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What is effective climate adaptation? Case studies from the Least Developed Countries

Author(s): Sejal Patel and Binyam Yakob Gebreyes

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What is effective climate adaptation?

Case studies from the Least Developed Countries

Sejal Patel and Binyam Yakob Gebreyes

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About the authors

Sejal Patel is a researcher in IIED's Climate Change Group.
Contact: sejal.patel@iied.org

Binyam Yakob Gebreyes is a researcher in IIED's Climate Change Group. Contact: binyam.gebreyes@iied.org

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International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
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Adaptation is an investment that becomes effective over time through learning. International climate talks are serving as a key platform for bridging such learning. The LDCs, from the frontlines of climate impacts, are pioneering large-scale and innovative adaptation responses. This issue paper draws from experiences in the international dialogues and of LDC national practice to explore how the adaptation narrative is developing at both levels. It examines where they are aligned, and where they clash, in influencing adaptation scope and delivery. The paper concludes by highlighting some key lessons we can learn from the LDC Group.

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Executive summary

The Paris Agreement aims to limit the global temperature increase to under 2°C – and towards 1.5°C – above pre-industrial levels. In 2018, the Intergovernmental Panel on Climate Change warned that the global community needs to act now on climate change. To shift towards a 1.5°C pathway, the next 12 years are critical: we need radical change and we must address the world's vast economic disparity.

As countries prepare to update and implement their national pledges for achieving the Paris Agreement goals, understanding ways to effectively adapt to climate change is more urgent than ever. This is particularly so for LDCs, who are on the frontline of climate impacts.

In September 2019, the LDC Group presented 'LDC 2050 Vision: towards a climate-resilient future' at the Climate Action Summit in New York. Developed over two years and based on an extensive evidence review, this vision puts all LDCs on climate-resilient development pathways by 2030 and delivering net-zero emissions by 2050.

At the summit, the group also launched the LDC Initiative for Effective Adaptation and Resilience (LIFE-AR), which aims to develop effective, longer-term climate adaptation interventions and investments for resilient development in LDCs. Alongside two other long-term LDC initiatives, LIFE-AR takes a whole-of-society approach to bringing about change. Seeking to identify positive national lessons to amplify South-South learning and good practice, it has gained traction from governments and the private sector.

Drawing from the first-hand experience of international and national processes and desk research of case studies highlighted in the LDC evidence review, this paper explores how the adaptation narrative has developed in the international process, presents key LDC Group learnings from adaptation in current practice, and examines how the global dialogue and LDC national practice intersect to influence the scope and delivery of adaptation interventions. We hope it will contribute to the ongoing conversation around effective adaptation and that it will help policymakers and climate adaptation experts better understand and respond to adaptation priorities.

The international adaptation narrative

In the early global climate talks, adaptation was secondary to mitigation. But the rise in climate change impacts and slow-onset events since the early 2000s has increased advocacy for parity between mitigation and adaptation in the negotiations, and adaptation is now a major international response to climate change. The Paris Agreement establishes an adaptation goal, though yet to be quantified, to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change.

Although adaptation issues have gained a higher profile, a fundamental and tangible shift in global development and economic growth pathways is still needed. Climate change impacts everyone, but the consequences for the most vulnerable and poorest groups are devastating. Its adverse effects will be most felt in LDCs, which are collectively responsible for less than 1% of annual global greenhouse gas emissions, despite representing over 12% of the world's population¹.

LDCs and Small Island Developing States (SIDS) cannot follow traditional emissions-intensive economic development pathways without considering climate change and other social and environmental issues. In addressing the impacts of climate change – and the related issues of poverty, inequality and development – LDCs can leapfrog developed countries by skipping the less efficient, more expensive or more polluting technologies and practices and moving directly to low-carbon options. As well as accelerating sustainable development, this would ensure no country is left behind.

But it will require a high level of resourcing and whole-of-society efforts. Developed countries have committed to provide financial assistance for mitigation and adaptation, and the Paris Agreement set a goal for developing countries to collectively receive US\$100 billion a year by 2020. Yet in 2016, only US\$22 billion was committed. Without the right resources, it is difficult for LDCs to incorporate long-term planning, address data gaps and make their systems more flexible to invoke systemic change.

The already high costs of adaptation will only increase and by 2050, developing countries will need US\$280–500 billion a year. At the next UNFCCC climate talks, parties will negotiate an increase to the US\$100 billion-a-year goal for the post-2025 framework. These talks must consider the needs and priorities of developing countries and open more provisions of financial support.

Effective adaptation: lessons from LDCs

Even with limited resources, LDCs are striving to adapt to climate impacts. Recognising these efforts at the international level will send a strong political message to increase adaptation.

The LDC Group reviewed evidence from developing countries, innovatively linking international climate decisions with national implementation. Using internationally agreed elements under the Paris Agreement to test for effectiveness, it drew learnings from successful interventions under the following good practices for delivery:

- 1. National ownership of interventions:** The most effective mechanisms are domestically driven and owned, and work to strengthen national and subnational institutions and governance systems. Top-down policy guidance with bottom-up plans and a circular learning process can help strengthen adaptation planning and implementation, building capacity that enables long-term support and commitment for reliable and coherent delivery.
- 2. Long-term perspectives:** Delivering activities over long timeframes, promoting long-term, robust climate-resilient planning and accessing long-term finance for climate-resilient investments are crucial.
- 3. Far-reaching interventions and large-scale roll-out:** Reaching more people and covering all regions are also vital. Strengthening systems, institutions and delivery mechanisms will increase a country's ability to implement and deliver on adaptation plans.
- 4. Coherent and coordinated delivery:** Given the interconnected and interdependent nature of human and ecological systems, effective interventions deliver against multiple international frameworks. Actions must be systematically integrated vertically between different levels and horizontally across different sectors, with decision-making authority held in the closest appropriate proximity to where the actions will be taken.
- 5. Grounding in social justice, inclusion and gender equality:** Just decision making requires women and men who have experienced climate

impacts to participate in policy spaces and in delivery decisions. Supporting disadvantaged groups and promoting social justice through social and economic inclusion are vital for reducing long-term vulnerability and delivering gender equality.

6. Strengthening local knowledge systems and improving access to technical knowledge:

Communities and indigenous peoples have longstanding relationships with their environment and have built knowledge and practice by managing complex ecosystems over generations, so strengthening local knowledge systems and enabling the integration of scientific and technical knowledge within them are vital. Harnessing local knowledge on climate risk management makes actions locally relevant.

Thinking outside the box: insights on scope and delivery

To strengthen implementation and delivery across LDCs, the LDC Group is engaging in ongoing dialogue around developing adaptation delivery outcomes. By categorising delivery mechanisms into three areas – people, economies, and landscapes and ecosystems – LIFE-AR captures key LDC Group priorities while keeping a flexible structure to account for country-level context and priorities. This emphasises the need for delivery mechanisms to build whole-of-society adaptation and resilience. Integrating climate objectives into national-scale decisions through these mechanisms will strengthen resilience outcomes, avoid locking in carbon-intensive and polluting investments and bring additional socioecological and economic benefits.

Strengthening these delivery mechanisms for strong adaptation outcomes requires action on two levels. At a context-specific level, they must address planning and governance processes, engaging the actors involved in implementation and ensuring the financial vehicles used reach these actors. At a wider system level, they must create an enabling environment that drives incentives to integrate the lessons in section 3 into the mechanisms, and so address undermining factors across the wider system that interventions are channelled through.

The national level developments that are being driven by the LDCs under the LIFE-AR initiative present crucial additions to the global dialogue that will help inform the international talks: increasing clarity on the type and volume of resources needed for adaptation, evidence of what characterises effective adaptation delivery, and of what leadership from countries in moving to Paris pathways looks like.

