

The Developmental Role of Green Sukuk: Between Legal Dimensions and Economic Impact in Financing Startups

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Abstract:

Climate change and environmental instability have emerged as transboundary existential challenges, necessitating a paradigm shift in global legal and financial frameworks. Within this context, Islamic Green Finance—specifically "Green Sukuk"—has emerged as an innovative legal and financial mechanism that balances profit incentives with sustainability requirements. This study examines the developmental role of Green Sukuk through an integrated legal and economic lens, specifically focusing on its potential within the Algerian startup ecosystem.

The research addresses a fundamental problem: the extent to which Sharia-compliant Green Sukuk can bridge the financing gap for Algerian startups while navigating modern legislative shifts, such as the 2025 Finance Act and the "Scale-up" label framework. Methodologically, the study is divided into two primary sections : the first deconstructs the legal and Sharia foundations of Sukuk, including international standards like the ICMA Green Bond Principles. The second section analyzes the economic impact and practical implementation of Sukuk models—such as *Istisina* and *Ijarah*—as risk-sharing tools tailored for innovative, knowledge-based enterprises. The study aims to provide a theoretical and practical roadmap for integrating sustainable finance into national economic diversification strategies.

Keywords: Green Sukuk; Innovative Startups ; Sustainable Development

1. INTRODUCTION

Climate change and the environmental disturbances ravaging the planet at the dawn of the third millennium have become an existential, transboundary challenge. This has compelled global legal and financial systems to review their fundamental principles and reinvent their instruments to address these emerging dilemmas. Amidst this global movement toward a financing model that balances profit incentives with sustainability requirements, **Islamic Green Finance** has emerged—led by "**Green Sukuk**"—as an innovative legal and financial mechanism. It transcends traditional investment patterns

to touch the core of legal ethics and social responsibility.

The transition from a carbon-intensive "Black Economy" to a "Green Economy" necessitates the mobilization of massive financial resources. In this context, **startups** emerge as a vital engine for this transformation, given their technological flexibility and ability to devise low-carbon solutions, despite the structural financing obstacles they encounter during their foundational stages.

This study aims to highlight the developmental role of Green Sukuk from an integrated legal and economic perspective, while analyzing its impact on the startup ecosystem—particularly in light of the qualitative legislative shifts in **Algeria**. These shifts are reflected in the strategic orientations of the **2025 Finance Act** and the legal framework incentivizing startups. The philosophy of Green Sukuk extends beyond being a mere liquidity tool; it is a legal manifestation of the Sharia principle of "*Imarat al-Ard*" (Stewardship of the Earth), by linking financial flows to tangible assets with environmental and social utility. To deconstruct this issue, the study is divided into two sections: the first addresses the legal and Sharia frameworks governing Green Sukuk, while the second examines the economic impact and practical mechanisms for utilizing these Sukuk in financing startups.

Research Problem

Based on the foregoing, the research problem can be formulated in the following question:

To what extent can Green Sukuk, as a Sharia-compliant financing instrument, contribute to bridging the financing gap for startups in Algeria? And what are the legal and regulatory requirements necessary to activate these Sukuk within the modern Algerian legislative system to ensure the achievement of energy transition and sustainable development?

Section I: The Legal and Sharia Dimensions of Green Sukuk and their Regulatory Frameworks

The legal and Sharia construction of Green Sukuk serves as the fundamental guarantee that grants them credibility in global markets. This framework distinguishes them from conventional bonds, which may fall into the trap of "Greenwashing." The legal challenge lies in drafting financing contracts that simultaneously ensure compliance with Sharia principles and international sustainability standards, while aligning these instruments with national laws—which often suffer from structural rigidity in defining ownership and derivative financial instruments.

Subsection I: The Sharia Foundation of Green Sukuk and International Sustainability Standards

The Developmental Role of Green Sukuk: Between Legal Dimensions and Economic Impact in Financing Startups

Green Sukuk derive their legal and moral legitimacy from being Sharia-compliant securities representing undivided shares in the ownership of tangible assets, usufructs, or services dedicated to eco-friendly projects. From a Maqasid (Teleological) perspective, this foundation is rooted in the philosophy of Istikhlaf (Succession/Stewardship) and the Maqasid al-Sharia (Higher Objectives of Sharia) related to the essential preservation of resources.

