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TRANSFORMING INTERNATIONAL CONTRACT LAW TO SUPPORT THE GREEN ECONOMY: NORMATIVE AND PRACTICAL ANALYSIS

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ABSTRACT

Climate change and biodiversity loss force the global community to pursue sustainable development paths. The green economy paradigm—defined by the UN Environment Programme (UNEP) as an economy that is low-carbon, resource-efficient, and socially inclusive—provides a framework for environmentally sound growth. This study examines how international contract law, particularly the United Nations Convention on Contracts for the International Sale of Goods (CISG) and the UNIDROIT Principles of International Commercial Contracts, can facilitate the transition to a green economy. Using a combination of normative legal analysis, case studies, and policy comparison, the research identifies the limitations and opportunities for integrating environmental and social criteria into contracts. It reviews green procurement practices and offers legislative and policy recommendations for Indonesia and other developing countries. Although the CISG does not explicitly impose environmental obligations, its underlying principles of good faith and uniformity can be interpreted to promote transparency, traceability, and risk-sharing of environmental impacts. Furthermore, frameworks for green public procurement—such as those advocated by the OECD—demonstrate how government contracting can be a strategic instrument for emission reduction and innovation. The study ultimately recommends revising domestic contract law to incorporate sustainability clauses, harmonizing it with relevant international instruments, providing capacity-building for stakeholders, and fostering public–private partnerships (PPPs) that include environmental criteria from the outset.

Keywords: *green economy; international contract law; CISG; green procurement; sustainable development; Indonesia; Paris Agreement.*

ABSTRAK

Perubahan iklim dan hilangnya keanekaragaman hayati mengharuskan dunia mengambil jalur pembangunan yang berkelanjutan. Paradigma ekonomi hijau—ekonomi yang rendah karbon, efisien sumber daya, dan inklusif secara sosial—menawarkan kerangka untuk pertumbuhan yang lebih ramah lingkungan. Dalam konteks global, kontrak internasional memainkan peran strategis karena mengatur aliran barang, jasa, investasi dan teknologi. Penelitian ini mengeksplorasi bagaimana hukum kontrak internasional, khususnya United Nations Convention on Contracts for the International Sale of Goods (CISG) dan prinsip UNIDROIT, dapat mendukung transisi ke ekonomi hijau. Dengan menggabungkan analisis normatif, studi kasus, dan perbandingan kebijakan, tesis ini memaparkan keterbatasan dan peluang integrasi unsur lingkungan dan sosial dalam kontrak, meninjau praktik pengadaan hijau, serta merumuskan rekomendasi legislatif dan kebijakan bagi Indonesia dan negara berkembang lainnya. Temuan menunjukkan bahwa, meskipun CISG tidak secara eksplisit mengatur kewajiban lingkungan, prinsip good faith dan asas keseragaman dapat diinterpretasikan untuk mendorong transparansi, ketertelusuran, dan pembagian risiko terkait dampak lingkungan. Lebih jauh, kerangka pengadaan publik hijau, seperti yang dirumuskan OECD, menunjukkan potensi kontrak pemerintah sebagai alat strategis untuk menurunkan emisi dan mendorong inovasi. Penelitian ini merekomendasikan pembaruan hukum kontrak domestik agar memasukkan klausul keberlanjutan, harmonisasi dengan instrumen internasional, pelatihan bagi pemangku kepentingan, dan penggunaan public–private partnership (PPP) yang memasukkan kriteria lingkungan sejak tahap perencanaan.

Kata Kunci: ekonomi hijau, hukum kontrak internasional, CISG, pengadaan hijau, pembangunan berkelanjutan, Indonesia, Paris Agreement.

I. INTRODUCTION

In the face of the climate crisis, environmental degradation, and social inequality, the international community is seeking ways to balance economic growth with ecological protection and social justice. The United Nations Environment Programme (UNEP) popularized the concept of a green economy defined as one that is *low-carbon*, *resource-efficient*, and *socially inclusive*. This definition emphasizes that transitioning to a green economy requires targeted public and private investment, supportive policy reforms, and social measures to enhance human well-being without compromising ecosystems. In a complementary formulation, UNEP describes a green economy as a system that enhances human welfare and social equity while significantly reducing environmental risks and ecological scarcities. The *Towards a Green Economy* report underscores that this transition demands the right mix of investment, green policy incentives, and a stronger social dimension in development.

Meanwhile, the United Nations Convention on Contracts for the International Sale of Goods (CISG) is a multilateral treaty adopted in 1980 to establish a uniform legal framework for international sales contracts. It governs the scope of application, contract formation, the obligations of sellers and buyers, remedies, and risk allocation. Today more than 95 countries have ratified the CISG, making it one of the most influential instruments

for harmonizing international trade law. However, the CISG does not explicitly include environmental or social obligations. It focuses on traditional sale issues such as conformity of goods, risk sharing, and remedies. As a result, integrating environmental concerns into CISG-based contracts might require progressive interpretation, the use of trade usages, or the insertion of specific sustainability clauses by the contracting parties.

Indonesia, home to one of the world's richest biodiversities and the largest economy in Southeast Asia, is pursuing a sustainable development path via its Nationally Determined Contributions (NDCs) and renewable energy policies. In its Enhanced NDC (2022), Indonesia increased its emission reduction targets to 31.89% unconditionally and 43.20% with international support by 2030, in line with the Paris Agreement. Domestically, however, Indonesian contract law remains rooted in a Civil Code tradition that has not sufficiently incorporated green economy principles. The Civil Code establishes general contract rules and force majeure, but does not specifically address environmental obligations. Moreover, Indonesia has not ratified the CISG, so many international contracts involving Indonesian parties default to foreign laws that may not align with domestic sustainability needs. This situation can weaken Indonesia's bargaining power in international trade and slow the adoption of sustainable contracting practices.

Accordingly, this study seeks to answer the question: How can international contract law support the transition to a green economy, and what steps should Indonesia take to harmonize its laws accordingly? The research objectives are to examine the concept of the green economy; reinterpret international contract norms (CISG and UNIDROIT Principles) through a sustainability lens; review green procurement and infrastructure contracting practices; conduct cross-country comparisons; and formulate policy recommendations. The underlying assumption is that contracts are effective governance tools for "grounding" climate and sustainability targets in practical implementation.