Key opportunities in aligning the global dialogue and national practice

1. Adaptation is urgent and the available finance is a fraction of what is needed to avoid irreversible loss and damage. All countries urgently need to move to their context-specific Paris-compatible development pathway that enables society to adapt to changing conditions at a greater pace and scale. This requires a global, coordinated, and inclusive response.
2. A robust evidence base will improve climate decision making, which is complex and has long term implications. This will require learning from successes and failures, identifying and collectively resolving systemic barriers, and ensuring representative and inclusive data is used, gathered through whole-of-society engagement, so that all groups, including those that face vulnerabilities and exclusion, are heard and supported, leaving no one behind.
3. Delivery and delivery mechanisms must be strengthened and scaled-up to develop a whole-of-society response at the pace and scale required. Capacity must be adequately built at all levels, supported through patient, sustained and large-scale action.
4. There are many South-South learning opportunities, but coordination and synergy are lacking, particularly in ensuring lessons flow to and from local actors. Neighbouring countries are also presented with opportunities to adapt approaches together to work on transboundary issues through regional initiatives. LDCs can learn and adopt lessons, experiences and frameworks from each other, as well as present important evidence of effective adaptation from the frontlines for all countries.

Introduction

1

The Paris Agreement aims to limit the global temperature increase to well below 2°C and towards 1.5°C above pre-industrial levels. Achieving a development pathway that is consistent with this will require radical change and addressing the vast economic disparity that exists in the world.²

To boost ambition and national climate action, United Nations Secretary-General António Guterres hosted the 2019 Climate Action Summit in New York. The summit brought together government, civil society and private sector leaders to seek ways to advance the Paris Agreement. What made this gathering different was, among other things, its greater focus on adaptation and resilience.

At the summit, the adaptation and resilience track aimed to advance global efforts to address and manage the impacts and risks of climate change, particularly in the most vulnerable communities and nations. Led by the United Kingdom and Egypt, this track gained momentum among political and other actors. The Global Commission on Adaptation presented a report at the summit that set out why adapting to climate risks is essential, outlining the actions needed and the areas requiring a change from business as usual.³

LDC GROUP

The 47 Least Developed Countries (LDCs) are most vulnerable to climate change but have done the least to cause the problem. They work together as a negotiating bloc, the LDC Group, at the intergovernmental meetings under the United Nations Framework Convention on Climate Change (UNFCCC) to demand that wealthier and high-emitting nations act in accordance with their responsibility for creating the problem and their capability for addressing it.

At the summit, the LDC Group presented the 'LDC 2050 Vision: towards a climate-resilient future' and officially launched the LDC Initiative for Effective Adaptation and Resilience (LIFE-AR). Developed over two years through a deliberative process, and based on an extensive evidence review, the vision's top line is for LDCs to be on climate-resilient development pathways by 2030 and deliver net-zero emissions by 2050 for thriving societies and ecosystems.⁴

The LDCs aim to deliver this vision by leveraging LIFE-AR and their two other long-term initiatives, LDC Renewable Energy and Energy Efficiency Initiative

for Sustainable Development (LDC REEEI) and LDC Universities Consortium on Climate Change (LUCCC).

LIFE-AR's primary aim is to develop effective, longer-term climate adaptation interventions and investments for resilient development in the LDCs. LIFE-AR seeks to identify positive lessons from LDCs and developing countries to amplify South-South learning and good practice. Since its official launch at the New York summit, this initiative to tackle the adaptation challenge has gained traction from governments and the private sector.

In 2018, the LDC Group set in motion an iterative learning platform for effective adaptation, creating an opportune channel to facilitate greater South-South learning.⁵ This exercise helped them develop their vision, offer and ask under LIFE-AR to change the business-as-usual approach to development.

Over 2018 and 2019, the LDCs reviewed the evidence (hereinafter referred to as the LDC evidence review) of effective adaptation and resilience-building interventions through a two-pronged deliberative process, guided by the LDC chair and LIFE-AR technical lead. Almost 200 experts from Anglophone and Francophone Africa and Asia Pacific took part in several workshops, while another 400+ experts participated in similar exercises at the 24th Conference of the Parties to the UNFCCC (COP 24), the 12th International Conference on Community-Based Adaptation (CBA12) and the 2019 National Adaptation Plans Exposition.

As countries prepare to update and implement their nationally determined contributions (NDCs) – climate pledges for achieving the goals of the Paris Agreement – the need to understand ways of effectively adapting to climate change is more urgent than ever. In 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that the global community needed to act and that the next 12 years would be critical in transforming energy systems to have any chance of shifting towards a 1.5°C pathway.⁶ For LDCs on the frontline of climate impacts, this timeline is even more urgent. The LDC Group's efforts to learn from past climate adaptation efforts and take informed action to become climate-resilient societies reflect this urgency and set the foundation for innovation and global leadership.

As it enters its implementation phase, the Paris Agreement faces its first tests. Can it deliver increased ambition? Does the climate response remain balanced between mitigation and adaptation? And can countries get the climate finance they need? Drawing from the first-hand experience of international and national processes and supported by desk research of case

studies highlighted in the LDC evidence review, this paper aims to take stock at this key juncture in the international climate agenda to:

- Review how the adaptation narrative has developed in the international process
- Present key LDC Group learnings from adaptation in current practice, and
- Examine how the global dialogue and LDC national practice intersect (or not) to influence the scope and delivery of adaptation interventions.

We hope this paper will contribute to the ongoing conversation on what effective adaptation looks like and that it will help policymakers and climate adaptation experts better understand and respond to adaptation priorities.

In Chapter 2, we look at how the climate adaptation narrative has evolved in international dialogue and some national contexts. Why is adaptation a priority for vulnerable countries, particularly LDCs? What provisions are there for adaptation in the international climate change multilateral process?

In Chapter 3, we discuss how LDCs are approaching and implementing adaptation. We highlight key lessons that the LDC Group have drawn on and incorporated from the LDC evidence review. Such learning on what characterises effective adaptation interventions from existing adaptation practice across developing countries provides insight into how other countries could replicate and strengthen such efforts.

Chapter 4 hones the discussion on delivering those effective adaptation interventions. What are delivery mechanisms? And what is the national scope and coverage of adaptation delivery? Again, we unpick some of the findings from LIFE-AR, discussing how the LDC Group is presenting a progressive narrative on what the scope of adaptation action looks like.

We close by summarising some key insights, drawing from the LDC experience at international and national levels as they work to implement adaptation measures in a context of increasing urgency.

LDCs in the evolving adaptation agenda

The scope and priority of adaptation have evolved greatly over the years as the impacts of adaptation have increased. LDCs, as some of the most climate-vulnerable countries, are on the frontline.



WHAT IS ADAPTATION?

Adaptation is “the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.”⁷

2.1 Developing the international adaptation agenda

Adaptation is not new; humanity has always sought ways to adapt to environmental and climate-related changes.⁸ However, the speed, scale and intensity of human-induced climate change are unprecedented.⁶

There is now overwhelming evidence that emissions-intensive economic growth pathways have contributed to climate change. Policymakers, practitioners and scholars have long discussed the linkages between climate change and development and how the latter is affected by the former.⁹ Human interference with the climate system has created a sequence of reciprocal cause and effect: human activity causes climate change, which in turn poses risks for human and natural systems.¹⁰ As a result, we have had to both mitigate the causal human activity and adapt to the impacts caused by human systems. If global development continues fostering fossil fuel-dependent economies in a business-as-usual manner, the impacts of climate change will be catastrophic, especially in LDCs.

In the early years of global climate talks, adaptation was secondary to mitigation.¹¹ The 1997 Kyoto Protocol, for example, primarily focused on mitigation. Some thought adaptation action detracted from the urgency of emissions reduction;¹⁰ others saw it as a long-term strategy to be pursued once the impact of climate change became more visible.¹² But the rise in climate change impacts and slow-onset events – such as storms, floods, droughts, sea-level rise and glacial retreat – since the early 2000s has increased advocacy for parity between mitigation and adaptation in the climate negotiations. Adaptation now constitutes one of the main international responses to climate change.