Specifically, this pertains to the Preservation of Life (Hifz al-Nafs) and the Preservation of Progeny (Hifz al-Nasl). The sustainability of resources and the protection of the ecosystem are fundamental Sharia conditions to guarantee the right of future generations to a dignified life, thereby elevating environmental security to both a religious and legal obligation. These Sukuk are characterized by a structural framework based on Profit and Loss Sharing (PLS). They are entirely free from the suspicion of Riba (fixed interest) and Gharar (uncertainty leading to dispute), which transforms them from mere debt instruments into genuine financing linked to the tangible, productive economy.

On the level of legislative discipline, the issuance of Green Sukuk is subject to dual oversight (Sharia and legal) that ensures the "Legality of the Contractual Object" (*Mashru'iyat Mahall al-Aqd*). It is strictly prohibited to direct issuance proceeds toward projects that violate public order, morals, or cause significant societal harm—even if they are cloaked in "green technology." This ethical constraint mandates that startups adopt high-precision disclosure and transparency standards that surpass those required in conventional financing to prevent the occurrence of "**Greenwashing**."

At the international level, Green Sukuk align with the standards of the **International Capital Market Association (ICMA)** and the **Green Bond Principles (GBP)**. These obligations are articulated in the legal "Prospectus" through four core pillars:

A. Specific Allocation of Proceeds

This pillar constitutes the primary legal basis between the issuer and the investor. The "Prospectus" must explicitly and decisively state that the Sukuk proceeds are allocated exclusively to finance legally eligible green projects. This includes renewable energy, the transition to clean transportation, and the construction of sustainable green buildings. From a legal standpoint, any deviation in the disbursement of these funds from the specified purposes is considered a breach of contract, granting investors the right to seek compensation from the startup or demand the redemption of the Sukuk's value.

B. Governance of Project Evaluation and Selection

This pillar requires the establishment of an institutional structure within the startup, represented by an independent technical and legal committee. This committee is responsible for screening proposed projects to ensure their alignment with

environmental and Sharia standards. Its mandate is not limited to technical aspects; it extends to ensuring the project's compliance with national legislation (such as the **Environmental Protection** Act and the Startup Law in Algeria) and verifying that the expected environmental impact is measurable and field-verifiable.

C. Legal Management of Proceeds and Liquidity Tracking

To mitigate the risk of commingling funds, this pillar mandates the isolation of Sukuk proceeds into independent fiduciary or escrow accounts. These accounts are subject to strict legal oversight, allowing for real-time tracking of disbursement paths. This regulatory measure aims to ensure that proceeds are not used to cover the startup's prior debts or for conventional activities that yield no environmental benefit, thereby enhancing the transparency of the startup's financial position before regulatory authorities.

D. Mandatory Periodic Reporting and Disclosure

The legal obligation does not terminate upon the issuance of the Sukuk; it extends throughout the Sukuk's lifecycle. The startup is legally bound to submit an "Impact Report" annually. This report must include accurate quantitative and qualitative data, verified by external auditing bodies, detailing the volume of carbon emission reductions achieved, energy efficiency ratios, or the volume of waste processed.

ⁱ , It is this continuous disclosure that grants Green Sukuk their competitive advantage and ensures their retention within the lists of Socially Responsible Investments (SRI).

The Indonesian experience in this field serves as a global benchmark and a pioneering model, having successfully formulated an integrated legal and regulatory framework that enabled the issuance of the world's first Sovereign Green Sukuk. This experience was built upon the Sovereign Green Sukuk Framework, which was meticulously designed to align with the *Fatwas* and Sharia rulings issued by the National Sharia Board. This achieved full harmony between sustainability requirements and jurisprudential (*Fiqh*) guidelines.

From a legislative standpoint, Indonesian laws (notably **Regulation No. 60 of 2017**) established stringent rules for environmental governance. It mandated that issuers seek independent external auditors to provide a "Second Party Opinion" (SPO). This procedure represents a legal and technical guarantee confirming the Sukuk's compliance with international standards. Consequently, this directly contributes to enhancing credit confidence, mitigating the risks of legal liability toward international investors, and shielding the issuances against claims of environmental misrepresentation (Greenwashing).

or Financing Subsection II: The Legal and Legislative Framework fⁱⁱ

Startups in Algeria

Between 2020 and 2025, the Algerian legislative system witnessed a qualitative leap and a radical shift in the philosophy of economic legislation. The legislator moved from a traditional administrative approach to a **knowledge-based economy** approach, placing startups at the forefront of the national strategy to diversify the economy away from the hydrocarbon sector. This trajectory was embodied in **Executive Decree No. 20-254**, which established the National Committee for Granting the "Startup" Label, followed by a legal and fiscal arsenal within successive Finance Acts, providing an exceptional protective and incentivizing environment for this vital sector.

