Climate Change Adaptation Guide for Practitioners

The Adaptation Policy Cycle: From Planning to Implementation

On behalf of:

Federal Ministry
for the Environment, Climate Action,
Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

IKI INTERNATIONAL CLIMATE INITIATIVE

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

CLIMATE ANALYTICS

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany

Address
GIZ Office East Asia
Tayuan Diplomatic Office Building 2, 16th floor
14 Liangmahe Nanlu, Chaoyang District
100600 Beijing, PR China

Email: climatechangechina@giz.de
For more information on the project and IKI in China please refer to climatecooperation.cn

Project Description
This report is an output of the Sino-German Cooperation on Climate Change – NDC Implementation project, a bilateral initiative by the Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN) in partnership with the Ministry of Ecology and Environment of the People's Republic of China (MEE) carried out by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH together with China's National Centre for Climate Change Strategy and International Cooperation (NCSC).

The project is implemented on behalf of the International Climate Initiative (IKI) of the Federal Government of Germany. Within the Federal Government, the IKI is anchored in the BMUKN. Selected individual projects are also the responsibility of the Federal Foreign Office (AA).

Project Director
Paul Recknagel

Authors
Winnie Khaemba, Andrés Ángel, Zachary Zeller, Rosanne Martyr (Climate Analytics)

Reviewers
Melania Guerra (Climate Analytics)
Xing Lianghui, Julia Berndt (GIZ)

Design
Beijing Zhuochuang Design Co. Ltd.

Photo credits
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Beijing, December 2025

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Foreword

Prof. Dr. Michiel Schaeffer

Chief Scientist, Co-founder
Climate Analytics

Researcher and Lecturer
International Islamic
University of Indonesia

Even under the most ambitious global mitigation scenarios, current trajectories indicate that global warming levels may overshoot the 1.5°C limit set by the Paris Agreement, before potentially returning to below 1.5°C later this century. Warming exceeding 1.5°C sharply increases the likelihood of breaching climate tipping points, such as ice sheets or coral reef collapse, and sharply exacerbate climate-change damages in vulnerable regions – and increasingly in regions considered less vulnerable. The growing and already visible impacts of climate change underscore the urgent need for robust adaptation policies that both address current risks and anticipate future ones. International efforts to advance adaptation policy across governance levels have prioritised a systematic consideration of risk, response assessments, and strong implementation efforts.

Yet, the planning, monitoring, implementing and evaluating of effective policies remains a complex task. Uncertainties in emissions pathways, evolving climate projections, and a range of technical, financial, and institutional constraints make forward-looking decision-making particularly challenging. Additionally, climate impacts differ markedly across regions, and limits in community resources and institutions can hinder the success of even well-designed policies. Recognizing this, successful adaptation planning must integrate both global uncertainty and local realities.

This report presents a framework of guiding principles and practical steps to support adaptation policymaking processes. It frames adaptation as a dynamic, iterative policy cycle, with distinct components. To illustrate the policy cycle in practice, the report provides real-world case studies and examples of best practices.

I would like to express my gratitude to all contributors to this report and hope that these insights are useful to practitioners worldwide, helping them design, implement, and refine effective adaptation policies and plans from the local and regional to national levels.

Foreword

XU Huaqing
Chief Scientist,
National Center for Climate Change Strategy and International Cooperation

Policymakers today face the dual challenge of promoting economic and social development while preparing for a climate that is already changing. Adaptation is no longer optional – it has become an important prerequisite for safeguarding prosperity, stability, and wellbeing. Decisions taken now will determine not only how societies withstand climate shocks, but also whether future growth is inclusive and sustainable.

This guide is designed to support decision-makers in advancing effective adaptation actions. It presents adaptation as a comprehensive policy cycle that begins with risk and vulnerability assessments, followed by the planning of strategies and allocation of resources. Implementation then translates these plans into concrete measures across sectors such as infrastructure, agriculture, health, finance, and urban planning. Monitoring and evaluation provide the feedback needed to refine approaches and inform future action. The guide stresses that adaptation must be participatory and inclusive: policies are most effective when they integrate the knowledge, priorities, and capacities of vulnerable groups and communities.

