

DEVELOPING UZBEKISTAN'S SUSTAINABLE DEBT INSTRUMENTS MARKET: INTERNATIONAL STANDARDS, COMPARATIVE EXPERIENCE, AND A FIVE-PILLAR STRATEGY

O'ZBEKISTONDA BARQAROR QARZ INSTRUMENTLARI BOZORINI RIVOJLANTIRISH: XALQARO STANDARTLAR, QIYOSIY TAJRIBA VA BESH USTUNLI STRATEGIYA

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Abstract
Annotatsiya

Eng. - This article develops a five-pillar framework for deepening Uzbekistan's domestic market for sustainable debt instruments, drawing on ICMA standards and a structured comparison of the United States, Japan, the European Union, China, the Republic of Korea, and India. A mechanism-level diagnostic indicates that Uzbekistan has adopted a National Green Economy Taxonomy (2023) and an IFRS Sustainability Disclosure Standards (IFRS SDS)-based ESG reporting framework for large enterprises (2026). Since 2021, sovereign and bank issuers have placed at least USD 2.7 billion of labelled bonds in international markets, while the only domestic labelled issue to date amounts to UZS 50 billion. Four structural mismatches—external–internal, public–private, strategy–instrument, and outcome–impact—help explain this gap. An illustrative solar-PV calculation shows that increasing the discount rate from 6 percent to 14 percent raises the levelised cost of electricity by about 72 percent (from USD 36.7 to USD 63.1 per MWh), while a 3-percentage-point coupon subsidy on a UZS 500 billion three-year bond has a present-value fiscal cost of about 7 percent of face value. Three policy-contingent issuance scenarios for 2026–2030, disaggregated by issuer category, produce cumulative labelled issuance of USD 3.25 billion, USD 7.92 billion, and USD 13.25 billion, with the domestic share reaching 14 percent, 29 percent, and 37 percent of annual issuance by 2030. These scenarios are transparent analytical illustrations rather than forecasts.

Uzb. - Ushbu maqolada ICMA standartlari hamda AQSh, Yaponiya, Yevropa Ittifoqi, Xitoy, Koreya Respublikasi va Hindiston tajribasining tizimli qiyosiy tahliliga tayangan holda O'zbekistonda barqaror qarz instrumentlarining ichki bozorini rivojlantirish uchun besh ustunli strategik yondashuv ishlab chiqilgan. Mexanizmlar darajasidagi diagnostika O'zbekistonda 2023-yilda Milliy yashil iqtisodiyot taksonomiyasi qabul qilinganini, 2026-yilda yirik korxonalar uchun IFRS SDS asosidagi ESG hisobot tizimi joriy etilganini, 2021-yildan buyon suveren va bank emitentlari xalqaro bozorlarda kamida 2,7 mlrd AQSh dollari miqdorida markirovkalangan obligatsiyalar joylashtirganini, ichki bozordagi yagona markirovkalangan emissiya esa 50 mlrd so'mni tashkil etishini ko'rsatadi. Tahlilda tashqi–ichki, davlat–xususiy, strategiya–instrument va natija–ta'sir o'rtasidagi to'rtta tarkibiy nomuvofiqlik ajratilgan. Quyosh fotoelektr loyihasi bo'yicha namunaviy hisob-kitob diskont stavkasi 6 foizdan 14 foizga oshirilganda elektr energiyasining darajalangan tannarxi qariyb 72 foizga oshishini ko'rsatadi. 2026–2030-yillar uchun uchta shartli emissiya ssenariysi ham taqdim etilgan, ular prognoz emas, balki tahliliy illyustratsiyalar sifatida talqin qilinadi.

Keywords:
Kalit so'zlar:

❖ *sustainable debt instruments, green bonds, Sustainability-Linked Bond Principles, green taxonomy, ESG disclosure, green refinancing, scenario analysis.*

❖ *barqaror qarz instrumentlari, yashil obligatsiyalar, barqarorlik ko'rsatkichlariga bog'langan obligatsiyalar tamoyillari, yashil taksonomiya, ESG axborotlarini oshkor etish, yashil qayta moliyalashtirish, ssenariy tahlili.*

Introduction.

