DESCRIPTIVE ANALYSIS

3.1 Overview

This chapter provides a descriptive profile of the documents selected through the SLR. It outlines the characteristics of the final set of literature, comprising both academic studies and grey sources, to contextualise the thematic analysis in Chapter 4. The analysis examines publication type, year, research methodology, sectoral and geographic focus, and the extent to which studies address TBL through a procurement perspective. It also considers value creation to assess how each study contributes to the research objectives. The chapter concludes with a keyword network analysis, highlighting the main concepts and clusters emerging from the literature.

3.2 Document types and sources

3.2.1 Article type and tier classification

The 60 academic articles included in this review span empirical and conceptual work with varying relevance to procurement. Of these, 40 studies (66.7%) were empirical, drawing on case studies, surveys, interviews, or mixed methods. A further 17 (28.3%) were conceptual or analytical, 2 (3.3%) were systematic literature reviews (SLRs), and 1 (1.7%) was an editorial.

Relevance was assessed using a tiered system. Tier 1 comprised 30 papers (50.0%) explicitly focused on procurement. Tier 2 included 10 papers (16.7%), which addressed procurement within broader sustainable supply chain contexts. Tier 3 comprised 20 (33.3%) studies focused on procurement in O&G or other extractive industries.

Table 3-1 Academic Articles by Type and Tier (Imonioro, 2025)

Article Type	Tier 1	Tier 2	Tier 3	Total
Empirical	22	5	13	40
Conceptual / Analytical	8	4	5	17
SLRs	-	-	2	2
Editorial	-	1	-	1
Total	30	10	20	60

3.2.2 Publication year trend

The 60 academic articles reviewed span the period from 2016 to 2025, with a notable increase in output after 2020. Early publications were modest, ranging from two to five per year between 2016 and 2019. Output rose sharply in 2020, with nine publications, before falling back to four in both 2021 and 2022. This increased again in 2023 with eight studies, reaching a peak of 12 in 2024. By the July 2025 cut-off, seven articles had been published.

This distribution suggests that academic attention to sustainable procurement has increased in recent years, reflecting a growing emphasis on integrating TBL into procurement research.

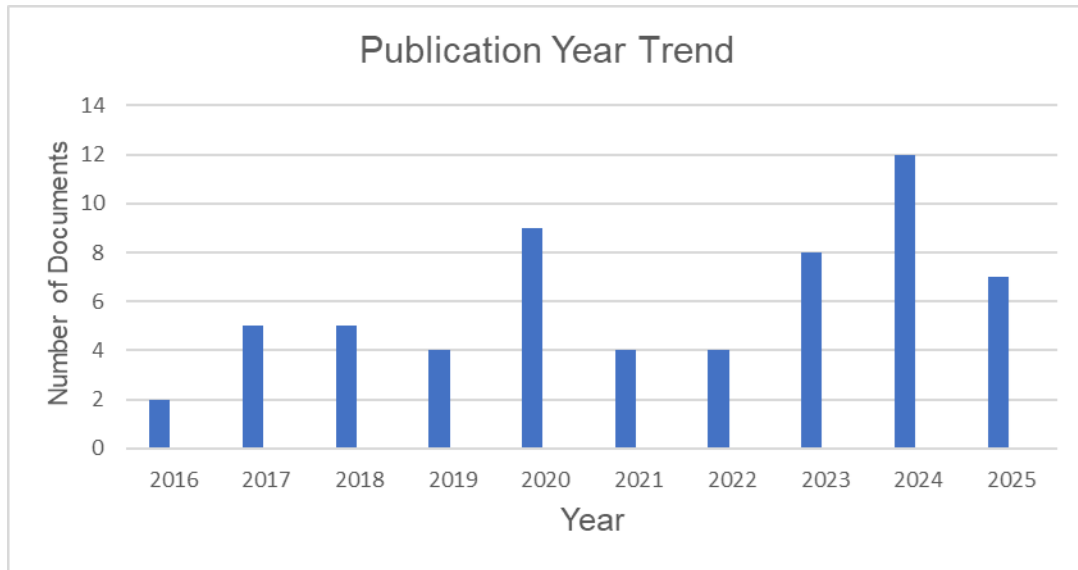


Figure 3-1 Publication Year Trend (Imonioro, 2025)

3.2.3 Research method

Unsurprisingly, the reviewed literature emphasises applied, real-world enquiry, aligning with the practical focus of the research. Case studies were the most common method ($n = 20$), offering detailed insights into procurement and contracting practices. Interviews ($n = 18$) and modelling/quantitative methods ($n = 18$) were frequently utilised, providing qualitative perspectives and a quantitative analysis of trade-offs or performance outcomes. Surveys ($n = 11$) and SLRs ($n = 10$) delivered structured data and synthesised previous research. Less common approaches included document analysis ($n = 6$), questionnaires and secondary data analysis ($n = 4$ each), desk research and expert-driven approaches ($n = 3$ each), and comparative legal analysis or observation ($n = 2$ each). These methods reflect the interdisciplinary nature of sustainable procurement research, combining conceptual, empirical, and analytical perspectives.

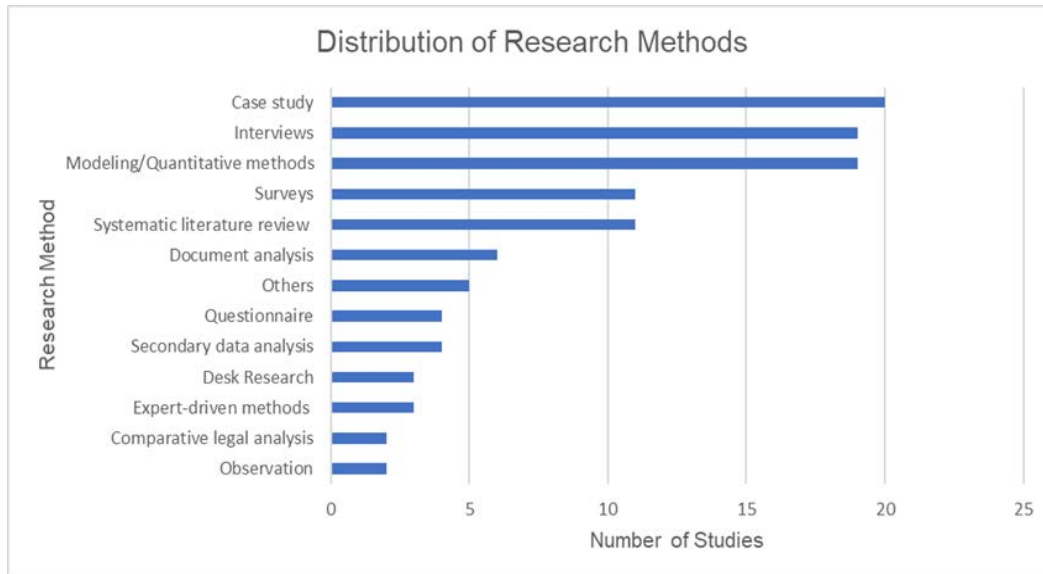


Figure 3-2 Research Method (Imoniore, 2025)

3.3 Geographic and sectoral context

3.3.1 Geographic coverage

The 65 documents (articles and grey literature) reviewed in this study cover a broad mix of countries and regions. Around two-thirds (43 papers, 66%) were set in developing economies, including countries in Asia, Africa, and Latin America. Studies from developed countries (12 papers, 18%), including Finland, Germany, Switzerland, the UK, and the US, also contributed valuable insights from more advanced policy and business environments. In addition, 14 papers (22%) took a global or multi-country approach, while 6 papers (9%) did not mention a specific country, typically because they were conceptual or theory-based.

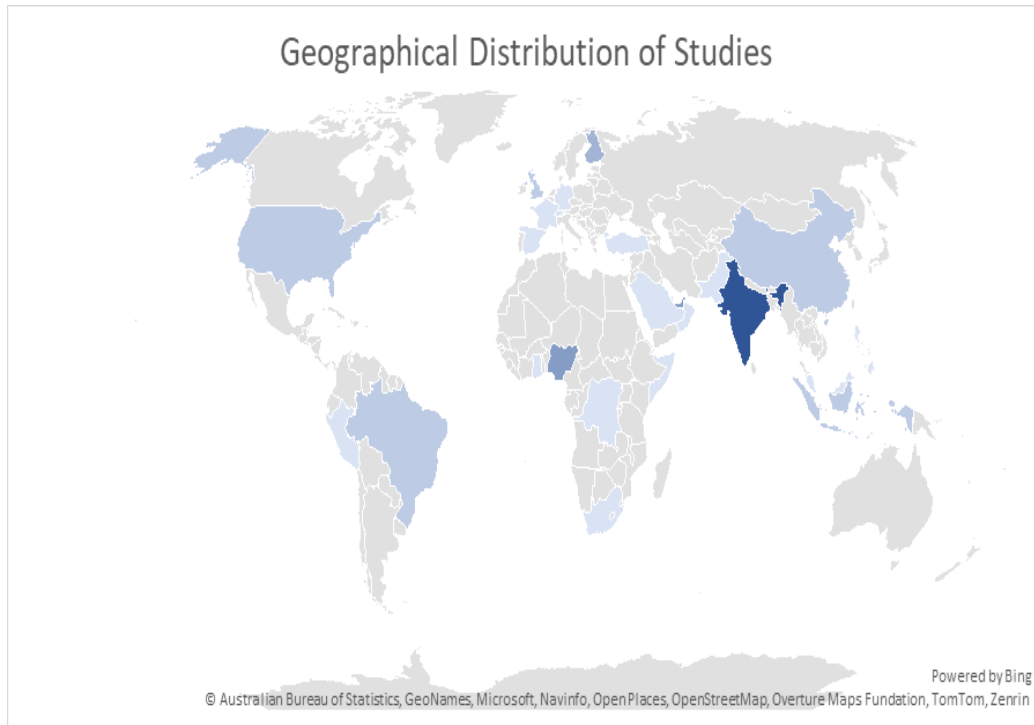


Figure 3-3 Geographic Distribution (Imonioro, 2025)

Figure 3-3 shows the spread of countries covered. While the review reflects diverse geographies, a handful of studies have focused on Nigeria, particularly in O&G. These provide an important focal case for the discussion chapters, in which Nigerian regulations and practices are explored more directly.

3.3.2 Sectoral coverage

The reviewed studies covered various sectors, with O&G being the most common (20 papers), reflecting the study's focus on sustainable procurement in this sector. Other key areas include infrastructure/construction, public procurement (6), manufacturing (5), extractives beyond O&G industries (5), and multi-sector studies (5). Additional coverage includes cross-sector analyses (4), fashion/textiles (3), smaller groups in healthcare (3), automotive (2), and food supply chains (2). Less common areas, such as logistics, water, and waste management, supply chain finance, electric vehicles, agriculture/forestry, aviation, and energy, were also examined, broadening the review and ensuring relevance across both major industries and evolving procurement practices.

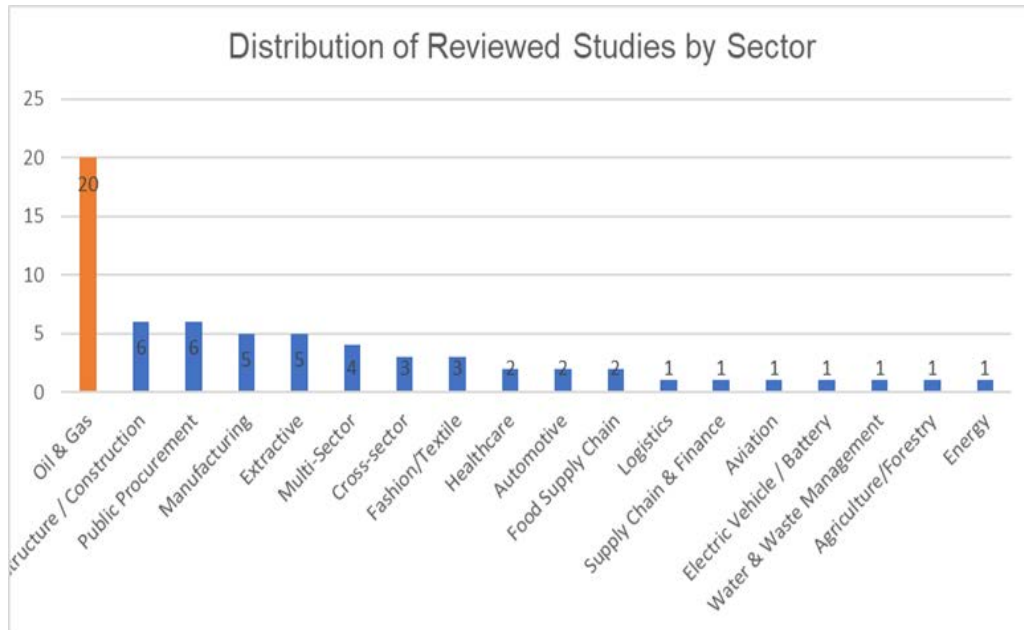


Figure 3-4 Sectoral Distribution of Reviewed Studies (Imonioro, 2025)

3.4 Sustainability Dimensions Addressed

The reviewed studies varied in the extent to which they incorporated the three pillars of TBL. Over half (35 papers, 54%) addressed all three dimensions, reflecting a move towards integrated approaches in procurement research. A further 13 studies (20%) combined environmental and economic aspects, while 8 papers (12%) addressed social and economic aspects, and 3 papers (5%) addressed social and environmental aspects.

Only six papers (9%) focused on a single dimension: four papers on economic and two papers on social. While the social pillar was once considered underexplored, its presence has increased in recent studies, indicating growing attention to social sustainability in procurement contexts.

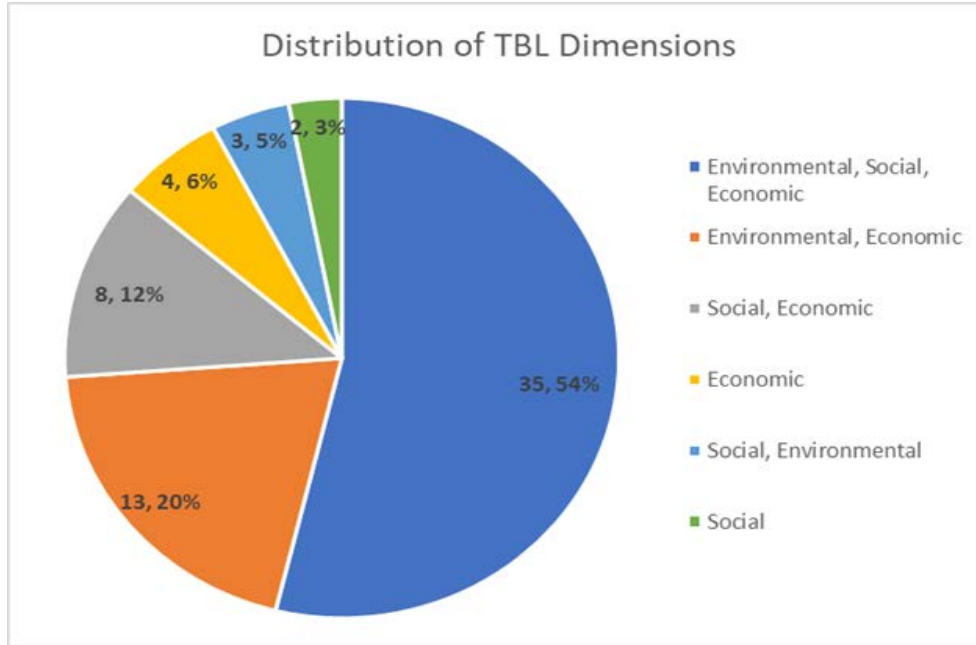


Figure 3-5 Distribution of TBL Dimensions (Imonioro, 2025).

3.5 Value creation focus

Value creation featured prominently across the reviewed studies, with 64 papers (98%) explicitly referencing how sustainability initiatives generate tangible or intangible benefits. The literature highlights contributions such as cost savings, enhanced supplier performance, innovation, reputational gains, and societal impact. This emphasis reinforces the framing of sustainability not merely as a compliance task, but as a strategic enabler within procurement and contracting practices.

Only one study did not mention value creation, underscoring the growing consensus on its centrality in sustainable procurement and contracting research.

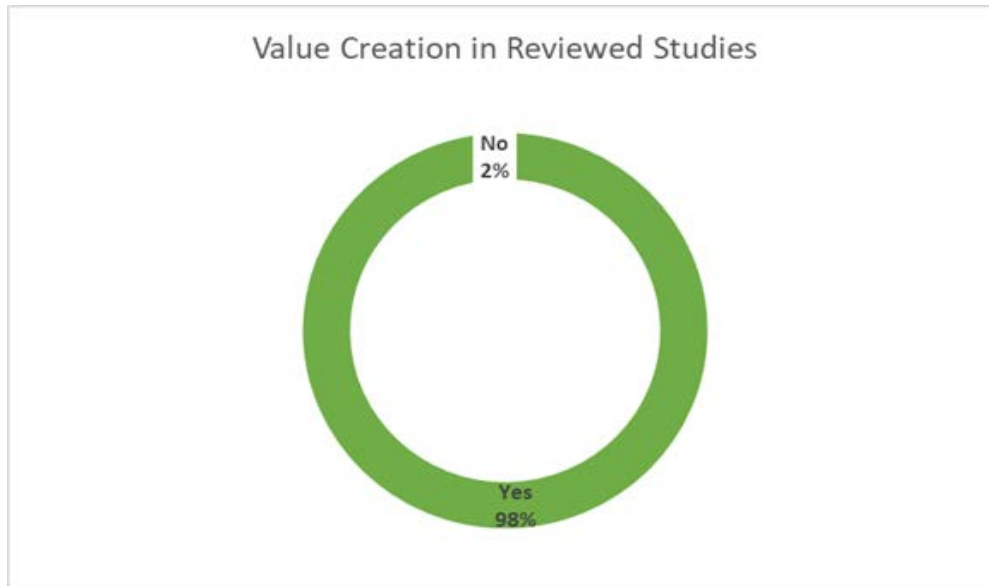


Figure 3-6 Evidence of Value Creation (Imonioro, 2025)

3.6 Grey literature overview

To complement the academic literature, this review included five company sustainability reports from leading organisations in the O&G sector. These reports provide practical insights into procurement and contracting strategies, sustainability initiatives, and TBL practices in real-world corporate settings.

Key sources include sustainability reports from Shell (2023), Chevron (2023), TotalEnergies (2025), Saudi Aramco (2023), and Seplat (2023). Each offers detailed accounts of procurement practices and sustainability performance, enabling comparisons between academic findings and sector-specific practices in the O&G industry.

Table 3-2 Grey Literature (Imonioro, 2025)

Company Sustainability Report	Sector
Shell	O&G
Chevron	O&G
TotalEnergies	O&G
Saudi Aramco	O&G
Seplat	O&G

3.7 Key concepts from the keyword network

The keyword analysis, conducted using VOSviewer, drew on the complete set of reviewed articles. Applying a minimum occurrence threshold of one, the network contained 170 keywords, of which 80 were connected in the largest component. These connected terms form the basis of the visualisation in Figure 3-7 .

Sustainability was the most common and highly connected term, linked with concepts such as sustainable procurement, lifecycle assessment and costing, and, in some cases, broader SCM. Other clusters highlighted procurement and public sector contexts, alongside economic and environmental themes such as environmental sustainability and responsible sourcing. In contrast, social sustainability, while present, appeared less central in the network, suggesting that social aspects received comparatively less attention than environmental and economic dimensions.

Collectively, the network underscores sustainability-centred procurement and contracting as core to the literature set, with distinct but related sub-themes providing the foundation for the thematic synthesis in the next chapter.

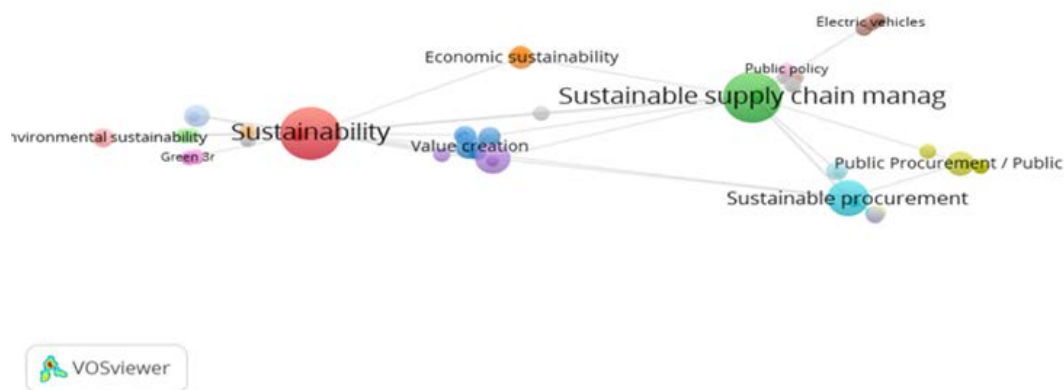


Figure 3-7 Keyword co-occurrence network (VOSviewer output)

3.8 Chapter summary

This chapter provided a descriptive overview of the academic and grey literature selected for this study, outlining its key characteristics and patterns. The analysis covered publication type, year, research methods, sectoral and geographic focus, the TBL dimensions addressed, and the emphasis on value creation. The findings confirm that the final corpus reflects the scope and objectives of this research, with a deliberate focus on procurement within supply chains, particularly in the O&G industry.

The keyword network analysis showed that terms associated with the TBL dimensions dominate the discourse, with a stronger emphasis on environmental and economic aspects. Social sustainability, while present, appeared less central in the network, suggesting that it receives comparatively less attention in the literature. These descriptive findings not only validate the selection process but also provide a clear context for the thematic synthesis in the next chapter, where the relationships and deeper insights behind these TBL-related patterns will be explored.

4 THEMATIC ANALYSIS

4.1 Overview

This chapter reports how procurement integrates sustainability across five themes, summarised in Table 4-1.

Stakeholder Influence and Managing Trade-offs in Decision Making are the most developed, with contributions spanning sectors and both developed and developing contexts. Within theme 2, the price–sustainability tension is not only the most extensively documented but also the most consequential for practice. The remaining themes, Collaboration and Inclusivity in Procurement, Tools for Sustainable Procurement, and Ensuring Ethical Accountability, are also strongly represented. However, coverage is more uneven and often depends on enforcement capacity, institutional maturity, and data availability. Notably, many studies remain concentrated in developed-economy settings, while evidence from developing economies, though growing, is less established. The five themes indicate steady movement toward TBL-aligned procurement alongside persistent constraints that shape outcomes across industries and regions.

Table 4-1 Core themes in sustainable procurement

Theme	Title
Theme 1	Governing Stakeholder
Theme 2	Managing Trade-offs in Decision-making
Theme 3	Collaboration and Inclusivity in Procurement
Theme 4	Tools for Sustainable Procurement
Theme 5	Ensuring Ethical Accountability

4.2 Governing stakeholder influence

4.2.1 Regulatory and policy frameworks

Regulatory and policy frameworks influence the integration of TBL dimensions into procurement by embedding sustainability-linked criteria into the respective processes. Their impact cuts across sectors but depends heavily on enforcement. In public procurement, contractual clauses tied to government funding have been shown to drive the delivery of community benefits (Wontner et al., 2020). Infrastructure-focused frameworks, such as public–private partnerships (PPP), require bidders to address TBL outcomes in their proposals (Patil et al., 2016; Zin Zawawi et al., 2016), with national socio-economic objectives, such as Bumiputera empowerment, embedded in PPP decisions. In the O&G sector, contracting strategies are increasingly incorporating local content policies and sustainability-linked key performance indicators (KPIs), embedding policy priorities directly into supplier agreements (Alhammadi et al., 2023; Alhammadi et al., 2024; Anaba et al., 2024). Fiscal and economic policy levers are essential enablers. Fiscal terms function as decisive factors in investment and purchasing strategies, linking procurement decisions to broader economic stability (Firera et al., 2024). Green credit financing and government subsidies encourage buyers to favour certified suppliers, though their effectiveness depends on subsidy levels, with insufficient incentives limiting uptake (Liang & Zhang, 2025). Weaknesses are also reported. Fragmented frameworks and inconsistent enforcement reduce sustainability clauses to symbolic requirements, creating uncertainty for suppliers and limiting comparability across markets (Almeida et al., 2024; Dhingra et al., 2020). By comparison, stronger oversight yields better procurement performance, as seen where regulations are stringent and consistently enforced (Ghadge et al., 2019; Wu & Gu, 2025). This variation reflects differences in enforcement capacity, with weaker governance unable to translate policies into practice. International frameworks provide a further layer of influence. ISO 20400 offers procurement-specific guidance, and instruments such as the OECD Due Diligence Guidance and the EU Conflict Minerals Regulation impose disclosure obligations that reshape supplier engagement in extractive industries (Cao et al., 2024; Van

Den Brink et al., 2019). The United Nations Guiding Principles on Business and Human Rights act as benchmarks for responsible sourcing. However, the reviewed studies on international frameworks are largely European and infrastructure-focused, with African and emerging market applications underexplored.

