FROM ADAPTATION NEEDS TO FINANCE THAT CAN SCALE

A modular framework for adaptation finance

From adaptation use cases to validated solutions and financing models that can scale

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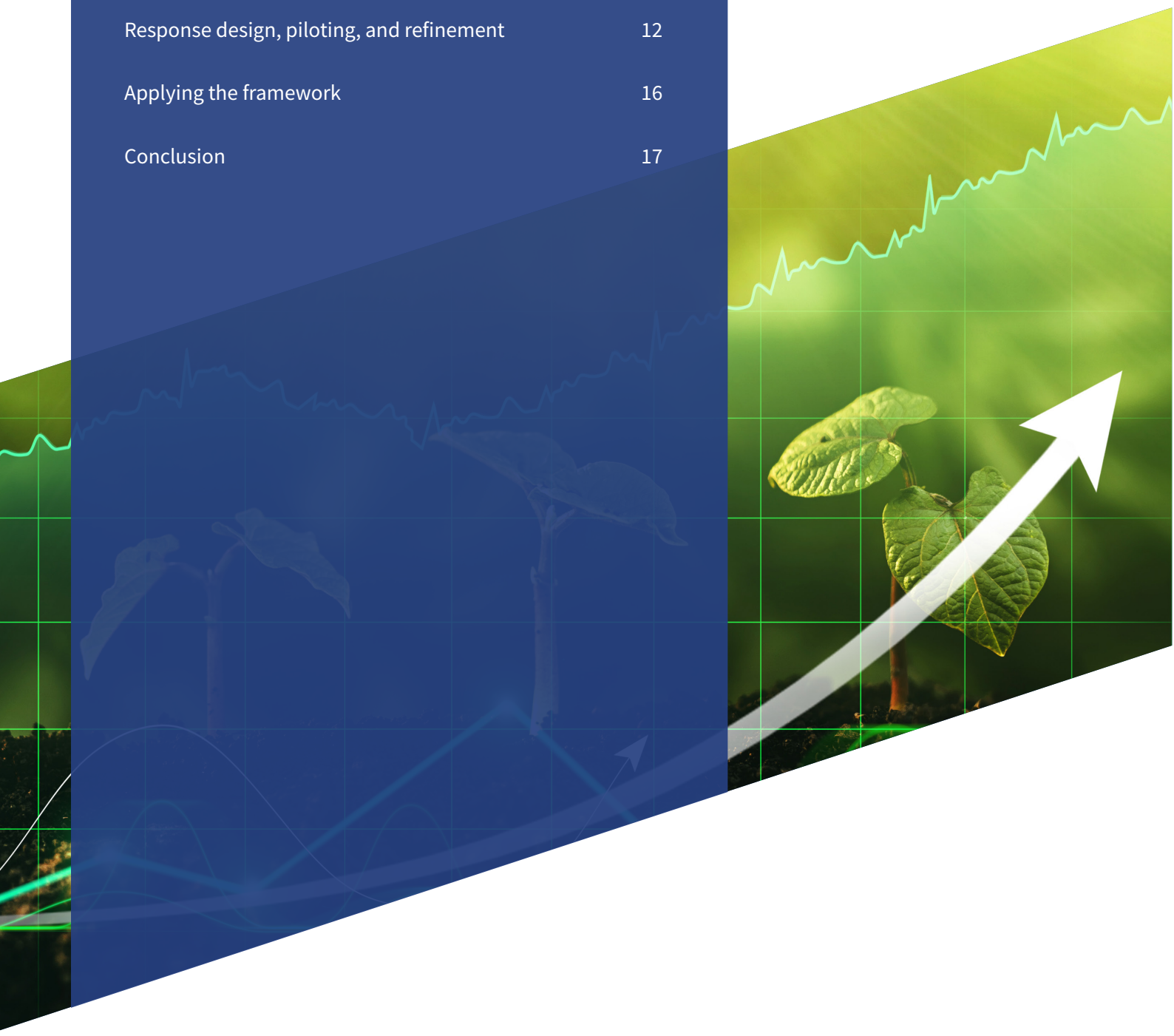
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Executive summary

The central proposition

The adaptation finance challenge involves both a capital shortage and weak deployment. Poorly defined use cases make even available funds difficult to deploy. Blended finance structures can also fail to attract private capital when they target the wrong constraint. This framework starts with the adaptation problem and works toward identifying financing and delivery models that partners can test in practice.

Why this framework

The adaptation finance debate rightly focuses on the funding gap. However, more capital does not automatically lead to viable deployment. Funders and financial institutions often lack context-specific proposals that clearly define users, benefits, economics, risks, and delivery pathways. The problem therefore combines a shortage of finance with limited investability and weak deployment.

Attracting private capital creates a second design challenge. Catalytic and blended finance help only when they address the constraint that prevents investment. A guarantee cannot repair weak economics. Cheaper debt cannot create offtake or overcome prohibitive delivery costs. Poorly targeted concessional capital can therefore subsidize the wrong problem without mobilizing sustainable private finance.

MSC's framework provides a clear route from adaptation needs to validated solutions and, where appropriate, scalable finance. It combines four modular components: a rapid opportunity scan; locally led adaptation diagnosis and prioritization; a business-case and financeability assessment; and, finally, response design and piloting to develop, test, and refine appropriate financing and delivery models. The framework may also show that grants, public investment, market development, policy action, or a decision not to proceed would work better than commercial finance.