Sustainable debt markets have expanded rapidly. World Bank monitoring reports cumulative labelled sustainable-bond issuance of USD 6.2 trillion by December 2024 [9]; cumulative recorded GSS+ issuance reached USD 8.1 trillion by end-2025 [6]; and global climate-finance needs remain substantially larger [7]. For developing economies with bank-based financial systems and relatively shallow domestic capital markets, an important analytical question is which institutional mechanisms can be adapted to local legal, monetary, and market conditions.

Uzbekistan has established several institutional foundations through the 2019 Green Economy Strategy [24], subsequent reform measures [26], the Uzbekistan–2030 Strategy [25], the National Green Economy Taxonomy adopted in 2023 [48], and Cabinet of Ministers Resolution No. 221 of 4 May 2026, which introduces sustainability reporting for large strategic enterprises based on IFRS Sustainability Disclosure Standards [23][49]. International labelled issuance has also expanded. Sovereign SDG and green bonds placed in 2021 and 2023 totalled about USD 1.2 billion, including the 2023 sovereign green issue in local currency (UZS 4.25 trillion at a 16.25% coupon) [54], followed by a EUR 500 million green tranche in February 2025 [29]. In 2024, Sanoat Qurilish Bank issued sustainability bonds of USD 400 million and UZS 2.25 trillion [52], while Agrobank issued green Eurobond tranches of USD 400 million and UZS 700 billion [53]. Taken together, the transactions reviewed in this article amount to at least USD 2.7 billion in labelled international issuance. By contrast, the domestic labelled market remains at an early stage: the first local green bond, issued by the Uzbekistan Mortgage Refinancing Company in September 2024, amounted to UZS 50 billion [30]. OECD estimates at least USD 6 billion in additional annual financing needs for selected SDG, climate, and development objectives [5]. A central implementation issue is therefore how taxonomy, disclosure, verification, bank incentives, investor demand, and secondary-market infrastructure can be integrated in a coherent manner.

The article aims to develop a practical framework for Uzbekistan's sustainable debt market by comparing institutional mechanisms across six benchmark jurisdictions; identifying domestic implementation gaps; illustrating financing-cost sensitivity through LCOE; assessing the arithmetic and safeguards associated with temporary coupon support; and presenting transparent, issuer-disaggregated issuance scenarios for 2026–2030.

Literature Review.

Economic rationales for public-sector measures in sustainable finance include the under-pricing of environmental externalities [34–36], while stakeholder and competitiveness perspectives help explain why issuers may voluntarily adopt higher sustainability standards [37][38]. Evidence on the pricing of labelled debt is more nuanced than early advocacy suggested. Zerbib finds only a small negative yield premium on green bonds [39]; Pástor, Stambaugh, and Taylor show that such a premium is consistent with equilibrium when green preferences are

sufficiently widespread [41]; and Bolton and Kacperczyk find that carbon risk is reflected in required returns on issuer exposure rather than in labels alone [42]. Flammer shows that the positive market response to corporate green bonds is concentrated among externally certified issuers [40]. Taken together, these studies suggest that, without credible verification and disclosure, a label alone may be insufficient to generate a financing-cost advantage. Meta-analytic evidence [43] and integrative frameworks [44; 45] link sustainability factors to financial performance, while the financial-stability literature [46; 47] and the Basel Committee principles [22] treat climate risk as a prudential concern rather than solely a matter of voluntary disclosure. At the market-design level, ICMA's Green and Social Bond Principles and Sustainability Bond Guidelines establish four core components for use-of-proceeds instruments, whereas the Sustainability-Linked Bond Principles link financial characteristics to verified KPIs and Sustainability Performance Targets [1–4]; joint ICMA–IsDB–LSEG guidance extends this architecture to sukuk [31]. Evidence from bank-based systems shows that China's green-loan stock substantially exceeds its annual green-bond issuance, reflecting the interaction of taxonomy, bank reporting, and central-bank refinancing [11], while global monitoring confirms that green bonds continue to dominate annual labelled volumes [9]. Uzbekistan-focused work documents green-transition financing needs and capital-market constraints [5; 8], but provides limited integrated analysis of how taxonomy, disclosure, bank channels, labelled debt, and investor development can be sequenced in a bank-dominated emerging market. This article addresses that specific institutional gap.

