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Building Pipelines of Bankable Climate-Compatible Growth Projects in Zambia

Project Report
February 2026

Acknowledgement

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ABOUT LLOYDS FINANCIALS LIMITED

Lloyds Financials Limited is a Zambia-based financial advisory and consulting firm headquartered in Lusaka, Zambia. The company was founded in 2004 by Professor Lloyd John Chingambo. The company aims to bridge the gap between public and private sectors, communities, and small-scale enterprises to facilitate impactful development across Zambia. With over 20 years of private sector experience and extensive local and international expertise, Lloyds Financials has emerged as the leading

consulting firm providing expert financial advisory, innovative solutions, fintech integration, research, and strategic consultancy.

ABOUT CLIMATE COMPATIBLE GROWTH

This material has been produced with support from the Climate Compatible Growth (CCG) programme, which is a consortium of leading UK universities: the University of Oxford, University of Cambridge, University College London, Imperial College, Loughborough University (home to the STEER Centre, which the programme is led out of), Strathclyde University, KTH Royal Institute of Technology, and the Open University. The programme works in partnership with governments, local researchers, development finance institutions, and other international organisations to identify appropriate low-carbon development pathways, with an initial focus on energy and transport. This includes assessing the most fit-for-purpose policy and market models and developing open-source tools and datasets that will be global public goods available to all countries. For more information on CCG please visit: www.climatecompatiblegrowth.com

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Foreword

FROM LLOYDS FINANCIALS LIMITED



Professor Lloyd J. Chingambo
The Chief Executive Officer
Lloyds Financials Limited

Climate change in Zambia is not just an environmental issue; it is a development and investment challenge. Through this initiative, we have witnessed first-hand the hurdles local entrepreneurs face in bringing climate-friendly projects to fruition, from securing financing to navigating regulatory complexities. Yet, we have also seen tremendous ingenuity and resilience. It is crucial that we begin to think beyond adaptation in our pursuit to mitigate climate change. This report shows Lloyds Financials Limited's commitment to bridging the gap between climate solutions and financing by building pipelines of bankable projects. Sincere thanks to stakeholders whose insights have shaped a model for Zambia's green growth.

ABOUT CLIMATE COMPATIBLE GROWTH



Dr. Alex Money
Principal Investigator -
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The climate adaptation challenge faced by countries such as Zambia is a matter of record. What is less well documented are the opportunities for inclusive, equitable, and sustainable growth that also exist. Through this initiative we have engaged with entrepreneurs, investors, and change agents who are the catalysts for delivering improved economic, financial, societal, and environmental development outcomes in Zambia. This report summarises what we learnt from them. Beyond the importance of more coordinated action, my main takeaway is the need to re-evaluate the investment risk and return paradigm in Zambia. Equity participation is too low, relative to debt. This is fixable, and it needs fixing. My team will focus their efforts in this area, over the coming months.

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Executive Summary

1.1 Zambia, like all nations across Africa, faces a dual challenge: achieving sustainable economic growth while addressing the escalating impacts of climate change. Mobilising finance for climate-compatible growth is at the heart of this challenge. The **'Building Pipelines of Bankable Climate-Compatible Growth Projects in Zambia'** initiative – led by Lloyds Financials Limited in partnership with the University of Oxford's Smith School under the Climate Compatible Growth (CCG) programme – was conceived to identify barriers to climate investment for climate entrepreneurs, and to develop practical solutions to overcome them, through a joint research and capacity-building initiative. This final report presents the culmination of research and stakeholder engagement activities conducted from mid-2024 to early 2025, with the main focus being a series of four participatory practitioner workshops between investors and entrepreneurs.

PROJECT AIM & METHODS:

2.1 Our core aim was to bridge investor and entrepreneur understandings of 'bankability' through bringing each community together for a pilot **pipeline development process** for climate-compatible ventures in Zambia. This was a combined research and capacity-building process, and the sectors engaged aligned with the CCG programme's target areas: **energy, transport, land use, critical minerals**, and the **circular economy**. Ecosystem players, including government representatives and development partners, were included in this process given the system-wide nature of the barriers and opportunities to scaling climate-compatible enterprises in Zambia. The project's objective aligns with Government of Zambia's initiative to mobilise an estimated **USD 12.8 billion in climate finance** needed by 2030 under Zambia's Nationally Determined Contribution Implementation Framework.

2.2 After a comprehensive scoping exercise which reviewed Zambia's climate change policies and relevant literature, **systemic gaps in climate finance and literature pertaining to climate finance** were identified. These included data gaps on climate finance flows to Zambia; gaps on the specific barriers preventing private sector investment in climate-compatible ventures; and gaps in understanding optimal capacity-building approaches for institutions in Zambia. This exercise also highlighted financing opportunities for the climate landscape in Zambia, such as innovative financial instruments and the importance of public-private partnerships in de-risking projects.

2.3 At the core of the research **methodology** were four 'participatory practitioner' workshops held in Lusaka, Zambia, from August 2024 to March 2025. **Workshop 1** developed a comprehensive understanding of what makes projects bankable; **Workshop 2** focused on unveiling sector-specific opportunities in the five thematic areas; **Workshop 3** provided training to project developers on preparing robust business cases and discussed how policy frameworks can support or hinder climate investments; and **Workshop 4** provided a platform for selected project teams to pitch their refined proposals to a panel of investors for feedback to prepare them for potential investment decisions. The aim of these workshops was both to derive research findings and to trial a process which might contribute toward a pipeline of bankable climate-compatible enterprises in Zambia.

KEY FINDINGS:

3.1 Zambia's **climate entrepreneurs grapple with limited access to affordable financing**, despite established mechanisms like the Green Climate Fund's National Designated Authority.

Domestic banks remain hesitant to extend credit due to perceived risks, often demanding collateral exceeding loan values while charging interest rates of 18–22% for green initiatives. The overreliance on debt instruments exacerbates financial strain for early-stage ventures, with **fewer than 15% of small and medium-sized enterprises (SMEs) securing concessional financing**. Blended finance models, though theoretically viable, face underutilisation due to technical capacity gaps in structuring risk-sharing arrangements between public and private entities.

3.2 Workshop data revealed that **70% of entrepreneurs lacked proficiency in financial modelling**, leading to suboptimal cash flow projections and over-estimated investment raising requests. Environmental, Social, and Governance (ESG) compliance presents additional hurdles, with only 30% of participants demonstrating alignment with Zambia's Climate Change Gender Action Plan. Data also revealed **acute gaps in impact reporting** – a critical requirement for attracting institutional investors or use-of-proceeds financing. Entrepreneurs clearly favoured (i) **structured programmes** such as accelerators and incubators (potentially led by investors) or (ii) **government-led technical support** to overcome the technical barriers to financial modelling and improving knowledge of investor expectations on risk and return.

3.3 Investors find **early-scale projects/ entrepreneurs** (eg concept and feasibility-stage) to be the most challenging stage to finance, with 80% saying these are harder to finance than mid or late-stage ventures. Investors displayed an openness to engaging with entrepreneurs **earlier in the investment cycle**, such as through organising pitch sessions where entrepreneurs can receive direct specific feedback from venture financiers. Regarding climate-compatible ventures, investors clearly preferred projects which maintain strong future revenue potential

regardless of their environmental and social outcomes, but which are also able to use those outcomes to crowd in concessional finance. Investors argued the **lack of de-risking mechanisms** available in Zambia meant they retained hesitance toward new sectors such as e-mobility and the circular economy. Multi-offtake agreements, guarantee schemes, and partnerships to reduce regulatory risk for new sectors were seen as the main opportunities to overcome this barrier.

3.4 Renewable energy integration emerged as the main cross-cutting opportunity across sectors. **Circular economy** innovations like recycling plants that convert plastic waste into construction materials, potentially funded by carbon credits, demonstrate promising, scalable models. Youth-led ventures, including pay-as-you-go solar cold storage for fisheries, underscore the potential of grassroots entrepreneurship in bridging climate and development goals. SME-led opportunities in the clean transport, land use, and critical minerals sectors face large challenges to scaling.

3.5 Zambia boasts progressive policies like the National Policy on Climate Change (2016), but **implementation inconsistencies undermine investor confidence**. Renewable energy projects endure 18–24 month permitting timelines due to overlapping mandates between the Energy Regulation Board, Zambia Environmental Management Agency, and Local Councils. The 2024 suspension of VAT exemptions on solar equipment during fiscal reforms illustrated how abrupt policy shifts can destabilise market conditions. Furthermore, the NDC Implementation Framework lacks binding enforcement mechanisms, resulting in uneven compliance across sectors.

3.6 Four **case studies** of ventures who participated in this full research and capacity-building process are presented: MBHE Zambia (off-grid renewable

energy), Ebusaka (circular waste), Entomo Farms (sustainable animal feed and organic fertiliser), and Astanah Energy (battery recycling). Each is an example of how dedicated support programmes like this are promising for developing pipelines of bankable enterprises, suggesting validation of the methodology undertaken in this research.

KEY RECOMMENDATIONS:

4.1 To address the barriers identified and accelerate the development of bankable climate-compatible projects in Zambia, coordinated action is required across all stakeholder groups. For **investors and financial institutions (FIs)**, early engagement in the project development process is strongly encouraged. This can be achieved through **investor-led accelerator programmes** or through clear and transparent **communication of investor expectations** (eg on financial modelling; risk appetites; expected returns) via targeted resources. By participating in project preparation and providing feedback on structuring and risk mitigation, investors take more responsibility for project bankability – something that is necessary given the lack of climate-compatible investment opportunities for FIs in Zambia at present. There is also a need to leverage innovative finance structures, such as **blended finance and guarantees**, to attract private capital and support early-stage projects that may otherwise struggle to secure funding. This may involve lobbying government to ensure strong guarantee programmes are set up, something that could involve cross-investor collaboration.

4.2 Policymakers and government agencies play a critical role in creating an enabling environment for climate finance. Streamlining and harmonising regulatory and permitting processes will help reduce delays and uncertainty for project developers, particularly in priority sectors such as renewable energy and the circular economy. Policymakers should introduce targeted and

consistent incentives for climate investments, including **risk guarantees and tax breaks**, to stimulate greater private sector participation. A **cross-ministerial committee** with a mandate for enhancing climate entrepreneurship and access to climate finance for Zambians would quicken the speed at which national climate strategies are translated into investable projects. Continued development and refinement of frameworks and policies that support climate-compatible growth – including **sector-specific support and reform plans** (like the energy sector Integrated Resource Plan) – will also be essential.

4.3 For entrepreneurs and project developers, it is essential to prioritise robust project planning and preparation. This means developing **well-structured, investor-ready proposals** that clearly demonstrate both the climate impact and financial viability of the project, along with any traction from **project pilots**. Realistic **financial modelling** is crucial to this. Entrepreneurs should seek to enhance their financial literacy and business planning skills, making use of **available support mechanisms** such as incubators, accelerators, and capacity-building programmes. They should **proactively reach out to investors** to enquire about typical terms and available support. Assembling capable, **multidisciplinary teams** with expertise in technical, financial, and environmental aspects will further strengthen project credibility. Importantly, **ESG considerations** should be integrated from the outset, ensuring alignment with both investor expectations and national policy priorities, such as gender inclusion and community benefits. Collaboration and partnerships with research institutions, technical experts, and other entrepreneurs can also help bridge knowledge gaps and improve project outcomes.

4.4 This report also offers recommendations for **future research** that provide further insights to support climate finance investment in Zambia:

research into growth stage climate entrepreneurs, finance facility design, comparison with other African start-up ecosystems, and resource-optimised support.

4.5 Finally, for the **wider ecosystem**, fostering collaboration and knowledge sharing is vital. Multi-stakeholder platforms should be strengthened to facilitate dialogue, share best practices, and connect project developers with investors and technical experts. Expanding the reach of training and mentorship programmes, particularly to SMEs and entrepreneurs in rural and underserved areas, will help build capacity across the sector. Promoting open access to information on funding opportunities, policy developments, and project outcomes will support

informed decision-making and build trust throughout the climate finance landscape.

4.6 The **opportunity** is clear: by implementing these recommendations, Zambia can address the systemic barriers faced by entrepreneurs and unlock the full potential of climate finance, supporting sustainable and inclusive economic growth in line with its national and international commitments. While this report highlights persistent barriers that remain in accessing finance, navigating complex regulatory processes, and implementing policy, the promise of becoming a regional leader in climate finance still remains. New sources of capital are available to Zambia, and a clear focus on project preparation and entrepreneurial support is required to access it.

1. Introduction

Zambia faces significant challenges in attracting climate finance due to limited 'bankable' projects, complex regulatory frameworks, and perceived investment risks. The inability for projects to be matched with climate funders or financiers poses a risk to Zambia's 2023 Nationally Determined Contribution (NDC) Implementation Framework, which outlines a target to mobilise USD 12.8 billion by 2030.

The **'Building Pipelines of Bankable Climate-Compatible Growth Projects in Zambia'** initiative (henceforth: **'Building Bankable Pipelines'**) has three core objectives:

- To explore and address investor perceptions of the lack of bankable climate-compatible growth projects in Zambia;
- To bridge investor and entrepreneur perceptions on bankability; and
- To develop outputs that will support progress in small and medium-sized enterprises (SMEs) and project finance in Zambia.

Through a series of four workshops and additional engagement with government and SME ecosystem organisations from mid-2024 to early 2025, this initiative has generated a series of outputs to build on these objectives: a novel methodological process for bridging the divide between investors and entrepreneurs, a demonstration 'pipeline' of investable climate-compatible projects in Zambia, and this final report outlining the project. Specifically, the report aims to:

- Analyse the current landscape of climate finance and investment in Zambia, including existing initiatives, stakeholders, financial instruments, and gaps in climate finance knowledge.
- Highlight the key barriers that prevent bankable climate-compatible projects from attracting the necessary funding and explain what causes these.

- Outline the expectations and criteria of investors when evaluating climate-compatible growth enterprises.
- Provide case studies of real project concepts that were developed and refined during the research period, illustrating both the potential and the remaining challenges faced by the project developers.
- Offer actionable recommendations to different stakeholder groups: investors, policymakers, and entrepreneurs on how to foster an environment that produces a continuous pipeline of bankable climate projects.
- Suggest future initiatives to ensure continuity and expansion of the work started under this 'Building Bankable Pipelines' initiative.