In summary, international contract law can become an enabler of the green transition if certain conditions are met: (i) environmental and social standards are defined as specific, measurable performance requirements; (ii) mandatory reporting obligations ensure supply-chain transparency; (iii) risk allocation clauses (force majeure, hardship, regulatory change) are designed to ensure supply resilience; and (iv) remedies and enforcement mechanisms incentivize compliance. In this framework, instruments like the CISG and UNIDROIT Principles provide the contractual *"engine,"* while *"green fuel"* comes from the choices of contracting parties and supportive public policies (such as green public procurement and investment taxonomies).

II. LITERATURE REVIEW

A. Transforming International Contract Law to Support the Green Economy in Developing Countries

Contract as a governance tool. The shift to a green economy requires broadening the function of contracts. Contracts should not only allocate commercial risk, secure

performance, and resolve disputes, but also internalize sustainability objectives — like environmental protection, intergenerational equity, and social welfare — making them instruments for achieving the Sustainable Development Goals. This calls for mainstreaming environmental and social performance metrics into contractual terms, including quality specifications, reporting obligations, risk allocation clauses, and enforcement mechanisms. Such provisions should be included in both private contracts and public contracts (such as procurement and PPPs).

Spectrum of sustainability clauses. Sustainability clauses can be designed along a spectrum of commitment — ranging from "best efforts" obligations to firm, results-based obligations — and can include measurement, reporting, and verification (MRV) mechanisms, environmental performance indicators, and bonus/malus incentive schemes. A UNIDROIT study notes that principles in the 2016 Principles — like best efforts, cooperation, mitigation, and hardship — can be harnessed to tie environmental goals to binding contractual obligations.

Role of UPICC and model clauses. The UNIDROIT Principles of International Commercial Contracts (UPICC) provide a neutral, transnational normative framework for international commercial contracts, applicable either by parties' choice or as part of lex mercatoria. The 2016 edition includes provisions on long-term contracts, standards of conduct, hardship, and remedies that are relevant for formalizing environmental targets. UNIDROIT has also published model clauses to assist with drafting sustainability provisions.

Institutional support: WTO and environmental exceptions. The World Trade Organization provides technical assistance and capacity-building to help developing countries align trade practices with international standards, including environmental aspects. GATT Article XX offers general exceptions that allow for environmental measures consistent with free trade principles, provided they are not applied in a discriminatory or disguised protectionist manner.

Indonesia context: constitutional mandate and implementation challenges. In Indonesia, the idea of a "Green Constitution" is grounded in the 1945 Constitution (Article 28H(1)), which guarantees the right to a good and healthy environment. Yet green policy implementation often faces capacity limitations, dependency on extractive industries, and weak enforcement. Green contracts with measurable environmental KPIs, independent audits, and ecological remediation clauses could serve as operational instruments to fulfill the constitutional mandate for environmental protection.

Best practices for green contract design. Leading practices for green contracts include (1) setting clear and measurable environmental KPIs; (2) independent MRV (measurement, reporting, verification); (3) renegotiation or hardship clauses sensitive to climate change; (4) bonus/malus incentive schemes; and (5) graduated cure and termination mechanisms. IISD emphasizes that such contract designs can maximize

social, economic, and environmental co-benefits across the lifecycle of infrastructure projects.

Environmentally sensitive dispute resolution. Traditional dispute resolution often overlooks environmental expertise. Green contracts should provide clauses for disputes involving environmental experts and allow national review of environmental compliance, emphasizing ecological remediation alongside monetary compensation. UNIDROIT literature highlights the need for adaptive interpretation by courts and arbitrators to make sustainability clauses effective.

Overcoming developing-country barriers. Developing countries face challenges like information asymmetry, limited technical capacity, green financing needs, and regulatory inconsistencies. Addressing these requires domestic policy reforms, international technical assistance, and private sector initiatives. For example, WTO's Trade-Related Technical Assistance (TRTA) programs can help build capacity to draft and enforce green contracts.

Practical recommendations. Key strategic steps for developing countries include: (1) creating green contract templates based on UPICC and model clauses; (2) requiring independent auditors for compliance verification; (3) including environmental expert dispute clauses; (4) aligning national regulations with constitutional environmental principles; and (5) leveraging WTO and donor programs for capacity building. These measures can enhance the credibility of green contracts and reduce litigation risk.

Table 1. Selected Academic Summaries

Paper	Abstract	Summary	Findings	Method	Outcome	Discussion
Anggraeni, N. (2017). *Developing Countries and Domestic Product Protection in the Context of WTO International Trade Law*	Discusses domestic product protection in developing countries within the WTO framework.	Explains the role and challenges of developing countries in WTO, with Indonesia as a case study.	Developing countries dominate WTO membership; WTO grants special treatment; Indonesia joined in 1994.	Analysis of developing countries' role in WTO with Indonesia as a case study.	Economic growth, domestic product protection, poverty reduction.	WTO provides protection and technical assistance; Indonesia seeks balance between growth and domestic protection.
Gaffar, J. M. (2016). *Critical Attitudes of Developing Countries toward International Law*	International law is often a political tool for developed states, but also a means for developing states to defend rights.	Examines how developed states use international law, while developing states leverage WTO for protection.	International law may serve as intervention; WTO provides developing countries with tools to resist dominance.	Conceptual and theoretical analysis, no empirical data.	None (no quantitative outcome provided).	Developing states use WTO for negotiation and defending rights against intervention by developed countries.

