SUNCASA

Resilient Cities. Natural Solutions.

Actionable Finance: Turning Investments into Inclusive Outcomes

Experiences from SUNCASA of outcomes-based financing

May 27, 2026

Albert Letting

Project partners

IISD International Institute for Sustainable Development

WORLD RESOURCES INSTITUTE

Funded by

In partnership with Canada

About IISD

The International Institute for Sustainable Development (IISD)

is an award-winning independent think tank working to accelerate solutions for a stable climate, sustainable resource management, and fair economies. Our work inspires better decisions and sparks meaningful action to help people and the planet thrive. We shine a light on what can be achieved when governments, businesses, non-profits, and communities come together.

IISD's staff of more than 250 people come from across the globe and from many disciplines. With offices in Winnipeg, Geneva, Ottawa, and Toronto, our work affects lives in nearly 100 countries.

Our mission is to accelerate solutions for a stable climate, sustainable resources, and fair economies.

IISD empowers the people who make change possible, delivering the knowledge to act.

SUNCASA seeks to use nature to enhance climate adaptation, gender equality, social inclusion, and biodiversity protection in urban communities in Sub-Saharan Africa.

- **Budget:** CA$28,7 million, funded by Global Affairs Canada throught the Partnering for Climate Program
- **Duration**: January 2024-March 2027
- **Implemented by IISD and the World Resources Institute**, in collaboration with local organizations, SUNCASA will benefit 2.2 million people living in high-flood-risk areas —at least 50% of them women.

Dire Dawa, Ethiopia

Kigali, Rwanda

Johannesburg, South Africa

OVERALL OBJECTIVE

The implementation of **gender-responsive NbS** will strengthen the resilience of urban communities, watersheds, and biodiversity to the impacts of climate change, while reducing the barriers to NbS participation of women and other underrepresented groups.

SUNCASA - Who are we?

City of Kigali

Haramaya University

City of Johannesburg

GenderCC

Joburg City Parks & Zoos

Hararghe Catholic Secretariat

Rwanda Young Water Professionals

Water for the Future

Alexandra Water Warriors

World Resources Institute

City of Dire Dawa

ARCOS Network

AVEGA AGAHOZO

Johannesburg Inner City Partnership

Zutari

International Institute for Sustainable Development

In Kigali, Rwanda, SUNCASA will restore critical upstream micro-catchments in the lower Nyabarongo River watershed to reduce flood risk, landslides, and soil erosion.

Approaches: Afforestation, reforestation, agroforestry, urban tree planting, and establishment of vegetated buffer zones to stabilize gullies

Objectives: Rehabilitate critical micro-catchments to enhance the resilience of high-risk households while controlling encroachment

Beneficiaries: 975,000 people in Kicukiro, Nyarugenge, and Gasabo districts

Partners:

City of Kigali

ARCOS Network

Rwanda Young Water Professionals

AVEGA AGAHOZO

The Current Financing Gap for NBI

Based on 2023 estimates, **USD 200 billions of financing is going into nature-based solutions** (NbS) every year:

- USD 165 billion from public sources - mainly in the form of spending on the protection of biodiversity and landscapes as well as projects in sustainable forestry, agriculture, and fishing.

- USD 35 billion from private sources - they comprise investments mostly in sustainable supply chains and environmental offsets.

To meet Rio Convention targets by 2030, **Nature-based Solutions (NbS) require annual financing of USD 542 billion**. Currently, finance flows cover only one-third of the funding needed to achieve climate, biodiversity, and land degradation goals by 2030.

Source: UNEP, 2023

Why traditional financing struggles with NBI

Difficulty to monetize the value generated through NBI

Lack of **track record** on financial performance

Lack of traditional **revenue streams**

1. NBI involves **longer and more expensive project preparation**, requiring multi-stakeholder coordination. Also, they may have less robust **track records**, creating additional uncertainties for investors. This will need to be priced in the cost of financing for the project.

2. Policymakers and financiers **systematically fall back on civil engineered solutions** on the assumption that they have proven, and verifiable **track records** and that costs and revenues can be monitored and reported with more certainty.