1.1 Methodology – a novel workshop approach

The 'Building Bankable Pipelines' initiative aimed to demonstrate an ambitious impact-based research method in which a series of collaborative workshops were developed to act as both a site in which key research questions could be investigated and a forum for investors and entrepreneurs to further practical attempts to generate bankable climate SMEs. We theorise that this 'participatory practitioner' approach is effective in unpacking complex issues. We explain our method below:

THEORY OF CHANGE

Our foundational theory of change is based on the premise that the perceived lack of bankable climate-compatible growth projects in Zambia is a central barrier to mobilising investment. Addressing this perception requires systemic interventions at multiple levels, including capacity building, co-design of financial models, institutional coordination, and investor engagement. We assume that within Zambia there is:

- A supply of entrepreneurs and climate projects in Zambia with potential for impact but lacking investor-grade documentation, structuring, and readiness.
- A demand among local and international investors for viable, de-risked, and high-impact investment opportunities aligned with ESG and climate objectives.
- A gap in mutual understanding between these actors about what constitutes 'bankability'. If we bring these actors together in a participatory and sustained manner – and if we provide tailored support to entrepreneurs, foster investor dialogue, and build policy engagement pathways – then we can co-develop a new generation of investment-ready projects that attract finance and drive Zambia's green economic transformation.

We also assume that actors have the capacity to change their conditions:

- Entrepreneurs, if provided with technical assistance and mentorship, can meet investor requirements.
- Investors are willing to co-create and invest in projects that reflect strong financial and social returns.
- Policymakers are responsive to real-time feedback loops and are open to aligning policies with private sector needs.

CORE APPROACH

To deliver on the theory of change, we employed a **mixed-methods approach**. We began with a non-exhaustive review of key literature and policy documents to assess the baseline of work relating to climate entrepreneurship in Zambia. We also engaged in initial stakeholder consultation with important players in the Zambia entrepreneurship ecosystem (including select cooperation partners) to inform design of the participatory workshop component of the research.

The bulk of our research work involved a series of **four participatory workshops** in Lusaka, Zambia, from August 2024 to March 2025. Given the aims of our study, the participants for these workshops included investors, entrepreneurs, and those in the enabling environment (eg entrepreneur support organisations, government representatives, and development cooperation partners). We then engaged the group longitudinally in order to answer three research questions:

RQ1 - Why do investors feel there is a lack of bankable climate-compatible growth projects for investment in Zambia?

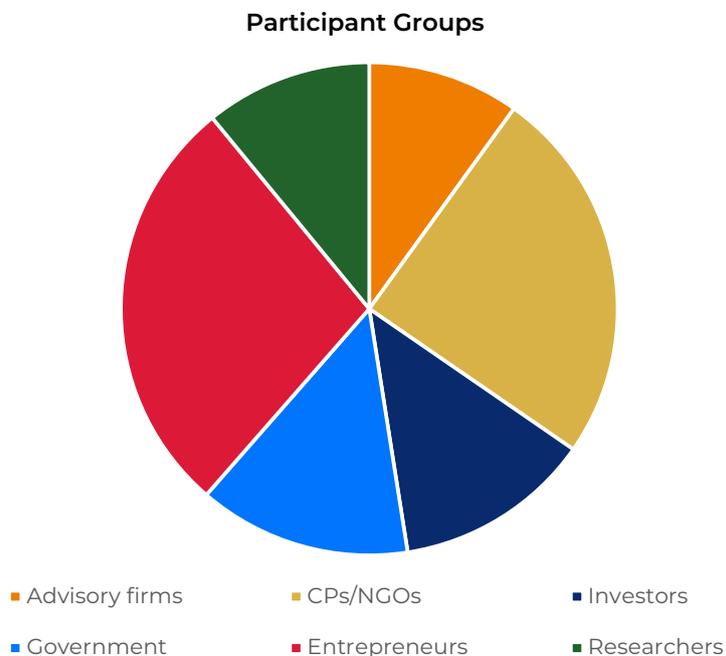
RQ2 - What practical steps can be taken by investees to address investor perceptions of 'bankability' for climate-compatible growth projects?

RQ3 - How can a forum best be built in order to address concerns on bankability and to create a pipeline of investable projects and enterprises for climate-compatible growth in Zambia, potentially as a model for developing countries more generally?

The novelty in our approach is that the workshop approach we adopt both aims to answer RQ1 and RQ2 and to act as the demonstration forum for RQ3.

We aimed for participants to remain as consistent as possible across workshops in order to demonstrate the benefits of sustained engagement for the capacity building of investors and entrepreneurs. 109 unique participants took part in the workshops overall, with each workshop having ~50 participants attending. **Figure 1** shows that there was a broad split between different industries, with entrepreneurs being the largest category. Entrepreneurs all represented SMEs, with the target for the 'Building Bankable Pipelines' project being early and mid-stage ventures.

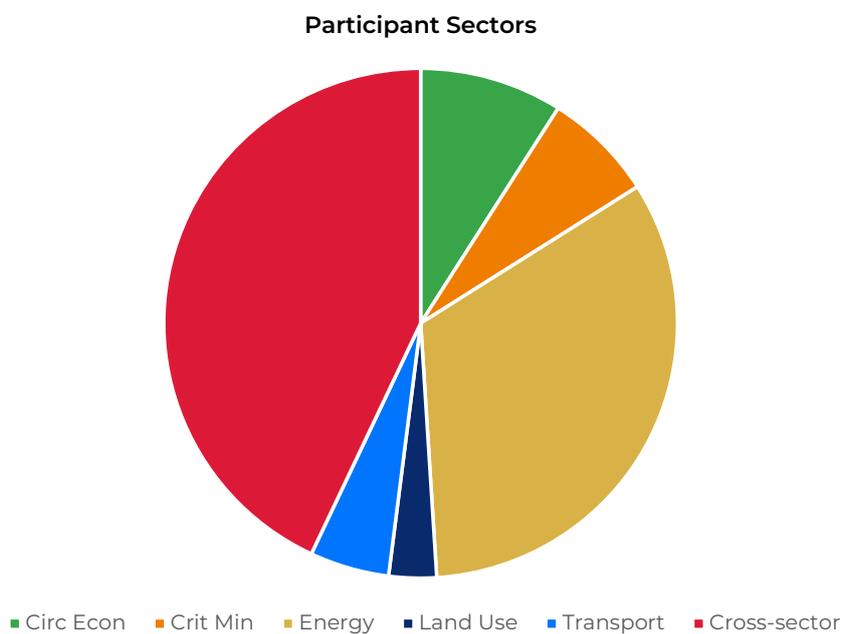
Figure 1 – workshop research-practitioner participants, by industry. Note CPs = development cooperation partners (UN etc); NGOs = non-governmental organisations (eg WWF etc)



We chose participants from across five climate-compatible growth sectors, which also align with the expertise of the Climate Compatible Growth programme: energy, transport, land use, critical minerals, and the circular economy. **Figure 2**

shows that energy was the largest single sector, owing to renewable energy being the most developed climate-compatible business opportunity in much of the world. Just under half of participants operated across all sectors.

Figure 2 – Workshop research-practitioner participants, by sector



The content of each workshop was structured in order to allow for open discussion to answer our key research questions and be helpful for participant capacity building through knowledge sharing. Researchers attended each workshop taking full notes for participant observation, and before and after each workshop surveys were sent to participants for more structured quantitative and qualitative insights. The workshop structure is outlined below:

Workshop 1 introduced the project and developed a comprehensive understanding of what makes projects bankable, involving a panel with investors and breakout groups between investors and entrepreneurs exploring how barriers to bankability can be overcome (22 August 2024); **Workshop 2** focused on unveiling sector-specific opportunities in the five sectors, with experts from each sector conducting a panel before breakout groups (by sector) were compiled for participants to complete a business model canvas (16 October 2024); **Workshop 3** provided structured training to project developers on preparing robust business cases and discussed how policy frameworks can support or hinder climate investments (27 November 2024); and; **Workshop 4** provided a platform for a pipeline of selected enterprises to pitch their refined proposals to a panel of investors for feedback (in the format of ‘Dragon’s Den/Shark Tank’). The project was also recapped (4 March 2025).

This whole method is reinforced by an adaptive learning model where each workshop feeds insights into the next one, ensuring the project is grounded in evolving realities and stakeholder experiences. Alongside workshops, Lloyds Financials Limited (as a project investigator but also a firm with significant experience in advising investors and entrepreneurs in climate-compatible growth in Zambia) undertook one-on-one engagement with investors, government,

and CPs/NGOs, and provided training support for entrepreneurs. This allowed for real-time feedback into the project and iteration of workshop content.

RESEARCH OUTCOMES

Owing to the focus in this initiative on real-world impact as well as the generation of research knowledge, the following outcomes were specified as targets:

Table 1 – Target outcomes from the ‘Building Bankable Pipelines’ initiative

Time Frame	Outcomes / Impacts
Short-Term	<ul style="list-style-type: none"> Strengthened technical and business capacity of SMEs and cooperatives. Increased understanding of financial instruments and investor needs. Identification and documentation of over 10 climate-compatible projects. Knowledge products on project readiness and investor expectations.
Medium-Term	<ul style="list-style-type: none"> Operationalisation of blended finance and results-based financing tools tailored for Zambia. Creation of a centralised deal platform to support matchmaking. Strengthened relationships across the ecosystem (government, private sector, academia, and development partners).
Long-Term	<ul style="list-style-type: none"> Improved access to finance for inclusive and sustainable climate ventures. Tangible contributions to Zambia’s NDC targets and 8th National Development Plan. A demonstrable model that can be scaled

1.2 Structure of the Report

Chapter 2 presents findings from the literature review, before Chapters 3–7 present findings from the workshops and the associated participant observation and surveys. Chapter 8 presents recommendations that result from these findings in order to achieve substantive change for investment in bankable climate-compatible enterprises in Zambia. Chapter 9 concludes.

1.3 Who Should Read this Report?

This report is designed for a broad audience of decision-makers and practitioners at the nexus of climate change, finance, and development in Zambia and the wider Southern African region:

- **Policymakers and Government Officials:** Particularly those in Zambia’s Ministry of Green Economy and Environment, Ministry of Finance, Ministry of Energy, Ministry of Transport and Logistics, Ministry of Mines and Minerals Development, and related agencies. The findings will help identify policy and regulatory adjustments needed to attract more climate finance and support project developers.
- **Project Developers and Entrepreneurs:** Both existing and aspiring developers of climate-compatible projects such as renewable energy companies, sustainable agriculture enterprises, community project leaders, and SMEs in other clean tech areas. Readers in this group can learn what investors are looking for and find

guidance on strengthening the ‘bankability’ of their proposals.

- **Investors and Financial Institutions:** Including domestic banks (eg Zambia Industrial Commercial Bank, ZANACO, etc.), international development finance institutions, impact investment funds, pension funds, and venture capital firms. The report provides insight into common project deficiencies and suggests how investment criteria could be met or risks mitigated, facilitating deal flow in green investments.
- **Development Partners and Donor Agencies:** Such as international aid agencies, United Nations bodies, and NGOs active in climate and energy, who may use the results to shape their support programmes (eg capacity-building initiatives or funding facilities).
- **Academia and Research Institutions:** Those researching finance, sustainable development, or African economic growth, who may find the context and data useful for further analysis or comparative studies.

In essence, anyone interested in how to connect the dots between climate projects and finance in a developing country context will find relevant information in this report. By targeting a diverse readership, we hope to encourage a shared understanding and foster collaboration among all parties whose actions influence the success of climate-compatible development in Zambia.

2. Literature Review

2.1 Situational Context: How is climate change affecting small-scale businesses in Zambia?

The impact of climate change on small-scale businesses in Zambia has become increasingly clear in the past few years – both as a risk and an opportunity. Existing literature also highlights the disproportionate impact of climate change on

sub-Saharan Africa, including Zambia (see **Table 2**). The region is grappling with extreme climate variability, such as changing rainfall patterns, floods, and droughts, which have severely affected local communities and their economic activities [1].

The severe drought in 2024 led to a significant reduction in hydropower generation – a primary

source of electricity in Zambia – which in turn led to a declaration of National Emergency by the Republic’s President. This drought resulted in widespread load shedding, where businesses experienced frequent power outages, hampering their ability to operate effectively. The intermittent power

supply forced many small-scale businesses to invest in costly backup generators. But the drought also created business opportunities for those providing adaptation technology (eg drip irrigation) and off-grid solar power services. This is crucial context for the ‘Building Bankable Pipelines’ initiative.

Table 2: Recent impacts of climate change on the Zambian economy.

Sector	Reference	Description of impact
Transport	[2]	Damage to infrastructure due to extreme weather events, leading to increased costs and disruptions in trade.
	[2]	Increased transportation costs due to fuel price hikes and road repairs.
Agriculture	[3]	Crop yields reduced by 30–40% due to climate variability; significant job losses in the sector.
	[2]	At least a 14.7 percentage points drop in employment from 2010 to 2019, primarily in informal agriculture.
Circular Economy	[4]	Challenges in resource management and waste reduction due to climate impacts on local economies.
Energy	[2]	Significant electricity shortages due to reliance on hydropower, exacerbated by drought conditions.
Mining (Critical Minerals)	[2]	Vulnerabilities in mining operations due to climate-induced disruptions and resource availability.
	[2]	Electricity shortages have led to a reduction in copper production, with mines requested to cut electricity demand by 25%.

2.2 The Climate Finance and Investment Landscape in Zambia

In recognition of the threat and opportunity presented by climate change, Zambia has developed a robust policy framework: The National Policy on Climate Change (2016) and climate strategies such as its Nationally Determined Contribution (NDC) and National Adaptation Plan (NAP) lay out targets for emissions reduction and resilience building.

However, implementing these ambitious plans requires securing substantial financing, as achieving the NDC/NAP goals requires investment well beyond the country’s current budgetary capacity [5].