The 2015 Paris Agreement is praised for its explicit reference and recognition of adaptation as an equally important aspect of the global response to climate change. Article 7 establishes a global goal “of enhancing adaptive capacity, strengthening resilience

and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.”¹³

The dedicated provisions for mitigation, adaptation and loss and damage seem to close the structural debate for parity between the themes. Although parity can only be fully achieved when it is reflected in the implementation of the Paris Agreement, we can consider that we are approaching the end of this particular debate. At its 6th board meeting in Bali in 2014, the GCF decided to aim for a 50:50 balance between mitigation and adaptation over time. Six years after this decision, however, it is still working towards achieving full parity between both objectives.

2.2 Moving to sustainable development pathways

Despite this evolution of adaptation issues in the climate talks, there is still a need for a fundamental and tangible shift in the global development and economic growth pathways.

Governments must make deliberate and conscious decisions to advance sustainable development that meets the needs of present and future generations. The more this shift is delayed, the more costly and challenging adaptation becomes.

The LDCs and Small Island Developing States (SIDS) have long called for major emitting countries to make significant reductions in greenhouse gas emissions to lessen future climate change impacts.¹⁴ Unlike industrialised and fast-growing economies, LDCs' and SIDS' contribution to current and future climate change is negligible. All 47 LDCs – around 12% of the global population – are collectively responsible for less than 1% of annual global greenhouse gas emissions.¹⁵

Major emitting countries have not done enough to mitigate climate change and limit global warming. As their commitments to rapid emission reductions have been and continue to be limited, the need for more coordinated and effective adaptation action is ever increasing.

Although climate change impacts everyone, the consequences for the most vulnerable groups of society – including people in poverty – are devastating. The adverse effects of climate change will be most felt in LDCs, where it is likely to undermine development efforts and push millions more into poverty. This will limit opportunities for sustainable development and for people to escape from poverty.¹⁶ And because their human and technological capacity to manage and respond to risks is limited, support for adaptation is vital.

WHAT IS CLIMATE VULNERABILITY?

If vulnerability is “the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes... a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity,”¹⁷ **climate vulnerability** is determined by potential impact and adaptive capacity, where:

- **Potential impact** = sensitivity x exposure
- **Sensitivity** = how the degree of survival is affected by climate change
- **Exposure** = the extent of climate impact that the system is likely to experience, and
- **Adaptive capacity** = the potential to tolerate or adapt to climate change.¹⁸

In addressing the impacts of climate change, and other critical issues including poverty, inequality, and development, the LDCs have an opportunity to do things differently. LDCs and SIDS cannot follow traditional emissions-intensive economic development pathways without due consideration to climate change and other social and environmental issues. Not only would this legitimise such pathways, it would also guarantee that LDCs continue to be left behind as developed countries’ pace of growth is unlikely to slow down.¹⁹ Climate change impedes poorer countries from embarking on sustainable development pathways, increasing their risk of becoming trapped in a vicious cycle of underdevelopment.²⁰

In forging climate-resilient development pathways, LDCs can leapfrog developed countries by skipping the less efficient, more expensive or more polluting technologies and practices and moving directly to more advanced, low-carbon options. As well as accelerating sustainable development, this approach would ensure no country is left behind.

2.3 Barriers for LDCs

Adaptation action is essential for addressing the increasing impacts of climate change in LDCs. But it requires a high level of resourcing and whole-of-society efforts. Adaptation action is severely under-resourced. The United Nations Environment Programme (UNEP) estimates that, by 2050, developing countries will need US\$280–500 billion a year for adaptation.²¹ Yet in 2016, only US\$22 billion was committed for developing countries, and this was a rise on previous years.²²

Beyond financing needs, other barriers faced by LDCs include: systemic issues, the lack of resources for incorporating long-term planning perspectives, key data gaps and the need for flexible systems. This, again, is made more difficult in contexts with fewer resources.

Adaptation is not just about addressing climate risks. It requires, among other things, effective natural resource management, functional institutions with increased capacity and capability, improved literacy, food security and an end to inequalities. These are already development priorities in many countries and should continue to be supported through whole-of-society approaches, as they are integral to building a sustainable economy. Assessing the effectiveness of climate adaptation is challenging and complex. Adaptation involves enhancing the resilience of socioecological systems as well as dealing with the complexity of – and interlinkages between – humans and the ecosystems that societies rely on. This is especially true for LDCs, whose economies are more dependent on natural resources.

Adaptation requires long-term planning to deal with uncertainties and complex, systemic thinking. A city’s resilience, for example, does not just depend on resilience within the city boundaries; it is also affected by the watershed and food systems it relies on. To reduce the vulnerability of the poorest and boost development, countries must fully integrate climate risks into their national development policies, plans and actions.

Little LDC-specific scientific climate change impact data is available to help guide domestic policymaking. Although much progress has been made, LDCs need reliable data series that are consistent over time and equivalent across research fields to improve the visibility of their vulnerabilities.²³

In a changing climate, flexibility is essential when it comes to planning, implementing, and evaluating adaptation efforts. Mitigation seeks to change existing systems and approaches to reduce climate impact, while adaptation must provide responsive and context-specific solutions to external changes. Adaptation requires long-term planning, an ability to deal with uncertainties, and complex systemic thinking. A community’s resilience depends on broader systems that go beyond socio-political boundaries and requires dealing with complexities and interlinkages in socioecological systems. As such, it does not lend itself to prescriptive actions. Rather than establishing a set of solutions, building resilience is about understanding context and what makes good practice. Adaptation responses require context-specific approaches at every stage – from design to financing to implementation and delivery.

2.4 The need for greater action remains

The international multilateral process has sought to address barriers to climate action faced by LDCs and others by setting global goals in the Paris Agreement.²⁴ The global mitigation goal under Article 2 sets a temperature target. The adaptation goal under Article 7, on the other hand, while arguably aspirational, is not quantified. The aim of the global goal for adaptation is enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the global temperature goal. It is safe to say, therefore, that it is linked to the temperature goal and hence to mitigation efforts. The climate negotiation process is expected to bring more clarity to the global goal for adaptation. In December 2019, COP25 in Madrid requested that the UN's Adaptation Committee consider approaches to reviewing the overall progress made in achieving the global goal on adaptation and to reflect the outcome in its 2021 annual report.²⁵

Although the global goal is not fully clear, it is evident that there will be an increased cost for adaptation if the world does not set its mitigation pathway towards 1.5°C. Article 7.4 recognises that greater levels of mitigation can reduce the need for additional adaptation efforts, and that greater adaptation needs can involve greater adaptation costs. But despite the lack of projected figures, the IPCC has estimated that the cost of adaptation might be lower at 1.5°C than 2°C.¹⁵ Current weather events are evidence that human adaptive capacity has a limit and further impact would push the world towards increasing levels of irreversible loss and damage. We should not, therefore, consider adaptation as a siloed theme; increased mitigation efforts from major emitting countries will reduce possible future adaptation needs and irreversible losses.

The Paris Agreement adaptation provisions seem to weigh heavily on planning, assessment, information sharing and reporting requirements. But although few provisions prompt direct support for these requirements, some do commit developed countries to providing financial assistance for mitigation and adaptation in general.²⁶

Countries will need this support to implement national-level adaptation actions. Current and future adaptation costs are high and there is a clear need for more financial resources. At COP21 in 2015, parties set a goal of jointly providing US\$100 billion a year for mitigation and adaptation by 2020, while significantly increasing adaptation finance. This amount was also set to be upwardly revised in 2025. Next year's UNFCCC COP climate talks present a good opportunity to open more provisions of financial support as parties work on setting this new collective quantified goal from a floor of US\$100 billion per year, taking into account the needs and priorities of developing countries.²⁷

The Global Stocktake is another important element of the multilateral process where adaptation needs will be showcased. One of the key tools for ratcheting up climate ambition by informing parties' progress as they revise and update their NDCs, the Global Stocktake will require inputs from various bodies and institutions to make an overall assessment of progress. These include the Adaptation Committee/LDC Expert Group synthesis report, due to come out every two years starting in 2020²⁸, which will be important for showcasing LDC national efforts and assessing progress towards achieving the global adaptation goal. The LDC evidence review needs to build into these processes to increase synergy between different international-level initiatives gathering success stories and good practices.

