Climate Adaptation Innovation and Learning

Led By: UNIDO

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Designing for Fit at the Intermediary Level

Policy and Insight Brief on Adaptation SME Support

Accompanying the white paper "Growing Businesses for Climate Adaptation in Emerging Markets Guidance for Entrepreneurship Support Ecosystems"

November 2026

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Introduction

Adaptation finance remains critically undersupplied, and the private sector's role in closing this gap is real but bounded. Tracked private adaptation finance flows are low, but where investment does reach the market, returns are strong. For this to become possible at scale, entrepreneurship support ecosystems, financial instruments and the small and medium-sized enterprises (SMEs) at their center must translate that promise into investable, scalable ventures on the ground. However, Adaptation and Resilience (A&R) is inherently highly context-specific, and developing the enabling conditions that SMEs need to scale their businesses means considering both this context-specificity, as well as the added context-specific layer of the barriers and constraints that shape SME journeys at various stages.

This policy brief is targeted towards agencies that act as program builders and incentive-creators for Entrepreneurship Support Organizations (ESOs) (referred to henceforth as 'program builders') – such as GEF implementing agencies – as well as ESOs themselves at local, national and regional scales in LDCs, SIDS and Emerging Markets. It builds on a global Community of Practice (CoP) on MSME Incubation and Acceleration, convened by Climate KIC since 2024 under the Climate Adaptation Innovation and Learning (CAIL) project, and outlines priority activities for innovation ecosystem design, incentive-structuring and impact generation, which truly meet the needs of local communities, SMEs and markets. CAIL is financed by the Global Environment Facility (GEF) and implemented by UNIDO, in partnership with Climate KIC, GARI and UNEP FI.

3

Years of Practice

Between 2024-2026

18

Sessions

9 Sessions,
2 in Person Meetings,
7 Virtual Meetings

526

Participants Across Africa, Asia and Latin America

18

Extended Interviews

Intermediaries Are Ecosystem Architects, Not Service Providers

Intermediaries and Program Builders can play several roles orchestrating the function of innovation ecosystems – shaper, architect, conductor, facilitator, mediator, leader (Stahl et al., 2024). In climate contexts, these extend into knowledge brokerage, process facilitation and change agency (Schmid et al., n.d.). Adaptive capacity materialises at ecosystem-level, and emerges from the interaction of supporting institutions, not at the level of firms alone (Asha et al., n.d.; Huber et al., n.d.). Therefore, intermediaries are a crucial point of leverage, and play valuable roles of bridging, translation and pipeline-building that the ecosystem depends on.

However, the majority of this work is structurally underfunded. Intermediaries translate between funder logic and grassroots reality, and neither side pays for the translation directly. The work it involves — pipeline building, results verification, follow-on support past the pilot, coordination between organizations with overlapping cohorts — goes under-resourced (Climate KIC, 2025).

A functioning ecosystem must combine venture support with climate knowledge, suitable finance, real-world testing, customers, procurement, enabling institutions and locally rooted intermediaries. The emerging direction of current initiatives is therefore moving from isolated incubation and acceleration towards more systemic support (see Figure 1 for an indicative list of possible Entrepreneurship Support (ES) program types and activities).

However, there appears to be a tendency to structure A&R innovation programs and cohorts such that they cater to the expectations and regulatory requirements of donors and financiers, leading to a lack of engagement with the constraints and barriers faced by SMEs in LDCs and SIDS.

This pattern results in certain system-level tendencies that articulate themselves in various ways, and shape the activities of all the stakeholders in the system, down to the lowest level occupied by the SMEs who are the recipients of funds. The recommendations in this brief consider the system as a whole, and are oriented towards design priorities across various levels of activity.

Spectrum of Adaptation & Resilience Entrepreneurship Support Programs

An overview of program types ranging from early-stage venture formation to market creation, resilience support and ecosystem development.