The climate finance landscape in Zambia is characterised by a mix of domestic and

international sources. Domestically, the government has begun integrating climate priorities into its development plans and budgets (including within the Constituency Development Fund, for example), albeit with limited fiscal space for large-scale green projects. A National Climate Change Steering Committee and an Interim Climate Change Secretariat (now under the Ministry of Green Economy and Environment) have been established to coordinate climate programmes and finance.

Zambia has also set up a National Designated Authority (NDA) to facilitate access to the Green Climate Fund, reflecting institutional readiness to attract climate finance. Internationally, Zambia relies heavily on external support; multilateral climate funds and development banks, bilateral

aid, and United Nations agencies provide the bulk of climate-compatible funding [6]. This has helped mobilise over USD 80 million from the Green Climate Fund for approved projects in Zambia, alongside more than USD 200 million in climate-compatible financing from multilateral development banks and Climate Investment Funds.

These infusions have supported initiatives in renewable energy for solar mini-grids and hydro power rehabilitation, climate-smart agriculture, and forest conservation. Despite these successes, overall climate finance flows into Zambia remain modest relative to the country's vast needs. Estimates suggest Zambia will require tens of billions of dollars through 2030 to achieve its climate objectives, including its NDC targets, whereas current annual climate finance inflows are only a fraction of that level [7].

Climate-compatible investments by the private sector have also been limited so far and predominantly focused on renewable energy ventures, such as independent solar power producers and sustainable energy infrastructure. These can be commercially viable with the right incentives. In contrast, sectors critical for adaptation, such as smallholder agriculture, water resource management, and rural infrastructure, attract very little private investment due to lower profitability and higher perceived risk.

The financial sector in Zambia is only beginning to engage in green financing. For example, the country saw the launch of its first green bond in late 2023, a USD 96.7 million issuance by a domestic energy company aimed at expanding solar power capacity. This pioneering green bond, backed by international guarantees, is a positive sign but also underscores that innovative climate financing mechanisms are just emerging.

Overall, while the climate finance landscape in Zambia has evolved with supportive policies and some successful fundraising, current investments still fall short of what is needed to meet the nation's climate objectives, and climate finance in Zambia is characterised by a heavy reliance on international funding, constrained domestic financing, and nascent private investment.

2.3 The Climate Finance and Investment Landscape in Africa

Zambia's climate finance situation reflects broader trends across Africa. The African continent contributes only a small share of global greenhouse gas emissions, yet it is disproportionately affected by climate change and faces enormous financing needs for adaptation and low-carbon development. Across Africa, climate finance flows remain woefully low relative to the continent's requirements. For instance, it is estimated that implementing the NDCs of all African countries will require trillions of US dollars (nearly USD 2.5 trillion by 2030 for mitigation and adaptation combined), but current financial commitments fall far short of this need [8].

Africa receives only a small fraction of global climate finance flows; a gap attributed to limited access to international funds, insufficient bankable projects, and perceived investment risks. Most climate investments in Africa to date have been concentrated in a few countries and in mitigation sectors such as renewable energy, while critical adaptation sectors agriculture, water, infrastructure resilience remain underfunded [9].

Nevertheless, there are ongoing efforts to improve the climate finance landscape in Africa. Many African governments are developing climate finance strategies and establishing enabling environment policies, institutions, and incentives to attract funds. Regional and

international initiatives have emerged to support these efforts. For example, the African Development Bank has set up the Africa Climate Change Fund and other financing mechanisms to channel resources into member countries, and the Green Climate Fund and Global Environment Facility have approved dozens of projects across Africa.

Public-private partnerships and green investment frameworks are also being explored to leverage private capital for climate action on the continent. However, challenges persist in scaling up finance, including capacity constraints in developing funding proposals, macroeconomic instabilities, and the need for stronger governance to ensure funds are used effectively. In summary, the African climate finance landscape is slowly improving but remains characterised by a large financing gap and the need for more coordinated investment to meet the continent's climate goals [6].

Furthermore, there is a notable gap in research on urban climate adaptation strategies in Africa. Cities are increasingly becoming hotspots of vulnerability due to rapid urbanisation and inadequate infrastructure. More studies are needed to identify effective urban adaptation measures that can inform policy and practice across the continent [10].

Despite this financing gap, innovative solutions for climate-compatible investments are being implemented. Environmental entrepreneurship is emerging as a transformative force in sub-Saharan Africa. Entrepreneurs are driving innovations in climate-smart agriculture, water management, and renewable energy infrastructure. These ventures not only improve resource efficiency but also create jobs and foster sustainable economic growth [11]. Investments in climate-smart infrastructure offer a pathway to address Africa's infrastructure deficit while simultaneously creating employment opportunities [12].

Addressing these challenges requires a multi-faceted approach that includes scaling up international financing efforts, fostering public-private partnerships, integrating gender-responsive strategies into policy frameworks, and promoting innovation through environmental entrepreneurship. These steps will be critical for ensuring that Africa can adapt to climate change while pursuing sustainable development goals.

2.4 Key Stakeholders in Zambia

The landscape of climate finance and investment in Zambia involves a diverse array of stakeholders, each playing a distinct role in mobilising resources, implementing projects, and shaping policy frameworks. The following table summarises key actors within that landscape:

Table 3 – Key organisations and their roles in Zambia's climate finance landscape

Stakeholder Group	Key Actors/Institutions	Roles & Responsibilities	Examples/Initiatives
Central Government	Ministry of Finance, Ministry of National Development Planning, Ministry of Energy, Ministry of Green Economy & Environment (MGEE), Ministry of Lands, Natural Resources & Environmental Protection	Setting national priorities, policy formulation, coordinating climate action, allocating funds, integrating climate into development, managing natural resources, creating an enabling environment for climate finance	National climate policies, Green Finance Roadmap.

Stakeholder Group	Key Actors/Institutions	Roles & Responsibilities	Examples/Initiatives
Government Agencies	Zambia Environmental Management Agency (ZEMA), Rural Electrification Authority (REA), Energy Regulation Board (ERB)	Implementing climate-compatible policies/projects, environmental regulation, energy access, regulating energy tariffs/licensing	ZEMA for emissions management; REA for rural energy access; ERB for energy project compliance
Sector Associations	Zambia Renewable Energy Association (ZARENA), Solar Industry Association of Zambia (SIAZ), Off-Grid Energy Task Force (OGTF)	Fostering cross-sector collaboration, advocacy, capacity building, promoting best practices	ZARENA for renewable energy advocacy; SIAZ for solar industry; OGTF for off-grid solutions
International and Development Finance Institutions	World Bank, African Development Bank, European Investment Bank, Green Climate Fund (GCF)	Providing concessional loans, grants, technical assistance, funding for green projects	World Bank's Scaling Solar project; GCF accreditation for Development Bank of Zambia
Private Sector	Zambia Industrial Commercial Bank (ZICB), Absa Bank Zambia, ZANACO, Kukula Capital, Zambia Chamber of Commerce & Industry (ZACCI), Lloyds Financials Limited	Financing, innovative business models, climate investment, capacity building	Green bonds, solar energy investment, capacity-building programmes
Civil Society	World Wide Fund for Nature (WWF) Zambia, Alliance for Community Action	Awareness raising, advocacy, community-based projects, ensuring inclusiveness	Sustainable agriculture promotion at grassroots level
Donors/Bilateral Agencies	USAID, other bilateral donors	Funding, capacity building, global climate finance mobilisation, gender mainstreaming	USAID's commitment to mobilise USD 150m climate finance by 2030, gender integration in climate finance strategy

Working together, the organisations listed can help countries like Zambia achieve higher levels of human development while addressing climate challenges [13]. Climate finance is an area that often involves cross-sectoral collaboration – for example, when setting up mechanisms such as feed-in tariffs, tax credits, loan guarantees, and green bonds, which are currently being explored to incentivise private investments. For example, Zambia recently introduced green bonds as a tool for financing sustainable development

projects across sectors like renewable energy and agriculture [14]. Strengthening partnerships among these entities will be key to unlocking the full potential of climate finance.

2.5 Financial Instruments and Mechanisms

Financial instruments and mechanisms are essential for mobilising and channelling resources toward climate-compatible investments in Zambia. A summary of the instrument options for Zambia is presented below:

Table 4 – Summary of the climate finance instruments and examples from the Zambian context

Instrument / Mechanism	Description / Function	Example / Application in Zambia	Key Stakeholders	Reference(s)
Public Funding	Government budgets and national funds allocated to climate-compatible projects	Funding for renewable energy and adaptation projects	Zambian Government	[15]
Concessional Loans	Loans with below-market interest rates to support green projects and reduce capital costs	GCF accredited Development Bank of Zambia for green projects	GCF, Dev. Bank of Zambia	[16]
Grants	Non-repayable funds for climate adaptation and mitigation	Renewable energy, sustainable agriculture initiatives	Dev. Finance Institutions, Bilateral Donors	[16]
Guarantees (Risk Mitigation)	Mechanisms (eg partial risk/first-loss guarantees) to de-risk climate investments by covering losses	Performance guarantees in Scaling Solar programme; the Zambia Credit Guarantee Scheme	World Bank, Private Investors	[17]
Green Bonds	Debt instruments designated for climate-related projects (eg renewables, energy efficiency, agriculture)	2023: CEC Renewables issued Zambia's first green bond (USD 53.5m), as part of a USD 200m medium-term note programme	CEC Renewables, Investors, Regulators	[18], [16]
Blended Finance	Combining public/ philanthropic funds with private investment to de-risk and mobilise climate-smart capital	USD 53m Green Outcomes Fund (ZANACO, Kukula Capital, WWF-Zambia)	ZANACO, Kukula Capital, WWF-Zambia, Donors	[16]
Public-Private Partnerships	Collaboration between public and private sectors for financing/ provision of climate-smart infrastructure	Rural electrification through off-grid solar solutions	Government, Private Sector, NGOs	[16]
(Technical Assistance) Capacity Building	Training and support to improve stakeholder knowledge of financial instruments and enable participation	ZACCI-led programmes, government-international partner collaborations	ZACCI, Government, International Partners	[19]
Carbon Pricing	Financial mechanisms like taxes or market-based credits to incentivise emission reduction	Emerging as a potential tool in Zambia's climate finance toolkit	Government, Private Sector	[15]
Institutional Strengthening & Tracking	Developing national tracking systems, regulatory frameworks, and fiduciary standards to enhance coordination and transparency	Proposed national tracking system for climate finance; regulatory reforms	Government, Development Partners	[20]

In conclusion, financial instruments such as concessional loans, green bonds, blended finance mechanisms, and carbon pricing are pivotal for advancing Zambia’s climate goals. However, addressing systemic barriers through capacity-building efforts and institutional reforms will be essential for unlocking the full potential of these tools.

2.6 Identified Knowledge Gaps

Despite the growing body of literature on climate finance and investment in Zambia, several knowledge gaps remain. These gaps hinder the effective mobilisation and utilisation of resources for climate action. These are summarised below:

Key Knowledge Gap	Description & Importance
Data on climate finance flows to Zambia	This includes information on sources, destinations, and utilisation. Such granular data (including on M&E) is essential for policymakers and investors to make informed decisions and track progress toward climate goals, as well as to serve as evidence of success stories in order to attract further finance [16].
The specific barriers preventing private sector investment in climate-compatible projects	These barriers include restricted access to innovative financing instruments, insufficient knowledge of climate finance mechanisms, and high investment risks [19]. Addressing these challenges requires targeted strategies to enhance private sector participation in climate action.
The effectiveness of various climate finance instruments and mechanisms in Zambia's specific context	More studies are required to assess this. For example, while blended finance has been identified as a promising approach for mobilising private capital for nature-based solutions such as community-based natural resource management, its application in Zambia remains underexplored [21]. Similarly, innovative tools like green building rating systems are not widely understood or utilised in Zambia despite their potential to reduce environmental impacts in infrastructure development [22].
Understanding of the social and environmental impacts of climate investments in Zambia	More than 60% of Zambia’s population lives below the international poverty line, emphasising the need for climate finance to contribute to employment creation and poverty alleviation. Research is needed to ensure that climate action aligns with sustainable development goals and reduces inequalities. For instance, less than 2% of global climate finance reaches small farmers, Indigenous Peoples, and local communities – an issue that must be addressed to ensure inclusive growth [23].
Optimal capacity-building approaches for Zambia's institutions	While engagement with programmes such as the Pilot Programme for Climate Resilience has enhanced national government knowledge on climate change issues, progress at sub-national levels remains slow. Civil society organisations have limited capacity to influence policy or implement large-scale projects effectively [24].
Tax reform	Tax visibility has been identified as another area requiring improvement to attract investment in sustainable agricultural systems and renewable energy technologies. Transparent tax policies could increase imports of high-quality solar products and provide energy to vulnerable communities while incentivising private sector participation. We note that the Government of Zambia has already provided some tax exemptions for renewable energy products [25].

3. Findings 1: Challenges Facing Climate-Compatible Entrepreneurs

This and the following findings chapters present results from the four ‘participatory practitioner’ workshops conducted over this initiative, with information being yielded from participant observation and surveys (see Methodology, Section 1.1).

3.1 The Fundamental Challenge – Financial Access

There is a fundamental lack of access to finance for climate-compatible entrepreneurs and project developers in Zambia, both in relation to the **concessional and early-stage** capital crucial for SMEs. Fewer than 15% of enterprises in this sample reported having successfully accessed concessional capital. Risk-averse commercial banks were also cited by participants as a barrier. Most financial institutions are hesitant to lend to projects perceived as high-risk due to a lack of credit history, unproven business models, or unclear revenue projections. Ticket size (ie investment amount) mismatches also create financing gaps, with micro-enterprises often needing smaller amounts than institutional investors are willing to provide. Moreover, high interest rates (in the range of 18–22% for climate-compatible enterprise debt alongside collateral demands), limited access to guarantees, and currency volatility further discourage investment. Whilst this landscape is relatively well known, it is a crucial foundation for exploring reasons behind the challenge and how it can be overcome.