However, the economic ambition to issue Green Sukuk clashes with historical legal obstacles rooted in the structure of the Algerian Civil Code. The latter adopts a traditional concept of ownership that bundles the rights of use, exploitation, and disposal into a single, indivisible package. This legislative rigidity poses a complex dilemma when engineering **Sukuk al-Ijarah** (Leasing) or **Usufruct Sukuk**, which legally require a precise separation between **bare ownership** (*Propriété nue*) and **usufruct rights**—a distinction that still lacks explicit and flexible legal coverage.

Furthermore, the legal environment suffers from a normative vacuum in the Commercial Code, which lacks a comprehensive definition of Sukuk as securities of a special nature. Additionally, there is an absence of legal regulation for Special Purpose Vehicles (SPVs). These companies serve as the legal intermediary and structural guarantor that segregates the financial liabilities of the startup from the assets of the Sukuk project. Their absence remains a major stumbling block to protecting investor rights and securing green financing pathways.

has established a decisive break with traditional financing **2025 Finance Act**ⁱⁱⁱ patterns. **Article 174** of this Act laid an unprecedented legal foundation by authorizing the **Public Treasury** to issue **Sovereign Sukuk**. This allows both natural and legal persons to contribute to the financing of major public facilities and infrastructure. This text serves as the "Primary Reference" that can be analogously applied at the regulatory level to project the Sukuk experience onto the private sector—particularly startups. It enshrines the legal recognition of Sukuk as a legitimate and independent financial instrument within the Algerian financial system.

To enhance the economic viability of this instrument, the legislator introduced a package of exceptional fiscal incentives aimed at pivoting toward productive investment. Comprehensive **tax exemptions** for a duration of five years have been granted on the returns generated from these Sukuk. These exemptions encompass both the **Personal Income Tax (IRG)** and the **Corporate Income Tax (IBS)**.

^{iv} Legislative support did not stop there; it extended to include exemptions from **registration fees and land advertising fees** related to the assets underlying the Sukuk.

This significantly reduces the structural costs of the **securitization (Sukuk-alization)** process and provides startups with a competitive advantage in attracting investors seeking both tax efficiency and environmental commitment.

Regarding startups, the legal framework has been reinforced with complementary tools that serve the Green Sukuk ecosystem:

A. The "Scale-up" Label and Access to Capital Markets

Executive Decree No. 25-311 represented a qualitative leap by introducing the **"Fast-Growing Enterprise" (Scale-up)** label, granted to entities that allocate 3% of their turnover to Research and Development (R&D). Legally, this label serves as a creditworthiness certificate. It qualifies these companies—upon reaching maturity—to enter the capital market and issue Green Sukuk to finance their expansion, leveraging their proven capacity for technical innovation in environmental solutions.

B. The Simplified Joint-Stock Company (SAS) as a Flexible Contractual Vehicle

The inclusion of the **Simplified Joint-Stock Company (SAS)** model in the **Commercial Code** is a fundamental shift that broke the shackles of mandatory rules (*Jus Cogens*) inherent in traditional joint-stock companies. This legal formula grants founders extensive freedom in drafting the **Articles of Association**, which facilitates the structuring of **Mudarabah** and **Musharakah** contracts—the very foundations upon which Green Sukuk are built.

.^v This flexibility allows for the design of voting rights and profit distribution mechanisms that suit the nature of Sukuk investors, without colliding with the procedural hurdles imposed by classic legal forms.

C. Crowdfunding and Micro-Sukuk

The **COSOB Regulation No. 23-01** (Commission for the Organization and Monitoring of Stock Exchange Operations) has opened new horizons by legitimizing Crowdfunding via digital platforms. This legal framework can be leveraged to integrate **"Micro-Sukuk"** as an innovative financing tool. This allows the general public to finance emerging green projects with small amounts through regulated digital platforms, thereby achieving the principle of Financial Democracy. This transformation turns society from a mere energy consumer into an active investor in its clean production.