Paper	Abstract	Summary	Findings	Method	Outcome	Discussion
Andini, W. Y., et al. (2024). *Integration of Islamic Economic Principles in Implementing Green Economy in Indonesia*	Integrating Islamic principles accelerates the green economy toward sustainable development.	Emphasizes Islamic economics as a solution to social inequality and environmental degradation.	Integration strengthens the green economy and accelerates achievement of SDGs.	Qualitative: literature review, conceptual analysis, secondary data synthesis.	Acceleration of SDGs, reduction of inequality and degradation.	Integration of Islamic economics can advance sustainable welfare; supportive policies are required.
Rohmy, A. M., & Nihayaty, A. I. (2023). *Green Economy Policies in the Digital Transformation of Forest Management in Indonesia*	Examines green economy policies in Indonesia's digital forestry transformation.	Focuses on digitalization's role in transparency, public participation, and forest governance.	Digital policies reduce climate change, foster participation, and increase transparency.	Normative juridical approach using primary and secondary legal sources.	Not specified.	Digital governance supports green economy and sustainability, though implementation remains limited.
Martawardaya, B., et al. (2021). *Green Economy Post COVID-19: Insights from Indonesia*	Analyzes opportunities and challenges in green economic transition post-COVID.	Highlights inconsistencies between policy plans and implementation in Indonesia.	Economic recovery relies on extractive sectors; recommends policies for green investment.	Qualitative analysis of contemporary issues.	Not specified.	Transition potential is high, but structural barriers (extractive economy, inconsistent policies) must be addressed.
Yusa, I. G., & Hermanto, B. (2018). *Implementation of Green Constitution in Indonesia*	Analyzes the concept of "Green Constitution" in the 1945 Constitution and its implementation.	Critically evaluates constitutionalization of environmental norms.	The Constitution affirms environmental norms but lacks holistic reflection.	Socio-legal and conceptual approach, regulatory review.	Not quantitatively specified.	Normatively strong, but limited implementation due to weak legal indicators and practice.
Fikriman, F. (2017). *Agricultural Transformation and Rural Development*	Discusses the role of agriculture in developing countries' economic growth.	Highlights declining agricultural performance and rural development strategies.	Agriculture and rural development can drive national growth and improve income distribution.	Theoretical analysis of development strategies; focus on infrastructure, technology, and smallholder incentives.	Improved agricultural performance, rural income, economic equity.	Agriculture is strategic, requires tailored policies, and should not imitate developed countries blindly.

Paper	Abstract	Summary	Findings	Method	Outcome	Discussion
Likadja, J. A. Ch. (2015). *Interpreting "Law Through State" within the Framework of "Rechtstaat"*	Examines the application of the rule of law within Indonesia's *Rechtstaat* framework.	Stresses the need for a dynamic rule of law free from political interference.	Rule of law is crucial for limiting power and protecting citizens' rights.	Normative (doctrinal) legal research, conceptual approach.	Not specified.	Rule of law must restrict state power and protect individual freedoms, ensuring law centers on citizens' rights.

B. Conceptual Framework

1. Green Economy and Sustainability

Green Economy

Definition and principles. UNEP defines the green economy as a system that *"improves human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."* This definition emphasizes low-carbon pathways, resource efficiency, and social inclusivity as prerequisites for sustainable development. The concept of *green growth*, popularized by the OECD, focuses on using economic and efficiency strategies to keep growth within environmental limits. In contrast, *green economy* highlights structural change and systemic transformation toward sustainability, placing greater emphasis on social equity and ecosystem protection.

Key principles. The operational principles of the green economy include:

1) Resource efficiency and decarbonization: Using fewer resources and shifting to low-carbon energy.
2) Social inclusivity: Ensuring broad social equity and access to economic opportunities. Resilience and ecosystem protection: Safeguarding ecosystem services and enhancing adaptive capacity.
3) Economic innovation and transformation: Encouraging new technologies and economic restructuring for sustainability.

These principles guide the integration of sustainability objectives into public policies and private practices, including commercial contracts and procurement.

Sustainable Infrastructure: Pillar of the Green Economy

Definition and scope. Sustainable infrastructure comprises physical (and natural) assets and services that are planned, designed, built, operated, and managed with attention to economic, social, and environmental dimensions throughout their life cycles. It covers sectors like energy, transport, telecommunications, water–sanitation, as well as "green infrastructure" such as forests and wetlands.

Three sustainability dimensions. Sustainable infrastructure must deliver:

1) Economic value: Achieve value-for-money through life-cycle cost analysis (ensuring projects are economically efficient over their lifetime).
2) Social benefits: Provide broad access and equity, creating jobs and improving livelihoods.
3) Environmental gains: Minimize greenhouse gas emissions, protect biodiversity, and strengthen climate resilience.

A life-cycle perspective is the standard framework for evaluating projects across these dimensions.

Co-benefits. Investing in sustainable infrastructure yields multiple co-benefits: increased productivity, creation of green jobs, technology transfer, local capacity-building, higher asset values, and enhanced climate resilience. These co-benefits bolster the economic and social case for making sustainable infrastructure a central pillar of the green economy transition.

2. International Contract Law

United Nations CISG

The CISG (1980) is a hard-law treaty that harmonizes international sale-of-goods contracts. Adopted by over 90 states, it provides uniform rules on contract formation, seller and buyer obligations, risk allocation, and remedies. For instance, Articles 30–35 impose on the seller a duty to deliver goods that conform to the agreed quantity, quality, packaging, and purpose, including relevant documents and warranties. Articles 53–59 require the buyer to pay the price and take delivery. Articles 45–70 provide remedies for breach (such as damages or specific performance) and transfer of risk rules to balance the parties' rights and obligations.

While the CISG does not explicitly impose environmental duties, there are two practical entry points for sustainability: (1) Party agreement: The parties can explicitly define "conformity" or quality standards to include environmental criteria or certifications (for example, emission limits or eco-labels). If a sale contract references a particular environmental standard, failure to meet it would constitute a breach of conformity, triggering CISG remedies. (2) Judicial interpretation: Article 7(1) requires that the CISG be interpreted in light of its international character and in good faith. This allows courts or arbitrators to consider relevant international norms or technical regulations when assessing conformity. Thus, if international sustainability standards are widely recognized, a tribunal may factor them into its decisions on breach and remedies.

The CISG's coverage is mainly limited to goods, not services or corporate social responsibility commitments, and its efficacy depends on how contracts are drafted. Domestic mandatory law may also override contractual terms. In short, the CISG can serve as a baseline of legal certainty for sales, but it generally needs to be supplemented with explicit sustainability clauses and verifiable standards to address complex environmental objectives. Nevertheless, its emphasis on uniformity and good faith

provides normative support for integrating sustainability (for example, requiring sellers to disclose environmental impacts of goods aligns with the CISG's spirit of good faith in international trade).

UNIDROIT Principles (UPICC)

The UNIDROIT Principles of International Commercial Contracts (2016 edition) are a soft-law set of principles with broad academic and practical acceptance. They can govern a contract by choice of law or act as interpretive guidance when domestic law or CISG rules are silent or insufficient. Notably, UPICC include provisions highly relevant to sustainability and long-term contracts. For example, Article 6.2.2 on *hardship* allows renegotiation if a fundamental change of circumstances occurs (such as new climate regulations, natural disasters, or supply chain disruptions due to environmental factors). The Principles also embody concepts like good faith (Article 1.7), reasonableness (1.9), and cooperation (1.8), and include a "best efforts" duty (Article 5.1.4) for achieving specific results.