The experience of China illustrates how such approaches are evolving in practice. Long-term strategies, such as the National Climate Change Adaptation Strategy 2035, provide direction, while sectoral and local initiatives translate the national strategy into specific local action plans. Emerging monitoring and evaluation systems are beginning to create feedback loops that help decision-makers further adjust policies in line with shifting risks and local realities.

As part of a series of Climate Change Adaptation Guides for Practitioners, this report brings together international lessons and practical insights for governments. By combining scientific evidence with local perspectives, and by engaging citizens alongside institutions, adaptation can deliver solutions that are resilient, equitable, and durable. In an era of accelerating climate change, this report provides a valuable reference for advancing development pathways that protect people, economies, and ecosystems.

Executive Summary

Purpose and Scope

The intensifying impacts of climate change highlight the critical importance of meeting the Paris Agreement's goal of limiting warming to no more than 1.5° C above pre-industrial levels. Even under the most ambitious emissions reductions scenarios, it is increasingly evident that some irreversible climate impacts are unavoidable. This reality calls for a comprehensive, dual strategy, one that prioritises climate mitigation while advancing climate adaptation.

This report offers guidance on the planning, implementation and evaluation of adaptation policies. It is intended for adaptation practitioners, policymakers and stakeholders, particularly at the local level. This document is intended to complement a previous report titled Climate Adaptation Planning – An Overview, providing a more in-depth approach to the policy making process. By synthesising international frameworks, best practices, support tools and external resources, this report aims to serve as a practical starting point for creating adaptation-focused policies.

We examine the current state of adaptation policymaking across different levels of governance, from international frameworks and national strategies to subnational and local initiatives. Central to this discussion is the Paris Agreement, whose 1.5°C temperature limit and the Global Goal on Adaptation provide a robust international framework. These global commitments offer the potential to improve adaptation outcomes by reducing climate-related risks more efficiently and at a lower cost, while also enhancing adaptive capacity, strengthening resilience and reducing vulnerability. Recognizing the critical role of local policies in advancing national strategies (such as development blueprints) and international goals such as alignment with the Paris Agreement goal of limiting warming to 1.5^0C, we provide guidance that can be scaled up for greater impact.

To illustrate these concepts, the report features real-world examples of adaptation policies from around the world. While we caution against directly copying successful policies without considering local contexts, adherence to the policy cycle can ensure local translation of successful policies in a given context.

Finally, we introduce external tools and frameworks that help quantify often intangible elements of adaptation policymaking. Our aim is to provide practical, actional guidance and best practices that build capacity and improve the effectiveness of adaptation strategies across governance levels.

This report on Natural Environment Risks and Solutions is part of a series of three Climate Change Adaptation Guides for Practitioners that can be accessed here.

The other two reports focus on Natural Environment Risks and Solutions, as well as Urban Environment Risks and Solutions.

Key Findings

The following table summarises the most significant insights that emerged this report:

Cycle Component	Major Themes	Takeaways
Planning	• Risk Assessment • Stakeholder Engagement • Case Studies	• Climate risk and vulnerability assessments can systematically quantify risks and expose policy gaps • A diverse set of stakeholders can provide important insight into sectoral and community needs, and contribute to policy success • Existing policy examples and case studies can provide a starting point for local policymaking
Implementation	• Implementation Plans • Cost-Benefit Analysis • Financing	• Implementation requires specific and tangible guidelines on timeframes, enforcing actors, and resources required • Cost-benefit analysis can make the financial case for adaptation and increase buy-in • Financial resources can be determining factors in the success of policies
Monitoring, Evaluation & Learning	• Key Performance Indicators • Data and Verification • Policy Evaluation	• Data provides quantitative support for policies • Data-informed, regular, and long-term evaluation of policies determines effectiveness • Monitoring, evaluation & learning highlight the iterative and systematic process of the policy cycle

Recommendations

Vertical Integration of policies ensures that adaptation is embedded at larger scales while remaining appropriately localised. Aligning priorities across multiple levels of governance can mutually support the overall policy making process.