Despite their limited resources, LDCs are striving to adapt to current climate impact. Recognising this national-level adaptation effort at international level will send a strong political message to encourage increasing adaptation finance to meet LDC needs and tackle the barriers they face. It also provides an opportunity to build a strong evidence base for effective adaptation through sharing lessons and experiences across the LDCs and beyond. In Chapter 3, we delve into some of the insights and learnings from LDCs' experiences in adaptation.

LDCs are presenting a wide-ranging evidence base to inform better decision making

In this section, we explore how LDCs approach adaptation efforts, the lessons they are learning from practice and which adaptation approaches other countries could replicate or build on. LDCs are leading the way in adaptation. Here, we present some of the key learnings the LDC evidence review draws out from successful interventions across all developing countries.



Innovatively linking international climate decisions with national implementation, the LDC evidence review used internationally agreed elements under the Paris Agreement to test for effectiveness, identifying lessons under the following good practices for delivery:

1. National ownership of interventions
2. Long-term perspectives of planning, financing and delivery
3. Far-reaching interventions and large-scale roll-out
4. Coherent and coordinated delivery
5. Grounded in social justice, inclusion and gender equality
6. Strengthening local knowledge systems, including through improved access to technical knowledge.

3.1 National ownership of interventions

Tackling the adaptation challenge is difficult because adaptation planning and implementation vary according to context and levels of governance.²⁹ National and local-level adaptation should be fit for both purpose and context, so traditional top-down governance systems rarely meet a country's adaptation needs. The LDC evidence review found that top-down policy guidance with bottom-up plans and a circular learning process can help strengthen adaptation planning and implementation.

It also found that the most effective mechanisms were domestically driven and owned and worked to strengthen national and subnational institutions and governance systems, ensuring capacity building to enable long-term support and commitment for reliable and coherent delivery.

The LDC evidence review highlighted Bhutan for Life as an initiative where strong national ownership across different levels acts as a key driver.³⁰ The government of Bhutan has made strong commitments to low-carbon development, climate mitigation and adaptation, and biodiversity conservation and pledged perpetual carbon neutrality. These commitments paved the path for this initiative to improve land management while strengthening ecosystem service use and management. Bhutan for Life aims to strengthen traditional and indigenous systems related to conservation and climate resilience, raise awareness and build local community capacity to implement climate-resilient sustainable resource management practices. Bringing together local and national levels, it plans to coherently improve outcomes across several areas, including forest and biodiversity, water resources, agriculture and infrastructure.

3.2 Long-term perspectives of planning, financing and delivery

The LDC evidence review also found that effective adaptation delivery tends to deliver activities over long timeframes, promote long-term, climate-resilient planning and access long-term finance for climate-resilient investments. Although closely entwined, we examine these factors separately.

Long timeframes: Designing and delivering actions that will address changing needs over long timeframes requires a long-term, far-sighted perspective. Modelling climate variability becomes more uncertain the further into the future it goes. So, intervention designs need to reduce current and potential future risk by investing in building robust, long-term, climate-resilient systems. This could include taking proactive steps to make agricultural systems both more drought-tolerant and able to cope with intense rainfall. Interventions need to build in capacity from the start, to account for future uncertainty around the magnitude of risks. They also need mechanisms for reviewing and adjusting activities over time. Delivering over longer timeframes also helps build the support needed for political buy-in and national financing.

The LDC evidence review takes key lessons from Kenya's Hunger Safety Net Programme, which was designed as an unconditional poverty-based social protection programme.³¹ Launched in response to the impacts of droughts on vulnerable and poor populations, it aims to protect people's asset bases and consumption and prevent the impoverishing effects of climate-related and lifecycle-based shocks. After a drought in 2011 during the programme's pilot phase, poverty increased by 5%, but the vulnerable households supported by the programme did not fall further into poverty. In its second phase, the programme scaled up the number of recipient households and developed an extra, shock-responsive safety net feature to extend protection to households that would be pushed into vulnerability by drought and other shocks. The programme's long-term, patient outlook allowed it to review and learn from the pilot phase. This meant it could develop and adjust this shock-responsive element based on its early findings to help deliver social protection more effectively.

From 2020, the LDCs will need at least US\$93.7 billion a year to implement their NDCs alone.³² Because available climate finance support is either mostly channelled for mitigation work or does not meet the cost of adaptation plans, many LDCs have put both aid finance and national budgets towards adaptation action. This increases the strain on LDCs, as they have other equally urgent needs that require domestic financing. Ethiopia, for example, had little time to raise international aid when it was struck by severe drought in 2017, and had to use its national budget to respond with urgent efforts, to the detriment of other budget areas.³³ International and bilateral financial mechanisms' are taking months or even years to approve adaptation project proposals, so LDCs are not getting the support they need in the right timeframes.³⁴

Long-term, integrated planning: Interventions must also be underpinned by long-term information and integrated climate change planning. Effective planning can help improve the climate resilience of physical infrastructure and its cohesion with the wider ecological system. It can also support longevity through changing technology and service needs, reducing the risk of maladaptation.

Interventions need to integrate effective, long-term climate change planning at multiple levels. National and sector-level plans – including water, health and forestry policies – can address and integrate long-term climate change action across relevant planning areas to ensure consistent consideration, stakeholder engagement and resourcing across national or sectoral levels. At the local level, long-term planning may address more community-specific issues, such as participatory planning of local resource management, or providing training and support to strengthen the climate resilience of micro, small and medium-sized enterprise (MSME) investment models and business plans.

The LDC evidence review highlights one initiative in Vietnam's Da Nang municipality, which uses local solutions to support long-term national planning.³⁵ Da Nang is investing in typhoon-resistant buildings based on local designs to withstand future climate risks and integrating disaster-resilient buildings in the city's housing sector plans.

The evidence review also highlights the case of India's Ahmedabad Municipal Corporation (AMC), which developed a heat action plan (HAP) in response to the major health consequences of a

heatwave in 2010 and to address longer-term health challenges posed by longer and increasingly frequent and intense heatwaves. The HAP involves improving formal communication channels, developing longer-term forecasting tools and designating a lead officer within the city government to direct heat-related efforts at the city-level. As well as addressing the system's sensitivity and adaptive capacity, the HAP aims to reduce exposure by building in preventative measures, increasing green cover by planting trees and establishing 'cooling centres', such as temples, malls and other public buildings and shelter areas in high-risk areas. It provides a framework for implementing, coordinating and evaluating extreme heat response activities in the state and established financial and governance systems that enable a long-term, integrated, approach to reduce the negative health impacts of exposure to extreme heat. AMC prepared its first HAP in 2013 with help from national and international academic experts, and lessons from global best practice on early warning systems and heat adaptation. AMC learns from and develops the actions it undertakes as part of the plan and has released annually updated plans since 2013.

Long-term finance: Securing long-term and patient financing is vital in the process of building national financial capacity, so countries need to have strong domestic financial systems that can consistently finance climate resilience. The devolved climate finance systems in Kenya, for example, strengthen governance and financial systems at national and local levels to support the programming of locally relevant investment.³⁶

International funding needs to take a long-term approach to build such capabilities in-country. The Green Climate Fund (GCF), for example, is beginning to invest in initiatives that exceed traditional five-year project funding cycles. These include the 14-year Bhutan for Life forestry project and the 12-year Acumen Resilience Agriculture Fund in Ghana, Nigeria and Uganda. The LDC evidence review found that the GCF, the World Bank's International Development Association and the Pilot Program for Climate Resilience are the only international funds providing single-phase funding that exceeds five years.

3.3 Far-reaching interventions and large-scale roll-out

National-level adaptation has been criticised for overfocusing on planning and how the international process feeds into and from this planning, rather than on delivery. There needs to be a deliberate effort to strengthen countries' ability to deliver on plans by strengthening systems, institutions and delivery mechanisms. This is not to say that strong planning is not important; but countries should put as much focus on implementing the identified priorities and plans. As the need to adapt to the climate becomes more pertinent, taking far-reaching actions on a large scale becomes key to building adaptation and resilience. Reaching more people and covering all regions will be essential to deliver the needed efforts to build climate resilience.