3.2 Regulatory and Policy Barriers

Regulatory inconsistencies, delays in permitting processes, and limited enforcement of environmental and energy regulations were cited as major deterrents. Entrepreneurs reported navigating a fragmented policy landscape with overlapping jurisdiction among government agencies.

Additionally, the absence of clear national standards or incentives for climate-compatible sectors such as e-mobility, renewable energy, or waste management was identified as a key policy gap. Investors echoed these concerns, emphasising the need for regulatory certainty, streamlined licensing, and tax incentives tailored to green industries.

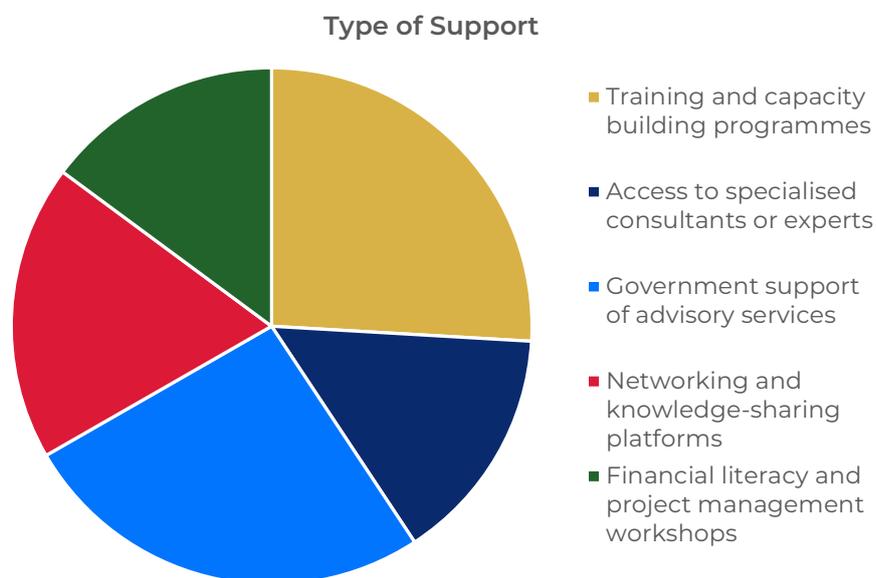
3.3 Technical and Capacity Barriers

Many climate-compatible ventures in Zambia remain at ideation or early development stages due to limited technical and institutional capacity. Challenges include weak financial modelling skills, lack of understanding of investor expectations, and minimal exposure to Environmental, Social, and Governance (ESG) standards. Project developers often struggle to prepare investment-ready proposals, navigate complex legal structuring, or access advisory services. 70% of entrepreneurs cited a lack of proficiency with financial modelling, for example. Limited access to sector-specific mentorship, training programmes, and knowledge-sharing platforms compounds these challenges.

This results in a disconnect between available capital and project readiness, which the initiative seeks to address through structured capacity building and pipeline development support.

Figure 3 shows that around 88% of respondents identified training and capacity-building programmes and government support or advisory services as the most effective ways to address capacity gaps. In addition, the idea of structured incubator or accelerator programmes, such as the Impact Capital Africa support programme conducted in Zambia, were cited particularly favourably. These programmes work closely with individual companies to deliver a set training curriculum and business development

Figure 3: Workshop 3 Survey – Type of Support
 What % of respondents agree that certain capacity building interventions would be beneficial to helping them overcome current challenges?



consultancy to new start-up companies. This indicates a strong preference for foundational skills development and institutional backing. Networking and knowledge-sharing platforms were supported by 63%, reflecting the value of collaboration and peer learning. Meanwhile, specialist consultants and financial or project

management workshops, each at 50%, are seen as helpful but less essential.

Overall, the findings highlight the need for sustained institutional support and targeted training, complemented by access to expertise and opportunities for shared learning.

4. Findings 2: Investors' Expectations – Unlocking Finance for Climate-Compatible Growth

Investor expectations were thoroughly explored during the first workshop and further validated through ongoing stakeholder engagement. These expectations represent critical benchmarks for structuring climate-compatible projects to improve access to finance in Zambia.

4.1 Return Expectations

Investors require projects to demonstrate both financial viability and developmental impact. Private equity and commercial financiers

prioritise measurable profit potential, focusing on metrics like internal rate of return (IRR), return on investment (ROI), and projected revenue streams. Development finance institutions (DFIs) and philanthropic investors, on the other hand, place greater emphasis on social and environmental outcomes, such as job creation, gender equity, and greenhouse gas (GHG) emission reductions. Projects that successfully integrate these dual objectives, financial and impact, are more likely to attract diverse investment.

4.2 Investment Scale and Preferences

Investors demonstrated varying preferences for investment sizes, often influenced by institutional mandates, sectoral focus, and geographic interest. While DFIs, donor-backed facilities, and philanthropic investors are more open to smaller ticket sizes ranging from as low as USD 25,000 to 500,000, commercial banks, private equity firms, and impact funds typically target larger projects requiring upward of USD 1 million to 10 million.

Scalability emerged as a crucial factor in determining an investment's attractiveness. Investors showed greater interest in projects with potential for replication across different geographies or that could serve as pilots for future scale-up. Energy projects that included productive use appliances, or transport models that combined e-mobility with logistics, were noted for their scalability.

Furthermore, investors emphasised the value of aggregation. For sectors like land use and circular economy, where many initiatives are small-scale or community-based, investors recommended the bundling of multiple ventures into investment portfolios or fund structures. Such aggregation lowers transaction costs, increases operational efficiencies, and creates sufficient deal flow to warrant engagement.

Clarity on the investment structure was also essential. Investors sought information on whether funding was required as equity, debt, blended finance, or convertible instruments. Those with short investment horizons preferred projects that could show early traction, while others such as institutional investors and DFIs were more flexible but required robust risk mitigation frameworks.

Investors noted that while the demand for capital is high across Zambia, many entrepreneurs do not articulate their funding needs clearly.

Proposals must align with investor profiles and explicitly state the amount, structure, and expected use of funds. Clear growth trajectories and revenue expansion strategies improve confidence, especially for follow-on financing.

Finally, investors appreciated ventures that had already secured co-financing or anchor support. This de-risked their potential investment and signalled validation by other credible actors. In summary, preferred projects are those with clearly defined capital requirements, scalable impact models, sectoral relevance, and realistic financial structures.

4.3 Risk Appetite and Tolerance

Investors emphasised that perceived risk in Zambia remains one of the primary barriers to unlocking private sector finance for climate-compatible projects. Their risk tolerance varies based on sector, stage of project development, political and macroeconomic factors, and the availability of de-risking mechanisms. Early-stage ventures and innovations in newer sectors, such as e-mobility and circular economy, were seen as particularly high-risk.

Key risks cited by investors include:

- Currency and macroeconomic risk, particularly the depreciation of the Zambian Kwacha, which affects returns for foreign investors.
- Regulatory and policy uncertainty, especially around licensing, tariff regimes, and enforcement consistency.
- Execution and operational risks, including weak project governance, inexperienced teams, and challenges in sourcing qualified technical personnel.
- Market risk, related to insufficient demand data, unproven business models, and changing consumer behaviour.

Investors expressed a preference for projects that proactively identify and address these risks

through robust risk mitigation frameworks. These frameworks should outline mitigation strategies such as:

- Revenue diversification and multi-offtake agreements.
- Use of guarantees or insurance schemes

(eg political risk insurance, partial credit guarantees).

- Strong local partnerships to navigate the regulatory and operational landscape.
- Phased implementation strategies to manage exposure and adapt over time.

Figure 4: Workshop 1 Survey – Most Challenging Project Stages to Finance
What stage of project development do you find most challenging to finance?

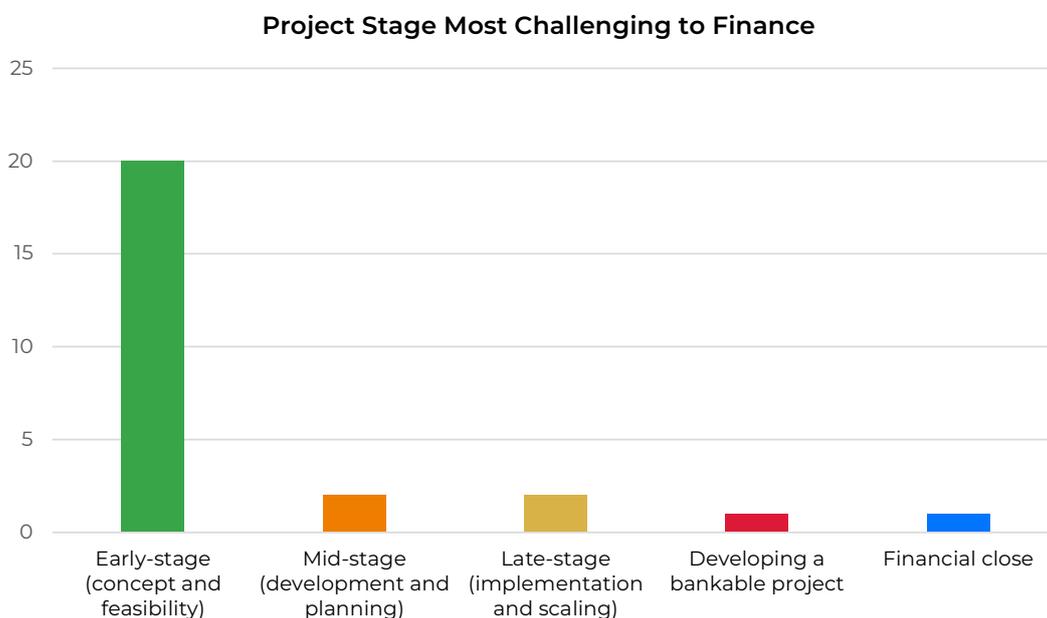


Figure 4 shows that about 80% of respondents indicated that ideation and pilot stages are the most challenging to finance. This suggests that high-risk, early-stage initiatives face the greatest funding constraints, reinforcing the need for risk-tolerant instruments like grants and innovation focused support mechanisms.

Additionally, risk appetite differs across investor types:

- DFIs and philanthropic capital are more tolerant of high-risk, high-impact projects, especially those serving low-income populations or testing novel models.
- Commercial banks and private equity investors prefer mature or near-commercial projects with a clear path to cash flow and exits.

- Angel and impact investors seek early traction and proof of concept, often in exchange for equity.

The workshops revealed a growing interest among investors to co-develop risk mitigation instruments and participate in blended finance structures. By layering concessional or catalytic capital with commercial funds, stakeholders can achieve a better balance between risk and return. Investors encouraged ongoing dialogue with the public sector to co-create guarantees and facilities that address these investment risks systemically.

4.4 Transparency, Reporting, and Accountability

Investors consistently emphasised the importance of robust transparency mechanisms,

clear reporting frameworks, and strong accountability systems in assessing the bankability of climate-compatible projects. Transparency is considered a key enabler of trust and risk reduction, particularly in markets perceived as high-risk or opaque.

Project developers are expected to maintain comprehensive documentation of financial flows, operational milestones, and social and environmental performance. Investors prefer projects with clearly articulated monitoring and evaluation (M&E) frameworks, supported by third-party audits and regular disclosures.

Modern tools such as digital dashboards, cloud-based financial management platforms, and mobile reporting interfaces were cited as effective ways to increase project visibility and stakeholder engagement. Real-time tracking of key performance indicators, including energy generation, emissions reductions, job creation, and disbursement timelines, enables data-driven decision-making and fosters ongoing investor confidence.

Accountability was linked to governance structure. Projects with defined roles and responsibilities, active boards or advisory committees, and stakeholder representation – particularly of affected communities – were viewed more favourably. Investors expect mechanisms for corrective action, feedback integration, and compliance with ESG and fiduciary standards.

Where reporting gaps exist, investors encouraged partnerships with local audit firms, accelerators, or international advisory partners to bridge capacity. Integration of international reporting standards such as GRI (Global Reporting Initiative), IRIS+ (for impact metrics), and SASB (Sustainability Accounting Standards Board) was also recommended to ensure comparability and credibility.

Ultimately, transparency, reporting, and accountability were viewed not merely as compliance tools, but as strategic components that increase project value, improve access to finance, and signal long-term sustainability.

4.5 Financial Structures and Instruments

One of the most frequently discussed themes during the workshops was the need for flexible and innovative financial structures to accommodate the varying risk appetites, return expectations, and sectoral focuses of different investors. Investors emphasised the importance of combining financial instruments in ways that blend concessional, commercial, and catalytic capital.

The following financial instruments were highlighted as most promising for climate-compatible projects in Zambia:

- **Blended Finance:** This structure involves combining concessional funding (grants, technical assistance, or first-loss capital) with commercial investments to reduce overall risk and improve project attractiveness. It is particularly useful in early-stage and innovative projects that need de-risking to attract private capital.
- **Results-Based Financing (RBF):** RBF structures, including output-based aid and milestone-based grants, reward project developers upon successful delivery of predefined results. This mechanism ensures accountability while providing upfront working capital. This is proven through programmes such as the Beyond the Grid Fund for Africa (BGFA) in Zambia
- **Concessional Loans and Guarantees:** Development banks and donor programmes offer concessional loans at below-market interest rates and guarantee facilities that mitigate credit and political risks. These are effective for infrastructure projects and early-stage climate businesses.

- Equity and Venture Capital:** For more innovative, scalable models – particularly in clean tech and mobility – early-stage equity investments and venture capital are preferred. Investors highlighted the importance of flexible equity terms and longer investment horizons.
- Revenue Share Agreements:** These allow investors to recoup investments based on project cash flows, reducing pressure on early-stage ventures. These agreements are especially applicable to energy access and transport businesses.
- Green and Impact Bonds:** Though still nascent in Zambia, stakeholders expressed interest in issuing green bonds or thematic climate bonds to aggregate funding for a portfolio of sustainable projects. This could be a game-changer for attracting institutional investment.

