Briefing

Climate change

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Forwards and backwards evidence-based learning on climate adaptation

People, governments and enterprises are responding to the effects of climate change as they become apparent. Although adaptation is new and complex, agencies at all levels need to integrate it into development before climate effects escalate significantly. To do this successfully, every opportunity to learn how to enable effective adaptation must be taken. The tracking adaptation and measuring development (TAMD) framework is helping to generate the evidence required for this type of learning. TAMD provides a systematic examination — retrospectively or prospectively — of the processes and outcomes of climate-related interventions. Using a framework like TAMD, including crucially the use of theories of change, to evaluate current, past and future initiatives and outcomes will allow governments and other agencies to improve climate adaptation effectiveness and mainstream it in development planning.

Policy pointers

Learning how best to enable climate adaptation is an imperative for policymakers before climate effects on development escalate.

Learning can be retrospective and prospective — it can look backwards to learn from experience and look forwards as adaptation planning leads to developmental outcomes.

A theory of change-driven monitoring and evaluation (M&E) process is better than other methods at revealing how and why interventions work.

Using project activity and output targets to set M&E indicators does not provide incentive structures for learning about adaptation outcomes.

Climate change effects on development will escalate over the coming decades. So we need to take the opportunities open to us now and over the near term to learn what we can about how to enable effective adaptation by people and enterprises. The TAMD framework has been tested in a series of countries to see if it can help generate the evidence required for this type of learning through its systematic examination — retrospectively or prospectively — of the processes and outcomes of climate-related interventions.

Central to both forwards and backwards assessment are theories of change (ToC), which explain how and why adaptation works from different stakeholders' perspectives. In this briefing, we examine cases in three countries in Africa and Asia (see Table 1, overleaf).

Learning how to enable climate adaptation

A major outcome in all three countries has been learning how to enable climate adaptation. Being involved in adaptation-related processes and doing the TAMD assessments has given stakeholders and participants new evidence and an opportunity to increase their knowledge.

This is important, because the effects of climate change on development over the next generation will escalate in ways that we can envisage and ways that will be unexpected. As they escalate over time, our capability to manage climate risks needs to increase pre-emptively. In Figure 1, four phases are identified that are indicative of this relationship.

Successes and failures will both provide useful lessons for future success

Phase 1: Addressing the development deficit enables adaptation to climate variability. Evidence from the retrospective TAMD assessments in Pakistan and Ethiopia clearly show that, despite not being designed to address climate effects, development interventions have enabled people to cope better with increasing levels of climatic variability:

- In Pakistan, rainwater harvesting technology has enabled households to be more water secure during a period when rainfall has become more erratic. This water security has given girls and women more time for school and other productive activities.
- In Ethiopia, the introduction of soil and water conservation measures in the upper catchments of watersheds has reduced households' agricultural yield losses and damages to assets, despite more erratic and intense rainfall.

Fawad Khan's recent paper on recovery from the Indus floods in Pakistan[1] also demonstrates how the level of development (in particular, access to critical services) prior to extreme weather events is highly correlated with households' speed of recovery.

Phase 2: Specific climate adaptation actions complement development. People and enterprises are making changes to adapt to increasing climatic variability, and this is having significant effects on livelihoods:

- The diminished short rains season in north-eastern Ethiopia has made farmers in Tigray change their crops and cropping patterns.
- The increased variability and intensity of inter-annual rainfall in parts of Mozambique is contributing to flood risk, so people are investing in flood defences.
- In Pakistan, above-average monsoon rains have caused repeated and significant flooding along the Indus, so households are raising plinths when they reconstruct their dwellings.