Experts note that UPICC provide a valuable toolbox for drafting green clauses. Parties can define measurable environmental KPIs, establish verification standards, set renegotiation procedures, and allocate costs of compliance. UPICC even allow for agreed payment structures (Article 7.4.8), facilitating bonus/malus arrangements tied to performance. In practice, combining CISG and UPICC can yield both certainty and flexibility. For instance, a CISG-based contract could explicitly require goods to meet international sustainability norms (leveraging Art. 35 on conformity), while incorporating an UPICC hardship clause to renegotiate if extreme weather or new environmental laws disrupt performance. The good-faith norms in both instruments encourage transparency and cooperation on environmental issues. This hybrid approach enables contracts to formally embed sustainability targets without sacrificing contractual stability.

Lex Mercatoria and Voluntary Standards

Beyond formal rules, the lex mercatoria refers to an informal body of trade customs, usages, and standards developed by the international business community. Examples include practices like INCOTERMS, UCP 600 (for letters of credit), and arbitration norms. In recent decades, lex mercatoria has incorporated new norms on sustainability and corporate social responsibility. For instance, the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights (2011) encourage companies to respect human rights, reduce environmental impacts, and ensure responsible supply chains. Although these guidelines are voluntary, multinational corporations often include them in contracts through CSR clauses. Such clauses may require suppliers to follow environmental standards (e.g. ISO 14001 for environmental management, FSC or RSPO certifications for forestry and agriculture) and labor/human rights conventions (ILO standards), and to avoid corruption. Contractual breach of these CSR commitments can trigger penalties, renegotiation, or termination. Thus, by incorporating voluntary standards, the lex mercatoria enriches international contracts with

sustainability expectations, complementing the uniform approach of the CISG and the adaptability of the UPICC.

Three complementary pillars. Effective sustainable contract frameworks rely on three complementary pillars:

1) Legal certainty (hard law): Instruments like the CISG or national sales law provide clear, binding rules on fundamental contract terms and remedies.
2) Contractual flexibility (soft law): Principles like UPICC offer adaptive norms (renegotiation, hardship, cooperation) for long-term contracts.
3) Social legitimacy and market practice: Voluntary standards (lex mercatoria) and CSR norms (e.g. OECD Guidelines, UNGPs, ISO) bring widely accepted sustainability expectations into contracts.

Together, these pillars ensure a balance of stability, adaptability, and legitimacy in sustainability-oriented contracts.

Table 2. Summarises the comparative focus of the CISG, the UNIDROIT Principles and Lex Mercatoria with respect to Sustainability

Dimension	CISG	UNIDROIT Principles	Lex mercatoria and voluntary standards
Legal nature	Binding hard law (international convention)	Soft law (transnational principles)	Non-binding practices and standards
Main focus	Uniform rules for international sale of goods	Flexibility and general principles for contracts	Commercial customs, CSR and sustainability standards
Sustainability integration	Not explicit; possible through good faith and conformity	Adaptable: environmental KPIs, hardship clauses	Direct: CSR clauses, OECD and UN guidelines
Advantages	Legal certainty across jurisdictions	Creative room for negotiating green clauses	Responsive to evolving market expectations
Limitations	Focused on goods; slower to change	Not binding unless chosen by parties	Fragmented, inconsistent across jurisdictions
Relevance for developing countries	Reduces legal barriers to trade	Provides foundation for green clause negotiation	Encourages adoption of global CSR and environmental norms

Key contractual elements for sustainability

Based on these principles, contracts supporting green infrastructure should typically include:

1) Definitions and references to standards: Clearly define terms like *"Environmental KPI"* or *"Verification Standard"* and reference authoritative criteria (e.g. ISO standards, EU ETS rules, eco-label requirements). This ensures that failure to meet

specified environmental benchmarks qualifies as a contractual breach (cf. CISG Art. 35).

2) Monitoring, Reporting, and Verification (MRV): Specify the frequency and format of environmental reporting (e.g. emissions, resource use), designate independent verifiers, and grant audit rights. MRV is the backbone of pay-for-performance contracts and life-cycle evaluations.

3) Pay-for-performance (bonus/malus): Link payments to environmental outcomes by including incentives for exceeding targets and penalties for shortfalls. Define cure periods and escalation procedures before imposing sanctions (consistent with UPICC rules on performance obligations and remedies).

4) Hardship/climate renegotiation: Include a clause that triggers formal renegotiation or price adjustment if significant climate-related or regulatory changes occur (such as new carbon taxes or extreme weather events), with a fixed timeline for renegotiation and arbitration as a fallback (cf. UPICC Article 6.2.2, CISG Art. 79).

5) Dispute resolution with environmental expertise: Provide for arbitrators or panels with environmental/technical expertise and allow remedies like ecological restoration in addition to damages. This ensures technical compliance can be effectively adjudicated. Choice of law and mandatory rules: Conduct a conflict-of-law audit to ensure the chosen governing law does not nullify sustainability clauses. Consider including a clause that acknowledges the supremacy of applicable mandatory environmental regulations.

Challenges and solutions. Key obstacles include power asymmetries between parties, limited local MRV capacity, financing gaps for low-carbon technologies, and regulatory misalignment. Potential solutions include: donor-supported capacity building in MRV; using regional or international verification agencies when local expertise is insufficient; developing national template clauses for green contracts; and providing medium-term financing or subsidies to cover transition costs. These measures can strengthen contracts as operational tools of the green economy.