Investors also emphasised the importance of building financial infrastructure such as dedicated climate finance facilities and platforms that can structure and deploy these instruments efficiently. A multi-window financing facility

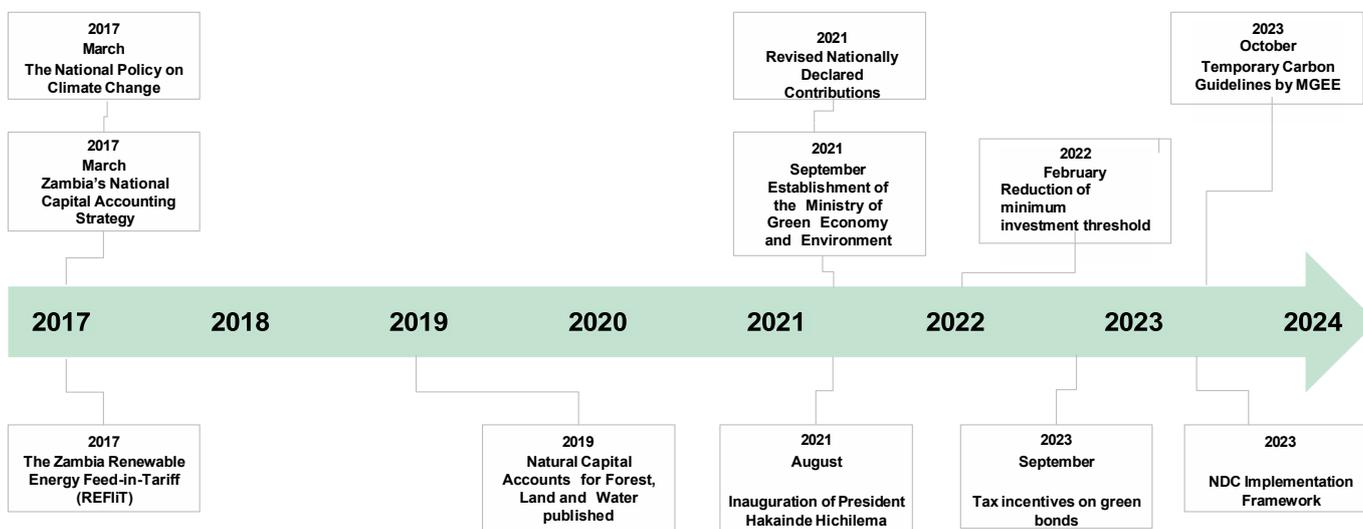
tailored to Zambia’s climate investment pipeline was suggested as a long-term goal.

4.6 Policy and Regulatory Expectations

Investors consistently raised concerns about Zambia’s policy and regulatory environment, identifying it as a major barrier to mobilising climate finance. Policy uncertainty, inconsistent enforcement of regulations, and lengthy approval processes were highlighted as deterrents to investment. Investors called for transparent, predictable, and investment-friendly policy frameworks that align with Zambia’s climate goals and private sector needs.

A key concern was the fragmented nature of regulatory oversight, where different ministries and agencies have overlapping mandates or unclear jurisdiction, particularly in emerging sectors like e-mobility, circular economy, and decentralised renewable energy. Investors recommended establishing a clear, single-window system or streamlined processes for permitting and licensing climate-compatible projects.

Figure 5: Timeline of governmental policies within climate-compatible investments in Zambia (non-exhaustive) – Source: [26]



Specific areas flagged for improvement included:

- **Renewable energy:** Investors advocated for the adoption and implementation of net metering policies, feed-in tariffs, and standardised power purchase agreements (PPAs) for independent power producers (IPPs). Regulatory frameworks for mini-grids and off-grid electrification were seen as critical to unlocking rural investment.
- **E- mobility:** The absence of incentives for electric vehicles (EVs), such as tax exemptions for EVs and charging infrastructure, was noted. Stakeholders proposed a national e- mobility roadmap, including import duty waivers and support for local assembly.
- **Land access and tenure:** Investors identified land acquisition and tenure insecurity as barriers, especially for agroforestry and infrastructure projects. They recommended digitisation of land records and fast-tracked approvals through public-private partnerships.
- **Taxation and incentives:** Investors requested consistent tax incentives for green technologies and climate-smart agriculture. They emphasised the need for clarity on exemptions for renewable energy components, sustainable transport solutions, and recycled materials.

Additionally, investors expressed interest in supporting the development of a national green taxonomy defining what qualifies as a 'green' or 'climate-compatible' project. This would guide public spending, enable green bonds, and ensure alignment with global sustainable finance standards.

Importantly, several investors emphasised the role of government in catalysing investment through policy leadership. Public-private dialogue, inclusive policy design, and coordination between ministries were seen as essential for building trust and ensuring long-term investment predictability.

4.7 ESG and Sustainability Criteria

Environmental, Social, and Governance (ESG) considerations have become central to investor decision-making processes globally and are increasingly influencing the flow of climate finance into Zambia. Investors, particularly DFIs, impact funds, and international climate financiers, are now requiring that projects integrate ESG principles from inception through implementation and reporting.

Stakeholders emphasised that ESG compliance is no longer optional. Projects must proactively demonstrate how they will minimise environmental risks, enhance social outcomes, and uphold governance standards. Key ESG elements include:

- **Environmental:** Adherence to environmental impact assessments, biodiversity protection, waste management strategies, and emissions reduction plans.
- **Social:** Inclusion of women, youth, and marginalised groups in governance and employment, fair labour practices, community consultation, and benefit-sharing mechanisms.
- **Governance:** Transparent decision-making structures, anti-corruption measures, ethical procurement, and clear stakeholder roles and responsibilities.

Investors highlighted the importance of mainstreaming ESG across the project lifecycle: from feasibility studies and design to construction, operations, and monitoring. Integration of internationally recognised ESG frameworks such as the International Finance Corporation's Performance Standards, IRIS+, and the Equator Principles was encouraged. Such standards offer consistency in evaluating risk, performance, and impact.

Projects that demonstrate strong ESG performance are more likely to access concessional capital, attract blended finance,

and qualify for green and impact bonds. In contrast, ventures lacking ESG frameworks or failing to anticipate environmental or social risks are often disqualified early in due diligence.

Some investors proposed the development of a national ESG toolkit tailored for Zambian SMEs, helping them incorporate these principles without excessive burden. Public-sector collaboration, capacity building, and simplified ESG reporting templates were recommended as enablers for broader adoption.

Overall, ESG was framed not only as a risk mitigation mechanism but also as a value creation strategy. Projects that embed sustainability and inclusivity are better positioned to secure long-term financing and build trust with communities and stakeholders.

4.8 Exit Strategy Preferences

One of the key investment considerations raised across the workshops was the need for clearly defined and viable exit strategies, particularly for equity investors and venture capitalists. Exit strategies provide investors with clarity on how and when they will realise returns on their investments, which is critical for portfolio planning and risk management.

Investors noted that many proposals, especially from early-stage entrepreneurs, did not sufficiently consider or articulate potential exit pathways. This was seen as a major weakness in investment readiness and a gap that could be addressed through mentorship and business development support.

Preferred exit mechanisms discussed by investors included:

- **Strategic acquisition or buy-out:** This is common in scalable enterprises, where a larger company or industry player acquires a smaller venture. Investors highlighted the importance

of identifying potential acquirers early and building relationships as part of the go-to-market strategy.

- **Initial Public Offering (IPO) or listing on secondary markets:** Although less frequent in Zambia, these were discussed as future possibilities for high-growth companies, particularly in energy or clean tech sectors.
- **Revenue-sharing or dividend-based models:** These provide more flexible and predictable returns for investors, especially in infrastructure projects where consistent cash flow is expected.
- **Refinancing or sale to infrastructure or pension funds:** Projects with long-term revenue profiles (eg solar mini-grids, e-mobility infrastructure) are attractive to institutional investors seeking stable, lower-risk returns once the project is de-risked and operational.

To increase attractiveness, investors encouraged entrepreneurs to:

- Include detailed financial projections that support exit scenarios.
- Outline timelines, assumptions, and conditions for exit.
- Identify potential local or regional buyers.
- Demonstrate how the enterprise's governance and compliance frameworks support investor exits.

Investors also expressed willingness to help shape exit pathways during the project development process. Early collaboration between developers and financiers on structuring exit options was seen as a best practice that strengthens confidence and aligns expectations from the start.

In summary, a robust exit strategy was deemed a crucial element of bankability. It signals maturity, investor understanding, and strategic foresight, all of which are essential to securing capital.

4.9 Investor Engagement and Communication

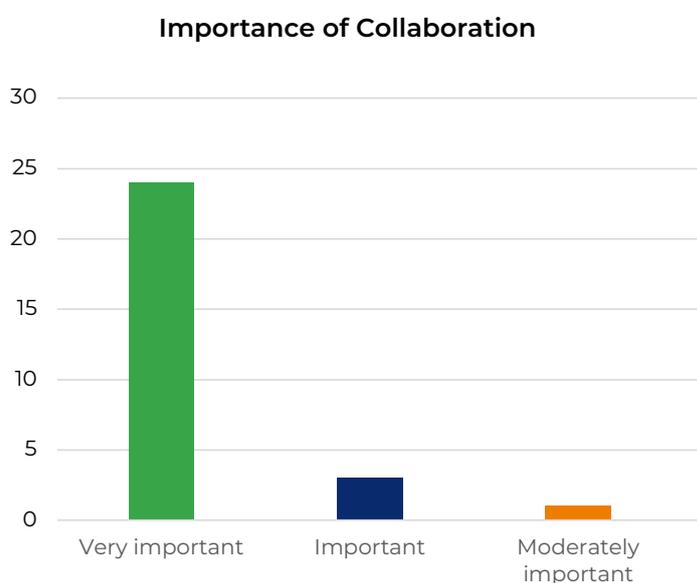
Investor engagement emerged as a critical success factor throughout the project. Investors consistently emphasised that their willingness to commit capital increases significantly when they are engaged early, meaningfully, and consistently throughout the project development cycle.

From the first workshop onward, investors expressed the need for communication that is proactive, transparent, and responsive. This includes clear and timely updates on project progress, detailed responses to due diligence inquiries, and real-time access to financial and impact performance data.

Developers who maintained regular communication with potential financiers through pitch decks, newsletters, dashboards, and follow-up calls were viewed more favourably. Investors particularly valued initiatives that used digital tools to track and report key milestones and metrics such as emissions avoided, jobs created, and revenue growth.

Interactive engagement formats, such as the workshop pitch sessions, were widely appreciated. These created a space for dialogue, feedback, and joint problem-solving, helping to build trust and strengthen relationships. Some investors also expressed interest in co-creating project structures with developers to ensure alignment on financing terms and governance expectations.

Figure 6: Workshop 1 Survey – Importance of collaboration between stakeholders
How important is cross-organisation and cross-sectoral collaboration in overcoming investment barriers for climate-compatible growth?



75% of participants rated cross organisational collaboration as very important. This clearly demonstrates that stakeholders value multi-sector partnerships to enhance resource mobilisation, technical expertise, and project scalability. Collaboration is viewed as a critical enabler of project success.

Recommendations for sustaining effective investor engagement include:

- Developing investor communication plans early in the project lifecycle.
- Establishing virtual data rooms or project portals with password-protected investor access.

- Organising periodic investor briefings and sector-specific webinars.
- Capturing and acting on investor feedback systematically.
- Maintaining contact even post-pitch to share updates on project progress and ecosystem developments.

Ultimately, strong investor engagement and consistent communication practices are not just about marketing. They are fundamental to building investor confidence, reducing perceived risk, and unlocking long-term climate finance for Zambia's transition to a low-carbon, inclusive economy.

5. Findings 3: Sectoral Opportunities for Climate-Compatible Projects in Zambia

This section highlights five sectors with the strongest potential for climate-compatible investment in Zambia. The key opportunity areas, investor perspectives, enabling policy actions, and emerging innovations are listed for each sector. Sector deep dives were completed in workshops 1 and 2, with different sectors also being represented in the fourth workshop entrepreneur pitch session.

5.1 Energy Sector

The energy sector represents the most mature and active domain of climate-compatible investment opportunities in Zambia. It accounted for over 50% of the total project submissions received through the open call and has historically attracted the largest share of climate finance nationally.

KEY OPPORTUNITY AREAS:

- **Off-grid and mini-grid electrification:** Particularly in rural and peri-urban areas, where grid extension is not feasible. Projects combining solar PV, battery storage, and productive use applications (eg solar-powered irrigation, cold storage) were highly favoured by investors. The 2023–24 Southern African drought and the associated failure of the hydro-energy driven power system to provide sufficient electricity supply in Zambia has led to an increase in consumer

demand for off-grid solutions. Several pipeline member companies have capitalised on this opportunity.

- **Commercial and industrial (C&I) solar:** Businesses seeking to reduce operational costs and carbon footprints through solar rooftops or ground-mounted systems were seen as scalable ventures.
- **Battery-as-a-service and energy storage:** Emerging models for pay-as-you-go (PAYG) battery leasing, especially in e-mobility and micro-enterprise contexts, show strong potential.
- **Clean cooking and efficient appliances:** Projects targeting low-income urban and rural households with improved cook stoves and induction cookers provide important adaptation and mitigation co-benefits.

Investor Perspectives: Investors expressed strong appetite for bankable energy projects, especially those with reliable cash flows, established customer bases, and regulatory clarity. The ability to demonstrate clear savings or revenue generation from clean energy use was seen as essential.

Blended finance was commonly recommended as a de-risking mechanism to attract private capital, particularly for early-stage or rural electrification ventures. Investors also noted

the growing relevance of results-based financing (RBF), carbon revenue streams, and crowdfunding models to support energy access and innovation.

Policy and Regulatory Enablers: Energy sector entrepreneurs and investors called for urgent implementation of the following measures:

- Net metering regulations to allow C&I customers to export excess power to the grid.
- Standardised PPAs for mini-grids and IPPs.
- Reduced duties and VAT on imported renewable energy components.
- Access to concessional finance through national energy access facilities or green banks.

Emerging Innovations: Entrepreneurs demonstrated increasing sophistication in integrating digital tools (IoT monitoring, mobile payments), financing models (lease-to-own, PAYG), and bundled services (solar + water + agriculture). Several ventures also explored impact-linked finance and community-based equity ownership models.