Competition among donors to fund only new and transformational plans is also undermining adaptation work. This practice tends to limit funding to pilot-level projects and does not consequently scale the work up, because, by the time the pilot is ready to be scaled up, funders have moved on to the next big initiative.³⁷

Adaptation is a learning process that requires consistency and big investments over a longer period. Impactful results cannot be seen in a year, so funding should not focus heavily on quick deliverables.

Receiving financing through multiple streams has largely proved to be inefficient. Each financier or donor body requires separate sets of financial due diligence, reporting and log frame matrices, resulting in uncoordinated, potentially conflicting support and pressure to deliver value addition for each finance stream on top of supporting different output objectives.³⁸

The LDC evidence review highlights the African Risk Capacity (ARC) as a mechanism that is working on a large scale, across several countries and addressing underlying vulnerabilities. A specialised agency of the African Union, the ARC coordinates financing to deliver an extreme weather insurance mechanism, pooling finance across member states to support resistance to and recovery from drought. As part of this, it supports capacity building activities – for example, by requiring members to establish peer-reviewed contingency plans.³⁹

ARC uses Africa Risk View, an advanced satellite weather surveillance software, to estimate and trigger readily available funds to member countries hit by severe drought. ARC can provide liquidity quickly during a drought event, and its requirement to have pre-planned activities facilitates the rapid, effective disbursement of ARC payouts, which helps mitigate the detrimental impacts of disasters for the poor and vulnerable.

ARC offers a transparent mechanism to help governments manage climate risk by reinforcing national support to farmers and pastoralists at times of crisis. Capitalising on the fact that droughts do not happen across the continent at the same time, a disaster risk pool like ARC can effectively regulate financial needs over time. Pooling risk across the continent more than halves countries' requirements for emergency contingency funds and decreases reliance on external aid. Its two entities – the ARC Agency and the ARC Insurance Company Limited – provide member states with capacity building services and access to state-of-the-art early warning technology, contingency planning support and risk pooling and transfer facilities.

3.4 Coherent and coordinated delivery

3.4.1 International and national frameworks, actors and initiatives

Effective adaptation and resilience building require integrated and systematic approaches that work across socioecological systems. Given the interconnected and interdependent nature of human and ecological systems, effective interventions inevitably deliver against multiple international frameworks.

Coordinated and coherent planning of delivery across interventions will maximise synergies between key outcome areas – as identified in global commitment frameworks such as the Sustainable Development Goals (SDGs), Paris Agreement, Sendai Framework for Disaster Risk Reduction and Aichi Biodiversity Targets – to leverage overlaps and reduce contradictory or maladaptive efforts. It is important that LDCs have better-coordinated plans for delivering those global commitments so they can prioritise adaptation actions that help achieve multiple global commitments.

Climate adaptation approaches align with SDGs by streamlining adaptation planning and implementation processes from national to local level. Many approaches to climate adaptation aim to reduce the impacts of natural disasters, aligning with the Sendai Framework. Initiatives that aim to strengthen the management of the natural resources that underpin adaptive capacity of local communities – particularly those that involve landscape-related activities – address underlying causes of biodiversity loss, supporting the delivery of the Aichi Biodiversity Targets. Taking advantage of synergies does not, therefore, replicate efforts. Instead, it supports more effective approaches overall, helps reduce the risk of maladaptation and ensures that progress in poverty reduction is not undermined by the evolving types, magnitude and timescales of climate hazards.

The LDC evidence review highlights Bangladesh's coastal afforestation programme, which aims to build the climate resilience of communities in coastal areas, supporting the coherent delivery of several frameworks, including the SDGs. The approach targets the poorest and most vulnerable by supporting alternative income-generating activities for forest-dependent people to reduce poverty (SDG1) and improve livelihoods (SDG8). It also reduces greenhouse gas emissions and strengthens resilience and adaptive capacity to climate-related hazards and natural disasters (SDG13) and protects, restores and promotes the sustainable use of terrestrial ecosystems, forests and land by increasing forest area cover and supporting sustainable forest management (SDG15). Afforestation creates a physical barrier to protect coastal areas from cyclonic storms, supporting the targets of the Sendai Framework by reducing the exposure of local communities. Increasing forest coverage also improves biodiversity, supporting the Aichi Biodiversity Targets.

3.4.2 Across stages of delivery

Building institutional climate capabilities within governments and coordinating across different actors in delivery is a challenge for all LDCs, which lack crucial data for setting priorities and the institutional capacities for implementing developed plans. A functional governance structure plays an indispensable role in

facilitating the integration of adaptation into planning and implementing development policies, strategies and projects. But, because countries have their own risks, socioeconomic situation and development goals and priorities, they must design institutional frameworks that fit their context. Effective institutional structures help aggregate key state and non-state actors, so they can boost adaptation investment.

Actions need to be integrated vertically between different levels and horizontally across different sectors. Using subsidiarity in decision making – that is, ensuring that decision-making authority is held in the closest appropriate proximity to where the actions will be taken – to integrate actors, planning and financing systems is essential for effective, inclusive and efficient action. Integrating across sectors and actors supports knowledge sharing and solutions and ensures a deeper reach of impact. Making linkages along a given value chain and between different value chains can help strengthen the whole system.

The LDC evidence review points to Nepal's Climate Change Financing Framework (CCFF) as a good example of coordination.⁴⁰ Developed by the Ministry of Finance, the CCFF aims to take a consistent, systematic and integrated approach to policy and institutional reforms in Nepal's public financial management system and build capacity at all government levels to plan and manage climate finance, track the quality of expenditure with respect to impact on lives and livelihoods of the most vulnerable populations, and generate and disseminate reports on expenditure and impacts to strengthen accountability. The framework aims to enable a whole-of-government approach, increasing capacities to mobilise, manage and target climate finance at different government levels. Its objective is for the national level to provide policy and strategic guidance, accompanied by strategic resource envelopes, complementing bottom-up planning and budget formulation by local and provincial governments. To support better targeting of the poorest and most vulnerable groups, 80% of the climate budget allocation is prioritised for local-level action. Coordinating across ministries, the framework aims to support mainstreamed climate responsiveness in the context of broader economic development and government fiscal planning.

3.5 Grounded in social justice, inclusion and gender equality

Bringing women and men who have experienced climate impacts into relevant policy spaces is an important part of just decision making and meets the Paris Agreement's commitment to a gender-responsive approach. Supporting disadvantaged groups – including indigenous, elderly, disabled and young people – and promoting social justice through gender equality and social and economic inclusion is vital for reducing long-term vulnerability.

Ensuring equal rights and opportunities for women and men to access economic resources and benefits and promoting capacity building and appropriate gender-relevant technology are essential for building the resilience of women and men. Women have distinct experience and wisdom that is important for ensuring climate change adaptation responses are efficient and sustainable. As such, their full and efficient participation and contributions are critical.⁴¹

CBA CONFERENCES

IIED and partners have organised a series of international Community-Based Adaptation (CBA) conferences to enable practitioners, governments and donors to share latest developments and best practice. CBA focuses on empowering communities to use their own knowledge and decision making to act on climate change.⁴²

CBA13 was held in Addis Ababa, Ethiopia, 1–4 April 2019.

CBA13 offered an opportunity for the LDC evidence reviewers to draw in community stakeholders experience, and had a cross-cutting theme of listening to grassroots representatives on how to achieve transformative gender responses in climate action at local, national and international levels. The gender theme reflected the need:⁴³

- **To understand the underlying drivers of gender inequality**, as climate resilience interventions need to understand the underlying drivers of inequality between women, girls, men and boys in different contexts to design resilience processes that respond to structural inequalities and gender norms.