Horizontal Integration of policies across multiple sectors can help to mainstream adaptation efforts across society. Often there are co-benefits and mutual interests that can be attained through cross-sectoral collaboration. However, these partnerships need to be deliberately and carefully facilitated by policymakers and adaptation actors.

Policy Translation to meet the needs and conditions of local contexts is essential, as adaptation is largely a local process. Capacity building and resources can help translate policies at the local level.

Validity through Time is critical for effective and efficient response to changes. As such, adaptive governance, adaptation pathways and other related approaches should be incorporated to guarantee flexibility, continuous learning and update that enables validity through time.

Public Involvement is crucial to ensure that policies are successfully implemented on a large scale and have sufficient buy-in. It is recommended to consult local stakeholders and community groups to understand how they will be affected by a given policy.

Mainstreaming policies into existing processes and mechanisms makes adaptation a more natural and automatic process. Finding easy entry points for policy implementation and embedding them in long-term, ongoing, and large-scale processes will make adaptation more feasible.

Climate-Resilient Development utilises climate adaptation to ensure continued and long-term socio-economic development. Often, principles of adaptation and development overlap, allowing for streamlined policy with multiple co-benefits.

1 Introduction

1 Introduction

1.1 Context of Adaptation Policy

Policies have been long identified as a key enabling and catalysing factor for climate adaptation. They are important in ensuring action at different levels both within and outside government including for private sector actors among others (IPCC, 2022). They are able to provide a legal framework for the development and implementation of climate adaptation strategies (IPCC, 2022 and IPCC, 2023).

International policies are wide ranging. Some important ones related to climate adaptation include: the UNFCCC and its Paris Agreement, the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), the SDGs, and (UNFCCC, 2024) the Sendai Framework. The UNFCCC's Paris Agreement in mandating countries to submit their own domestic commitment based on their national circumstances enabled the implementation of a set of national level policies to implement their NDCs (UNFCCC, 2015). The policies developed by countries are the building blocks to meeting the Paris Agreement goal of limiting warming to 1.5^{0}C. In fulfilment of their international obligations, countries have thus developed NDCs, NAPs, climate laws and other policy instruments to support climate adaptation (UNFCCC, 2024). These include laws that are legally binding at national and even regional level, plans and strategies, decrees, proclamations etc. The Paris Agreement specifically calls for a focus on adaptation given that countries, especially developing countries, are highly vulnerable and disproportionately impacted by climate change (IPCC, 2022).

Adaptation policy has gained traction as a result of increasing climate risks and their impacts on people, ecosystems and the built environment (IPCC, 2022). Adaptation policy has thus adopted various approaches in its design and implementation. Research highlights some of these approaches including an incremental adaptation approach, mainstreaming of adaptation in policies across sectors as well as transformational adaptation policy approach which calls for structural change. (Burton et al., 2002; Khan and Roberts, 2013; Vij et al., 2017; Rosenschöld & Rozema, 2019).

Research in adaptation policy often addresses emerging methods of vulnerability and risk assessments, which are critical in informing strategies and policies (Sova and Schipper, 2019). There is also emerging evidence considering adaptation policies themselves and their effectiveness as well as the financing and enforcement of adaptation policy. As a result, the topic of adaptation policy covers a wide range of domains, such as scientific research, law, human behaviour, and political science.

Within the UNFCCC, in the implementation of the Paris Agreement there has been debate around metrics for climate adaptation and ongoing work under the global goal on adaptation (UNFCCC, 2015). Current efforts seek to further research metrics and monitoring in order to support adaptation policy. There is also emerging research around the inclusion of key adaptation solutions in policy such as ecosystem based adaptation, community based adaptation, nature based solutions and technological solutions (Khan and Roberts, 2013; Cárcamo et al., 2014; IUCN, 2020; Zhu et al., 2023). Emerging areas of adaptation policy that have been recently highlighted include transboundary adaptation as well as ex-ante planning for future adaptation based on various climate projections.