Research Methodology.

Four methods are combined. First, a structured comparative review examines the United States, Japan, the European Union, China, the Republic of Korea, and India across seven mechanism elements: taxonomy, disclosure, prudential/central-bank integration, market infrastructure, fiscal incentives, carbon pricing, and state promotional instruments. Each element is classified as absent (A), emerging or narrowly scoped (E), formally adopted or partially operational (P), or operational at scale (O). Mechanisms that exist only on a voluntary or sub-national basis are classified as E, while binding requirements that apply only from a future date are classified as P. No aggregate country ranking is produced. Second, Uzbekistan's external–internal, public–private, strategy–instrument, and outcome–impact mismatches are diagnosed from regulatory and issuance evidence. Third, an illustrative solar-PV levelised cost of electricity (LCOE) sensitivity analysis uses the capital-recovery-factor approach:

$$LCOE = \frac{CAPEX \times CRF(r,n) + annual\ O\&M}{annual\ electricity\ output}, (1)$$

where: LCOE denotes the levelised cost of electricity; *CAPEX* is the initial capital expenditure of the solar PV project; *CRF(r,n)* is the capital recovery factor; *r* is the annual discount rate; *n* is the economic lifetime of the project in years; *Annual O&M* represents annual operation and maintenance costs; and *Annual electricity output* represents the electricity generated by the project during one year. The capital recovery factor is calculated as

$$CRF = \frac{r(1+r)^n}{(1+r)^n - 1}. (2)$$

The illustration uses IRENA's global benchmark capital cost of USD 758/kW, a 22% capacity factor, a 25-year life, annual fixed O&M of 1.5% of initial CAPEX, and no degradation [33]. The 6% rate approximates long-term concessional or hard-currency project financing, while 14% corresponds to the Central Bank's nominal policy rate [55]. Because the two rates differ in currency and inflation premia as well as credit terms, the comparison should be interpreted as an upper-

bound illustration of the financing-cost wedge rather than as a project tariff forecast. Fourth, three policy-contingent issuance scenarios for 2026–2030—inertial, baseline, and accelerated—are constructed from explicit assumptions for three issuer categories: sovereign international issuance; international issuance by banks and state-owned enterprises; and domestic labelled issuance by all issuers. The assumptions are reported in Table 6, and a one-factor sensitivity check is applied to the baseline scenario.

Analysis and Discussion of Results.

Diagnostic profile of Uzbekistan's sustainable financing system. Uzbekistan's sustainable financing system includes a legally adopted taxonomy [48], a phased IFRS SDS-based sustainability-reporting framework for large strategic enterprises [49], experience with sovereign and bank international labelled issuance [29; 52; 53], and an initial domestic green bond [30]. The remaining implementation gaps concern operational coverage and integration, including dedicated sustainable-bond issuance rules, prudential and refinancing treatment, external-verifier capacity, repeat local-currency issuance, institutional-investor demand, and secondary-market infrastructure.

Table 1 compares institutional mechanisms rather than ranking jurisdictions. Within the classification used in this study, Uzbekistan is coded as partially operational for taxonomy design and as emerging for disclosure, while several supporting mechanisms are classified as emerging or absent.

Table 1

Comparative institutional status of sustainable-finance mechanisms across six benchmark jurisdictions and Uzbekistan

Element	EU	China	Japan	Korea	India	USA	Uzbekistan
Taxonomy design and legal status	O	O	P	P	P	A	P
Mandatory disclosure regime	O	P	P	P	O	U	E
Prudential / central-bank integration	O	O	P	P	P	E	E
Market and exchange infrastructure	O	O	O	O	P	O	E
Fiscal and coupon-level incentives	P	O	P	P	E	O	A
Carbon-pricing mechanism	O	O	P	O	E	E	A
State promotional instruments	O	O	P	P	O	P	P

Note: *O = operational at scale; P = formally adopted or partially operational; E = emerging, voluntary, sub-national or narrowly scoped; A = absent; U = unsettled. No aggregate ranking is reported.* ***Source:*** *author's structured review of legislation, regulator and central-bank documents cited in the text; carbon-pricing status based on [56].*

Four structural mismatches are used to organize the diagnostic. The external–internal mismatch compares at least USD 2.7 billion of international labelled issuance with a single UZS 50 billion domestic issue [30; 52; 53]. The public–private mismatch reflects the current concentration of issuance among sovereign and state-linked issuers. The strategy–instrument mismatch refers to the fact that adopted strategies and the taxonomy are not yet fully translated into securities rules, verification arrangements, and market infrastructure. The outcome–impact mismatch refers to uneven ex-post impact metrics: allocation and impact reports are published for sovereign issues [28], but outcome indicators are not yet reported on a harmonized basis across issuers.