From adaptation needs to finance that can scale

Four modular components: One integrated route from opportunity to financing.

1

Climate adaptation opportunity scan

Screen evidence and priorities to identify promising adaptation use cases, geographies, livelihoods, and value chains.

2

Local adaptation diagnosis and prioritization

Validate climate impacts and locally appropriate solutions. Define resource requirements and indicative delivery needs.

3

Business case and financeability diagnosis

Assess the economics, cash flow, risks, delivery model, and market ecosystem. Diagnose the binding constraint and decide whether intervention is warranted.

4

Response design and piloting

Develop a high-level financing and delivery proposition. Pilot and refine the approach, then decide whether to scale, redesign, or stop.

Outcome Locally appropriate adaptation responses supported by feasible financing and delivery pathways.

Select modules and tools based on the decision, evidence gaps, and available resources.

Figure 1. The four modular components of the MSC adaptation finance framework



How to use the framework

The framework uses a modular structure because assignments begin with different evidence and decisions. A broad country landscape may need an initial funnel. A locally led program may already know the geography and begin with local diagnosis. A fund with a mature pipeline may move directly to financeability analysis. The same principle applies within Module 2 – use only the tools needed to address material evidence gaps.

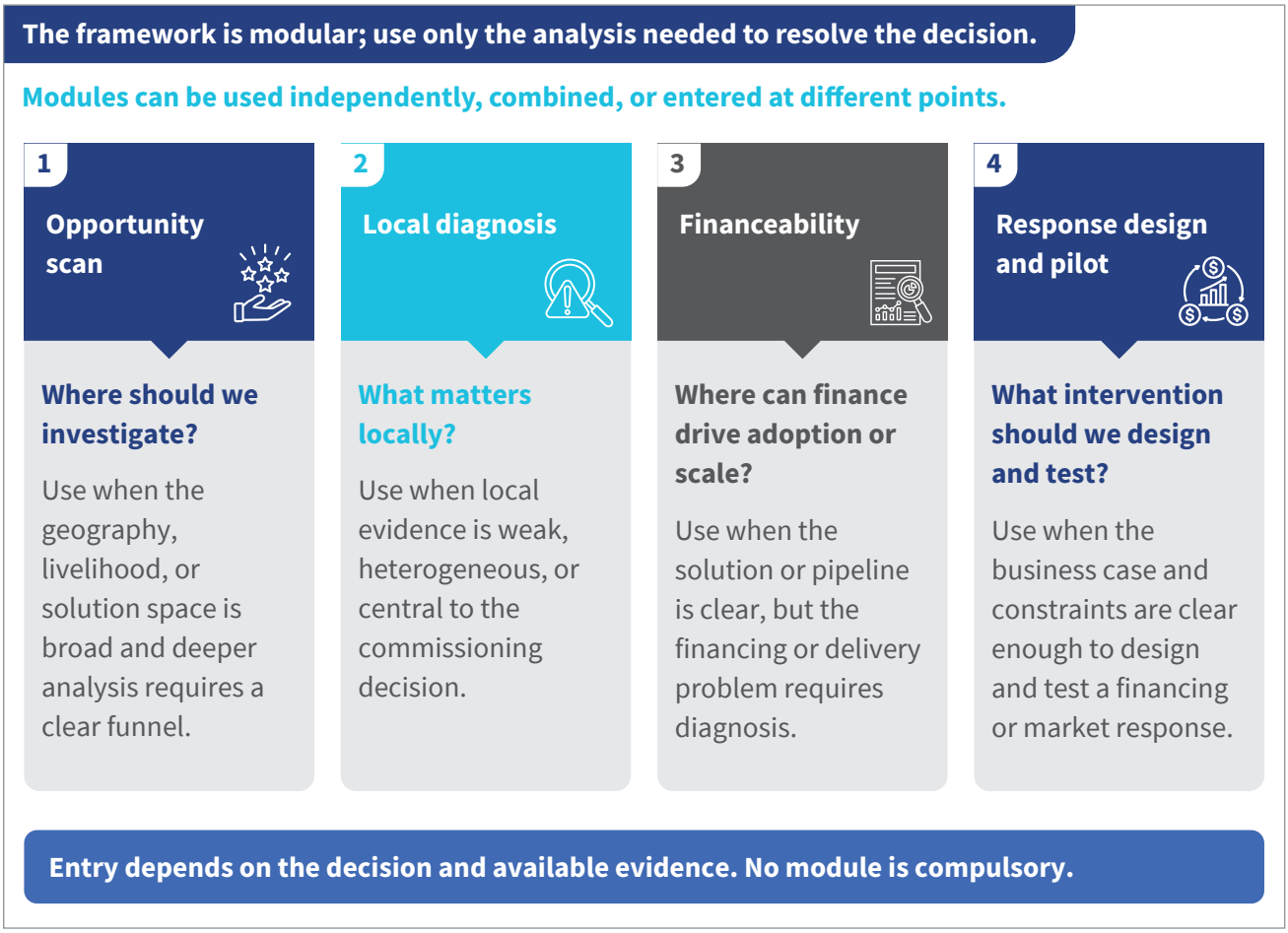


Figure 2. Teams can enter the framework at different points

Match the analytical depth to the decision

The depth of analysis should increase with uncertainty, heterogeneity, and the consequences of the decision. A light scan may rely mainly on secondary evidence and targeted interviews with key stakeholders. A financing facility that commits significant capital to varied enterprises should require stronger local validation and a more structured pilot.