4.2.2 Stakeholder influence

Stakeholder involvement strongly shapes procurement activities and the integration of TBL dimensions throughout the process. Stakeholder influence extends across sectors and regions. Investor demands and consumer expectations drive the integration of environmental and social commitments into supplier selection (Arora et al., 2020; Hasan et al., 2019). Multiple stakeholders, including stock exchange listing requirements, reinforce these commitments in procurement practices (De Haan-Hoek et al., 2020; Rentizelas et al., 2020). Similar dynamics are reported in extractives, where consumer and investor demand for responsible sourcing shapes supplier selection and sourcing strategies (Van den Brink et al., 2019). In agriculture, exporter-led initiatives to meet buyers' requirements for sustainable sourcing integrate ecological sustainability and equitable benefit-sharing (DeCarlo et al., 2020; Rentizelas et al., 2020). In construction, stakeholder consensus on sustainability criteria has shaped PPP frameworks and bid evaluations (Patil et al., 2016).

Procurement leadership and change management are also critical for driving the adoption of sustainability objectives within sourcing and contracting (Ajmal et al., 2019; Krimi et al., 2025). At the organisational level, headquarters' sustainability targets and codes of conduct shape supplier selection and monitoring (Juettner et al., 2020). Leadership based on moral and ethical commitment also influences procurement decisions and TBL priorities (Yang et al., 2017). This is evident in how procurement strategies integrate the three Ps and responsible commitment into processes (Ekiugbo & Papanagnou, 2017; Hautamäki et al., 2025). However, variability between regional and corporate priorities creates tensions for procurement professionals in adopting TBL

dimensions, as headquarters' commitments often overlook local realities (Juettner et al., 2020; Rentizelas et al., 2020).

Achieving balance is critical. Market dialogue with experts, suppliers, and stakeholders aligns procurement needs with TBL objectives by enabling transparent, participatory decision-making that builds trust and legitimacy, whereas limited dialogue and poor alignment reduce opportunities (Liljeroos-Cork & Laitinen, 2024). End-user involvement and collaboration with multiple stakeholders, along with feedback, strengthen procurement planning and ensure solutions meet stakeholder needs and improve service outcomes (Karttunen et al., 2024).

Collaboration with enterprises and public institutions also leverages expertise and innovation to achieve TBL objectives (Cao et al., 2024; Karttunen et al., 2024; Nwali & Jumbo, 2025). However, a balanced model is not always sought, as reluctance from some stakeholders limits adoption. Nevertheless, reputation, external stakeholder perceptions, and competitive advantage remain strong drivers for integrating TBL dimensions (Rentizelas et al., 2020; Adebayo et al., 2024). The entry of new players with a consciousness of achieving TBL outcomes strengthens competitors' adoption of TBL dimensions (Gupta et al., 2018). Notably, across all regions studied, stakeholder influence was consistently reported, giving this theme a balanced and globally relevant evidence base.

4.3 Managing trade-offs in decision making

4.3.1 Price dominance vs. sustainability goals

Procurement is often reduced to cost-cutting, positioning price as dominant. Procurement decisions privilege the lowest-cost selection at the expense of TBL objectives. Reverse auctions institutionalise price dominance, restricting environmental or social criteria (Almeida et al., 2024). Internal stakeholders favour short-term savings despite conflicts with corporate TBL objectives (Juettner et al., 2020). This persistence is linked to risk-averse priorities: filters such as the payback period decisively shape procurement outcomes (De Haan-

Hoek et al., 2020). Moreover, TBL requirements inflate supplier costs and create tensions with competitive pricing, reinforcing reliance on affordability over long-term TBL outcomes (Boruchowitch & Fritz, 2022).

TBL-related costs are hidden, absorbed, or passed down supply chains, creating burdens for SMEs, while buyers treat community benefit implementation as cost-neutral (Wontner et al., 2020). Short-term contracting and price pressures also undermine suppliers' ability to invest in long-term social improvements, while inclusion policies and supplier development programmes that could enable sustainability are weakened by cost-centric priorities (Silva et al., 2023). This signals tensions in PPP, where participation depends on financial viability and the pursuit of profit can override TBL objectives (Patil et al., 2016). Balancing cost, sustainability, and flexibility remains challenging with diverse supplier bases and long-term commitments (Arora et al., 2020). Price dominance forces explicit trade-offs between cost and TBL goals, especially environmental goals, across sectors.

Competition in bidding drives value for money and sustainable procurement, with tendering requiring a balance between price, quality, and performance to secure outcomes (Amoako Sarpong et al., 2024). Price competitiveness must be linked to long-term value rather than to low bids that compromise quality or cause overruns, while efficient resource use and cost control connect procurement to economic efficiency (Amoako Sarpong et al., 2024).

Environmental improvements achieved through supplier collaboration can generate economic benefits (Khurshid & Ahmed, 2020), and horizontal integration through shared facilities or by-product optimisation reduces both costs and environmental impacts (Krimi et al., 2025). Excessive cost focus, however, undermines collaboration, quality, and innovation (Liljeroos-Cork & Laitinen, 2024).

Environmental improvements achieved through supplier collaboration can generate economic benefits, showing that cost and TBL goals need not conflict (Khurshid & Ahmed, 2020). However, excessive focus on price undermines collaboration, quality, and innovation (Liljeroos-Cork & Laitinen, 2024). In

aviation, balancing sustainable aviation fuel (SAF) deployment with book-and-claim offsets allows cost control while maintaining environmental benefits, but high costs and limited supply constrain implementation (Uy & Juan, 2024), while shareholder priorities often tip decisions towards economic objectives over environmental ones (Tuni et al., 2020). Sectoral cases highlight these contradictions. In O&G, renewable adoption is delayed by high costs (Krimi et al., 2025), while municipal reverse auctions entrench lowest-price logic (Almeida et al., 2024). Procurement models in manufacturing skew incentives (Niu et al., 2018), and cost avoidance in extractives undermines social outcomes (Cao et al., 2024).

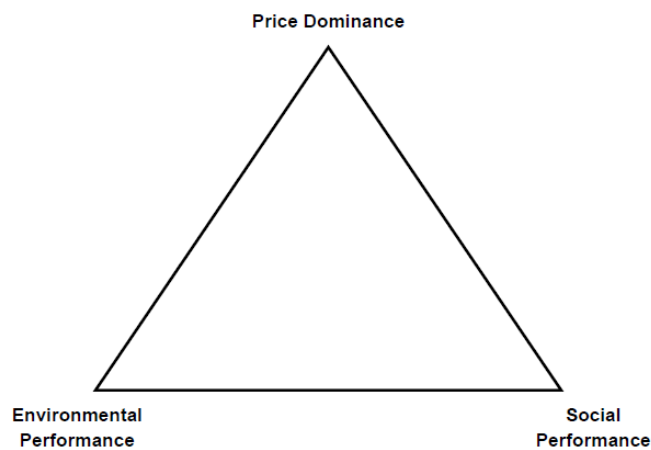


Figure 4-1 Trade-off between price dominance and sustainability goals (Imonioro, 2025).

4.3.2 Long-term value and lifecycle costing

Procurement evaluations that incorporate TBL criteria in the healthcare sector have been linked to greater resilience and competitiveness over time (Nsikan et al., 2022). In infrastructure, extending assessment beyond upfront affordability supports a balance between financial feasibility and long-term outcomes (Amoako Sarpong et al., 2024; Patil et al., 2016). Public procurement uses durability indicators and total cost of ownership to optimise value across project lifecycles (Castillo Salazar, 2023; Wurster & Ladu, 2022). Post-contract evaluations further link delivery cost control and resource efficiency to economic and environmental outcomes (Lam, 2022). Lifecycle and long-term initiatives

are more embedded in structured sectors, including construction and O&G, where asset durability, cost recovery, and risk management are integral to procurement practice. However, the lowest-price selection introduces lifecycle risk as hidden costs emerge during operation and decommissioning (AlHashmi et al., 2021). Value materialises when evaluation criteria internalise downstream costs rather than prioritising initial price alone.

Long-term contracting and diversification in extractives reduce volatility and strengthen supply security (Baskaran, 2021), similarly, fuel agreements in aviation stabilise pricing while supporting investment in greener production capacity (Uy & Juan, 2024). By comparison, broad sourcing in food supply chains lowers dependency risk, yet reliance on intermediaries reduces control and can raise long-term costs (Roy et al., 2018). Procurement governance determines whether lifecycle outcomes are captured or eroded.

In O&G, efficiency measures, inventory optimisation, and strategic sourcing underpin long-term stability while balancing economic performance with environmental and social-licence obligations (Alhammadi et al., 2023; Firera et al., 2024). LCC is used to weigh initial expenditure against asset performance and wider social and environmental responsibilities (Ajmal et al., 2019; Ekiugbo & Papanagnou, 2017; Umasekar, 2024). Yet, lowest-price strategies still expose assets to downstream cost overruns and performance shortfalls (AlHashmi et al., 2021). Where needed, contractual mechanisms, renegotiation, and economic-equilibrium clauses provide flexibility to adapt to changing conditions without undermining project viability (Nwali & Jumbo, 2025).

4.3.3 Documented benefits from sustainable procurement

In water and waste management, sustainable procurement reduces costs while strengthening social and environmental performance, improving profitability, competitiveness, and share-value rankings. TBL-focused sourcing also acts as a market differentiator, yielding reputational and sales advantages (Boruchowitch & Fritz, 2022). Across sectors, green purchasing delivers efficiency gains, enhanced corporate image, and supported long-term competitive advantage, with economic and non-economic benefits (Hasan et al.,

2019). Affordability pressures trigger policy instruments such as subsidies and political pricing. These mechanisms maintain access while safeguarding environmental and social commitments, suggesting that benefits may be contingent on external support rather than procurement practice (Gómez-Ramos & Rico Gonzalez, 2023). Benefits scale when TBL is embedded in governance and measurement. Linking environmental and social KPIs with financial KPIs integrates TBL into mainstream performance evaluation (Juettner et al., 2020). In public procurement, incorporating socio-environmental criteria in bid evaluations prevents unbalanced pricing, supports fair competition, and ensures cost efficiency alongside TBL outcomes (Castillo Salazar, 2023; Li, Su, Lenin, & Xia, 2021). However, reliance on evaluation frameworks highlights uneven adoption, as effectiveness depends on institutional enforcement and buyer willingness to extend procurement logic beyond immediate affordability. In food supply chains, supplier trials, audits, and feedback align outputs with quality, cost, and TBL targets (Roy et al., 2018). In manufacturing and fashion, supplier partnerships generate reputational gains and expand customer reach, indicating that TBL-oriented collaborations create market advantages (Niu et al., 2019; Yang et al., 2017). Reputational and sales benefits are volatile, as competitive pressures or weak supplier governance erode their durability. Sectoral evidence from O&G reinforces these patterns. Aligning KPIs with environmental and social goals improved business outcomes (Ekiugbo & Papanagnou, 2017). Supplier selection moves beyond cost-only evaluation to prioritise contractors delivering both efficiency and TBL performance (AlHashmi et al., 2021). Process optimisation reduces costs while minimising environmental impacts, directly linking efficiency to TBL outcomes (Salvatore, Thomé, & Leiras, 2023; Umasekar, 2024). Contradictions persist, as lifecycle risks and cost pressures in long-term projects can reassert price dominance, limiting the consistency of TBL gains.

4.4 Collaboration and inclusivity in procurement

4.4.1 Supplier development and capability building

Supplier development advances TBL objectives through compliance support such as training and audits, as well as strategic initiatives including co-innovation, financial aid, and long-term partnerships (Wontner et al., 2020). In water and waste management, engagement initiatives link procurement to labour standards and diversity (Boruchowitch & Fritz, 2022), whereas in mining, PPPs enable local firms to meet standards and access global markets (Xing et al., 2017). Food supply chains similarly emphasise training and crisis support to align small producers with strict hygiene requirements (Roy et al., 2018). Supplier development is common in regulated sectors but less so in food supply chain, where inexperienced suppliers are accepted with minimal risk.

Manufacturing and infrastructure extend supplier development beyond compliance toward information-sharing and industrialisation strategies that enhance environmental performance (Amoako Sarpong et al., 2024; Juettner et al., 2020; Khurshid & Ahmed, 2020), while extractive industries treat it as a strategic enabler for building competitive capacity. In contrast, food supply chains confine supplier development to minimum standards, reflecting slower maturity and uneven adoption of strategic practices (Roy et al., 2018).

Challenges cut across sectors but weigh most heavily on SMEs, where weak business cases for TBL adoption and dependence on procurement teams for compliance support restrict advancement (Hautamäki et al., 2025; Rentizelas et al., 2020). Supplier development is a strategic driver of co-innovation and environmental performance in extractive sectors, whereas in food supply chains, it is presented as a resource-heavy measures that achieve only compliance without innovation.

4.4.2 Collaborative innovation and partnerships

Partnerships are consistently linked to TBL-oriented innovation, though their form reflects sectoral priorities. In manufacturing, they centre on product design, supporting eco-design, waste reduction, and emissions control with economic

and environmental gains (Arora et al., 2020; Baskaran, 2021), whereas in healthcare and textiles, they remain shallow and resource-bound, confined to a few suppliers or dependent on cross-brand alliances to scale ethical sourcing (De Haan-Hoek et al., 2020; Yang et al., 2017). In O&G, partnerships take contractual form, embedding low-carbon initiatives into high-value agreements (Krimi et al., 2025; Alhammadi et al., 2024). Still, procurement often depends on external brokers, NGOs, or municipalities to deliver outcomes that firms may not pursue independently (Yang et al., 2017; Boruchowitch & Fritz, 2022; Bendul et al., 2017). Partnerships in water and waste management promote cleaner technologies, resilience, and co-developed solutions (Boruchowitch & Fritz, 2022; Khurshid & Ahmed, 2020; Suryawanshi et al., 2021), yet reliance on external facilitators means outcomes can be uneven and vulnerable to resource constraints (Bendul et al., 2017).

Relational mechanisms also reinforce collaboration. Community benefit clauses strengthen legitimacy and trust in buyer–supplier relationships (Wontner et al., 2020), while socially-driven objectives foster goodwill and stability (Roy et al., 2018), though reputational and social benefits remain volatile when supplier governance is weak or competitive pressures intensify (Liljeroos-Cork & Laitinen, 2024). Early supplier involvement and joint problem-solving improve efficiency and strengthen resilience (Kähkönen et al., 2017). In extractives, partnerships with startups and universities are institutionalised as long-term vehicles for low-carbon innovation (Baskaran, 2021; Alhammadi et al., 2024). However, collaboration is more advanced in developed economies, while in developing contexts it remains limited and externally driven.

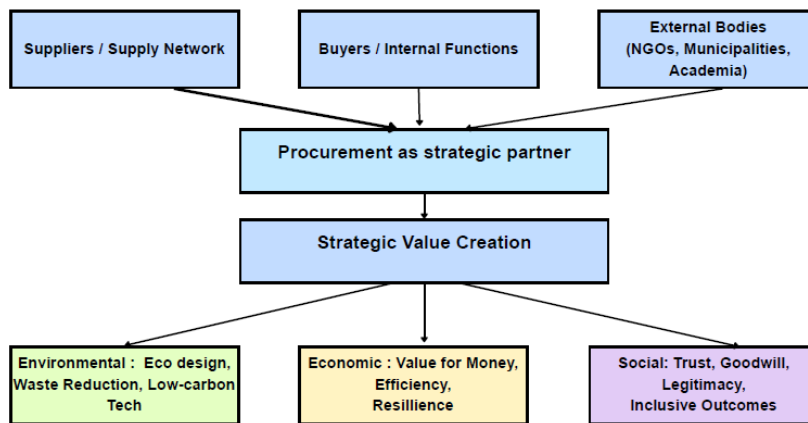


Figure 4-2 Collaborative Innovation and Partnership (Imonioro, 2025)

4.4.3 Local content and inclusive procurement

Local content and inclusive procurement are mechanisms for advancing socioeconomic development and distributing value within local economies; however, their effectiveness and scope differ across various contexts. In O&G and mining, policies mandating domestic supplier participation generates employment and retained value within host communities (Xing et al., 2017; Anaba et al., 2024; Nwali & Jumbo, 2025). However, gains are uneven as contracts sometimes channel revenues into community funds and training while participation remains confined to low-value services that restrict structural transformation (Baskaran, 2021). Across sectors, priorities such as gender equality and women’s empowerment are increasingly recognised (Rath et al., 2018). In food supply chain, inclusive sourcing integrates marginalised producers such as family farmers. aligning social inclusion with environmental benefits from shorter supply chains (Roy et al., 2018; DeCarlo et al., 2020). Local content provisions are embedded in developing economies, where government stakeholders use regulation to distribute value across communities.

Cross-sectoral comparisons highlight a different approach. Extractives institutionalise inclusion through regulation, delivering measurable benefits for host communities, but regulated frameworks can also introduce nepotism, inflated pricing, and entrenched dependency (Alathamneh & Negreiros, 2025). Public procurement and consumer-facing sectors rely on voluntary initiatives to

broaden participation, though these models remain prone to short-termism and capacity constraints, with SMEs frequently disadvantaged by large frameworks or dynamic purchasing systems (Wontner et al., 2020; Karttunen et al., 2024).

4.5 Tools for sustainable procurement

4.5.1 Decision-Support Models

Decision-support models extend procurement beyond lowest-cost logics by embedding sustainability into multi-criteria evaluation. Traditional approaches such as LCC and analytic hierarchy process (AHP) are widely applied, supporting balanced trade-offs across TBL goals (AlHashmi et al., 2021; Patil et al., 2016). However, reliance on weighted criteria can reintroduce subjectivity, undermining transparency and objectivity in decision-making (Wu & Gu, 2025).

Contractual and governance-based mechanisms embed sustainability directly into procurement processes through clauses, certification requirements, and monitoring procedures that hold suppliers accountable for labour, safety, and environmental standards (De Haan-Hoek et al., 2020; Dhingra et al., 2020). Performance incentives and penalties reinforce these obligations across the procurement lifecycle (Ogbu, Eyo-Udo, Adeyinka, Ozowe, & Ikevuje, 2023), though effectiveness depends on consistent monitoring, which remains uneven across contexts.

Analytical models broaden evaluation. LCC, AHP, and fuzzy TOPSIS integrate emissions, energy security, and socio-economic value into supplier assessments (AlHashmi et al., 2021; Wu & Gu, 2025), but supplier resource constraints and inconsistent application limit adoption, particularly among smaller firms (Zin Zawawi et al., 2016). Digital innovations, including AI and big data, are proposed to reduce bias, improve transparency, and strengthen resilience (Kazancoglu et al. 2023). A broader integration is attempted in the Triple-C indicator, which combines environmental, social, circularity, and lifecycle dimensions into a single framework (Wurster & Ladu, 2022).

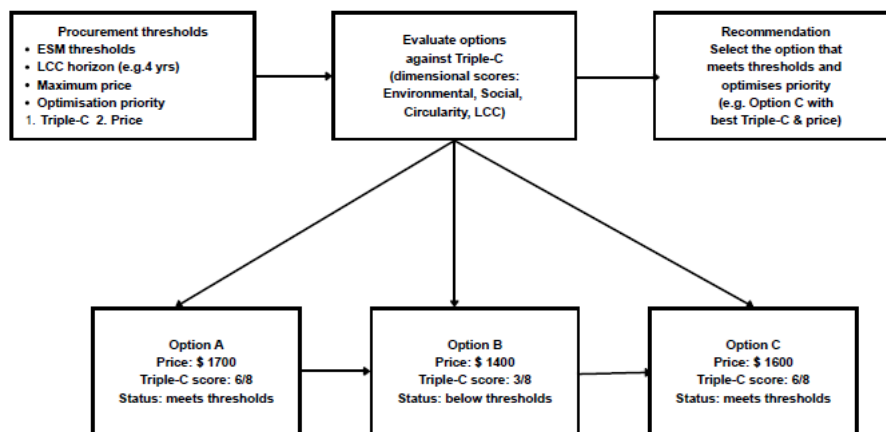


Figure 4-3 Adapted Triple-C decision-support flow (after Wurster & Ladu, 2022)

Note: The figure illustrates the application of the Triple-C indicator (LCC) as an example. Section 4.5.1 discusses a wider set of decision-support tools beyond Triple-C.

Cross-sector applications underline versatility, with lifecycle analysis and multi-criteria frameworks applied in construction, energy, and automotive industries (Almeida et al., 2024; Kazancoglu et al., 2023; Patil et al., 2016). Adoption remains uneven, as smaller firms struggle with capacity and larger buyers vary in the extent to which sustainability criteria outweigh immediate affordability.

4.5.2 Traceability and transparency mechanisms

Traceability and transparency tools integrate TBL into procurement by incorporating accountability across tendering to supplier management. Certification schemes such as FairWild and chain-of-custody standards formalise labour, safety, and environmental obligations (Baskaran, 2021; DeCarlo et al., 2020). Blockchain and digital procurement platforms extend visibility into supplier selection and contract management (Krimi et al., 2025; Alhammadi et al., 2024). However, their high costs and technical demands risk excluding SMEs, creates a tension between innovation and inclusivity (Cao et al., 2024). Monitoring systems and IoT-enabled data collection push oversight deeper into supply networks, supported by data analytics that verify compliance,

strengthen due diligence, and improve reporting (Cao et al., 2024; Kazancoglu et al., 2023), though uneven adoption across industries limits scalability.

These mechanisms enhance compliance with labour, safety, and environmental standards, reduce information asymmetry, and build trust between buyers and suppliers (Anaba et al., 2024; Juettner et al., 2020; Van den Brink et al., 2019); however, inconsistencies in monitoring frameworks restrict comparability across contexts and weaken the reliability of reported outcomes (Belal et al., 2025).

4.5.3 Measurement and data gaps

Measurement and reporting mechanisms provide a basis for TBL evaluation and accountability. KPIs linked to health, safety, and In-Country Value (ICV) create a framework for tracking supplier performance, but also act as a ceiling that constrains further TBL commitments and caps ambition (Rentizelas et al., 2020). Broader structural gaps compound these limits. The absence of standard benchmarks and definitions complicates evaluation and restricts comparability across contexts (Van den Brink et al., 2019; Ekiugbo & Papanagnou, 2017), while ambiguous targets and weak oversight in public procurement reduce the effectiveness of contractual clauses, limiting their impact on outcomes (Wontner et al., 2020). Environmental criteria are also difficult to distinguish within procurement frameworks, reducing clarity in assessment (Castillo Salazar, 2023), and even when criteria are defined, weighting remains subjective, reintroducing bias into evaluations (Wu & Gu, 2025). Data limitations further undermine evidence-based decisions. Lifecycle and supplier-level information is often incomplete, leaving procurement reliant on partial evidence (AlHashmi et al., 2021; Ogbu et al., 2023). These challenges recur across O&G, extractives, public procurement, and manufacturing, indicating systemic rather than sector-specific weaknesses. Some approaches attempt to close these gaps. Contractual KPIs have been used to track climate obligations, extending accountability across contracts (Ogbu et al., 2023), and performance frameworks aligned to contract lifecycles strengthen the integration of procurement processes with TBL outcomes (Salvatore et al., 2023).

Table 4-2 Tools and Mechanisms for Sustainable Procurement

Sub-theme	Tool / Mechanism	Reference(s)
Decision-Support Models	Lifecycle Costing (LCC)	AlHashmi et al. (2021); Patil et al. (2016)
	Analytic Hierarchy Process (AHP)	AlHashmi et al. (2021); Patil et al. (2016)
	Triple-C indicator	Wurster & Ladu (2022)
Traceability & Transparency Mechanisms	Certification schemes (e.g., FairWild, chain-of-custody)	Baskaran (2021); DeCarlo et al. (2020)
	Blockchain & digital procurement platforms	Krimi et al. (2025); Alhammadi et al. (2024)
	Monitoring systems (IoT, analytics)	Cao et al. (2024); Kazancoglu et al. (2023)
Measurement & Data Gaps	Sustainability-linked KPIs (HSE, ICV, climate obligations)	Rentizelas et al. (2020); Ogbu et al. (2023)
	Performance monitoring & reporting frameworks	Salvatore et al. (2023); Rentizelas et al. (2020)

4.6 Ensuring ethical accountability

4.6.1 Corruption risks in procurement

Corruption in procurement is systemic rather than incidental, pervading the procurement process. Evaluation criteria are compromised through personal relationships, political connections, bribery, or “facilitation payments” (Alathamneh & Negreiros, 2025), while unsolicited proposals and direct negotiations that bypass competitive bidding further undermine transparency and value (Zin Zawawi et al., 2016). Weak oversight and conflicts of interest enable malpractice during contracting, and high-value agreements in execution expand opportunities for rent-seeking behaviour (Alathamneh & Negreiros, 2025).

Safeguards are widely promoted. Audits, due diligence checks, and whistleblower protections are designed to deter malpractice; however, their deterrent effect weakens when monitoring and sanctions are inconsistent

(Adebayo et al., 2024; Ekiugbo & Papanagnou, 2017). Anti-corruption clauses and ethical conduct provisions are embedded in contracts, but inadequate enforcement limits their impact, allowing discretionary practices to persist (Alathamneh & Negreiros, 2025). Anti-corruption practices are mature in design but remain immature in enforcement particularly in developing economies and capital-intensive sectors.