The LCOE sensitivity illustrates the importance of financing conditions. Under the parameters stated in the Methodology, the capital-recovery factor rises from 7.82% at a 6% discount rate to 14.55% at 14%, an increase of about 86%. Because fixed O&M (1.5% of CAPEX) does not depend on the

discount rate, the total annual cost per kW rises by about 72%—from 9.32% to 16.05% of CAPEX—and, with output held constant, LCOE rises in the same proportion, from about USD 36.7 to USD 63.1 per MWh. Actual project LCOE also depends on technology cost, output, degradation, taxes, the construction profile, currency risk, and project-specific WACC.

International comparative experience. The six benchmark jurisdictions illustrate different institutional combinations. In the United States, deep capital markets and tax incentives coexist with no federal green taxonomy and an unsettled federal climate-disclosure framework; the 2024 climate-disclosure rules were proposed for rescission in May 2026 [19; 50]. Japan emphasizes transition finance and sovereign Climate Transition Bonds [17; 18]. The EU combines a binding taxonomy with a voluntary European Green Bond label and supervised external review [20; 21; 51]. China combines taxonomy, bank regulation, and central-bank refinancing, including the Carbon Emission Reduction Facility, and its green-loan stock substantially exceeds annual green-bond issuance [10; 11]. Korea combines K-Taxonomy, development-bank anchor issuance, a dedicated KRX segment, and a national emissions trading system [12; 13; 56]. India combines sovereign green-bond auctions, green deposits, and mandatory BRSR disclosure [14–16]. Table 2 summarizes institutional features that may be relevant for Uzbekistan.

Table 2

Summary of country models: instruments and transferability to Uzbekistan

Country	Central architecture	Key instrument	Potentially transferable feature for Uzbekistan
United States	*Deep markets; tax-incentive-led; fragmented federal climate-disclosure framework*	*Clean-energy tax incentives; municipal/sub-sovereign financing*	*Targeted incentives combined with clear eligibility and disclosure baselines*
Japan	*Transition-finance-led*	*Sovereign Climate Transition Bonds tied to carbon pricing*	*Transition bonds for a hydrocarbon-dependent generation mix*
European Union	*Binding taxonomy and disclosure architecture; voluntary EuGB label*	*EU Taxonomy + voluntary European Green Bond Standard*	*Interoperability: taxonomy → disclosure/verification → optional high-integrity label*
China	*Central-bank-led, bank-dominated*	*PBOC Carbon Emission Reduction Facility (concessional refinancing)*	*Reference point for combining taxonomy, bank reporting and calibrated refinancing; not a template for mechanical replication*
Republic of Korea	*Development-bank-anchored*	*KDB anchor issuance + KRX dedicated bond segment*	*State development bank as domestic market "anchor" issuer*
India	*Sovereign-auction + bank-sector*	*RBI green deposits; sovereign green bond auctions; SEBI BRSR*	*Green deposit framework and mandatory BRSR-style disclosure*

Source: *author's synthesis based on the national legislation, central-bank and regulator documents cited in the text. "Potentially transferable feature" denotes an institutional feature for consideration, not a ranking or recommendation to copy a foreign model unchanged.*

Across these cases, mature sustainable-debt markets tend to combine clear eligibility rules, credible disclosure and verification, repeat issuance, and either deep institutional demand or active public-sector market building. For Uzbekistan, the comparative evidence suggests that any adaptation of these mechanisms would need to reflect domestic legal mandates, monetary-policy objectives, fiscal constraints, and market depth rather

than assume direct replication of a foreign model.

Strategic architecture for Uzbekistan. The proposed 2026–2030 framework consists of five mutually reinforcing pillars supported by a cross-cutting coordination layer involving the Ministry of Economy and Finance and the Central Bank (Figure 1).