Practical rule

Ask which uncertainty could change the adaptation response, financing design, or investment decision. Focus the research on that uncertainty. Do not repeat research if credible evidence already answers the question.

A direct route from Module 1 to Module 3 works where evidence already establishes local relevance, demand, and a plausible adaptation benefit. Module 2 can also operate without Module 1 where the target population or portfolio is already defined. Similarly, Module 4 may draw on an existing financeability assessment rather than requiring Module 3 to be repeated.

MODULE 1

Climate adaptation opportunity scan

Module 1 provides a rapid screen rather than a comprehensive market map. It defines provisional adaptation use cases that link a target population or livelihood, a material climate risk, and a plausible adaptation solution. It then identifies where one should investigate further.

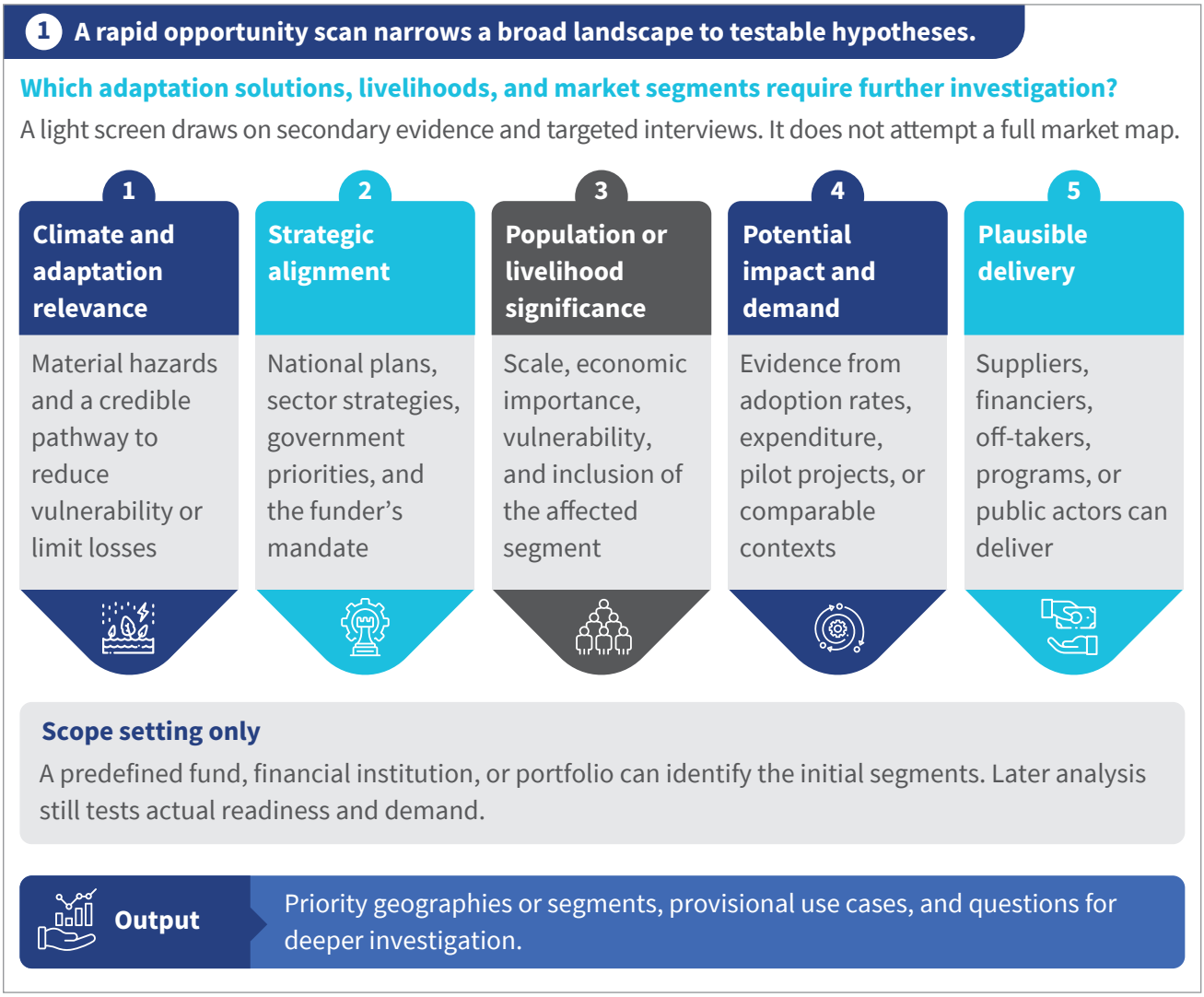


Figure 3. Five screening dimensions for rapid use-case identification

What the scan looks for

- **Climate and adaptation relevance:** Identify material climate hazards and a plausible pathway through which the solution could reduce vulnerability or losses.
- **Strategic alignment:** Test alignment with national adaptation plans, nationally determined contributions, sector strategies, government priorities, and the commissioning objective.