5.2 Transport Sector

The transport sector in Zambia presents a growing opportunity for climate-compatible investment, particularly in light of rising fuel costs, urban congestion, and air pollution. While less mature than energy in terms of investment flows, the sector is undergoing a critical transition toward electrification and efficiency, with early-stage projects beginning to emerge.

KEY OPPORTUNITY AREAS:

E-mobility: Innovations include electric two- and three-wheelers for last-mile delivery, ride-hailing, and informal public transport. These models offer low emissions and cost savings over internal combustion engine vehicles.

- **Electric buses and fleet conversion:** Interest is increasing in transitioning municipal and commercial fleets to electric alternatives, especially for public transport, mining logistics, and school bus services.

- **Charging infrastructure and battery swapping stations:**

Entrepreneurs proposed scalable models to address the lack of EV infrastructure, including mobile charging units, solar-powered stations, and battery leasing.

- **Smart logistics platforms:** Start-ups using digital tools to optimise freight and passenger routes are gaining traction, helping reduce emissions through more efficient operations.

Investor Perspectives: Investors recognise the sector's potential but expressed concerns over limited policy support, high upfront costs of EVs, and a lack of awareness among consumers. Projects that bundle services (eg vehicle + charging + maintenance) are preferred.

Blended finance and RBF were considered suitable to stimulate market development, especially where infrastructure investment is required. Investors also emphasised the importance of partnerships with local authorities and fleet operators to ensure market uptake.

Policy and Regulatory Enablers:

- Import duty exemptions and tax relief for EVs and components.
- A national e-mobility roadmap with targets, standards, and incentives.
- EV pilot programmes in public transport and government fleets.
- Clear standards for charging infrastructure and certification of EV mechanics.

Emerging Innovations: Entrepreneurs showcased mobile apps for EV rentals, e-bike financing for delivery workers, and battery-as-a-service platforms. Many are targeting urban youth and informal sector workers as early adopters. There is growing interest in integrating e-mobility with renewable energy, such as solar-powered charging stations.

5.3 Land Use

The land-use sector in Zambia presents a significant, yet underutilised, opportunity for climate-compatible investment. Projects in this sector align strongly with adaptation and mitigation goals through forest protection, sustainable agriculture, and ecosystem restoration. While most of the projects in this space are currently early-stage or community-based, they have the potential to deliver long-term impact with proper structuring, aggregation, and support.

With the right mix of technical assistance, aggregation mechanisms, and supportive policy frameworks, land-use projects can play a transformative role in Zambia's climate strategy delivering carbon sinks, improving food systems, and creating rural employment.

KEY OPPORTUNITY AREAS:

- **Agroforestry and regenerative agriculture:** Initiatives that combine food production with tree planting, soil restoration, and carbon sequestration were seen as impactful, especially when integrated with rural livelihoods.
- **Forest restoration and REDD+ (a UNFCCC framework) projects:** Community-led afforestation and reforestation initiatives targeting degraded areas can access international carbon markets if structured with the right verification standards.
- **Sustainable land management and conservation agriculture:** Practices that reduce deforestation, increase soil productivity, and improve water retention can significantly boost resilience to climate change.
- **Community-based natural resource management (CBNRM):** Models empowering local groups to manage forests, wetlands, and wildlife areas for eco-tourism and conservation generate both economic and ecological returns.

Investor Perspectives: Investors acknowledged the long-term impact potential of land-use projects but flagged challenges around revenue models, land tenure security, and measuring outcomes. They were particularly cautious about smallholder projects that lack aggregation or standardised monitoring systems.

Investors expressed interest in:

- Aggregated or pooled land-based projects with central management entities.
- Carbon credit generation as an additional revenue stream.
- Projects aligned with biodiversity, food security, and water goals, offering multiple co-benefits.

Policy and Regulatory Enablers: participants recommended:

- Clarification of land rights for community projects, with secure legal frameworks.
- Development of a national carbon market strategy, including REDD+ readiness and registry systems.
- Subsidies or incentives for regenerative agriculture inputs.
- Integration of climate-smart land use into district-level development plans.

Emerging Innovations:

- Use of mobile platforms to support farmer extension services and monitor reforestation.
- Digital carbon MRV (measurement, reporting, verification) tools to track and monetise climate benefits.
- Women-led cooperative models producing climate-resilient crops and natural fertilisers.

5.4 Critical Minerals

Zambia's endowment of critical minerals – such as copper, cobalt, and lithium – presents a strategic opportunity for climate-compatible investment, particularly given global demand for clean energy technologies. These minerals

are essential components in EVs, battery storage, solar panels, and wind turbines. As global supply chains shift toward sustainability and traceability, Zambia can position itself as a responsible supplier of green minerals.

KEY OPPORTUNITY AREAS:

- **Value addition and local beneficiation:** Projects proposing in-country processing of copper and cobalt, including refining and cathode production, have the potential to create jobs and increase the country's share of value in global markets.
- **Sustainable and traceable mining operations:** Proposals to integrate environmental safeguards, digital traceability systems, and community development plans were viewed positively by impact and ESG-focused investors.
- **Recycling and recovery of critical minerals:** Early-stage ventures focused on e-waste and battery recycling are emerging and offer circular economy solutions within the minerals sector.
- **Mining-related infrastructure:** Opportunities exist to develop green infrastructure, such as renewable energy mini-grids and water treatment systems, for mining operations in remote areas.

Investor Perspectives: Investors expressed a strong interest in the sector, particularly in projects aligned with ESG and just transition principles. However, they noted several risks, including governance challenges, unclear permitting processes, and concerns over artisanal mining practices.

Risk mitigation strategies proposed included:

- Co-financing with DFIs to de-risk exploration and early-stage processing.
- Enhanced community engagement and benefit-sharing frameworks.
- Third-party environmental and social audits.

Institutional investors signalled a preference for midstream and downstream opportunities – such as refining and recycling – due to lower exposure to exploration risks and stronger alignment with impact mandates.

Policy and Regulatory Enablers:

- Clarification of mining licences and renewal processes.
- Strengthening of environmental regulations and consistent enforcement mechanisms.
- Development of a national strategy on critical minerals that links extraction to value addition and climate priorities.
- Support for artisanal miners to formalise practices and integrate into supply chains.

Emerging Innovations:

- Use of block chain for mineral traceability.
- Solar-powered processing units for small-scale operations.
- Public-private partnerships for geological surveying and mapping.

5.5 Circular Economy

The circular economy sector in Zambia is emerging as a promising frontier for climate-compatible growth, offering opportunities to reduce waste, increase resource efficiency, and generate green jobs. It links closely with climate mitigation, especially through the reduction of GHG emissions from waste and resource extraction.

KEY OPPORTUNITY AREAS:

- **Waste-to-value enterprises:** Start-ups focused on recycling plastic, glass, paper, and organic waste into marketable products – such as paving blocks, fertiliser, bio charcoal – and insulation materials are gaining attention.
- **E-waste recycling and recovery of critical minerals:** Several early-stage ventures are exploring business models around the recovery of lithium, cobalt, and copper from electronic waste.

■ **Biogas and composting solutions:**

Community-based and commercial projects converting organic waste into energy and agricultural inputs have the opportunity to benefit both of these sectors.

- **Repair and reuse services:** The informal sector is rich with microenterprises offering repair services (eg electronics, bicycles, textiles), which could be formalised and scaled with support.

Investor Perspectives: While investor interest in the circular economy is growing, the sector is still perceived as fragmented and undercapitalised. Investors favoured models that demonstrate clear revenue streams, scalable supply chains, and potential for replication. Aggregation and reliable sourcing of input waste materials were highlighted as key success factors.

Impact investors and foundations were especially keen on models addressing urban waste challenges and empowering youth and women entrepreneurs. Carbon finance and pay-for-performance models were recommended

to support circular ventures with strong environmental benefits.

Policy and Regulatory Enablers:

- Incentives for recycling equipment and green manufacturing.
- Waste management regulations that support private sector participation in municipal solid waste collection and processing.
- Development of national standards for recycled products.
- Formalisation of informal waste pickers through cooperatives and social enterprise models.

Emerging Innovations:

- Mobile recycling apps and reverse logistics solutions (those which manage the flow of goods from consumption back to the point of origin – eg returns, repairs, and recycling solutions).
- Decentralised biogas systems for markets and institutions.
- Circular fashion and textile upcycling initiatives.

6. Findings 4: Enterprise case studies

This section presents the example of four enterprises who pitched their businesses to potential investors in the fourth workshop of the 'Building Bankable Pipelines' initiative – in the format of the 'Dragon's Den' or 'Shark Tank' television shows. Each company was involved in the full research project, and they were selected to pitch on the basis of their strong engagement with the expert mentors at Lloyds Financials Limited and their promising plans to scale up their climate-compatible businesses in the coming years. At the workshop, they presented:

- The problem they aimed to solve;
- The solution they deliver and the company's value proposition;

- How much money they are aiming to raise for their scale up;
- Their typical customer journey;
- Their traction to date;
- Their financial and revenue model;
- How they would spend any capital raised.

Companies then received direct feedback on their pitch from an investor panel. These companies are a prototypical example of beneficiaries who might take part in a full-scale pipeline development process, and details on their path to date and investor feedback they received in workshop 4 are presented below.

6.1 MBHE African Power

Case study 1:	MBHE African Power – Commercial Solar Solutions	Year founded:	2019
Project Overview:		Key Takeaways:	
<p>MBHE African Power is a renewable energy company operating in Zambia that provides solar PV and energy storage solutions to commercial and industrial clients. It essentially offers a solar-as-a-service model; MBHE finances, installs, and maintains solar systems for clients (such as shopping malls, banks, farms), and the clients pay for the energy consumed or via a Power Purchase Agreement (PPA) over a long period.</p> <p>A flagship project of MBHE is a large-scale rooftop and ground-mounted solar installation at the Kenneth Kaunda Mall, which significantly cut the mall's grid consumption and diesel generator use. To date, MBHE Zambia has an estimated USD 1.2 million in revenue and is seeking expansion capital of about USD 10 million to meet growing demand.</p>		<ul style="list-style-type: none"> ■ Business Model Innovation: Offering solar through PPAs/leases to overcome the financing barrier for customers. This model is replicable for other SMEs as an energy service company (ESCO) approach that can be very attractive in markets with high electricity tariffs or unreliable supply (eg Pakistan, South Africa). ■ Investor Considerations: When MBHE pitched for investment in workshop 4, they faced questions on scalability, client segmentation, and competition with the national utility's tariffs. They addressed these by showing diversified clientele (mining, retail, agriculture) and presenting 25-year yield projections demonstrating solar's cost advantage over grid tariffs in the long run. Their case underlines the importance of detailed financial and technical planning to convince investors. ■ Adaptability: MBHE succeeded by adapting solutions to different industries and by integrating battery storage where needed to ensure reliability (important given that ZESCO's relatively low tariffs but occasional load shedding storage help provide continuous power, which is a value-add beyond just cost). ■ Policy Interaction: This case thrived thanks in part to supportive policies like net metering and Zambia's new open access energy regime which allow such private PPAs, and it reinforces the need for these to continue. It also highlights that more could be done (eg tax incentives for solar equipment helped reduce system costs). 	
Progress and Outcomes:			
<p>The company has successfully implemented multiple solar projects, delivering combined capacity in the tens of megawatts across clients. Their financing model relies on securing PPAs or lease agreements so that clients face minimal upfront costs (they pay through savings on electricity bills). MBHE's approach has led to adoption among clients who otherwise might not afford a full capital investment in solar. Additionally, MBHE emphasises sustainability beyond just clean energy; they maintain a zero-waste policy in operations, ensuring proper recycling of solar batteries and panels at end of life.</p>			

6.2 Ebusaka

Case study 2:	Ebusaka – Digital Platform for Waste Management	Year founded:	2021
Project Overview:		Key Takeaways:	
<p>Ebusaka is a Lusaka-based start-up that has developed a cloud-based platform to connect waste generators (households and businesses), waste collectors, and recyclers. The platform incentivises households to sort and submit their recyclables by offering a points credit system (rewards for proper waste segregation). It also provides an app for informal waste collectors to find pickups and for recyclers to source sorted waste, thereby integrating the informal sector into a more efficient, transparent supply chain. Ebusaka has onboarded 7 waste collection groups and reaches over 58,000 households in parts of Lusaka. The venture sought around USD 0.5 million to scale its operations across the city and enhance its AI-powered waste analytics features.</p>		<ul style="list-style-type: none"> ■ System Approach: Ebusaka's case demonstrates that addressing waste challenges requires linking multiple stakeholders. The use of technology (mobile apps, dashboards) created transparency in a traditionally opaque chain. This system approach can be applied in other circular economy challenges. ■ Importance of Partnerships: A major insight was that strong local government partnership is crucial. Ebusaka benefited from Lusaka City Council's willingness to experiment and potentially enforce sorting at the source. Investors in workshop 4 stressed that scaling will require formalising such partnerships so that the platform's model can be integrated into municipal waste services for longevity. ■ Revenue Model Challenges: Ebusaka has several revenue streams: service fees from recyclers who get cleaner feedstock, selling data insights, and potentially municipal contracts for managing waste in certain zones. However, during workshop 4 investors were concerned that the potential of these revenue streams may not be sufficient for the amount of capital the company sought. The takeaway is that such platforms need multi-pronged monetisation (like household fees). This is a blueprint for similar civic-tech solutions: diversify income, perhaps through blending commercial and public funding. ■ Social Impact: By formalising informal labour, Ebusaka improves livelihoods and working conditions, a social co-benefit that appealed to impact-minded supporters. However, to avoid excluding those without smartphones or literacy, they maintained on-ground agents to those who need help interfacing with technology. Inclusivity in design was key to its success in dense, diverse urban communities. ■ Scalability: If Ebusaka's model proves sustainable in Lusaka, it can be scaled to other cities in Zambia or even regionally. The concept of an 'Uber for recycling' or 'Airbnb of waste' is globally replicable but needs local tweaking. Ebusaka's early results build a case that digital solutions can crack long-standing waste management issues when paired with human networks. 	
Progress and Outcomes:			
<p>As a pilot, Ebusaka established partnerships with local community organisations to educate residents about waste sorting. They placed collection bins and use a fleet of tricycles and trucks operated by partner collectors. Through the platform, they track how much waste each household recycles and reward them (either via a discount on waste fees or small digital payments). This data also feeds into city planning, identifying which neighbourhoods produce the most recyclables and helping target recycling facilities placement. Ebusaka's pilot saw improvement in collection efficiency (more pickups per route since routes are algorithmically optimised) and increased volume of recyclables delivered to recycling companies by about 30% in its test areas. It has also provided more stable income for informal collectors by connecting them to formal markets (recycling firms) and through the incentives financed by Ebusaka.</p>			

