Interim report

Embedding adaptation & resilience in Uganda's sovereign debt dynamics and credit profile

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Foreword

Climate-related risks are impossible to ignore within our communities and finance ministries. Droughts, floods and land degradation are eroding growth potential, increasing fiscal stress, and threatening macroeconomic instability.

For Uganda, this challenge goes to the heart of our development model. Our Fourth National Development Plan makes the first step toward achieving ten-fold growth over the next 15 years. Agriculture and agro-industrialisation are central to this ambition, yet the sector remains highly exposed to climate change and nature degradation, posing a significant risk to sustained growth. In 2017, a severe drought cut our economic growth by 1.5 percentage points from the initial projection and affected 1.3 million Ugandans. It triggered unplanned disaster response spending, a sharp decline in agricultural output, and consequent shortfalls in domestic revenue and service delivery.

Uganda must invest in climate adaptation & resilience to safeguard its development and preserve its creditworthiness. These investments are essential for building long-term resilience against escalating climate, nature and terms-of-trade shocks. However, the international financial system does not yet adequately recognise adaptation & resilience investments as macro-critical. Sovereign risk assessments, which influence investment decisions, access to finance and the cost of capital, often capture only the upfront fiscal costs of these investments, without fully reflecting their long-term benefits. As a result, borrowing costs may rise and fiscal space may shrink precisely when countries are making investments that reduce future risks. This makes it harder for countries like Uganda to finance resilience on affordable terms.

This work is about changing that paradigm. It sets out a practical approach to make the returns on resilience visible in sovereign debt dynamics and credit profiles. When such gains are understood, they can unlock the capital flows that countries like Uganda urgently need. Our hope is that other countries will build on this work and join us in making the case for resilience investment. Together, we can help ensure the relevant institutions recognise investment in resilience as not just a fiscal cost, but an investment in sustainable growth, stability and development.

Dr. Ramathan Ggoobi

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Ministry of Finance, Planning, and Economic Development, Uganda

Executive Summary

Agriculture is the engine of Uganda's economy. It underpins growth, exports, employment, and the country's industrialisation ambitions. But that engine is increasingly exposed to climate change and nature loss. Changing rainfall patterns, land degradation, and ecosystem loss are already affecting productivity and stability. What were once shocks are becoming structural features of the economy.

These pressures are now visible in sovereign risk assessments. Climate-related risks are increasingly reflected in debt sustainability analyses (DSAs) and sovereign credit ratings. As risks rise, borrowing costs increase and fiscal space tightens. This creates a tension: the moment when countries most need to invest in climate adaptation & resilience (A&R) is also when financing terms become more restrictive.

This reflects an asymmetry in how sovereign risk is being assessed. Assessments increasingly price-in downside climate-related risks to debt sustainability and creditworthiness, drawing on a growing array of modelling tools and metrics to that end. But they do not adequately capture how A&R investments and interventions (from here A&R measures) mitigate climate-related risks, as well as improve how the economy performs under normal conditions – for example, through more stable agricultural output and export earnings. In practice, sovereign risk assessments capture the fiscal costs of climate vulnerability, but not the credit uplift of A&R measures.

This asymmetry is reinforced by a quantitative bias in how climate risks are integrated into sovereign credit assessments and debt sustainability analysis. What can be expressed through statistics, parameterised, and incorporated into models carries more credibility. Climate-related risks can increasingly be expressed through standardised indicators and stress-tested within existing methodologies. By contrast, many of the benefits of A&R measures are harder to measure (for example, due to data limitations) or are inherently qualitative. This includes benefits linked to healthy soil quality or flood-resistant building codes, or stronger institutions or policy effectiveness – for example, through improved disaster risk management. These benefits are credit-relevant, but they do not systematically feature in the macroeconomic projections and debt dynamics that determine debt sustainability and creditworthiness.

This asymmetry shapes incentives. Finance ministries are pushed toward investments that show clear, modelled returns in existing frameworks, such as traditional infrastructure or energy. Investments that strengthen resilience are harder to justify within the same frameworks. The result is a persistent underinvestment in areas that are central to long-term growth and stability.

At its core, this is a problem of how sovereign risk frameworks have evolved. They were designed for a world in which acute catastrophic shocks were tail risk scenarios, not the baseline. The compounding costs of climate change and nature loss are becoming chronic features of sovereign finance. Governments are taking earnest and concerted action to shock-proof their economies and upgrade policy planning for a more volatile risk environment. Updates to the frameworks are now underway, yet progress is slow and skewed to the downside. Persuading all key actors in the sovereign finance space to shift their approach to sovereign risk assessment requires more evidence, as well as new tools to accelerate uptake.

This report contributes to that evidence base. Uganda's Ministry of Finance, Planning, and Economic Development (MoFPED) is integrating the economic and fiscal benefits of resilience investments into debt sustainability analysis. The aim is to demonstrate, in practice, how these investments affect growth, fiscal outcomes, and creditworthiness, and to provide a first proof-point for broader reform.

Making resilience investments and interventions visible in debt dynamics & credit drivers

Uganda's financing challenge can be understood as a combination of systemic and country-specific constraints:

I. At the systemic level, global credit conditions have tightened. Concessional finance is limited, global interest rates have increased, and risk appetite for EMDE debt is volatile.

II. At the individual country-level, the constraint is how creditors perceive policy choices, macroeconomic trends, and structural features of an economy in a more complex and ambiguous risk environment. Debt sustainability analyses and credit ratings are key conceptual lenses through which they assess country-specific factors, and both play a central role in shaping both access to finance and its cost. Yet currently, they do not consistently or systematically reflect how A&R measures can change the underlying drivers of growth, price dynamics, and fiscal performance. As a result, creditors may undervalue and under-invest in resilience.

This report is focused on addressing the country-specific constraints. To address this challenge, this report sets out a KPI-linked approach to make **the returns on resilience investments visible in the debt dynamics and credit profiles that underpin sovereign risk assessments.** The KPI-linked approach provides a framework to map project- and programme-level actions to credit outcomes while rewarding actual performance over perceptions.

This requires combining quantitative and qualitative dimensions of resilience investments and interventions. While some impacts can be directly modelled and parameterised quantitatively, others – such as policy credibility, institutional strength, and delivery capacity – must be captured through structured and verifiable indicators that can be integrated into qualitative factors.

The approach connects three levels:

I. National-level KPIs, which anchor resilience ambition within fiscal, development, and public financial management strategies

II. Programme and project KPIs, which track execution and verify delivery of resilience ambition

III. Debt and credit drivers, which translate delivery of resilience ambitions into changes in growth, fiscal performance and debt dynamics.

Together, the three levels of KPIs create a verifiable chain of evidence linking policy ambition, delivery, debt dynamics and credit outcomes, creating a clear pathway through which A&R measures can be reflected in the quantitative and qualitative factors in sovereign risk assessments.

Figure 1 The KPI-linked approach

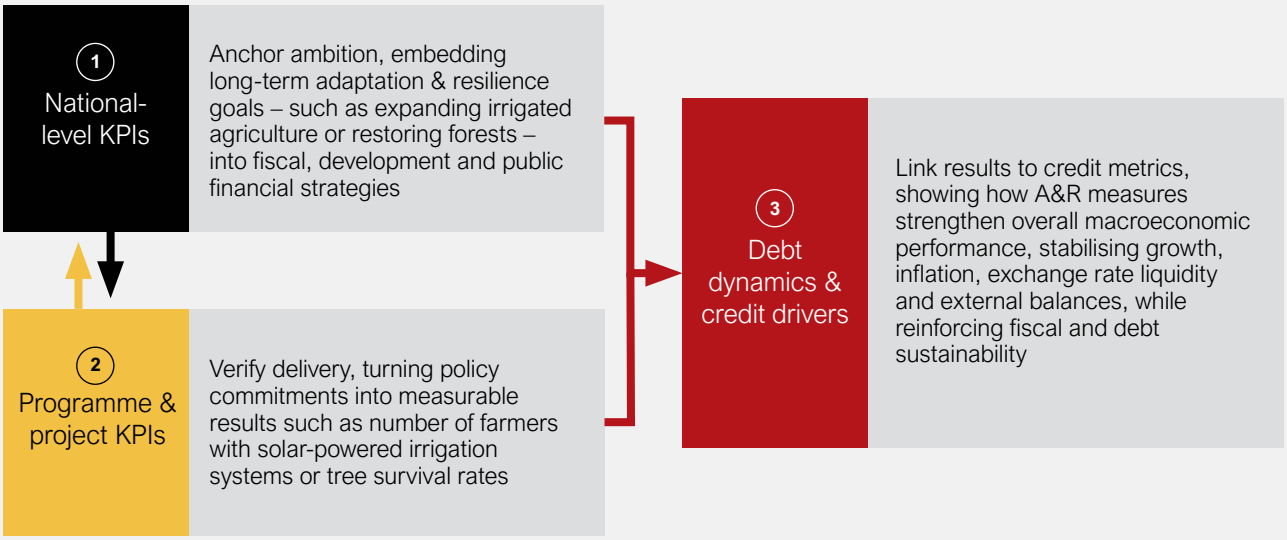
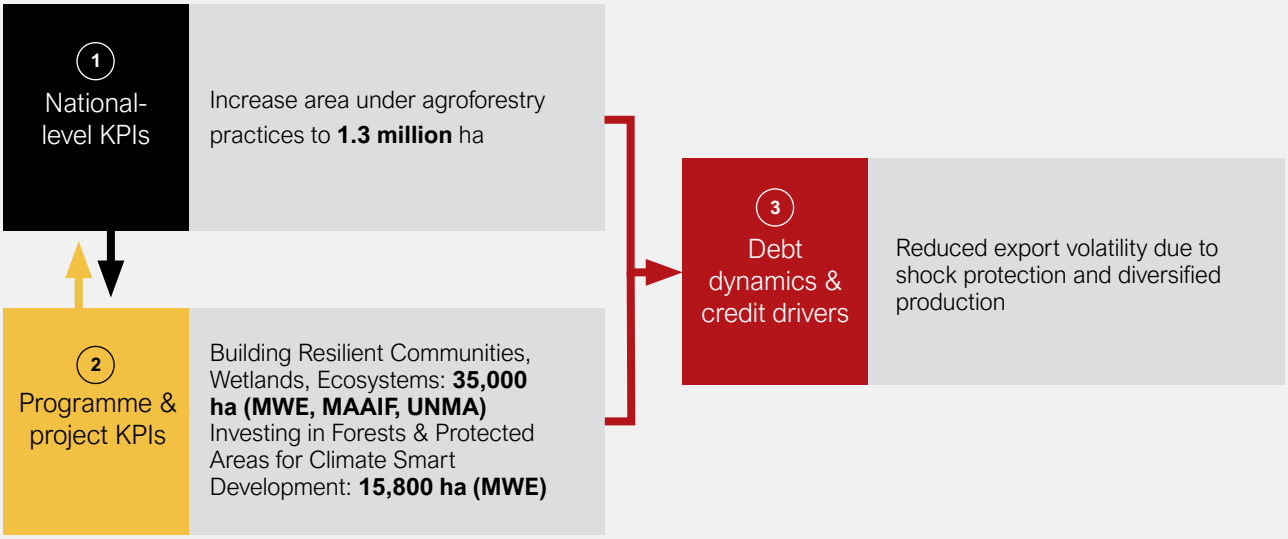


Figure 2 The KPI-linked approach: Uganda illustration



Uganda as a proof point

Uganda is the first country to apply this approach, creating a proof point for how the benefits of A&R measures can be recognised in sovereign risk assessments. In this report, Uganda focuses on resilience within its agro-industrialisation programme. For Uganda, agriculture is where climate risk exposure, natural capital endowments, and economic transformation intersect most directly.

The analysis maps specific resilience interventions, such as irrigation, soil restoration, and agroforestry, to economic transmission channels. These include higher and more stable agricultural productivity, improved export performance, and greater fiscal policy predictability. These effects are then translated into debt dynamics & credit drivers, including growth rates, revenue performance, external balances, and debt trajectories.

This is an interim progress report. It presents initial findings on the returns on resilience investments, expressed through both quantitative and qualitative debt dynamics & credit drivers:

Quantitative	Qualitative
• A severe drought can reduce GDP by 4.0% and a severe flood by 1.0%, materially worsening growth, exports and public debt	• The qualitative scores employed in the DSA and the credit rating agency (CRA) models significantly undervalue the role of A&R interventions in bolstering policy effectiveness and predictability, although the extent of omission is difficult to estimate owing to significant gaps in the quality and availability of underlying data.

• Agro-industrialisation A&R KPIs can:
  • Reduce shock severity
  • Protect at least 0.76 percent points of GDP in severe climate years
  • Keep the present value of public debt about 1.1-1.2 percentage points of GDP lower than the unmitigated path
	• Significant amendments are needed to current CPIA questionnaires and CRA criteria to fully and faithfully reflect A&R measures in the CPIA and Big Three credit ratings. The report notes specific areas where the criteria fall short, such as policies that deepen insurance penetration including premium subsidies. Amendments could push Uganda's CPIA scores closer to the 'Strong' DSA country classification for debt-carrying capacity.
	• Integrating relevant A&R criteria should provide uplift mechanistically via the World Bank's Country Policy and Institutional Assessment (CPIA) and Worldwide Governance Indicators (WGIs), which feed into LIC-DSF and Fitch's Sovereign Rating Model (SRM) respectively (they also feature in Moody's sovereign rating criteria, although these only serve as guideposts). We argue for adjustments to both the methodological and current scores, which if implemented should provide credit rating uplift of at least one notch for Fitch and S&P Global.

In this first phase, the analysis focuses on how A&R measures absorb one-off acute climate shocks, such as floods and droughts. This is the most tractable entry point for integration into sovereign risk assessment.

The next phase to October this year will extend the analysis to the chronic effects of climate change, including land degradation. These effects directly undermine the productivity growth assumptions central to Uganda's agro-industrialisation strategy, and must be captured to reflect the full returns on resilience.

Forthcoming analysis will also distinguish between investments that protect existing production systems and those that improve or transform them, recognising that the latter can generate higher productivity, stronger growth, and more durable stabilising effects over time from a credit perspective.

This forthcoming analysis will further consider feedback loops and interaction effects, as well as the increasingly chronic nature of climate-related shocks, and how investments into A&R can drive credit uplift, improve financing terms and expand fiscal space – thereby enabling further resilience investment. It will also assess how debt management strategies and financing instruments can reinforce these dynamics.

Ultimately, the impact of resilience interventions depends on how they are structured, financed, sequenced, and delivered. Poorly designed or financed investments can still create fiscal vulnerabilities. The case for resilience therefore rests on credible implementation and appropriate financing structures.

Making this approach practical

A key challenge to integrating resilience investments and interventions into macrofiscal frameworks is purely practical. Existing models used by the IMF, World Bank and "Big Three" CRAs (Moody's, S&P Global, and Fitch Ratings) are complex, opaque, resource-intensive, and often not accessible to finance ministries. This limits countries' ability to test scenarios, generate evidence for policies or debt management strategies, and engage on equal footing with market actors in discussions on debt sustainability and creditworthiness.

[1] SovTech is the emerging field of sovereign financial technology, defined as the application of data science and artificial intelligence to sovereign risk measurement and public financial management.

To address this barrier, the report introduces an open source Sovereign Technology (SovTech) enabled workflow that makes resilience analysis more usable, comprehensible, and scalable.[1]

This allows finance ministries and debt management offices to:

I. Quantify how resilience investments affect key economic and fiscal variables
II. Simulate different policy interventions and financing scenarios, including different combinations of debt instruments
III. Translate results directly into debt and credit drivers used in DSAs and credit assessments

The objective is not to replace existing frameworks and models, but to make them more transparent, accessible, and responsive to A&R considerations. It is also about augmenting the capabilities of users at finance ministries and further afield who are scarce on time, budget, and staff to take on additional analytical workloads entailed by climate-related risk modelling.

This work is first about Uganda. By linking resilience investments and agricultural innovation to debt dynamics & credit drivers, Uganda strengthens how it prioritises public spending and how it engages with the international financial architecture. It provides a stronger footing for negotiations with the IMF, World Bank, CRAs and investors by showing how specific investments and interventions are credit positive over the medium term even if they weaken certain fiscal metrics in the short run.

Implications beyond Uganda

Beyond Uganda, the implications of this work operate at three levels: contributing to international financial architecture reform, improving how capital is mobilised and allocated, and enabling broader adoption across countries.

I. Contributing to international financial architecture reform

At the international level, this work is designed to feed into ongoing reform processes.

The IMF–World Bank review of the Debt Sustainability Framework for Low Income Countries (LIC-DSF) is a near-term opportunity. Uganda's experience provides concrete evidence of how A&R measures can be integrated into existing frameworks through improved measurement, rather than structural redesign. It also provides the open-source models and tools to make this integration practically feasible within LIC-DSF workflows.

There are also implications for the World Bank's CPIA and the Worldwide Governance Indicators (WGIs) – key inputs into the LIC-DSF and credit ratings, respectively. Uganda's work provides evidence of where the current qualitative scoring criteria overlook A&R interventions, and helps inform their ongoing review.

At the same time, there are implications for sovereign credit rating. As CRAs increasingly reflect climate risks, a more consistent treatment of resilience becomes necessary. If resilience investments and interventions strengthen underlying credit fundamentals, then this should be duly reflected in the ratings. This proof point will strengthen the case for CRAs to update their methodologies and processes.

II. Improving how capital is mobilised and allocated

Better risk pricing should translate into fairer value. Creditors who can track proceeds and outcomes are more inclined to offer concessions on borrowing rates or terms, especially if the impacts also improve the chances of payback. In other words, if financing is linked to resilience KPIs, and if – based on best-in-class modelling – achieving these KPIs is likely to improve credit fundamentals, then creditors are investing in borrowers' ability to pay.

The implications extend beyond sovereign risk pricing. Development partners and investors face a similar challenge: how to allocate capital in a way that promotes growth and sustainability while also reducing credit risk. Today, that allocation is often fragmented and misaligned with core targets, with limited ability to compare the economic impact of different investment opportunity sets. By KPI-tagging investments and linking them to debt dynamics & credit drivers, this approach provides a framework for assessing financial materiality in terms of common credit metrics. These KPIs translate resilience investments into measurable macrofiscal and credit impacts on growth, enabling more consistent comparison across investment options.

The KPI-linked approach helps correct the current asymmetry. Where only downside risks are consistently reflected, capital is biased away from resilience investments. Making the economic benefits of resilience, both in reducing losses and improving underlying performance, visible allows capital allocation to better reflect underlying fundamentals.

Over time, this supports a shift from input-based financing toward performance and impact, with clearer alignment between public investment, concessional finance, and private capital. The objective is not to optimise for KPIs, but to use them as verifiable evidence linking investment to macroeconomic and credit-relevant outcomes.

III. Scaling the approach through open-source SovTech tools

The open-source SovTech tools are critical to scale the approach. Integrating A&R measures into sovereign risk assessment requires technically demanding analysis. The tools reduce the analytical burden this creates.