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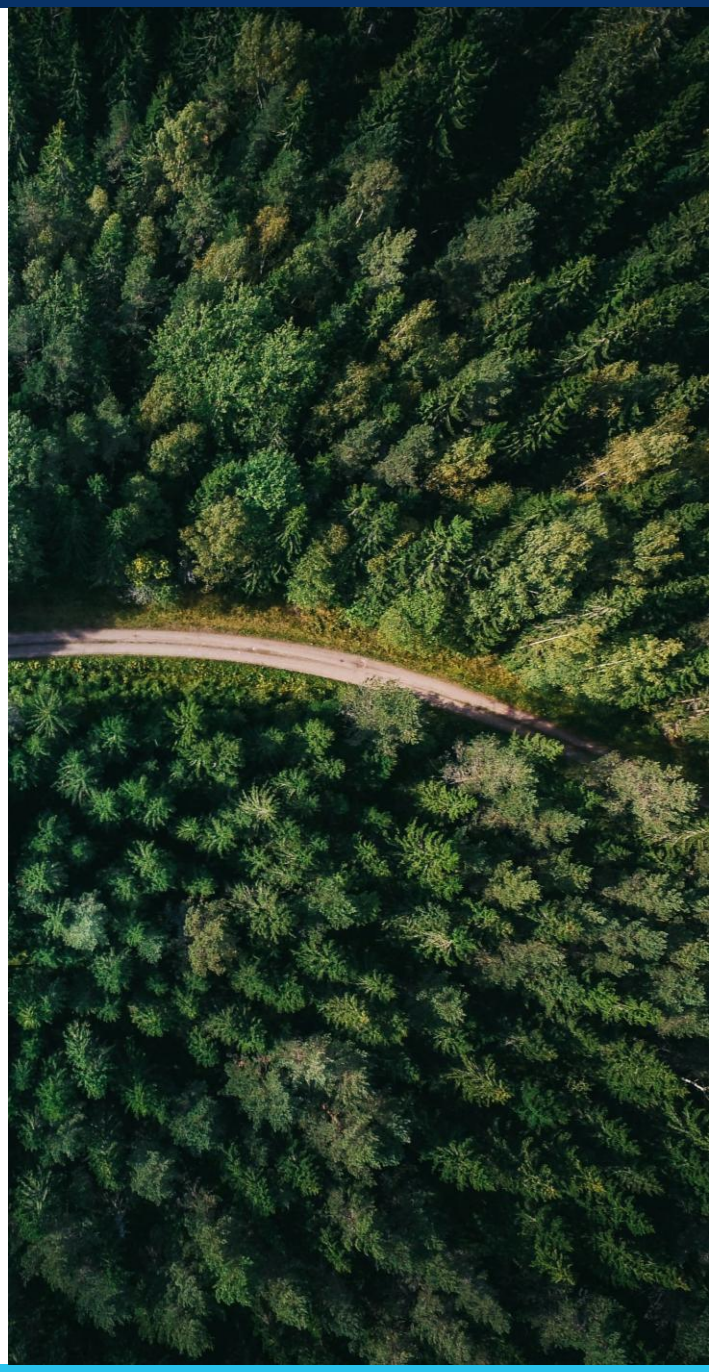
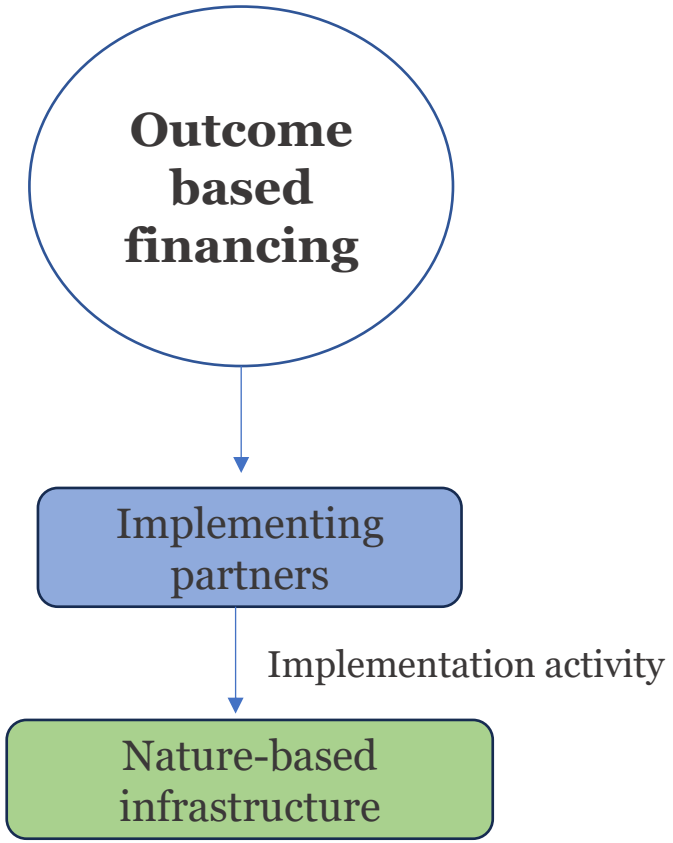
Outcomes-Based Financing

- Outcomes-based financing for NBI that deliver **measurable environmental benefits** and/or performance improvements.
- The model is coordinated by an **intermediary** who determines the payment terms and the contract for all the parties involved, and who coordinate the implementation of the projects.