.^{vi} This legal construction reaches its peak of maturity with the qualitative tax incentives introduced by the **2025 Finance Act** (effectively implemented and expanded for **2026**), aimed at the localization of **Green Technology**. The legislator established a **Tax Deduction** mechanism for expenses invested in strategic fields such as Green Hydrogen, reforestation projects, and renewable energies, treating these investments as deductible expenses up to **5%** of the taxable income. This legislative provision does not merely

represent a financial exemption; rather, it serves as a **legal lever** that enhances the **solvency** of startups when issuing Sukuk, as it contributes to reducing the operational costs of projects dedicated to environmental service. The impact of Green Sukuk ^{vii} transcends the legal dimension to drive the wheels of the real economy through green entrepreneurship. Startups are uniquely positioned to embody green innovation, reduce carbon emissions, and create sustainable jobs. However, they require economic mechanisms that shield them from the risks of conventional financing while providing substantial capital during their growth stages.

Subsection I: Economic Mechanisms for Capital Transfer and Supporting Sustainable Development Goals (SDGs)

Green Sukuk function as an efficient economic conduit for transferring surplus liquidity from investors to sustainable development projects led by innovative enterprises. This mechanism is based on the principle of **asset-linked financing**, which ensures financial stability and protects the economy from bubbles caused by debt not backed by tangible assets. Green Sukuk contribute to achieving the **2030 Sustainable Development Goals (SDGs)** through tangible economic pathways:

A. Financing Energy Transition and Resource Efficiency: Green Sukuk are the optimal solution for renewable energy projects characterized by high capital intensity and long payback periods—traits that often deter conventional banks due to liquidity risks. The experience of the **Saudi Electricity Company (SEC)** serves as a pioneering model; it successfully issued Green Sukuk worth \$1.3 billion dedicated to financing smart meters and clean energy infrastructure. Economically, this issuance saved an estimated **679,185 MWh** of energy, leading to record-breaking reductions in carbon emissions. This proves the capacity of Sukuk to transform environmental objectives into concrete economic figures.

B. Stimulating Industrial Innovation and Supporting Clean Tech: Sukuk play a fundamental role in financing Clean Technology (CleanTech), which constitutes the core business of innovative startups. The experience of DP World is a vivid example of this impact, as it utilized \$1.5 billion in Green Sukuk to electrify port equipment and develop hybrid vessels. This type of financing not only supports innovation but also works to transform polluting industrial and logistical sectors into sustainable ones, opening new markets for startups specializing in **net-zero solutions**.

C. Enhancing Sustainable City Resilience and Climate Action: Green Sukuk act as a liquidity injection channel for clean mass transit projects and sustainable buildings that achieve energy savings of up to **25%**. This trend yields a **double return**: on one hand, it reduces the operational expenditures (OPEX) for states and institutions.

^{viii} On the other hand, this integration improves the quality of urban life and mitigates the devastating effects of climate change. This synergy is precisely what the Algerian

legislator seeks to achieve by linking fiscal incentives in the **2025-2026 Finance Acts** to green economy and reforestation projects.

Subsection II: The Role of Green Sukuk in Enhancing Innovation and Financing Innovative Startups

Innovative startups represent the vital nerve of the green economy; however, they consistently face a financing gap in their early stages due to a lack of tangible guarantees and liquidity shortages. Here, Green Sukuk emerge as a tool capable of bridging this gap through risk-sharing mechanisms that align with the inherent nature of these enterprises.

Green startups in Algeria, which hold the "Innovative Project" label, rely on knowledge-based business models. Sukuk provide them with smart financing solutions:

A. Sukuk al-Istisina and Prototype Financing

Sukuk al-Istisina (Commissioned Manufacture) is the ideal legal instrument for financing the construction of prototypes in solar energy or waste management sectors. In this formula, Sukuk proceeds are disbursed to contractors or manufacturers based on **technical milestone reports**. This mitigates the risk of financial deviation and ensures that capital is directed toward developing real physical assets, fulfilling the startup's need to finance high-risk stages.