Replication is critical. A single country proof point is not enough to shift system behaviour. A broader set of first-mover countries applying a consistent methodology is what creates the evidence base needed to influence IMF-World Bank frameworks, credit rating methodologies, and capital allocation decisions.

The direction is clear. Climate-related risks are already shaping economic performance and sovereign risk. The next step is to ensure that the impact of acting on those risks is equally visible in how decisions are made and how capital is allocated.

Contents

List of abbreviations

Abbreviation	Definition
A&R	Adaptation and resilience
AfDB	African Development Bank
CC-MFMod	Climate Change Macro-Fiscal Model
CI	Composite Indicator
CPIA	Country Policy and Institutional Assessment
CRA	Credit rating agency
DIGNAD	Debt-Investment-Growth and Natural Disasters model
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
EMDE	Emerging market and developing economy
FAO	Food and Agriculture Organization
FY	Financial year
GDP	Gross domestic product
GE	Government Effectiveness
IDA	International Development Association
IMF	International Monetary Fund
KPI	Key performance indicator
LIC-DSF	Debt Sustainability Framework for Low-Income Countries
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MAC	Market-access country
MEMD	Ministry of Energy and Mineral Development
MoFPED	Ministry of Finance, Planning and Economic Development
MWE	Ministry of Water and Environment
MWT	Ministry of Works and Transport
NDC	Nationally Determined Contribution
NDP-IV	Fourth National Development Plan
NFA	National Forestry Authority
NPA	National Planning Authority
PV	Present value
Q-CRAFT	Quantitative Climate Risk Assessment Fiscal Tool
RegTech	Regulatory Technology
S&P	S&P Global Ratings
SPEI	Standardized Precipitation Evapotranspiration Index
SovTech	Sovereign Technology
SRDSF	Sovereign Risk and Debt Sustainability Framework
SRM	Sovereign Rating Model
SupTech	Supervisory Technology
USD	United States dollar
WGI	Worldwide Governance Indicator

1. Why adaptation & resilience investment is macro-critical

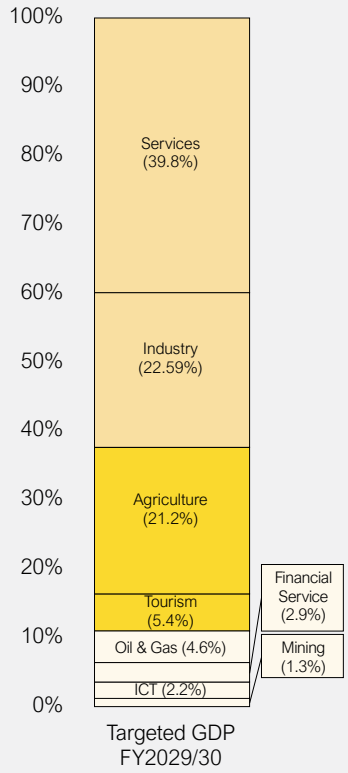
Uganda is significantly exposed to climate-related risks that threaten to erode economic productivity, strain public finances, and weaken the foundations of long-term growth and fiscal stability.[2] These risks are no longer episodic shocks but are becoming a structural feature of the economy, affecting output, external accounts, and fiscal performance across sectors.

This is reflected in Uganda's Fourth National Development Plan (NDP-IV), which sets out the country's strategic priorities for production and value addition, human capital development, private sector growth, and infrastructure. Within this framework, resilience is positioned as integral to delivering these objectives, with a programme of interventions aimed at strengthening adaptation planning, improving early warning systems, and integrating climate risk into economic decision-making.

This economy-wide exposure is not evenly distributed. It is concentrated in sectors that anchor Uganda's growth model, where climate-related shocks including floods, droughts and land degradation transmit most directly into output, exports and fiscal performance.

Figure 3 Key sector vulnerability to climate risks in Uganda

Share of GDP, %



Sector (Share of GDP)	Climate risk profile	Description
Services (39.8%)	Moderate to high	Exposed indirectly through flooding, damage to infrastructure, disruption to water, transport
Industry (22.59%)	Moderate to high	Vulnerable to flooding, erosion, infrastructure damage, transport disruption, resource stress
Agriculture (21.2%)	High	Highly exposed, mostly rain-fed, vulnerable to temp. change, drought, floods, waterlogging
Tourism (5.4%)	High	Exposed to floods, drought, landslides, and degradation of biodiversity
Oil & Gas (4.6%)	Moderate indirect	Exposed through flood and erosion risks, logistics disruption
Financial Services (2.9%)	Moderate indirect	Exposed through economy-wide climate shocks, asset losses, business interruption, agricultural defaults
ICT (2.2%)	Moderate indirect	Exposed to flood damage to urban infrastructure, transport disruption
Mining (1.3%)	Moderate indirect	Exposed through flooding, erosion, landslides, and water stress affecting sites

High Moderate to High Moderate indirect

Source: Uganda Bureau of Statistics, NDP-IV, World Bank Climate Risk Country Profile Uganda.

[2] 'Climate-related risks' refers to risks from chronic and acute climate- and nature-related hazards. Acute: sudden, short-term hazards (e.g. droughts, floods). Chronic: Slow-onset hazards that develop gradually and continuously over time (e.g. land degradation, water pollution). This captures the complex interrelationship between hazards, for example, land use change significantly contributes to other hazards like droughts.

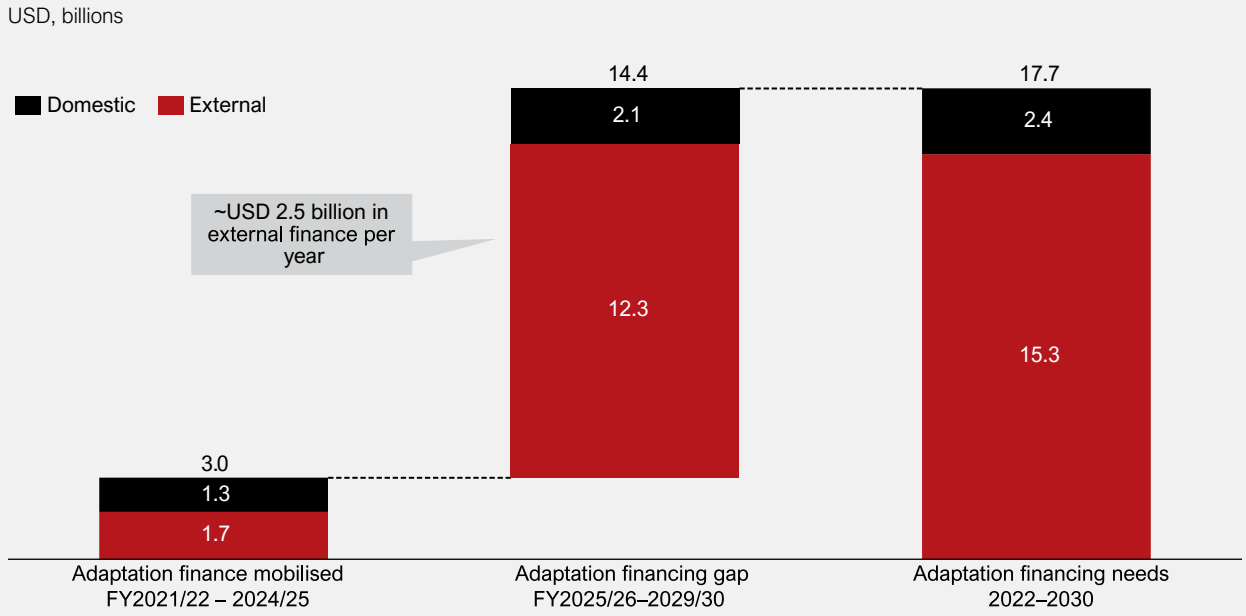
Agriculture is central to Uganda's economy and development model. The sector contributes around a quarter of GDP, employs circa 70% of the working population, and underpins Uganda's agro-industrialisation ambitions as a core source of raw materials, incomes and food security. This importance is matched by high structural exposure. NDP-IV is clear in identifying that agriculture remains largely rain-fed and is at risk of soil degradation, and is therefore highly sensitive to shifting rainfall patterns, droughts, and floods.

As a result, climate-related shocks transmit quickly beyond the farm gate into wider macroeconomic outcomes: weakening agro-processing supply chains, disrupting exports, and increasing pressure on infrastructure, energy systems and public finances.

While services are relatively less directly exposed, and industry is more diversified, both remain vulnerable through their dependence on climate risk-exposed infrastructure, hydropower, soil degradation and agricultural inputs. Climate-related risks are not only a sectoral challenge for Uganda; they are a system-wide source of economic and fiscal vulnerability.

Uganda therefore needs to invest in A&R to safeguard growth, reduce volatility, and protect fiscal space. This need is already reflected in Uganda's policy framework.[3] NDP-IV is clear: it argues that effective climate response is essential to development ambitions. It links resilience to the value-addition and industrialisation agenda, and backs this up with specific interventions including strengthening adaptation planning, sustainable land management, improving early-warning systems, and integrating climate risk into all planning.[4] In this sense, it positions A&R interventions not only as protective measures, but as productive capital that can improve returns in non-shock years. For example, sustainable land management practices like agro-forestry reduces flood- and drought-risks, but also improves soil productivity and boosts production in value chains.

Figure 4 Mobilised climate finance against adaptation financing needs



Source: National Climate Finance Strategy, MoFPED Report on Public Debt 2024/25[5]

[3] Including NDP-IV, its' latest NDC submission, the National Adaptation Plan (NAP), and its' National Biodiversity Strategy and Action Plan (NBSAP)
[4] Uganda, Ministry of Finance, Planning and Economic Development. Fourth National Development Plan (NDP IV), 2025/26–2029/30. February 2025.
[5] Externally mobilised finance represents existing mobilised finance, whereas domestic finance represents the domestic finance commitment for adaptation, annualised by year. The adaptation investment need has also been annualised from a 2022-2030 cumulative financing target.

Yet mobilising finance at the scale needed remains difficult, both externally and domestically. Uganda's updated NDC estimates USD 17.7 billion is needed for adaptation from 2022 to 2030, of which 86% is tagged for external finance. Based on what has been mobilised to date, this means Uganda must mobilise USD 12.6 billion from FY2025/26 – 2029/30 from external sources – USD 2.5 billion each year. This will be challenging, noting USD 1.7 billion was mobilised in external climate finance between FY2021/22 – 2024/25.

The Bridgetown Initiative and the Expert Review on Debt, Nature, and Climate have outlined a practical path forward: a recent Bridgetown paper outlines a clear approach for governments and international institutions: quantify climate-related risks in economic terms, integrate the payoff of resilience measures into growth and fiscal forecasts, and build these improved projections into sovereign risk assessments, thereby unlocking more finance for resilience on better terms.[6]

Uganda is among the first countries to test this approach in practice, providing an early proof point for how resilience can be made visible in the metrics that matter to ministries of finance, the IMF, international finance institutions, CRAs, and investors.

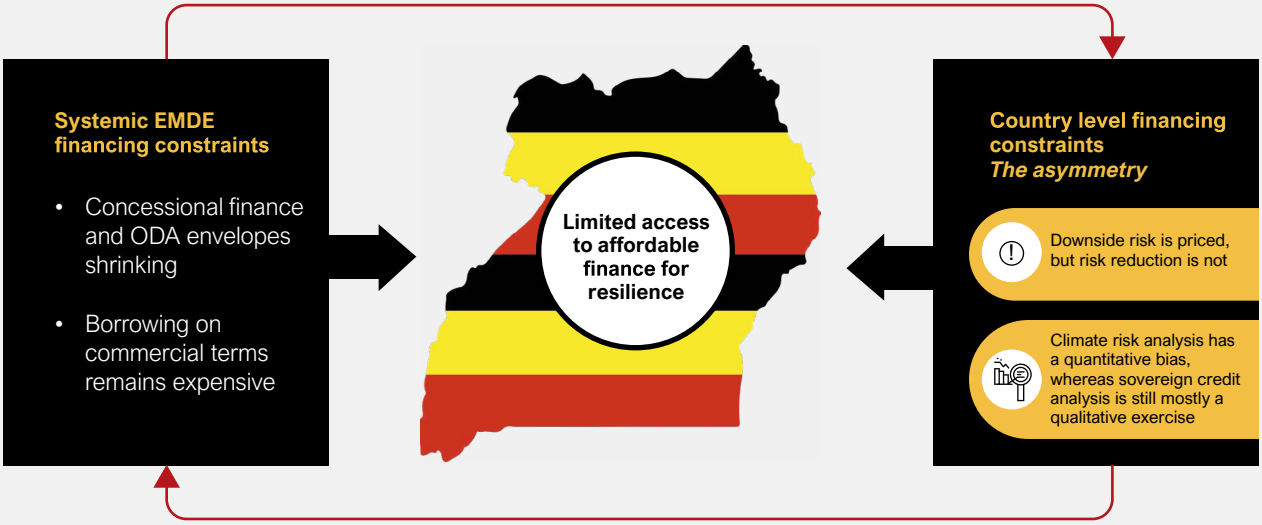
[6] Bridgetown Initiative. Making the case for climate and nature resilience investments: The need to revise growth and debt sustainability frameworks. 2025.

2. How financing constraints limit investment in adaptation & resilience

2.1. Systemic and country-specific financing constraints

Like many other emerging market and developing economies (EMDEs), Uganda's ability to invest in climate adaptation & resilience is constrained by both systemic and country-specific factors.

Figure 5 How systemic and individual country-level constraints limit finance for resilience



On one side are systemic constraints. Tight external financing conditions limit Uganda's access to affordable finance. Many development partners are facing rising fiscal pressures. The US continues to cut development budgets, while in Europe, priorities are shifting toward defence spending. As a result, concessional finance envelopes have shrunk, official development assistance has plateaued, and climate and adaptation funds remain modest relative to need.[7,8,9] This creates a major challenge for Uganda. Concessional finance and grants remain an important part of Uganda's financing mix, which together made up nearly one quarter of gross financing needs in FY2024/25.

At the same time, borrowing on commercial terms remains expensive for Uganda, reflecting high global interest rates and heightened risk sensitivity toward EMDEs. This is compounded by growing investor sensitivity to countries' climate vulnerability. As a result, Uganda is increasingly turning to domestic borrowing at relatively high rates to finance budget deficits, increasing debt service costs and reducing fiscal space for new investments in A&R.[12]

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[7] Organisation for Economic Co-operation and Development. Final OECD Statistics on ODA and Other Development Finance Flows in 2024: Key Figures and Trends. 2025.
[8] United Nations Environment Programme. Adaptation Gap Report 2024. 2024.
[9] Center for Global Development. Concessional Funds Need a Major Overhaul: What a Meeting-the-Moment FfD4 Could Look Like. Accessed April 10, 2026.
[10] International Monetary Fund. Uganda: 2024 Article IV Consultation. 2024.
[11] Gerhard Kling, Yuen C Lo, Victor Murinde, Ulrich Volz, Climate vulnerability and the cost of debt, Oxford Open Economics, Volume 4, 2025, odaf003, https://doi.org/10.1093/ooec/odaf003
[12] Uganda, Ministry of Finance, Planning & Economic Development. Medium-Term Debt Management Strategy 2024/25-2027/28. (2024).

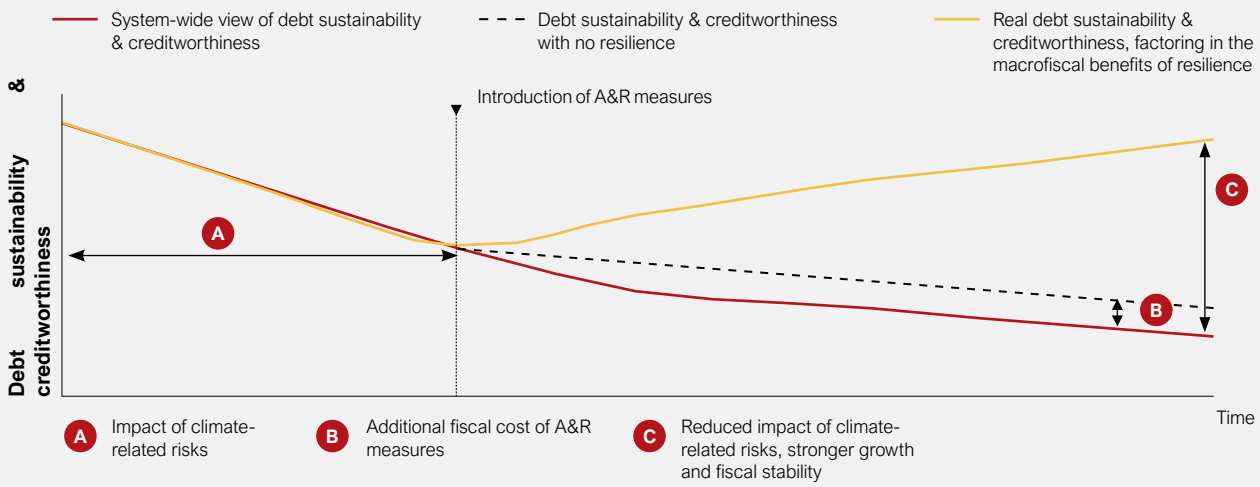
This is only one side of the constraint. On the other side is the country-level constraint, which sits within the financial architecture itself: even where finance is available, the way Uganda's risk is assessed and priced constrains its ability to invest.

The economic benefits of A&R measures are not visible in sovereign risk assessments. This is important because sovereign risk assessments shape Uganda's investment decisions, access to finance and cost of capital. These assessments influence access to international financial institution concessional finance and determine how commercial investors price Uganda's risk. This work focuses on three types of sovereign risk assessments.

Sovereign risk assessment	What it is	Why it matters
IMF-World Bank Debt Sustainability Analysis (DSA)	Each year, the IMF and World Bank together assess whether Uganda's public debt burden is sustainable under a range of assumptions and risk scenarios. The analysis follows their LIC-DSF.	The IMF and World Bank use the DSA to guide their lending decisions, and it also serves as a critical risk signal for financial market actors, including CRAs, consequently affecting Uganda's investment decisions.
Uganda's DSA	Uganda conducts its own annual DSA. The analysis follows the LIC-DSF methodology, but uses Uganda's own macrofiscal projections and debt and financing assumptions.	Uganda's DSA guides its fiscal spending and borrowing decisions. By using the IMF-World Bank framework, Uganda can engage credibly with the IMF-World Bank assessment and challenge underlying assumptions where needed.
Sovereign credit ratings	CRAs express forward-looking judgments about the ability and willingness of Uganda to meet its financial obligations in full and on time.	These ratings directly affect borrowing costs and access to international capital markets.