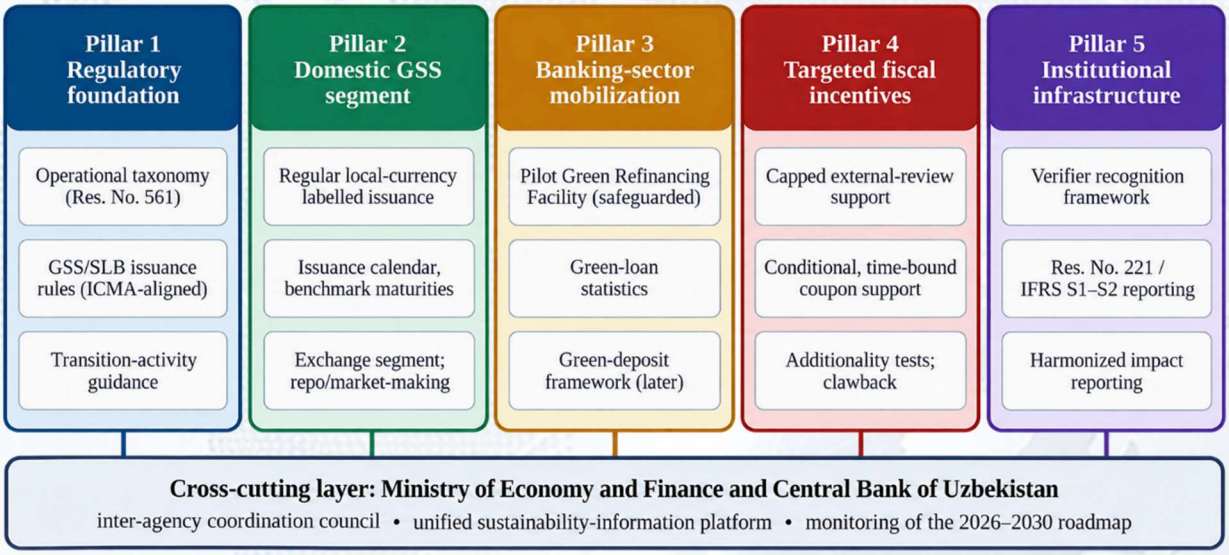


Figure 1. Strategic architecture for developing Uzbekistan's sustainable debt instruments market, 2026–2030: five mutually reinforcing pillars and a cross-cutting coordination layer

First pillar – regulatory foundation. The framework proposes operationalizing the 2023 National Green Economy Taxonomy through technical screening and reporting guidance, treatment of transition activities, and explicit linkage to labelled-debt issuance [48]. Any dedicated GSS/SLB regulation could be designed to align with ICMA principles [1–4] and with the IFRS SDS-based reporting baseline introduced by Resolution No. 221 [23; 49].

Second pillar – domestic GSS segment. The framework considers regular local-currency sovereign or state-backed labelled issuance supported by an issuance calendar, benchmark maturities, post-issuance reporting, investor access, and a review of market-making and repo/collateral arrangements. Any use of mandatory investor allocations would require a separate prudential and market-impact assessment. At a later stage, digital placement channels, such as the tokenised green bond piloted in Hong Kong [32], could potentially reduce distribution costs for small-denomination retail tranches.

Third pillar – banking-sector mobilization. A Green Refinancing Facility could be evaluated initially as a calibrated pilot linked to the national taxonomy and verified loan-level reporting. Facility size, maturity, pricing, collateral, pass-through, credit risk, and exit arrangements would need to be assessed before implementation. Green-loan statistics and, at a later stage, a green-deposit framework could complement such a pilot [10; 16].

Fourth pillar – targeted fiscal incentives. Temporary support could reduce first-mover costs through capped external-review assistance and, where additionality is demonstrated, limited coupon support. Any such scheme would need to be time-bound, independently verified, and subject to clawback in cases of material non-compliance.

Table 3 illustrates the arithmetic. The 16% unsubsidized coupon is set close to recent sum-denominated sovereign yields: 16.25% on the 2023 green issue [54] and 15.5% on the 2025 issue [29]. A 3-percentage-point annual subsidy on a UZS 500 billion three-year bond

equals UZS 15 billion per year. Discounted at the 14% policy rate [55], the three payments have a present value of about UZS 34.8 billion (6.96% of face value); discounted at the issuer's 16% cost of funds, the present value is about UZS 33.7 billion (6.74%).