	Program type	Primary purpose
1.	**Adaptation awareness and ideation**	Identify climate problems and generate business ideas
2.	**Pre-incubation and venture formation**	Turn ideas or informal activities into structured enterprises
3.	**Adaptation-focused incubation**	Develop and test early-stage adaptation solutions
4.	**Cohort-based acceleration**	Prepare established ventures for growth and investment
5.	**Sector-specific or value-chain support**	Address adaptation challenges within a particular economic system or value chain
6.	**Place-based innovation clusters**	Build innovation around the climate risks and needs of a specific geography
7.	**Market access and demand creation**	Create customers, procurement pathways and deployment opportunities
8.	**Finance-linked acceleration**	Connect enterprise development directly with suitable forms of capital
9.	**Technology validation and demonstration**	Prove solution performance under real climate and market conditions
10.	**SME business-resilience support**	Increase the resilience of ordinary SMEs to climate shocks and stresses
11.	**Inclusive and community-enterprise support**	Reach entrepreneurs and enterprise forms excluded from conventional accelerators
12.	**Ecosystem-intermediary development**	Strengthen the organizations and institutions that support adaptation entrepreneurs

The program types are not mutually exclusive: integrated A&R entrepeneurship support initiatives may combine several of these functions.

Figure 1
Indicative List of A&R ES and TA Program Types; Types are not Mutually Exclusive

Fragmentation and Top-Down Logic Shape the Systemic Landscape

Broadly, innovation accelerator programs, cohorts and wider entrepreneurship support ecosystems remain shaped by a top-down, donor-driven logic, articulated through various structural patterns and biases. Donor-set KPIs reward visible, already-fundable entrepreneurs over building a wider pipeline, and produces a dynamic where fragmentation and requirement-pressures combine to iteratively fund the same investment-ready SMEs, a pattern referred to as the grantpreneur dynamic. Similarly, financial instruments and programs often do not incentivise and drive linkages to local value-chains or correspond to the needs of local markets. Further, structural biases in funding practices result in the prioritisation of what is legible to a funder, not what a given enterprise, in its own context, actually needs (see also: REAP, 2026).

This means that local pipeline development in general is neglected. Meanwhile, the format of conventional accelerator programs tend to consume the time of the founders they are supporting, potentially leading founders to misallocate their own scarce time away from priority activities. In contrast, positive outcomes from participation in accelerator programs were linked not to the size of investment, but alignment of priorities between funders and SMEs, and structuring activities around the goals of the SMEs.

In this brief, we advocate for an SME-led approach to ecosystem and program design, which starts from understanding the goals and contexts of SMEs, local markets, and climate risk profiles, and identify some of the enabling conditions that allow SMEs to scale in such contexts.