- **Population or livelihood significance:** Assess the scale, economic importance, vulnerability, and inclusion of the affected segment.
- **Potential impact and demand signals:** Review the literature, pilots, comparable contexts, observed adoption, coping expenditure, provider experience, and previous user research.
- **Plausible delivery:** Identify plausible actors, such as financial institutions, off-takers, programs, public actors, or other relevant providers, who could deliver the solution.

This step defines only the scope. If a fund, financial institution, or target portfolio is already predetermined, that mandate can define the initial search space, such as the client segments or value chains to examine. Module 2 – local adaptation diagnosis and prioritization – includes an optional institutional readiness assessment tool that tests the delivery institution's portfolio exposure, products, capabilities, and appetite without duplicating the scan.

Output

A small set of priority geographies or segments, provisional adaptation use cases, and explicit questions for deeper investigation. The scan does not claim to validate local demand or constitute a financial appraisal.



MODULE 2

Local adaptation diagnosis and prioritization

Module 2 turns broad evidence and use-case hypotheses into validated adaptation solutions. It draws selectively on MSC's locally led adaptation toolkit. Local research should focus on questions that could change how one understands climate impacts, solution choices, or partner implementation.

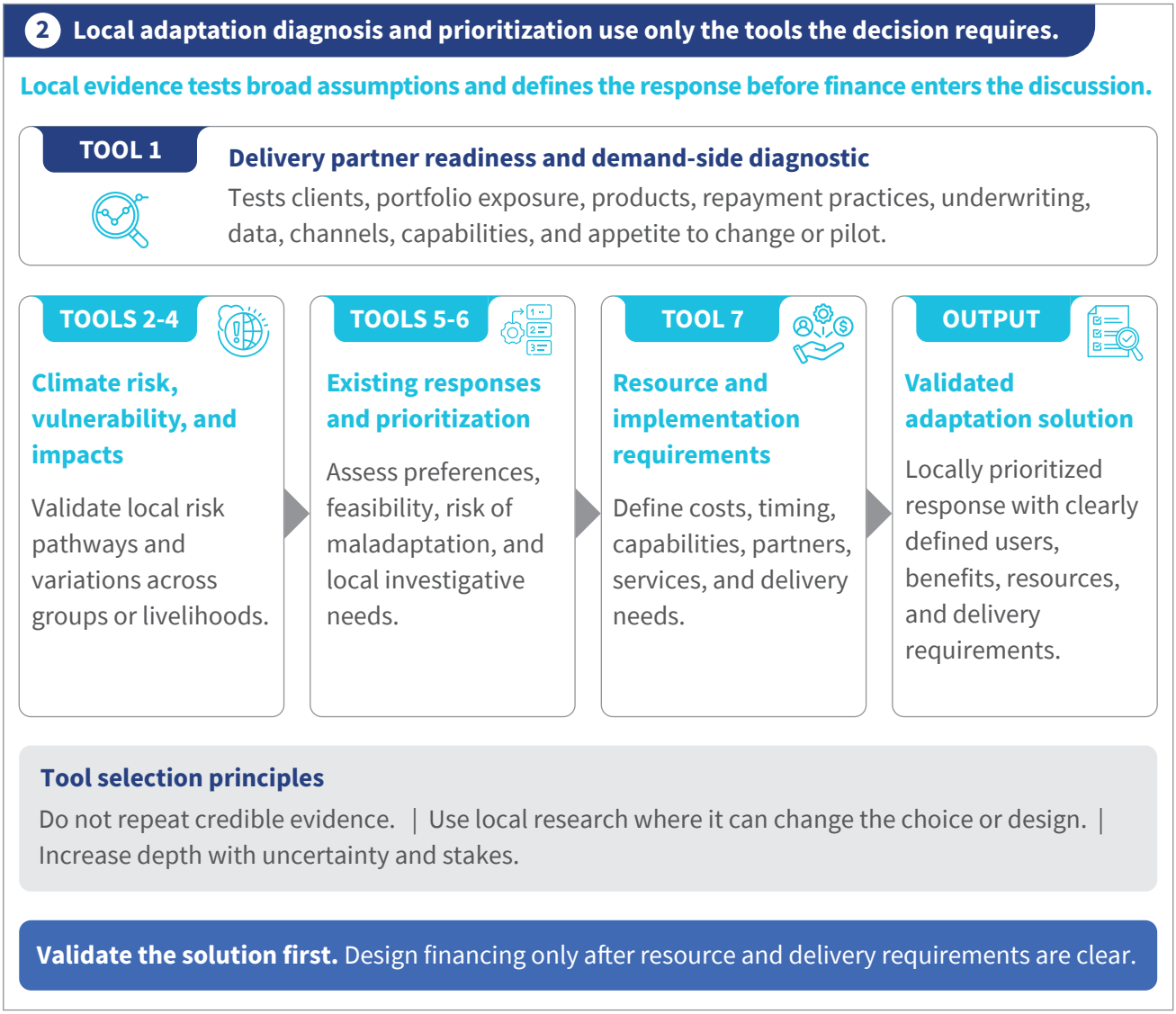


Figure 4. Selective tools for local diagnosis and prioritization

Apply the local tools selectively

- **Tool 1:** Use the delivery partner readiness diagnostic when a specific institution materially shapes what is feasible. Use it early to define the scope of Tools 2–7. The diagnostic assesses relevant clients and value chains, portfolio exposure, existing products, repayment practices, underwriting, data, channels, capabilities, and the institution's appetite for change and pilot initiatives.
- **Tools 2–4:** Validate climate risks, vulnerabilities, and impact pathways among the selected population, especially where macro-level evidence masks meaningful differences across groups.