Table 3

Illustrative fiscal cost-benefit of a coupon subsidy on a domestic green bond issuance

Parameter	Value
Illustrative issuance size	*UZS 500 billion*
Tenor	*3 years*
Coupon without subsidy	*16%*
Coupon subsidy	*3 percentage points*
Effective coupon to issuer	*13%*
PV discount rate	*14% per year (policy rate)*
PV of 3 subsidy payments at 14%	*UZS 34.8 billion ≈ 6.96% of face value*
PV at 16% (sensitivity)	*UZS 33.7 billion ≈ 6.74% of face value*

Source: *author's illustrative calculation. The subsidy is assumed to be paid annually on the full UZS 500 billion principal for three years; discounting at the policy rate (14%) and at the issuer's cost of funds (16%) is shown.*

The calculation measures fiscal cost only; it does not estimate how much additional issuance the subsidy would generate, because some supported issues might have occurred without the subsidy. Any operational application would therefore require additionality tests, issuer caps, a declining support schedule, independent verification, and clawback provisions.

Fifth pillar – institutional infrastructure. The framework envisages inter-agency coordination, a transparent external-reviewer recognition framework, and a unified sustainability-information platform. Securities disclosure, issuer-level ESG reporting under Resolution No. 221, and labelled-bond impact reporting could be aligned so that requirements are consistent, proportionate, and auditable [28; 49].

Table 4

Illustrative roadmap for developing the sustainable financial instruments market, 2026–2030

Strategic pillar	Principal measures	Institutions potentially involved	Target period
1. Regulatory foundation	*Operationalization of the National Green Economy Taxonomy; development of GSS/SLB issuance rules; alignment of securities disclosure with the 2026 ESG framework; technical screening and transition guidance*	*Ministry of Economy and Finance, Central Bank*	*2026–2027*
2. Domestic GSS segment	*Regular local-currency labelled issuance; issuance calendar and benchmark maturities; dedicated exchange segment; post-issuance reporting; review of market-making/repo arrangements; investor-access measures*	*Ministry of Economy and Finance, Republican Stock Exchange "Toshkent"*	*2026–2028*
3. Banking sector mobilization	*Pilot Green Refinancing Facility subject to monetary/financial-stability assessment; green-loan statistics; possible green-deposit framework*	*Central Bank, commercial banks*	*2027–2029*
4. Fiscal and coupon-level incentives	*Time-bound promotion mechanism; capped verification support; illustrative coupon support subject to additionality, verification and clawback; tax-incentive review*	*Ministry of Economy and Finance, Ministry of Investment, Industry and Trade*	*2027–2030*
5. Institutional infrastructure	*Coordination mechanism; verifier recognition/registry; digital platform; implementation of Resolution No. 221; harmonized impact reporting*	*Ministry of Economy and Finance, Central Bank, market participants*	*2026–2030*

Source: *author's construction, based on the strategy design developed in the author's dissertation research [27].*

Scenario analysis, 2026–2030. Tables 5 and 6 present three assumption-driven issuance paths rather than econometric forecasts. The inertial path uses the 2021–2025 issuance record as an illustrative base, corresponding to approximately USD 350 million per year of sovereign labelled issuance and USD 200 million per year of labelled bank issuance [29; 52; 53; 54], with slow domestic growth. The baseline path assumes phased implementation of the five pillars, 5% annual growth in sovereign issuance, and a gradual shift of bank funding towards the domestic market. The accelerated path assumes full implementation by 2027, 10% annual growth in sovereign issuance, including green sukuk from 2028, and earlier domestic institutional-investor participation. These assumptions are analytical rather than predictive and should be updated as actual issuance and demand data become available.