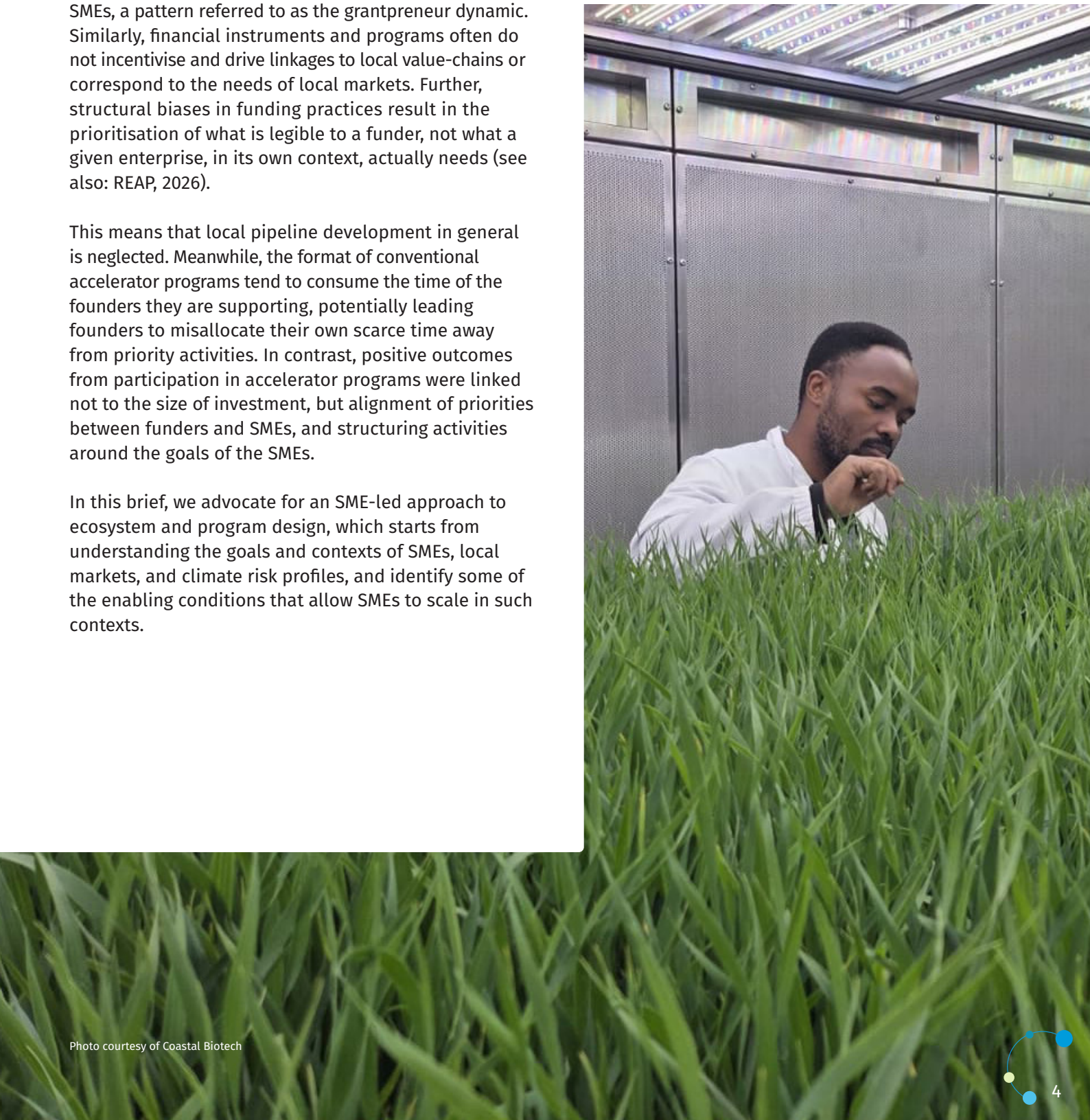

Photo courtesy of Coastal Biotech

Recommendations



Toward SMEs: Design From the Enterprise, Not the Mandate

This section details priority activities for intermediaries and Program Builders to implement in terms of how they approach engaging with SMEs, and how that approach is integrated into program design. Throughout, we look at SMEs not as a homogenous collective, but through a type- and stage-of-growth-led lens which helps both to identify the needs and understand the priorities of the SMEs themselves (Annexure 1). The activities are as follows.

Diagnose Before Designing, and Start From Where the SME Is Trying to Go

Enterprises grouped as "adaptation SMEs" span very different types — high-growth ventures, niche technology providers, dynamic livelihood-oriented businesses, and livelihood-sustaining enterprises (Hornberger et al., 2023). Their support needs differ more by type and stage than by sector. One ESO in the Amazon, working with indigenous communities on regenerative native-crop value chains, surfaced 22 distinct needs across its cohort through a business-health diagnostic before writing a curriculum. A key implication here is that program design must fit into, and build, the overall pipeline of ES across stages of growth. This could involve engaging the financial community and co-designing financial vehicles for individual SMEs right at the outset of programs, and enabling SMEs to envisage long-term goals, targets, and preparing business development and scaling strategies in line with their goals. It is further important to integrate an active facilitation of alignment between SME goals and funder priorities, in a way which meaningfully contributes to local impact generation. The primary element here is the long-term financial viability of the SME and the co-design and engagement of financial instruments at early stages of activity.