- **Tools 5–6:** Identify existing responses and prioritize locally relevant options based on feasibility, user preference, trade-offs, and the risk of maladaptation.
- **Tool 7:** Develop a locally owned and costed adaptation plan. Define the activities, estimated capital and operating costs, timelines, responsibilities, complementary inputs and services, potential delivery arrangements, and dependencies.

Output

A locally validated and costed adaptation plan with defined users, anticipated benefits, activities, indicative resource needs, and delivery considerations. The plan should identify implementation partners and delivery models while avoiding premature commitment to a specific financing product.



MODULE 3

Business case and financeability diagnosis

Module 3 asks whether the validated adaptation solution creates enough value, who captures that value, and under what conditions. It combines household or enterprise economics with provider economics and the wider market system. The analysis does not seek to prove that every useful solution is bankable. It identifies which costs and risks can support commercial finance and which require catalytic finance, grants, public investment, or market-system support.

3 Business case analysis: Five lenses to consider before choosing a financing response

Are the economics viable? What blocks scale? Who should finance each element?



Economics
Costs, benefits, returns, margins, and payback periods — 1



Cash flow
Timing, seasonality, liquidity, and repayment capacity — 2



Risk
Climate, production, market, and credit variance — 3



Delivery model
Ticket size, origination, verification, and servicing — 4



Market ecosystem
Inputs, offtake, services, infrastructure, and coordination — 5



Output A concise business case profile with explicit assumptions, evidence strength, and key uncertainties.

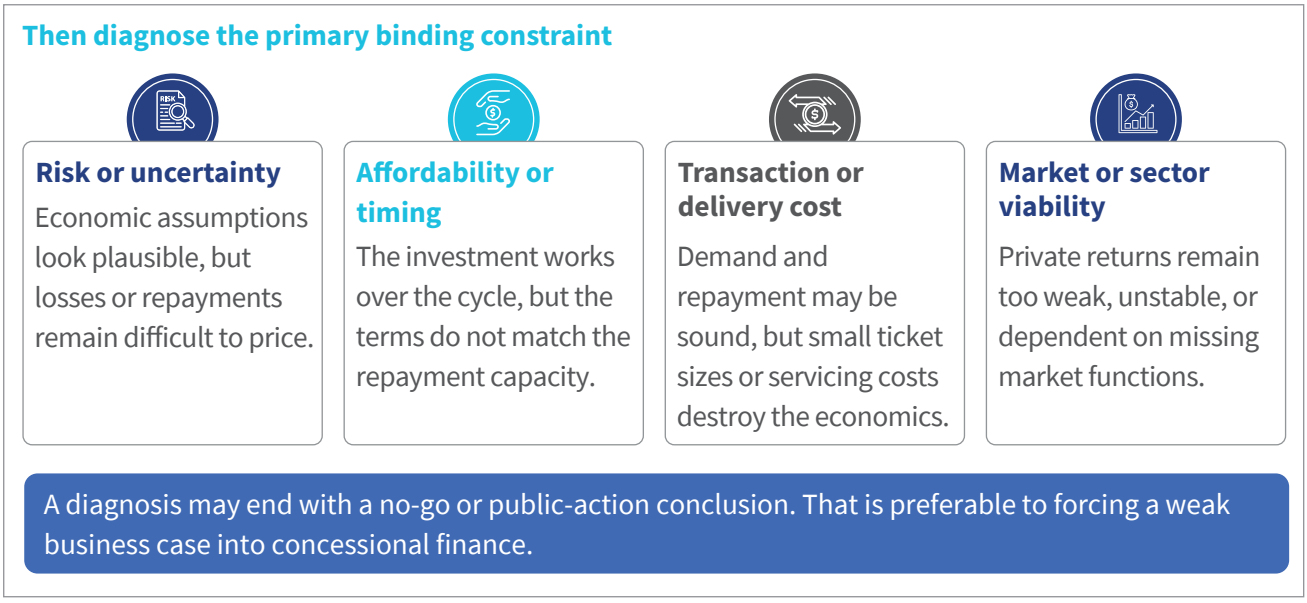


Figure 5. Five evidence lenses for the business case and four common binding constraints

Five lenses, one business case

Analyze the five lenses together: economics, cash flow, risk, delivery model, and market ecosystem. The output is a concise business-case profile that states its assumptions, evidence strength, and key uncertainties. Pay particular attention to who captures the benefits. An activity can create substantial social or resilience value but generate too little private cash flow to support debt.

Test the cash flows before diagnosing the constraint

Build a proportionate cash-flow model for shortlisted solutions. An initial assessment may only require indicative investment and operating costs, expected additional income or avoided losses, and the timing of benefits. When teams consider repayable finance, the analysis should test whether cash flows can cover repayments when due, including seasonal and plausible downside scenarios. Larger or riskier investments may require more detailed financial modeling. When reliable data are unavailable, use reasonable proxies and clearly state all assumptions and uncertainties.