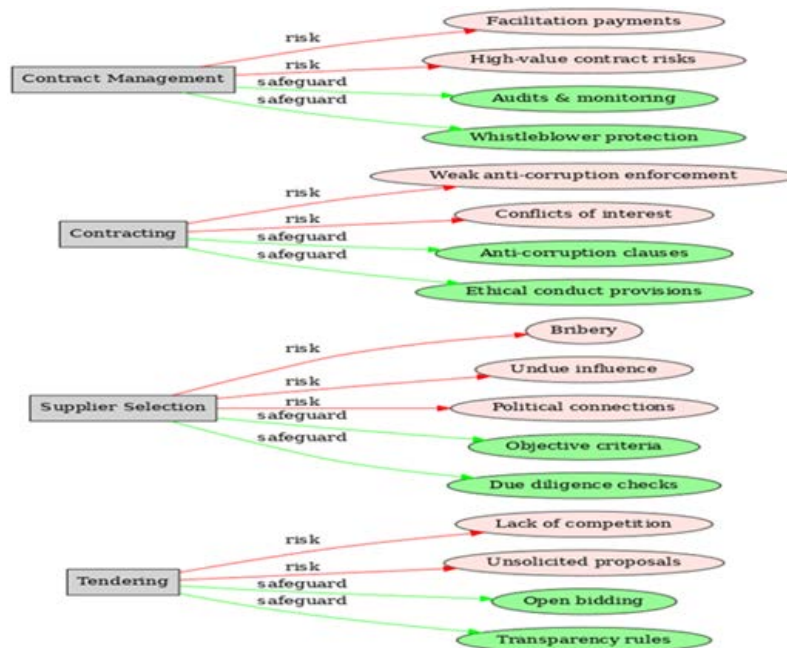


Figure 4-4 Corruption risks and safeguards at different procurement stages (Imonioro, 2025).

4.6.2 Ethical and compliance mechanisms

While corruption risks are widely reported, specific mechanisms have been developed to counter vulnerabilities and support balanced TBL outcomes across procurement. Supplier selection incorporates criteria beyond price and technical ability, extending to bans on child labour, fair payment obligations, and environmental protections that reach to second- and third-tier suppliers (Amoako Sarpong et al., 2024; De Haan-Hoek et al., 2020). Certification schemes and documentation reinforce these standards, with requirements such as INMETRO and ANVISA in public procurement, and waste reduction and emission control criteria in the automotive sector (Almeida et al., 2024; Kara et al., 2024). However, enforcement gaps persist, as bids are sometimes

submitted without mandatory certifications (Almeida et al., 2024), and compliance levels vary across regions (Cao et al., 2024; Krimi et al., 2025).

Contract formation provides a further enforcement point. Clauses covering ethical behaviour, safety, environmental responsibilities, and local content integrate accountability directly into agreements, with sanctions, suspensions, or terminations applied when breaches occur (Juettner et al., 2020; Nwali & Jumbo, 2025; Roy et al., 2018). In high-risk industries, these are supplemented by anti-corruption and social responsibility provisions (Alathamneh & Negreiros, 2025; Salvatore et al., 2023). However, ineffective monitoring systems allow breaches to go undetected (Alathamneh & Negreiros, 2025), and enforcement inconsistencies weaken deterrence across contexts.

Compliance mechanisms can create “ceiling effects”, where suppliers meet only minimum requirements with no incentive to progress (Rentizelas et al., 2020). Advanced in high-regulation contexts, they remain rudimentary **where institutional capacity is weaker**, exposing maturity gaps. In practice, where fully compliant suppliers are absent, buyers sometimes resort to waivers, highlighting the tension between formal standards and operational realities (Juettner et al., 2020).

4.6.3 Transparency and accountability in procurement

Transparency underpins accountability and credible TBL outcomes across procurement (Boruchowitch & Fritz, 2022; Alathamneh & Negreiros, 2025). Policies are applied to deter bribery, fraud, and unethical conduct in supplier engagement (Alathamneh & Negreiros, 2025), while transparent assessments reinforce fairness and trust in evaluation (Amoako Sarpong et al., 2024). Bid evaluation models that combine item-level pricing with bidder behaviour patterns strengthen accountability (Li et al., 2021). Clauses covering safety and environmental protection extend this principle to contracts, supported by audits that safeguard quality and supplier relationships (Roy et al., 2018).

Public disclosure and independent audits are promoted to monitor TBL obligations (Ekiugbo & Papanagnou, 2017); however, their effect is undermined

by inconsistent enforcement. Digital procurement platforms improve visibility and reduce malpractice risks (Anaba et al., 2024), but the absence of whistleblower protection discourages reporting malpractice (Alathamneh & Negreiros, 2025). Civil society scrutiny and open contracting reinforce accountability and incorporate social and environmental protections (Nwali & Jumbo, 2025).

Weaknesses persist. Unsolicited proposals and direct negotiations reduce competition and bargaining power (Zin Zawawi et al., 2016). Opacity in mineral supply chains obstructs the evaluation of supplier performance (Cao et al., 2024; Van den Brink et al., 2019). A lack of reporting protections further discourages disclosure of unethical practices (Alathamneh & Negreiros, 2025).

4.7 Summary

This chapter examined how sustainability is embedded in procurement through five thematic areas: stakeholder influence, trade-offs in decision making, collaboration and inclusivity, tools, and ethical accountability. The analysis revealed that procurement can create value when governance frameworks are clear, long-term approaches are adopted, and partnerships enhance capabilities. In addition, cost pressures, uneven supplier capacity, and weak enforcement continue to limit consistent outcomes. These themes demonstrate the progress being made in aligning procurement with TBL objectives and the persistent challenges that shape its application across sectors.

Chapter 5 moves the analysis to discussion, drawing together these findings to answer the research questions.

5 DISCUSSION

5.1 Overview

This chapter interprets the findings from the thematic analysis in light of the research questions, literature, and sectoral focus on O&G in Nigeria and comparable economies. Chapter 4 focused on reporting the main findings through five themes; this chapter builds on that analysis by interpreting the themes in relation to the research questions and wider governance and TBL challenges. It also draws on sustainability reports from five O&G companies and global frameworks such as the Paris Agreement, ISO 20400, and the Sustainable Development Goals (SDGs). These strands demonstrate how procurement operationalises the TBL dimensions and what this means for value creation in high-risk, weak-governance, climate-pressured contexts.

5.2 Governing stakeholder influence

Procurement operates within a dense web of laws, fiscal incentives, investor demands, and community expectations. These governing stakeholders set eligibility conditions and shape how sustainability requirements are enforced. Regulatory frameworks incorporate TBL objectives, but their effectiveness depends on enforcement and organisational capacity.

Policy mechanisms such as PPP clauses, fiscal terms, and conditional funding embed social and environmental obligations into procurement. In O&G, fiscal regimes influence investment choices, while local content regulations and KPIs translate policy objectives into contractual requirements (Alhammadi et al., 2023; Anaba et al., 2024). Incentives such as subsidies and green credit financing also nudge buyers towards certified suppliers, though their limited scale constrains impact (Liang & Zhang, 2025). These examples show regulatory stakeholders governing outcomes by integrating socio-economic priorities into supply chains.

The consistency of these frameworks varies widely. In Nigeria, Joint Operating Agreements (JOAs) and Production Sharing Contracts (PSCs) fall under the oversight of the Nigerian Upstream Petroleum Regulatory Commission (NUPRC). However, limited institutional capacity and political influence weaken enforcement, meaning sustainability clauses often remain symbolic rather than operationalised requirements (Almeida et al., 2024; Dhingra et al., 2020). In comparison, studies elsewhere confirm that strong oversight and consistent monitoring yield better procurement outcomes, underscoring the importance of institutional strength in translating regulation into practice (Ghadge et al., 2019; Wu & Gu, 2025).

International standards reinforce these dynamics. ISO 20400, the OECD Due Diligence Guidance, and the EU Conflict Minerals Regulation impose disclosure and accountability requirements, but their application is concentrated in European and infrastructure contexts, leaving gaps in emerging markets.

Stakeholder pressures extend governance by shaping reputation, investors, and societal expectations. Market listings and investor scrutiny embed ESG requirements into sourcing, while local communities negotiate for training, employment, or development projects as conditions for a social licence to operate (Ekiugbo & Papanagnou, 2017). Leadership commitment also matters: When executives treat sustainability as strategic, procurement integrates TBL criteria more deeply into supplier evaluation and contracting (Krimi et al., 2025; Yang et al., 2017). However, tensions persist when corporate headquarters' ambitions clash with local operational realities, creating friction for procurement teams reconciling competing expectations (Juettner et al., 2020).

Dialogue mechanisms help mediate these pressures. Involving suppliers, experts, and end-users in procurement planning builds legitimacy and trust, whereas limited dialogue weakens alignment with TBL objectives (Karttunen et al., 2024; Liljeroos-Cork & Laitinen, 2024). Reputational advantage acts as an incentive, with firms adopting sustainability to comply with governance requirements and secure legitimacy and competitive positioning (Adebayo et al., 2024; Rentizelas et al., 2020). Industry practice shows this dynamic, as oil

mayors embed human rights clauses, emission-reduction commitments, and diversity requirements into contracts, extending the governance role of procurement across global operations. Procurement does not merely receive influence from governing stakeholders, but actively mediates between competing pressures. Its effectiveness relies on enforcement credibility, institutional capacity, and the ability of procurement teams to reconcile global standards with local realities. Where these conditions align, procurement emerges as a governance actor, shaping how far TBL commitments are realised in practice.

This theme addresses RQ1, which asks about the key drivers influencing the adoption of TBL principles in procurement. The findings show that external stakeholders such as regulators, consumers, and communities, together with internal drivers like leadership commitment and corporate governance, influence how procurement integrates TBL objectives. However, gaps remain where enforcement is weak, limited institutional capacity, and when procurement teams struggle to reconcile global standards with local operational realities.

5.3 Managing trade-offs in decision making

A central tension across procurement practices is the dominance of cost, with decision often defaulting to lowest-price selection despite recognition of environmental and social objectives. This logic is attractive because short-term savings are measurable, politically defensible, and immediately visible. Whereas social and environmental benefits are harder to quantify and accrue only in the long run. This bias is reinforced internally, as procurement teams and budget holders prioritise immediate savings even where corporate sustainability strategies call for broader value creation (Juettner et al., 2020). Risk-averse filters such as short payback periods further narrow decision-making, privileging low-cost bids over investments with longer-term sustainability returns (De Haan-Hoek et al., 2020).

Public procurement mechanisms such as reverse auctions, institutionalise cost-first logic, crowding out opportunities to embed social or environmental value

(Almeida et al., 2024). In healthcare, infrastructure, and manufacturing, financial feasibility frequently overrides community benefits or environmental performance (De Haan-Hoek et al., 2020; Patil et al., 2016; Tuni et al., 2020). In O&G, the trade-off is particularly acute: projects are capital-intensive, politically visible, and exposed to market volatility, making executives reluctant to approve bids with higher upfront costs, even when long-term benefits are clear (Krimi et al., 2025). TotalEnergies (2023) similarly notes that low-carbon procurement often involves higher upfront costs, reinforcing procurement's bias toward short-term affordability over long-term sustainability benefits. Excessive focus on price not only sidelines sustainability objectives but also undermines collaboration, quality, and innovation in supplier relationships (Liljeroos-Cork & Laitinen, 2024).

These pressures are magnified in Nigeria, where procurement teams often prioritise bids that appear commercially viable even when sustainability risks are evident. Drawing on professional experience, a contract award to an ageing offshore vessel, chosen for its lower cost, raised concerns about oil spill risks and community harm. This shows how short-term decision-making exposes firms and stakeholders to long-term liabilities, reinforcing evidence on cost-dominant governance and risk externalisation (Patil et al., 2016).

In Nigeria and comparable economies, SMEs frequently absorb the hidden costs of TBL compliance, while community benefit clauses are treated as cost-neutral obligations that shift burdens downstream (Wontner et al., 2020). Short-term contracting further weakens suppliers' ability to invest in social improvements, thus limiting inclusive procurement (Silva et al., 2023). PPP projects highlight similar tensions, with participation often conditional on financial viability, where profit imperatives override sustainability objectives (Patil et al., 2016).

LCC offers a pathway to rebalancing this cost bias. By assessing the total cost of ownership, including maintenance, resilience, and potential liabilities. Procurement can demonstrate that what appears cheaper upfront may ultimately prove more expensive. Infrastructure projects show that lifecycle

analysis captures long-term social and economic value alongside cost efficiency (Wurster & Ladu, 2022). O&G similarly benefits, with evidence that suppliers aligned with sustainability standards deliver more durable assets and greater community acceptance, even with higher initial outlay (AlHashmi et al., 2021). In Nigeria and comparable economies, lifecycle approaches remain weakly applied because governance frameworks reward annualised savings rather than long-term stability.

Other mechanisms reinforce long-term value. In extractives, long-term contracting and diversification reduce volatility and strengthen supply security (Baskaran, 2021; Nwali & Jumbo, 2025). Aviation fuel agreements stabilise pricing while supporting greener production capacity, though cost and supply constraints remain significant (Uy & Juan, 2024). In O&G, efficiency measures, inventory optimisation, and strategic sourcing underpin long-term stability while balancing economic performance with environmental and social licence obligations (Alhammadi et al., 2023; Firera et al., 2024). Contractual mechanisms such as renegotiation and economic-equilibrium clauses also provide flexibility to adapt to market shifts without undermining viability (Nwali & Jumbo, 2025). These examples underline that long-term resilience requires governance structures that reward total value, not just immediate affordability.

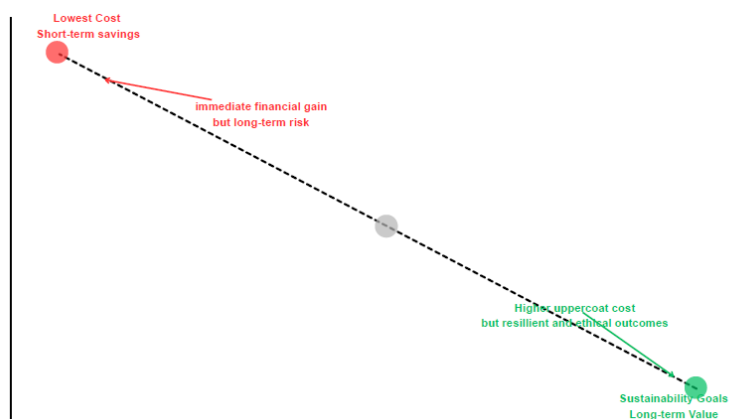


Figure 5-1 Trade-off between cost and TBL goals (Imonioro, 2025)

The persistence of cost bias is illustrated in Figure 5-1 Trade-off between cost and TBL goals (Imonioro, 2025), which contrasts short-term savings with

longer-term value from sustainability-oriented procurement. Limited data for lifecycle analysis, combined with the appeal of immediate financial gains, tilts decisions towards affordability. Procurement officers in Nigeria and comparable economies are especially constrained by governance structures that reward visible savings while penalising long-term investment.

This cost bias, however, is challenged by evidence showing that sustainable procurement can deliver both financial and non-financial benefits. Green purchasing has delivered efficiency gains, enhanced reputation, and long-term competitive advantage across sectors (Hasan et al., 2019; Juettner et al., 2020; Yang et al., 2017). Evidence from water and waste management links sustainable procurement to reduced costs and stronger social and environmental performance (Boruchowitch & Fritz, 2022). In food and manufacturing, supplier trials and partnerships align cost, quality, and sustainability targets, creating reputational advantages and expanding market reach (Roy et al., 2018; Niu et al., 2019). O&G examples show that aligning KPIs with social and environmental objectives improves business outcomes, while process optimisation reduces costs and minimises impacts (Ekiugbo & Papanagnou, 2017; Umasekar, 2024; Salvatore et al., 2023). Subsidies and political pricing in Nigeria and comparable economies also function as levers to balance affordability with sustainability, though such measures remain uneven (Gómez-Ramos & Rico Gonzalez, 2023). Overall, procurement systems continue to favour lowest-cost selection. However, lifecycle costing, long-term contracting, sustainability-linked KPIs, and supportive policy instruments show that economic, social, and environmental objectives can be reconciled. In Nigeria and comparable economies, the challenge lies less in the absence of frameworks than in the organisational mindset and weak enforcement that privilege short-term cost savings over TBL outcomes.

This theme addresses RQ4, which asked how a price-dominant procurement approach conflicts with the pursuit of value creation. The findings show that lowest-price selection dominates procurement because short-term savings are measurable, visible, and politically defensible. However, this focus on

immediate affordability undermines long-term value, eroding quality, reliability, innovation, and social outcomes.

5.4 Collaboration and inclusivity in procurement

Procurement is increasingly positioned as a platform for collaboration, capability-building, innovation, and social inclusion. These dynamics are particularly significant in O&G, where procurement decisions carry substantial economic, environmental, and social consequences. Supplier development reveals both potential and pitfalls. In O&G, initiatives such as Seplat's 2023 programme to build local suppliers' technical and compliance capacity and Saudi Aramco's IKTVA scheme demonstrate how mentoring, training, and shared investment can create lasting domestic capability. However, dependency risks are evident. Smaller firms remain reliant on large buyers for compliance support, and high entry costs exclude lower-tier suppliers from long-term resilience (Bendul et al., 2017; Juettner et al., 2020). Studies also note that SMEs often meet only minimum requirements, with limited incentives to progress beyond compliance, reinforcing ceiling effects in supplier advancement (Rentizelas et al., 2020). This reveals O&G's greater potential for supplier development to drive transformation, but only where dependency is reduced and capability-building extends beyond tier-1 contractors.

Collaboration and innovation depend on moving from transactional contracts to partnerships that co-create value. Shell's Powering Progress strategy positions suppliers as partners in carbon reduction and human rights commitments, illustrating how procurement can embed environmental and social objectives alongside efficiency. In O&G, partnerships often rely on supplier collaboration to deliver TBL outcomes (Ajmal et al., 2019; Umasekar, 2024). Evidence shows that early supplier involvement and joint problem-solving improve efficiency and strengthen resilience (Kähkönen et al., 2017). These collaborative approaches are reinforced by contractual frameworks that embed climate and social obligations directly into procurement agreements (Ogbu et al., 2023).

Outcomes, however, also depend on governance quality. Under lax supplier governance, reputational and social benefits remain volatile (Liljeroos-Cork &

Laitinen, 2024), whereas in the extractives sector, long-term partnerships with startups and universities demonstrate how strong governance structures can drive sustained value creation (Baskaran, 2021; Alhammadi et al., 2024). Local content and inclusive procurement make the social dimension of TBL visible. For example, in Nigeria, the Nigerian Content Development and Monitoring Board (NCDMB) mandates domestic supplier participation and training as conditions in procurement frameworks. These frameworks create jobs and revenue but also fuel nepotism and inflated costs (Alathamneh & Negreiros, 2025; Xing et al., 2017). Other sectors use different models. In agriculture, inclusive sourcing integrates small farmers into supply chains and shortens logistics, aligning social inclusion with environmental gains (Roy et al., 2018; DeCarlo et al., 2020). Evidence from extractives further highlights priorities such as gender quality and women's empowerment within inclusive procurement (Rath et al., 2018). Similarly, in public procurement and consumer-facing industries, voluntary initiatives broaden participation but remain shallow and capacity-constrained, often disadvantaging SMEs (Wontner et al., 2020; Karttunen et al., 2024). Collaboration and inclusivity demonstrate procurement's dual character. Supplier development, partnerships, and local content frameworks can embed equity, innovation, and environmental progress, yet partial enforcement, political interference, and limited supplier capacity often undermine their effectiveness. Where supplier engagement is structured around early involvement and knowledge sharing, collaboration enhances resilience and long-term value (Kähkönen et al., 2017). The evidence shows that while collaboration creates opportunities for domestic capability and social inclusion, its impact depends on governance strength and the reach of support beyond tier-1 suppliers. Alignment with ISO 20400 and SDG 16 underscores that inclusivity and strong institutions are essential for advancing TBL outcomes. In Nigeria and comparable economies, the implication is clear: where enforcement is credible and capacity extends across supply chains, procurement can drive long-term value. Where these conditions are absent, it risks reinforcing dependency and exclusion.

This theme addresses RQ2, which asks what strategies organisations have employed to balance cost-efficiency with environmental and social sustainability in procurement decisions. The findings show that supplier development programmes, partnerships, early supplier involvement, and local content frameworks are used to align efficiency with broader TBL outcomes. However, dependency risks and uneven capacity-building limit their effectiveness, showing that collaboration and inclusivity must extend beyond compliance if they are to deliver both cost efficiency and sustainable value.

5.5 Tools and Mechanisms for Sustainable Procurement and Contracting

Procurement is increasingly shaped by tools that entrenched TBL objectives across the process. These developments move practice beyond lowest-cost selection towards value-based decision-making, where TBL outcomes are assessed alongside cost. This direction is consistent with ISO 20400, which emphasises embedding sustainability objectives across procurement processes and throughout the value chain. Decision-support models extend procurement beyond cost logics by formalising trade-offs between economic, environmental, and social priorities. In O&G, AHP balances these dimensions in supplier evaluation (AlHashmi et al., 2021), while fuzzy TOPSIS manages uncertainty in assessments, offering more balanced outcomes than traditional scoring (Wu & Gu, 2025). Lifecycle costing reveals the true cost of ownership, capturing downstream risks that lowest-price selection obscures (Patil et al., 2016). Integrated models such as the Triple-C indicator combine circularity, lifecycle, and social criteria into a single framework (Wurster & Ladu, 2022). In Nigeria and comparable economies, these approaches remain underutilised due to data gaps, weak supplier readiness, and governance frameworks that reward short-term affordability over long-term value.

Traceability and transparency mechanisms reinforce accountability by embedding sustainability obligations into supplier oversight. Certification schemes, chain-of-custody standards, and contractual audits strengthen the assurance of labour and environmental protections (Baskaran, 2021; DeCarlo et

al., 2020). Whereas, Blockchain pilots and digital procurement platforms enhance visibility across supply chains (Krimi et al., 2025; Alhammad et al., 2024), while IoT-enabled monitoring pushes oversight deeper into operations (Cao et al., 2024; Kazancoglu et al., 2023). However, these tools often prove costly, creating a trade-off between innovation and inclusivity. In Nigeria and comparable economies, the risk is sharper: smaller suppliers are priced out of compliance systems, leaving value capture concentrated among larger contractors.

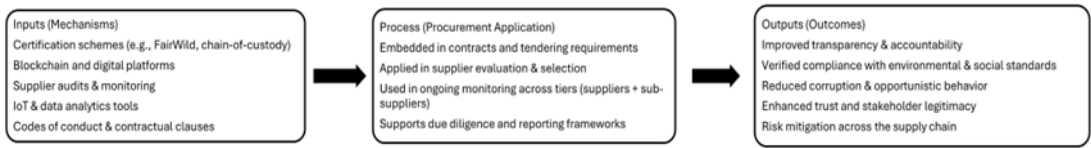


Figure 5-2 Inputs, processes, and outcomes of traceability and transparency mechanisms (Imoniore, 2025)

Measurement and data gaps limit how far these tools deliver transformation. Sustainability KPIs can cap ambition by creating “ceiling effects” that stall improvement once minimum thresholds are met (Rentizelas et al., 2020). Lack of standard benchmarks and definitions reduces comparability across industries (Van den Brink et al., 2019; Ekiugbo & Papanagnou, 2017), while ambiguous clauses and weak monitoring in public procurement dilute contractual accountability (Wontner et al., 2020). Environmental criteria are frequently difficult to distinguish within frameworks, and even when indicators are present, weighting remains subjective (Castillo Salazar, 2023; Wu & Gu, 2025). Data limitations constrain evidence-based decisions, as information on lifecycle and supplier is often incomplete (AlHashmi et al., 2021). Contractual KPIs and lifecycle-aligned performance frameworks have been proposed to track climate obligations more consistently (Ogbu et al., 2023; Salvatore et al., 2023). These gaps highlight how supplier capacity shapes procurement outcomes. Limited sustainability data restricts smaller suppliers’ ability to demonstrate compliance, while costly traceability systems and the absence of transparent sourcing frameworks create barriers that disproportionately affect less-resourced suppliers (Belal et al., 2025; Cao et al., 2024). In Nigeria and comparable

economies, these mechanisms remain patchy, with supplier capacity and institutional follow-through frequently lacking. Industry practice reflects both progress and limits. Shell's 2023 Sustainability Report highlights digital platforms for tracking supplier emissions, showing practical applications while also exposing uneven readiness across contractors. These dynamics show that digital and contractual innovations strengthen procurement credibility, but their value depends on participation across all supplier tiers. Decision-support frameworks, traceability systems, and measurement mechanisms expand procurement beyond transactional exchanges. They translate sustainability commitments into enforceable supplier obligations and measurable outcomes. Their effectiveness relies on robust contractual language, credible monitoring data, and supplier capacity, all backed by consistent enforcement. Where these conditions are weak, tools risk becoming symbolic, producing box-ticking rather than transformation. This dynamic extends to Nigeria and comparable economies, where supplier readiness, data systems, and monitoring capacity remain underdeveloped.

This theme addresses RQ2, which asked what strategies organisations have employed to balance cost-efficiency with environmental and social sustainability in procurement decisions. The findings show that decision-support tools such as lifecycle costing and integrated evaluation models enable procurement to balance cost with TBL objectives. However, their effectiveness is constrained by data intensity, weak supplier readiness, and high costs, which often exclude smaller suppliers, thereby reducing inclusivity and consistent application.

5.6 Ethical accountability and corruption risk

Ethical accountability remains a defining challenge in sustainable procurement, particularly in O&G supply chains where high-value contracts, complex partnerships, and political interference create fertile ground for malpractice. Frameworks such as ISO 20400 emphasise integrity and transparency, and SDG 16 calls for strong institutions, yet practice often falls short. Corruption risks, weak enforcement, and opaque processes show how far procurement is from absorbing ethics as a foundation for TBL outcomes.