1.2 Adaptation Across Levels

Adaptation is a highly local process and must take into consideration geographical differences, on-the-ground conditions, and specific context. As a result, the practice of adaptation is often implemented at the local and subnational level. Nevertheless, national-level guidance helps realise this process by providing much needed coordination of local efforts, facilitation of knowledge and capacity-building processes, and financing opportunities.

Reciprocal linkage of local and subnational adaptation efforts with national governance is often reflected in National Adaptation Plan (NAP) development through a process known as vertical integration. This process is explained in more detail in the 'Developing a strategy' section of this document.

The process of vertical integration can also move beyond national levels to include guidance from international and supranational organisations. In fact, the NAP process itself was established by the UNFCCC, who provide guidance, knowledge, and coordination of adaptation efforts across countries. Despite providing technical assistance, financing support, and general guidance, the NAP process is intended to be non-prescriptive and country-specific.

Nevertheless, local adaptation efforts are intended to be puzzle pieces in a larger process of global adaptation to climate change. Ideally, these efforts mutually support each other and minimise trade-offs. Therefore, international guidance and existing frameworks on climate adaptation provide an essential mechanism to connect local and national processes to bigger picture goals and needs.

2 Adaptation Policy Cycle

2 Adaptation Policy Cycle

The Adaptation Policy Cycle refers to a process of creating policy that is effective and relevant for adaptation. As the name suggests, adaptation policy is cyclical and dynamic, requiring robust effort and coordination. There are various elements in the cycle, but the overarching ones involve planning, implementation and monitoring, evaluation, and learning (MEL). Figure 1 outlines these three elements which are discussed in further detail throughout this chapter.

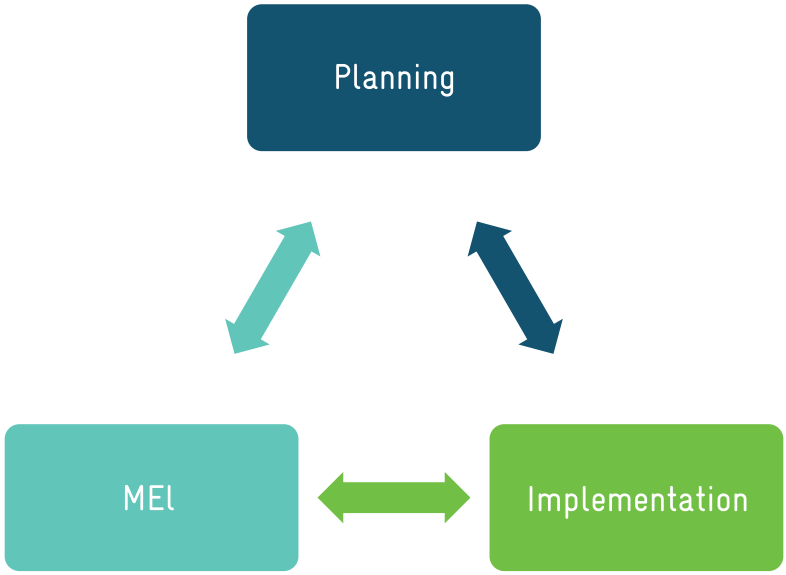


Fig. 1. Overarching elements of the Adaptation Policy Cycle
Source: Authors of the report

2.1 Planning

Planning is the first step in the policy cycle. This step involves the integration of climate risk data and knowledge (usually produced from CRAs), with consideration of potential solutions. Solutions can involve a diverse range of approaches, policies, actions, or developments. Adaptation planning can strengthen existing efforts or introduce new ones. Specific solutions for different sectors and settings can be found in previous reports, such as the solutions section in our report on natural ecosystems, or urban environments.