Table 3. Examples of Green Contract Clauses

Clause type	Example clause (translated)	Legal basis / reference
Monitoring, Reporting and Verification (MRV)	"The Seller shall submit quarterly reports on carbon emissions, energy consumption and environmental compliance in accordance with ISO 14064 standards. Reports shall be verified by an independent auditor agreed by the parties. Failure to report constitutes a fundamental breach."	CISG Art. 25 (fundamental breach); UPICC Art. 5.1.3 (duty of cooperation); ISO 14064
Environmental KPIs	"Environmental performance shall be measured by key performance indicators, including: (a) reduction of CO_2 emissions by at least 10 percent annually; (b) renewable energy use equal to or greater than 30 percent of total consumption; (c) recycling rate of at least 50 percent of total waste. Achieving the KPIs is a condition for final payment."	UPICC Art. 5.1.4 (duty to achieve specific result); CISG Art. 35 (conformity); IFC Performance Standards
Bonus–malus incentives	"If the Seller exceeds the environmental KPI targets in Article X, the Buyer shall pay a green bonus equal to 3 percent of the contract value. If the targets are not met	UPICC Art. 7.4.8 (agreed payment for non-performance);

Clause type	Example clause (translated)	Legal basis / reference
	without valid justification, the Seller shall pay a malus equal to 5 percent."	CISG Art. 74 (damages)
Climate-sensitive hardship and renegotiation	"If significant changes in climate regulations or extraordinary environmental events occur that fundamentally alter the contractual equilibrium (e.g., new carbon taxes, changes to emission standards, or extreme climate events), the parties shall renegotiate within 30 days. Failing renegotiation, the dispute shall be resolved by international arbitration."	UPICC Arts. 6.2.2–6.2.3 (hardship); CISG Art. 79 (impediments beyond control); Paris Agreement

III. RESEARCH METHODOLOGY

This study employs a normative legal and comparative approach, combining textual legal analysis with policy review and case studies. Primary sources include official texts (e.g. the CISG itself, UNEP policy documents, OECD reports on green public procurement, and IISD reports on sustainable infrastructure contracts). Secondary sources include international instruments, national laws, academic journals, international organization reports, and actual contracts containing sustainability clauses. The study also draws on literature about green procurement, green industrial policy, and comparative analyses of the United States, European Union, and China. Descriptive and interpretive analysis are used to extract relevant principles and identify regulatory gaps.

Research was conducted in four main stages:

1) Legal text analysis: Identify relevant norms in the CISG and related international instruments, and review Indonesian laws on commercial contracts and the environment.
2) Comparative analysis: Compare CISG provisions with UPICC principles and example sustainability clauses to highlight gaps and opportunities for harmonization.
3) Case studies: Examine specific international trade contracts (especially in renewable energy and other sectors) that incorporate sustainability clauses, to explore their benefits and challenges in practice.
4) Formulating recommendations: Develop model green contract clauses and strategies to harmonize Indonesian law based on the analysis.

This combination of normative analysis and case study review supports a structured argumentation and yields actionable, evidence-based policy recommendations.

IV. DISCUSSION

A. Intersection of Contract Law and the Green Economy

Environmental obligations in commercial contracts. Traditional commercial contracts — including those governed by the CISG — rarely contain explicit environmental obligations. However, shifts in public policy and corporate practice are changing this

norm: parties increasingly demand contractual proof of environmental compliance in supply chains and incorporate binding clauses. For example, environmental compliance clauses may require parties to adhere to applicable national and international environmental laws and standards (e.g. FSC certification for timber, RSPO for palm oil). These clauses provide a legal basis to demand remediation or damages if promised standards are not met. Supply chain transparency clauses require suppliers to disclose material sources, production processes, and environmental impact data (such as emissions or environmental footprints). Emerging regulations like the EU's Corporate Sustainability Due Diligence Directive (CSDDD) emphasize corporate duties for due diligence and transparency, so such clauses also serve as compliance mechanisms.

Performance-based clauses set quantitative or qualitative indicators (e.g. emissions per unit produced, specific energy or water use, recycling rates) that must be met during the contract term. Achieving these targets can be linked to incentives (bonuses) or penalties (malus). Effective performance clauses require clear metrics and verifiable measurement methods (such as third-party certifications or MRV protocols). Force majeure and hardship clauses need to be redrafted to explicitly include climate-related events (e.g. natural disasters, new carbon regulations, disruptions in renewable supply) as triggering events. CISG Article 79 provides a basic framework for relief from non-performance due to impediments beyond control, but applying it to climate issues often requires specific contractual language. Therefore, contracts should explicitly address how climate-linked force majeure and hardship events affect obligations.

In practice, making environmental obligations effective requires: (1) clear, operable clause language; (2) verifiable technical evidence (e.g. certificates, MRV data, independent audits); and (3) dispute resolution mechanisms sensitive to technical evidence — for instance, arbitrations involving environmental experts or expert determination clauses. These elements ensure that sustainability commitments are not merely symbolic but can be enforced legally.

Green Public Procurement (GPP). Public procurement is a powerful policy tool for stimulating demand for low-carbon products and services. In OECD countries, public procurement is roughly 13% of GDP, giving governments significant leverage to shift markets toward green products. However, GPP implementation faces practical challenges: the perception of higher costs for green options, limited capacity of procurement officials to set environmental criteria, and weak monitoring and audit systems.

Countries use various approaches to leverage procurement for green industrial policy. These include subsidies and incentives for green industries, training of green-collar workers, and domestic content requirements in infrastructure programs. For example, the U.S. Infrastructure Act includes "Buy America" provisions, although such measures must be carefully designed to comply with international trade rules on non-discrimination. Common GPP practices include: (1) **Green technical criteria** – embedding sustainability requirements in tender specifications (e.g. minimum energy efficiency, eco-labels, recycled content); (2) **Life-cycle costing (LCC)** – evaluating bids based on total cost of

ownership, including environmental externalities; (3) **Social and environmental clauses** – binding suppliers to meet labor and environmental standards; and (4) **Monitoring and reporting systems** – tracking environmental performance through KPIs and audits. These methods are widely recommended by international sustainable procurement guidelines.

The benefits of GPP extend beyond reducing environmental impacts. Green procurement can drive innovation, create markets for green suppliers, and enhance the competitiveness of green exports. It also sends clear policy signals to the private sector about the direction of public investment. To fully realize these benefits, governments should couple GPP requirements with supporting instruments (grants, subsidies, long-term contracts, training) to mitigate the upfront cost barrier and build supplier capacity.

Sustainable Public–Private Partnerships (PPPs). PPPs are long-term contracts that share risks and rewards between the public sector and private partners. To support sustainability goals, PPP contracts must incorporate environmental criteria from the planning stage. Effective green PPPs include requirements for low-carbon and climate-resilient design, risk-sharing provisions for regulatory or technological changes, and key performance indicators covering social and environmental impacts.