Corruption risks are universal. Supplier evaluation is distorted by personal ties, political influence, and facilitation payments, with contracts awarded on connections rather than capability (Alathamneh & Negreiros, 2025). Competitive tendering is frequently bypassed through unsolicited proposals and direct negotiations, locking buyers into costly long-term agreements (Zin Zawawi et al., 2016). In Nigeria and comparable economies, these dynamics are particularly acute: Joint Operating Agreements (JOAs) and Production Sharing Contracts (PSCs) have often been subject to political manipulation, inflating contract values and diluting oversight of community obligations. For example, in one JOA tender, technical requirements were deliberately written in such a way as to favour a politically connected bidder over stronger competitors, a manipulation that illustrates how entrenched influence undermines credibility and sustainability commitments.

Ethical and compliance mechanisms exist, but are uneven in practice. Supplier selection criteria increasingly prohibit child labour, mandate fair payment, and embed environmental safeguards (De Haan-Hoek et al., 2020; Kara et al., 2024). Contracts now include sanctions and termination clauses to hold suppliers accountable (Juettner et al., 2020; Roy et al., 2018). Industry disclosures, such as Chevron's 2023 and Seplat's 2023 sustainability report, highlight provisions on human rights as part of their accountability frameworks. These commitments show how companies integrate ethical considerations into procurement. However, enforcement lapses exist: some bids are submitted and reviewed without mandatory certifications (Almeida et al., 2024), monitoring systems are underdeveloped (Alathamneh & Negreiros, 2025), and waivers are applied when fully compliant suppliers are absent (Juettner et al., 2020). These weaknesses reduce accountability to minimum thresholds, creating surface-level compliance that deters neither malpractice nor opportunism.

Transparency mechanisms are promoted as safeguards, with digital procurement platforms, open contracting, and public disclosure enabling civil society scrutiny (Anaba et al., 2024; Nwali & Jumbo, 2025). However, fragmented supply chains obscure sustainability data (Cao et al., 2024; Van

Den Brink et al., 2019), and whistleblower protections are weak (Alathamneh & Negreiros, 2025). Without credible enforcement, these initiatives risk becoming procedural rather than transformative. For instance, weak protection for whistleblowers discourages reporting and allows entrenched practices to persist, undermining both transparency and stakeholder trust.

Overall, ethical accountability is determined more by enforcement credibility, evaluator independence, and cross-tier transparency than by the existence of policies and clauses. Limited institutional capacity and patchy enforcement exacerbate these risks, while uneven standards in global supply chains create loopholes for malpractice. Ethical accountability is therefore a strategic requirement, as credible enforcement determines whether procurement advances TBL goals or perpetuates malpractice.

This directly addresses RQ3, which asked about the key challenges in integrating TBL principles into procurement. The findings show that challenges such as corruption, political influence, and weak monitoring limit the integration of TBL objectives and cause distorted supplier selection, inflated contract values, and reduced accountability. However, transparency mechanisms such as digital procurement platforms, open contracting, and public disclosure have been introduced to curb these risks.

5.7 Conceptual framework: Procurement and TBL outcomes

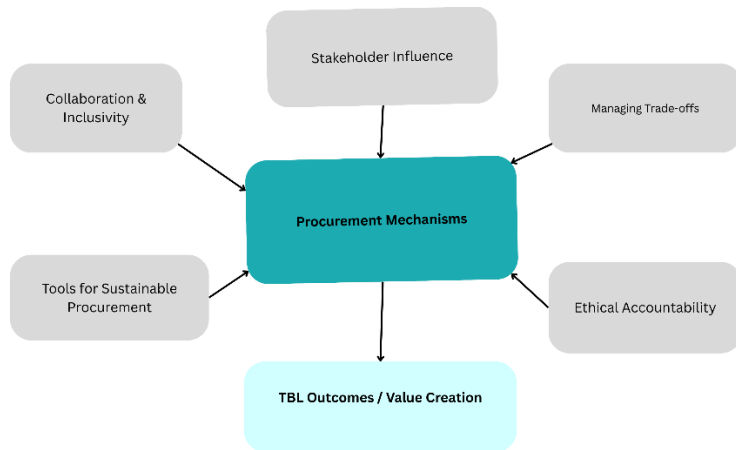


Figure 5-3 Procurement as the pathway to TBL value creation (Imonioro, 2025)

The framework presents procurement as the pathway through which organisations can achieve TBL outcomes and value creation. The pathway begins with stakeholder influence, where procurement aligns with regulations, fiscal incentives, investor expectations, and community needs to establish legitimacy. It then moves to decision-making trade-offs, shifting focus from lowest-cost selection towards lifecycle costing, long-term contracting, and multi-criteria evaluation.

TBL integration is reinforced through collaboration and inclusivity, with supplier development, local content, and partnerships extending value across tiers. Procurement tools, including decision-support models, traceability systems, and performance frameworks, provide the technical means to embed environmental and social criteria into sourcing and monitoring. Finally, ethical accountability ensures credibility, with anti-corruption clauses, transparency provisions, and open contracting strengthening enforcement.

Together, these stages form an integrated pathway, showing that TBL outcomes are achieved not through isolated actions but by combining stakeholder alignment, balanced trade-offs, collaboration, tools, and accountability.

5.8 Summary

This chapter interpreted the findings from the thematic analysis and examined how procurement integrates TBL outcomes across five themes: stakeholder influence, cost trade-offs, collaboration and inclusivity, tools, and ethical accountability. While the evidence shows that procurement can advance TBL objectives, its effectiveness depends on enforcement credibility, long-term approaches, and supplier capacity-building. Key challenges include persistent cost pressures, weak governance and corruption risks, supplier dependency, and data and measurement gaps. Although these barriers constrain consistent outcomes, the potential value of embedding TBL principles into procurement justifies efforts to strengthen governance and adoption in Nigeria and comparable economies. To synthesise these insights, the chapter presented a conceptual framework positioning procurement as the pathway through which organisations align stakeholder pressures, trade-offs, collaboration, tools, and accountability to deliver TBL outcomes and value creation.

6 CONCLUSION

6.1 Overview

This chapter concludes the thesis by summarising the key findings in relation to the research questions. It then outlines the theoretical and managerial implications, showing how procurement embeds TBL dimensions. The chapter also highlights the study's limitations to frame its boundaries. Finally, it identifies directions for future research on sustainable procurement and value creation.

6.2 Summary of the main findings

RQ1: Adoption of TBL principles is shaped by regulation, fiscal terms, investor scrutiny, and community expectations. These drivers are visible across sectors but take different forms: in Europe, standards such as ISO 20400 formalise obligations, while in Nigeria and comparable countries, local-content regulation embeds social aims in procurement. Leadership commitment reinforces these forces, with executives embedding TBL criteria more deeply when TBL is treated as a strategic priority.

However, the strength of these drivers depends on governance capacity. Where institutions are robust, provisions are enforced consistently, ensuring that TBL objectives translate into practice. In weaker contexts, implementation is uneven, and community expectations deliver mixed results, providing jobs and training but also inflating costs or leaving promises unmet. Investor scrutiny and reputational incentives further shape adoption, as firms seek legitimacy, competitive positioning, and alignment with global sustainability frameworks.

RQ2: LCC, multi-criteria evaluation, and sustainability-linked KPIs are the main strategies to align affordability with TBL outcomes. Long-term contracts and KPI ratchets support ongoing improvement, with evidence of efficiency gains where applied. Adoption, however, remains limited. In O&G, capital intensity and political visibility keep focus on upfront cost, making executives reluctant to approve higher upfront bids. Reliance on subsidies, short budget cycles, and weak data systems deepens the short-term cost bias, while fragmented

contracting practices limit suppliers' ability to invest in broader social or environmental improvements.

Applied effectively, LCC uncovers hidden, revealing how lowest-price bids often prove costlier in the long run. Long-term agreements and diversification also enhance supply security, while sustainability-linked KPIs tie spending directly to performance outcomes. Yet governance frameworks still prioritise annualised savings over long-term resilience, and research offers little insight into how managers justify using LCC, multi-criteria evaluation, or sustainability-linked KPIs in short-term-oriented settings.

RQ3: Integration of TBL principles into procurement is hindered by corruption risks, figurative compliance, and limited supplier inclusion. Policies and contractual clauses are often reduced to formalities, with weak enforcement allowing malpractice to persist. Supplier evaluation is distorted by personal ties or direct awards, while support remains concentrated at tier-1, leaving SMEs excluded and dependent.

These challenges are reinforced by poor data and measurement systems, which restrict evidence-based monitoring and make sustainability criteria inconsistently applied. Transparency mechanisms such as digital procurement platforms and open contracting have been introduced, yet their credibility depends on enforcement, evaluator independence, and whistleblower protections. Without these conditions, procurement risks absorbing only surface-level commitments rather than embedding TBL principles in practice.

RQ4: Price dominance in procurement conflicts with value creation by prioritising immediate affordability over long-term outcomes. Short-term savings erode trust, collaboration, and resilience, while shifting social and environmental risks onto suppliers and communities. This bias is reinforced by political incentives that reward visible cost reductions, keeping price as the dominant criterion. However, evidence shows that value-based approaches such as LCC, sustainability-linked contracts, and collaborative partnerships deliver stronger performance, durability, and legitimacy. The tension arises because procurement is tasked with advancing TBL outcomes but continues to be

measured primarily on affordability. This structural conflict leaves firms navigating trade-offs between compliance with short-term financial imperatives and the pursuit of sustainable value. How managers reconcile these competing logics remains under-researched.

6.3 Theoretical implications

This study advances procurement and sustainability theory by reframing procurement as a contested space where TBL dimensions are negotiated, rather than a neutral process. The findings extend stakeholder theory (Freeman, 1984) by showing that external institutions and community pressures outweigh internal discretion in shaping procurement practice.

The study also enriches trade-off theory. Procurement is the arena where cost logics collide with sustainability imperatives. Tools such as LCC and sustainability-linked contracts turn trade-offs into value. This shifts procurement from a transactional role to a strategic function that mediates between short-term efficiency and long-term resilience.

Finally, the study contributes to sustainable supply chain theory (Carter & Rogers, 2008) by situating it in Nigeria and comparable countries. Weak enforcement, politicised decision-making, and local content imperatives reveal that sustainability outcomes depend not only on firm intent but also on governance capacity.

6.4 Managerial implications

Procurement managers must ensure that TBL commitments are written into contracts as measurable KPIs with clear monitoring. This makes sustainability provisions part of performance rather than statements of intent.

Evaluation also needs to move beyond lowest-price to total value as LCC and multi-criteria tools can highlight that the cheapest option may create higher risks and costs over time. Even simplified versions of these methods can help managers make more balanced decisions.

Supplier development remains central. SMEs often lack the resources to meet sustainability standards, so managers should invest in training, shared audits, and collaborative programmes that build capability across tiers.

Digitalisation can further support these efforts. Tools such as e-procurement platforms and certification schemes improve visibility and accountability, but they should be applied in ways that remain accessible to smaller suppliers.

6.5 Limitations and scope for future research

This study has clear limitations. Only English-language sources were included, which may have excluded relevant regional work. Grey literature was uneven, relying on company reports that may reflect disclosure bias. Cross-industry coverage provided breadth but diluted sector depth in O&G. The analysis also relied on secondary data, and thematic coding was subjective without inter-coder checks. These constraints limit the generalisability of the findings.

Future research could address these limits in several ways. Longitudinal case studies could track how O&G procurement evolves under changing regulations. Comparative studies across African O&G sectors would show how different governance settings shape outcomes. Digitalisation also deserves closer study, particularly how blockchain and e-procurement affect SME participation. Finally, future work should examine how procurement balances TBL pillars in African O&G sectors, where social outcomes often lag economic and environmental priorities.

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Appendices

Appendix A : Ethical approval letter



15 May 2025

Dear Miss Imonioro ,

Reference: CURES/25170/2025

Project ID: 28859

Title: The Triple Bottom Line in Supply Chains: A Pathway to Sustainable and Profitable Business Models

We are pleased to inform you that you have successfully declared that your research project is a **Literature Review** – based solely on openly available literature which is in the public domain, and you are undertaking desk-based research not involving any other form of data or information.

You have also confirmed that your project does not meet any of the literature review specified exceptions, listed both within the relevant section of the CURES form and below:

1) Your supervisor has requested that you apply for approval through CURES because:

- The journals or data are in a sensitive area (please discuss this with your supervisor)
- The project will be embargoed i.e. **will not be publicly available via the Cranfield library immediately or longer term**

2) Approval is/will be specifically required by another external body e.g. journal publishers

Therefore, **you do not require ethical approval** and your CURES application will be automatically closed.

Please keep a copy of this letter safe, if this exception is in relation to your thesis project, you will need to include a copy with your final thesis submission.

If you have any queries, please contact CURES Support.

We wish you every success with your project.

Regards,

CURES Team

Appendix B Supplementary Materials

Criteria	SLR	Traditional Literature Review
Research Question	Specific, clearly defined	Broad or evolving
Purpose & Aim	Answer a targeted question via comprehensive, protocol-led coverage	Map a field, critique, and integrate concepts interpretively
Search Strategy	Predefined, multi-database, Boolean strings documented	Ad hoc/chain searching; often centred on known/seminal sources
Inclusion/Exclusion (Relevance)	Pre-specified and consistently applied	Often implicit and adjusted during reading
Quality Appraisal	Formal tools/checklists applied	Usually informal or absent
Role of Researcher	Minimises subjectivity via protocol, dual screening, and audit trail	High interpretive input; expert judgement shapes scope and emphasis
Synthesis Method	Structured: thematic synthesis and/or meta-analysis with standardised extraction	Narrative synthesis without a uniform analytic framework
Replicability/Transparency	High procedures, logs, and PRISMA documented	Low process, rarely fully documented

Table B-1 Comparison between Traditional Literature Review and SLR

Criteria	Inclusion	Exclusion	Rationale
Credibility	Peer-reviewed journal articles only.	Non-peer-reviewed sources (e.g., blogs, editorials, opinion pieces).	Ensures academic quality and minimises bias.
Publication Year	Articles published between 2015 and 2025.	Articles published before 2015.	Captures recent and relevant research reflecting current practices in the research focus.
Language	Articles written in English.	Articles written in languages other than English.	English is the universal language of science: translating articles was not feasible within time and cost constraints (Ammon, 2001).
Access	Full-text articles available	Articles unavailable in full-text.	Enables access to the publicly available articles.
Topical Relevance	Procurement-focused studies addressing one or more TBL dimensions, or using ESG/sustainability frameworks with a clear connection to value creation.	Studies that only address CSR, ESG, or general sustainability without discussing procurement, supply chain, or TBL dimensions.	Keeps the focus on procurement, supply chain, TBL, sustainability, and value creation.
Sectoral	Studies from any sector offering insights into procurement, sustainability, and TBL, with a preference for oil & gas, where available.	Studies unrelated to procurement or sustainability.	Broadens evidence base while prioritising O&G relevance.

Disciplinary Scope	Studies indexed under Business, Management, Energy & Fuels, Environmental Studies/Sciences, Operations Research, Engineering (Industrial/Environmental), and Economics.	Studies published in unrelated disciplines (e.g., pure medical sciences, chemistry, biology) unless strongly linked to procurement or TBL.	Ensures all relevant articles are included.
Study Type	Both empirical and non-empirical studies (e.g., SLRs, conceptual frameworks, case reviews) with practical, theoretical, or analytical insights or contributions.	Opinion pieces, non-systematic literature overviews, or descriptive-only articles with no practical or theoretical contribution.	Ensures inclusion of impactful and relevant studies.

Table B-2 Inclusion and Exclusion Criteria (detailed)

Appendix C Data Extraction Form

Sr	1
Authors Name	Boruchowitch, F; Fritz, MMC
Article Title	Who in the firm can create sustainable value and for whom? A single case-study on sustainable procurement and supply chain stakeholders
Source Type	Journal Article
(Year)	2022
Country	France
Industry / Sector	Water & Waste Management
Research Methodology	Mixed, Qualitative
Research Methods	Interviews, case studies, ethnographic observation, content analysis
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Journal of Cleaner Production
Value Creation	Yes
Keywords	Sustainable procurement (SP); Sustainable value creation (SCV); Supply chain stakeholders (SCS); Purchasing strategy; Sustainable supply chain management (SSCM); Sustainable business models (SBM)
Tier	Tier 1

Key Findings

Supplier selection criteria integrate environmental considerations such as CO₂ reduction, energy efficiency, and waste management alongside cost and quality performance. Procurement collaborates with suppliers to develop socially responsible practices, including fair labour standards, diversity, and inclusion in the supply chain. Contract clauses require suppliers to hold environmental certifications and demonstrate ongoing improvements in sustainability performance. Strategic sourcing emphasises supplier collaboration to deliver innovations that improve environmental outcomes and achieve cost efficiencies. Supplier performance monitoring covers environmental KPIs (e.g., emissions, resource use) and social KPIs (e.g., worker safety, community impact). Procurement acts as a bridge between internal sustainability objectives and supplier capabilities through joint planning and long-term partnerships. Sustainability requirements that increase supplier costs can create tensions between environmental/social ambitions and competitive pricing. Sustainable procurement improves economic, social, and environmental performance while reducing costs and enhancing profitability, competitiveness, and external rankings such as share value. Procurement practices contribute to employee well-being, strengthen supplier relationships, and improve employee commitment. Embedding ethics, transparency, and trust within procurement reinforces responsible business conduct. Procurement drives innovation and influences CSR decisions across multiple departments. Sustainability-focused sourcing and contracting provide competitive differentiation and act as strong sales arguments. Procurement initiatives encourage a sustainable mindset across the organisation. Supplier development activities build capacity for meeting CSR and sustainability goals. Local sourcing and SME engagement in procurement support regional economic growth and job creation. Collaborative procurement partnerships with clients and municipalities generate shared cost savings and deliver environmental benefits such as biodiversity protection.

Sr	2
Authors Name	de Haan-Hoek, J; Lambrechts, W; Semeijn, J; Caniëls, MCJ
Article Title	Levers of Control for Supply Chain Sustainability: Control and Governance Mechanisms in a Cross-Boundary Setting
Source Type (Year)	Journal Article 2020

Country	United States
Industry / Sector	Healthcare
Research Methodology	Qualitative
Research Methods	Interviews, case studies, direct observation
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Sustainability
Value Creation	Yes
Keywords	levers of control; triple bottom line; sustainable supply chain management; control; governance
Tier	Tier 1

Key Findings

Supplier selection processes integrate TBL requirements, such as prohibitions on child labour and environmental responsibility, extending compliance checks to 2nd- and 3rd-tier suppliers.

Procurement contracts include embedded sustainability performance targets and monitoring mechanisms to ensure ongoing compliance with social and environmental standards. Boundary systems set explicit rules prohibiting suppliers from violating labour rights or environmental regulations. Recognition programs incentivise and reward suppliers for meeting or exceeding sustainability performance expectations.

Buyer–supplier collaboration is fostered through forums and interactive control systems to identify risks, co-develop improvements, and align on sustainability objectives, with engagement typically focused on key suppliers due to resource constraints or triggered by crises.

Governance structures, such as joint steering committees, are used for supplier sustainability performance evaluation and continuous improvement.

Financial viability, particularly payback period, acts as a decisive filter in procurement decisions, even when TBL considerations are present.

External pressures from stakeholders and stock exchange listing requirements influence the integration of environmental and social commitments into procurement practices.

Sr	3
Authors Name	Nsikan, J; Affiah, EA; Briggs, I; Koko, N

Article Title	Sustainable supplier selection factors and supply chain performance in the Nigerian healthcare industry
Source Type	Journal Article
(Year)	2022
Country	Global / Multi-country
Industry / Sector	Healthcare
Research Methodology	Quantitative
Research Methods	Surveys, regression analysis
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	Journal of Transport and Supply Chain Management
Value Creation	Yes
Keywords	sustainability; supplier selection; procurement; triple-bottom-line; sustainable supply chain management
Tier	Tier 1

Key Findings

Social and economic factors dominate supplier selection, with emphasis on cost efficiency, quality, and timely delivery. Environmental considerations, including waste management and reducing environmental impact, are also recognised as important selection criteria. Integrating environmental, social, and economic criteria in supplier evaluation enhances long-term supply chain resilience and competitiveness. Strategic alignment between buyers and suppliers, along with collaboration, can improve supply chain performance in developing country healthcare contexts. Policymakers should consider local priorities when setting sustainability mandates to ensure practical implementation in procurement decisions.

Sr	4
Authors Name	Niu, BZ; Mu, ZH; Chen, L; Lee, CKM
Article Title	Coordinate the economic and environmental sustainability via procurement outsourcing in a co-opetitive supply chain
Source Type	Journal Article
(Year)	2019
Country	Global / Multi-country
Industry / Sector	Manufacturing

Research Methodology	Quantitative
Research Methods	Mathematical modelling
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Economic
Journal Source	Resources, Conservation & Recycling
Value Creation	Yes
Keywords	Sustainable efforts; Contract manufacturing; Co-opetition; Procurement outsourcing; Sustainability
Tier	Tier 2
Key Findings	<p>Procurement outsourcing to an Original Equipment Manufacturer (OEM) can coordinate economic and environmental sustainability when the OEM's green production cost is low and environmental benefits are high. When market potential is high or low (but not medium), the retailer benefits more from outsourcing procurement to the OEM than keeping procurement in-house, leading to improved economic performance.</p> <p>Consignment procurement (retailer purchasing goods from OEM after sale) can reduce costs and improve economic sustainability but may worsen environmental outcomes due to lower incentives for green production.</p> <p>Wholesale procurement (retailer buying goods upfront from OEM) can increase the OEM's incentive to invest in green production, improving environmental sustainability, but may lead to higher costs for the retailer.</p> <p>Pricing power and competitive dynamics between the retailer and OEM influence the optimal procurement outsourcing decision, affecting both profits and environmental outcomes.</p>
Sr	5
Authors Name	Wontner, KL; Walker, H; Harris, I; Lynch, J
Article Title	Maximising Community Benefits in public procurement: tensions and trade-offs
Source Type	Journal Article
(Year)	2020
Country	United Kingdom
Industry / Sector	Public Procurement

Research Methodology	Qualitative
Research Methods	Interviews, case study
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	International Journal of Operation & Production Management
Value Creation	Yes
Keywords	Community benefits; Socio-economic sustainability; Public sector; Resource dependence theory
Tier	Tier 1
Key Findings	<p>Welsh Government funding conditions and contractual requirements drive Community Benefits (CBs) implementation in public procurement. Internal and external champions, alongside relationship-building between buyers and suppliers, are critical to successful CB delivery.</p> <p>Early engagement, coordinated support from agencies, clear policy guidance, contract pipelines, flexible targets, and recognition of interdependence between buyers and suppliers enable CB implementation.</p> <p>CBs provide shared social legitimacy benefits, improving collaboration and trust across supply chains.</p> <p>Collaborative procurement approaches and large framework contracts can conflict with SME inclusion, limiting local economic participation.</p> <p>Mitigation strategies such as subcontract advertising (Sell2Wales), "Meet the Buyer" events, and encouraging joint SME bids have mixed effectiveness.</p> <p>Targeted Recruitment and Training (TR&T) initiatives face challenges including candidate shortages, health and safety concerns, lack of agency links, and contract uncertainty; shared apprenticeship schemes and integration into existing programmes can improve delivery.</p> <p>Tensions exist between political/legal drivers and social objectives, with legal risk perceptions, political uncertainty, and austerity measures constraining CB delivery.</p> <p>Price dominance in tender evaluations can lead to trade-offs where cost efficiency overrides social and environmental goals.</p> <p>CB-related costs are often hidden, absorbed, or passed down supply chains, creating financial burdens for suppliers, particularly SMEs. suppliers' perceptions of CBs as an added cost can influence bidding behaviour and competition.</p> <p>Buyers frequently view CB implementation as cost-neutral, whereas suppliers highlight significant unrecovered costs.</p> <p>Unintended consequences of TR&T policies may encourage short-term hiring to meet targets rather than sustainable employment outcomes.</p>

Resource constraints, ambiguous targets, and weak monitoring mechanisms limit the enforcement of CB clauses in contracts.
Balancing CB goals with cost control and timely delivery creates operational tensions in procurement decisions.