Toolbox for policymakers
policy case studies

Adaptation is location and context-specific. It is not recommended to replicate policies from one place to another without proper stakeholder consultation and consideration. Still, case studies of existing policies can provide a starting point for adaptation. It is recommended to consider successful case studies for similar risk, and localise them for specific contexts. Databases of existing case studies and examples can provide a useful starting point.

Source	Focus
UNFCCC Adaptation Knowledge Portal	Global
WeADAPT map of case studies	Global
Climate-ADAPT Case study explorer	Europe
C40 Cities Case Study Library	Global, urban-level

2.1.1 The Policy Environment and Coordination

For the policy environment, the main aspect of importance is an understanding of the policies that exist. This enables better planning of new policies including whether reviews and updates are imminent or new policies are necessary. It is also important to understand what policies they link to. In many countries, environmental policies are linked to international governance regimes such as the UNFCCC, CBD UNCCD among others. At the local level, policies are linked to national level frameworks including economic development blueprints. In this process an analysis can be undertaken to understand the scope of existing policies, their strengths and what may be missing so as to inform the new policy or to review and update an existing policy. This can be accomplished by listing the key existing policies and how they address climate adaptation.

In Bangladesh for example, the Bangladesh climate policies including the NAP are based on the Bangladesh Climate Change Act of 2010 (Government of Bangladesh, 2010). This also led to the establishment of the Climate Change Trust fund (Government of Bangladesh, 2022) as well as the Mujib Climate Prosperity Plan of 2030 and the local adaptation plans of action (LAPA's) amongst others. In Germany, there is the Climate Act under which the national adaptation strategy is anchored.

Coordination is also a critical element at the planning stage, which necessitates working across ministries and departments to be able to plan, develop and finalise the relevant adaptation policy. A coordination structure has to be agreed upon at the very beginning, including who leads the process of developing the policy and who leads the implementation process and the identified strategies. An example is South Africa where NAP coordination was led by an inter-ministerial committee on climate change, an intergovernmental committee on climate change and the national committee on climate change. The NAP itself is anchored in South Africa climate law. (Government of South Africa, 2021)

Coordination for the development as well as implementation of policy also involves securing buy-in and political will both vertically and horizontally. An example is South Africa's Presidential Climate Commission headed by the president and includes ministers as well as representatives from diverse sectors including traditional leaders, women and youth representatives who are charged with leading the climate agenda in the country. This commission has ad hoc working groups that focus on different issues one of which is monitoring progress towards the achievement of adaptation goals.

2.1.2 Stakeholder Engagement

Stakeholder engagement is an important component of the planning process. It contributes to having processes and policies that are inclusive, equitable, and well suited to tackle climate risks (Howes, 2018 and IPCC, 2022). Research shows that involving communities and other stakeholders can lead to more successful implementation of policies and sustainability. It can also offer insights into strategies and indigenous governance frameworks that communities employ to address climate risks thus not only enriching the policies but also contextualizing them. It can also result in more empowered communities as they contribute to the policy making and implementation process (Burton and Mustelin, 2013; Khatibi et al., 2021). Stakeholder engagement can also promote ownership beyond communities for example, where the private sector is motivated or incentivised to co-develop products that address certain climate risks and contribute to solutions.

Stakeholders are wide-ranging, from government ministries, communities, civil society, research and academia, private sector, youth, women, persons with disabilities, and indigenous groups. Stakeholder engagement encompasses stakeholder mapping to understand which sectors the adaptation policy is targeted at, who will implement the policy, where and how it will be implemented and who will benefit from the strategies to be implemented among other key considerations. This helps in identifying which stakeholders need to be engaged (see table 1).

Table 1. Example Matrix for stakeholder mapping.