The LDC evidence review highlights an initiative in Bangladesh to help local people cope with climate-induced water salinity that is taking a gender-sensitive approach.⁴⁴ Acknowledging the crucial role that women play in water security and household-level resilience, and their socioeconomic marginalisation, the project seeks to address climate change-induced threats to agricultural livelihoods and drinking water security in affected coastal communities and particularly the impacts that disproportionately affect women and girls. The project works to strengthen ministries' technical and coordination capacities for designing and implementing gender-responsive, climate-resilient coastal livelihoods. It also supports participatory, site-specific mapping, beneficiary selection, the mobilisation of community-based management structures for climate-resilient drinking water solutions and women's enterprise.

Investing in locally managed organisations and businesses and supporting local access to products and services that improve climate risk management are also crucial for building local-level climate resilience.

Participation by a broad spectrum of stakeholders is important for informing and implementing adaptation planning, in terms of both inclusivity and representation to resolve trade-offs. Governments and non-state actors are likely to face challenges to understand the context if local stakeholders are not involved in the process.⁴⁵ A whole-of-society approach that considers long-term impacts is vital for addressing systematic drivers of vulnerability and exclusion. Using diverse approaches for local adaptation fosters opportunities to strengthen and implement adaptation plans.

Although local communities face the daily impacts of climate change, adaptation plans tend to address macroeconomic – rather than local – questions. But, if it is to avert climate-induced challenges faced at community level, adaptation planning must accommodate local needs and priorities. So, cultural understanding and place-appropriate research play a significant role in effective adaptation planning and implementation.⁴⁶ However, planners rarely put much effort into researching the intrinsic role of culture in climate action, which could explain why so many plans are ineffective.

- **For gender-focused outcomes** by devising methods to measure change focused on gender-responsive indicators and collecting gender-disaggregated data
- **To understand intersectionality** between gender, age and ethnicity-related challenges that exacerbate the lived experience of climate vulnerability and the challenges of enhancing climate resilience and examine these intersections as part of the gender analysis, and

Implementing adaptation action can also bring a major shift in community culture. Participatory design and transparency are essential to achieving effective delivery without creating cultural shock. Meaningfully engaging subnational actors in designing and implementing initiatives ensures relevant and valuable action. Transparency is essential for engaging local stakeholders in designing, implementing, channelling funding to and using resources for adaptation.

Decentralising adaptation governance, planning and financing to subnational levels can improve the reach of actions in developing climate resilience at local levels. In Kenya, communities in Isiolo, Garissa, Kitui, Makueni and Wajir Counties determine how 70% of the publicly disclosed climate budget is spent at ward level and local governments decide on 20% of their spend at county level. As well as empowering communities to adopt adaptation measures, the government gives them the technical support they need to finalise their prioritised investments.^[34]

3.6 Strengthening local knowledge systems, including through improved access to technical knowledge

Effective adaptation delivery is characterised by approaches that strengthen local knowledge systems and enable the integration of scientific and technical knowledge within these systems. Harnessing local knowledge on climate risk management ensures actions are locally relevant.

Communities and indigenous peoples have longstanding relationships with their environment and have built up knowledge on and practices around managing the complex ecosystems they depend on. Developing interventions that enable local people to incorporate technical knowledge into their systems can allow them to adapt 'expert' solutions to local realities and give them space to experiment with, learn from and adjust solutions to meet their own needs.

Strengthening local knowledge on managing climate risks – including brokering links to new technical knowledge and skills – will require significant investment. The LDC evidence review highlights the example of the Vanuatu government, which is developing climate information services to support resilient development⁴⁷ to standardise the use of science-based climate information to underpin awareness-raising and long-term policy planning around climate change. To expand the use of climate information in the tourism, agriculture, infrastructure, water management and fisheries sectors, the government is building technical capacity within these sectors to harness and manage climate data, develop practical climate information tools, foster their use and disseminate tailored climate information.

By developing technical capacity and tools, this approach increases the availability of data and people's ability to use them. By tailoring and supporting the provision of reliable, functional and timely climate information, it helps local people integrate the information into their systems and supports their decision making.

Taking a whole-of-society approach: Mechanisms for delivering adaptation

The LDC Group categorises adaptation delivery mechanisms into climate-resilient people, economies, and landscapes and ecosystems. Having explored some of the lessons and good practices for effective adaptation in the LDC evidence review, we now explore these three categories, discuss their scope and coverage, and highlight some normative considerations that may underpin their provision and delivery.

4

The LDC Group intends to use the lessons and good practices in Section 3 to strengthen mechanisms for delivering adaptation in LDCs. Their three categories – people, economies and landscapes and ecosystems – capture key LDC Group priorities while keeping a flexible structure to account for different LDC contexts and priorities.⁴⁴

Rather than a typology of separate interventions, we consider this categorisation as a useful way to classify and discuss interventions. These three interlinked and overlapping areas are not mutually exclusive and encourage whole-of-society perspectives on delivery.

Climate-resilient people captures social systems that support human wellbeing and sustainable development. This includes mechanisms for equitable social development, social protection and welfare, health, education, waste management, migration and human settlements and disaster risk reduction systems. In general, these systems cover all people living within a state. They are commonly, but not necessarily, delivered through state-led mechanisms, which require leadership and oversight from state institutions. Such services are essential building blocks in meeting peoples' basic needs. As climate change impacts increase in frequency, magnitude and uncertainty, having resilient systems for delivering these services will be even more important. For example, ensuring disaster-proof and resilient infrastructure for collecting and safely treating waste in urban and rural areas is crucial for sanitation, health, environmental safeguarding and local economies.⁴⁸

Climate-resilient landscapes and ecosystems is about building the resilience of natural systems and places. It spans ecosystems or the spaces where people live and work – including agricultural systems and food security, natural resources such as forestry and water use – maintaining biodiversity and cohesive living with wildlife. In delivering place-based interventions, mechanisms led by civil society can be common. These include frontier funds – bottom-up grassroots-driven local funds that represent and are directly owned by the poorest and most marginalised populations, providing much greater space for community innovation and agency.

Integrated landscape management approaches, natural resource management and nature-based solutions are areas under which mechanisms can support delivering climate-resilient landscapes and ecosystems. There are, for example, many different approaches to integrated landscape management, with different entry points, processes and institutional arrangements. But they all tend to involve stakeholder participation, negotiation around objectives and strategies, and adaptive management based on shared learning.

Natural systems provide ecosystem services that are critical to human development. They include provisioning services such as food, water, timber and fibres; regulating services that affect climate, floods, disease, waste and water quality; cultural services that provide recreational, aesthetic and spiritual benefits; and supporting services such as soil formulation, photosynthesis and nutrient cycling. Examples of ecosystem-based adaptation in practice include participatory plant breeding to cope with drought in China, forest conservation in Chile to reduce landslides and avalanches, wetland restoration in Nepal to secure water supplies, and improved mangrove management and restoration in El Salvador to restore water flows.⁴⁹

Climate-resilient economies cover economic sectors, such as energy, transport, physical infrastructure, financial services, manufacturing, tourism and other economic services. State, civil and private sector-led mechanisms all help bolster socially inclusive, environmentally responsible and climate-resilient economies. In many countries, Micro, Small and Medium Enterprises (MSMEs) make up a large part of the national economy. Supporting these small business leaders to adopt climate-smart, innovative business models – for example, to build resilient production systems – is essential to bolster climate resilience in society. Agriculture – a climate vulnerable sector – forms the largest part of many LDC production systems, employing 60% of the labour force and accounting for 20–50% of output.⁵⁰

Helping formal and informal MSMEs across a range of value chains become climate-resilient can boost household incomes, support local livelihoods and wellbeing, and provide additional resources for local people to draw on in times of crisis. MSMEs play a major role in the economies of developing countries, representing 90% of businesses and over 50% of employment worldwide.⁵¹

The International Finance Corporation estimates that 65 million firms – 40% of formal MSMEs in developing countries – have an unmet financing need of US\$5.2 trillion every year. There is a clear opportunity for financial and technical support to MSMEs to develop socially inclusive and environmentally friendly climate-responsive enterprises.