Sr	6
Authors Name	Patil, NA; Tharun, D; Laishram, B
Article Title	Infrastructure development through PPPs in India: criteria for sustainability assessment
Source Type	Journal Article
(Year)	2016
Country	India
Industry / Sector	Infrastructure / Construction
Research Methodology	Quantitative
Research Methods	Surveys, (questionnaire)
Paper Type	Empirical
TBL Dimensions	Social, Environmental
Journal Source	Journal of Cleaner Production

Value Creation	Yes
Keywords	public private partnerships (PPPs); sustainable development; infrastructure development; sustainability assessment; procurement process
Tier	Tier 1
Key Findings	<p>Stakeholder consensus on sustainability criteria has been incorporated into PPP procurement frameworks, influencing bid evaluation and supplier selection.</p> <p>PPP-specific procurement framework integrates sustainable development principles, requiring bidders to address social, environmental, and economic impacts in project proposals. Value for Money (VfM) remains a core economic consideration but is assessed alongside environmental compliance and community benefits during tender evaluation. Tendering processes include sustainability-linked contract clauses and performance incentives to ensure delivery of environmental and social commitments.</p> <p>Supplier selection criteria incorporate life-cycle cost analysis to balance short-term costs with long-term economic, environmental, and social benefits.</p> <p>Private sector participation is contingent on financial viability, which can create tension between economic priorities and broader sustainability goals.</p> <p>Where private partners prioritise financial gain over environmental or social objectives, procurement processes risk failing to protect societal interests.</p>
Sr	7
Authors Name	Wurster, S; Ladu, L
Article Title	Triple-C: A Tridimensional Sustainability-Oriented Indicator for Assessing Product Circularity in Public Procurement
Source Type	Journal Article
(Year)	2022
Country	Germany
Industry / Sector	Public Procurement
Research Methodology	Mixed
Research Methods	Surveys, Desk research, Expert consultation
Paper Type	Conceptual / Analytical

TBL Dimensions	Environmental, Social, Economic
Journal Source	Sustainability
Value Creation	Yes
Keywords	circular economy; sustainability assessment; circularity; ecological scarcity method; life-cycle assessment; LCA; life-cycle costing; LCC; social sustainability; indicators
Tier	Tier 1
Key Findings	<p>Public procurement is positioned as a key driver in shaping market demand for sustainable and circular products through informed purchasing decisions.</p> <p>The Triple-C indicator provides a multidimensional framework for integrating environmental, social, economic, and circular performance criteria into procurement product evaluations. The framework applies 20 indicators, including environmental sustainability metrics (ESM) and life-cycle costing (LCC), enabling procurement to account for total costs and impacts over a product's lifespan.</p> <p>Procurement systems use the Triple-C framework to conduct objective, multidimensional product comparisons across sustainability pillars and circularity metrics.</p> <p>The indicator supports supplier selection by establishing clear sustainability benchmarks, encouraging suppliers to meet higher environmental and social standards.</p> <p>Sustainability recommendation software is available to guide procurement practitioners in identifying products that meet Triple-C performance requirements.</p> <p>The framework is designed for application across multiple product categories, including information technology equipment, vehicles/mobility, and construction materials. Example applications demonstrate how procurement can adopt the framework to prioritise circular and sustainable products without compromising performance needs.</p>
Sr	8
Authors Name	Arora, A; Arora, AS; Sivakumar, K; Burke, G
Article Title	Strategic sustainable purchasing, environmental collaboration, and organizational sustainability performance: the moderating role of supply base size
Source Type (Year)	Journal Article 2020

Country	Unspecified
Industry / Sector	Cross-sector
Research Methodology	Quantitative
Research Methods	Questionnaire, Mathematical model
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Supply Chain Management: An International Journal
Value Creation	Yes
Keywords	Strategic sustainable purchasing; Organizational sustainability performance; Supply base size; Organizational capabilities; Multi-group analysis; Performance; Sustainability; Supplier relationships; Dynamic capabilities
Tier	Tier 1
Key Findings	<p>External pressures from customers, society, government, and internal sustainability targets drive adoption of sustainable procurement practices.</p> <p>Supplier selection integrates environmental criteria, life-cycle thinking, resource efficiency, supply base optimisation, and sustainability metrics.</p> <p>Environmental collaboration with suppliers, via eco-design, waste reduction, emissions reduction, and source reduction, improves environmental and economic outcomes.</p> <p>Close supplier engagement in sustainable procurement increases cost efficiency, strengthens long-term relationships, and supports innovation.</p> <p>Supplier management processes embed sustainability, enabling knowledge sharing and delivering environmental and social benefits.</p> <p>Smaller supply bases strengthen the positive environmental and economic impact of sustainable procurement by allowing more focused collaboration.</p> <p>Balancing cost, sustainability, and flexibility remains a challenge, especially with diverse suppliers and long-term sustainability commitments.</p> <p>A lowest-price focus can conflict with sustainability by undervaluing or excluding social outcomes.</p>
Sr	9
Authors Name	Safuan; Ramadian, A; Selasдини, V

Article Title	Environmental, Social and Governance implementation in Indonesian ports. A qualitative approach and its impact on global sustainability
Source Type (Year)	Journal Article 2023
Country	Indonesia
Industry / Sector	Logistics
Research Methodology	Qualitative
Research Methods	Interviews, Document analysis
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Vision for Sustainability
Value Creation	Yes
Keywords	Environmental, Social, and Governance (ESG); port of Indonesia; sustainability performance; qualitative research; technology and innovation; economic sustainability; environmental sustainability; social sustainability
Tier	Tier 2
Key Findings	<p>Compliance with government regulations and oversight from regulators.</p> <p>Partnerships with the Ministry of Environment & Forestry for marine waste management and green port development.</p> <p>Corporate social responsibility initiatives and consumer satisfaction improvements.</p> <p>Procurement of technology and services to support green port development, including waste management systems, aligning with environmental sustainability objectives.</p> <p>Engagement with suppliers and contractors to comply with ESG requirements, enhancing environmental performance in port operations.</p>
Sr	10
Authors Name	Wu, Z; Gu, LX
Article Title	A hybrid decision-making framework for hydrogen energy supplier selection: Enhancing economic viability and energy security
Source Type (Year)	Journal Article 2025
Country	China

Industry / Sector	Energy
Research Methodology	Quantitative
Research Methods	Expert panel evaluations, Soft AHP, Fuzzy TOPSIS, GARCH modeling, Case study (China, 2015–2023),
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Economic
Journal Source	International Journal of Hydrogen Energy
Value Creation	Yes
Keywords	Hydrogen energy; Energy security; Economic viability; Fuzzy TOPSIS; Economic sustainability
Tier	Tier 1

Key Findings

Supplier selection frameworks balanced traditional criteria such as cost and reliability with sustainability-related factors, including environmental impact, technology, customer service, and energy security. Multi-criteria evaluation incorporated renewable energy share, carbon emissions, lifecycle costs, and other sustainability metrics to ensure supplier alignment with sustainable procurement objectives. Weighting of criteria enabled procurement decision-makers to prioritise environmental performance and energy security alongside economic considerations. Transparent and robust supplier comparison processes improved decision-making consistency and supported the integration of sustainability objectives. Policy and regulatory support acted as an important driver for embedding sustainability into procurement strategies. The fuzzy TOPSIS model effectively handled uncertainty in supplier evaluation, offering balanced decision-making compared to traditional methods. Market and energy price volatility influenced procurement strategies, creating challenges for stable supplier selection. A dominant focus on cost and reliability often conflicted with sustainability goals, leading to trade-offs that hindered balanced adoption of triple bottom line principles. Subjective expert judgment and difficulty assigning accurate weights to evaluation criteria posed significant challenges in ensuring fair and balanced supplier evaluations.

Sr	11
Authors Name	Baskaran, G

Article Title	Firms' approach to mitigating risks in the platinum group metals sector
Source Type (Year)	Journal Article 2021
Country	South Africa
Industry / Sector	Extractive
Research Methodology	Inferred as Qualitative
Research Methods	Inferred as (Desk Research and case based analysis
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Mineral Economics
Value Creation	Yes
Keywords	Mining; Firm behavior; South Africa; Platinum group metals; Risks; Shocks; Commodities; Extractives
Tier	Tier 3

Key Findings

Long-term contracts with PGM suppliers are used to secure supply stability and reduce exposure to price volatility. Diversification of sourcing regions reduces dependence on high-risk areas and mitigates potential disruptions linked to environmental, social, or geopolitical instability. Supplier auditing and monitoring programs address compliance with environmental regulations and labour standards in the PGM supply chain. Strategic partnerships with suppliers foster joint investment in cleaner extraction technologies, improving environmental performance while maintaining economic viability. Recycling and recovery initiatives for PGMs are integrated into procurement strategies to reduce dependence on newly mined materials and minimise environmental impacts. Local procurement initiatives are implemented for community participation, though often limited to low-value services.

Sr	12
Authors Name	van den Brink, S; Kleijn, R; Tukker, A; Huisman, J
Article Title	Approaches to responsible sourcing in mineral supply chains
Source Type (Year)	Journal Article 2019

Country	Unspecified
Industry / Sector	Extractive
Research Methodology	SLR
Research Methods	SLR
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Resources Conservation and Recycling
Value Creation	Yes
Keywords	Responsible sourcing; Minerals; Supply chains; Sustainability
Tier	Tier 2

Key Findings

Regulatory frameworks such as the Dodd-Frank Act Section 1502, EU Regulation 2017/821, and OECD Due Diligence Guidance influence sourcing practices to meet social and environmental sustainability requirements. Endorsement of the United Nations Guiding Principles on Business and Human Rights (UNGPs) shapes responsible sourcing expectations in procurement. Consumer and investor demand for responsible sourcing shapes supplier selection and sourcing strategies to address social and environmental risks. Companies adopt supply chain due diligence processes and sourcing via sustainability schemes to ensure sustainability requirements are met in the production phase. Chain-of-custody certification systems and blockchain pilots are implemented in sourcing to improve transparency in mineral supply chains. Lack of a broadly accepted definition of responsible sourcing creates uncertainty in procurement decision-making. Transparency challenges in complex mineral supply chains limit the ability to evaluate and manage supplier sustainability performance. Difficulty influencing upstream suppliers in fragmented supply chains constrains the effectiveness of responsible sourcing initiatives. Voluntary sustainability commitments may increase compliance and traceability costs, creating tension with cost-driven procurement approaches.

Sr	13
Authors Name	Suryawanshi, P; Dutta, P; Varun, L; Deepak, G

Article Title	Sustainable and resilience planning for the supply chain of online hyperlocal grocery services
Source Type	Journal Article
(Year)	2021
Country	India
Industry / Sector	Food Supply Chain
Research Methodology	Quantitative
Research Methods	Quantitative model
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Economic
Journal Source	Sustainable Production and Consumption
Value Creation	Yes
Keywords	Supply chain; Hyperlocal grocery business; Perishable food; Resilient policy; Sustainability; Uncertainty analysis
Tier	Tier 1

Key Findings

Procurement planning prioritized local sourcing to reduce transportation-related emissions and support regional economies.

Supplier selection emphasized the ability to ensure uninterrupted supply during disruptions, enhancing supply chain resilience.

Contracts with suppliers incorporated flexibility to adjust quantities based on real-time demand, reducing waste and overstocking.

Procurement processes focused on partnerships with suppliers capable of meeting quality, hygiene, and sustainability standards for perishable goods.

Multi-supplier sourcing strategies were adopted to mitigate the risk of dependency on a single supplier and maintain business continuity.

Disruption risk, perishability, and uncertainty were primary pressures shaping resilient and sustainable procurement planning.

Maintaining supply continuity during disruptions such as pandemics was a critical operational driver.

Markdown strategies for unsold goods were implemented to minimize waste, supported by emergency procurement from local suppliers to address disruptions.

Procurement planning integrated food deterioration stages to reduce spoilage and improve efficiency.

Perishability and fluctuating demand presented significant challenges to embedding sustainability principles in procurement.

Resilience under uncertainty depended on maintaining reliable supplier relationships.

A cost-focused procurement approach, such as avoiding price markdowns to maintain a premium brand image, could increase waste and undermine environmental sustainability, while markdown and salvage strategies reduced losses but could impact profit margin.

Sr	14
Authors Name	DeCarlo, A; Ali, S; Ceroni, M
Article Title	Ecological and Economic Sustainability of Non-Timber Forest Products in Post-Conflict Recovery: A Case Study of the Frankincense (<i>Boswellia</i> spp.) Resin Harvesting in Somaliland (Somalia)
Source Type	Journal Article
(Year)	2020
Country	Somalia
Industry / Sector	Agriculture/Forestry
Research Methodology	Qualitative
Research Methods	Semi-structured Interviews
Paper Type	Empirical

TBL Dimensions	Environmental, Social, Economic
Journal Source	Sustainability
Value Creation	Yes
Keywords	Frankincense; olibanum; Boswellia; essential oils; non-timber forest products; sustainability; resin harvesting; conflict areas; post-conflict recovery; Somalia
Tier	Tier 3
Key Findings	<p>Exporter-led initiatives to meet international buyer requirements for sustainable sourcing, integrating ecological sustainability and equitable benefit-sharing. FairWild certification embedded into sourcing practices to ensure compliance with environmental standards and fair distribution of benefits to local harvesters. Blockchain-based traceability systems applied to procurement to improve sourcing transparency and meet buyer demands for verified sustainable products. Procurement arrangements with local distillers aimed at increasing value capture within Somaliland while maintaining sustainable harvesting commitments. Procurement relationships between buyers and harvesters often occur through intermediaries, which can reduce harvester income and limit economic sustainability. Exclusive purchase agreements between traders and harvesters influence sourcing patterns and market access, impacting both income distribution and long-term community benefits. Price volatility in resin markets affects procurement decisions and the stability of harvester livelihoods, with downstream buyers playing a role in setting prices. Lack of contractual safeguards for sustainable harvesting allows over-exploitation of trees, undermining environmental sustainability in procurement-linked sourcing. Some buyers incentivize sustainable harvesting by offering higher prices for resin collected under environmentally responsible practices. Dependence on a small number of large traders for procurement can reduce competition and weaken bargaining power for local harvesters.</p>
Sr	15
Authors Name	Xing, MY; Awuah-Offei, K; Long, S; Usman, S
Article Title	The effect of local supply chain on regional economic impacts of mining
Source Type (Year)	Journal Article 2017
Country	United States

Industry / Sector	Extractive
Research Methodology	Quantitative
Research Methods	Mathematical modelling
Paper Type	Conceptual / Analytical
TBL Dimensions	Social, Economic
Journal Source	Extractive Industries and Society
Value Creation	Yes
Keywords	Sustainability; Input output analysis; Mining; Industrial minerals; Economic impact
Tier	Tier 3
Key Findings	<p>Local sourcing by mining companies significantly enhances regional economic benefits by creating direct demand for goods and services from nearby suppliers and retaining more value within the host region.</p> <p>Procurement strategies that favour local suppliers create shared value by generating jobs and income within the host community.</p> <p>Public–private partnerships support capacity-building initiatives that enable local businesses to meet procurement standards and participate in mine supply chains.</p> <p>Supplier development programs help local firms meet procurement requirements, strengthening their competitiveness and integration into the mining supply chain.</p>
Sr	16
Authors Name	Uy, JG; Juan, JLS
Article Title	Multi-objective optimization of airline fuel loading problem considering sustainable aviation fuel and book-and-claim
Source Type	Journal Article
(Year)	2024
Country	Philippines
Industry / Sector	Aviation
Research Methodology	Quantitative
Research Methods	Mathematical modelling
Paper Type	Conceptual / Analytical

TBL Dimensions	Environmental, Economic
Journal Source	Journal of Cleaner Production
Value Creation	Yes
Keywords	Alternative fuels; Fuel tankering; Airline management; Economic sustainability; Environmental sustainability
Tier	Tier 1
Key Findings	<p>High costs and limited supply of SAF are major hindrances to full implementation.</p> <p>Procurement strategy of loading more SAF where cheaper and using book-and-claim where it is expensive or unavailable enables cost control while maintaining environmental benefits.</p> <p>Procurement of SAF under a book-and-claim system allows airlines to source SAF from locations where it is available, even if it is not physically supplied at the departure airport, enabling environmental benefits without major supply chain disruptions.</p> <p>Fuel sourcing strategies that integrate SAF procurement with optimization models can reduce lifecycle greenhouse gas emissions while controlling operational costs.</p> <p>Long-term procurement agreements for SAF can stabilize supply and pricing, supporting investment in production capacity and enabling more predictable cost structures for airlines.</p> <p>Trade-offs exist between cost minimization and environmental impact: removing SAF reduces costs but increases emissions, while removing book-and-claim increases emissions and reduces opportunities for offsets.</p>
Sr	17
Authors Name	Hautamäki, P; Jensen, KB; Urbinati, A
Article Title	Enabling the sustainability transition in buyer-seller interactions: Strategic insights from sellers and buyers
Source Type	Journal Article
(Year)	2025
Country	Global / Multi-country
Industry / Sector	Manufacturing
Research Methodology	Qualitative

Research Methods	Interview, Focus Group
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Cleaner Production Letters
Value Creation	Yes
Keywords	Buyer-seller interaction; Relationship selling; Sales strategy; Sustainability transition; Selling; Buying
Tier	Tier 2
Key Findings	<p>Buyers' tender specifications that embed sustainability requirements influence suppliers' sourcing and production strategies, with customer willingness or reluctance to invest shaping the sustainability transition pathway. Regulatory and legislative changes in the EU influence procurement practices by requiring suppliers to meet environmental and social compliance standards. Differences in sustainability maturity between buyers and suppliers affect procurement relationship strategies, determining whether sourcing is context-driven, customer-driven, sales-driven, or jointly driven. Long-term, relationship-based procurement approaches are used to integrate sustainability without compromising economic objectives. Supplier development for sustainability can be hindered by the absence of clear, financially viable business cases for sustainable offerings. SMEs supplying to larger buyers may face resource constraints that limit their ability to meet comprehensive sustainability criteria in tenders, despite offering flexibility and innovation potential.</p>
Sr	18
Authors Name	Tuni, A; Rentizelas, A; Chinese, D
Article Title	An integrative approach to assess environmental and economic sustainability in multi-tier supply chains
Source Type	Journal Article
(Year)	2020
Country	Unspecified
Industry / Sector	Manufacturing
Research Methodology	Qualitative

Research Methods	Primary data collection
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	Production Planning & Control
Value Creation	Yes
Keywords	Sustainability performance assessment; multi-tier supply chain; eco-intensity; integrative approach; tensions
Tier	Tier 1
Key Findings	<p>Pressure from multiple stakeholders drives the adoption of Triple Bottom Line principles in procurement. Eco-intensity indicator integrates economic and environmental dimensions, offering an approach to balance divergent sustainability objectives in supplier selection and evaluation. Procurement professionals face tensions from multi-dimensional sustainability issues combined with stakeholder pressures. Limited visibility and traceability of lower-tier suppliers hinder sustainability performance monitoring. Incorporating environmental considerations into profit-centric decision-making generates sustainability tensions. Prioritising economic objectives over environmental goals creates conflicts, especially to meet shareholder expectations. Identification of hotspots and benchmarking of alternative suppliers can serve as a starting point for directing operational improvement actions within the supply chain. Integrating environmental and economic metrics into supplier evaluation strengthens procurement's ability to deliver balanced sustainability outcomes. Applying life-cycle costing in procurement decisions supports the alignment of short-term affordability with long-term environmental and economic benefits. Accounting for sub-suppliers' sustainability performance increases transparency and supports improvement initiatives across the supply chain.</p>
Sr	19
Authors Name	Hasan, MM; Nekmahmud, M; Lu, YJ; Patwary, MA
Article Title	Green business value chain: a systematic review
Source Type	Journal Article
(Year)	2019
Country	Global / Multi-country

Industry / Sector	Multi-Sector
Research Methodology	Qualitative
Research Methods	SLR
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Sustainable Production and Consumption
Value Creation	Yes
Keywords	Green business process; Green business value chain; Sustainable development; Green supply chain management; Green information systems; Green technology; Green marketing; Green accounting; Green management; Green 3R
Tier	Tier 1
Key Findings	<p>Environmental concern, regulatory requirements, stakeholder expectations, and consumer attitudes drive the adoption of green procurement practices.</p> <p>Many organisations adopt green purchasing to enhance cost efficiency, improve performance, strengthen corporate image, and gain competitive advantage.</p> <p>Green purchasing criteria in supplier selection include compliance with environmental regulations, use of sustainable raw materials, and application of life cycle assessment.</p> <p>Eco-friendly product design is incorporated into procurement decisions as part of green supply chain management.</p> <p>The 3Rs - reduce, reuse, and recycle are applied in supplier sourcing, material procurement, and product end-of-life strategies.</p> <p>Strategic partnerships with suppliers support the development and adoption of green technologies and innovative sustainability solutions.</p> <p>Collaborative procurement initiatives enable knowledge sharing, capacity building, and broader sustainability adoption across the supply chain.</p> <p>Integration of green practices across procurement and other supply chain functions is used to achieve both efficiency and sustainability objectives.</p> <p>Cross-functional coordination in procurement processes strengthens the creation of an integrated green value chain.</p> <p>Barriers to green procurement include high costs, limited supplier capabilities, and lack of availability of sustainable products.</p> <p>Economic priorities often dominate over environmental and social objectives, creating trade-offs between competitiveness and broader sustainability goals.</p>

Sr	20
Authors Name	Gupta, S; Gupta, S; Dhamija, P; Bag, S
Article Title	Sustainability strategies in the Indian leather industry: an empirical analysis
Source Type (Year)	Journal Article 2018
Country	India
Industry / Sector	Fashion/Textile
Research Methodology	Mixed
Research Methods	Case study with triangulation
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Benchmarking: An International Journal
Value Creation	Yes
Keywords	Sustainability; Social value; Indian leather industry; Economic value; Environmental value
Tier	Tier 2
Key Findings	<p>Entry of numerous small players in Uttar Pradesh (UP) influenced sourcing options in the leather industry, shaping environmental, social, and economic outcomes alongside factors such as strong labor unions in West Bengal (WB) and zero liquid discharge policy in Tamil Nadu (TN). Superior leather value chain management in Tamil Nadu (TN) supported procurement-related competitiveness while aligning with sustainability goals, while adjustments to welfare spending in West Bengal (WB) affected labor-related supply chain practices.</p> <p>Environmental pollution from leather industry operations created tension between procurement cost competitiveness and sustainability objectives.</p>
Sr	21
Authors Name	Juettner, U; Windler, K; Podleisek, A; Gander, M; Meldau, S
Article Title	Implementing supplier management strategies for supply chain sustainability risks in multinational companies
Source Type (Year)	Journal Article 2020
Country	Switzerland

Industry / Sector	Manufacturing
Research Methodology	Qualitative
Research Methods	Case study, focus group, semi-structured interviews, document analysis
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	The TQM Journal
Value Creation	Yes
Keywords	Supply chain sustainability risk; Supplier quality management; MNEs; Agency relationships
Tier	Tier 1
Key Findings	<p>Pressure from stakeholders, particularly customers, drives companies to address sustainability risks in procurement. Desire to mitigate social, environmental, and economic risks influences supplier management decisions.</p> <p>Headquarters' corporate sustainability targets and codes of conduct shape supplier selection and monitoring practices. Linking social and environmental KPIs to financial KPIs ensures sustainability is integrated into performance evaluation.</p> <p>Implementing supplier industrialization processes supports capacity building and process standardization for sustainability.</p> <p>Use of IT-based supplier relationship management systems increases transparency, enables monitoring, and supports supplier prioritization.</p> <p>Risk-based supplier segmentation is applied to focus resources on high-risk suppliers for more targeted monitoring and engagement.</p> <p>Supplier auditing and monitoring programs are used to assess compliance with sustainability requirements. Sustainability obligations are embedded into contractual clauses to formalize expectations.</p> <p>Enforcement mechanisms, such as sanctions, reduced business allocation, or contract termination, are applied for non-compliance with sustainability criteria.</p> <p>Collaboration and capability-building programs help suppliers meet corporate sustainability requirements.</p> <p>Providing incentives and support encourages supplier compliance with social and environmental standards.</p> <p>Gaps in corporate guidance can result in inconsistent ecological and social requirements in supplier bids.</p> <p>Variability exists between regional and corporate sustainability priorities, affecting procurement alignment.</p> <p>Subsidiary managers may prioritize cost-saving measures that conflict with corporate sustainability objectives.</p> <p>Local market pressures can lead to trade-offs between</p>

compliance with corporate codes and meeting operational needs.
Overemphasis on financial KPIs can overshadow social and environmental goals in supplier management decisions.