There is an asymmetry within sovereign risk assessments, which skews incentives away from A&R. These assessments increasingly recognise the downside impact of climate-related risks on debt sustainability and creditworthiness, but they do not systematically recognise the value of reducing those risks through A&R measures. Instead, these investments are generally treated as unproductive discretionary expenditure that does not generate long-term returns on growth potential, macroeconomic stability, and contingent liabilities. In effect, debt sustainability and credit rating frameworks are designed to minimise Type I errors (failing to flag vulnerability) rather than Type II errors (failing to recognise resilience).

Figure 6 The asymmetry in sovereign risk assessments



Both **systemic** and **country-specific constraints** limit Uganda and other similar countries' ability to invest in A&R. This work focuses on the country-specific side of the equation: how sovereign risk assessments shape Uganda's investment decisions, access to finance and cost of capital. It is important not to lose focus on the systemic challenge; the urgent need for more and cheaper long-term capital for vulnerable countries. But this work concentrates on the financial architecture itself: the assessments that shape perceptions of debt sustainability and creditworthiness, and in turn influence how much countries can borrow and at what cost. These mechanisms constitute some of the most critical barriers to capital flows in Uganda and beyond.

2.2. The asymmetry in sovereign risk assessments

In practice, this asymmetry reflects a simple imbalance: sovereign risk assessments capture how climate-related risks increase downside risk, but not how A&R measures reduce that risk over time. This shows up in two interrelated ways:

2.2.1. Downside risk is priced but risk reduction is not

Sovereign risk assessments price in the downside effects of climate-related risks. But they do not price in how A&R measures reduce climate-related risks over time.

Risk is priced

These assessments have made real progress in terms of climate-related risks: they increasingly consider how extreme weather events, ecosystem degradation and resource dependence impact growth, debt, exports, interest payments and primary balance. They draw on a growing number of tools to do so. For example, the IMF's Quantitative Climate Risk Assessment Fiscal Tool (Q-CRAFT) projects the long-term fiscal risks of climate change under different climate scenarios. Its Debt-Investment-Growth and Natural Disasters (DIGNAD) model studies the debt sustainability risks from natural disasters, with a focus on the need to rebuild public infrastructure. Similarly, Moody's and Fitch have developed proprietary "climate vulnerability" indicators that flag exposure to extreme weather and resource dependence.

Resilience is not systematically priced

In contrast, the economic benefits of A&R measures are not systematically or consistently reflected in these frameworks.

One reason is that there are limited tools to support this kind of analysis. For example, Fitch's 2025 pilot of its Climate Vulnerability Signal covered over 180 sovereigns but incorporated no specific variable for adaptation capacity or resilience spending. Moody's "physical risk scores" explicitly exclude adaptive response.

Another reason is that, even where such tools exist, they are not practical for use in routine sovereign risk assessment workflows. There have been some important analytical advances. The IMF's DIGNAD provides some scope to capture the mitigating impact of climate-resilient infrastructure. The World Bank's Climate Change Macrofiscal Model (CC-MFMod) goes further in principle, as it includes an adaptation module designed to capture how public sector adaptation investment can reduce climate damages. But in practice, these tools remain difficult to use. They are complex, data-intensive, and not designed to assess specific A&R measures at the country-level, within the timelines and processes of routine debt sustainability and credit rating analysis. Instead, they are typically used in one-off analytical exercises.

Why this asymmetry persists

Two factors help explain why this asymmetry persists.

There is a technical reason: risks are easier to model than resilience.

Climate-related risks can be parameterised and applied at the macro or country-level through hazard probabilities, sectoral exposure, or fiscal stress tests. Physical risks in particular have relatively precise measurement instruments and agreed-upon metrics such as economic losses from natural disasters or stranded assets. For example, the potential hit to agricultural output from floods and droughts can be estimated relatively accurately based on historical loss experience and projected trends under different climate scenarios.

By contrast, the benefits of A&R investments are harder to measure. Assets such as healthy soil quality or interventions such as flood-resistant building codes do not lend themselves to uniform definition or standardised measurement because they are too complex, contested or subjective. They require a different kind of evidence. They must be traced from specific interventions to avoided losses, productivity gains, and fiscal stabilisation effects. Many of these benefits are measurable, and new tools – including satellite imagery, remote sensing, geospatial monitoring and AI-enabled analysis – are expanding what can be done in a credible, robust and replicable way. But these methods still sit outside standard operating procedure.

The timing also works against resilience.

The fiscal costs of A&R measures are immediate, while many of the benefits materialise over a longer time horizon. Under the LIC-DSF, debt distress risk ratings are based on ten-year projections. But the operational focus of IMF programmes and policy advice is typically much shorter. In practice, the focus is on the first three to five years due to fiscal adjustment cycles, programme durations, and liquidity considerations. Similarly, sovereign credit ratings are primarily driven by short-term solvency and liquidity indicators rather than long-term structural stability, with the outlook horizon generally extending two to three years.

The result is a structural bias against spending on A&R measures. Resilience spending shows up in sovereign risk assessments as a fiscal cost that worsens debt ratios, while the long-term benefits for growth, solvency and stability – to the extent that these are understood – fall outside the relevant decision horizon. This creates a structural bias against preventative investment in A&R.

2.2.2. Climate risk analysis has a quantitative bias, whereas sovereign credit analysis is still mostly a qualitative exercise

Climate risk analyses in the context of sovereign credit assessments emphasise what can be easily quantified within standard operating procedure. They de-emphasise what may be economically important but harder to capture. This reinforces and exacerbates the asymmetry described above.

Quantitative metrics capture risk more easily than resilience

Climate-related risks can increasingly be measured through standardised indicators like GDP growth, debt levels, and fiscal balances, which are fed into macrofiscal models and assessment frameworks. By contrast, many of the ways in which A&R measures strengthen debt sustainability and sovereign creditworthiness are harder to express through quantitative variables. This is either because, as detailed above, the measurement instruments are not (yet) available, affordable, or up to standard. Or because these benefits are intrinsically qualitative.

For example, several countries, including Uganda, subsidise insurance for agricultural production, covering a substantial portion of premium costs for producers to protect their crops against catastrophic losses. The subsidies are an ex-ante de-risking mechanism for the sovereign – as is insurance penetration more broadly – since losses are covered by the insurance sector. However, this resilience benefit is not captured in sovereign risk models since the subsidies appear only as current expenditures in the budget, whereas the ex-post fiscal savings from lower disaster relief and recovery spending are not. (N.b. Qualitative scoring could be used to make sure that this reduction in contingent liabilities is captured upfront, so that this specific A&R measure is not unduly penalised. But the CRA, CPIA, and WGI source criteria do not explicitly recognise the resilience benefits of insurance deepening, nor do they compensate for the resilience-enhancing effects of premium subsidies via adjustments in the qualitative scoring.)

Unmeasurable quantitative	Inherently qualitative

• **Measurement tools:** standardized collection and compilation of national level data (e.g., land degradation, biodiversity)
• **Measurement gaps:** spatial, administrative, project level (eg., geotagging)
• **Measurement error:** accuracy of earth observation, extent of ground truthing
• **Transmission channels:** narrow mapping to certain drivers (current ES models mainly linked to GDP and TFP)
• **Expectations:** feedback loops
	• **Institutions** that ensure policy continuity and predictability
	  • Scenario-based, performance based Budget, PFM
	  • Project finance capabilities (E&S)
	  • Financial development & stability
	  • Data readiness
	  • Transfer & convertibility risk mitigants
	• **Event risks** arising from climate shocks and nature loss (e.g., food security)

Qualitative factors do not reliably capture resilience either

In principle, sovereign risk assessments do allow for the consideration of A&R benefits through qualitative factors – that is, structural and institutional factors, like governance, policy effectiveness and institutional strength. These factors carry disproportionate weight in sovereign risk assessments and should create space to recognise A&R where these are not adequately captured in quantitative indicators.

In practice, however, A&R benefits are not recognised qualitatively. This is because the qualitative components of sovereign risk methodologies are less rigorous and transparent than the quantitative components. As a result, resilience benefits which can only be recognised qualitatively are often omitted or incorporated inconsistently, relying on ad hoc and subjective judgement.

- Moody's and S&P's scoring criteria contain broad terms around the capacity of political institutions and policymaking apparatus to absorb shocks and navigate structural changes, including physical and transition risks related to climate change – leaving considerable room for interpretation. For instance, S&P's sovereign rating criteria consider "track record of a sovereign in managing past political, economic, and financial sector crises...[that] may also entail policies to reduce dependence on sectors at risk from longer-term energy transition and/or policies to mitigate the adverse physical effects of climate change."[13]

- Fitch – also includes shock-absorption capacity in criteria guiding qualitative adjustments to the quantitative SRM, which also incorporates the World Bank's Worldwide Governance Indicators (WGIs) that measure dimensions such as government effectiveness and regulatory quality. The agency recently introduced a Climate Vulnerability Signals (Climate.VS) assessment to determine whether climate-related risks warrant further scrutiny and discussion in credit committees. The signals are computed from catastrophic risk data and adjusted using "qualitative filters", which consider only "unmitigated exposures" that "do not incorporate sovereigns' policy targets or general mitigation and adaptation capacity."

- IMF-World Bank – in the LIC-DSF, the qualitative dimensions come in at the point of estimating debt-carrying capacity and, by extension, thresholds for determining debt distress. The World Bank's CPIA score is used to compute a "Composite Indicator" for debt carrying capacity. The CPIA includes criteria on the effectiveness of policies and institutions overseeing the protection and use of natural resources and pollution management, and it recognises the value of credible macrofiscal and debt management strategies. However, A&R is not systematically tracked. There is also room for staff judgment to assess the gravity of threshold breaches and country specific factors that are not fully accounted for in the LIC-DSF model, including, in principle, breaches linked to climate risk. However, there is no clear or consistent basis for staff to assess how A&R measures reduce those risks or should affect the interpretation of such breaches.

References to A&R in these methodologies are mostly cursory. But the qualitative criteria are sufficiently elastic to afford analysts and staff considerable discretion over whether and how much to weight A&R investments. However, this also renders scoring decisions highly subjective and possibly arbitrary in the absence of clear benchmarks and independent validation. It also means the treatment of A&R can vary considerably between rating reviews and across rated sovereigns. For example, two small island nations may be equally vulnerable to hurricanes: Country A has conserved its mangroves and has strictly enforced building codes, while Country B has not. Without hard data to quantify the mitigation effects or prescribed guidelines for how to assess them qualitatively, recognition of Country A's efforts is ultimately a judgement call. Fitch and Moody's attempt to control for subjectivity by using the WGIs as an input variable and benchmark respectively. Yet the WGIs have been subject to similar gaps, since the opinion surveys and expert assessments that comprise them do not adequately reflect A&R.

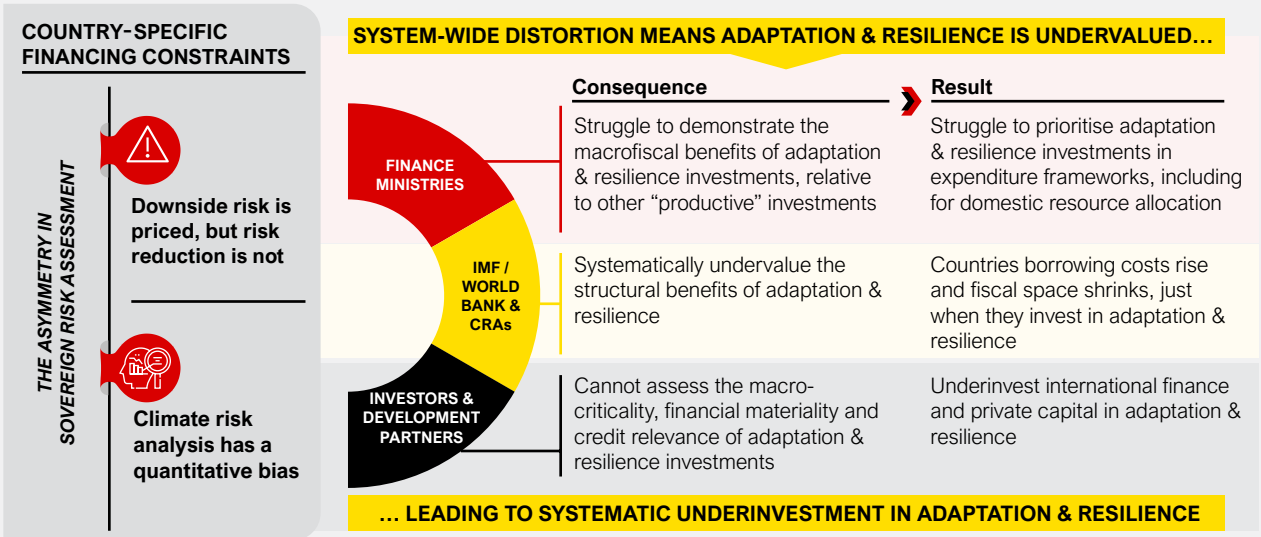
The result is that hard data on climate-related risks feed relatively easily into sovereign risk assessments. Softer but still material evidence on A&R measures does not. This means the credit uplift from resilience may not be fully reflected relative to the credit drag from climate vulnerability.

2.3. How the asymmetry distorts decision-making across the economic system

The asymmetry in sovereign risk assessments means that A&R measures are undervalued. They are seen simply as unproductive discretionary expenditures, rather than investments that can reduce risk and strengthen growth and fiscal stability over time.

[13] S&P Global Ratings. Criteria | Governments | Sovereigns: Sovereign Rating Methodology. Accessed April 10, 2026.

Figure 7 The impact of the asymmetry on decision-making



3. How a KPI-linked approach can address the asymmetry in sovereign risk assessments

The previous chapter identified an asymmetry in sovereign risk assessments, which means investments in A&R are undervalued across the international financial architecture. This asymmetry can distort how finance ministries, the IMF-World Bank, CRAs, investors and development partners make decisions, leading to under-investment in resilience.

Uganda's MoFPED is working to address the asymmetry. Specifically, it aims to integrate the economic benefits of its investments in A&R into its own DSA, while also identifying how these investments can strengthen the broader drivers of Uganda's sovereign credit profile. The objective is not only to better inform the government's fiscal spending and borrowing decisions, but also to strengthen Uganda's position in discussions with the IMF-World Bank, CRAs and investors. Because Uganda's DSA uses the IMF-World Bank LIC-DSF framework, the evidence it generates can also support more effective engagement and negotiation with these institutions.

3.1. The architecture of a KPI-linked approach

The KPI-linked approach provides the architecture to correct the asymmetry within sovereign risk assessments. It links ambition to delivery to macrofiscal outcomes, creating a clear pathway through which A&R measures can be reflected in sovereign risk assessments.

Figure 8 The KPI-linked approach

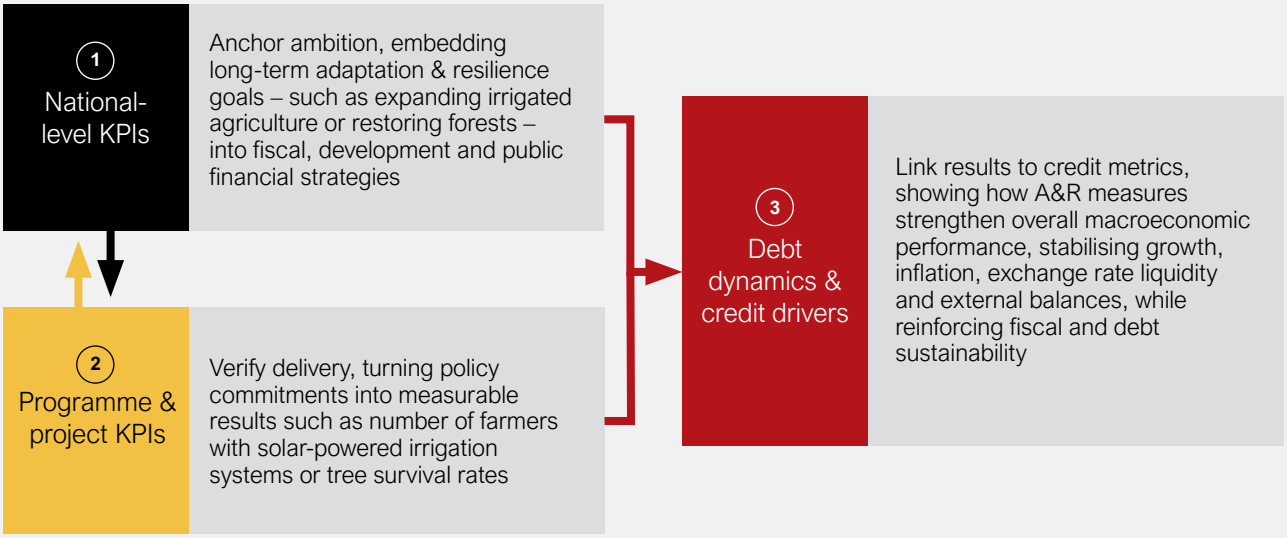
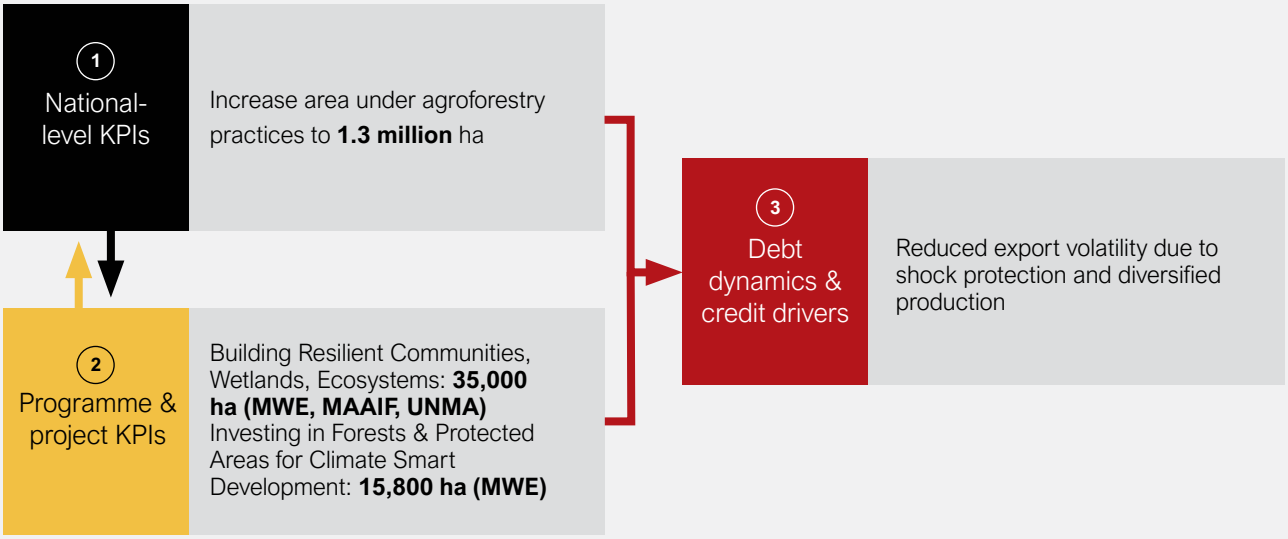


Figure 9 The KPI-linked approach: Uganda illustration



At the national level, KPIs define long-term resilience ambition in measurable targets that extend beyond short-term fiscal cycles – for example, targets for agroforestry or irrigation expansion. At the programme & project level, KPIs track delivery, demonstrating credible ongoing resilience performance within fiscal cycles. This is done using measurable indicators such as tree survival rates or number of smallholders adopting climate-smart irrigation, verified, for example, through a combination of satellite imagery and field-based surveys. This makes long-term A&R goals tangible to governments and verifiable to investors and creditors. Taken together, national-level KPIs and programme & project-level KPIs generate trackable and verified outputs that make it possible to map measurable resilience outcomes onto specific economic transmission channels. In this way, it is possible to translate delivery into debt dynamics & credit drivers – such as higher agricultural productivity, reduced disaster losses or more stable export revenues – all key inputs for DSA and credit rating methodologies.