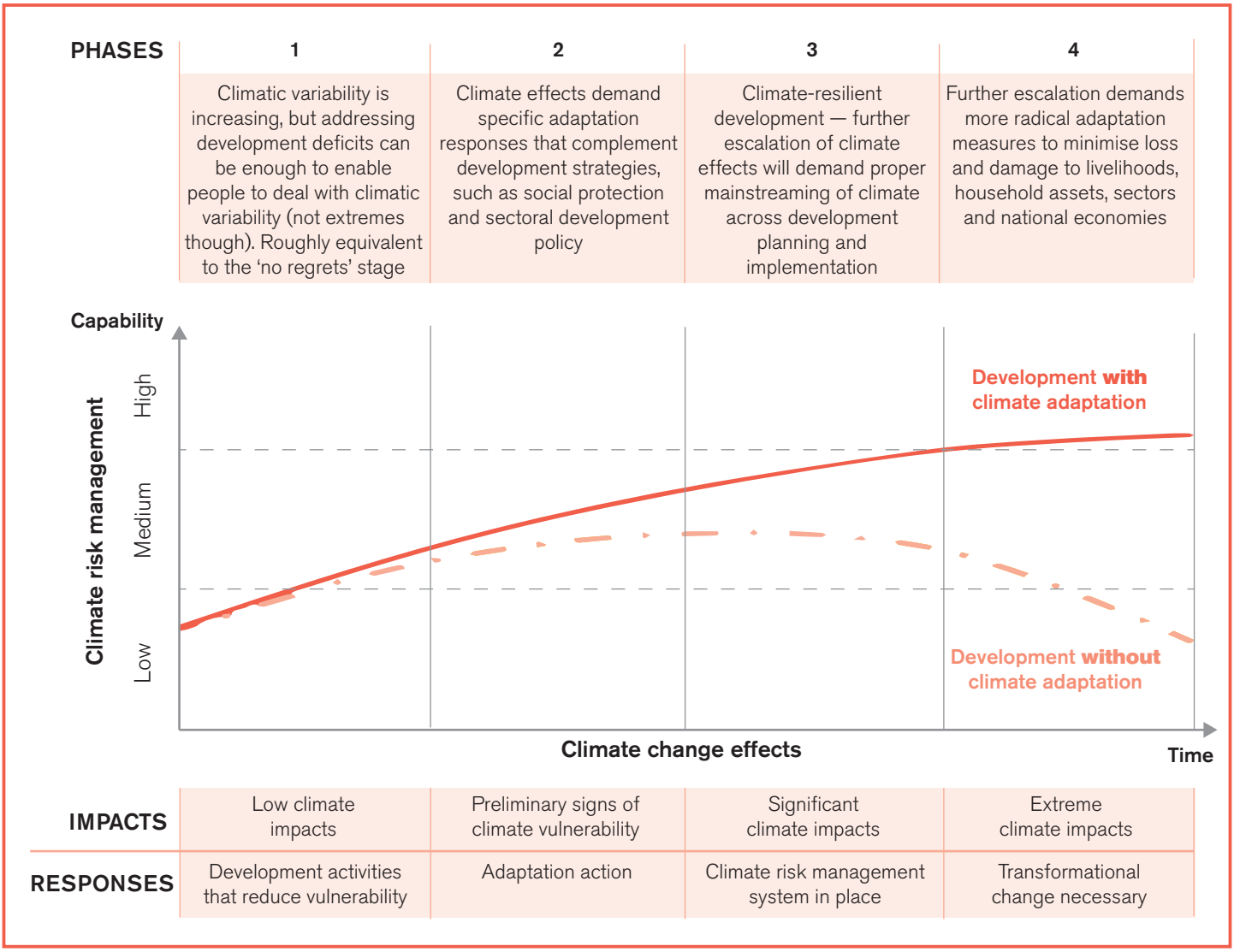
Public authorities can enable such examples of autonomous adaptation by including support for adaptation measures in their plans. And some are already doing this. For example, the Tigray Agricultural Research Institute is providing Ethiopian farmers with new short-cycle crop varieties; local authorities in Mozambique are developing local adaptation plans; and flood preparedness is a high priority in Pakistan's new climate policy action plan.

Generating evidence and learning about the levels of success of autonomous and planned adaptive responses will improve future adaptation

Table 1. TAMD assessments in Ethiopia, Mozambique and Pakistan

Country	Partners	Type of assessment undertaken
Ethiopia	Echnoserve Ministry of Agriculture	Retrospective assessment of the first phase of the Sustainable Land Management Programme, identifying how soil and water conservation measures enable smallholder farmers to cope better with erratic and intense rains. Prospective assessment to develop agricultural adaptation plans at local levels: this is part of the Ministry of Agriculture's fast track climate resilience initiative, which identifies local adaptation priorities at kebele (local) level and addresses them through woreda (district) level climate investment plans.
Mozambique	Africa Climate Change Resilience Alliance Guijá District Council (Gaza) MICOA (Ministry of Environment)	Prospective assessment as part of the development of district-level adaptation plans. Guijá District Council used the TAMD framework to establish and examine plans for climate adaptation and as part of its district development plan (the country's first local adaptation plan) to identify how to assess the performance of its planned interventions.
Pakistan	ISET Pakistan Earthquake Reconstruction and Rehabilitation Authority Rural Support Programmes Network	Retrospective assessments of the outcomes of two large-scale interventions from a climate adaptation perspective: • A rainwater harvesting project in earthquake-affected Kashmir and Khyber Pakhtunkwa • A biogas generation initiative in different lowland regions

Figure 1. Phases in the relationship of escalation between climate effects and capability to manage climate risk



and enable the mainstreaming of climate adaptation in annual development planning. This is why the TAMD framework is being developed and tested in different countries.