Table 5

Illustrative annual issuance paths of GSS bonds by national issuers, 2026–2030 (USD million equivalent)

Scenario	2026	2027	2028	2029	2030	Cumulative 2026–2030
Inertial	610	620	650	670	700	3,250
Baseline	1,150	1,330	1,567	1,811	2,061	7,919
Accelerated	1,650	2,085	2,594	3,130	3,795	13,254

Source: *author's policy-contingent scenario construction based on the assumptions in Table 6. Annual values are illustrative, not econometric point forecasts; cumulative totals equal the sum of annual values.*

Table 6

Scenario assumptions by issuer category, 2026–2030 (USD million equivalent)

Scenario / issuer category	2026	2027	2028	2029	2030	Cumulative 2026–2030
Inertial: sovereign international	350	350	350	350	350	1,750
Inertial: banks and SOEs, international	220	215	230	235	252	1,152
Inertial: domestic labelled issuance	40	55	70	85	98	348
Inertial: domestic share, %	6.6	8.9	10.8	12.7	14.0	10.7
Baseline: sovereign international	368	386	405	425	447	2,031
Baseline: banks and SOEs, international	682	774	882	984	1,016	4,338
Baseline: domestic labelled issuance	100	170	280	402	598	1,550
Baseline: domestic share, %	8.7	12.8	17.9	22.2	29.0	19.6
Accelerated: sovereign international	385	424	466	512	564	2,351
Accelerated: banks and SOEs, international	1,015	1,211	1,408	1,618	1,827	7,079
Accelerated: domestic labelled issuance	250	450	720	1,000	1,404	3,824
Accelerated: domestic share, %	15.2	21.6	27.8	31.9	37.0	28.9

Source: *author's construction. Sovereign issuance starts from an illustrative 2021–2025 average of about USD 350 million and grows at 0%, 5%, and 10% a year in the three paths; bank and domestic values are stated assumptions, and the rows sum to the totals in Table 5. Because 2026 is already well advanced, the 2026 values of the baseline and accelerated paths are presented as full-year run-rates under the respective scenario settings rather than as expected outturns.*

Cumulative issuance equals USD 3.25 billion in the inertial path, USD 7.92 billion in the baseline, and USD 13.25 billion in the accelerated path. By 2030, annual issuance reaches USD 0.70 billion, USD 2.06 billion, and USD 3.80 billion, respectively, while the domestic share of annual issuance rises to 14%, 29%, and 37% (Figure 2). A one-factor sensitivity check on the baseline indicates that halving domestic labelled issuance reduces cumulative issuance by about USD 0.78 billion, while holding sovereign issuance flat at USD 350 million reduces it by about USD 0.28 billion. Within this scenario design, cumulative issuance is therefore more sensitive to domestic-market assumptions than to the assumed growth of sovereign issuance abroad.