Diagnose the binding constraint

- **Risk or uncertainty:** the underlying economics appear plausible, but losses or repayment outcomes are uncertain or difficult to price.
- **Affordability or cash-flow timing:** the investment works over the cycle, but financing terms do not match the timing or level of repayment capacity.
- **Transaction or delivery cost:** demand and repayment may be sound, but small tickets, origination, monitoring, or servicing make delivery uneconomic.
- **Market or sector viability:** private returns remain too weak or unstable because key market functions are missing, benefits are largely public, or the activity is structurally unviable.

Stress-test the diagnosis before designing the response

Stakeholder interviews provide useful evidence, but the first explanation may not reveal the constraint that drives a financing or adoption decision. A lender may describe a segment as “too risky” when the

deeper problem is the cost of originating many small loans. A borrower may describe interest rates as unaffordable when repayment timing creates the real barrier. The framework therefore tests the initial diagnosis before selecting an intervention.

3 Diagnose the binding constraint, then stress-test the finding.

Counterfactuals and revealed behavior provide low-cost checks on stakeholder explanations.

Diagnosis	Counterfactual test	Revealed behavior or market evidence
Risk or uncertainty	Would lenders provide financing at the current price and tenor if a credible party covered part of the default or loss risk?	Do peer institutions lend where better data, collateral substitutes, or offtake arrangements exist?
Affordability or timing	Would lenders or users proceed at the same price if repayment schedules matched harvest or benefit cycles?	Do similar clients perform well under longer tenors, grace periods, or seasonal repayment structures?
Transaction or delivery cost	Would the provider serve the segment if acquisition, aggregation, or monitoring processes changed?	Did pilot projects achieve repayment but fail to scale? Do shared or digital channels reduce the cost to serve?
Market or sector viability	If risk, repayment timing, and delivery costs were addressed, would the activity still be unattractive?	Do firms depend on grants? Are margins, input availability, infrastructure, or offtake arrangements persistently weak?

Practical test Add three or four counterfactual questions to existing interviews, then triangulate the responses with financing terms, portfolio data, competitor practices, and previous pilots.

Figure 6. Counterfactual tests and revealed behavior as low-cost reality checks

Use two complementary tests

Counterfactual questions test whether the decision would change if the suspected constraint disappeared. If risk is the stated barrier, would the lender lend at the same price and tenor if a credible party covered part of the loss risk? If timing is the problem, would the lender and user proceed at the same price if repayment matched harvest or benefit timing? If delivery cost is binding, would the provider serve the segment if acquisition, aggregation, or monitoring worked differently?

For example, include a zero-interest case where affordability is cited as the barrier. If the investment still cannot repay principal when interest is removed, or repayment is aligned with the benefit cycle, cheaper finance will not solve the underlying problem. The diagnosis should instead examine weak economics, delivery costs, insufficient demand, or missing market functions.

Revealed behavior then checks what actors already do under different conditions. Do peers lend where better data or offtake arrangements exist? Do similar clients perform under longer tenors or seasonal structures?

Did earlier pilots repay well but fail to scale? Do firms remain viable only while grants continue? These observations help teams distinguish stated preferences from constraints that actually change decisions.

Keep it proportionate

Embed three or four counterfactual questions in existing interviews. Triangulate the answers with product terms, portfolio data, competitor behavior, market evidence, and prior pilots. A separate survey is usually unnecessary.



Module 3 ends with a decision on whether to proceed and, if so, how. Where the business case is promising, and the constraints appear addressable, the opportunity can move to Module 4 for financing and market-response design and piloting. Where essential market conditions are missing, the recommendation may instead be to address these gaps through market development, grants, or public action before pursuing finance. Where the underlying economics or adaptation benefits are insufficient, the team may need to reconsider or drop the financing intervention.

Output

A concise business-case assessment with the main constraints, supporting evidence, key uncertainties, and a recommendation to proceed with response design, address prerequisite gaps, or stop.



MODULE 4

Response design, piloting, and refinement

Once the team has clarified the binding constraint, Module 4 develops and tests a financing or market response to the identified constraint. The response may combine financial products, catalytic incentives, changes to delivery arrangements, market development, or public action. The module has two stages: high-level response and pilot design (4A), followed by detailed development, testing, and refinement (4B).

MODULE 4A

High-level financing and pilot design

Module 4A translates the diagnosis into a high-level financing and delivery proposition. This includes indicative product features and terms, the potential role of catalytic finance, delivery arrangements, and partner responsibilities. It also identifies the main assumptions that need testing and defines the proposed pilot's objectives, scope, success measures, and key risks. The aim is to create a testable proposition rather than a fully specified product or implementation plan.

Assess safeguards and responsible delivery requirements

Before approving a pilot, assess maladaptation, affordability, over-indebtedness, consumer protection, exclusion, moral hazard, and subsidy capture. Test who benefits, who bears the costs and residual risks, and whether the intervention could shift risk toward poorer or less visible groups.

Define eligibility, targeting, pricing, disclosure, complaints and redress, data protection, and governance requirements in proportion to the risks. Assign responsibility for each safeguard and establish measurable thresholds and clear rules to stop or redesign the pilot. A strong business case cannot justify unacceptable harm.

Define an exit or transition pathway for catalytic support

Every guarantee, subsidy, grant-funded service, or concessional facility should have a defined purpose, duration, and exit or transition test. The pilot should establish whether the model can continue as support declines, commercial participants assume more risk, or public actors take responsibility for genuine public goods.