Phase 3: Mainstreaming climate into development planning leads to climate-resilient development. Specific adaptation actions to certain climate risks are unlikely to be an effective way to respond when climate effects escalate and multiply. Some governments already recognise this and are developing adaptation strategies and frameworks that seek to integrate addressing climate risks through adaptation actions into public policy areas. But as this is a new policy area, evidence of the effectiveness of climate mainstreaming will be needed and evaluative frameworks — such as TAMD — will need to be institutionalised for comprehensive evidence gathering and learning.

- Ethiopia's Ministry of Agriculture is using the TAMD framework to shape the planning, monitoring and evaluation component of its 'fast-track' climate resilience intervention.
- In Mozambique, Guijá District Council — the first to develop a local climate adaptation plan — is using the TAMD framework with local people to work out which adaptation measures it should prioritise and how to assess their effectiveness.

Phase 4: Radical adaptation. As climate effects on development build up, governments will need to include increasingly far-reaching and substantive adaptation measures in their public policy responses. This will enable more radical adaptation actions by people and enterprises. For example:

- There will be wholescale changes in food production systems once increased temperatures, erratic rains and changed pest and disease prevalence mean that staple crops are no longer viable and food processing and storage requires new technologies.

- People will move out of highly affected areas to avoid asset and livelihood loss. When this happens, governments will need to manage migration in ways that enable adaptation.

We know relatively little about how best to ramp up adaptation responses to escalated climate challenges. Now is the time to look critically at how well development supports autonomous adaptation and how functional specific adaptation actions will be when faced with greater climate challenges. The results of the TAMD assessments in Ethiopia, Mozambique and Pakistan are helping to move in this direction.

Issues around learning about climate adaptation effectiveness

The work on TAMD is highlighting various issues around learning about climate adaptation.

First, the theory of change (ToC) method[2] is proving to be very useful for revealing people's perceptions of climate risks and measures to address them. Incorporating ToC into prospective TAMD assessments in Mozambique and Ethiopia enabled stakeholders to agree on the adaptation measures that would best address important climate risks and the indicators that would best monitor progress towards adaptation objectives.

We also used ToC in retrospective assessments in Pakistan and Ethiopia to understand how development measures have enabled people and enterprises to cope better with climatic variability and the developmental benefits that have been generated. In Pakistan, the link between water security and girls being able to attend school was depicted through the local ToC developed with the households that adopted rainwater harvesting technology. The ToC was then tested empirically by comparing households with and without the technology on indicators developed through the ToC.

Second, while it is important that investments have achievement targets that set ambition, using project targets to set monitoring and evaluation indicators can lead to unhelpful incentive structures for learning about adaptation. Too often, in methods such as results-based management and logical framework-driven project management, the M&E process simply assesses whether the project has reached its targets or milestones, with the people responsible for delivering those targets subject to incentive structures that reward achievement of outputs and chastise under-performance. This hinders learning from both success and failure.

Climate adaptation is new, complex and likely to be difficult to achieve in the medium term. So we need incentives for learning about these aspects of adaptation. Such incentives will be developed differently, depending on institutional context, but it is important to use an evaluative framework like TAMD that enables the assessment of processes and outcomes and does not value (unexplained) short-term achievement over learning for medium and longer-term success.

Conclusion

We are living through an important period for climate adaptation. The effects of climate change are becoming apparent and people and enterprises are responding to them. Authorities are assuming the responsibility of coordinating adaptive responses and providing enabling frameworks for people to adapt. During this phase, the emphasis should be upon learning. Adaptation is new, complex and difficult. Successes and failures will both provide useful lessons for future success. Climate adaptation needs to be integrated into development, and this can only happen if we learn retrospectively and prospectively from climate-related interventions now. For this learning to be successful, we need to use evaluative frameworks such as TAMD.

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Notes

[1] Khan, F. 2014. Adaptation vs development: basic services for building resilience. *Development in Practice* 24 (4), 559-578. / [2] For an explanation of theory of change please refer to www.theoryofchange.org/what-is-theory-of-change

Knowledge Products

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Echnoserve, Ethiopia is a private research consultancy company based in Addis Ababa. They work on issues related to sustainable development.

ACCRA, Mozambique is a research and development consortium of NGOs that work in Mozambique, Ethiopia and Uganda on climate resilience issues.

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