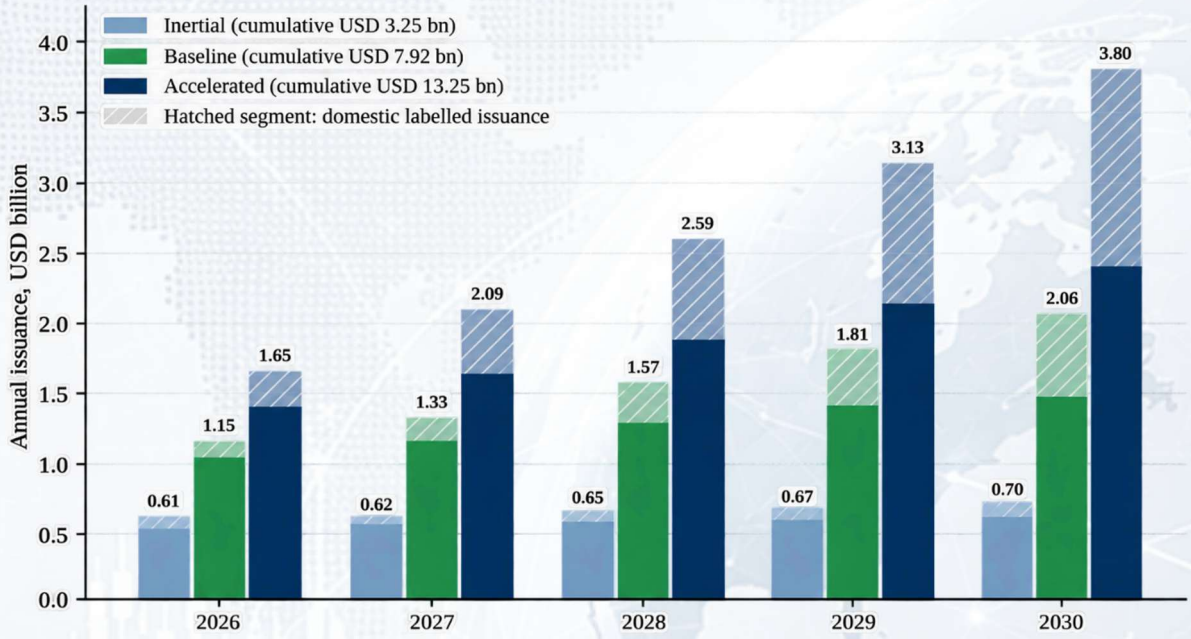


Figure 2. Annual GSS bond issuance paths of national issuers under three scenarios, 2026–2030 (USD billion; hatched segments show domestic labelled issuance)

These scenarios illustrate scale rather than causality. OECD's financing-needs estimate is annual [5], whereas the cumulative totals cover five years. The relevant comparison is therefore between annual issuance—USD 0.70–3.80 billion in 2030—and annual financing needs of at least USD 6 billion, noting that bonds represent only one financing channel.

Uzbekistan's sustainable-finance framework has progressed from establishing basic institutions towards questions of operationalization and consistency. The taxonomy, the first domestic green bond, and the 2026 reporting framework provide a foundation, while further market development is associated with credible verification, repeat local-currency issuance, investor development, and secondary-market infrastructure [30; 48; 49]. The pricing literature supports this sequencing: without certification and disclosure, labelled issuance may be less likely to achieve a financing-cost advantage [39; 40]. International experience highlights different institutional options rather than a single model: China illustrates institutional complementarity in a bank-based system; the EU demonstrates taxonomy-based interoperability; Japan emphasizes transition finance; Korea illustrates the use of an anchor issuer; India combines sovereign and bank-sector instruments; and the United States shows how deep markets can coexist with fragmented federal climate rules. The scenario sensitivity analysis similarly indicates that, under the stated assumptions, domestic-

market development has a larger effect on cumulative issuance than faster sovereign issuance abroad.

The proposed fiscal and monetary instruments also involve trade-offs. Coupon support may partly subsidize issuance that would have occurred without support, while central-bank refinancing may interact with monetary-policy and credit-allocation objectives. Potential safeguards include time limits, facility caps, transparent eligibility criteria, independent verification, post-issuance reporting, audit and clawback rights, concentration limits, and an exit strategy. Market development may also depend on benchmark pricing, liquidity, market making, settlement arrangements, and appropriate repo/collateral frameworks.

The comparative framework is qualitative and does not estimate causal effects; the classification in Table 1 involves judgement, although the classification rules are stated in the Methodology. The LCOE and coupon examples are illustrative calculations, and the issuance paths are policy-contingent scenarios whose 2026 values are run-rates rather than outturns. Future work could quantify investor demand, liquidity, FX hedging costs, the monetary and fiscal incidence of refinancing, subsidy additionality, and the legal requirements for green sukuk [31].

Conclusions and Recommendations.

Uzbekistan has established core sustainable-finance foundations—a legally adopted taxonomy, an IFRS SDS-based reporting framework, and at least USD 2.7 billion of international labelled issuance—while the domestic sustainable debt market remains at an early stage. The analysis identifies five areas for consideration during 2026–2030: (1) operationalizing the taxonomy and aligning it with securities and ESG disclosure; (2) expanding repeat local-currency labelled issuance and secondary-market infrastructure; (3) assessing bank-sector green refinancing through a calibrated, safeguarded pilot; (4) considering temporary fiscal support only where additionality and compliance can be verified; and (5) strengthening coordination, external review, and impact reporting. The LCOE illustration shows that moving from a 6% to a 14% discount rate raises the modelled cost of solar generation by about 72%, while the coupon example places the present-value fiscal cost of a 3-percentage-point subsidy at about 7% of face value. The three issuance paths—USD 3.25 billion, USD 7.92 billion, and USD 13.25 billion cumulatively over 2026–2030, with a domestic share of 14–37% by 2030—are scenarios rather than predictions and should be updated as market data become available.

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