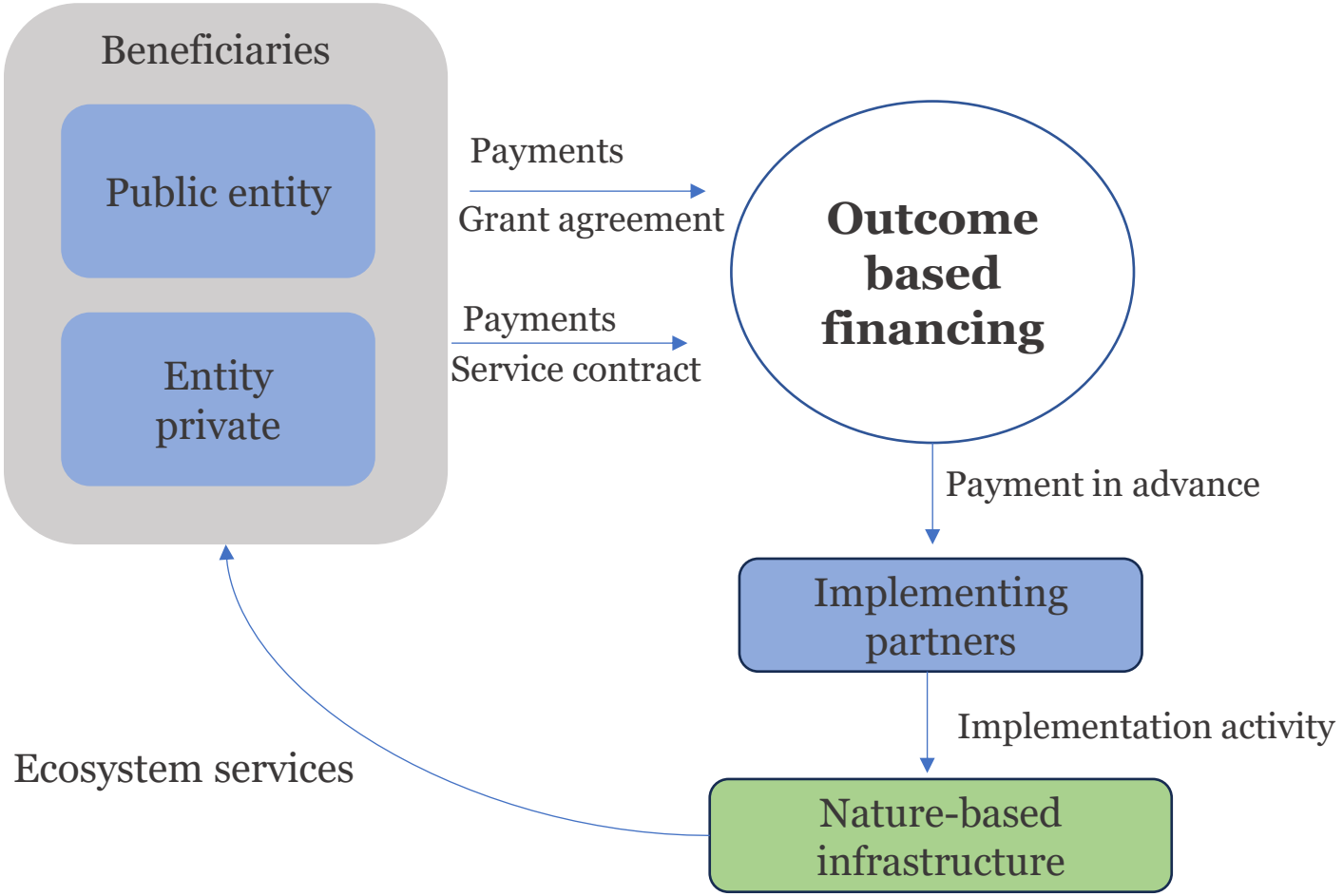
- In this model, **investors** provide financing to cover the costs of implementing the NBI project.
- The project **beneficiaries,** whether public or private, then pay for the results of the NBI projects, generating the revenue stream to repay the investors.