Sr	22
Authors Name	Yang, YF; Han, H; Lee, PKC
Article Title	An Exploratory Study of the Mechanism of Sustainable Value Creation in the Luxury Fashion Industry
Source Type	Journal Article
(Year)	2017
Country	Global / Multi-country
Industry / Sector	Fashion/Textile
Research Methodology	Qualitative
Research Methods	Case study
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic

Journal Source	Sustainability
Value Creation	Yes
Keywords	sustainability; sustainable value; value co-creation; supply chain; case study
Tier	Tier 1
Key Findings	<p>Operational-level cost and risk management is supported by environmental performance monitoring systems such as the Environmental Profit & Loss (E P&L), which guide supplier selection and operational improvements.</p> <p>Market-level benefits, including enhanced brand reputation and expanded customer reach, result from sustainable sourcing and supplier partnerships.</p> <p>Moral and ethical commitment by leadership (e.g., Stella McCartney's sustainability ethos) acts as a driver for procurement decisions, influencing material sourcing, supplier engagement, and sustainability priorities.</p> <p>Partnering with NGOs enables improved labour conditions in supplier facilities and supports local sourcing initiatives.</p> <p>Collaboration with other brands (e.g., Adidas, H&M) extends the availability of ethically produced products, requiring coordinated supplier management and joint procurement strategies.</p> <p>Material innovation (e.g., organic cotton, fur-free fabrics) integrates environmental considerations into procurement and aligns supply chain practices with brand identity.</p> <p>Reluctance among some luxury brands to adopt sustainable practices limits broader procurement adoption of sustainability requirements.</p> <p>Difficulty in developing collaborative supply chain approaches hinders industry-wide achievement of environmental and social procurement goals.</p>
Sr	23
Authors Name	Kahkonen, AK; Lintukangas, K; Ritala, P; Hallikas, J
Article Title	Supplier collaboration practices: implications for focal firm innovation performance
Source Type	Journal Article
(Year)	2017
Country	Finland
Industry / Sector	Multi-Sector
Research Methodology	Quantitative

Research Methods	Survey
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	European Business Review
Value Creation	Yes
Keywords	Environmental management; Collaboration; Supply chain management; Performance analysis; Innovation management
Tier	Tier 1
Key Findings	<p>Commitment to green and ethical supply management in supplier collaborations.</p> <p>Strategic collaboration with suppliers to enhance innovation performance while supporting sustainability objectives.</p> <p>Use of systemic purchasing to integrate large and coordinated product–service bundles effectively.</p> <p>Adoption of green and ethical supply management practices in joint projects with suppliers.</p> <p>Supplier collaboration through joint problem-solving and shared technology development improves cost efficiency and long-term economic value.</p> <p>Early supplier involvement supports resource efficiency, quality improvements, and reduced time-to-market, even if its direct impact on innovation performance is limited.</p> <p>Collaboration with suppliers reduces risks and strengthens supply chain resilience.</p> <p>Knowledge sharing and co-development with suppliers contribute to waste reduction and improved environmental performance.</p>
Sr	24
Authors Name	Roy, V; Charan, P; Schoenherr, T; Sahay, BS
Article Title	Ensuring supplier participation toward addressing sustainability-oriented objectives of the mid-day meal supply chain: Insights from The Akshaya Patra Foundation
Source Type	Journal Article
(Year)	2018
Country	India
Industry / Sector	Food Supply Chain
Research Methodology	Qualitative

Research Methods	Case study, Semi-structured onterview and document analysis
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	The International Journey of Logistic Management
Value Creation	Yes
Keywords	India; Case study; Small- to medium-sized enterprises; Sustainable supply chain management; Buyer-supplier relationships; Food logistics; Sourcing and supply; Supplier participation; School feeding programme; Socio-economic sustainability; Supply-chain-based identification
Tier	Tier 1
Key Findings	<p>Procurement leverages TAPF's social mission of feeding underprivileged students to foster supplier goodwill, cooperation, and alignment with organisational objectives. Supplier selection balances reliability, quality, cost, and social objectives, ensuring timely delivery of safe, nutritious food while supporting community-based and local suppliers. Mutual respect and trust between TAPF's procurement team and suppliers strengthen long-term relationships, enabling stability in pricing, consistent quality, and shared commitment to sustainability.</p> <p>Procurement maintains a broad sourcing base to manage price-quality trade-offs, reduce dependency risks, and support regional economies while lowering environmental impact through local sourcing.</p> <p>Contracts and agreements include compliance clauses for food safety, hygiene requirements, and regular audits, supported by transparent and fair inspection processes to safeguard quality without damaging supplier relationships. Procurement uses supplier trials, audits, and structured feedback mechanisms to align supplier performance with TAPF's cost control, quality, and sustainability targets. Supplier capacity-building initiatives, including training, proactive support such as advance payments, and in emergencies, personal assistance, help vendors meet hygiene, quality, and sustainability standards.</p> <p>Collaborative engagement with suppliers focuses on improving process efficiency, reducing food waste, and enhancing resource utilisation.</p> <p>Some suppliers resist stringent policy requirements, including documentation and mandatory food safety certifications, while others find procurement standards unusually strict or unclear. Onboarding new suppliers can be challenging when they lack familiarity with TAPF's procurement processes and sustainability expectations.</p> <p>Early procurement relationships experienced mistrust over payment terms, requiring additional engagement to build</p>

confidence.
 Reliance on intermediaries for low-cost sourcing reduced procurement's control over quality and increased long-term costs.
 Abrupt cost-cutting measures risked degrading meal quality, creating misalignment with TAPF's sustainability and social mission.
 An exclusive price focus in procurement decisions sometimes overlooked social and quality objectives, conflicting with the organisation's overall mission.

Sr	25
Authors Name	Liang, YT; Zhang, QY
Article Title	ESG equity or green credit: Financing strategies for green transformation in the supply chain under consumption subsidies
Source Type	Journal Article
(Year)	2025
Country	China
Industry / Sector	Supply Chain & Finance
Research Methodology	Quantitative
Research Methods	Mathematical modelling
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic

Journal Source	International Journal of Production Economics
Value Creation	Yes
Keywords	Supply chain management; Green transformation; ESG equity financing; Green credit financing; Consumption subsidy
Tier	Tier 2
Key Findings	<p>ESG equity financing (EEF) increases procurement from environmentally sustainable suppliers by embedding environmental constraints and supplier evaluation standards into agreements.</p> <p>Green credit financing (GCF) encourages sourcing from suppliers that meet green production standards, with effectiveness dependent on the level of government consumption subsidies.</p> <p>Under high consumption subsidies, manufacturers increase orders from green-certified suppliers regardless of financing mode.</p> <p>In low-subsidy contexts, EEF provides greater incentives for sustained procurement from green suppliers compared to GCF.</p> <p>Supplier's carbon emissions profile and the prevailing subsidy rate shape financing strategy outcomes and influence supplier selection.</p> <p>Manufacturers support suppliers' green transformation through interest subsidies, loan-cost sharing, or cost-sharing contracts linked to procurement agreements.</p>
Sr	26
Authors Name	Krimi, I; Saikouk, T; Badraoui, I; Bahou, Z
Article Title	Enabling sustainable and resilient supply chain expansion through technological advancements: Corporate policy insights from the Gulf petrochemical industry
Source Type	Journal Article
(Year)	2025
Country	Gulf Region
Industry / Sector	Oil & Gas
Research Methodology	Qualitative
Research Methods	Case studies, Semi-closed ended interviews
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic

Journal Source	Journal of Environmental Management
Value Creation	Yes
Keywords	Supply chains; Sustainability; Resilience; Environmental policy; Technology
Tier	Tier 3
Key Findings	<p>Regulatory incentives and eco-conscious market demands influence procurement strategies, driving the integration of sustainability criteria into supplier selection and contracting. Leadership commitment to sustainability shapes procurement priorities, embedding environmental and social performance targets into sourcing decisions.</p> <p>Collaboration with suppliers, universities, and startups supports procurement-driven innovation in low-carbon technologies and sustainable products.</p> <p>Digital procurement tools and analytics platforms enhance supply chain transparency, enabling monitoring of supplier compliance with environmental and social standards.</p> <p>Circular economy principles, such as carbon capture and renewable energy use, are incorporated into supplier requirements and contract terms to reduce environmental impact.</p> <p>Supplier diversity and local content policies are applied to procurement to maximise socio-economic benefits in host regions.</p> <p>Supplier development programs, including co-innovation initiatives, are used to build capacity for delivering low-carbon and ESG-compliant solutions.</p> <p>Procurement teams face supplier capacity gaps in meeting low-carbon and ESG performance requirements, limiting the pace of sustainable supply chain adoption.</p> <p>Inconsistent sustainability and human rights standards across supplier geographies create challenges for harmonising procurement requirements.</p> <p>Limited availability and higher cost of low-carbon technologies influence sourcing decisions and may delay adoption despite long-term sustainability benefits.</p> <p>Horizontal integration in procurement, including shared facilities and by-product optimisation agreements with suppliers, reduces costs and environmental impacts.</p> <p>Public–private partnerships support the creation of green procurement hubs and recycling networks to consolidate sustainable supply opportunities.</p> <p>Balancing cost reduction goals with investments in renewable energy and carbon capture technologies remains a persistent procurement challenge.</p>
Sr	27
Authors Name	Lam T.Y.M.
Article Title	Driving sustainable construction development through post-contract key performance indicators and drivers

Source Type	Journal Article
(Year)	2022
Country	United Kingdom
Industry / Sector	Infrastructure / Construction
Research Methodology	Quantitative
Research Methods	Survey, Regression analysis
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Smart and Sustainable Built Environment
Value Creation	Yes
Keywords	Construction development; Design and construction; Holistic sustainability; KPIs; Performance drivers; Post-contract monitoring
Tier	Tier 1

Key Findings

Procurement should prioritise appointing contractors and project teams with strong expertise and experience to control costs, maintain quality, and meet sustainability objectives. Selecting suppliers and service providers whose execution approaches in design and management align with client needs supports functional quality, cost efficiency, and broader sustainability outcomes.

Building trust and collaborative relationships between main contractors, subcontractors, and clients is a critical procurement driver that improves cost control, quality, and delivery across sustainability goals.

Establishing collaborative procurement arrangements between contractors and subcontractors is essential to achieving sustainable design and construction targets.

Awarding contracts to suppliers whose design and management methods minimise cost variations enhances long-term sustainability benefits.

Inclusion of post-contract KPIs in agreements enables procurement teams to track contractor performance on sustainability objectives throughout the project lifecycle.

Post-contract evaluations measure timely delivery, cost control, and resource efficiency, linking supplier performance to economic and environmental outcomes.

Contractor assessments incorporate waste reduction and environmental protection targets to ensure suppliers actively contribute to sustainability goals.

Supplier management post-contract includes regular monitoring of health and safety compliance to protect worker welfare and align with social priorities.

Procurement oversight mechanisms use KPI tracking to strengthen accountability for sustainability commitments made during tendering.

Some organisational capability factors, such as facilities and general organisational competence were not found to be significant procurement drivers for sustainability-related KPIs.

Sr	28
Authors Name	Liljeroos-Cork J.M.; Laitinen K.
Article Title	Boundary spanners as a key to value creation in infrastructure procurement
Source Type	Journal Article
(Year)	2024
Country	Finland
Industry / Sector	Infrastructure / Construction
Research Methodology	Qualitative
Research Methods	Semi-structured interviewa
Paper Type	Empirical
TBL Dimensions	Social, Environmental

Journal Source	Journal of Public Procurement
Value Creation	Yes
Keywords	Boundary objects; Boundary spanners; Brokers; Infrastructure ecosystem; Knowledge sharing; Procurement; Value creation
Tier	Tier 1
Key Findings	<p>Boundary spanners facilitate collaboration and knowledge sharing across procurement stakeholders, helping integrate economic, social, and environmental objectives. Market dialogue with experts, suppliers, and stakeholders aligns procurement needs with sustainability objectives. Cross-boundary collaboration between political, operational, and administrative levels supports the integrated adoption of TBL principles in procurement processes. Transparent, participatory decision-making builds trust and legitimacy in procurement outcomes. Brokers/boundary spanners build trust and enable value-focused collaboration between buyers and suppliers. Standardised processes (e.g., models, schemes, programmes) enhance coordination and consistency in procurement activities. Rigid procurement culture and legal risk-aversion limit the flexibility needed to integrate sustainability considerations. Limited market dialogue and poor alignment of needs reduce opportunities for sustainability-driven procurement. Siloed projects hinder a holistic view of value creation across the supply chain. Price-driven procurement models reduce end-user value and limit long-term sustainability benefits. Excessive focus on cost undermines collaboration, quality, and innovation in procurement projects.</p>
Sr	29
Authors Name	Belal M.M.; Roy S.; Balasubramanian S.; Wahab S.N.
Article Title	Sustainability Challenges of Lithium-Ion Battery Supply Chain: Evidence from the Indian Electric Vehicle Sector
Source Type (Year)	Journal Article 2025
Country	India
Industry / Sector	Electric Vehicle / Battery

Research Methodology	Qualitative
Research Methods	Semi-structured interview
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Journal of Technology Management
Value Creation	No
Keywords	Electric vehicles; Environmental impact; Lithium-ion batteries; Recycling; Sustainability
Tier	Tier 2
Key Findings	<p>Dependence on imports for critical raw materials such as lithium, cobalt, and nickel increases procurement risks and undermines the economic sustainability of the supply chain. Limited domestic sourcing options constrain supplier selection and create vulnerability to price volatility in global markets.</p> <p>Lack of robust supplier environmental standards for raw material extraction and processing leads to environmental degradation in the upstream supply chain.</p> <p>Weak enforcement of labour and safety standards in upstream supplier countries raises concerns about social sustainability in procurement, including risks of unethical labour practices such as forced labour.</p> <p>Absence of transparent and traceable sourcing systems hampers the ability to verify environmental and social compliance in the procurement process.</p> <p>High costs of imported raw materials add to the financial burden of procurement in the LIB supply chain.</p>
Sr	30
Authors Name	Firera; Al Musadieq M.; Solimun; Hutahayan B.
Article Title	Building Economic Sustainability of the Energy Sector: How Purchasing Performance and Material Inventory Performance Influence Sustainable Economic Levels Moderated by Fiscal Term
Source Type	Journal Article
(Year)	2024
Country	Indonesia
Industry / Sector	Oil & Gas

Research Methodology	Quantitative
Research Methods	Secondary data analysis, SEM (Structural Equation Modeling)
Paper Type	Empirical
TBL Dimensions	Economic
Journal Source	WSEAS Transactions on Environment and Development
Value Creation	Yes
Keywords	Development; Economics; Energy Sector; Material Inventory Performance; Purchasing Performance; Sustainable Economic Levels; Upstream Oil And Gas Industry
Tier	Tier 3
Key Findings	<p>Fiscal term conditions directly influence procurement strategies and investment choices in the upstream oil and gas sector.</p> <p>Government fiscal policies act as economic stabilizers, shaping how purchasing performance contributes to sustainable economic outcomes.</p> <p>Strong purchasing performance positively influences sustainable economic levels in the energy sector by ensuring efficient procurement processes and cost control.</p> <p>Improving purchasing performance through cost efficiency positively impacts sustainable economic levels.</p> <p>Effective material inventory performance contributes to economic sustainability by reducing waste, optimizing storage, and ensuring timely availability of resources.</p> <p>Material inventory performance alone does not significantly improve sustainable economic levels, particularly in sectors where inventory is not a core raw material.</p> <p>Industries with inventory not used as a core raw material (e.g., service sector) may see limited financial benefit from inventory management improvements.</p> <p>Fiscal term conditions can strengthen the positive impact of purchasing and inventory performance on sustainable economic outcomes.</p> <p>Using fiscal policy levers enhances the effect of purchasing performance on sustainable economic outcomes.</p> <p>Fiscal terms function as an active factor in procurement-related investment decisions.</p> <p>Aligning procurement efficiency with inventory optimization creates a synergy that improves long-term economic stability in the sector.</p>
Sr	31
Authors Name	Almeida L.F.A.; De Souza M.C.; De Souza Ferreira J.C.

Article Title	BIDS IN THE MUNICIPALITY OF TEÓFILO OTONI/MG: MODALITIES AND THE EXISTENCE OF SUSTAINABILITY CRITERIA
Source Type	Journal Article
(Year)	2024
Country	Brazil
Industry / Sector	Public Procurement
Research Methodology	Qualitative
Research Methods	Exploratory and descriptive
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	Revista de Gestão Social e Ambiental (RGSA)
Value Creation	Yes
Keywords	Bidding; Bidding Modalities; Public Purchases; Sustainability; Sustainable Criteria
Tier	Tier 1

Key Findings

Most procurement in the municipality is awarded through the “pregão” (reverse auction) modality, which prioritises lowest price, limiting the integration of environmental or social sustainability criteria.

Sustainability criteria are rarely included in tender specifications; when present, they are generally restricted to environmental aspects such as waste management requirements or sustainable product certification.

Inclusion of sustainability clauses is inconsistent across procurement processes, reducing the municipality's ability to leverage purchasing power for broader social or economic goals.

Procurement officers have limited capacity and training to incorporate sustainability considerations into bid documents, resulting in continued reliance on traditional cost-based evaluation methods.

The lack of a formalised policy framework for sustainable procurement leads to fragmented and ad hoc inclusion of sustainability requirements in contracts.

Sustainable bidding is seen as a tool for national development by including socio-environmental and economic criteria in public procurement.

The National Guide to Sustainable Procurement provides a structured framework for embedding sustainability in tenders. Socio-environmental criteria in procurement processes promote environmental protection and responsible consumption.

Documentation requirements ensure supplier legal, fiscal, and labour compliance as part of sustainable procurement.

Many bids lack mandatory sustainability certifications (e.g., INMETRO, ANVISA, Noise Seal) where applicable.

Energy efficiency, waste reduction, or reverse logistics requirements are often absent in relevant procurement categories.

Limited application of the new bidding law (Law No. 14.133/2021) and sustainability standards in practice.

No dedicated procurement for family farming or other local socio-economic development priorities.

Sr	32
Authors Name	Amoako Sarpong F.; Kissi E.; Acheamfour V.K.; Abu I.M.; Eluerkeh K.
Article Title	Establishing the Economic Sustainability Criteria for Assessing Tenders in the Procurement of Building Works
Source Type	Journal Article
(Year)	2024
Country	Ghana
Industry / Sector	Infrastructure / Construction
Research Methodology	Qualitative

Research Methods	SLR, Expert Consultation
Paper Type	Empirical
TBL Dimensions	Economic
Journal Source	Journal of Engineering, Design, and Technology
Value Creation	Yes
Keywords	building works; economic; procurement; sustainable; tenders
Tier	Tier 1
Key Findings	<p>Effective management capabilities, including supplier relationships, workload management, innovation, and resource management skills, are critical for achieving economic sustainability in procurement.</p> <p>Positive relationships with suppliers and stakeholders enhance cost savings, quality, and timely project completion, supporting sustainable procurement adoption.</p> <p>Adequate competition in bidding processes drives value for money and added value, encouraging sustainable procurement.</p> <p>Competitive tendering should balance price with quality and performance to ensure sustainable outcomes.</p> <p>Transparent evaluation processes are essential to maintain trust and fairness in procurement.</p> <p>Tender evaluations for building works must consider contractors' financial capacity, including liquidity, profitability, and cash flow stability, to ensure project delivery without disruptions.</p> <p>Past performance in delivering projects within budget and on time is a key economic sustainability criterion in supplier selection.</p> <p>Price competitiveness must be balanced with long-term value, avoiding excessively low bids that could compromise quality or lead to cost overruns.</p> <p>Capacity for efficient resource utilisation and cost control is a determinant in awarding contracts, linking procurement decisions to economic efficiency.</p> <p>Supplier compliance with payment obligations to workers and subcontractors is assessed as part of contract award, ensuring fair economic practices within the supply chain.</p> <p>Incorporating functionality, flexibility, and resource requirement assessments ensures efficient resource use and occupant well-being.</p> <p>Applying life cycle costing enables evaluation of total project costs and long-term economic sustainability.</p> <p>Ensuring financial affordability and assessing bidders' annual turnovers help maintain contract viability and economic sustainability.</p> <p>Excessive contractor workload can hinder productivity and project delivery, affecting economic sustainability outcomes.</p>

Sr	33
Authors Name	Karttunen E.; Jääskeläinen A.; Malacina I.; Lintukangas K.; Kähkönen A.-K.; Vos F.G.S.
Article Title	Dynamic capabilities view on value creation in public procurement
Source Type	Journal Article
(Year)	2024
Country	Finland
Industry / Sector	Public Procurement
Research Methodology	Qualitative
Research Methods	Semi-structured Interviews, Document analysis
Paper Type	Empirical
TBL Dimensions	Social, Environmental
Journal Source	Journal of Public Procurement
Value Creation	Yes
Keywords	Dynamic capabilities; Public procurement; Public sector; Value
Tier	Tier 1

Key Findings

Market analysis is used to support well-functioning supplier markets, enabling competitive pricing and sustainable service delivery.

End-user involvement in procurement planning and feedback helps ensure solutions meet social needs and improve service outcomes.

Collaboration with enterprises and public institutions leverages expertise and innovation to achieve sustainability objectives.

Dividing large procurement projects into smaller ones enables SME participation, supporting local economic development.

Suppliers expressed concerns that dynamic purchasing systems increase competition, potentially disadvantaging smaller or less-resourced firms.

Including sustainability criteria in tenders, such as sustainable fish farming and energy savings, integrates environmental and economic benefits into supplier selection.

Engaging suppliers in co-development processes balances organisational needs with supplier offerings, fostering innovation and sustainability alignment.

Balancing innovation goals with cost constraints remains a challenge, requiring procurement teams to weigh short-term affordability against long-term sustainability outcomes.

Flexible contracting allows mid-project adjustments to better meet evolving environmental or social sustainability targets.

Feedback loops between contract management and market analysis refine supplier selection and performance requirements for improved sustainability outcomes.

Supplier development activities, including training and capacity building, help suppliers meet environmental and social performance standards.

Cross-functional procurement teams integrate life-cycle considerations into tendering, supporting long-term economic and environmental sustainability.

Limited attention to environmental and social sustainability persists in some innovation-focused procurement cases, creating tension with broader sustainability goals.

Tension exists between cost-effectiveness and inclusion of sustainability criteria, reflecting the trade-offs in procurement decision-making.

Sr	34
Authors Name	Cao X.; Sharmina M.; Cuéllar-Franca R.M.
Article Title	Sourcing cobalt in the Democratic Republic of the Congo for a responsible net-zero transition: Incentives, risks and stakeholders
Source Type	Journal Article
(Year)	2024
Country	Democratic Republic of the Congo (DRC)
Industry / Sector	Extractive

Research Methodology	Qualitative
Research Methods	SLR
Paper Type	Review
TBL Dimensions	Environmental, Social, Economic
Journal Source	Resources Policy
Value Creation	Yes
Keywords	Cobalt; Democratic Republic of the Congo; Electric vehicles; Incentives; Responsible sourcing; Supply chains
Tier	Tier 3
Key Findings	<p>OECD Due Diligence Guidance, International Council on Mining and Metals (ICMM) standards, and international legislation such as the Dodd-Frank Act Section 1502, EU Regulation 2017/821, and the United Nations Guiding Principles on Business and Human Rights (UNGPs) guide responsible sourcing practices.</p> <p>Multi-stakeholder initiatives (OECD, ICMM) promote collaborative approaches to sustainable mineral supply chains.</p> <p>Partnerships between artisanal and small-scale mining (ASM), large-scale mining (LSM), and downstream manufacturers integrate sustainability into mineral supply chains.</p> <p>Certification schemes and blockchain pilots improve traceability and transparency in cobalt sourcing.</p> <p>Formalisation of ASM through legal, financial, and technical support improves working conditions and market access.</p> <p>Use of blockchain and certification mechanisms balances supply chain efficiency with ethical sourcing objectives.</p> <p>Engaging downstream companies in funding, training, and capacity building supports sustainable sourcing practices.</p> <p>Lack of a broadly accepted definition of responsible sourcing creates inconsistency in implementation.</p> <p>Transparency challenges arise in complex and fragmented mineral supply chains.</p> <p>Difficulty influencing upstream suppliers in fragmented supply chains limits responsible sourcing progress.</p> <p>Political and regulatory barriers hinder formalising informal ASM operations.</p> <p>High costs are associated with implementing responsible sourcing frameworks and traceability systems.</p> <p>Voluntary nature of multi-stakeholder initiatives leads to inconsistent and uneven implementation.</p> <p>Downstream companies sometimes exclude ASM-sourced cobalt to avoid compliance costs, undermining social sustainability by reducing income opportunities in the Democratic Republic of Congo (DRC).</p>

Voluntary sustainability commitments may increase compliance and operational cost.