Design for Readiness to Absorb Capital, Not General Capacity

The binding constraint on adaptation SMEs is not a shortage of ideas but the ability to absorb capital responsibly. SMEs require customised conventional ES to work towards commercial viability. The needs of early-stage SMEs are dominated by business fundamentals — financial management, marketing, operations — rather than climate- specific content. The initial TA and BDS provided is typically not A&R-specific. However, SMEs also require support translating complex, location-specific climate risks into viable products, demonstrable adaptation outcomes, investable business models, and demand from customers who may have limited ability to pay. A strong support package should combine these different elements. Programs should target the specifics, building a layer of general business capability based on needs — financial planning against confirmed orders, governance structure, cash-flow discipline — alongside A&R specific TA. An early adaptation SME needs working capital at the right size and on the right timeline.

Narrow the Thesis.

This is based on a crucial orienting consideration for program design: whether A&R should be the organising category at all, or whether structuring it that way is more a function of donor-heavy funding logic wanting A&R as a broad thematic fundable category rather than a tightly scoped, single-hazard thesis. Broad A&R mandates produce portfolios in which enterprises have little in common with one another, and in which technical assistance is generic. Single-hazard or single-value-chain framings — around extreme heat, water sanitation, or a specific commodity chain — have the potential to contribute meaningfully to specific challenges at the level of SMEs, value chains, markets and communities.

Distinguish the Enterprise as a Solution Provider From the Enterprise as an Exposed Actor

A business offering a resilience solution can itself be highly vulnerable to the shocks it works on. Support has to address both. Support could therefore include (a) assessment of physical risks to premises and employees; (b) resilient sourcing and supplier diversification; (c) water, energy, and data backups; (d) business-continuity planning; (e) appropriate insurance; (f) workforce heat and health protection; or similar support services. This necessarily requires a deep familiarity

with the local context and climate risk profile on the part of the support-providers. The same distinction applies at the level above: an ESO working on climate adaptation in a climate-vulnerable country is itself exposed to the shocks it operates in, and its funding relationships need to be designed to survive them.

Set Timelines to the Technology and Season, Not the Calendar

Adaptation pilots differ in what they need to prove. Some require a full agricultural cycle, others two or three, and different geographies bring different weather envelopes. A&R impact, by nature, becomes apparent at longer time-scales, and so, pilot programs need to be part of longer-term, patient approaches to impact generation that works and co-designs with SMEs.

Design Deliberate Follow-On Support After the Pilot

In line with the previous recommendation, adaptation SMEs require long-term, patient structuring of support to match the time-scales of A&R impact. While programs themselves may operate on more definite time-scales, and themselves operate within their own constraints, it is important for them to be designed with this foundation in mind, and play into the larger journey and support needs of SMEs. In this regard, the most consistent request from SMEs completing a first round of support is for growth-readiness and market-development support, following on from the program. Programs should build the transition, provide follow-on support and link into broader ecosystems once the pilot ends.

Aggregate Enterprises Where the Supply Base is Common. Source Support Providers Locally

In the case of adaptation SMEs working in agriculture and adjacent sectors, a disproportionate amount of SME resources often goes toward managing relationships with smallholder farmers, known as outgrower schemes. This is a laborious process, requiring daily engagement to sustain customer-relations. In this context, grouping enterprises for shared financial and customer-service training strengthened all of them, and made subsequent capital deployment more efficient. This was supported by formalizing and strengthening existing collectives through training outgrowers, building capacity, and in some cases supporting a transition toward organic certification for premium prices. Shared TA facilities, locally rooted partners and delivery, and strong landscape understanding outperform bespoke, headquarters-run alternatives.