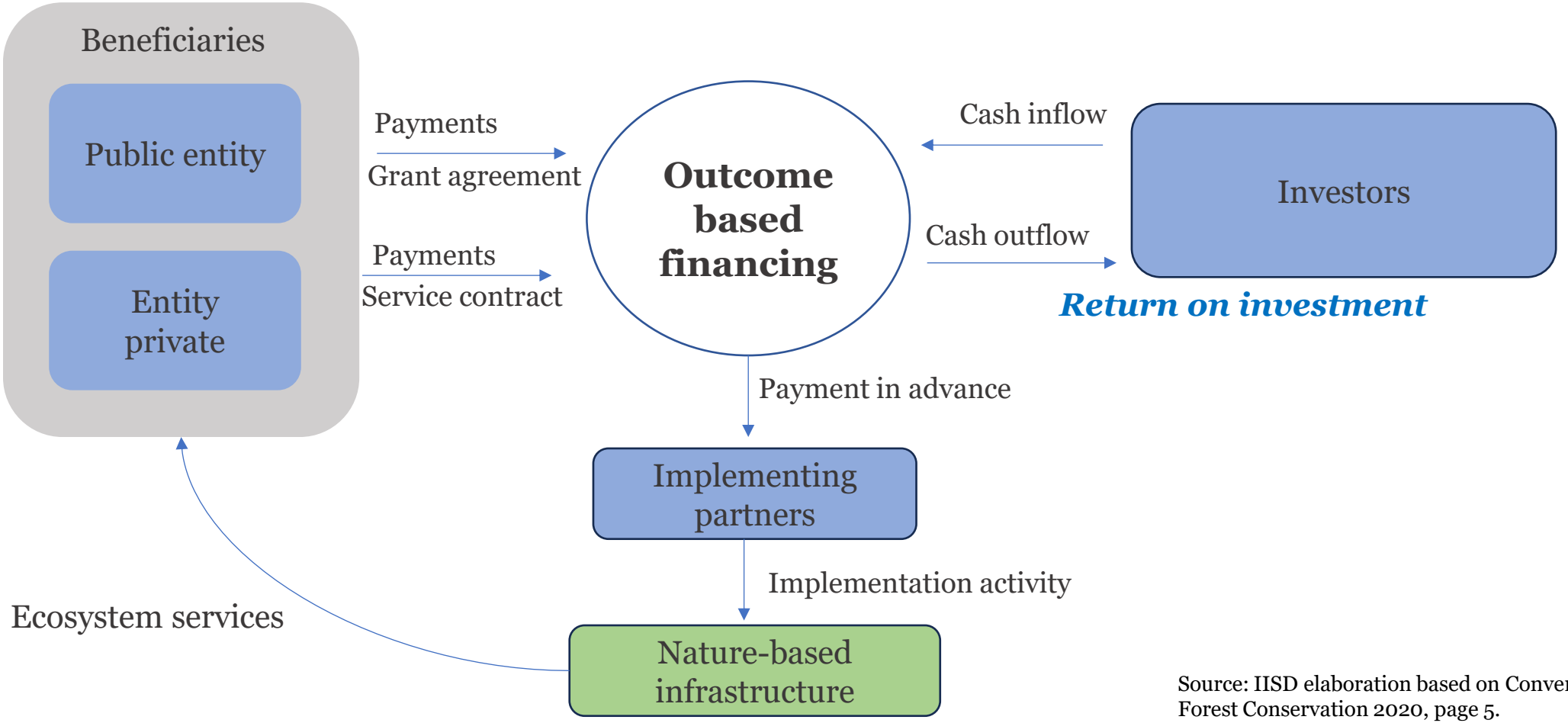
Outcomes-Based Financing



Outcomes-Based Financing



Outcomes-Based Financing



Source: IISD elaboration based on Convergence & Blue Forest Conservation 2020, page 5.

Outcomes-Based Financing

Forest Resilience Bond (FRB) – Yuba Project

- Developed by Blue Forest with partners including Tahoe National Forest, Yuba Water Agency, and the World Resources Institute.
- Total investment was USD 4 million over 5 years for the North Yuba River watershed in California.
- Main objective was forest restoration to reduce wildfire risk.

The project also delivered co-benefits:

- better water quality
- improved water flows
- downstream water supply protection

Link to the case study


CONVERGENCE

BLUE FOREST CONSERVATION

CASE STUDY

THE FOREST RESILIENCE BOND (FRB)

JUNE 2020

EXECUTIVE SUMMARY

SYNOPSIS

Outcomes-Based Financing

Forest Resilience Bond (FRB) – Yuba Project

Financing structure combined:

- a service contract with Yuba Water Agency for water-related benefits
- a grant agreement with California's forestry department for fire-prevention benefits
- support from market-rate and concessional investors, including foundations

The success of the first pilot helped build trust:

- Yuba Water Agency increased its commitment from USD 1.5 million in the first FRB
- to USD 6 million in the second

Based on this success, Blue Forest launched Yuba II in 2021, with USD 25 million for larger-scale forest resilience and post-fire restoration.

Enabling Frameworks

Outcomes-based instrument and mechanisms are built upon and enabled by a complex and interlinked set of frameworks, standards and methodologies:

- **Valuation methodologies:** They help increase comparability and predictability by assigning monetary values to services provided by natural assets, as well as to the assets themselves (e.g. SAVi).
- **Nature- and biodiversity-related data sources:** Many of these mechanisms rely on high-quality data on natural capital and biodiversity.
- **Standards**: They have an essential role to play in the structuring and functioning of many of these mechanisms.
- **Policy frameworks**: Solid policy and regulatory frameworks need to be in place to facilitate the functioning of a nature economy.
- **Ecosystem accounting frameworks**: Robust accounting of ecosystems at a national level, to which the frameworks contribute, will lead to credible and predictable valuations of ecosystem services.

Integrated Financial Analysis & Case Study

From CBA to Financial analysis – Kigali Case Study

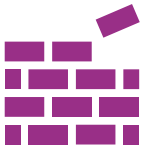
Integrating Externalities into Financial Analysis

Sustainable finance model - alternative revenue stream

NBI projects typically do not generate direct revenue, so we need to identify potential revenue streams from these externalities.

If externalities (benefits and avoided costs) are incorporated into the financial cash flow, they become not only a benefit to society but also means of financing the project.