Sr	35
Authors Name	Zin Zawawi M.I.; Kulatunga U.; Thayaparan M.
Article Title	Malaysian experience with public-private partnership (PPP): Managing unsolicited proposal
Source Type	Journal Article
(Year)	2016
Country	Malaysia
Industry / Sector	Infrastructure / Construction
Research Methodology	Qualitative
Research Methods	Case study, Semi-structured
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	Built Environment Project and Asset Management

Value Creation	Yes
Keywords	Competition; Economic sustainability; Governance; Procurement; Public policy; Public sector organizations
Tier	Tier 1
Key Findings	<p>National socio-economic objectives such as Bumiputera empowerment embedded within PPP procurement. PPP decisions on unsolicited proposals are made outside normal public procurement regulations (via inter-agency committee and Cabinet).</p> <p>Lack of a clear, published mechanism for handling unsolicited PPP proposals, with no specific assessment criteria or procedures beyond general guideline steps.</p> <p>Governance and transparency challenges linked to confidentiality of unsolicited proposals; many are reported as not feasible or lopsided.</p> <p>Introduction of competitive tendering mechanisms (e.g., Swiss Challenge, Best and Final Offer) to improve value for money while accommodating empowerment objectives, but these are inconsistently applied and have faced operational failures (e.g., time-consuming, perceived as unfair, failed to attract bidders, original proposer advantage).</p> <p>Risks of corruption, reduced transparency, and loss of bargaining power in direct negotiations, enabling supra-profits for concession holders and creating long-term payment burdens.</p> <p>Lack of competitive procurement processes in some unsolicited proposals.</p> <p>Political and operational trade-offs between empowerment goals and procurement efficiency.</p>
Sr	36
Authors Name	Niu B.; Liu Y.; Chen L.; Ji P.
Article Title	Outsource to an OEM or an ODM? Profitability and Sustainability Analysis of a Fashion Supply Chain
Source Type	Journal Article
(Year)	2018
Country	Global / Multi-country
Industry / Sector	Fashion/Textile
Research Methodology	Quantitative
Research Methods	Mathematical modelling

Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Economic
Journal Source	Journal of Systems Science and Systems Engineering
Value Creation	Yes
Keywords	buy-back contract; fashion supply chain; Nash bargaining; Outsourcing
Tier	Tier 2
Key Findings	<p>Touching on drivers indirectly through buy-back contracts and bargaining power dynamics as mechanisms that influence environmental and economic sustainability.</p> <p>Negotiation between ODM and fashion brand in the ODM scenario partially mitigates the double marginalization effect, improving coordination, increasing total supply chain profits, and moving order quantity closer to the system optimum when the brand's bargaining power is high.</p> <p>Fashion brands with high bargaining power may accept a lower buy-back price to induce ODMs to take on more overstock risk, balancing profitability with shared risk; the buy-back price decreases as bargaining power increases, shifting more risk to the brand.</p> <p>Preference for OEM over ODM emerges when prioritizing environmental sustainability, as OEM avoids excess leftover goods.</p> <p>The ODM scenario performs worse environmentally due to larger order quantities, which lead to more leftovers.</p> <p>Profit-sharing heavily depends on the brand's bargaining power, creating integration challenges when power is uneven.</p> <p>Overstocking risk and leftover goods remain high under ODM when environmental priorities are secondary.</p> <p>Maximizing profit under ODM can conflict with environmental goals, as higher order quantities lead to more waste.</p> <p>High bargaining power encourages brands to focus on lowering costs and increasing profits in ODM, which can undermine sustainability.</p>
Sr	37
Authors Name	Kazancoglu, Ipek;Ozbiltekin-Pala, Melisa;Mangla, Sachin Kumar;Kumar, Ajay;Kazancoglu, Yigit
Article Title	Using emerging technologies to improve the sustainability and resilience of supply chains in a fuzzy environment in the context of COVID-19
Source Type	Journal Article
(Year)	2023
Country	Turkey

Industry / Sector	Automotive
Research Methodology	Mixed
Research Methods	Case study, DEMATEL
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	Annals of Operations Research
Value Creation	Yes
Keywords	Sustainable supply chain , Resilience , Emerging technologies , Artificial intelligence , Decision support system , Resilience , Emerging technologies , Sustainability , COVID-19 , Fuzzy , Supply chain , Supply chains
Tier	Tier 2
Key Findings	<p>Adoption of blockchain technology in procurement processes improves transparency in supplier selection and contracting, enhancing trust and supporting environmental and social sustainability objectives.</p> <p>Integration of IoT in supplier management enables real-time monitoring of environmental performance, helping buyers ensure compliance with sustainability requirements.</p> <p>Use of big data analytics in sourcing decisions supports cost efficiency and optimises supplier selection based on both economic and environmental performance indicators.</p> <p>Application of AI in purchasing and tender evaluation processes facilitates balanced decision-making by considering social, environmental, and economic criteria alongside price, especially under uncertainty such as COVID-19.</p> <p>Cost pressures in procurement decision-making create tension between minimising costs and meeting sustainability requirements, highlighting the need for tools that balance these objectives.</p> <p>Purchasing process planning and supply chain traceability are identified as persistent problematic areas, both before and during COVID-19, affecting sustainable procurement effectiveness.</p>
Sr	38
Authors Name	Khurshid, Aitzaz;Ahmed, Aqeel
Article Title	Turning suppliers into sustainable agents of the firm

Source Type	Journal Article
(Year)	2020
Country	Pakistan
Industry / Sector	Manufacturing
Research Methodology	Quantitative
Research Methods	Survey
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Paradigms
Value Creation	Yes
Keywords	Company , Pakistan , Sustainability , Supplier
Tier	Tier 1

Key Findings

Sharing high-quality, honest, and complete information with suppliers reduces deceptive buying behaviors such as favoritism or biased specifications, enabling more accurate environmental assessments and alignment with sustainability goals.

High-quality information sharing strengthens sustainable partnerships between buyers and suppliers by building trust and aligning objectives.

Supplier environmental assessment, when supported by accurate and transparent information from buyers, improves purchase performance and supports sustainability objectives. Environmental improvements achieved through collaborative supplier relationships can also generate economic benefits, demonstrating that tensions between environmental and economic goals can be mitigated.

Sr	39
Authors Name	Silva, Minelle E. ; Fritz, Morgane M.C. ; Seuring, Stefan ; Matos, Stelvia
Article Title	Guest editorial: The social sustainability of global supply chains – a critical perspective on current practices and its transformative potential.
Source Type	Journal Article
(Year)	2023
Country	Global / Multi-country
Industry / Sector	Multi-Sector

Research Methodology	Not explicit
Research Methods	Not explicit
Paper Type	Editorial
TBL Dimensions	Social
Journal Source	International Journal of Physical Distribution & Logistics Management
Value Creation	Yes
Keywords	Supply chains ; Supply chain management ; Transformative learning ; Social sustainability ; Critical currents ; Critical analysis
Tier	Tier 2

Key Findings

Social drivers such as inclusion policies and supplier development programs are noted as enablers of social sustainability in procurement, though their impact can be undermined by cost-centric priorities. Inclusive purchasing and supplier diversity programs are discussed, but the dominance of economic efficiency goals can limit their effectiveness. Private governance mechanisms in procurement, including supplier codes of conduct and social auditing, are often limited in their ability to deliver genuine social sustainability outcomes due to weak enforcement. Reliance on auditing and certification in supplier evaluation can lead to performative compliance, where suppliers meet minimum standards without addressing underlying social issues. Power imbalances in buyer–supplier relationships influence contract terms and sourcing practices, often prioritising cost over social sustainability, thereby constraining suppliers’ ability to improve labour conditions. Short-term contracting and price pressures in procurement undermine suppliers’ capacity to invest in long-term social sustainability improvements.

Sr	40
Authors Name	Ali Alhammadi a, Jeffrey Soar a, Talal Yusaf, Bashar Mahmood Ali d, Kumaran Kadirgama
Article Title	Redefining procurement paradigms: A critical review of buyer-supplier dynamics in the global petroleum and natural gas industry

Source Type	Journal Article
(Year)	2023
Country	Global / Multi-country
Industry / Sector	Oil & Gas
Research Methodology	Qualitative
Research Methods	SLR
Paper Type	Review
TBL Dimensions	Social, Economic
Journal Source	The Extractive Industries and Society
Value Creation	Yes
Keywords	Supplier relationship, Procurement, Supply chain, Oil and gas
Tier	Tier 3

Key Findings

Kraljic Portfolio Model is key for categorizing procurement strategies.

Supplier segmentation (Tier A vs. Tier B) enhances prioritization in procurement.

Mutual dependence in strategic and non-critical procurement fosters stronger buyer-supplier partnerships.

Supplier selection processes in the petroleum and natural gas industry increasingly incorporate sustainability metrics, including environmental performance and community impact, alongside cost and technical criteria.

Contracting strategies include clauses requiring compliance with environmental standards, local content policies, and social responsibility commitments.

Long-term supplier relationships are maintained to ensure supply chain stability, knowledge sharing, and alignment with sustainability goals.

Strategic sourcing decisions balance operational cost efficiency with the need to meet environmental regulations and social license to operate.

Supplier development programs are implemented to build capacity for meeting sustainability requirements, particularly in emerging market operations.

Procurement practices are adapted to regional contexts, reflecting differences in environmental regulations, labor standards, and local content requirements.

Sr	41
Authors Name	Ali Alhammadi, Talal Yusaf, Jeffrey Soar, Bashar Mahmood Ali, Kumaran Kadirgama, Belal F Yousif
Article Title	Revolutionizing procurement: Unveiling next-gen supplier strategies in UAE's oil & gas sector
Source Type (Year)	Journal Article 2024
Country	UAE
Industry / Sector	Oil & Gas
Research Methodology	Quantitative
Research Methods	Survey, literature review, and statistical analysis
Paper Type	Empirical
TBL Dimensions	Economic
Journal Source	The Extractive Industries and Society
Value Creation	Yes
Keywords	Procurement, Supplier relationships Oil and gas sector, Kraljic's portfolio model ADNOC (Case study)
Tier	Tier 3

Key Findings

Strategic partnerships for high-value procurement.
Centralized procurement for cost control and risk mitigation.
Use of the Kraljic Portfolio Model for procurement segmentation and supplier risk management.
Contingency planning for bottleneck items to mitigate supplier dominance risks.
Flexibility trade-offs in centralized procurement models.
Dominance of cost and efficiency goals over ESG considerations.
Supplier dominance in bottleneck items raises costs and reduces buyer bargaining power.
Adoption of digital procurement platforms for supplier selection, tendering, and contract management.
Supplier performance monitoring systems linked to sustainability standards.
Strategic sourcing with explicit prioritization of local suppliers to support economic and environmental outcomes.
Collaboration with suppliers on low-carbon solutions.
Use of data analytics to balance cost optimization with environmental targets.
Integration of sustainability KPIs into supplier contracts.
Supplier development programs, especially for SMEs, to meet sustainability compliance requirements.
E-procurement systems enabling paperless transactions to reduce environmental footprint.

Sr	42
Authors Name	David Chinalu Anaba, Azeez Jason Kess-Momoh, & Sodruddeen Abolore Ayodeji
Article Title	Sustainable Procurement in the Oil and Gas Industry: Challenges, Innovations, and Future Directions
Source Type	Journal Article
(Year)	2024
Country	Nigeria
Industry / Sector	Oil & Gas
Research Methodology	Qualitative
Research Methods	Case study , literature review
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic

Journal Source	International Journal of Management & Entrepreneurship Research
Value Creation	Yes
Keywords	Sustainable Procurement, Oil And Gas Industry, Challenges, Innovations, Future Directions.
Tier	Tier 3
Key Findings	<p>Supplier selection increasingly incorporates environmental compliance checks, including carbon footprint reduction measures and adherence to international environmental management standards.</p> <p>Local content requirements drive procurement strategies that prioritise sourcing from domestic suppliers to boost local economic development and create employment opportunities.</p> <p>Collaborative supplier development programs focus on improving environmental performance and safety standards in line with sustainability targets.</p> <p>Adopting multi-criteria supplier evaluation frameworks to balance cost, environmental, and social performance.</p> <p>Lifecycle cost analysis in procurement decisions helps balance upfront capital expenditure with long-term operational and environmental benefits, and incorporates circular economy principles.</p> <p>Leveraging collaborative partnerships for cost-sharing and innovation in sustainable technologies.</p> <p>Digital procurement platforms improve transparency in supplier evaluation and contract management, reducing corruption risks and enhancing accountability.</p> <p>Sustainability-linked contracting clauses require suppliers to meet specific social and environmental performance benchmarks as part of ongoing contract obligations.</p> <p>Balancing economic imperatives with long-term sustainability goals remains a central challenge.</p>
Sr	43
Authors Name	Swarupa Deshpande, Hiranmoy Roy, Tarun Dhingra Sumeet Gupta
Article Title	Sustainable procurement for improving project performance for oil and gas projects
Source Type	Journal Article
(Year)	2020
Country	India
Industry / Sector	Oil & Gas
Research Methodology	Quantitative

Research Methods	Survey
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	International Journal of Procurement Management
Value Creation	Yes
Keywords	project performance measure; sustainable procurement; contract award framework.
Tier	Tier 3

Key Findings

Fragmented and inconsistent procurement frameworks, lacking a unified legal standard, create barriers to effective supplier selection and contract management, limiting the integration of sustainability criteria into oil and gas project procurement.

Entrenched reliance on L1 in public procurement.

Replacing lowest-bid (L1) evaluation with multi-criteria decision-making models to balance cost with quality, safety, and environmental performance.

Inclusion of quality, safety, and environmental considerations as formal bid evaluation criteria in procurement processes.

Bid evaluation based solely on the lowest price does not justify value addition in terms of quality, safety, and environmental outcomes.

Supplier selection criteria include environmental compliance, safety records, and social responsibility performance.

Contracting strategies integrate sustainability clauses to enforce environmental standards and community benefits.

Sourcing decisions prioritize suppliers that combine cost-effectiveness with strong sustainability credentials.

Supplier management practices involve ongoing monitoring to ensure compliance with sustainability requirements.

Procurement processes in oil and gas projects incorporate environmental, social, and economic considerations to enhance overall project performance.

Sr	44
Authors Name	Ghadge, A., Kidd, E., Bhattacharjee, A., & Tiwari, M.K.
Article Title	Sustainable procurement performance of large enterprises across supply chain tiers and geographic regions

Source Type (Year)	Journal Article 2018
Country	Global / Multi-country
Industry / Sector	Multi-Sector
Research Methodology	Quantitative
Research Methods	Secondary data collection
Paper Type	Empirical
TBL Dimensions	Social, Economic
Journal Source	International Journal of Production Research
Value Creation	Yes
Keywords	Sustainable procurement, Supplier selection, Large enterprises, Regression analysis, Multi-tier supply chains, Dynamic capabilities view, Stakeholder theory
Tier	Tier 1
Key Findings	<p>Supplier selection criteria in large enterprises include environmental compliance, labor standards, and social responsibility requirements across multiple supply chain tiers. Procurement practices incorporate sustainability clauses into supplier contracts to enforce environmental and social standards.</p> <p>Supplier monitoring and audits are used to ensure ongoing compliance with sustainability objectives in sourcing and contract performance.</p> <p>Large enterprises prioritize sourcing from suppliers that combine cost efficiency with strong sustainability credentials, balancing economic and non-economic objectives.</p> <p>Sustainable procurement practices extend to second-tier suppliers, ensuring that sustainability requirements cascade through the supply chain.</p> <p>Regional differences affect sustainable procurement performance, with stronger implementation in regions with more stringent regulations and enforcement.</p>
Sr	45
Authors Name	Athanasios Rentizelas, Ana Beatriz Lopes de Sousa Jabbour, Ahmed Darwish Al Balushi, Andrea Tuni

Article Title	Social sustainability in the oil and gas industry: institutional pressure and the management of sustainable supply chains
Source Type	Journal Article
(Year)	2020
Country	Oman
Industry / Sector	Oil & Gas
Research Methodology	Mixed
Research Methods	Surveys and Interviews
Paper Type	Empirical
TBL Dimensions	Social
Journal Source	Annals of Operations Research (Ann Oper Res)
Value Creation	Yes
Keywords	Sustainable operations · Supply chain · Sustainability · Social responsibility · Coercive pressure · Government
Tier	Tier 3

Key Findings

Supplier selection and management in oil and gas projects is strongly shaped by institutional and regulatory pressures, requiring procurement teams to embed social sustainability considerations such as human rights, labour standards, health and safety, and community engagement into contracts. Procurement policies and codes of conduct explicitly require suppliers to comply with fair labour practices, safety regulations, and social responsibility standards, with monitoring mechanisms (KPIs, audits, Joint Supplier Registration System (JSRS) registration) used to verify compliance.

Tendering processes incorporate pre-qualification checks on suppliers' sustainability performance, ensuring only compliant vendors advance to bidding.

Supplier evaluation criteria extend beyond cost and quality to include environmental compliance, ICV (In-Country Value) requirements, and social responsibility indicators, with ICV weighted at up to 10% in evaluations.

Procurement teams maintain long-term supplier relationships to ensure continuous adherence to sustainability requirements and reduce risks of non-compliance.

Brand reputation and external stakeholder perceptions act as strong drivers for embedding sustainability into supplier selection and management.

Cost savings are also seen as a motivation for adopting sustainable procurement practices, though price volatility and competitive pricing pressures frequently overshadow sustainability priorities.

Local supplier participation is hindered by limited skills, lack of competitive pricing, and the additional costs of meeting ICV requirements, creating dependency on procurement teams to provide capacity development and resources.

Some suppliers resist ICV compliance, and many only meet the minimum sustainability criteria to qualify for contracts, rather than exceeding them.

Procurement oversight mechanisms track sustainability through HES and ICV-linked KPIs, but a "ceiling effect" constrains the full integration of sustainability principles into procurement practices.

Internally initiated sustainability actions are rarely the main driver of procurement; rather, regulations, external pressures, and stakeholder expectations dominate.

Sr

46

Authors Name

Nnennaya J. Nwali, Ibiere H. Jumbo

Article Title

Renegotiating for Sustainability: Aligning Nigerian Petroleum Contracts with Environmental Goals & Investor Interests

**Source Type
(Year)**

Journal Article
2025

Country

Nigeria

Industry / Sector	Oil & Gas
Research Methodology	Qualitative
Research Methods	Comparative legal analysis, case studies, policy analysis.
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Economic
Journal Source	The Journal of Sustainable Development Law and Policy
Value Creation	Yes
Keywords	Petroleum Contracts, Sustainability, Renegotiation, Stabilisation.
Tier	Tier 3
Key Findings	<p>Local content provisions in petroleum contracts require the use of domestic suppliers, creating economic opportunities and fostering community development.</p> <p>Petroleum agreements include clauses for workforce training and supplier capacity development, supporting long-term socio-economic benefits.</p> <p>Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) obligations, along with emission reduction and remediation duties, are written into petroleum contracts to strengthen environmental management across the project lifecycle.</p> <p>Contract terms require sourcing from suppliers that meet defined environmental compliance standards.</p> <p>Environmental criteria are included in contractor evaluation and selection processes for upstream petroleum operations.</p> <p>Government enforcement and oversight (e.g., NUPRC) drive the inclusion and enforcement of environmental standards in petroleum contracts and renegotiations.</p> <p>Transparency and accountability measures (open contracting, public disclosure, and Civil Society Organisation scrutiny) encourage environmental and social protections to be embedded and observed.</p> <p>Stakeholder engagement across government, IOCs, local communities, and civil society supports equitable and sustainable renegotiation outcomes.</p> <p>Contractual flexibility tools, such as renegotiation clauses, economic equilibrium clauses, and periodic review clauses, are used to adjust terms for changing environmental and economic conditions without compromising project viability.</p> <p>Community participation mechanisms (Host Communities Development Trusts, Impact Benefit Agreements, Community Development Agreements) ensure host communities benefit from oil revenues and have a voice in managing environmental risks.</p> <p>Penalties for non-compliance (fines, suspension, license revocation) are embedded in contracts to ensure operators</p>

take environmental obligations seriously. Empowering regulatory bodies (e.g., NUPRC, NMDRA) strengthens their capacity to enforce environmental rules and monitor compliance. Stabilisation clauses in petroleum contracts can hinder environmental sustainability by blocking the implementation of new climate-mitigation laws and prompting investor claims, making them a “double-edged sword” that protects investment but may slow progress toward sustainability goals.

Sr	47
Authors Name	Rand Derar Alathamneh; Joao Garrott Marques Negreiros
Article Title	Ethical Dilemmas in Oil & Gas Procurement: A Systematic Literature Review
Source Type	Journal Article
(Year)	2025
Country	UAE
Industry / Sector	Oil & Gas
Research Methodology	Qualitative
Research Methods	Systematic literature review
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic

Journal Source	Open Journal of Business and Management
Value Creation	Yes
Keywords	Procurement Ethics, Oil & Gas, Bribery and Corruption, Fraud Prevention, Value Based Management, SOX, E-Procurement, AI, Blockchain, IoT
Tier	Tier 3
Key Findings	<p>Supplier selection in oil and gas procurement includes ethical conduct, environmental compliance, and social responsibility alongside cost and technical criteria.</p> <p>Contracting processes incorporate anti-corruption clauses, local content requirements, and sustainability obligations to address ethical and social risks.</p> <p>Supplier relationship management includes monitoring and audits to ensure compliance with ethical, environmental, and social standards.</p> <p>Sourcing strategies are adapted to manage ethical risks in high-risk regions, including enhanced due diligence and supplier vetting.</p> <p>Procurement policies integrate transparency measures to prevent bribery, fraud, and other unethical practices in supplier engagement.</p> <p>Procurement in the oil and gas sector is frequently exposed to bribery, facilitation payments, and conflicts of interest, undermining transparency and accountability.</p> <p>Supplier selection processes are sometimes influenced by personal relationships, political connections, or undue influence rather than objective evaluation criteria, creating risks for fairness and sustainability outcomes.</p> <p>Contracting practices may fail to enforce anti-corruption clauses or ethical conduct provisions, weakening governance and enabling unethical behavior in supply chains.</p> <p>Local content policies can lead to both positive socio-economic benefits and ethical challenges, such as nepotism, favoritism, or inflated pricing in sourcing decisions.</p> <p>Weak supplier monitoring systems allow non-compliance with ethical, social, or environmental obligations to go undetected, reducing the effectiveness of sustainable procurement goals.</p> <p>Lack of whistleblower protection mechanisms discourages reporting of unethical procurement practices, allowing misconduct to persist.</p> <p>Ethical frameworks and compliance mechanisms are applied to guide procurement decisions and enforce accountability.</p> <p>Ethical awareness, transparency, and accountability are embedded in procurement activities to mitigate ethical risks.</p> <p>Value-based management and strict compliance guide supplier engagement and contracting in line with sustainability goals.</p> <p>Balancing profitability with environmental and social responsibility is a key consideration in procurement decision-making.</p>

Corruption risks in high-value contracts remain a major challenge in ensuring sustainable procurement outcomes.

Sr	48
Authors Name	Mehmood Khan., Mian M. Ajmal., Abdullah Al-Yafei
Article Title	The Impact of Internal and External Factors on Sustainable 1 Procurement: A Case Study of Oil and Gas Companies
Source Type	Journal Article
(Year)	2019
Country	UAE
Industry / Sector	Oil & Gas
Research Methodology	Quantitative
Research Methods	Questionnaire,
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic

Journal Source	International Journal of Procurement Management
Value Creation	Yes
Keywords	Internal factors, External factors, Sustainable Procurement, Oil and gas industry
Tier	Tier 3
Key Findings	<p>Procurement leadership and change management are critical for driving adoption of sustainability objectives within sourcing and contracting processes.</p> <p>Procurement policies and procedures are shaped by government regulations and policies to ensure compliance with sustainability requirements.</p> <p>Supplier selection and contracting decisions are influenced by social pressures and community expectations to deliver positive local and social outcomes.</p> <p>Supplier selection processes incorporate environmental, social, and economic criteria alongside technical requirements to ensure sustainability compliance.</p> <p>Sourcing strategies include measures to manage and mitigate environmental impacts in line with sustainability goals.</p> <p>Sourcing strategies consider both local supplier development and environmental protection, balancing social benefits with ecological responsibilities.</p> <p>Reputation management and competitive advantage are considered in procurement strategies to enhance brand image through sustainable sourcing.</p> <p>Sustainability objectives are integrated into procurement decision-making, influencing evaluation criteria and supplier award processes.</p> <p>Tendering processes are adapted to include sustainability criteria, moving beyond lowest-cost selection toward value-based evaluation.</p> <p>Strategic supplier partnerships are developed to jointly deliver sustainability outcomes across the supply chain.</p> <p>Procurement teams use long-term supplier relationships to encourage investment in sustainable practices and capacity-building.</p> <p>Lifecycle costing and cost-benefit analysis are applied in procurement to evaluate long-term performance, capturing total environmental and social costs over the contract's life.</p> <p>Skills gaps in sustainable procurement practices within procurement teams can limit the effectiveness of sustainability integration.</p> <p>Monitoring and reporting mechanisms within supplier management face challenges in measuring environmental and social performance outcomes.</p> <p>Supplier audits and evaluations are conducted to track compliance with sustainability requirements, with underperforming suppliers given capacity-building support.</p> <p>Contract management includes clauses requiring suppliers to meet environmental and social performance standards, with</p>

monitoring to ensure compliance.
Procurement decisions require balancing short-term cost pressures with the achievement of long-term sustainability goals.
Lowest-cost supplier selection practices can undermine procurement's ability to achieve environmental and social performance objectives.

Sr	49
Authors Name	Ekiugbo, I., Papanagnou, C.,
Article Title	The Role of the Procurement Function in Realising Sustainable Development Goals: An Empirical Study of an Emerging Economy's Oil & Gas Sector
Source Type	Journal Article
(Year)	2017
Country	Nigeria
Industry / Sector	Oil & Gas
Research Methodology	Quantitative
Research Methods	Questionnaire
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic

Journal Source	European Journal of Sustainable Development
Value Creation	Yes
Keywords	Sustainable development, corporate sustainability, sustainable procurement, Oil & Gas, firm performance, Nigeria, developing countries.
Tier	Tier 3
Key Findings	<p>Procurement policies are shaped by government regulations, policy frameworks, and ethical principles to ensure compliance with environmental, social, and economic requirements.</p> <p>Procurement strategies integrate community expectations and corporate social responsibility commitments into supplier selection and contracting.</p> <p>Sourcing and contracting decisions are influenced by pressure from international partners and investors to meet sustainability standards.</p> <p>Evidence from the sector shows improved business performance when sustainable procurement practices are implemented.</p> <p>Procurement teams consider industry competition and reputation management as drivers for adopting sustainable sourcing and contracting.</p> <p>Supplier development programs are implemented to improve supplier sustainability performance and meet procurement requirements.</p> <p>Long-term contracts include sustainability clauses to embed environmental and social obligations into procurement agreements.</p> <p>Procurement decision-making involves balancing short-term cost considerations with long-term environmental and social benefits.</p> <p>Procurement KPIs are aligned with environmental and social outcomes to measure sustainable performance.</p> <p>Supplier selection processes consider environmental compliance, ethical conduct, and value for money alongside technical and cost criteria.</p> <p>Contracting practices include provisions for anti-corruption, transparency, and adherence to environmental and social obligations.</p> <p>Supplier relationship management emphasises regular monitoring, audits, and capacity building to improve compliance with sustainability and ethical standards.</p> <p>Sourcing strategies aim to balance short-term cost efficiency with long-term environmental protection and social responsibility objectives.</p> <p>Procurement teams adapt processes to meet international sustainability standards, including compliance with frameworks such as ISO 20400.</p> <p>Technology adoption in procurement is leveraged to improve process efficiency, transparency, and sustainability tracking.</p> <p>Difficulty in quantifying environmental and social benefits in</p>

financial terms affects procurement evaluation processes. Resistance from suppliers and internal stakeholders prioritising lowest cost creates challenges for sustainable procurement implementation. Limited availability of industry-specific sustainability benchmarks in Nigeria constrains procurement standard-setting. Lowest-cost supplier selection practices often conflict with achieving environmental and social performance targets in procurement.