To ensure sustainable outcomes, PPP contracts should also include long-term monitoring, provision for environmental data access, and incentive/penalty mechanisms linking payments to environmental KPIs. Strengthening institutional capacity is crucial — including training procurement officials on green design, enhancing climate risk assessment skills, and ensuring dispute mechanisms can handle environmental issues — so that these provisions are realistically implemented.

Table 4. Intersection of Contract Law and the Green Economy

Sub-Section	Main Focus	Forms of Implementation / Clauses	Key Notes
Environmental Obligations in Commercial Contracts	Transition from traditional contracts to green contracts	1. *Environmental Compliance Clause* – adherence to international/national regulations (emissions, hazardous chemicals, FSC/RSPO certification). 2. *Supply Chain Transparency Clause* – disclosure of material origins, production processes, and environmental impacts; aligned with EU CSDDD. 3. *Sustainability Performance Clause* – indicators such as energy intensity, water use, recycling targets. 4. *Environmental Force Majeure/Hardship Clause* – climate disasters, energy policy shifts; modern interpretation of CISG Article 79.	International contracts increasingly integrate due diligence and sustainability metrics.
Green Public Procurement (GPP)	Policy instrument to stimulate green markets	1. *Green Technical Criteria* – ecolabel requirements, energy efficiency, recycling standards. 2. *Life-Cycle Costing (LCC) Evaluation* – assessment of total ownership and environmental costs.	OECD (2024): Public spending ≈13% of GDP → significant leverage. Challenges: perception of higher green costs, limited expertise, weak

Sub-Section	Main Focus	Forms of Implementation / Clauses	Key Notes
		3. *Social & Environmental Clauses* – labor rights, environmental standards. 4. *Monitoring & Reporting* – performance indicators and audits.	monitoring. GPP is also linked to WTO GPA (non-discrimination).
Sustainable Public–Private Partnerships (PPP)	Long-term contractual models for green infrastructure	PPP clauses include: (1) low-carbon and climate-resilient design; (2) risk-sharing for regulatory/technological changes; (3) social and environmental KPIs; (4) adjustment mechanisms for major economic or climate shifts.	IISD: PPPs are effective when risks and benefits are equitably shared, and aligned with SDGs and the Paris Agreement.

B. Case Studies and International Practice

European Union. The EU leads the green economy agenda through a comprehensive policy framework, including the European Green Deal, the EU Taxonomy, and circular economy initiatives. These laws and regulations collectively direct finance, procurement, and markets toward sustainable activities. New regulations like Regulation (EU) 2023/1115 (the EU Deforestation Regulation) prohibit commodities linked to deforestation, and Directive (EU) 2024/1760 (the Corporate Sustainability Due Diligence Directive) obliges companies to conduct environmental and human rights due diligence across their value chains. These measures push European companies to include sustainability clauses in cross-border contracts to ensure compliance and reporting. In procurement, EU GPP guidelines require explicit environmental criteria, life-cycle costing, and stakeholder participation. The EU Taxonomy and proposed European Green Bond Standard provide technical frameworks for transparent sustainable investment.

United States. The U.S. combines green industrial policy with domestic procurement requirements. The Infrastructure Investment and Jobs Act (IIJA, 2021) and the Inflation Reduction Act (IRA, 2022) mobilize massive funding and tax incentives for renewable energy, energy efficiency, and clean transport. At the same time, "Buy America" provisions require federal projects to use domestic goods. As a result, contractual practices in the U.S. increasingly include environmental requirements (e.g. supply chain emissions reporting, ESG clauses) to ensure compliance with these policies. Regulatory agencies like the SEC are also moving toward mandatory climate risk disclosures. Although these measures drive green investment, they must be carefully designed to align with international trade rules on non-discrimination.

China. China, which aims for carbon neutrality by 2060, has heavily invested in renewable energy, electric vehicles, and smart grid technologies. It uses policies like the Green Credit Guidelines and the Green Bond Endorsed Projects Catalogue to channel investment into environmentally friendly projects. Chinese government procurement increasingly refers to a "China Green Procurement List" that categorizes products by environmental impact. In the Belt and Road Initiative (BRI), sustainability standards are being introduced in overseas infrastructure projects, although implementation varies.

Chinese companies often incorporate evolving domestic standards into their international contracts, thereby reinforcing green practices.

Developing Countries and ASEAN. Many developing countries face capacity constraints, financial limitations, and nascent green markets, which slow the adoption of GPP and sustainability clauses. Within ASEAN: Vietnam ratified the CISG in 2015 (effective 2017) and has begun introducing simple green procurement criteria; the Philippines has developed a GPP Roadmap and technical green specifications; Malaysia's green procurement is still largely voluntary. Common obstacles include the higher initial cost of green products, limited market data, and uneven political support. Indonesia has taken preliminary steps (e.g. Presidential Regulation 16/2018 on Government Procurement allows for sustainable considerations), but detailed GPP guidelines are still needed and implementation remains sporadic. In international contracting, Indonesia's non-ratification of the CISG means many export-import contracts default to foreign laws, which limits domestic parties' leverage to include sustainability clauses. To improve this, Indonesia could develop technical GPP guidelines, integrate environmental criteria into tender documents, and offer incentives to encourage adoption of internationally recognized green standards in local procurement.

Table 5. Case Studies and International Practices

Sub-Section	Main Focus	Practices / Policies	Key Notes
European Union	European Green Deal, Sustainable Finance, Circular Economy	• Mandatory GPP in multiple sectors (construction, vehicles, IT, food). • *Taxonomy Regulation*: classification of sustainable activities. • Use of *Green Bonds.* • Sustainability clauses in export–import contracts (EUDR, CSDDD).	CISG applies by default but often supplemented with national law or arbitration clauses.
United States	Green industrialization and public procurement	• Infrastructure Investment and Jobs Act (2021), Inflation Reduction Act (2022). • "Buy American" policy. • ESG clauses in investment contracts. • SEC requirements on climate risk disclosure.	Criticism: potential WTO non-discrimination conflicts. Private sector (tech, manufacturing) mandates emission reporting, renewable energy, and net-zero commitments.
China	Net-zero target 2060, green energy investment	• Large-scale investment in solar, wind, EVs, and smart grids. • Green Credit Guidelines **and** Green Bond Catalogue. • National Green Procurement List. • Belt and Road Initiative (BRI) with sustainability standards.	Domestic standards serve as benchmarks in international contracts. BRI implementation remains uneven.
Developing Countries and ASEAN	Capacity challenges, regulatory fragmentation	• Vietnam: CISG ratified (2015), green investment reforms, basic GPP. • Philippines/Malaysia: voluntary GPP. • Indonesia: Presidential Regulation No. 16/2018 allows sustainable procurement, but lacks detailed guidelines.	Barriers include high costs of green products, limited market information, and weak political support. Indonesia has not ratified CISG → cross-border contracts subject to

Sub-Section	Main Focus	Practices / Policies	Key Notes
			foreign law, weakening bargaining power.