In effect, the KPI-linked approach creates a causal chain from A&R delivery to financial metrics: from resilience investment to measurable delivery, from delivery to economic transmission channel, and from transmission channel to debt dynamics & credit drivers, which underpin sovereign risk assessments. The KPI-linked approach makes this chain both explicit and evidence-based.

Figure 10 The KPI-linked approach causal chain

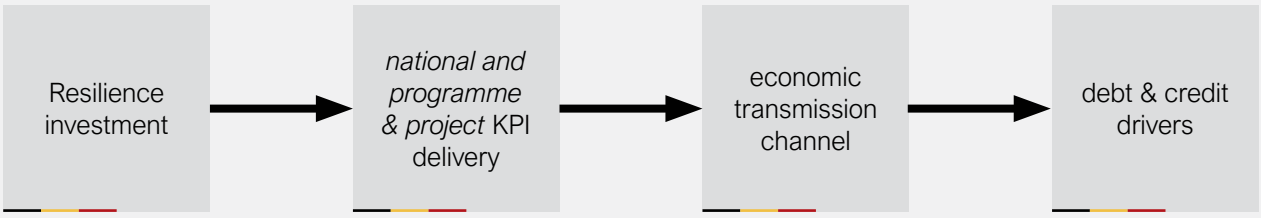


Figure 11 Mapping KPIs to debt dynamics & credit drivers

KPI scenario	Transmission channels	
1. Landscape A&R	Reduced flood risk for crop outputs and infrastructure damage	+
	Reduced air pollution and improved health outcomes	+
	Food price inflation/short-term decline in agricultural outputs	−
	Increased tourism and carbon market revenues	+
2. On-farm A&R	GDP from (agro)-forestry, increased yields, and sustainable land management	+
	Increased employment in (agro)-forestry	+
	Reduced expenditure from mitigated disasters	+
	Irrigation expansion builds resilience and reduces SPEI risks	+
	Reduced health expenditure and increased risk of increased water stress	−
3. Market-link A&R	Increased production from farmer market access	+
	Increased export from reduced transport costs	+
	Value chain integration and efficiency	+
	Reduced infrastructure disaster spending	−
4. Agro-industrialisation A&R	Increased value from agricultural sector outputs	+
	Increased value from exports, and diversified profile of exports	+
	Reduced production of staples in prioritising high-value crops	−
	Reduced dependence on external supply chains and price vulnerability	+

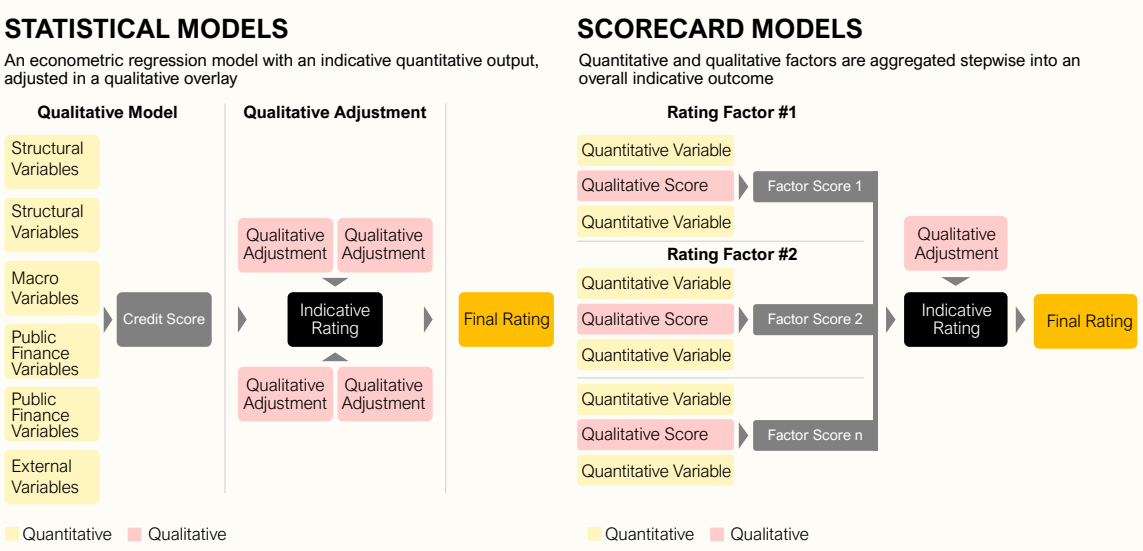
Key credit drivers[1]	Fitch	Moody's	S&P	IMF World Bank
GDP Per Capita	●	●	●	
History of Default	●	●		
Board Money Supply	●			
Size of the Economy	●	●		
Policy Effectiveness	●	●	●	
Political Risk / Stability	●	●	●	
Rule of Law	●	●	●	
Transparency & Accountability	●	●	●	
Geopolitical Risk	●	●	●	
GDP Growth	●	●	●	●
GDP Volatility	●	●		●
Inflation / Deflator	●	●		●
Credit Growth			●	
Debt Burden	●	●	●	●
Interest Bill	●	●		●
Budget Balance	●		●	●
Foreign Currency Share	●	●		●
Public Asset	●		●	
Public Sector Debt Burden		●		●
Refinancing / Rollover Risk		●	●	●
Banking Sector Risks		●	●	●
Climate / Nature Risks	●	●	●	●
Misc. Contingent Liabilities			●	●
Reserve Currency Status	●		●	
Net Creditor Status	●		●	
Commodity Dependence	●		●	
External Debt Burden	●		●	●
FX Liquidity	●	●		
Net FDI Inflows	●			

Quantitative Qualitative Hybrid

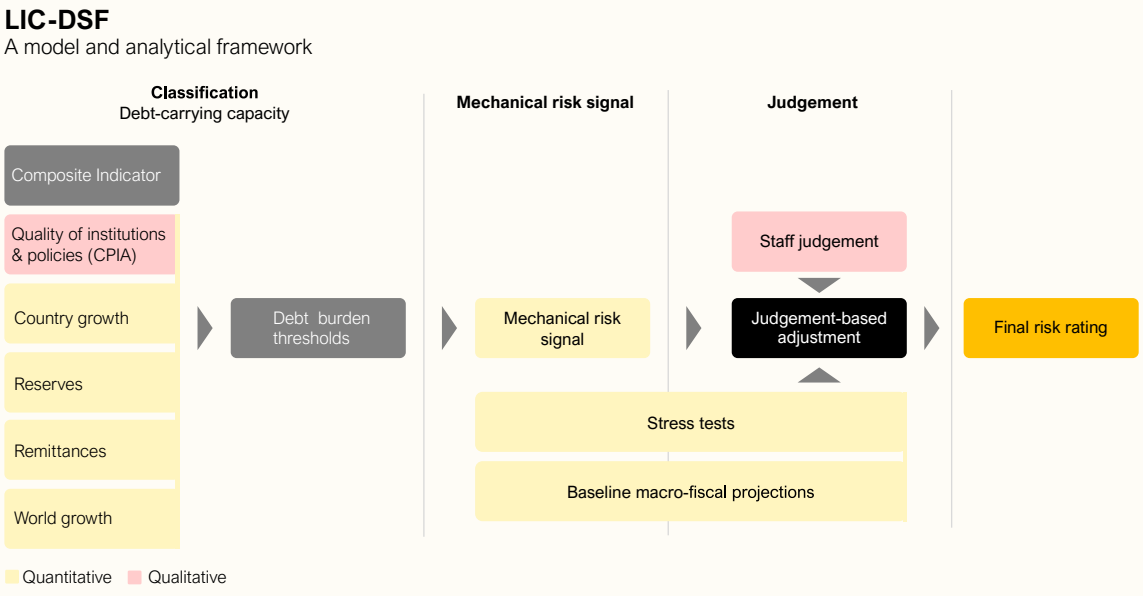
3.2. How the KPI-linked approach makes resilience visible in sovereign risk assessments

The KPI-linked approach links national-level ambition and programme & project-level delivery to the debt dynamics & credit drivers that underpin DSAs and sovereign credit ratings. Some of these drivers enter sovereign risk assessments through quantitative variables and model outputs. Others are reflected through qualitative judgements on institutional strength, policy effectiveness, and broader governance factors. The value of the KPI-linked approach is that it allows resilience to enter both.

Box 1 Quantitative and qualitative factors in sovereign risk assessments



Sources: SSDH



Sources: Guidance Note on the Bank-Fund Debt Sustainability Framework for Low Income Countries

When there is sufficient data to verify outcomes and quantify their effects, the KPI-linked approach supports integration through the quantitative side of sovereign risk assessments. This is possible where national-level and programme & project-level KPIs can be measured on a credible and consistent basis – using public datasets or government data – and where these outcomes can be linked to debt dynamics & credit drivers through evidence-based transmission channels. In such cases, resilience delivery can be incorporated into the quantitative models that underpin sovereign risk assessments, for example through its effects on GDP growth, export stability, fiscal balances or other core macrofiscal variables.

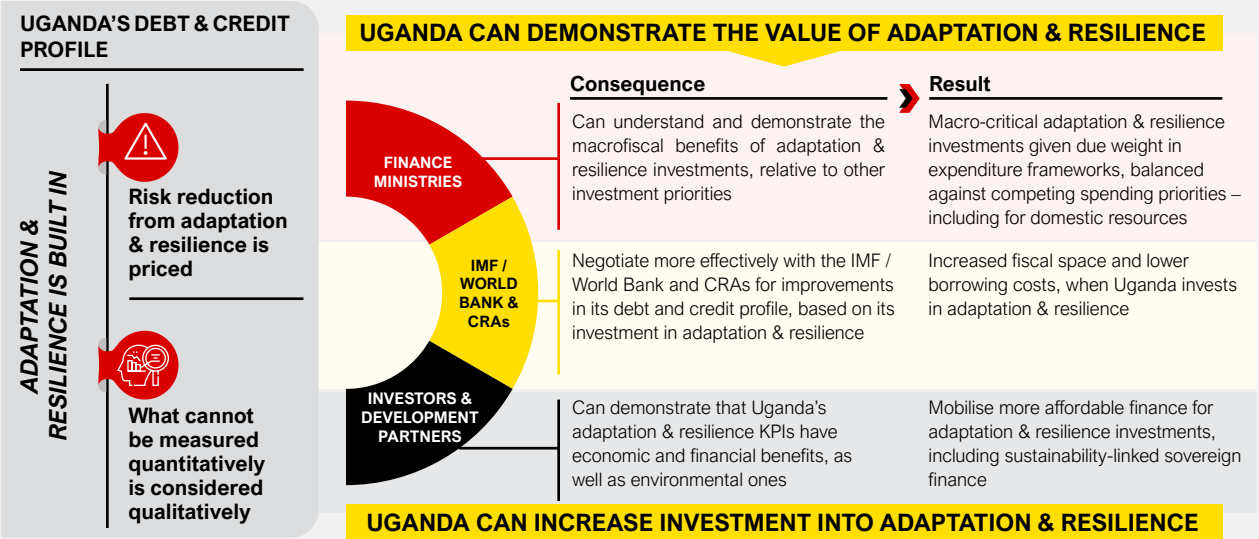
But where this is not yet possible, the KPI-linked approach provides a way for inclusion. In many cases, the transmission channels are conceptually clear even if the data or methods are not yet strong enough to support robust quantitative modelling. In these cases, the KPI-linked approach provides a basis for integrating A&R into sovereign risk assessments through qualitative factors. This is particularly important because, as outlined in the previous chapter, sovereign risk assessments do not sufficiently support systematic or transparent assessment of the qualitative macrofiscal benefits of resilience. Instead, the assessments rely heavily on broad indicators – such as the World Bank's WGIs and CPIA scores – and on the subjective judgement of staff and outside experts.

The KPI-linked approach provides a country-specific and structured basis for qualitative judgement on the macrofiscal benefits of resilience. It provides objective evidence of institutional follow-through on A&R ambitions. Linking national KPIs to programme & project outcomes and embedding them in fiscal and policy decision-making demonstrates measurable policy credibility and effectiveness – enabling performance-based tools like climate budget tagging, performance budgeting, or carbon & biodiversity crediting. This converts subjective claims into verifiable signals that analysts can weigh in judging institutional quality, policy predictability, and willingness to pay. Like fiscal rules (already credit-positive), KPI-linking anchors commitments across cycles. De facto delivery matters most, but de jure presence is still a strong signal of commitment and "willingness to pay". Grounding KPIs in macrofiscal plans and national strategies with strong government backing further boosts their signal as a distinct qualitative credit strength.

3.3. How the KPI-linked approach can improve decision-making across the economic system

By operationalising the KPI-linked approach, Uganda aims to demonstrate the value of A&R measures within government and to the IMF-World Bank, CRAs and investors – with a view to mobilising more affordable finance for these investments.

Figure 12 How the KPI-linked approach improves decision-making



4. Applying the approach in Uganda – starting with the agro-industrialisation programme

This chapter explains how the KPI-linked approach is being applied in Uganda, starting with the agro-industrialisation programme. The logic is simple. First, Uganda identifies resilience priorities and links them to national and project-level KPIs. Second, it maps those KPIs to the economic and fiscal channels that matter for sovereign risk. Third, it translates those effects into debt sustainability and credit analysis through quantitative modelling where feasible, and qualitative assessment where it is not yet. The chapter therefore moves from strategic priorities, to transmission channels, to sovereign risk assessment.

4.1. Why Uganda is starting with the agro-industrialisation programme

In the first phase of this work, Uganda is focusing on A&R measures within its agro-industrialisation programme. This reflects two considerations: first, agro-industrialisation is central to Uganda's growth strategy; second, it is structurally exposed to climate-related risks.

Agro-industrialisation is a core driver of Uganda's economic strategy and growth ambitions

Agro-industrialisation, as one of NDP-IV's four key pillars, is Uganda's strategy for turning its agricultural base into higher value growth, by increasing processing, value-addition, productivity, and commercialisation. Agriculture on its own already contributes some 23.7% of GDP and supports 70% of livelihoods. The agro-industrialisation program accordingly makes up 23% of the NDP-IV budget. More broadly, NDP-IV is the first development plan intended to deliver the country's 10-fold growth strategy between 2025-2040, with GDP growth targeted to grow beyond historical potential by 2029/30. Within this, agriculture and agro-processing are expected to contribute 31% of annual GDP growth in FY2029/30.[14]

This growth model is highly exposed to climate-related risks

Much of Uganda's agricultural base remains rain-fed, and NDP-IV identifies this and soil degradation as critical risks to growth and fiscal stability. Agro-processing also relies on reliable feedstocks, water and energy, all of which are vulnerable to climate-related risks. As a result, A&R measures – such as irrigation systems, sustainable land management, and post-harvest handling and storage technologies – critical to the long-term success of agro-industrialisation, and by extension, Uganda's broader development ambitions. These investments therefore do more than reduce losses from climate shocks; they can also improve baseline performance by raising productivity, stabilising output, and strengthening value chains even in non-shock years.

4.2. A three-step process to apply the KPI-linked approach

Given the programme's macroeconomic importance and high climate exposure, Uganda is using agro-industrialisation as the first entry point for applying the KPI-linked approach in practice. Uganda is operationalising the KPI-linked approach through a three-step process:

[14] Agro-processing is included under 'industry' in Ugandan GDP and GDP growth calculations, and its' annual economic growth is expected to grow from 0.68 percent of GDP growth in 2024/25, to 1.33% in 2029/30, against a forecasted annual GDP growth of 10.13% in 2029/30.

1. Identifying A&R national and project-level KPIs within the agro-industrialisation programme
2. Mapping KPIs to economic transmission channels and debt dynamics & credit drivers
3. Translate KPIs into sovereign risk assessments via:
    a. Quantitative analysis, and/or
    b. Qualitative analysis

Together, these steps allow Uganda to link national-level resilience ambition and programme and project-level delivery to the deb dynamics & credit drivers that underpin sovereign risk assessments – turning A&R priorities within its agro-industrialisation programme into measurable improvements in its debt dynamics and credit profile.

This is a work in progress. This report provides a first indication of the returns on resilience investments only. The next phase will extend the analysis to capture these returns more fully, in the ways detailed below.

4.2.1. Step 1: Identifying A&R national and project-level KPIs within the agro-industrialisation programme

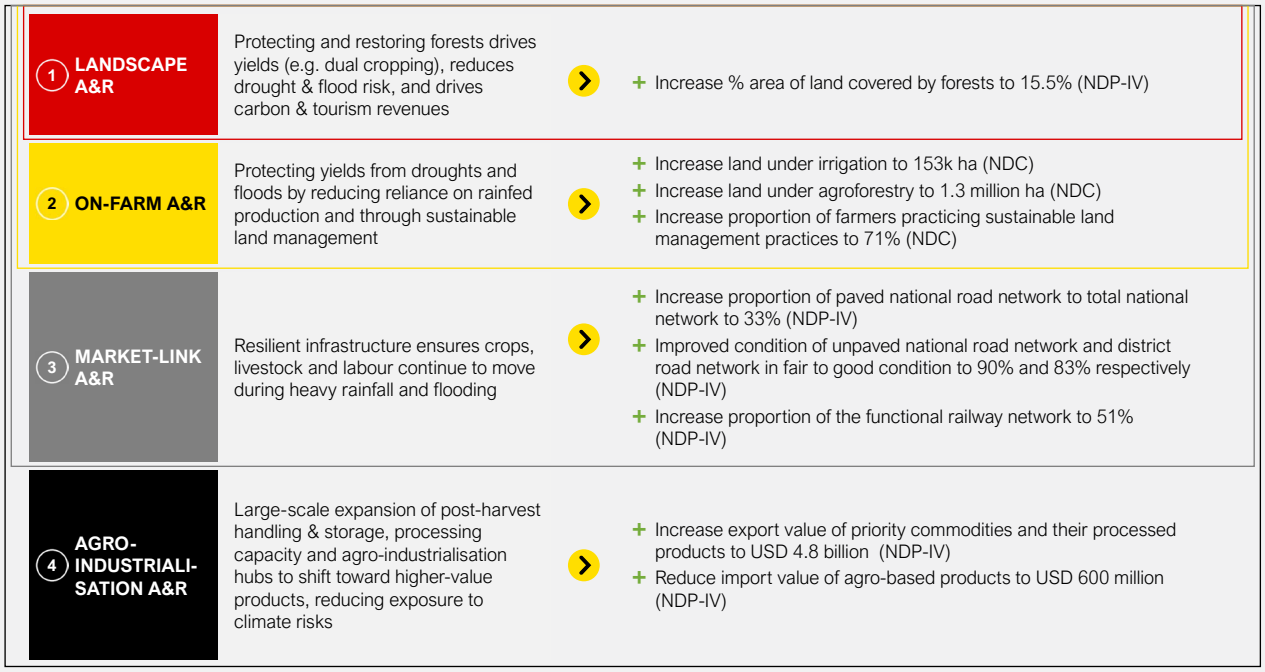
The first step identifies and integrates two levels of KPIs.