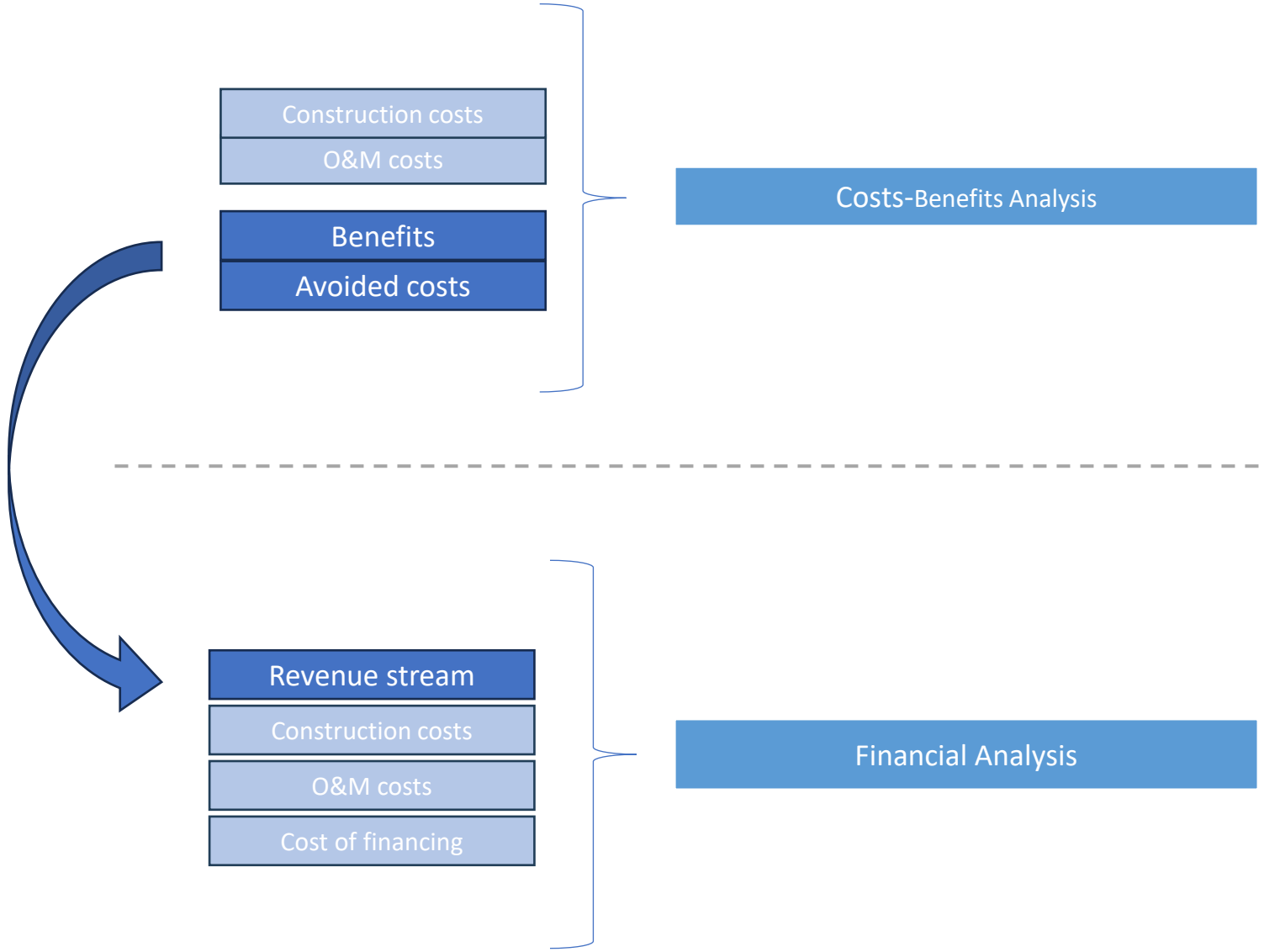
This is possible by converting project benefits into alternative revenue stream



An **integrated financial analysis** treats this alternative revenue stream, such as carbon sequestration or increased revenue from fishery, as project revenue. This integration can help to identify additional source of income.

Converting externalities into alternative revenue

Benefits and avoided costs are converted into revenues to cover construction costs, O&M costs, and the cost of financing.



Internalization of Externalities

From a financial modelling perspective, we built a spreadsheet that allows us to identify the portion (%) of avoided costs and benefits that should be converted into revenue to repay the debt and project costs. This portion will move from the CBA statements to the cash flow statements allowing to show a potential revenue stream for the project.

Kigali financial model

Presentation of the excel-based model and results

Integrated CBA Indicators

Additional benefits

- Income creation from employment
- Carbon sequestration

Avoided costs

- Flood damage to infrastructure
- Human health costs from floods
- Human health costs from water pollution
- Human health costs from heat

Direct costs

- Construction/implementation costs (e.g. Tree planting costs, materials costs)
- O&M costs (e.g. tree maintenance cost)

CBA results

Ecosystem services generated from the restoration project, cumulative values- (2025-2050) via Sustainable Asset Valuation (SAVi)

- The results show that the NbS interventions in Kigali are projected to generate substantial economic benefits through avoided costs and new value creation.

- Benefits are dominated by avoided flood damage to infrastructure (RWF 100.1 billion).

- Smaller contributions come from carbon sequestration (RWF 12.4 billion) and employment creation (RWF 6.1 billion)

All ecosystem services from SAVi		
Avoided cost of flood damage to infrastructure	RWF	100,054,934,922
Avoided cost of human health from floods and landslides	RWF	16,598,841
Avoided cost of human health from water pollution	RWF	22,537,942,047
Avoided cost of human health from heat	RWF	11,490,018,707
Value of employment creation	RWF	6,062,100,000
Value of carbon sequestration	RWF	12,375,884,463
Total Benefits	**RWF**	**152,537,478,979**

Kigali Financial analysis

Selected ecosystem services generated from the restoration project (excluding carbon sequestration), cumulative values (2025-2050)

Selected ecosystem services (from SAVi)		
Avoided cost of flood damage to infrastructure	RWF	100,054,934,922
Avoided cost of human health from floods and landslides	RWF	16,598,841
Avoided cost of human health from water pollution	RWF	22,537,942,047
Value of employment creation	RWF	6,062,100,000
Value of carbon sequestration	RWF	12,375,884,463
Total	**RWF**	**141,047,460,273**

- **Tangible ecosystem services (excluding carbon credits) account for approximately 84.4% of total benefits, underscoring the dominance of measurable and verifiable outcomes in the overall value.**