Photo courtesy of Acres of Ice

Toward Research and Knowledge: Fund the Infrastructure Adaptation Depends On

Adaptation is knowledge-intensive in ways adaptation programs routinely underinvest in. Localized climate data, laboratory access, technical stress-testing, field validation and independent verification of results are important factors in developing locally-rooted adaptation SMEs, but are often neglected considerations. In the absence of these services, founders with personal networks to such facilities, often based in the Global North, succeed; others do not. This section outlines priority activities to strengthen rigorous correspondence with A&R research, knowledge and conceptual foundations, both with regard to SMEs as well as within ESOs and Program Builders themselves.

Build Structured Pathways to R&D for A&R

A coastal biotechnology venture developing salt-tolerant crop material and a Himalayan venture prototyping artificial ice reservoirs both reached universities, laboratories and field trials through their founders' own academic contacts. Data partnerships, technical advisory panels, linkages to academic or research institutions and laboratory facilities integrated within program design, and more generally, as a feature at the inter-mediary level, closes this gap. The same principle applies one level up: a large West African climate-smart agriculture initiative seated four regional research organizations on its expert panel from inception.

Independently Fund and Train Enabling Conditions and Local Verification Capacity

In a South Asian Blended finance facility, funding is disbursed against independently verified figures, checked by a local verifier identified and trained early in the program focused closely on value-add to local stakeholders. This is a capacity that does not yet exist at the same depth in many comparable markets, partly because funders are often more willing to pay for technical assistance and concessional capital than for the verification services that let that funding be trusted. This verification infrastructure is combined with local sector and market knowledge on how a specific business model would hold up against a specific climate stressor: for example, how an agri-tech company serving flood-prone riverine communities would maintain service delivery through a flood event. This is the difference that produces defensible investment-committee decisions.

Build Conceptual A&R Rigour Into the Intermediary Itself

Difficulty distinguishing between hazard, exposure and vulnerability reduction was consistently reported in the research phase (see Annexure 2). This lack of conceptual clarity results in the conflation of activities which: (a) improve the resilience of a particular business model; (b) reduce the vulnerability of a given population through improvements in livelihoods and real-wages; (c) reduction of exposure to climate risks in a given geography, which in turn results in a range of SMEs who do not belong in the same category being grouped together in the same programs. Further, maladaptation – define as actions intended to reduce climate vulnerability that inadvertently increase it, for the target population or others – was notably neglected as a design variable. At the Implementing Agency level, this argues for adaptation-technical capacity that goes beyond safeguards and screening into the design of the programs themselves.

Toward Financial Architecture: Design Capital, and Organizational Structure, as Variables

A conducive environment for private-sector adaptation investment requires international agencies supporting government adaptation planning, demonstrating commercial viability through risk-sharing, and fostering viable local business models rather than applying standard templates. This section highlights the strategic priorities, enabling conditions, and regulatory frameworks that shape how actors implement financial instruments and evaluate their results. A structural bias catering to funders' expectations and priorities produces mismatches between local SMEs, contexts and climate risk profiles. Further, a structural, top-down approach to program design ends up elevating certain entrepreneurs and solutions that may not reflect the diversity of activities or needs of local communities in a given region.
The recommendations below outline successful, locally-grounded models for implementing blended finance instruments, as well as focusing on institutional structures which facilitate community ownership and relationship-building.

Design the Financial Vehicle Alongside the Technical Support

Programs that engage finance providers only at a demo day, once the cohort has been shaped by the ESO alone, find that in most cases the deal does not flow. Engaging the financial community early — designing the financial vehicle in parallel with the technical assistance, months before the conclusion — produces better outcomes. A key implication is that program design must fit into, and build, the overall pipeline of ES across stages of growth..

Tailor Financial Vehicles to the Needs of SMEs

The capacities of the teams structuring and implementing financial instruments are as important as the instruments themselves, since on-the-ground conditions repeatedly diverged from design assumptions, requiring disbursement timing and repayment schedules to be adjusted mid-implementation — requiring teams to possess the competencies and processes to reassess and redesign instruments midway through implementation. Effective implementation of blended finance instruments further requires calibrating the instrument itself to both the SME itself and the impact to be generated. One blended finance facility blends patient concessional capital with private capital in a ratio calibrated to how close a given company was to commercial viability on its own, further layering grant funding to cover tool development, a growing pool of guarantees, concessional capital, and private capital priced to the underlying risk.