A. National-level KPIs. These targets express the government's high-level ambition for A&R. These are drawn primarily from Uganda's Fourth National Development Plan, the fourth in a series of six National Development Plans to deliver Uganda Vision 2040 – that is, ten-fold growth from 2025 to 2040. The NDP-IV has Cabinet approval and anchors whole-of-government strategy and fiscal planning. In consultation with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Water and Environment (MWE), Ministry of Energy and Mineral Development (MEMD) and the Ministry of Works and Transport (MWT), MoFPED drew national-level KPIs for A&R within agro-industrialisation from NDP-IV targets. In some cases, these were supplemented with Nationally Determined Contribution (NDC) targets, where NDP-IV targets were not sufficiently granular and where NDC targets were fully aligned with NDP-IV targets – noting they operate from the same baseline.

B. Programme and project-level KPIs. These targets capture on-the-ground progress toward A&R ambitions. In effect, programmes and projects are "tagged" under corresponding national-level KPIs. It provides an additional taxonomy overlay for budget tagging, helping to identify, track and assess the interventions within the budget that contribute to national-level resilience outcomes. This makes the KPI-linked approach closely aligned with climate budgeting: it links national-level ambition to specific investments and expenditure lines that can be tracked through public financial management systems. Again, programme and project-level KPIs are grounded in the NDP-IV – drawing from the programmes and projects which the National Planning Authority (NPA) maps to NDP-IV objectives. Again, in some cases these are supplemented with additional programmes and projects, based on consultation with MAAIF, MWE, MEMD and MWT.

The national-level KPIs – with supporting programme and project-level KPIs – are grouped into four cumulative scenarios.

Figure 13 Adaptation & resilience scenarios for agro-industrialisation



BOX 2 How national-level KPIs and programme and project-level KPIs link ambition to delivery

- At the national-level, Uganda's NDP-IV and NDC set clear quantitative targets e.g. Increase land under agroforestry practices to 1.3 million ha by 2030.
- At the programme and project-level, these ambitions are backed by measurable outcome KPIs. For example, MAAIF, MWE and National Forest Authority (NFA) track:
  - Plot-level coverage – ha under agroforestry practices per farm, sourced through the farmer registration system and cross-referenced against crop certification records
  - Canopy establishment – at least 35% canopy cover after 24 months, sourced through remote sensing (Landsat and FAO Sepal),
  - Tree survival rate – at least 85% of planted shade trees surviving, sourced through extension worker field records and farmer self-reporting.

4.2.2. Step 2: Mapping KPIs to economic transmission channels and debt dynamics & credit drivers

The second step combines national-level and programme and project-level KPIs to map how each A&R outcome feeds into specific economic transmission channels – such as higher agricultural productivity, reduced import dependency, lower disaster-related expenditure, and more stable export earnings – which in turn feed into the quantitative and qualitative debt dynamics & credit drivers, which underpin sovereign risk assessments.

This is done for each of the four scenarios:

Figure 14 Mapping KPIs to debt dynamics & credit drivers for Scenario 1: Landscape A&R

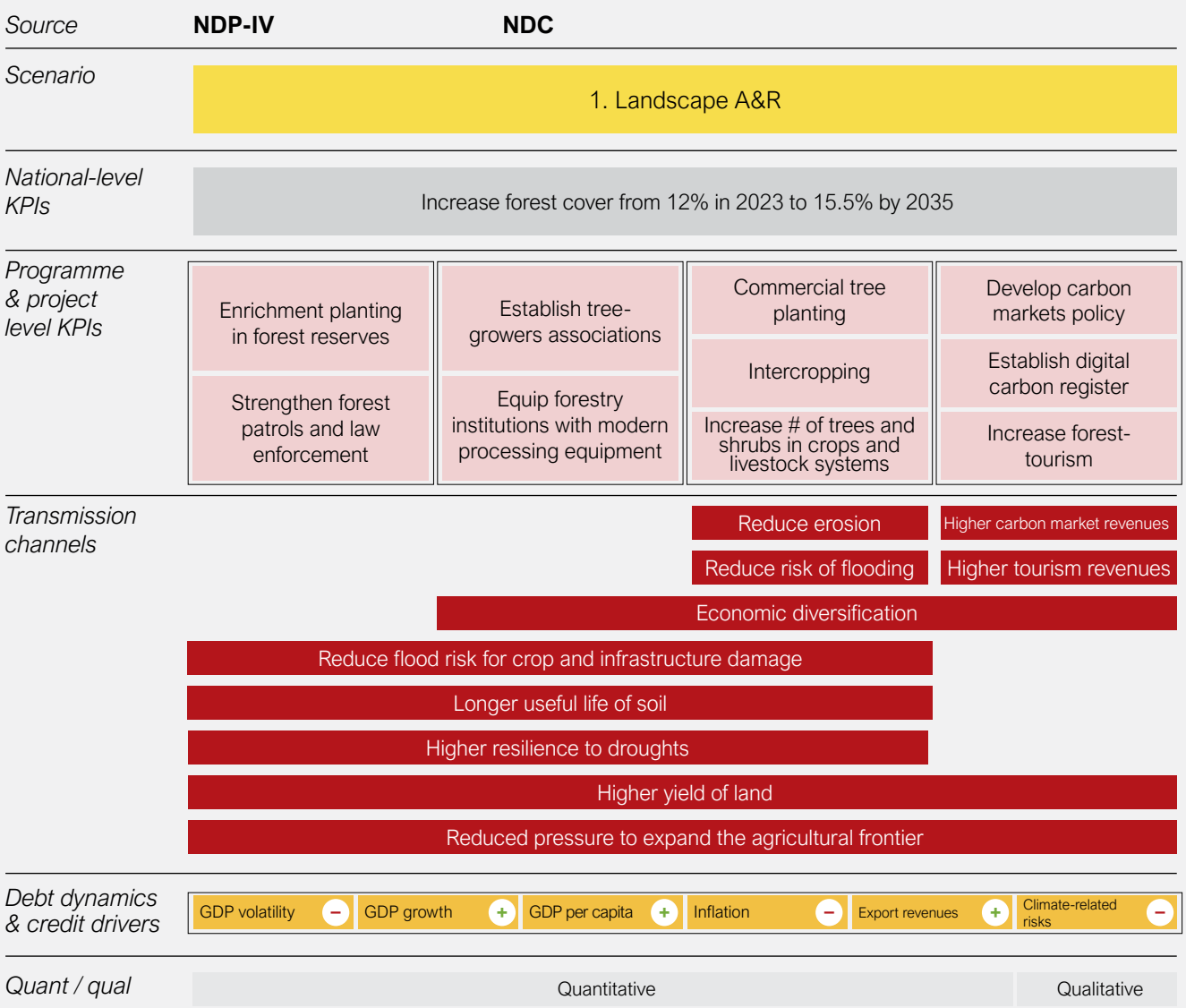


Figure 15 Mapping KPIs to debt dynamics & credit drivers for Scenario 2: On-farm A&R

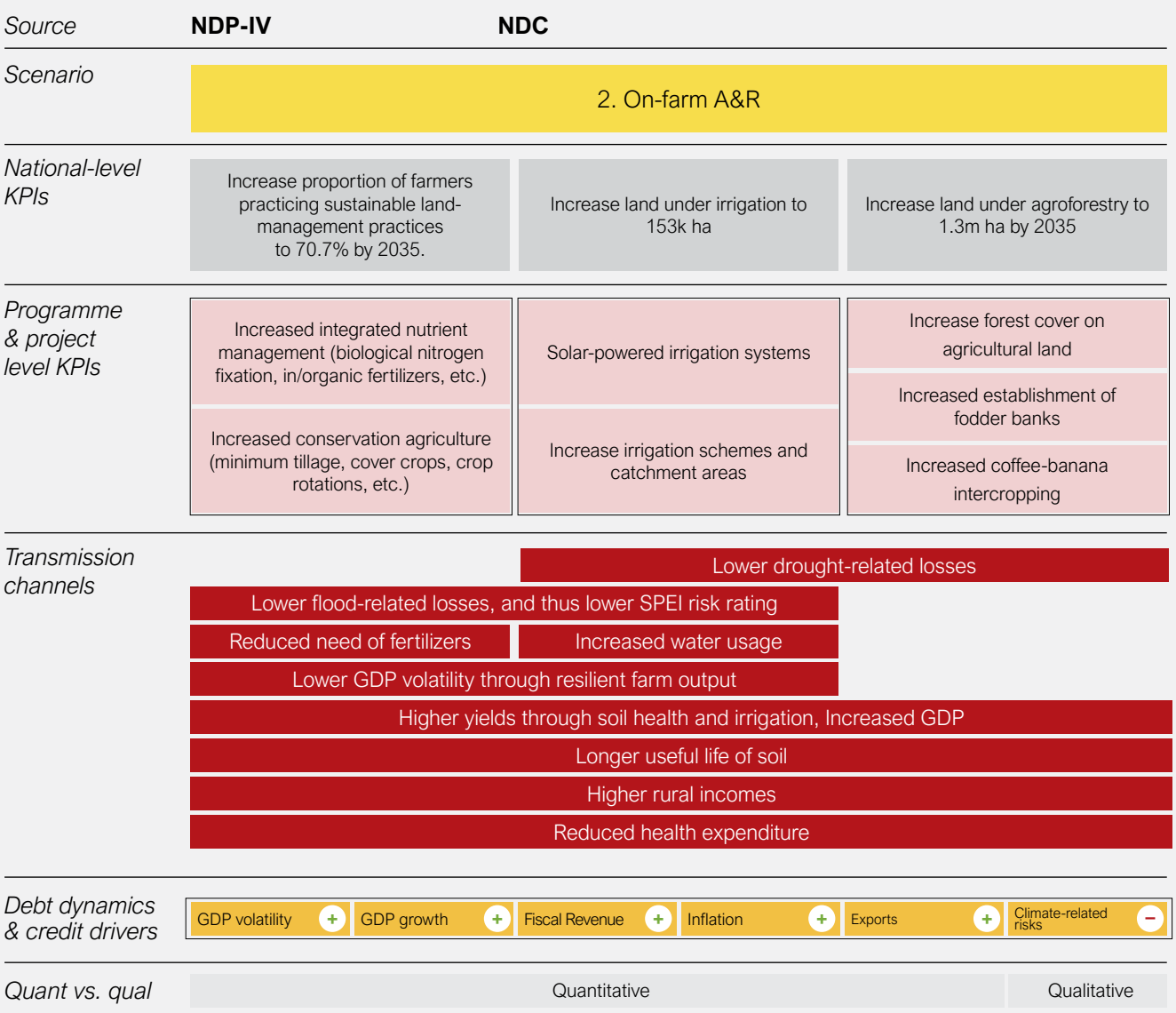
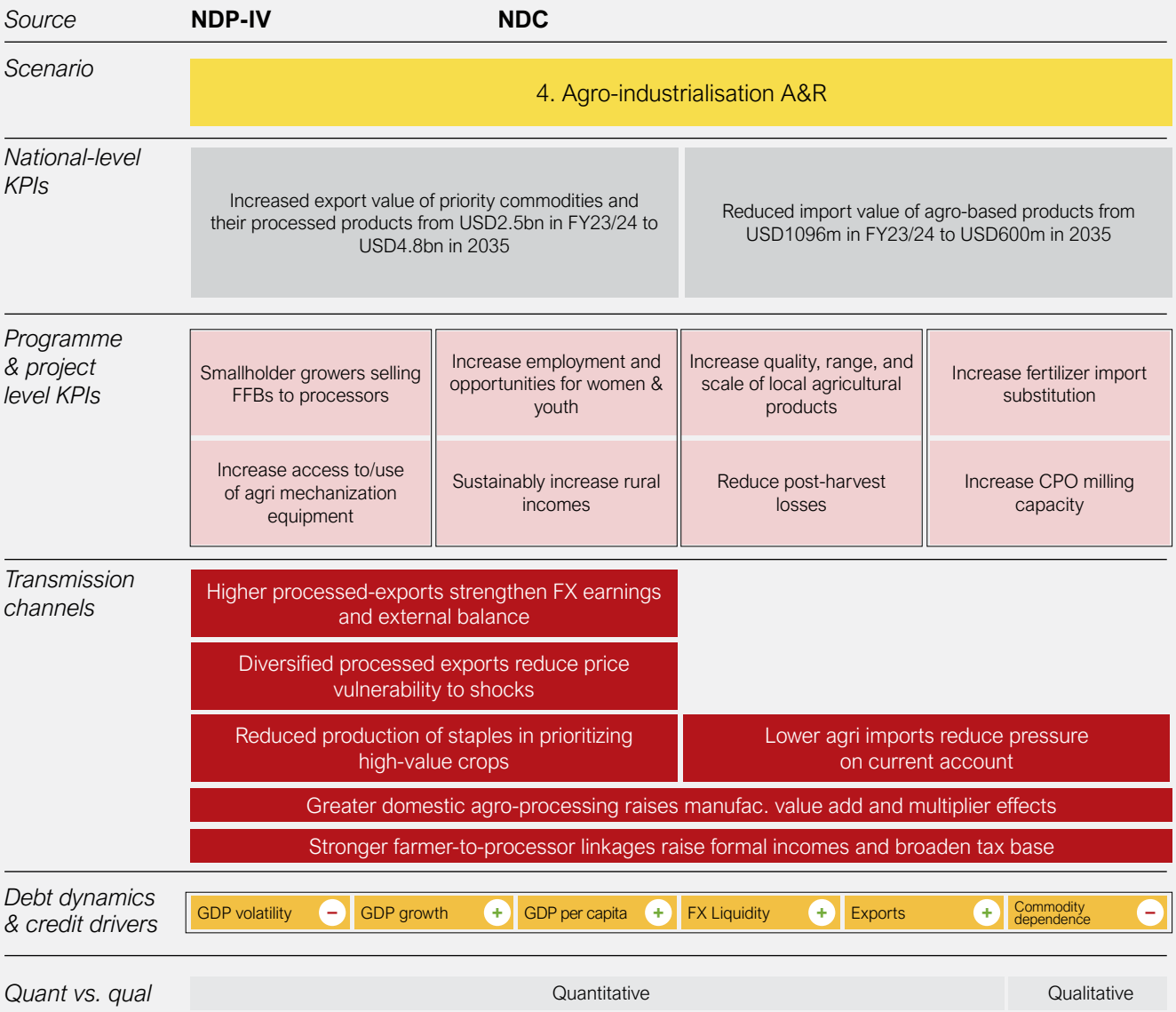


Figure 16 Mapping KPIs to debt dynamics & credit drivers for Scenario 3: Market-link A&R

Source	**NDP-IV**	**NDC**	
Scenario	3. Market-link A&R		
National-level KPIs	Increased proportion of paved national road network to total national network from 29.5% of FY 2023/24 to 33% in 2035.	Improved condition of unpaved national road network and district road network in fair to good condition to 90% and 83% respectively by 2035.	Increased proportion of the functional railway network from 21% in FY2023/24 to 51% in 2035
Programme & project level KPIs	Paved road upgrade completion Reduced travel/transport times	Road-condition improvement Reduced travel/transport times	Increased freight and passenger volumes Increased train operating speeds
Transmission channels	Reduced infrastructure disaster spending		Lower delivered prices for food, fertilizer and other goods
	Greater regional market integration and thus investment in logistics-dependent sectors		
	Reduced post-harvest losses and spoilage by improving transport times		
	Value chain integration and efficiency		
	Increased exports from reduced transportation costs		
	Increased production from farmer market access		
Debt dynamics & credit drivers	Public asset quality/resilience (+)	GDP growth (+)	Budget balance (+) Inflation (−) Exports (+) External debt burden (−)
Quant vs. qual	Hybrid	Qualitative	

Figure 17 Mapping KPIs to debt dynamics & credit drivers for Scenario 4: Agro-industrialisation A&R



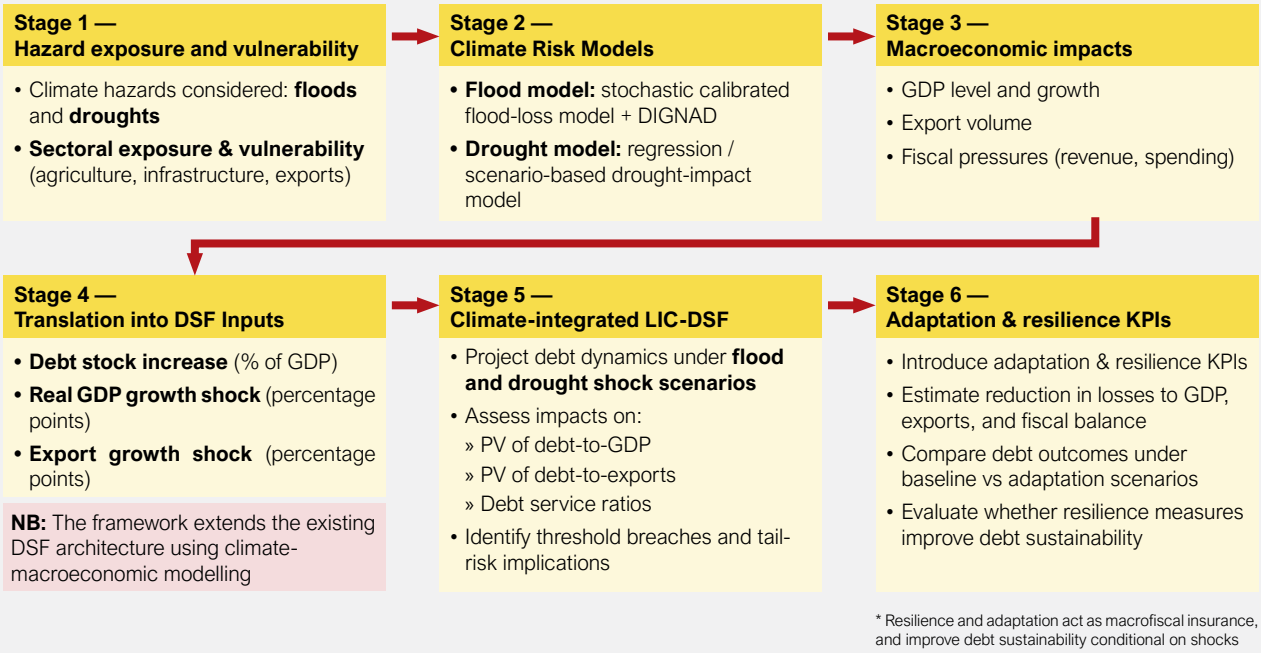
Within each scenario, KPIs are mapped to both quantitative and qualitative debt dynamics & credit drivers. However, not all KPIs can be robustly modelled for the reasons set out in Section 2. Transmission channels are still identified and tracked to provide a structured basis to incorporate these effects through qualitative factors – and more fully reflect the benefits of resilience in Uganda's DSA.