C. Normative-Comparative Analysis

Alignment of CISG with the Green Economy. A progressive interpretation of the CISG can align its provisions with green economy goals. For example, Article 35 on conformity need not be limited to traditional quality and performance; it can be construed to require conformity with agreed environmental or social standards (such as low-emission production, compliance with specified certifications, or recyclability). Under this view, environmental characteristics of goods become part of the "fitness for purpose" that the buyer can contractually demand. Similarly, the buyer's duties in Articles 38–40 to inspect and notify the seller of non-conformity could be broadened to cover environmental compliance checks, such as verifying carbon footprints, conducting supply chain audits, or inspecting environmental certifications. If a seller conceals material information about environmental impacts or fails to meet agreed sustainability standards, that could amount to a fundamental breach entitling the buyer to cancel the contract or claim damages under Articles 49 and 74.

The good faith and reasonableness principles in Articles 7(1)–(2) provide an interpretive basis for embedding sustainability. Courts or arbitrators can consider international best practices (e.g. ISO environmental standards, multilateral commitments like the Paris Agreement) when determining the parties' obligations. Article 9 (recognition of trade usages) also opens the door for established industry sustainability practices to become binding if they are widely accepted in a trade sector. In short, the CISG is flexible enough to accommodate sustainability clauses through interpretive means, but its practical application requires explicit contracting (e.g. clear KPI clauses, MRV requirements, bonus–malus mechanisms) and harmonized technical evidence to make environmental terms enforceable.

Comparison of National Laws. A comparison of the Indonesian Civil Code (KUHPerdata) with the CISG reveals substantive gaps regarding environmental obligations. The Civil Code enforces general contract validity (Article 1320) and the pacta *sunt servanda* principle (Article 1338), but it does not specify how to incorporate sustainability criteria into contracts. Article 1245 (force majeure) provides some relief for events beyond the parties' control, yet it does not explicitly account for climate disasters or long-term ecological shifts. In practice, this creates uncertainty when climate-related events disrupt supply chains: it may not be clear whether such an event is force majeure (excusing performance) or a commercial risk.

Other jurisdictions have begun to adapt their laws more proactively. For example, Germany has amended its Civil Code to impose new consumer rights to information and requirements on sustainable products; France's Loi Pacte (2019) requires companies to consider social and environmental impacts in their corporate purpose; and Japan has

issued sustainable procurement guidelines with sample environmental clauses for public contracts. These efforts show legislative and policy approaches that are more advanced in integrating sustainability than the current Indonesian framework.

Synergy with Other International Instruments. Beyond contract law, global commitments further reinforce sustainability in commerce. The Paris Agreement sets national emission targets, which contracts could reference (for example, by requiring renewable energy use in project contracts to align with parties' NDCs). The UN Sustainable Development Goals — particularly Goal 12 (responsible consumption and production) and Goal 13 (climate action) — provide a normative backdrop encouraging integration of sustainability into business practices. Guidelines from organizations like the UNECE on sustainable public procurement offer practical methods (life-cycle costing, risk assessments, contract enforcement) for embedding environmental and social goals into contracts.

Trade agreements with environmental chapters also play a role. For instance, the CPTPP and the EU–Korea FTA require parties to enforce their own environmental laws and prevent degradation. These commitments can indirectly influence private contracts by making sustainability compliance a part of competitive business practices.

Table 6. Normative–Comparative Analysis

Sub-Section	Main Focus	Implementation / Examples	Key Notes
Compatibility of CISG Principles with the Green Economy	Progressive interpretation of CISG for green economy integration	• Article 35: conformity includes environmental and social standards (low emissions, certification, recycling). • Articles 38–40: inspection of goods → verification of environmental compliance, carbon footprint, supply chain. • Articles 49 & 74: fundamental breach if environmental information is concealed. • Articles 7(1)–7(2): good faith and reasonableness support green clauses. • Article 9: trade usages provide space for sustainability practices.	Demonstrates CISG's flexibility in integrating environmental obligations.
Comparison with National Laws	Differences between CISG and the Indonesian Civil Code	• Indonesian Civil Code: validity of contract (Art. 1320), pacta sunt servanda (Art. 1338), force majeure (Art. 1245) → no provisions on climate or environment. • Germany (modernized BGB): consumer rights to environmental information, sustainability disclosure duties. • France (*Loi Pacte*): companies must account for social and environmental impacts. • Japan: ESG Procurement Guidelines → model environmental clauses in public contracts.	Indonesia has not integrated environmental clauses → contractual uncertainty during climate-related disruptions.
Synergy with Other International Instruments	Enrichment from global agreements	• Paris Agreement: basis for emission adaptation clauses and renewable energy use. • SDGs (Goals 12 & 13): normative guidance for sustainability integration. • UNECE Guidelines on SPP: framework for life-cycle	Illustrates that CISG can be synergized with other international

Sub-Section	Main Focus	Implementation / Examples	Key Notes
		costing (LCC), risk assessment, enforcement. • FTAs (CPTPP, EU–Korea FTA): environmental chapters require enforcement and prevention of degradation.	legal frameworks.

D. Policy Recommendations for Indonesia

Indonesia should: (1) ratify the CISG and adjust its domestic law accordingly; (2) develop a national green procurement strategy with clear criteria, capacity-building and monitoring; (3) integrate sustainability clauses into contracts through model clauses requiring disclosure, environmental certifications, supply-chain due diligence, remedies and climate-sensitive force majeure; and (4) invest in capacity building for judges, lawyers and procurement officials, and raise public awareness about the benefits of green contracts

Practically, harmonizing Indonesian contract law with green economy demands involves: (1) amending contract texts to include clauses on MRV, certification warranties, and penalty/bonus schemes; (2) standardizing verifiable technical evidence (third-party certificates, MRV protocols) as admissible proof; and (3) developing regulatory or guidance frameworks to bridge gaps in the Civil Code — thus making environmental obligations clear, measurable, and enforceable in disputes. These efforts must balance contractual freedom with protecting the public interest in the environment.