Unlock Scale Through Building Value-Chains

Enabling conditions are particularly important to develop, and extend from development program design considerations – including matchmaking platforms, payment guarantee schemes and collective marketing strategies – to developing strong industry bodies and trade associations to enable collective bargaining. In other words, the entire enabling ecosystem needs to be strengthened to unlock scaling pathways for SMEs. Strong value-chains are also built on resilient business models. One ESO working in the Amazon worked with indigenous community-led SMEs to build a pipeline for native crops, based on regenerative agriculture methods. Their activities ranged from tailored TA to developing markets for new products, building international supply chains including incubating aggregators to supply internationally, and engaging with local governance and land management authorities. While it may not feasible for this to be a general requirement for Program Builders and Intermediaries, it is important for them to approach such ecosystem-building as building partnerships with local communities and not merely as investors or funders, and integrating metrics which include the facilitation of local ownership, relations and overall community resilience.

Impact Frameworks Should Enable Adaptation SMEs to Articulate Their Own Impact

Adaptation SMEs often struggle to express their impact in a way that investors and donors expect. Support focus may help SMEs develop (a) a clear adaptation theory of change; (b) a baseline of customer vulnerability; (c) indicators related to resilience and adaptive capacity; (d) measures of avoided losses or service continuity; (e) beneficiary-level and distributional indicators; (f) systems for monitoring unintended effects and maladaptation. Further, adaptation impact frameworks typically under-represent equity, gender and procedural dimensions in favour of short-term, easily quantified outcomes — gaps include intra-household differentiation, cultural and indigenous dimensions, community-centered metrics like trust and behavioural change, and procedural/recognitional equity. Intermediaries and Program Buidlers, therefore, play the role of not simply supporting outcomes frameworks adoption for SMEs, but to actively manage three distinct, often misaligned realities at once — investor expectations, SME operational and administrative capacity, and the national and regulatory landscape SMEs actually operate within — and to balance demands between them.

Systemic Bias Is Partly Reinforced Through Organizational Structure and Policies

Structural marginalisation through exclusionary financing criteria and accessibility challenges are well-recognised in the sector. This extends to shaping who gets funded in A&R investments. Founders educated in or headquartered in the global north had significantly more access to funding, networks and R&D services than founders based in the local context. Interviews also noted that investment data is highly biased toward hubs like Lagos and Nairobi, consistent with a founder-network effect where hubs with the thickest global-north-linked networks attract disproportionate capital, reinforcing their centrality for future funding rounds. In response, Program Builders could distribute their investment team across the countries they invest in. In the case of one impact fund supporting pilot programs for adaptation SMEs who follows this organizational model, their portfolio composition reflects that choice, which prefers founders rooted in the contexts in which their companies operate. Screening criteria alone will not resolve founder-profile bias. Where decisions are made, and by whom, will.

Photo courtesy of ALIADOS



Conclusion

This policy brief advocates for an approach to A&R technical assistance, entrepreneurship support and business development services that is built on a stage-of-growth- and type-led understanding of SMEs, and of what they need to scale, achieve financial viability, and contribute A&R solutions to local market realities. By drawing on evidence detailing how various actors navigate this reality in diverse contexts, it provides recommendations that aim to support the building of sustainable long-term partnerships with local communities, attract investment, and develop enabling conditions for program design, as well as indications for how such impact can be measured and built upon.

Evidence Base and Scope

This brief draws on the CAIL white paper “Growing Businesses for Climate Adaptation: Guidance for Entrepreneurship Support Ecosystems in Emerging Markets”, based on interviews, case studies, and discussions with SMEs, ESOs and other agencies that act as program builders and incentive-creators from 2024 to 2026. The evidence is illustrative rather than representative, and this brief, drawing on the evidence, aims to provide indicative recommendations to strengthen ecosystem and program design which need to be further stress-tested in real-world situations and adaptively managed.