Sr	50
Authors Name	Victor Ibukun Adebayo, Patience Okpeke Paul, Nsisong Louis Eyo-Udo
Article Title	Sustainable procurement practices: Balancing compliance, ethics, and costeffectiveness
Source Type	Journal Article
(Year)	2024
Country	Unspecified
Industry / Sector	Cross-sector
Research Methodology	Qualitative
Research Methods	Desk Based literature review
Paper Type	Conceptual / Analytical
TBL Dimensions	Environmental, Social, Economic

Journal Source	GSC Advanced Research and Reviews
Value Creation	Yes
Keywords	Sustainable procurement; Compliance; Ethics; Cost-Effectiveness; Supply chain management
Tier	Tier 1
Key Findings	<p>Procurement processes are adapted to meet varying regional regulations and cultural contexts while maintaining sustainability and ethical objectives.</p> <p>Stakeholder expectations and pressure.</p> <p>Competitive advantage through reputation.</p> <p>Cost savings and operational efficiency.</p> <p>Supplier engagement and capacity-building.</p> <p>Leveraging technology for process optimization.</p> <p>Clear sustainability criteria in tendering and supplier evaluation.</p> <p>Difficulty in measuring sustainability impacts.</p> <p>Trade-offs between short-term costs and long-term benefits.</p> <p>Limited alignment between sustainability goals and procurement KPIs.</p> <p>Sustainable products/services may have higher upfront costs, creating tension with cost-saving objectives.</p> <p>Supplier selection processes incorporate compliance with a multi-dimensional sustainability guideline, ethical standards, and cost-effectiveness criteria.</p> <p>Contracting strategies include clauses on anti-corruption, ethical conduct, and environmental obligations to ensure sustainable outcomes.</p> <p>Procurement policies require due diligence and supplier vetting to mitigate risks of unethical behavior and non-compliance with sustainability standards.</p> <p>Supplier relationship management involves regular monitoring and audits to ensure adherence to environmental, social, and ethical requirements.</p> <p>Sourcing decisions are influenced by the need to balance cost efficiency with sustainability and ethical compliance.</p>
Sr	51
Authors Name	Vijayakumar Umasekar
Article Title	Sustainable Lean Procurement and Contract Management in Oil and Gas Industry
Source Type	Journal Article
(Year)	2024
Country	Middle East
Industry / Sector	Oil & Gas
Research Methodology	Quantitative + Qualitative

Research Methods	Case study, survey, interviews, secondary data analysis
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
Value Creation	Yes
Keywords	Contract Management, Industry, Procurement, Sustainable Lean
Tier	Tier 3

Key Findings

Procurement leadership commitment is essential for embedding sustainability and efficiency objectives in sourcing, contracting, and tendering processes. Procurement policies and procedures ensure compliance with regulatory requirements, industry sustainability standards, and ethical conduct.

Competitive advantage is achieved through cost savings, lean procurement practices, and process improvements that reduce waste and minimise environmental impact.

Supplier selection, contracting, and evaluation processes integrate environmental, social, and economic considerations alongside technical and cost criteria.

Contract management includes clauses that require supplier compliance with sustainability standards, covering safety, ethics, and environmental protection.

Supplier evaluation frameworks are used to monitor and measure sustainability performance throughout the contract lifecycle.

Long-term supplier relationships are developed to build capacity and support continuous improvement in meeting sustainability requirements.

Lifecycle costing is applied in procurement decisions as an alternative to lowest-bid selection, ensuring environmental and social costs are considered alongside economic value.

Collaboration between procurement teams and suppliers is used to co-develop sustainable solutions that address both operational efficiency and sustainability goals.

Procurement process optimisation focuses on reducing both costs and environmental impacts.

Procurement decision-making faces tension between short-term cost pressures and the achievement of sustainability objectives.

Measuring sustainability outcomes in procurement remains a challenge, limiting effective performance evaluation.

Procurement KPIs and sustainability metrics can be misaligned with financial performance measures.

An overemphasis on immediate cost reduction in supplier selection can undermine environmental and social performance objectives.

Sr	52
Authors Name	Luciana Salvatore, Antônio Márcio Tavares Thomé., Adriana Leiras
Article Title	Strategic Guidelines for sustainable procurement of infrastructure capital projects in the oil and gas industry
Source Type	Journal Article
(Year)	2023
Country	Brazil
Industry / Sector	Oil & Gas
Research Methodology	Mixed
Research Methods	Case study, Interviews, Systematic Literature Review
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	Pontifical Catholic University of Rio de Janeiro, Industrial Engineering Department
Value Creation	Yes
Keywords	Sustainable procurement, Decarbonisation, Infrastructure projects
Tier	Tier 3

Key Findings

Procurement planning and execution for infrastructure capital projects integrates sustainability requirements, including environmental protection, local community benefits, and economic value delivery.

Supplier selection processes evaluate sustainability capabilities such as environmental management systems, community engagement performance, ethical business practices, and the ability to meet both cost and sustainability performance commitments.

Procurement tender documentation incorporates environmental requirements while ensuring cost competitiveness and compliance with established procurement regulations.

Tendering processes require bidders to demonstrate life-cycle cost benefits, resource efficiency, and positive socio-economic impact alongside price competitiveness.

Life-cycle cost analysis is applied in procurement decisions to support the selection of sustainable options with long-term value.

Contracting strategies embed sustainability clauses to ensure supplier compliance with environmental standards, safety requirements, and local content policies.

Supplier development initiatives are implemented to improve local supplier capabilities in meeting sustainability requirements.

Procurement decision-making balances short-term project budgets with long-term sustainability objectives, including asset lifecycle performance and reduced environmental footprint.

Award decisions face tensions between lowest-cost bidding and selecting suppliers capable of delivering sustainability outcomes.

Short-term cost pressures can discourage the adoption of sustainable solutions with higher upfront costs.

Monitoring and performance management frameworks track supplier compliance with contractual sustainability obligations and key performance indicators.

Sr	53
Authors Name	Mohammed Hasan AlHashmi, Mehmood M. Khan, Mian M. Ajmal
Article Title	Implementing Sustainable Procurement Strategy in the Oil and Gas Sector: Analytic Hierarchy Process Approach
Source Type	Journal Article
(Year)	2021
Country	UAE
Industry / Sector	Oil & Gas
Research Methodology	Quantitative

Research Methods	Survey, Analytical model
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	International Journal of Service Science, Management, Engineering, and Technology
Value Creation	Yes
Keywords	Analytical Hierarchy Process (AHP), External Factors, Innovation Capabilities, Internal Factors, Oil and Gas Industry, Sustainable Procurement
Tier	Tier 3
Key Findings	<p>Procurement in the oil and gas sector integrates environmental, social, and economic criteria into supplier selection, moving beyond cost-only evaluation. Supplier evaluation includes health, safety, and environmental performance, local content delivery, ethical practices, and technical and financial capacity. Life-cycle costing is applied to assess total costs, including environmental and social impacts, prioritising long-term operational efficiency and asset performance over short-term savings.</p> <p>Procurement processes prioritise contractors who can meet both cost efficiency and sustainability targets, ensuring alignment with long-term organisational objectives. Procurement strategies are guided by regulatory frameworks to ensure compliance with environmental, social, and economic requirements.</p> <p>Corporate sustainability commitments shape sourcing and contracting decisions to align with organisational sustainability goals. Stakeholder expectations, including those of investors and communities, influence supplier selection and contract award decisions.</p> <p>The Analytic Hierarchy Process (AHP) is used to evaluate and balance trade-offs between cost, environmental, and social factors in procurement decisions. Sustainability clauses are embedded in procurement contracts to ensure supplier compliance with environmental and social performance standards.</p> <p>Supplier engagement and relationship management programs build capacity for meeting sustainability requirements, including environmental stewardship and social responsibility.</p> <p>Targeted development initiatives address supplier capability gaps in meeting environmental and social requirements. Performance monitoring frameworks track supplier compliance with contractual sustainability obligations and key performance indicators across the contract lifecycle. Training and upskilling initiatives for procurement</p>

professionals strengthen sustainability assessment and integration into decision-making. Environmental protection priorities are embedded in tender requirements and supplier evaluation criteria. Short-term cost pressures can conflict with sustainability goals, particularly when lowest-bid selection undermines environmental or social performance standards. Limited availability of supplier sustainability data hinders accurate evaluation and informed procurement decisions. Internal organisational resistance can slow the adoption of sustainability-focused procurement strategies. Overreliance on lowest initial cost can result in supplier choices with higher long-term environmental or social costs.

Sr	54
Authors Name	Adindu Donatus Ogbu., Nsisong Louis Eyo-Udo., Mojisola Abimbola Adeyinka., Williams Ozowe
Article Title	A conceptual procurement model for sustainability and climate change mitigation in the oil, gas, and energy sectors
Source Type	Journal Article
(Year)	2023
Country	Global / Multi-country
Industry / Sector	Oil & Gas
Research Methodology	Quantitative
Research Methods	Case study
Paper Type	Empirical
TBL Dimensions	Environmental, Economic

Journal Source	World Journal of Advanced Research and Reviews
Value Creation	Yes
Keywords	Sustainable procurement; Climate change mitigation; Oil and gas industry; Energy sector; Conceptual model; Lifecycle analysis; Circular economy; Environmental impact assessment
Tier	Tier 3
Key Findings	<p>Procurement strategies integrate sustainability and climate change mitigation objectives, aligning supplier selection, contracting, and sourcing with environmental, social, and economic goals.</p> <p>Sustainable procurement decisions emphasise long-term cost savings alongside environmental and social value delivery. Adopting sustainability-focused sourcing enhances brand reputation and strengthens market competitiveness.</p> <p>Supplier selection and contracting integrate risk management measures, including GHG emissions reduction, renewable energy adoption, adherence to environmental regulations, and ethical operational practices.</p> <p>Procurement processes encourage technological innovation by sourcing low-carbon and resource-efficient solutions. Lifecycle analysis and lifecycle costing are applied to assess total costs, including environmental and social impacts, and to select options with the lowest overall impact over their lifespan.</p> <p>Contracts include sustainability clauses to ensure suppliers meet defined environmental, social, and ethical performance standards.</p> <p>Supplier engagement, development, and capacity-building programmes are used to improve compliance with sustainability and climate-related requirements.</p> <p>Procurement specifications prioritise resource optimisation measures, including energy efficiency, water conservation, and waste reduction, and promote the use of recycled and renewable materials in project delivery.</p> <p>Long-term supplier partnerships are leveraged to promote innovation in low-carbon technologies and sustainability practices.</p> <p>Monitoring frameworks track supplier performance against contractual sustainability and climate change mitigation obligations.</p> <p>Supplier evaluation frameworks assess alignment with organisational sustainability objectives and compliance with set requirements.</p> <p>High upfront investment costs, short-term cost pressures, and budget constraints can challenge the adoption of sustainable procurement options.</p> <p>Data limitations, particularly for lifecycle and environmental performance, can restrict evidence-based supplier selection. Embedding sustainability in procurement often requires cultural change within the buying organisation.</p>

Limited market availability of sustainable alternatives in certain categories can constrain procurement decisions. Some suppliers perceive sustainability requirements as adding operational costs, potentially affecting bidding behaviour.

Procurement teams face challenges in balancing strict sustainability criteria with economic competitiveness during supplier selection.

Sr	55
Authors Name	Bendul, JC; Rosca, E; Pivovarova, D
Article Title	Sustainable supply chain models for base of the pyramid
Source Type	Journal Article
(Year)	2017
Country	Global / Multi-country
Industry / Sector	Cross-sector
Research Methodology	Qualitative
Research Methods	Systematic literature review, Content analysis
Paper Type	Conceptual / analytical
TBL Dimensions	Environmental, Social, Economic
Journal Source	Journal of Cleaner Production

Value Creation	Yes
Keywords	Sustainability; Supply chain management; Social responsibility; Supply chain operations; Base of the pyramid; BOP; Developing countries
Tier	Tier 1
Key Findings	<p>Inclusive business growth through integration of low-income actors into supply chain roles (co-designers, suppliers, service providers).</p> <p>Integrating local suppliers from BoP communities into formal supply chains creates economic opportunities and enhances social inclusion.</p> <p>Local sourcing and outsourcing production/assembly to local suppliers to reduce costs and create jobs.</p> <p>Long-term sourcing relationships with BoP suppliers support stable income generation while reducing transaction costs for buyers.</p> <p>Supplier training and capacity-building for quality and sustainability standards enable BoP suppliers to meet formal procurement requirements.</p> <p>Collaborative procurement arrangements with NGOs and social enterprises help ensure environmental compliance and fair labour standards in BoP supplier operations.</p> <p>Inclusive procurement strategies that adapt specifications and order sizes to local supplier capabilities strengthen participation without compromising sustainability objectives.</p>
Sr	56
Authors Name	Li H.; Su L.; L.V L.; Xia Q.
Article Title	Detecting unbalanced bidding to achieve economic sustainability using fuzzy logic approach
Source Type	Journal Article
(Year)	2021
Country	Unspecified
Industry / Sector	Infrastructure / Construction
Research Methodology	Quantitative
Research Methods	Secondary data analysis
Paper Type	Conceptual / Analytical
TBL Dimensions	Economic
Journal Source	Engineering, Construction and Architectural Management
Value Creation	Yes

Keywords	Economic sustainability; Fuzzy comprehensive evaluation; Identification of unbalanced bidding; Procurement; Project management
Tier	Tier 1
Key Findings	<p>Motivations for adopting rigorous bid evaluation include ensuring appropriate use of public funds, encouraging responsible resource use, and maintaining fair contractor pricing.</p> <p>The fuzzy logic model successfully identifies unbalanced bidding practices in tender evaluations, allowing procurement teams to safeguard project budgets and ensure fair competition.</p> <p>Detection of unbalanced bids supports economic sustainability by reducing the risk of cost overruns and financial instability in awarded contracts.</p> <p>Applying bid evaluation methods that incorporate both item-level pricing analysis and bidder behaviour patterns strengthens transparency and accountability in the tendering process.</p> <p>No environmental or social sustainability elements were integrated into the bid evaluation process.</p>
Sr	57
Authors Name	Gómez-Ramos A.; Rico Gonzalez M.
Article Title	The contribution of green public food procurement to sustainability: evidence from two case studies in Spain
Source Type	Journal Article
(Year)	2023
Country	Spain
Industry / Sector	Public Procurement
Research Methodology	Qualitative
Research Methods	Case Study
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	International Journal of Sustainable Development & World Ecology
Value Creation	Yes
Keywords	Delphi method; food system; Green public procurements; key performance indicators; school canteen; sustainability
Tier	Tier 1

Key Findings

Short marketing circuits as part of procurement design, supporting local economic development, food sovereignty, and environmental sustainability.

Food sovereignty through procurement-linked diversification of production, strengthening local economies, and creating rural jobs.

Territorial cohesion supported by regional sourcing in procurement, reinforcing local identity and economic resilience.

Social capital fostered through procurement-enabled networks, cooperatives, and alliances (e.g., dining councils).

Use of political prices (public subsidies) in procurement to keep meal costs competitive while meeting sustainability objectives.

Procurement specifications requiring organic and seasonal products, promoting environmentally sustainable agricultural practices.

Local sourcing prioritised in procurement contracts to support regional economies and reduce transportation distances.

Tendering processes incorporating social criteria (fair labour conditions, inclusion of small local producers).

Framework agreements allowing supplier flexibility to accommodate seasonal variations while aligning with environmental and economic objectives.

Contract management including supplier monitoring for compliance with environmental and social criteria.

Limited renewable energy use in procurement-linked food production.

Lack of complete circular economy practices, such as full reuse of organic waste.

Sourcing constraints limiting ability to fully meet local sourcing targets in some regions.

Price-competitive approaches in some cases leading to sourcing outside the region, weakening territorial cohesion and food sovereignty.

Price competition in broader markets reducing profitability for local producers and limiting reinvestment in sustainable practices.

Sr	58
Authors Name	Nicolás C.S.R.
Article Title	Suppliers selection in a public institution: A sustainable and hierarchical approach; [Selección de proveedores en una institución pública: Un enfoque sostenible y jerárquico]
Source Type	Journal Article
(Year)	2023
Country	Peru
Industry / Sector	Public Procurement
Research Methodology	Quantitative

Research Methods	Analytical, Case study
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	Revista Venezolana de Gerencia
Value Creation	Yes
Keywords	AHP approach; economic sustainability; environmental sustainability; environmental sustainability; Supply chain
Tier	Tier 1

Key Findings

Procurement decisions integrated economic, social, and environmental criteria, balancing cost efficiency with sustainability objectives.

Greater weight was assigned to environmental factors, including waste reduction, energy efficiency, and sustainable resource management, in supplier evaluations.

Public buyers prioritised suppliers that actively eliminate child labour within their supply chains, aligning with municipal social priorities.

Economic considerations emphasised sourcing products with a long service life and low maintenance costs to optimise total ownership value.

Suppliers were favoured when they demonstrated sustainable practices across production, delivery, and waste/resource management.

Supplier solutions designed for durability and minimal maintenance were preferred to reduce long-term procurement costs.

Evaluation factors included price competitiveness, quality assurance, delivery capacity, environmental compliance, and social responsibility indicators.

Suppliers were expected to meet sustainability requirements comprehensively across environmental, social, and economic dimensions.

Limited differentiation between some environmental criteria complicated procurement prioritisation.

Selection outcomes were influenced by a limited and potentially non-representative sample, with possible evaluator subjectivity.

Sr	59
Authors Name	Kara K.; Acar A.Z.; Polat M.; Önden İ.; Cihan Yalçın G.
Article Title	Developing a hybrid methodology for green-based supplier selection: Application in the automotive industry

Source Type	Journal Article
(Year)	2024
Country	Unspecified
Industry / Sector	Automotive
Research Methodology	Quantitative
Research Methods	Analytical model, Case study
Paper Type	Empirical
TBL Dimensions	Environmental, Economic
Journal Source	Expert Systems with Applications: An International Journal
Value Creation	Yes
Keywords	Dempster-Shafer Theory; Evidential F-MCDM; Green Performance; Green Supplier Selection; Multiple Regression Analysis; Sustainable Sourcing
Tier	Tier 1

Key Findings

Supplier selection required strict compliance with environmental regulations as a baseline criterion. Procurement teams integrated sustainability into supplier evaluation, using it as a competitive advantage in decision-making.

Environmental performance factors such as waste reduction, emission control, and eco-friendly material usage were explicitly weighted in supplier assessments. Cost efficiency and delivery reliability were assessed alongside green performance, balancing environmental sustainability with economic competitiveness.

A hierarchical evaluation structure ensured suppliers with strong environmental compliance were prioritised without neglecting quality and cost criteria. The hybrid framework enabled procurement teams to systematically integrate sustainability metrics into sourcing and contracting processes, reducing subjectivity in green supplier selection.

Environmentally superior suppliers were identified, but their higher costs compared to conventional options posed challenges in procurement decisions.

Sr	65
Authors Name	Rath B.P.; Das B.; Panigrahi J.K.

Article Title	Sustainability impact assessment of developmental programmes undertaken by mining industries as part of the corporate social responsibility for value creation
Source Type	Journal Article
(Year)	2018
Country	India
Industry / Sector	Extractive
Research Methodology	Qualitative
Research Methods	Case study
Paper Type	Empirical
TBL Dimensions	Environmental, Social, Economic
Journal Source	International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)
Value Creation	Yes
Keywords	Global reporting initiatives; Mining industry; Sustainable development & community development
Tier	Tier 3

Key Findings	<p>Socioeconomic development of the local community.</p> <p>Alignment with Global Reporting Initiatives (GRI).</p> <p>Gender equality and women's empowerment as sustainability priorities.</p> <p>Need for measurable and transparent sustainability outcomes.</p> <p>Necessity for fairness and transparency in benefit distribution.</p>
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Sr	61
Authors Name	Shell
Article Title	Sustainability Report Shell
Source Type	Grey Literature
(Year)	2023
Country	Global / Multi-country
Industry / Sector	Oil & Gas
Research Methodology	

Research Methods	Grey literature/document analysis
Paper Type	
TBL Dimensions	Environmental, Social, Economic
Journal Source	
Value Creation	Yes
Keywords	#N/A
Tier	Tier 3
Key Findings	<p>Collaboration with suppliers as a core enabler of Shell's "Powering Progress" strategy and net zero ambition.</p> <p>Contractual requirements through Shell Supplier Principles, covering environmental compliance, resource efficiency, and waste/emissions minimisation.</p> <p>Local content sourcing to promote socio-economic benefits in host countries.</p> <p>Governance and ethics standards, including anti-bribery and anti-corruption measures for suppliers.</p> <p>Using digital technology to increase transparency in supplier energy consumption and emissions.</p> <p>Encouraging suppliers to set their own emissions reduction targets through MoUs and data sharing.</p> <p>Embedding ESG and human rights clauses directly into supplier contracts.</p> <p>Supplier capability gaps in achieving decarbonisation and ESG requirements.</p> <p>Complex and varying regulatory standards for human rights and environmental compliance across jurisdictions.</p> <p>Persistent worker welfare risks in some regions of the supply chain.</p> <p>Rapidly evolving societal and legislative expectations for supply chain due diligence.</p> <p>Variations in supplier compliance with Shell's human rights and environmental requirements.</p>
Sr	62
Authors Name	Saudi Aramco
Article Title	Sustainability Report Saudi Aramco
Source Type	Grey Literature
(Year)	2023
Country	Global / Multi-country
Industry / Sector	Oil & Gas

Research Methodology

Research Methods Grey literature/document analysis

Paper Type

TBL Dimensions Environmental, Social, Economic

Journal Source

Value Creation Yes

Keywords #N/A

Tier Tier 3

Key Findings

Saudi Vision 2030 and IKTVA program requirements for local economic participation.
Corporate net zero and decarbonisation targets.
Global ESG compliance and stakeholder expectations.
Integration of sustainability criteria in supplier qualification and evaluation.
Long-term agreements with local suppliers to enhance socio-economic value while managing cost.
Strategic partnerships with suppliers to innovate in low-carbon technologies.
Supplier capability gaps in meeting ESG and decarbonisation standards.
Limited availability of local suppliers meeting advanced technical and ESG requirements.
Variability in global supplier ESG compliance.
Managing Scope 3 emissions across the supply chain.
Balancing global sourcing efficiencies with local content mandates.
Limited capacity of some local suppliers to meet ESG requirements.
Variability in international supplier ESG compliance.
Higher costs associated with sourcing low-carbon and locally produced materials.

Sr 63
Authors Name Seplat
Article Title Sustainability Report Seplat
Source Type Grey Literature
(Year) 2023
Country Global / Multi-country
Industry / Sector Oil & Gas

Research Methodology

Research Methods Grey literature/document analysis

Paper Type

TBL Dimensions Environmental, Social, Economic

Journal Source

Value Creation Yes

Keywords #N/A

Tier Tier 3

Key Findings

Nigerian Content Development and Monitoring Board (NCDMB) regulations.
Corporate commitment to socio-economic development in host communities.
ESG performance requirements from stakeholders and investors.
Prioritization of local suppliers while maintaining quality and cost efficiency.
Training and mentoring programs to enhance supplier capabilities.
Gaps in local supplier ESG performance.
Technical capacity limitations in local supply base.
Higher costs associated with developing local suppliers to meet operational and ESG standards

Sr 64

Authors Name TotalEnergies

Article Title Sustainability Report TotalEnergies

Source Type Grey Literature

(Year) 2025

Country Saudi Arabia

Industry / Sector Oil & Gas

Research Methodology

Research Methods Grey literature/document analysis

Paper Type

TBL Dimensions Environmental, Social, Economic

Journal Source

Value Creation Yes

Keywords #N/A

Tier Tier 3

Key Findings

Corporate carbon neutrality commitment for 2050.
ESG compliance requirements in supplier selection.
Host country expectations for local economic contribution.
Inclusion of carbon pricing in investment and procurement decision-making.
Prioritizing local suppliers to enhance socio-economic value.
Long-term renewable energy procurement agreements with strategic suppliers.
Variations in supplier sustainability performance.
Regulatory differences between countries affecting procurement standards.
Capacity constraints of local suppliers in meeting ESG requirements.
Low-carbon procurement often incurs higher upfront costs than conventional options

Sr	65
Authors Name	Chevron
Article Title	Sustainability Report Chevron
Source Type	Grey Literature
(Year)	2023
Country	Nigeria
Industry / Sector	Oil & Gas
Research Methodology	
Research Methods	Grey literature
Paper Type	
TBL Dimensions	Environmental, Social, Economic
Journal Source	
Value Creation	Yes
Keywords	#N/A
Tier	Tier 3

Key Findings

Corporate net zero ambitions influencing supplier requirements.
Regulatory compliance for supply chain sustainability and human rights.
Stakeholder expectations for responsible sourcing and supplier diversity.
Integration of carbon intensity and ESG performance into supplier selection criteria.
Collaboration programs with suppliers to develop and deliver low-carbon solutions.
Local content and supplier diversity initiatives to enhance socio-economic impact in host countries.
Supplier capacity gaps in meeting Chevron's low-carbon and ESG requirements.
Inconsistent sustainability and human rights standards across supplier geographies.
Limited availability of affordable low-carbon technologies within the supply base.
Low-carbon and renewable procurement options often come with higher costs compared to conventional solutions.

Table C-1 - Data Extraction Form