4.2.3. Step 3: Translate KPIs into sovereign risk assessments via:

4.2.3.1. Quantitative analysis

Building on the mapping in Step 2, the A&R scenarios and their underlying KPIs are incorporated into the quantitative models used to inform a climate-integrated LIC-DSF, insofar as this is currently feasible. The purpose of this stage is to move from sectoral resilience priorities to sovereign-risk metrics by quantifying how climate shocks affect macrofiscal outcomes and how resilience investments can reduce those effects.

Figure 18 Analytical framework



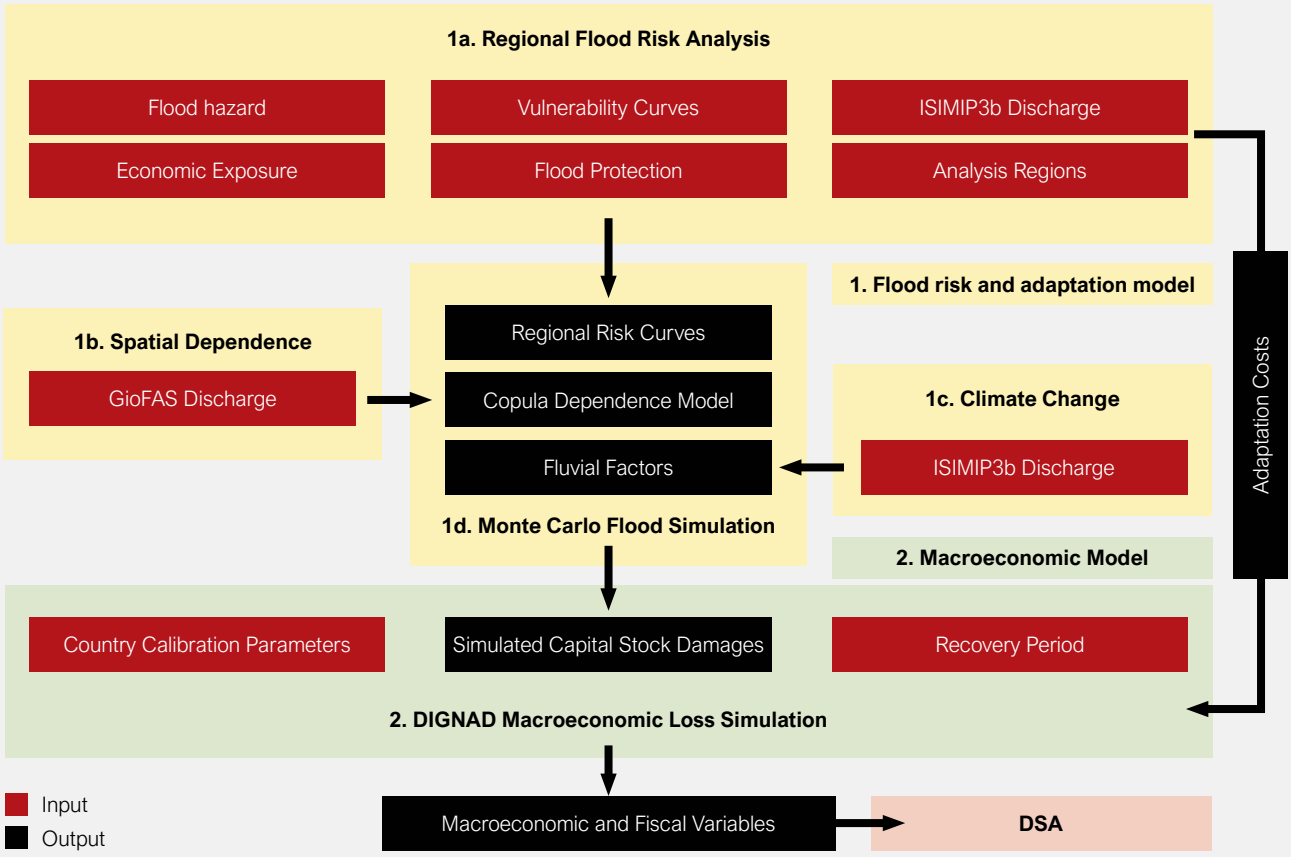
* Resilience and adaptation act as macrofiscal insurance, and improve debt sustainability conditional on shocks

The quantitative analysis is the more developed route in this first phase. It follows six technical stages, moving from hazard identification to climate-integrated debt sustainability analysis. This interim report presents high-level or stylised results across all six stages, but the intention is to deepen this analysis (as detailed below). The focus in this interim stage is on acute risks – floods and droughts – which the analysis identifies as the two most material hazards.

Flood risk analysis shows how probabilistic modelling can translate A&R measures into avoided losses

For flooding, the analysis uses a probabilistic flood-risk module that estimates the distribution of losses from severe flood events and links those losses to macrofiscal outcomes through the IMF's DIGNAD model. The flood model combines hazard, exposure and vulnerability layers, incorporates spatial dependence across river basins, and adjusts flood frequency under future climate scenarios. A&R is introduced by modifying vulnerability curves for farm and infrastructure assets and flood-frequency curves in areas affected by landscape interventions. This allows the analysis to estimate not only expected flood losses, but also how resilience measures shift the loss distribution.

Figure 19 Analytical framework for modelling the macroeconomic and fiscal impacts of floods



The flood analysis currently captures three A&R scenarios: landscape, on-farm resilience and market-link / infrastructure interventions. It does not yet model the agro-industrialisation scenario. These scenarios are modelled through changes in vulnerability and hazard parameters, with effectiveness tested across a range of assumptions. The report does not treat agro-industrialisation as a standalone flood scenario; rather, the flood module focuses on the resilience interventions that directly affect flood exposure, vulnerability and basin hydrology.

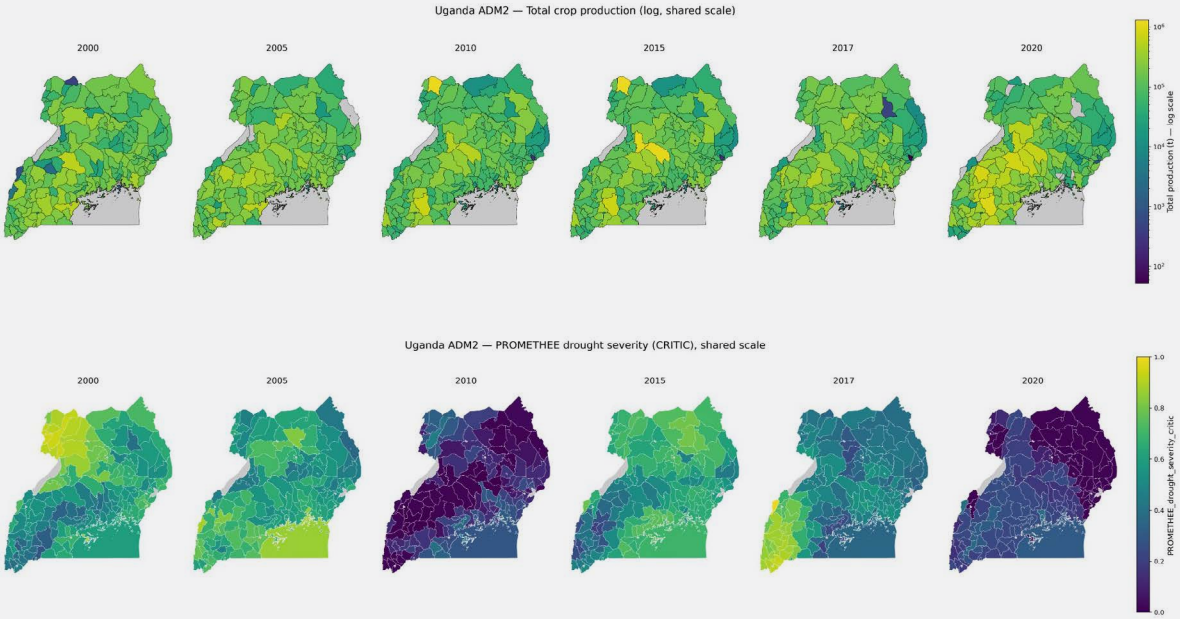
The preliminary flood results focus on a 100-year loss year, which has a 1% annual probability of occurrence. In this severe flood year, the model estimates GDP losses of around USD 1.04 billion, equivalent to 1.63 percent of GDP. When the adaptation programme is introduced, the model estimates avoided GDP losses of around USD 190 million, equivalent to a 0.29 percent of GDP saving in the flood year and an 18% reduction in the baseline GDP shock. When these avoided macroeconomic losses are combined with avoided capital stock losses from infrastructure resilience investments, the total resilience benefit rises to around USD 244 million in a severe flood year. On an annualised basis, these investments generate expected benefits of around USD 24.5 million per year. These results remain preliminary, but they show how KPIs can begin to enter the flood-risk model quantitatively and generate estimates of avoided climate losses.

The preliminary flood results in the report focus on capital stock and GDP losses across return periods under both current and future climate conditions. Under future climate conditions, a 100-year flood event generates losses of around US$790 million in capital-stock terms and 0.99 percent of GDP. With adaptation, these are reduced to about US$751 million and 0.89 percent of GDP, implying avoided capital losses of roughly US$49 million and a reduction of 0.10 percentage points in the GDP shock. Combining capital-stock and GDP-equivalent avoided losses, the total resilience benefit for a future 100-year flood event is estimated at about US$103 million.

Drought risk analysis captures how A&R measures affect production systems and propagate through to GDP

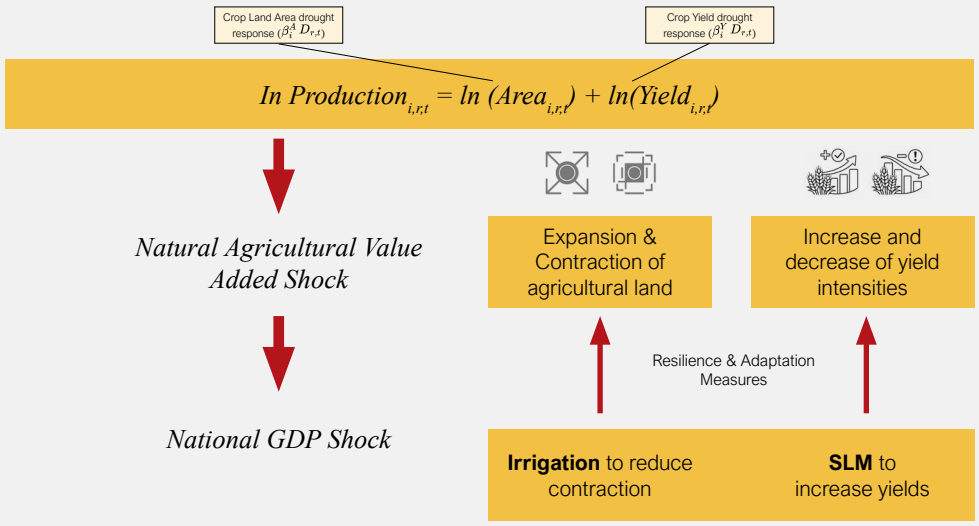
The drought analysis takes a different approach. Rather than imposing a uniform national shock, it models drought impacts on agricultural production at the subnational level using an ADM2 panel, then aggregates these effects into national agricultural and GDP outcomes.

Figure 20 Subnational patterns of crop production and drought severity in Uganda, 2000-2020



Agricultural production is decomposed into harvested area and yield, allowing drought impacts to operate through both extensive and intensive margins. In this framework, irrigation reduces drought-related contraction in cultivated area, while sustainable land management and agroforestry mitigate yield losses and improve resilience under dry conditions.

Figure 21 Conceptual framework for translating drought impacts into agricultural production and GDP shocks



The drought model currently captures the on-farm A&R scenario most directly, that is sustainable land management, irrigation and agroforestry. The report estimates the overall drought shock-reduction parameter by combining literature-based effect sizes with observed changes in KPI coverage. On the current central calibration, these interventions together reduce the drought shock by 16.3 percent, with sustainable land management providing the largest share of the effect. This is important because it means the mitigation parameter is not assumed arbitrarily; it is derived from KPI-linked changes grounded in Uganda-relevant evidence.

Figure 22 Drought risk model results

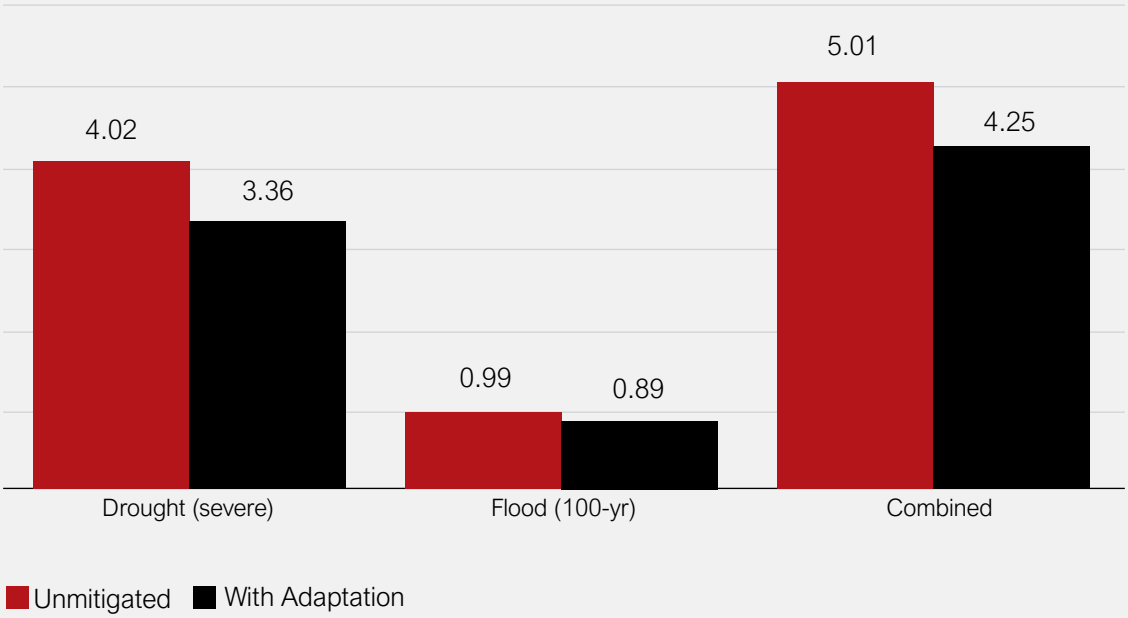
Drought Severity	Baseline GDP Impact	Adapted GDP Impact	Protected Value
Moderate (SPEI –1.0)	$1.2bn (1.9%)	$1.00bn (1.6%)	$0.20bn
Severe (SPEI –1.5)	**$2.57bn (4.02%)**	**$2.15bn (3.36%)**	**$0.42bn**
Extreme (SPEI –2.0)	$3.8bn (5.9%)	$3.18bn (4.9%)	$0.62bn

The preliminary drought results apply this intervention package to severe drought scenarios. In a severe drought year, calibrated at SPEI -1.5, the unmitigated GDP impact is estimated at US$2.57 billion, or 4.02 percent of GDP. With adaptation fully implemented, the loss falls to US$2.15 billion, or 3.36 percent of GDP, implying protected value of around US$420 million. This shows that adaptation is not only protective in physical terms; it also generates an identifiable and recurring macroeconomic value that can feed into sovereign risk assessment.

Comparing hazards and linking them to debt sustainability

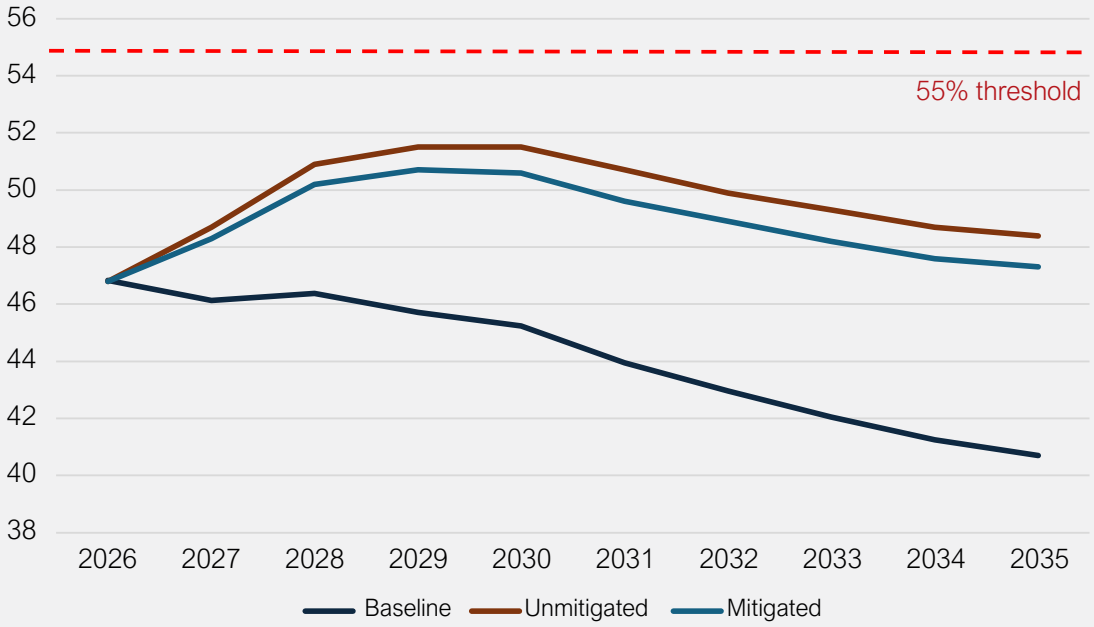
The results allow a comparison across hazards. In macroeconomic terms, drought is the more severe shock in the current modelling. The unmitigated severe-drought shock reduces GDP by 4.02 percent, compared with 0.99 percent for a 100-year flood under future climate conditions. With adaptation, these shocks fall to 3.36 percent and 0.89 percent respectively. Taken together, the report estimates a combined compound-event GDP shock of 5.01 percent, which falls to 4.25 percent with adaptation, implying a combined reduction of 0.76 percentage points. The corresponding probability-weighted annual resilience value across flood and drought is approximately US$96 million. This provides a quantitative basis in the report for treating adaptation investment as debt-stabilising rather than simply debt-creating expenditure.