Kigali Financial analysis

Ecosystem services = Outcome payments + Carbon credits

Avoided cost of flood damage to infrastructure	RWF	100,054,934,922
Avoided cost of human health from floods and landslides	RWF	16,598,841
Avoided cost of human health from water pollution	RWF	22,537,942,047
Value of employment creation	RWF	6,062,100,000
Value of carbon sequestration	RWF	12,375,884,463
Total	**RWF**	**141,047,460,273**

Outcome payments

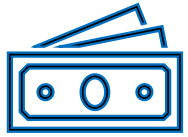
Carbon credits

Average Annual payments		
Avoided cost of flood damage to infrastructure	RWF	1,924,133,364
Avoided cost of human health from floods and landslides	RWF	319,208
Avoided cost of human health from water pollution	RWF	433,421,962
Value of employment creation	RWF	116,578,846
Value of carbon sequestration	RWF	237,997,778
Total	**RWF**	**2,712,451,159**

Average annual payments

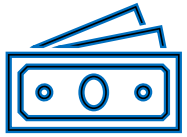
Kigali Financial analysis

Revenue generation through the monetization of avoided costs and benefits in two financing scenarios.



50 % loan – 50% grant

This approach combines concessional debt with non-repayable grant financing. The grant reduces the total repayment burden, while the loan covers the remaining investment cost.



100% financing by concessional loans

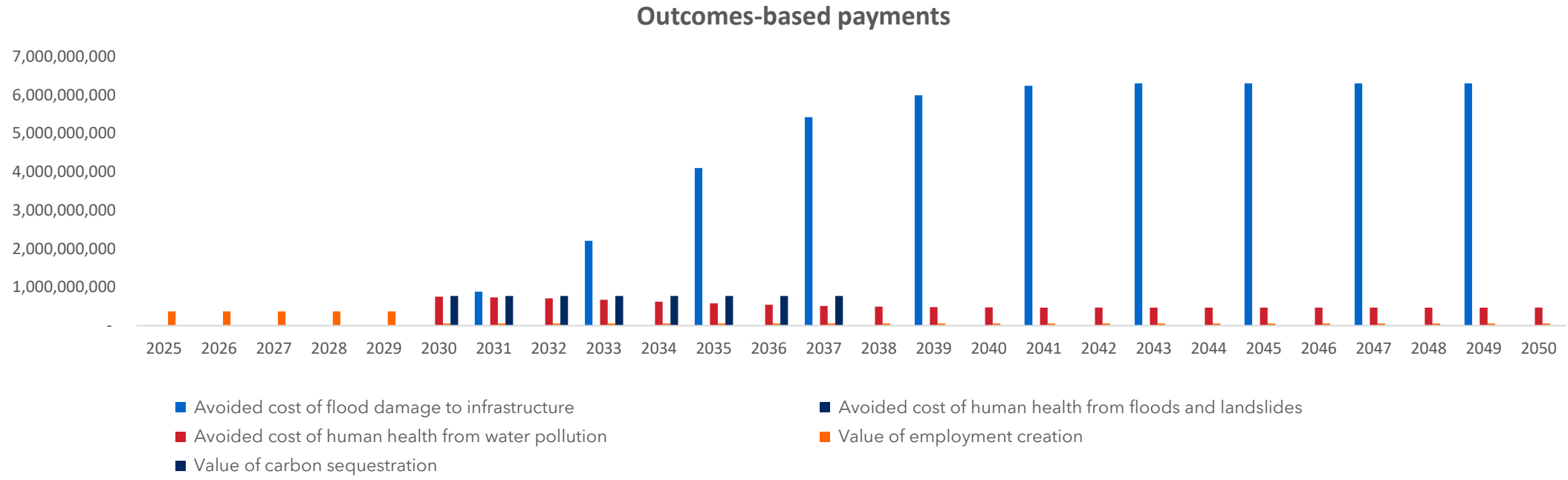
In this scenario, the entire capital investment is financed through a concessional loan, with no grant contribution. Because the full project cost must be repaid through debt service, a larger share of ecosystem service value must be internalized as outcome-based payments.

Kigali Financial analysis

To fund the project, what share of added benefits and avoided costs needs to be monetized?

Outcome Payments Total	50 %		
Avoided cost of flood damage to infrastructure		RWF	50,027,467,461
Avoided cost of human health from floods and landslides		RWF	8,299,421
Avoided cost of human health from water pollution		RWF	11,268,971,023
Value of employment creation		RWF	3,031,050,000
Value of carbon sequestration		RWF	6,187,942,231
Total		RWF	66,121,295,032

Converting ecosystem Service (Economic values) into outcome-based payments (Financial values); 25-year period), RWF value



Kigali Financial analysis

Loan component - Flexible Loan structure

Debt financing % (of eligible costs, with balance grant)	100 %	50 %
Total debt withdrawals (RWF)	**8,629,289,273**	**4,133,584,468**
Internalisation % (yearly)	43 %	28 %