Before the pilot begins, set the conditions for reducing, ending, redesigning, or transferring support. Monitor the subsidy per user, additional private capital mobilized, changes in provider behavior, and the economics after support declines. If the model remains dependent on indefinite concessional funding, classify it as continuing public or grant support rather than scalable commercial finance.

4A Develop a high-level financing and delivery proposition and prepare the pilot.

Translate the diagnosis into a testable response by setting the broad model, key assumptions, and pilot-readiness requirements.

Constraint	Matched response
Credit risk or uncertainty	Risk sharing or guarantees, better data and underwriting, insurance, or underlying risk reduction.
Affordability or cash-flow timing	Seasonal repayment, longer tenor, grace or staged finance, and targeted support where justified.
High transaction or delivery cost	Aggregation, embedded finance, digital origination or monitoring, standardized products, and shared services.
Weak market or sector viability	Supplier or offtake development, public infrastructure, standards, extension, grants, policy, or regulatory action.

High-level response and pilot design

1. Shape the response

Set the broad product and delivery proposition, catalytic support, partner roles, and the core assumptions to be tested.

2. Prepare the pilot

Define objectives, hypotheses, customers, geography, duration, systems, monitoring approach, and stop or adjust rules.

3. Assess safeguards

Check consumer protection, over-indebtedness, exclusion, maladaptation risk, and responsible partner arrangements before launch.

4. Define catalytic support

Clarify the purpose, additionality, review criteria, and the intended exit, transition, or continuation pathway.

Output A testable high-level proposition and pilot plan. Detailed product development will continue during live testing.

Figure 7. Match the response to the constraint, then design the pilot

Illustrative example: Financing climate-resilient irrigation

A single locally prioritized response may require different financing and market interventions.

Locally prioritized response

Farmers prioritize irrigation to manage rainfall variability.

Illustrative scenario. No country finding.

Diagnosis	Tailored response
Lenders cannot assess default risk	Partial guarantee with improved risk data
Harvest income arrives seasonally	Seasonal repayment with an appropriate grace period
Individual loans cost too much	Aggregation and shared origination
Repair services are unavailable	Strengthen the supplier and service network

Design and pilot Test demand, terms, catalytic support, delivery arrangements, unit economics, risk, and resilience outcomes.

Figure 8. Why the response(s) must be tailored



MODULE 4B

Pilot implementation, learning, and refinement

Module 4B develops and tests the proposed financing and delivery model under real operating conditions. MSC's Market Insights for Innovation and Design (MI4ID) principles and concept testing can help refine product features, terms, incentives, partner roles, and the customer journey.

The pilot-testing toolkit provides a structured approach to implementation and monitoring. It helps teams test critical evidence gaps through the smallest credible experiment before partners commit significant capital, systems, or relationships.

Pilots should define clear objectives and hypotheses, appropriate limits on customers, geography, and duration, and rules for monitoring and adjustment. Testing should examine actual uptake, delivery performance, unit costs, repayment and operational risks, and the additionality of catalytic support. Teams should compare the findings with the original business-case assumptions and decide whether to refine, scale, extend, or stop the model.



Figure 9. Pilot implementation under real conditions will inform learning and scale

Measure adaptation outcomes over appropriate time horizons

Pilots should also track early indicators of improved resilience, such as reduced vulnerability, improved adaptive capacity, or lower exposure to climate risks. However, actual resilience benefits may only become observable over several seasons or following relevant climate events. The pilot should therefore distinguish demonstrated results from anticipated benefits and flag or establish proportionate

arrangements for longer-term monitoring. A promising financing model may justify conditional scaling while evidence of its adaptation outcomes continues to develop.

Output

A tested financing and delivery model, with evidence on financial and operational performance, early adaptation outcomes, catalytic additionality, and a recommendation to scale, refine, extend, or stop.

Applying the framework

Different commissioning questions require different combinations of this modular framework. The decision, available evidence, and potential consequences should determine the entry point and depth.A fixed sequence should not determine them.

Different questions require different combinations of the framework.

Select the entry point and depth that match the commissioning decision, available evidence, and stakes.

Commissioning objective	Suggested route	Primary output
Exploratory landscape	Module 1	Priority segments, geographies, and provisional adaptation use cases
Locally led adaptation design	Selected Module 2 tools	Locally prioritized responses and resource or delivery needs
Technical assistance to partner financial institutions	Selected Module 2 tools (Tool 1 where relevant) + 3 + 4	Tested financing and delivery model
Fund or pipeline origination	Module 1 + 3; add Module 2 where local evidence is weak	Investable or supportable opportunity pipeline with financing roles
Integrated adaptation finance program	Modules 1 + 2 + 3 + 4A + 4B	Adaptation pipeline for financing and delivery model testing
Across every route	Preserve local agency | Separate evidence from assumptions | Test finance additionality | Measure adaptation outcomes	