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Annexures

Small and Growing Businesses (SGBS)

Commercially viable businesses with five to 250 employees that have significant potential and ambition for growth, and typically seek financing in the range of $20,000 to $2 million

Segmentation Variables*

Used to divide SGBs into groups facing similar financing needs:

- Market growth and scale potential
- Product or service innovation profile
- Entrepreneur behavioral attributes

High-Growth Ventures

- Disruptive business models and targeting large addressable markets
- High growth and scale potential, and are typically led by ambitious entrepreneurs with significant risk tolerance

Niche Ventures

- Create innovative products and services that target niche markets or customer segments
- Entrepreneurs who seek to grow, but often prioritize goals other than scale

Dynamic Enterprises

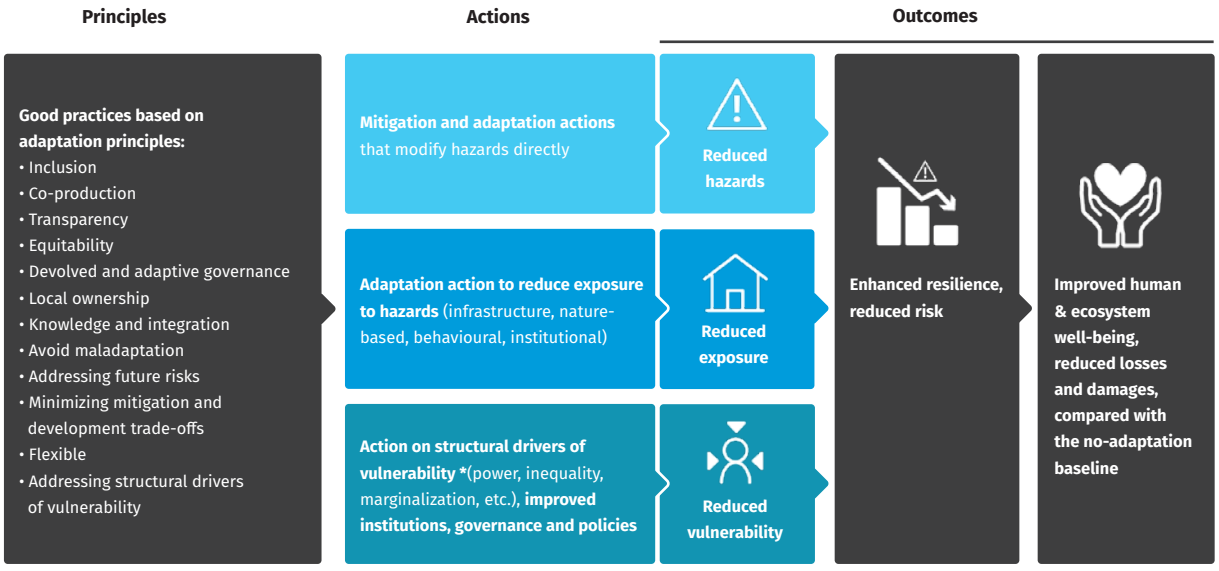
- Operate in established "bread and butter" industries – e.g., trading, manufacturing, retail, and services
- Deploy existing products / proven business models; seek to grow through market extension / incremental innovations
- Moderate growth and scale potential

Livelihood-Sustaining Enterprises

- Opportunity-driven, family-run businesses that are on the path to incremental growth
- May be formal or informal, and operate on a small scale to maintain a source of income for an individual family
- Replicative business models, serving highly local markets or value chains

** Variables identified, prioritized, and validated through stakeholder interviews with ~80 SGB-focused investors operating in frontier markets.*

Annexure 1
An architecture that relates adaptation actions and adaptation impact/ outcome and related conceptual terminology (source: UNEP 2022)



Annexure 2
An architecture that relates adaptation actions and adaptation impact/ outcome and related conceptual terminology (source: UNEP 2022)

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