LDCs can move towards climate-smart value chains by helping enterprises integrate climate risk considerations into business decisions along the value chain. With many LDC enterprises highly dependent on natural resource-based systems, their value chains are already dealing with the impacts of climate change. However, these market systems and enterprises often lack access to information and the capacity to integrate climate risk management into their operations. This would enable

them to develop proactive preventative or preparatory measures to reduce the impacts of climate change and move towards long-term, climate-resilient business models and markets.

LDC universities play a key role in expanding LDC research capabilities and information on ecosystems. As neutral and trusted stakeholders in society, they play a key role, gathering evidence and generating knowledge, documenting and sharing experiences, and serving as institutional memory and legacy partners. The LDC Universities Consortium on Climate Change network shows that universities also provide an opportunity for collaboration and partnerships across countries.

To build adaptation and resilience, delivery mechanisms must cover the whole of society. Integrating climate objectives into national-scale decisions will strengthen resilience outcomes to climate change impacts, avoid locking in carbon-intensive and polluting investments, and bring multiple socioecological and economic benefits. Supporting climate resilience in production systems is a key part of supporting a climate-resilient economy.

Strengthening these delivery mechanisms for strong adaptation outcomes involves strengthening planning and governance processes, engaging the actors involved in implementation, ensuring the financial vehicles used reach these actors. But it also involves creating an enabling environment that drives incentives to integrate the lessons in section 3 into the mechanisms, and so addressing undermining factors across the wider system that interventions are channelled through.

Looking forward

5

As some of the world's most vulnerable countries, LDCs are at the frontline of climate change. Drawing on provisions of the Paris Agreement, they have developed strong criteria and harvested lessons and good practice for effective adaptation through delivery mechanisms that work.^[4]

This paper presents insights into LDCs' journeys to climate-resilient development pathways. All countries can learn from these insights, which inform the work of the LDC Group at international level and of member countries at national level to deliver effective adaptation action.

1. Adaptation is urgent and available finance is a fraction of what is needed

All countries urgently need their own Paris-compatible development pathway that enables society to adapt to changing conditions at a greater pace and scale. Further delay will increase countries' vulnerability to climate change-related impacts, generating irreversible loss and damage and increasing total associated costs.

Developed countries must meet their international commitments to increase finance for climate adaptation and resilience. Investing in adaptation will help avoid losses from stranded assets and maladaptation while bringing substantial economic, social and environmental benefits. Investing US\$1.8 trillion globally in early warning systems, climate-resilient infrastructures, improved dryland agriculture crop production, global mangrove protection and water resource resilience in the next ten years could generate US\$7.1 trillion in total net benefits.⁵²

LDCs are leading the way on working towards integrated climate-resilient development pathways. The LDC evidence review identifies important delivery mechanisms for policy and implementation, and finance should be prioritised to support those that have already proven effective.

2. A robust evidence base can inform better decision making

Decisions about climate change are complex, costly and have long-term implications. As such, they must be based on the best available evidence. Different elements of data seen through set criteria will produce enough evidence for politicians and policymakers to take key policy decisions. Working with a wide range of partners and stakeholders will provide access to the data needed for a robust evidence review.

The evidence review heavily relies on positive deviance examples; but we can also draw lessons from failed adaptation efforts. Reviewing only projects with positive deviance means that success stories tend to overshadow challenges and failures. While helping identify trends for success, it has a major impact on learning for effective adaptation. All-too-familiar issues – the lack of resources, capacity, local-level engagement and ownership, political blockages and so on – merit assessment in their own right.

Periodically reviewing national projects, programmes and delivery mechanisms against the LDCs' criteria for effective adaptation design and delivery will give policymakers and technicians a good foundation for national climate and development strategies. Consistent and regular reviewing can support better responsiveness and adaptive management processes for actively learning from challenges arising in delivery and building on successes.

3. Delivery and delivery mechanisms need strengthening and scaling up

Only a whole-of-society approach can address the challenges of climate change at the pace and scale required. LDCs must build capacity at all levels, strengthen existing delivery mechanisms and develop new and innovative mechanisms to get finance to the local level.⁵³ This is a more effective and responsive way to ensure interventions have the desired outcomes.^[35]

LDCs are identifying areas for support that will get key climate-resilient outcomes for people, economies and landscapes and ecosystems. LIFE-AR will be crucial in addressing climate change, poverty, inequality, and biodiversity loss. Patient, sustained, large-scale work will ensure adaptation efforts reap lasting impact and stronger, more agile institutions.

4. There are many South-South learning opportunities but coordination and synergy are lacking

LIFE-AR aims to create a platform for lesson learning and experience sharing. Using effectiveness criteria and delivery mechanisms that have a built-in evidence review process and are owned and defined by LDCs will boost South-South learning. Neighbouring countries can adapt approaches together to work on transboundary issues through regional initiatives, and LDCs can learn and adopt lessons, experiences and frameworks from each other.

There is also an opportunity to link the international climate negotiations to national implementation. Despite growing global and national recognition of the need for effective adaptation responses, major gaps remain, impeding the way for effective and sustainable implementation. Countries must approach their international climate commitments to deliver financial, planning and technical support in a way that ensures lessons and data flow down to and up from subnational and local levels. The criteria developed through LIFE-AR^[4] present a good framing for joint dialogue across scales, while grouping interventions across climate-resilient people, economies, and landscapes and ecosystems provides a clear and strong basis for channelling support and linking multiple levels.

Acronyms

AMC	Ahmedabad Municipal Corporation
ARC	African Risk Capacity
CBA	International Conference on Community-Based Adaptation
CCFF	Climate Change Financing Framework
COP	Conference of Parties (UN climate change conference)
FMNR	farmer-managed natural regeneration
GCF	Green Climate Fund
HAP	Heat Action Plan (India)
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LDC Group	Least Developed Countries Group
LIFE-AR	LDC Initiative for Effective Adaptation and Resilience
LDC REEEI	LDC Renewable Energy and Energy Efficiency Initiative for Sustainable Development
LUCCC	LDC Universities Consortium on Climate Change
MSME	Micro, Small and Medium Enterprises
NDC	nationally determined contribution
SDG	Sustainable Development Goal
SIDS	Small Island Developing State(s)
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme

Endnotes

- 1 UNCTAD (n.d.) Least Developed Countries (LDCs) <https://tinyurl.com/y3lrxxch>
- 2 Salawitch, R, Canty, T, Hope, A, Tribett, W and Bennett, B (2017) Paris Climate Agreement: beacon of hope.
- 3 Global Center on Adaptation (2019) Adapt now: a global call for leadership on climate resilience. See <https://gca.org/global-commission-on-adaptation>
- 4 Statement from the chair of the LDC Group on the UN Climate Action Summit (26 September 2019). See www ldc-climate.org/press_release/statement-un-climate-action-summit/; LDC Group (2019) LDC 2050 Vision: towards a climate-resilient future. See www ldc-climate.org/wp-content/uploads/2019/12/LDC-Group-Vision.pdf
- 5 LDC Group (2019) Delivering our climate-resilient future: lessons from a global review. See www ldc-climate.org/wp-content/uploads/2019/09/web_LDCevidencereview.pdf
- 6 IPCC (2018) Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. See www.ipcc.ch/sr15/
- 7 IPCC (2014) Annex II: Glossary. In: IPCC. Climate change 2014: synthesis report. Contribution of Working Groups I, II and III to the Fifth assessment report of the Intergovernmental Panel on Climate Change. IPCC, Geneva.
- 8 Leary, N, Adejuwon, J, Barros V, Burton, I, Kulkarni, J, and Lasco, R (2009) Climate change and adaptation. Earthscan, London.
- 9 Among the earliest discussions on this topic is Huq, S, Reid, H and Murray, L (2006) Climate change and development links. IIED, London.
- 10 IPCC (2014) Summary for policymakers. In: IPCC. Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK and New York, USA.
- 11 Huq, S and Toulmin, C (2006) Three eras of climate change. IIED, London.
- 12 Huq, S, Rahman, A, Konate, M, Sokona, Y and Reid, H (2003) Mainstreaming adaptation to climate change in Least Developed Countries (LDCs). IIED, London.
- 13 UNFCCC (2015) Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. Addendum. Part Two: Action taken by the Conference of the Parties at its twenty-first session (FCCC/CP/2015/10/Add.1). Paragraph 17. See <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>
- 14 To read more about LDC positions in the UNFCCC process and how those have developed, see Barakat, S and Endalew, G J (2019) LDCs, negotiations and the climate crisis: will the poorest countries benefit from the COP24 climate package? IIED, London. <https://pubs.iied.org/pdfs/10200IIED.pdf>
- 15 World Bank Group. World Bank Open Data. <https://data.worldbank.org>
- 16 Hallegatte, S (2016) Shock waves. World Bank, Washington, DC.
- 17 IPCC (2001) Climate change 2001: impacts, adaptation, and vulnerability. Contribution of Working Group 2. In McCarthy, J Canziani, O, Leary, N, Dokken, D and White, K (eds) *Third assessment report of the International Panel on Climate Change*. Cambridge University Press, Cambridge, pp. 995
- 18 Ofori, B, Stow, A, Baumgartner, J and Beaumont, L (2017) Influence of adaptive capacity on the outcome of climate change vulnerability assessment. *Scientific Reports* 7, 12979. See www.nature.com/articles/s41598-017-13245-y
- 19 Tan, L (2006) The paradox of catching up. Palgrave Macmillan, New York.
- 20 Sharma, A and Venturini, S (2019) Pocket guide to adaptation under the UNFCCC. See <https://ecbi.org/sites/default/files/PGAdaptation.pdf>; Wright, H, Huq, S, and Reeves, J (2015) Impact of climate change on Least Developed Countries: are the SDGs possible? IIED, London. See <https://pubs.iied.org/pdfs/17298IIED.pdf>
- 21 UNEP (2016) The adaptation finance gap report. United Nations Environment Programme: Nairobi, Kenya. See www.unep.org/adaptationgapreport/2016
- 22 Richmond, M, Meattle, C, Micale, V, Oliver, P and Padmanabhi, R (2019) A snapshot of global adaptation investment and tracking methods. Climate Policy Initiative. See <https://tinyurl.com/ybnmufqy>
- 23 Ravindranath, N and Sathaye, J (2003) Climate change and developing countries. Springer Netherlands, Dordrecht.
- 24 UNFCCC. The Paris Agreement. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- 25 1/CMA.2 Chile Madrid Time for Action <https://unfccc.int/documents/210477>
- 26 Abeysinghe, A Craft, B and Tenzing, J (2016) The Paris Agreement and the LDCs.
- 27 UNFCCC (2015) Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. Addendum. Part Two: Action taken by the Conference of the Parties at its twenty-first session (FCCC/CP/2015/10/Add.1). Paragraph 53. See <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>
- 28 Decision 1/CP.21 <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>
- 29 Bierbaum, R and Stults, M (2013) Adaptation to climate change: context matters. *Michigan Journal of Sustainability*, Vol 1. See <https://doi.org/10.3998/mjs.12333712.0001.004>
- 30 Green Climate Fund. FP050: Bhutan for life. www.greenclimate.fund/projects/fp050
- 31 See Government of Kenya. Hunger Safety Net Programme (HSNP). <https://tinyurl.com/ycmkue8m>; Oxford Policy Management (2017) Evaluation of the Kenya Hunger Safety Net Programme (HSNP) www.opml.co.uk/projects/evaluation-kenya-hunger-safety-net-programme-hsnp
- 32 Rai, N, Soanes, M, Norton, A, Anderson, S, Steele, P, Tenzin, J and MacGregor, J (2015) A fair climate deal in Paris means adequate finance to deliver INDCs in LDCs. IIED, London. See <https://pubs.iied.org/17333IIED>
- 33 Schemm, P (1 May 2017) Ethiopia is facing a killer drought. But it's going almost unnoticed. See <https://tinyurl.com/szljn6b>

- 34 For example, the GCF IEU finds that of the 48 funding proposals that received disbursement after 8 July 2019, the combined accreditation and project approval process (from receiving access to the GCF online accreditation system to applying for accreditation to receiving the first project disbursement) took an average of 1,256 days (GCF IEU 2019)
- 35 Tran, P, Tran, TH and Tran, AT (2014) Sheltering from a gathering storm: typhoon resilience in Vietnam. Boulder: ISET-International. See <https://cdkn.org/resource/typhoon-resilience-vietnam>
- 36 Crick, F, Hesse, C, Orindi, V, Bonaya, M and Kiiru, J (2019) Delivering climate finance at the local level to support adaptation: experiences of County Climate Change Funds in Kenya. IIED working paper, London <https://pubs.iied.org/G04415/>
- 37 Soanes, M, Rai, N, Steele, P, Shakya, C and MacGregor, J (2017) Delivering real change: getting international climate finance to the local level. IIED, London. See <https://pubs.iied.org/10178IIED/>
- 38 Worlen, C, Altevogt, J and Keppler, L (2020) Synergies between climate finance mechanisms. CIFs and GCF. See <https://tinyurl.com/ydys7apc>; OECD (2003) Harmonising donor practices for effective aid delivery. See www.oecd.org/development/effectiveness/20896122.pdf
- 39 African Risk Capacity. www.africanriskcapacity.org/
- 40 Government of Nepal, Ministry of Finance (2017) Climate Change Financing Framework: A roadmap to systematically strengthen climate change mainstreaming into planning and budgeting. Kathmandu, Nepal https://mof.gov.np/uploads/document/file/CCFF_FINAL_Web_20180222050438.pdf
- 41 UNDP (2012) Gender and adaptation: climate change. Capacity development series Africa, training module 2. Global Gender and Climate Alliance. See <https://tinyurl.com/swyfy98>
- 42 IIED. Community-based adaptation (CBA) conference archive. www.iied.org/community-based-adaptation-cba-conference-archive
- 43 IIED (2019) Knowledge and experiences from the 13th International Conference on Community-Based Adaptation to Climate Change. See <https://pubs.iied.org/17719IIED/>
- 44 Green Climate Fund. FP069: Enhancing capacities of coastal communities, especially women, to cope with climate change-induced salinity. www.greenclimate.fund/project/fp069
- 45 IPCC (2014) Climate change 2014: impacts, adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge and New York.
- 46 Barron, S, Canete, G, Carmichael, J, Flanders, D, Pond, E, Sheppard, S and Tatebe, K (2012) A climate change adaptation planning process for low-lying, communities vulnerable to sea level rise. *Sustainability*, 4(9), 2176–2208. See <https://doi.org/10.3390/su4092176>
- 47 Green Climate Fund. FP035: Climate information services for resilient development planning in Vanuatu (Van-CIS-RDP). www.greenclimate.fund/projects/fp035
- 48 C40 Cities. Sustainable waste systems: network overview. www.c40.org/networks/sustainable-waste-systems
- 49 Jones, X and Reid, H (26 September 2019) Time to team up with nature to adapt to climate change. IIED blog. www.iied.org/time-team-nature-adapt-climate-change
- 50 UNCTAD (2016) The Least Developed Countries report 2015: transforming rural economies. See https://unctad.org/en/PublicationsLibrary/lcdc2015_en.pdf
- 51 World Bank. Small and medium enterprises (SMES) finance. www.worldbank.org/en/topic/sme/finance
- 52 Global Centre for Adaptation (2019) Adapt now: a global call for leadership on climate resilience.
- 53 Shakya, C, Soanes, M and Smith, B (2019) Calling for business unusual: reforming climate finance. IIED briefing paper: London. See <https://pubs.iied.org/pdfs/17736IIED.pdf>

Adaptation is an investment that becomes effective over time through learning. International climate talks are serving as a key platform for bridging such learning. The LDCs, from the frontlines of climate impacts, are pioneering large-scale and innovative adaptation responses. This issue paper draws from experiences in the international dialogues and of LDC national practice to explore how the adaptation narrative is developing at both levels. It examines where they are aligned, and where they clash, in influencing adaptation scope and delivery. Some key lessons that we can learn from the LDC Group are highlighted.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.



International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
www.iied.org

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