6.3 Entomo Farms

Case study 3:	Entomo Farms – Insect-Based Animal Feed	Year founded:	2018
Project Overview:		Key Takeaways:	
<p>Entomo Farms Zambia is an agri-tech start-up tackling two issues: managing organic waste and producing sustainable protein for animal feed. It runs a facility that breeds black soldier flies (BSF), which consume organic waste (like food scraps, agro-processing waste) and in the process produce larvae rich in protein. These larvae are then processed into feed for poultry, fish, and pigs, while the remaining byproduct becomes a high-quality organic fertiliser.</p> <p>Entomo Farms operates a decentralised model. They have a main breeding centre and then a network of outgrowers (small farms) who are trained to raise BSF locally using the waste available in their communities, ensuring cost-effective and climate-resilient operations. The company was seeking around USD 1.2 million to expand production capacity, build more outgrower hubs, and refine processing operations.</p>		<ul style="list-style-type: none"> ■ Circular Solution: Entomo Farms epitomises a circular economy solution within agriculture: waste from one process becomes input for another. This closed-loop approach garnered positive attention from both agricultural and environmental stakeholders. The case proves that climate solutions can cut across categories – here addressing waste (mitigation via reduced methane), agriculture (sustainable feed), and economic development (new business for youth). ■ Market Positioning: During pitch feedback during workshop 4, investor judges asked how BSF feed competes on cost and nutrition with conventional feed. Entomo’s plan to clearly differentiate the product (higher protein, locally produced, possibly organic certification) and provide ROI comparisons for farmers was crucial. The learning is that for any alternative product (be it fuel, feed, etc.), a direct comparison to the status quo in terms of price and performance must be shown to convince adopters and investors. ■ Phased Funding: Investor judges suggested a phased funding approach for Entomo, with a smaller seed round to scale incrementally in line with revenue growth, rather than a large sum upfront. This reflects a general caution for relatively new models: prove in steps, de-risk gradually. It is a lesson that sometimes asking for slightly less and achieving milestones can enable follow-on funding under better terms. ■ Capacity Building: Implementing something as novel as insect farming required extensive training of local staff and outgrowers; a reminder that any innovative agri-business has a strong human capacity element. Entomo Farms invested in training programmes (with help from an international entomologist partner) which increased their initial costs but was necessary. For replication, coupling such projects with grant-funded capacity building (via NGOs or development projects focusing on youth employment, for example) can strengthen them. ■ Regulatory: One challenge facing Entomo is regulatory uncertainty: animal feed regulations in Zambia did not explicitly cover insect protein. Entomo engaged with the Bureau of Standards and Ministry of Livestock to get an interim approval for feed trials. Eventually, formal standards may be needed. They handled this by proactively seeking dialogue and providing evidence from other countries (like South Africa and the European Union, where insect feed is approved). This proactive stance in addressing possible regulatory concerns is a takeaway for any pioneer project: engage regulators early, educate them, and shape the narrative so that policy can provide a supportive role. 	
Progress and Outcomes:			
<p>In its pilot phase, Entomo Farms successfully ran a BSF production cycle, converting several tonnes of market vegetable waste and brewery grain waste into insect protein. They produced a few tonnes of BSF meal, which in trials proved to have comparable nutritional value to traditional fishmeal-based feed, at a slightly lower cost. Farmers who used the feed for their chickens reported no drop in productivity, validating BSF as a viable feed component. On the fertiliser side, the organic compost was well-received by vegetable growers, improving yields on test plots. Entomo established 3 outgrower units run by youth groups, each processing about 200 kg of waste per week into larvae. This created modest income for those youth and disposed of waste that otherwise attracted pests or emitted methane. The model shows promise for scale in peri-urban and rural areas where organic waste is plentiful but poorly managed.</p>			

6.4 Astanah Energy

Case study 4:	Astanah Energy – Lithium Battery Refurbishment	Year founded:	2017
Project Overview:		Key Takeaways:	
<p>Astanah Energy is a start-up focusing on the refurbishment and recycling of lithium-ion batteries from electronic waste to create affordable energy storage solutions. The company collects used lithium battery cells from sources like old laptops, solar home systems, and EV batteries (though there are few EVs in Zambia, they have tapped into regional e-waste streams). They test and sort cells to salvage those that still have a good capacity, then assemble them into new battery packs suitable for solar energy storage or backup systems for households and small businesses.</p> <p>Astanah particularly targets low-income and off-grid communities, offering these refurbished battery units at a fraction of the cost of new batteries, thus making solar installations more affordable. They have so far refurbished enough cells to assemble about 10 megawatt-hours (MWh) of battery storage and have processed 2 tonnes of e-waste in the process.</p>		<ul style="list-style-type: none"> ■ Addressing Supply Chain Risks: Investors in the workshop 4 pitch Q&A honed in on the source of used batteries and scalability of supply. Astanah’s strategy to form agreements with telecom companies (for backup batteries) and neighbouring country e-waste recyclers for cells is a critical component of their business plan. The insight is that securing consistent waste supply is as important as finding customers for the refurbished product. Projects in the circular economy (as a reverse logistics industry) must plan supply as rigorously as sales. ■ Safety and Standards: Reusing lithium batteries raises safety concerns (risk of fire etc). Astanah had to implement strict testing and quality control and adhere to standards for battery packs. Investors advised that regulatory compliance and safety standards be front and centre, as any accident could be catastrophic for trust in the model. The case illustrates that demonstrating adherence to high safety standards (possibly even getting third-party certifications) is essential when working with reused technology components. ■ Business Trajectory: Investor feedback suggested Astanah should articulate a growth trajectory, potentially moving beyond refurbishing into offering energy-as-a-service models or new battery manufacturing in the long run. This reflects a common investor view: refurbishment is great now, but how does this become a large, sustainable business? One recommendation was exploring a phased expansion, perhaps starting with manual refurbishing and moving toward semi-automated recycling, or developing complementary services like battery leasing for solar companies. Astanah’s flexibility to consider such evolution will matter for securing larger investment. ■ Impact and Market Fit: By focusing on marginalised communities and cheaper storage, Astanah aligned well with impact investors’ goals (energy access, e-waste reduction). This dual impact made it attractive despite being a relatively new concept. It underscores the benefit of targeting an underserved market – not competing head-on with big battery companies for mainstream clients, but carving out a niche where their solution is uniquely suited. They have created a win-win: solving a waste problem and solving an energy problem together. ■ Collaboration: Astanah realised the need to collaborate with solar providers (to incorporate their batteries into systems sold) and perhaps EV distributors (in future, to manage EV battery end-of-life). This ecosystem approach means they position themselves as partners to bigger industries rather than lone operators. Encouraging such linkages (through, for example, introductions to major solar installers) can accelerate their adoption. 	
Progress and Outcomes:			
<p>In pilot deployments, Astanah provided community solar hubs with battery banks made from refurbished cells. These hubs power things like phone charging stations, lighting in small shops, and water pumps in off-grid villages. The performance of refurbished batteries was monitored and found to achieve around 70–80% of the lifespan of new batteries at roughly 50% of the cost. This indicates a viable value proposition where cost savings are crucial. By recycling, they also prevented hazardous waste (lithium cells) from improper disposal. They have started partnerships with information technology companies and solar distributors to take back old batteries and feed their refurbishment supply chain. Astanah’s work has drawn attention from environmental agencies as a model for addressing the growing e-waste issue while contributing to renewable energy access.</p>			

7. Findings 5: Pipeline development

7.1 Pipeline Development Model

The 'Building Bankable Pipelines' initiative's third research question (RQ3) asked: 'How can a forum best be built in order to address concerns on bankability and to create a pipeline of investable projects and enterprises for climate-compatible growth in Zambia, potentially as a model for developing countries more generally?'. The test site for this forum was the series of four practitioner workshops undertaken in late 2024 and early 2025, in which entrepreneurs, investors and ecosystem organisations participated to validate whether a structured process could generate a pipeline of bankable businesses. The following model shows how this was structured:

1. Inputs:

- Stakeholder engagement across the public, private, and civil society sectors to recruit pipeline development participants and to understand key landscape challenges and opportunities.
- Technical assistance and mentorship provided by Lloyds Financials Limited and partners.
- Survey data and qualitative insights from project developers and financiers.
- Policy dialogue with key ministries (Energy, Green Economy and Environment, Finance, and Mines).

2. Processes:

- Project scoping and screening based on defined criteria (sector relevance, alignment with climate goals, scalability, financial viability).
- Capacity-building sessions focused on investment readiness, financial modelling, ESG compliance, and pitch development.
- Iterative feedback loops between investors and developers through the workshops.
- Co-creation of solutions to barriers identified (eg policy reform needs, regulatory streamlining, access to finance tools).

3. Outputs:

- A curated pipeline of climate-compatible enterprises and projects, supported by realistic financial models, pitch materials, and investor engagement plans.
- An engaged and functional workshop group fostering ongoing dialogue.
- A repository of tools and templates for future pipeline development and replication.
- Knowledge products and lessons learnt captured from each workshop and shared with stakeholders.

4. Outcomes:

- Enhanced deal flow of investment-ready climate ventures.
- Improved investor confidence through increased transparency and project quality.
- More capable entrepreneurs, able to share their knowledge across local entrepreneur ecosystems.
- Policy recommendations based on direct experience of barriers and enablers.
- Strengthened partnerships across sectors, laying the groundwork for long-term collaboration.

5. Enabling Conditions:

- Political will and support from government institutions to adopt recommendations.
- Continued donor and DFI interest in supporting technical assistance and de-risking mechanisms.
- Willingness from investors to engage early and iteratively in project development.

This model captures the dynamic, iterative nature of investment readiness and emphasises collaboration, capacity building, and continuous refinement.

7.2 Validation and scaling

Overall 20 unique businesses and 7 unique investor organisations were engaged through the workshop process, with feedback from participants highlighting an overall strong satisfaction with the process. There was a spectrum of readiness for different ventures, as would be expected in any development process, and those presented as case studies in Chapter 6 represent four of the organisations who are at a relatively advanced stage at the end of the workshop process and thus benefitted from the structured investor feedback as part of the pitch session. There appears to be strong value provided, therefore, by a pipeline development process which focuses closely on bridging perceptions of bankability.

As a demonstration, the 'Building Bankable Pipelines' initiative findings only apply to the Zambian context. However, there is clear

demand for similar structured programmes across the continent. Climate-compatible development goals intersect with challenges in accessing capital in all of Africa, and the integration of participatory methods, financial innovation, and policy alignment theoretically makes this model a valuable tool for transforming climate ambitions into investable opportunities in many contexts. Whilst high quality pan-continental resources such as the Growth Gateway 'Green fundraising playbook', authored by BCG [27], for African climate startups do exist, the guided implementation of such resources to specific contexts still benefits from the work of guided implementation. A recent International Finance Corporation report [28] highlighted how such programmes can translate into rapid productivity growth, and so it appears there is wider potential to apply the learnings from the 'Building Bankable Pipelines' initiative to new countries.

8. Recommendations

Drawing on all the findings from barriers and investor expectations to sectoral insights and case studies this section provides targeted recommendations for key stakeholder groups: Investors, policymakers, entrepreneurs/project developers, and other researchers. Implementing these recommendations will help advance pipelines of bankable projects and climate finance both within Zambia and beyond if this model is adopted. The recommendations are interrelated and should be pursued in parallel to create a reinforcing environment for climate-compatible growth. Many of the recommendations address specific gaps that were flagged in Section 2.6, particularly pertaining to barrier prioritisation and optimal reform.

8.1 Recommendations for Investors

Investors encompassing banks, impact funds, DFIs, venture capital, and institutional investors

have a crucial role in unlocking finance for climate projects. To bridge the current gap, investors should consider the following recommendations as a starting point:

1. **Early Engagement with Project Developers:** By engaging more closely with project developers (eg participating in workshops, developing in-house accelerator or incubator programmes, offering feedback on draft proposals and financial models, or even mentoring entrepreneurs), investors can shape projects to better meet their criteria. This proactive stance ultimately creates more investable opportunities.
2. **Develop Blended Finance Products:** Investors, particularly local financial institutions and DFIs, should collaborate to design financial

products that blend different sources of capital. A practical step is establishing a Climate Finance Facility or dedicated credit line where concessional funds (from DFIs or green funds) are combined with bank funds to offer loans at lower interest or longer tenors for climate projects. There is an appetite among private sector financiers for such facilities. Additionally, we recommend establishing a credit guarantee scheme specifically for climate-compatible SMEs, possibly expanding the existing Zambia Credit Guarantee Scheme's focus. This can encourage local banks to lend to new sectors by mitigating risk.

3. Tailor Investment Criteria for Early-Stage Projects: Recognise that climate projects, particularly at SME level, might need some flexibility in evaluation. Early-stage investments were identified in this initiative as the most significant current challenge. Investors could adjust their ticket size minimums or aggregate deals. For instance, impact investors could pool a set of smaller projects into a single investment vehicle (eg an early-stage fund) to overcome the issue of each deal being too small. Institutional investors like pension funds could explore investing in pooled green bond issuances or funds that aggregate projects, rather than individual small projects. By being open to innovative fund structures, investors can participate in climate finance even if individual project sizes are below their usual threshold.

4. Increase Transparency of Requirements: A main bankability barrier identified in this initiative is entrepreneurs not knowing what investors' criteria are for investment. Investors can address this by publishing clear term sheets, investment criteria, and even examples of past successful proposals (or through sharing such information in tailored accelerators or incubators).