Figure 10. Illustrative routes through the framework

Cross-cutting principles

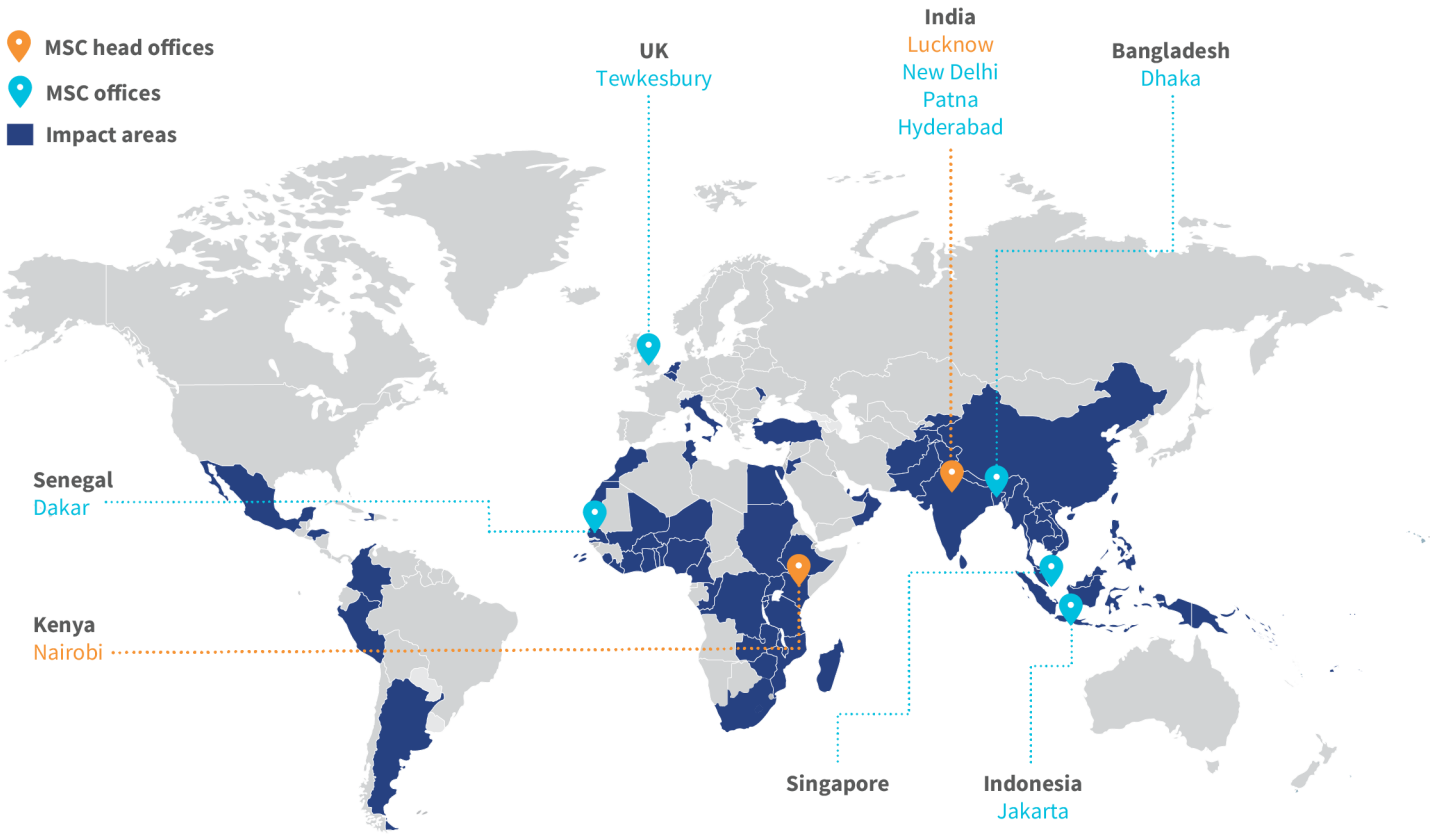
- **Preserve local agency**: Do not let investor preferences or a preselected instrument predetermine the adaptation solution.
- **Separate evidence from assumptions**: Distinguish primary evidence, secondary evidence, proxy estimates, and professional judgment.
- **Use proportionality**: Deepen analysis where uncertainty and the consequences of the decision are high. Avoid research that will not change the decision.
- **Test finance additionality and the transition/exit path**: Ensure catalytic support addresses a demonstrated constraint, does not crowd out viable commercial finance, and has explicit conditions for reduction, transfer, or termination.
- **Maintain a common evidence and decision record:** Track each adaptation use case as it moves through the framework, and progressively update its relevance, underlying assumptions, financing constraints, proposed response, and outstanding uncertainties.
- **Distinguish private and public value**: Some solutions generate cash flows that can support finance. Others require grants, infrastructure, policy, or public investment.
- **Measure adaptation outcomes, not only deployment**: Capital disbursement does not prove that the intervention reduced vulnerability or losses.

Conclusion

Adaptation finance must do more than mobilize capital. It must turn adaptation needs into locally relevant, economically sound, deliverable, and appropriately financed solutions. The framework organizes this work as a sequence of decisions. It screens use cases where needed, validates solutions where evidence is weak, tests the business case, challenges the binding-constraint diagnosis, and then designs and pilots the response. The process may lead to commercial finance, catalytic support, market strengthening, public action, or a decision not to proceed.

Related MSC methodologies include the locally led adaptation toolkit for inclusive financial service providers, Market Insights for Innovation and Design (MI4ID), MSC's pilot-testing methodology, and its adaptation finance business-case and landscaping work.

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