Table 7. Policy Recommendations for Indonesia

Sub-Section	Main Focus	Implementation / Examples	Key Notes
Ratification and Harmonization of CISG	Ratification of CISG and regulatory reform	• Ratification of CISG → harmonization of international contracts, legal certainty, and opportunities for environmental clauses. • Declarations under Articles 92–96 CISG adapted to domestic context. • Revision of the Indonesian Civil Code: environmental disclosure obligations, climate disaster force majeure, environmentally friendly dispute resolution mechanisms.	termination/compensation.
National Green Procurement Strategy	GPP as an instrument for green transition	1. Policy Framework – environmental objectives, mandatory green criteria, minimum % of green spending. 2. Criteria & Standards – certifications, LCC, Green Catalog. 3. Capacity Building – training for officials and SMEs. 4. Monitoring & Evaluation – impact reporting system. 5. Financial Innovation – green bonds, blended finance, incentives.	
Integration of Sustainability Clauses in Contracts	Green contract models in the private sector	• Disclosure: carbon, water, and chemical footprint information. • Standards & Certifications: ISO 14001, FSC, RSPO. • Supply Chain Oversight: due diligence on social–environmental risks. • Remedies: fundamental breach →	

Requires legislation (Law/ Presidential Regulation) for public and private contracts with sustainability clauses.	new
Strong leverage given that public procurement represents a significant share of GDP.	
To be jointly developed by government, business associations, and professional bodies →	

Sub-Section	Main Focus	Implementation / Examples	Key Notes
		• Force Majeure: climate disasters, new regulations, renewable energy disruptions.	serving as a national reference.
Capacity Building and Public Awareness	Legal professionals and public engagement	• Training judges, arbitrators, and lawyers on green contracts. • University curricula: international contract law, environmental law, sustainability. • Public campaigns on the economic benefits of the green transition.	Success of the green transition depends on enhanced capacity and societal acceptance.

V. CONCLUSION

Transitioning to a green economy requires systemic changes in how governments and companies formulate, negotiate, and execute contracts. International contract law instruments like the CISG and UNIDROIT Principles offer a flexible legal foundation to accommodate sustainability goals through contextual interpretation and innovative contractual clauses. Core principles such as *good faith*, *reasonableness*, and harmonization provide room to incorporate environmental and social obligations without undermining legal certainty.

Experience worldwide shows that green public procurement and sustainable PPP contracts — embedding technical standards, life-cycle costing, and environmental KPIs — can effectively channel market demand and stimulate green innovation. By combining verifiable technical standards with economic incentives, governments can use contracts not just as transactional documents but as strategic tools for achieving climate and development targets.

For Indonesia, practical steps involve a three-pronged strategy: (1) ratify relevant international instruments (like the CISG) and reform domestic law to allow enforceable sustainability clauses; (2) establish a robust national GPP framework and climate-smart PPP guidelines that mandate low-carbon design, climate-risk sharing, and clear environmental performance metrics; and (3) enhance institutional capacity at all levels (policymakers, procurement officials, judiciary, etc.) while providing model clauses, MRV protocols, and certification guidelines so that environmental obligations become operational and verifiable. These measures will make contract law a driver of an equitable and accountable transition to a green economy.

Table 8. Intersection of Contract Law and the Green Economy

Section	Main Focus	Implementation	Key Notes
A. Intersection of Contract Law and the Green Economy	• Environmental obligations – compliance clauses, supply chain transparency, sustainability performance, climate force majeure.	International contracts increasingly adopt green clauses; GPP is a major policy instrument (OECD	Challenges include high costs of green products,

Section	Main Focus	Implementation	Key Notes
	• Green Public Procurement (GPP) – green technical criteria, life-cycle costing (LCC), social–environmental clauses, monitoring. • Sustainable PPPs – low-carbon design, risk-sharing, social–environmental KPIs.	≈13% of GDP); PPPs are effective when linked to the SDGs and the Paris Agreement.	limited capacity, and the need for standardization.
B. Case Studies and International Practices	• EU – European Green Deal, Taxonomy, Green Bonds, EUDR, CSDDD. • US – IIJA (2021), IRA (2022), "Buy American," ESG disclosure. • China – Net-zero 2060 target, Green Credit Guidelines, BRI. • ASEAN/Developing States – Vietnam ratified CISG; voluntary GPP in the Philippines/Malaysia; Indonesia Presidential Regulation No. 16/2018.	The EU leads in green regulation; the US relies on incentives and ESG contracts; China prioritizes renewable energy; ASEAN faces capacity and cost constraints.	Indonesia has not ratified CISG → weak bargaining power, with contracts often subject to foreign law.
C. Normative–Comparative Analysis	• CISG Principles – conformity (Art. 35), inspection & notice (Arts. 38–40), remedies (Arts. 49, 74), good faith (Art. 7), trade usages (Art. 9). • National Laws – Indonesian Civil Code (Arts. 1320, 1338, 1245) lacks environmental provisions; Germany (BGB), France (*Loi Pacte*), Japan (ESG Procurement) integrate sustainability clauses. • International Instruments – Paris Agreement, SDGs, UNECE SPP, FTAs (CPTPP, EU–Korea).	CISG is flexible for green interpretations; Indonesian law lags behind; other countries already integrate sustainability.	Synergy with global instruments strengthens the legal foundation of green contracts.
D. Policy Recommendations for Indonesia	• CISG Ratification – harmonization with the Civil Code, climate force majeure, environmental clauses. • National GPP Strategy – policy framework, standards, capacity building, monitoring, financial innovation. • Green Contract Clauses – disclosure, certification, due diligence, remedies, force majeure. • Capacity & Public Awareness – training for judges, arbitrators, lawyers; university curricula; public campaigns.	CISG ratification is key for harmonization and stronger bargaining power. GPP serves as a central instrument for the green transition. Green contract models should be formalized.	Human resources and public awareness are decisive factors for successful implementation.

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