- 5. Capacity Building for Investment Teams:** It is recommended that local investment teams (banks' credit officers, fund analysts) receive training in climate sectors to familiarise themselves with technologies, policy frameworks, and new business models (such as reverse logistic models in the circular economy).
- 6. Collaboration Among Investors:** Form an Investor Network for Climate-Compatible Growth in Zambia, where investors share pipeline information, co-investment opportunities, and advocate for policy improvements. A unified voice can better lobby for things like currency hedging facilities or regulatory tweaks that make investments safer.

By adopting these measures, investors not only fill their pipelines with viable projects (growing their future business) but also play a pivotal role in fostering Zambia's climate-compatible market. **Essentially, the recommendation is for investors to move from a passive, conservative stance to a more engaged, innovative, and partnership-oriented approach in the Zambian context.**

8.2 Recommendations for Policymakers

Policymakers including national government ministries, regulatory authorities, and legislators set the enabling environment that can either unlock or constrain climate finance. Based on these research findings, policymakers in Zambia could consider adopting the following actions:

- 1. Streamline Regulatory Processes:** Simplify and expedite approval processes for climate-compatible projects. This could involve establishing a one-stop shop for climate project licensing that brings together environmental, critical minerals, and other permits in a coordinated way, perhaps under the Ministry of Green Economy and Environment as a

facilitative office. This would set clear timelines and service standards to increase investor confidence, and the digitisation of application processes and use of online tracking can increase transparency and reduce delays.

2. Periodic Assessment of Existing Incentives:

Enact periodic assessments of incentives to identify gaps and address bottle necks hindering the full utilisation of the benefits of the incentives.

3. Policy Consistency and Communication:

Ensure that major policies affecting climate sectors remain stable and, if changes are needed, handle them consultatively. Create a roadmap and update and publish an action plan with roles for stakeholders.

4. Sector-specific Reforms:

Empowerment of chiefs to issue bank recognised collateral certificates or accelerate customary to title land conversions, helping land use enterprises; incentivise EVs through reduced taxes and privileges; enforce quality standards for renewable energy products; close regulatory gaps on the 5 MW threshold; and redirect agriculture support toward climate-smart practices.

5. Support Capacity Building and Innovation:

Dedicate funds or work with donors for capacity-building programmes geared toward climate entrepreneurship.

6. Enhance Coordination among Existing Committees/Platforms:

Support the already existing inter-ministerial committee/platforms on climate finance among government ministries to ensure climate-compatible initiatives across ministries are well coordinated so that projects get holistic support. This could occur via transparent timelines for outcomes from these platforms, placing a focus on delivery.

7. Monitor and Evaluate:

Establish a robust M&E framework for climate finance mobilisation, by tracking government spending and private investment.

8. Develop Sectoral Support Plans:

There is a policy opportunity to develop plans to support the growth of specific climate sectors, such as transport, land use, and critical minerals. Zambia's Integrated Resource Plan (2024) already charts a development trajectory for the energy sector, but lacks a focus on delivery, financing and policy support. Such plans could include many of the above recommendations.

By implementing these recommendations, policymakers will create an enabling policy environment that significantly lowers barriers and transaction costs for climate projects, making Zambia a more attractive destination for green investment.

8.3 Recommendations for Entrepreneurs/Project Developers

1. **Invest in Knowledge and Skills:** Proactively seek out training opportunities to build expertise in areas like proposal writing, business planning, financial modelling, go-to-market strategies, and sector-specific technical knowledge.
2. **Project Piloting:** To validate ideas technically and commercially, project developers should begin with small-scale pilots or proofs of concept that generate data and establish a track record of success. This, in turn, will ensure that business models are refined and more appealing to investors.
3. **Strengthen Project Financial Structuring:** Project developers should ensure that projects are structured in a manner attractive to investment. This includes using financial models that meet national and international

standards, demonstrate market traction and access, and do not include over ambitious assumptions.

4. **Develop a Clear Exit/Repayment Plan:**

It is important that the business models are designed with the investor's exit or loan repayment in mind, and this requires demonstrating clear revenue generating opportunities and paths to enterprise growth

5. **Embrace Partnerships:** Project developers should seek partnerships with external organisation to complement strengths and to help mitigate weaknesses.

6. **Focus on Risk Mitigation:** The risk management of business plans should be prioritised to gain investor trust.

7. **Engage Stakeholders and End-Users:** It is vital to support key stakeholders directly linked to the product or project. This could be the local community, customers, or relevant authorities.

8. **Leverage Available Resources:** There are numerous support resources, often free or subsidised, for climate and development projects. Project developers must take advantage of these and look for calls on proposals. This may involve reaching out to technical experts, other entrepreneurs, and academics working in relevant areas.

9. **Maintain Good Governance and Compliance:**

This involves forming boards (executive and advisory), hiring of competent personnel, acquiring all necessary certificates and permits, maintaining accurate financial records, and complying with taxes, labour laws, and environmental regulations.

10. **Proactively Engage Investors:** It is never too early to build your awareness of the investor

landscape. Choosing the right investor type for your businesses and building a landscape of network contacts is crucial to eventually securing investment. Proactively reach out to enquire about their common terms and any support programmes they offer. Search for enterprises who have secured investment from your target investors and ask their experience of the process.

8.4 Recommendations for Future Research

1. **Growth stage climate entrepreneurs:** This initiative has focused upon a broad variety of early-stage start-ups and project sizes. This has allowed an effective landscaping of the market, but the needs and opportunities facing different venture stages differ greatly. There is also a growth-stage financing gap in Zambia, and this deserves additional focus – including regarding specific challenges such as market access and production scale-up.
2. **Finance Facility Design:** We have recommended the scaling of early venture finance for climate entrepreneurs. How such schemes are designed – for example through multi-stage blended finance facilities – deserves future research which could draw on case studies from elsewhere and adapt best practices to the Zambian context. Findings from existing impact investor surveying from, for example, Prospero [29] could be useful to informing design.
3. **Comparison with successful African start-up ecosystems:** Significant venture capital funding has been deployed in Kenya and South Africa in the past few years – countries with close ties to Zambia and some overlapping challenges. Comparative studies to assess the conditions that allowed this would be welcome: for example, what policies contributed, and what challenges remain

that Zambia could look to avoid in its growth path? Lessons from successful sectors such as energy [30] may be particularly useful for Zambia's context.

4. **Resource-optimised support for remote entrepreneurs:** The approach adopted in this initiative has been necessarily centralised and in-person, with a focus on those able to travel to workshops in Lusaka. Work could be done

to understand the best routes for engaging climate entrepreneurs across Zambia: who may have access to an internet connection but a limited ability to travel. The optimal design of resources to help such entrepreneurs is an open question that further research could address. Often information-dense resources (such as this report) are theoretically available to such entrepreneurs, but barriers exist to accessing and understanding the information presented.

9. Conclusions

The **'Building Pipelines of Bankable Climate-Compatible Growth Projects in Zambia'** initiative has illuminated both the challenges and an achievable pathway for mobilising climate finance toward entrepreneurs in Zambia. Through an integrated approach of literature review, stakeholder engagement, and practical project development, we found that while barriers are real, they are surmountable with coordinated action and innovation.

KEY CONCLUSIONS:

The gap between investors and entrepreneurs can be narrowed by improving project bankability through capacity building to inform realistic business and financial planning, and by adjusting investor approaches (through active engagement and leveraging new financing approaches). The 'Building Bankable Pipelines' initiative has demonstrated how perceptions of bankability between entrepreneurs and investors can be narrowed through a structured workshop process, with several projects receiving support having tangibly improved understanding of investor expectations for proposal standards. This appears to suggest that a pipeline development process proves effective in a Zambian context and may be a strategic intervention to improve access to financing for climate ventures across Africa.

No single stakeholder can solve the climate finance challenge alone. The project underscored the necessity of an **iterative systems approach** – aligning policy reforms, financial innovation, and capacity building. Gains in one area (eg a new tax incentive) will not have full effect unless complemented by action in others (eg entrepreneurs are made aware and are trained to use that incentive, or banks are willing to lend into that space). This calls for sustained multi-stakeholder collaboration beyond this initiative's timeframe.

Zambia has considerable opportunities in **energy, transport, land use, critical minerals, and the circular economy** that align with global trends (eg demand for battery minerals, interest in sustainable agriculture) and local needs (jobs, resilience). If properly harnessed, these sectors can attract billions in investment. The potential to not only meet but exceed Zambia's USD 12.8 billion climate finance target by 2030 is there, provided the pipeline of projects is continuously refilled and refined.

The work done for this initiative can serve as a catalyst. It has generated **initial success stories**, as highlighted by the case studies in Chapter 6; built a nascent network of informed stakeholders; and identified some specific

barriers (lack of accelerators) and opportunities (policy to support fast growing climate-compatible sectors) in the Zambian context. The momentum should not be lost. Instead, it should feed into institutional structures.

The project has also demonstrated there is **value in institutionalising the pipeline concept** – perhaps through a dedicated unit or programme jointly run by government and partners – to ensure continuity and scaling. Over 100 unique participants were willing to dedicate their time to this process, each from valuable investors, government departments, or climate SMEs. This model has involved deep research as well as traditional capacity building, and the information that this has revealed about barriers to scaling climate enterprises and opportunities to overcome those barriers has proven to be a crucial part of the process, yielding rich insights that are useful for many organisation types in changing their practice. This is demonstrated best through the **recommendations** section.

Many **climate-compatible projects deliver** co-benefits like job creation, health improvements

(clean cooking to reduce indoor pollution), and ecosystem conservation. Our findings show these co-benefits often galvanise stakeholder support and can sometimes be monetised (jobs leading to political support, ecosystem services leading to carbon credits). Hence, framing projects in terms of multiple benefits – not just carbon or profit – is essential for building broad coalitions that support them (eg community, government, donors, investors).

A thread through our workshops was the emphasis on **inclusivity**, whether gender, youth, or local communities. Projects that are inclusive tend to have more resilience and support. Conversely, lack of inclusion (eg women excluded from entrepreneurship or communities not consulted) can be a barrier to a successful project. Therefore, ensuring women and youth are empowered in this pipeline is both a moral and strategic imperative. Our final pitch cohort in workshop 4 achieved gender balance in both participants and investor judges, setting a benchmark that should be maintained through similar schemes.

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Definitions

Term	Description
Bankable Project	A project structured and documented clearly enough to attract financing from investors, demonstrating financial viability, clear revenue streams, risk mitigation, and alignment with investor expectations.
Blended Finance	A financing approach that combines concessional (below-market rate) capital from public or philanthropic sources with private investment, aiming to reduce risk and attract private capital to climate-compatible projects.
Circular Economy	An economic model focused on eliminating waste and continuously using resources through recycling, reusing, and regenerating materials, creating a closed-loop system that reduces environmental impacts.
Climate-Compatible Project	A project that aligns with national and international climate goals by contributing to greenhouse gas mitigation, adaptation to climate impacts, and sustainable development, while meeting investor and regulatory expectations.
Critical Minerals	Minerals essential to the economy and particularly the transition to renewable energy technologies, including copper, cobalt, lithium, and rare earth elements.
De-risking Mechanisms	Financial or policy-based interventions designed to reduce or offset the perceived or actual risks of investing in climate-compatible projects.
E-mobility	The adoption and integration of electric vehicles (EVs), including cars, buses, bicycles, and scooters, into transportation systems as a sustainable alternative to fossil-fuel-based transport.
Environmental, Social, and Governance (ESG)	Criteria used by investors to screen potential investments based on their environmental impacts, social responsibility, and governance practices, essential for climate-compatible investment projects.
Green Bonds	Financial instruments specifically earmarked to raise money for climate and environmental projects, typically linked to renewable energy, energy efficiency, or sustainable land use.
Green Taxonomy	A classification system that defines what economic activities can be considered environmentally sustainable, helping guide investments and policies toward green objectives.
Investment-Ready Projects	Projects that have undergone technical, legal, financial, and ESG preparation to a degree that they meet investor requirements for funding consideration.
Land Use	The management and modification of natural environments or wilderness into built environments such as fields, pastures, and settlements, with implications for agriculture, forestry, conservation, and carbon sequestration.
Nationally Determined Contribution (NDC)	Commitments made by countries under the Paris Agreement to reduce national emissions and adapt to climate impacts, outlining specific targets and financial requirements.
Stakeholder Engagement	A process of involving all relevant parties such as investors, policymakers, communities, and entrepreneurs in project development and decision-making.
Theory of Change	A strategic planning framework that outlines how and why a desired change is expected to happen in a particular context, often used to guide project design and evaluation.

Abbreviations

AI	Artificial intelligence
BGFA	Beyond the Grid Fund for Africa
BSF	Black soldier flies
C&I	Commercial and industrial
CBNRM	Community-based natural resource management
CCG	Climate Compatible Growth
DFI	Development finance institution
ERB	Energy Regulation Board
ESG	Environmental, Social, and Governance
ESCO	Energy service company
EV	Electric vehicles
GCF	Green Climate Fund
GHG	Greenhouse gas
GRI	Global Reporting Initiative
IoT	Internet of Things
IPO	Initial Public Offering
IPP	Independent power producers
IRR	Internal rate of return
M&E	Monitoring and Evaluation
MGEE	Ministry of Green Economy and Environment
MRV	Measurement, reporting, verification
NAP	National Adaptation Plan
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NGO	Non-governmental organisation
OGTF	Off-Grid Energy Task Force
PAYG	Pay-as-you-go
PPA	Power purchase agreements
PPP	Public-private partnerships
PV	Photovoltaic
RBF	Results-Based Financing
REA	Rural Electrification Authority
REFIT	Renewable Energy Feed-in Tariff
ROI	Return on investment
SASB	Sustainability Accounting Standards Board
SIAZ	Solar Industry Association of Zambia
SME	Small and medium-sized enterprises
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollars
VAT	Value-added tax
WWF	World Wide Fund for Nature
ZACCI	Zambia Chamber of Commerce and Industry
ZANACO	Zambia National Commercial Bank
ZARENA	Zambia Renewable Energy Association
ZEMA	Zambia Environmental Management Agency
ZICB	Zambia Industrial Commercial Bank



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