Figure 23 Climate-related shocks: GDP impact comparison



A central challenge in this work is not the absence of climate models, but the translation of their results into DSF-relevant assumptions. Climate-risk models can estimate losses to capital, output and fiscal balances, but the LIC-DSF requires a narrower set of macrofiscal stress inputs. In the Uganda framework, this translation is done using DIGNAD. The model captures how a severe compound climate shock propagates through the economy over several years via capital destruction, weaker output, lower tradable-sector performance and worsening fiscal balances. These results are then translated into three LIC-DSF-consistent inputs: a one-off increase in public debt, a shock to real GDP growth, and a shock to export growth proxied by the decline in tradable output.

Figure 24 PV of public debt projections under climate shock scenarios



Although the results remain preliminary, they already show that climate-related shocks can materially worsen Uganda's debt outlook, even without breaching the relevant debt threshold. Under the unmitigated climate shock scenario, the present value of public debt peaks at about 51.5 percent of GDP, compared with the 55 percent benchmark. At the same time, adaptation improves debt outcomes throughout the projection period: the report finds that the present value of public debt is about 1.2 percentage points lower than the unmitigated trajectory. This suggests that resilience investment can act as a kind of macrofiscal insurance. These are preliminary results: future model runs will factor in a broader array of A&R measures and include positive feedback effects, and may generate further improvements on headline DSA metrics.

The next stage of this work is to deepen and systematise the climate integration. In particular, the analysis should move beyond one-off shock treatment toward recurrent and persistent climate pressures over the full LIC-DSF horizon; expand the macrofiscal transmission channels captured in the framework; and incorporate A&R investments more explicitly as policy scenarios that stabilise macroeconomic variables, reduce future shock magnitude and support long-term growth. The aim is to develop climate- and nature-consistent LIC-DSF scenarios that more accurately reflect Uganda's actual exposure to climate-related risks and the macrofiscal benefits of A&R measures – even in years without shocks. In doing so, the analysis will distinguish more clearly between resilience investments that protect the existing production system and those that help transform it towards a more resilient model, recognising that the latter may generate larger long-run returns and stronger stabilising effects from a credit perspective.

Once that foundation has been laid, the outputs can be configured to feed into the CRA rating models. These comprise many of the same macrofiscal variables (e.g., debt-to-GDP ratios, interest-to-revenue, etc.) but also others that are featured in the standard macrofiscal and DSA models, such as: government liquid assets (used to calculate net debt and net creditor positions), current account balance and foreign direct investment flows, foreign exchange reserve coverage, and others. These variables need to be recalculated dynamically with the core macrofiscal variables in a manner that is conceptually sound. Future iterations or add-on modules can be developed to capture these wider impacts, but in the meantime, they will need to be adjusted manually according to economic logic. Including rating sensitivities of the macrofiscal is important because they have a feedback effect via the cost of capital. As resilience interventions improve credit profiles, the interest rate should decline, which in turn opens more fiscal space to invest in resilience, improving the debt dynamics, and so forth.

In a similar vein, future modules will also consider different debt management strategies that can have a positive bearing on the cost of capital. For instance, if the policy-level KPIs are used in sustainability-linked sovereign loans and bonds, then achieving the KPI targets will not only generate credit uplift via the macrofiscal channels, they will also likely produce lower interest rates on those instruments (either because they become eligible for credit enhancement or via interest-rate step-down mechanisms). The vision is for functionality that enables the comparison of financing plans comprising different instruments and KPIs in terms of credit impacts.

BOX 3 How open-source tools make quantitative analysis practical

The analytical chain required to integrate resilience into DSA is long and labour-intensive. Climate and nature modelling must feed into macroeconomic impact models, such as the IMF's DIGNAD model and Q-CRAFT, whose results must then be translated into debt sustainability frameworks like the LIC-DSF. Each step involves its own software or Excel workbook, its own data requirements, and its own assumptions. Running a single scenario end-to-end means coordinating inputs across multiple linked models and manually transferring results between them. Comparing alternative resilience investment pathways, the analysis most useful to policymakers, multiplies this effort considerably.

To address this, Uganda, supported by Teal Insights is developing open-source tools that link these models together, applying a SovTech approach to sovereign debt analysis. SovTech extends the same principles that central banks and financial regulators have successfully applied for years through Supervisory Technology (SupTech) and Regulatory Technology (RegTech): using modular, technology-driven tools to make complex analytical work faster, more transparent, and less dependent on external advisors. The aim is to reverse-engineer the analytical logic of key frameworks into open-source components that can be connected, tested against official templates, and adapted for different countries and contexts without rebuilding from scratch.

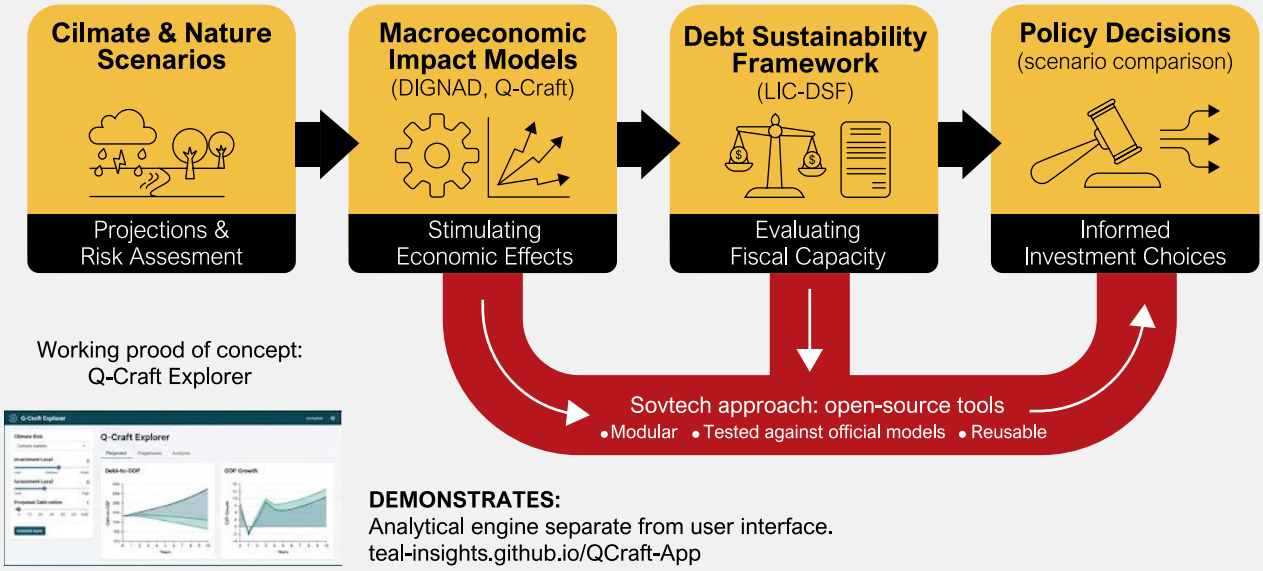
These tools are being co-designed with the people who will use them. Teal Insights is co-designing the tools with MoFPED, the Bank of Uganda and other institutional stakeholders through a series of design workshops to ensure the tools fit existing planning and debt management workflows. The process also involves consultation with the IMF and World Bank staff working on the LIC-DSF Review, so the tools are seen as credible and useful by all institutions involved.

A working proof of concept illustrates the approach on a smaller scale. The Q-CRAFT Explorer (teal-insights.github.io/QCraft-App) is an open-source web application and companion guide, developed by Teal Insights that reimplements the IMF's Q-CRAFT model. Users can select a country, adjust climate and policy assumptions, and immediately see how different scenarios affect the projected debt, growth, and fiscal balances. The application also demonstrates a key design principle: the analytical engine is separate from the interface, so the same underlying calculations can power tools tailored to different users and workflows.

A larger and more challenging task, reverse-engineering the LIC-DSF, is well advanced. The LIC-DSF template encodes nearly two decades of accumulated methodology and translating it faithfully into open-source code requires extensive automated testing to verify exact alignment with the official workbook. A key design question is how to present comparisons of multiple resilience scenarios in a way that is clear and actionable for policymakers weighing the debt sustainability impact of different investment options.

Building credible, easy-to-use open-source tools requires significant effort, but the potential payoff is substantial. Because the components are modular and openly available, any country using the LIC-DSF could adopt them. Market-access countries (MACs) could in the future substitute in the equivalent Sovereign Risk and Debt Sustainability Framework for MACs (SRDSF) while reusing the rest of the infrastructure. The hard work of building and testing these tools is what makes it possible for this kind of analysis to scale broadly, rather than remaining a one-off exercise.

Figure 25 The SovTech approach to sovereign debt analysis



4.2.3.2. Qualitative analysis

For reasons cited above, the quantitative models employed in the standard macrofiscal, DSA, and CRA models do not capture all the relevant dimensions of A&R. This means qualitative factors within DSA and CRA models need to be adjusted to fully reflect the gains from resilience in Uganda's credit and debt sustainability profile.

It is difficult to estimate the impact of adjustments to qualitative factors with precision. There are two layers of uncertainty. First, it is difficult to determine the appropriate magnitude of adjustment to individual scorecard factors. Particularly for sovereign credit ratings, qualitative factors describe high-level concepts and there is no standard formula or objective guidance for how to integrate resilience considerations. The adjustment decision is highly subjective. Second, its impact depends on the weight of the factors in the respective DSA and CRA scorecards.

As a general rule, qualitative adjustments rest on the strength of the empirical evidence and the validity of the logic presented to scorers. It is important to present the benefits of resilience as objectively as possible, reducing the risk that they are omitted or discounted. The KPI-linked approach can be effective because it provides an empirical framework for a process that is otherwise weakly specified. It provides a way for countries to signal commitment to deliver on long-term resilience ambitions, in a way that is externally verifiable – improving the credibility of claims that A&R measures are reducing sovereign risk. It also strengthens the logic for qualitative adjustment by linking delivery to the economic transmission channels through which resilience can improve debt dynamics and credit outcomes.

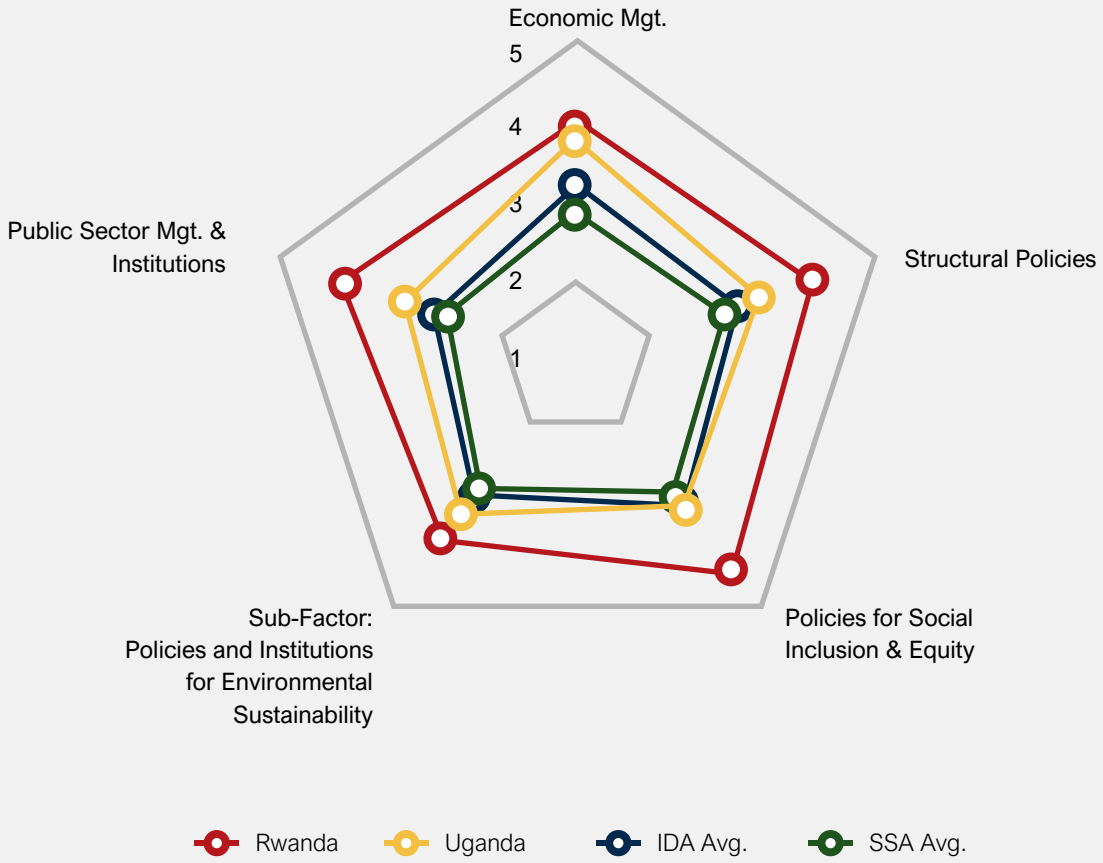
With this in mind, this section provides directional estimates of how better integration of the benefits of A&R KPIs into qualitative factors could improve Uganda's DSA and sovereign credit ratings.

[15] The CI is a weighted average of the country's CPIA score computed by the World Bank, the country's growth, reserves, remittances, and world growth.

The impact of qualitative adjustments on Uganda's DSA is somewhat limited

The main avenue for qualitative assessment in the LIC-DSF is via the World Bank's CPIA score, which forms part of the 'Composite Indicator' (CI). The CI score determines the debt-carrying capacity and corresponding critical thresholds of debt distress.[16] Uganda's 10-year average CPIA score of 3.5 combined with other quantitative components produces a CI score 2.855 according to the latest DSA (February 2026 Post-Financing Assessment), placing it close to the mid-point of the 'medium' country classification in terms of debt-carrying capacity, which ranges from 2.69-3.05. All other CI components being equal, the 10-year average CPIA score would need to rise by more than 0.5 points and remain above 4.0 threshold for several years before Uganda can enter the 'strong' country classification. For illustration, only Rwanda has a CPIA score above 4.0 and a 'strong' country classification among Sub-Saharan African IDA peers (see Figure 29). The LIC-DSF also applies staff judgment to determine the final risk rating. Judgment can be used to assess the severity of threshold breaches and country-specific factors not fully reflected in the model, which includes long-term pressures such as climate change.

Figure 26 Uganda's CPIA profile snapshot 2025



[16] The CI is a weighted average of the country's CPIA score computed by the World Bank, the country's growth, reserves, remittances, and world growth.

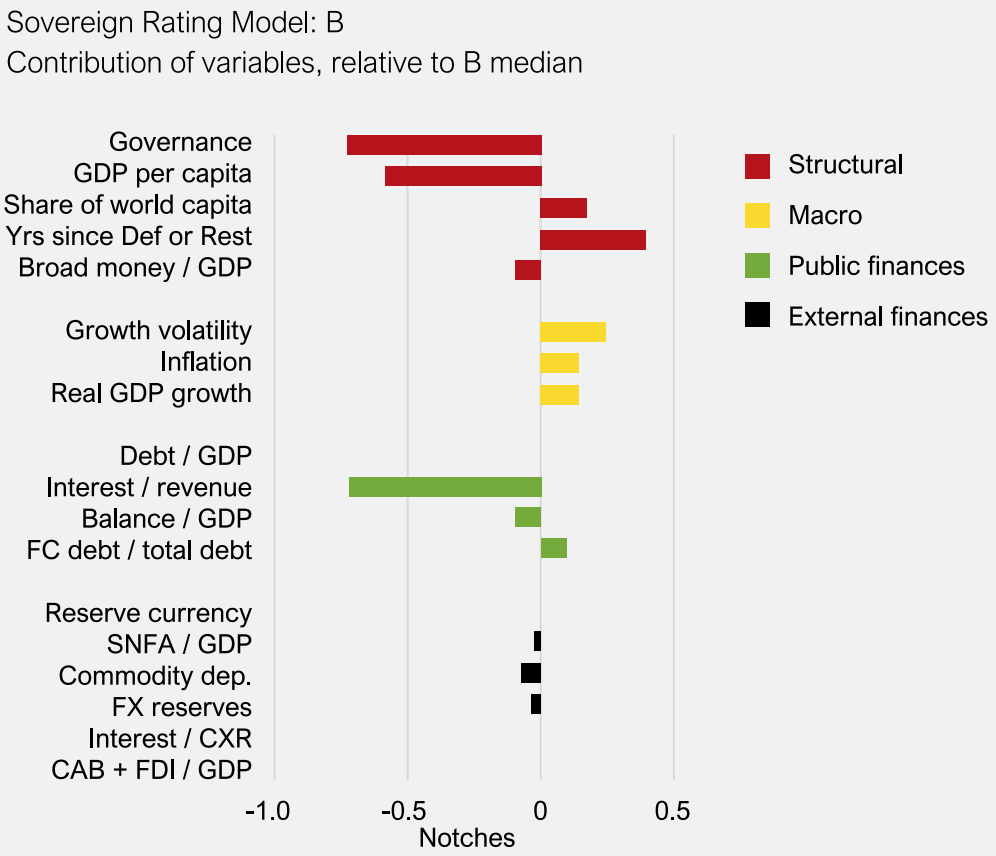
The impact of qualitative adjustments on sovereign credit ratings is much more significant, noting credit analysis is still mostly a qualitative exercise

For sovereign credit ratings, the benefits of A&R KPIs can be captured through two qualitative channels: indirectly through indicators that feed into rating agency models, particularly the World Bank's Worldwide Governance Indicators (WGI), and directly through CRA scorecards.

Indirect qualitative factors – that is WGI scores – materially influence rating agency assessments. The WGIs feed into Fitch's Sovereign Rating Model – at 22%, the variable with the highest weight – and into Moody's 'Institutions and governance strength' and 'Susceptibility to event risk' Factor.[17] For Uganda, the composite WGI is the main drag on its SRM output, subtracting nearly a full notch from the indicative rating relative to the 'B' median (see Figure 29). The country underperforms across all six WGI pillars relative to rating and Sub-Saharan African peers based on the latest readings, raising concerns about the quality and transparency of the opinion surveys and expert assessments feeding the WGIs.[18] The underlying sources are heavily lagging and contain numerous variables with little or no explanatory power for predicting sovereign default risk. Crucially, the WGIs omit important political developments and improvements to macrofiscal policy frameworks and public financial management systems.

Moody's methodology does not treat the WGIs as mechanically determinative – they guide rather than determine assessments. This means there is scope to argue that the WGIs understate Uganda's institutional strength, particularly where the KPI-linked approach provides evidence of real commitment to resilience.

Figure 27 Long-term foreign-currency issuer default rating: B



[17] Regulatory Quality' and 'Government Effectiveness' under the Quality of Legislative and Executive Institutions sub-factor; VA, RL, and CC under the Strength of Civil Society and the Judiciary sub-factor; and VA or PV under the Domestic Political and Geopolitical Risk sub-factor.