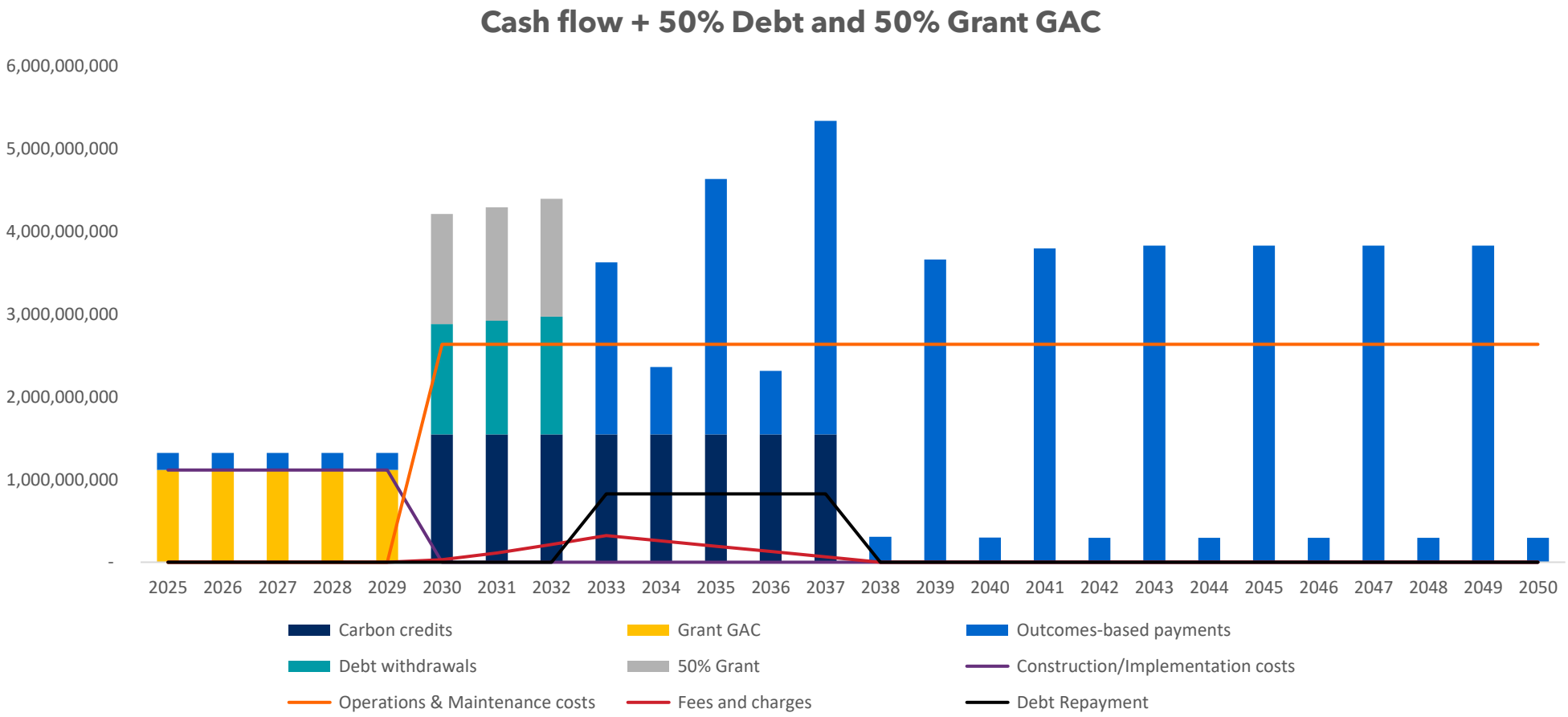
Scenario: 50% concessional loan + 50% grant

- The loan foresees a total principal amount of **RWF 4.1 billion**
- Disbursements over the period **2030–2032**
- Repayment from **2033 to 2037**
- Interest rate: 7.00%, + fixed lending margin of 0.80% (total **7.80%**).
- Annual commitment fee of 0.25%,
- (Based on Rwanda Green Fund flexible loans for Kigali).