B. Sukuk al-Ijarah to Enhance Operational Solvency

Instead of depleting liquidity on purchasing expensive technical equipment, **Sukuk al-Ijarah** (Leasing) allows startups to acquire advanced technologies (such as solar panels or smart meters) through a Sharia-compliant financial leasing system. Under this model, the company pays "rent" to investors from the actual operating returns of the assets. This allows the startup to preserve its cash flow for growth while avoiding burdensome interest-bearing debt.

C. Blended Finance: Integration with Green Zakat and Waqf

In a unique economic and social innovation, **Zakat and Waqf** (Endowment) funds can be integrated with Green Sukuk to create a solidarity-based financing model. Under this vision, Zakat or Waqf institutions can invest in Green Sukuk issued by startups targeting remote areas (such as solar-powered water desalination projects). This achieves a **double return**: a financial profit that grows the Waqf funds and a social impact that serves eligible beneficiaries. This integration bolsters public trust in local platforms.

This trust is currently one of the most prominent challenges facing crowdfunding^{ix} platforms, such as "**Yinvesti**." Furthermore, Green Sukuk play a decisive role in

environmental risk management and **civil liability**. Based on the rules of liability for environmental damages, the startup issuing the Sukuk is committed to strict preventive standards to forestall pollution. The "Prospectus" includes legal guarantees that obligate the company to **restore the status quo** (*Restitutio in Integrum*) in the event of environmental damage. ^x

This environmental and legal discipline enhances the efficiency of startups, making them more sustainable and protecting them from cross-border litigation arising from modern environmental damages.

Conclusion and Findings

This in-depth study concludes that **Green Sukuk** represent the "missing link" in the sustainable development financing system, due to their superior ability to reconcile legal and Sharia imperatives with economic and environmental requirements. The following are the key findings and recommendations:

I. Findings

- **Strategic Alignment:** Green Sukuk are the most suitable financial instrument for innovative startups, as they are based on the principle of risk-sharing rather than the burden of debt, linking financing to tangible assets that serve the environment.
- **International Legal Leadership:** The experiences of Indonesia and major corporations (SEC, DP World) prove that a clear "**Green Framework**" and commitment to international standards (**ICMA/GBP**) are the keys to attracting investment and avoiding civil and environmental liability risks.
- **Algerian Legislative Transformation:** The 2025 Finance Act—including provisions on Sovereign Sukuk—alongside the laws regulating startups and the "**Scale-up**" label, opens promising horizons for launching an Islamic Green Capital Market that supports innovation and sustainable growth.
- **Responsibility and Redress:** Green Sukuk impose a legal system that merges "**Preventive Responsibility**" with "**Redress Mechanisms**," reducing the likelihood of environmental accidents while simultaneously safeguarding the rights of investors and society.

II. Recommendations

- **Updating the Legal Arsenal:** There is an urgent need to amend the **Algerian Commercial Code** to define Sukuk as independent securities and to regulate the operation of **Special Purpose Vehicles (SPVs)** to facilitate securitization for startups and the private sector.
- **Adopting a National "Green Taxonomy":** The Ministry of Environment, in coordination with the Ministry of Knowledge Economy, must establish clear criteria for "**Green Projects**" in Algeria—modeled after international standards—to prevent "**Greenwashing**" and ensure funds are directed toward genuine objectives.
- **Incentivizing "Micro-Sukuk":** Encouraging **Crowdfunding platforms** licensed by **COSOB** to issue Micro-Green Sukuk, while providing additional tax

incentives to investors in these instruments to support youth-led innovative projects.

- **Integrating Zakat and Waqf Funds:** Activating the role of the **National Endowment Authority** and Zakat funds in investing in Green Sukuk issued by startups, creating a **Blended Finance** model that serves local sustainable development.
- **Training and Oversight:** Intensifying training programs for entrepreneurs on structuring Sukuk and understanding environmental disclosure requirements, while strengthening the role of the **COSOB** in monitoring the actual environmental impact of funded projects.

Final Word

In conclusion, Green Sukuk are not merely a transient financial tool; they are a strategic necessity for Algeria to finance its economic future away from oil price fluctuations. Empowering startups to access this market will create a new generation of "**Economic Champions**" capable of competing globally with innovative products that respect human values and the rights of the planet.

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The Developmental Role of Green Sukuk: Between Legal Dimensions and Economic Impact in Financing Startups

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