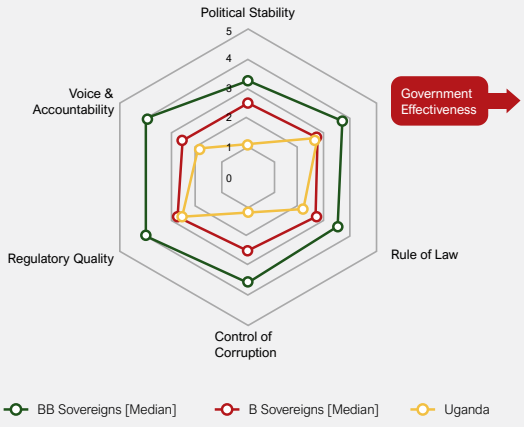
[18] See" NatureFinance. Getting institutional assessments right: How qualitative scores shape sovereign credit ratings. 2026." For detailed analysis of conceptual and methodological issues with the WGIs.

A&R measures are positively associated with all dimensions measured by the WGIs; for instance, reduced volatility in agricultural output mitigates food security risks, attenuating threats to political stability. But these benefits are not reflected in the WGIs.

The 'Government Effectiveness' (GE) pillar provides a strong example. From a sovereign risk and debt sustainability standpoint, this is where the benefits of resilience are mainly captured. In Uganda's case, the GE pillar maps to 12 of the 35 sources, and of these drawing on a sub-set of relevant sub-indicators (e.g., the GE WGIs reference only 7 of 16 CPIA sub-components). In Uganda's case, its GE score is driven mainly by the African Development Bank's (ADB) CPIA, the S&P Global Country Risk Score, African Institute for Development Policy's Africa Integrity Indicators, which together account for nearly half of the GE WGI (see Figure 28).

Figure 28 Components of the Government Effectiveness WGI

Uganda WGIS 2024 Vintage (as Fitch rating notches)



GE Sources	Weight	Inputs
AfDB CPIA	16%	Quality of public administration, Quality of budgetary and financial management, Efficiency of revenue mobilization
Afrobarometer	1%	Handling improving basic health services, Handling addressing educational needs
Bertelsmann Transformation Index	7%	Consensus Building, Steering Capability, Efficient use of assets, Policy Coordination, Resource Efficiency
EIU Operational Risk Service	11%	Quality of bureaucracy / institutional effectiveness, Excessive bureaucracy / red tape
WEF Executive Opinion Survey	8%	Quality of road infrastructure, Quality of primary education
AFIDEP	13%	Civil Service Integrity, Public Management, Business Environment & Infrastructure, Welfare, Health and Education
Gallup World Poll	1%	Satisfaction with public transportation system, Satisfaction with roads and highways, Satisfaction with education system
IFAD Rural Sector Per. Assessment	5%	Allocation & management of public resources for rural development
Crisis24	5%	Country Security Rating – Security Services
World Bank CPIA	6%	Quality of public administration, Quality of budgetary and financial management, Efficiency of revenue mobilization
PRS	9%	Bureaucratic quality
S&P Global Country Risk	14%	Infrastructure disruption, state failure (disaster resilience), political instability

The AfDB CPIA score broadly mirrors the World Bank's methodology[20], albeit with major disparities in the level and frequency of public disclosure. As with the World Bank CPIA, the WGIs do not pick up all the AfDB CPIA sub-components, and crucially omit the 'Environmental Policies and Regulations,' 'Fiscal Policy,' 'Monetary Policy', and 'Debt Policy' scores where many of the resilience measures ought to be captured. These are areas where Uganda has outperformed its regional peers – based on latest 2020 data, as more recent granular data are not publicly available[21] – but for which it receives no recognition in the WGIs, and by extension rating inputs. The four AfDB CPIA sub-components that are pulled in the WGI GE – 'Quality of Budget and Financial Management,' 'Quality of Public Administration,' 'Efficiency of Revenue Mobilisation,' and 'Regional Integration' do not measure shock absorption capacity nor resilience planning capability. Moreover, these are measures where Uganda underperforms those regional peers, including those that entered sovereign debt default in the recent past, raising valid questions about the predictive power of WGIs for credit ratings specifically. The KPI-linked approach provides an effective way to address this weakness, by providing an evidence-based narrative for why these scores should be adjusted or contextualised if they fail to capture institutional improvements related to resilience.

[20] It comprises 18 criteria: the first 16 are the same as the World Bank clusters, while the AfDB introduced two additional dimensions, Infrastructure and Regional Integration
[21] African Development Bank Group. "Country Policy and Institutional Assessment." Accessed April 10, 2026.

The expert assessment with the second largest weight in Uganda's GE-WGI comes from S&P Global's Country Risk service, which is separate from the Credit Ratings business. Three sub-scores are used in Uganda's GE-WGI, of which two explicitly mention natural disasters in reference to risks of "infrastructure disruption" and "state failure." However, the wording is once again so high-level, broad, and imprecise as to be meaningless in terms of capturing resilience and adaptation capabilities. Worse, neither the underlying data nor the rationale for the scores are publicly available since it is a commercial product reserved for subscribers to S&P Global's Market Intelligence service.[23] It is therefore not possible to interrogate these scores and assess their validity and relevance to sovereign risk analysis, let alone whether they duly and accurately reflect A&R measures.[24]

These are just two examples of how A&R are not adequately captured in many of the public opinions and expert assessments underlying the WGIs. It is not possible to assess with high confidence whether correcting these shortcomings would result in meaningful credit rating uplift since many of the data sources and methodologies are not available, and because the WGIs contain other confounding variables.

However, the following thought exercise gives a directional sense of what the credit uplift could look like – based on better integration of resilience. Focusing on the World Bank and AfDB CPIA components of the WGI, if these were updated to include the 'Environmental Policies and Regulations' scores, and if these were to be adjusted to reflect the A&R measures under the scenarios above – e.g., a score of 4.5 out of 6[25] – then this will feed through to Uganda's composite GE-WGI score and overall composite WGI percentile rank . The WGI percentile rank is the variable with the heaviest weight in Fitch's sovereign rating model (SRM), and so the uplift could be sufficient to indicate a model-driven upgrade to 'B+' from 'B' currently.[26]

A&R measures should also be factored into qualitative analysis directly in the CRA scorecards themselves. For example, in S&P's sovereign rating methodology, A&R features in the 'Institutional Assessment', 'Economic Assessment', and 'Fiscal Performance and Flexibility.' According to the Agency's criteria, Uganda's score of 5 out of 6 corresponds to countries where "policy choices likely weaken capability and willingness to maintain sustainable public finances."[27] The government's work on building A&R into NDP-IV and its macrofiscal policies sits in tension with this assessment. Implementation of a KPI-linked approach would provide robust evidence of policy commitment and a stronger basis to argue for an adjustment to a score of 4 ("Policy choices may weaken support for sustainable public finances").

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[22] The two sub-score cited are: "Infrastructure disruption. This reflects the likelihood of disruption to and/or inadequacy of infrastructure for transport, including due to terrorism/insurgency, strikes, politically motivated shutdowns, natural disasters; infrastructure includes (as relevant) roads, railways, airports, ports, and customs checkpoints." And "State failure. The risk the state is unable to exclusively ensure law and order, and the supply of basic goods such as food, water, infrastructure, and energy, or is unable to respond to or manage current or likely future emergencies, including natural disasters and financial or economic crises." World Bank. WMO-2025.xlsx. Accessed April 10, 2026. https://www.worldbank.org/content/dam/sites/govindicators/doc/WMO-2025.xlsx

[23] S&P Global Market Intelligence. "Advanced Country Analysis and Forecast." Accessed April 10, 2026.

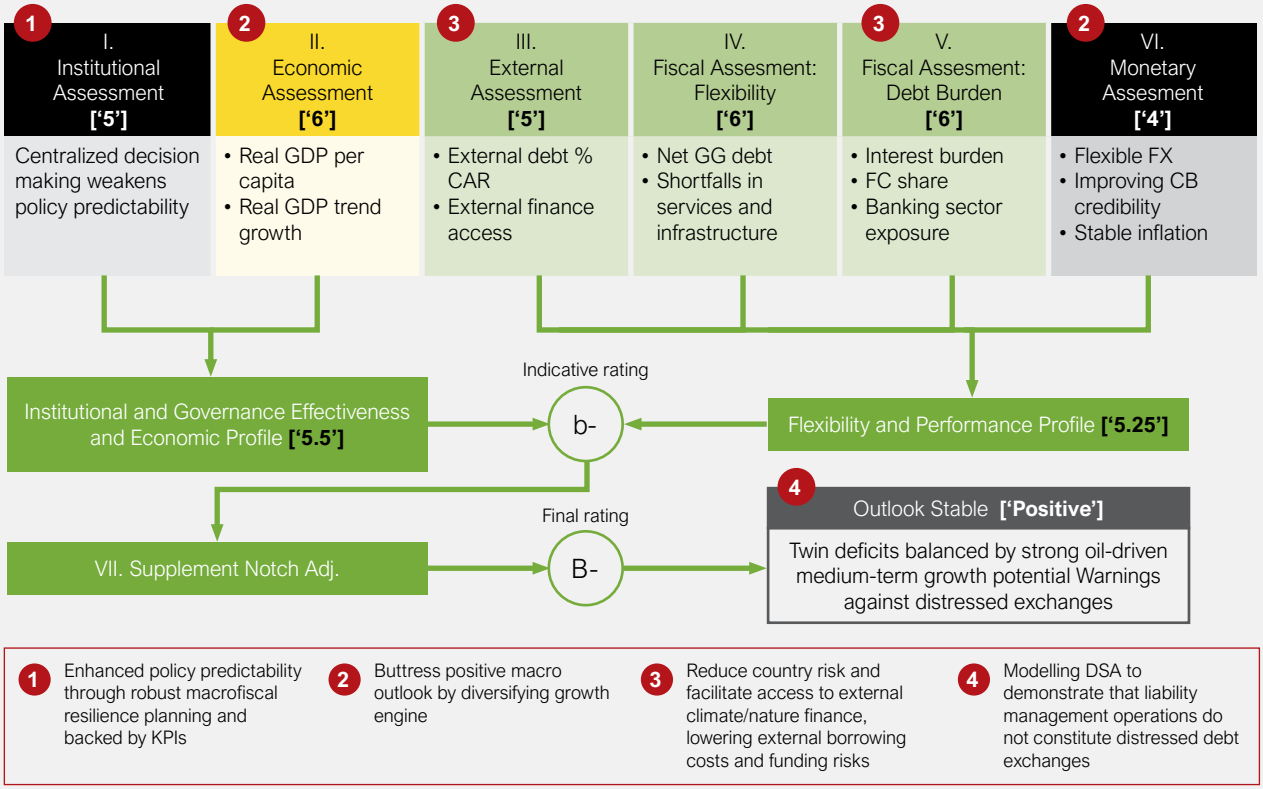
[24] Given the disproportionate weight that this source has across all WGIs and for all countries in the data set, it should be made freely available and intelligible.

[25] Uganda is currently scored 3.5 for Environmental Policy and Regulation, which the criteria state corresponds to: "The government has some environmental policies and programmes that address problems of environmental degradation, but the policies are not covering all the sectors and institutional capacity to implement these policies is limited." A score of 4.5 corresponds to: "The government's national environmental policy framework covers all the relevant sectors, and there are funds and good institutional capacity to implement the policies and programmes. The policies and programmes are being implemented." See: https://cpia.afdb.org/documents/public/cpia2015-questionnaire-en.pdf

[26] Concretely, Uganda would need to rise from a composite WGI percentile rank of 27.3th at Fitch's last review in February 2026 to 35th, holding all other countries' ranking equal.

[27] S&P Global Ratings. Uganda Outlook Revised to Positive on Resilient Growth. Accessed April 10, 2026. See:

Figure 29 A&R in Uganda's S&P's rating methodology



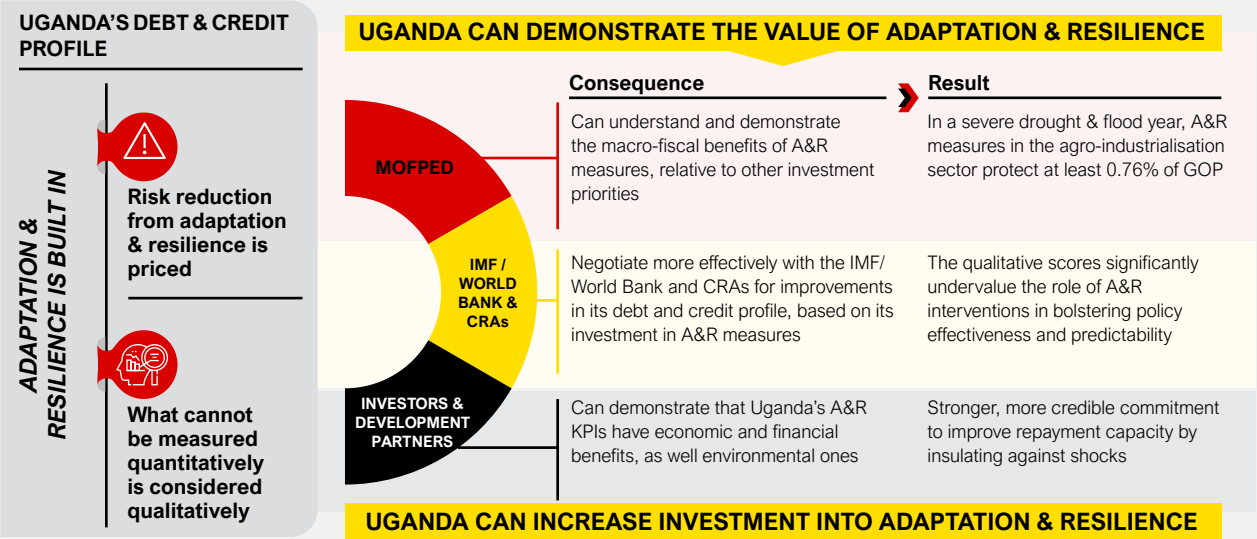
Notes: Pillars are scored from 1 (best) to 6 worst.
Source: S&P

Further research and analysis on qualitative factors related to A&R would include:

- Quantifying the impact in terms of rating notches and CPIA scores of omissions in existing criteria and underlying WGI sources, with sensitivity analysis;
- Identifying policy areas such as insurance where resilience gains are currently being discounted and making the case for scorecard adjustments,
- Securing access to all data and rationales underlying scores feeding into the WGIs that have a bearing on Uganda's rating in order to bolster the case for scorecard adjustments.

4.3 How Uganda can use this evidence

Figure 30 How Uganda can use the evidence to mobilise A&R finance



5. Scaling the approach beyond Uganda

The country-specific financing constraints identified here are not unique to Uganda. Many climate-vulnerable countries face the same asymmetry in sovereign risk assessments: they increasingly recognise downside climate-related risks, but they do not recognise the benefits of reducing those risks through investments in A&R – treating them instead as unproductive discretionary expenditure that do not generate any returns. As a result, the economic system systematically undervalues and under-invests in A&R.

As Co-Chair of the Coalition of Finance Ministers for Climate Action, Uganda's MoFPED wants its work to support other climate-vulnerable countries, while strengthening its own fiscal and financial decision-making.

This work starts with Uganda. By linking A&R measures to growth, fiscal outcomes, and debt dynamics, it strengthens how Uganda prioritises public spending and engages with the IMF, World Bank, CRAs and investors. It provides a more credible basis for demonstrating how resilience investments affect economic stability and creditworthiness, particularly in a constrained financing environment.

Building on this, Uganda aims to move from a single "country proof point" to a methodology for broader reform, enabling other countries to apply the same approach to strengthen their own fiscal and financing strategies.

Uganda is pursuing this objective in three ways:

5.1. Contributing to financial system reform

A key opportunity lies in the ongoing review of the IMF-World Bank LIC-DSF and the parallel review of the World Bank's CPIA. The LIC-DSF review is nearing completion, and the IMF and World Bank will draft the staff guidance note for the revised framework in 2026-2027. Uganda wants the country evidence and open-source models and tools developed through this work to inform that guidance. In practice, this means showing that the methodology is technically credible and practical to use within the LIC-DSF process, so that staff can recommend it – or adapt it – for country teams seeking to integrate A&R more systematically into debt sustainability analysis. The ongoing CPIA review creates a parallel opportunity. Uganda and other proof-point countries can use country evidence to demonstrate where current scoring overlooks A&R interventions and propose concrete changes to the methodology so that it captures resilience more systematically – for example, via new explicit resilience criteria.

Ultimately, if the LIC-DSF, the CPIA and other institutional frameworks begin to recognise the economic benefits of A&R measures – and require this kind of analysis - they could drive much broader adoption across the international financial system. But for that to happen, finance ministries, the IMF-World Bank and investors will ask: what difference does it actually make to include A&R in our frameworks? Does it really change debt trajectories, or suggest different policy choices? Will it have a bearing on our credit rating? These are valid questions that require empirical, country-specific answers – from Uganda and from other countries with different A&R investment needs and different sovereign debt dynamics and credit profiles. As Co-Chair and first mover, Uganda aims to build the evidence base needed to support that shift.

5.2. Improving how capital is allocated

The implications extend beyond sovereign decision-making to how capital is allocated across the system. Donors, development partners, and investors face a common challenge: how to allocate capital in a way that protects growth, reduces volatility, and safeguards development gains. Today, this allocation is often fragmented, with limited ability to compare the macroeconomic impact of different investments. By linking A&R measures to debt dynamics & credit drivers through a structured set of KPIs, this approach provides a common analytical lens. These KPIs translate resilience investments into measurable changes in growth, fiscal performance, and external stability, allowing capital providers to assess their macrofiscal impact in a consistent way.

This is critical because not all relevant factors can be directly parameterised within existing models. KPI frameworks enable both modelled impacts and structured indicators of resilience, such as delivery performance and institutional capacity, to be captured and compared across investments.

As a result, capital allocation can move from fragmented, input-based decisions toward a more consistent, outcome-based approach, grounded in how investments affect economic stability and creditworthiness.

5.3. Scaling the approach through open-source SovTech tools and further proof points

Uganda and its technical partners are developing open-source SovTech tools that can help other countries apply similar analysis in their own contexts. This is important because integrating A&R measures into sovereign risk assessment requires technically demanding quantitative analysis. The goal is to reduce the analytical burden this creates. As detailed in Section 4, the aim is not to design new models, but to make it easier for finance ministries and debt management offices to use existing models within routine workflows.

The next step is for other first-mover countries to develop their own proof points. These countries do not need to start from scratch, but can build on Uganda's integrated analytical framework and replicate and refine it in their own context. This will strengthen the robustness, credibility and practical applicability of the models and tools. The broader ambition is increased uptake of this approach by countries, relevant institutions and development partners to unlock global financing for A&R.

Interim report: Building adaptation & resilience into Uganda's sovereign debt and credit profile