Kigali Financial analysis

Cash flow analysis in Scenario 1: 50 % loan – 50% grant

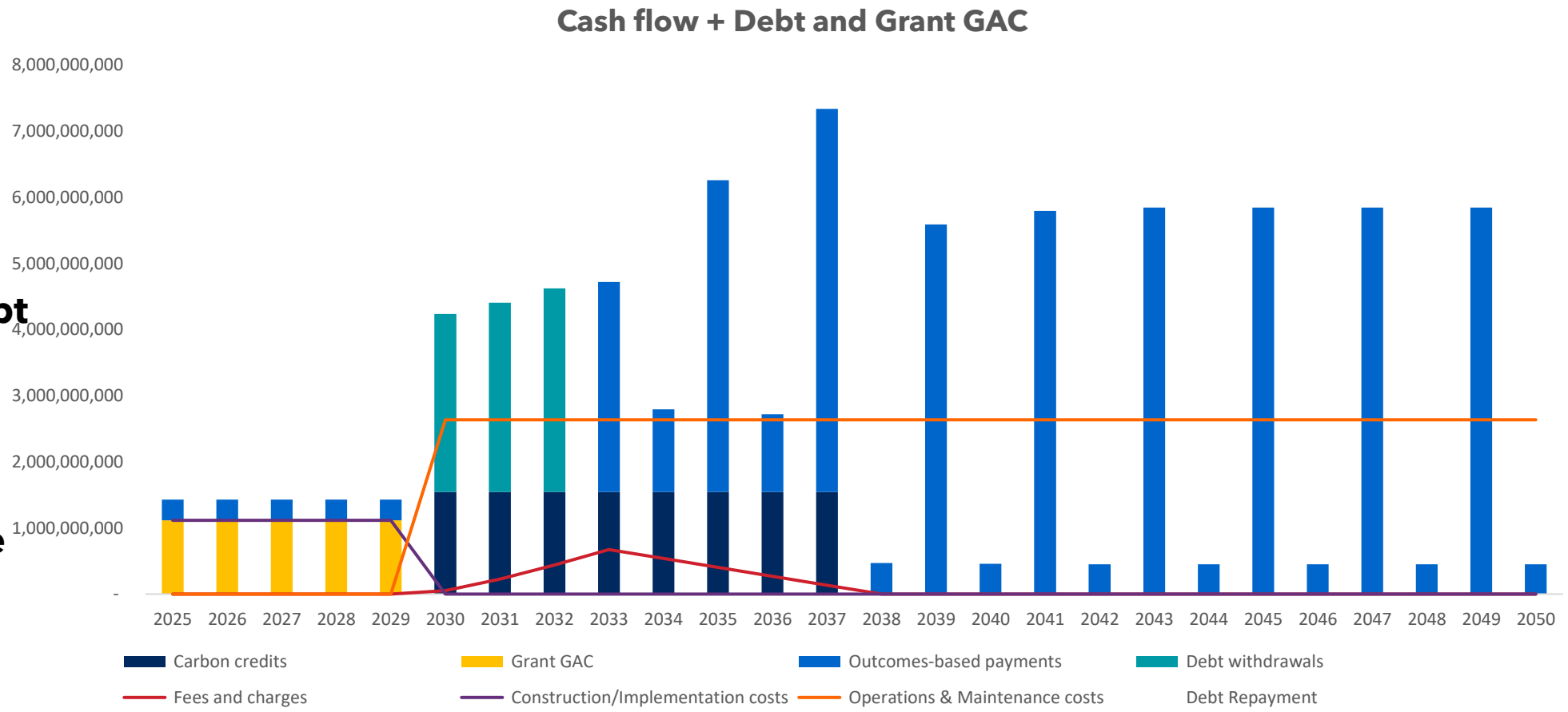
The project needs 28% of monetized added benefits and avoided costs to secure funding for the project and cover debt costs.



Kigali Financial analysis

Cash flow analysis in Scenario 2: 100% financing by concessional loans

The project requires higher percentage of monetized benefits (42% internalization). Higher reliance on debt increases the need to internalise ecosystem service values, requiring a greater share of benefits to be monetised to ensure financial viability.



Financial Analysis: Interpreting the graphs

Insights from the 2 scenarios

- **Early years financing:** No outcome-based payments are generated initially, as the project relies on upfront financing through grants and debt withdrawals to cover construction and implementation costs.

- **Role of grants:** 2 grants support the project: GAC grant finances the pilot and initial implementation (capex) Additional grant supports operations and maintenance (O&M). These reduce early financial pressure before revenues begin.

- **Revenue:** As NbS interventions mature, outcomes begin to materialize, triggering outcome-based payments. These are verified, meaning revenues depend on measured and validated ecosystem service delivery.

- **Debt repayment:** Loan repayment is primarily covered by outcome-based payments and carbon revenues, once the project becomes operational.

Implications of the Financial analysis

Conclusions and policy recommendations

This financial analysis indicates that the rehabilitation & conservation activities in Kigali can achieve long-term viability through a loan, with an outcomes-based financing instrument that incorporate outcome payments and carbon credits serving as the primary revenue streams.

Recommendations and next steps:

1. **Use this financial analysis to prepare lender and buyer documentation**.
2. **Engage lenders on the repayment profile and risk package**
3. **Engage with outcome buyers on a portfolio of ecosystem services**
4. **Convert performance bands into contract-ready KPI clauses**
5. **Add an operational continuity mechanism for O&M and verification in low-performance years**
6. **Establish MRV mechanism and verification timelines that match cash-flow needs**
7. **Create a policy enabling framework for an SPV with community governance and public oversight**

What Outcome-Based Financing means for Kigali

ecosystem services → monetization → outcome buyers → revenue streams → financial viability

- **Identification of credible and measurable ecosystem outcomes suitable for OBF structures.** This includes outcomes such as reduced flood damage to infrastructure, improved public health outcomes (from floods, water pollution, and heat), and carbon sequestration, which can be quantified and linked to avoided public expenditure.

- **Assessment of enabling conditions required for implementation**. entails identifying institutions which act as outcome payers, such as municipal authorities, national government agencies, and potentially development partners, who benefit from reduced infrastructure damage, lower health costs, and improved urban resilience.

- **Exploration of the role of impact investors in providing catalytic capital.** Impact investors can provide upfront financing for NbS implementation, supported by grants, with repayments linked to verified environmental and social outcomes.

- **Presents a path towards financial sustainability and private capital mobilisation**. By monetizing a portion of avoided costs (flood damage and health impacts) and ecosystem service benefits (carbon and employment), OBF structures can convert services to predictable revenue streams, helping attract private finance and improve long-term project viability.

Financial Analysis

Diversification of potential sources of income - How to use the results of the financial analysis?

Monetisation of benefits and avoided costs to generate revenue streams

- The monetisation of carbon sequestration can be used to calculate selling price of carbon credits. Carbon credits can be integrated as an additional revenue stream for the project.

- Stacking revenue streams: Carbon credits complement outcome payments, improving total cash flow and enhancing project bankability.

- Other benefits beyond carbon, such as economic spin-offs (employment, income) can generate additional tax revenue for the authorities.

Questions?