Stakeholder	Stakeholder type/group	Role	Influence	Areas of engagement	Level
Indigenous leaders	Community	Indigenous knowledge holders	providing leadership and decision making Lead in implementation of initiatives;	Insights on indigenous practices and traditional governance Uptake of planned climate strategies	Local
University	Academia	Research	Knowledge and evidence generation	Research e.g. on vulnerability, impact & risk assessment	National
Business owner	Private-sector	Industry insight	Mainstream adaptation in business practices	Insight into private sector practices and needs	Local-to-international

Source: Authors of the report

Once the stakeholders are identified it is important that clear ways of engagement with the stakeholders are designed, and these may vary from one stakeholder group to another. In this process it is critical that there is open communication and feedback with stakeholders to ensure that their input is included from the onset and that the process is co-developed and implemented with stakeholders (Cárcamo et al., 2014b; Malloy & Ashcraft, 2020; Juhola, S. et al., 2022; Suprayitno et al., 2024).

Some processes that have been found to be useful in stakeholder engagement include awareness raising to prompt participation, stakeholder forums and roundtables, workshops, interviews, surveys, focus groups

and discussions. When designing policies, stakeholder discussions can be a useful way of coming up with feasible and accepted strategies that will be supported by local communities. In some cases, policies have involved diverse stakeholders as part of the coordination team for the planning, design and implementation of adaptation. Still, some authors have suggested even more engagement of communities and the public in adaptation policy-making and implementation. They contend that engagement should extend to awareness raising and empowerment of communities to increase their agency (Burton and Mustelin, 2013; Howes, 2018; Oels, 2019)

Stakeholder engagement can require significant investment in time and other resources to conduct, but often results in cost-effectiveness, co-ownership and increased sustainability during implementation (Howes, 2018; Khatibi et al., 2021; IPCC, 2022). The process of engaging stakeholders also requires transparency and sharing of information to ensure that all stakeholders are able to make meaningful contributions to the policy processes. In the end, this legitimises policies, increases public acceptance and ownership of solutions, and results in greater awareness of climate risks and enhanced resilience of both communities and ecosystems. (Kujala, 2022; Conde, 2005)

The Netherlands' Multi-stakeholder Delta Program is an example of a stakeholder process on adapting to flood risk. Stakeholder mapping tools such as this template from Adaptation Scotland as well as more complex ones involving stakeholders such as CARE's Climate Vulnerability & Capacity Assessment that is used to generate and analyse vulnerability to climate change at community level. MyCoast is a citizen science digital tool that is used to collect data on coastal areas, informing decisions and contributing to the documentation of climate risks along the coast in the US.

2.1.3 Impact and Risk Assessment

Adaptation policies rely on impact and risk assessment data and information as a basis for the strategies and solutions they propose. Without risk and impact understanding it is difficult to formulate effective solutions to address climate risks. Impact and risk assessment is important to identify, analyse and prioritise risks thus helping policymakers and other decision makers plan and decide. Assessment on climate hazards and exposure for instance, can help inform on the areas that need focus and the priorities that need to be considered (IPCC, 2022). Impact and risk assessments help to generate data on hazards such as urban flooding, extreme heat, droughts, etc. Considering the likelihood of climate risks in these assessments can help determine the most at-risk groups as well as determine which stakeholders to engage. This process can also be useful in ranking strategies and ultimately inform the allocation of resources, both technical and financial. Risk and impact analysis can also reveal gaps in existing policies, thus enabling design of more robust measures.

Vulnerability assessments are also a key component here in policy formulation as they help inform which strategies are likely to succeed and in which contexts. These assessments also help stakeholders evaluate their interventions based on available data and information. It can also inform regulations for example around zoning, buffer zones and designation of protected areas etc. It is especially critical to consider a gender analysis during impact and risk assessment to determine vulnerabilities and coping capacities across different social groups in a disaggregated manner for example women, men, children, youth, persons with disability, the elderly and indigenous groups among others.

Some tools and methods that can be used for impact and risk assessment include modelling and scenarios such as those by the IPCC, risk matrices, GIS and remote sensing. Globally, the IPCC assessments contain the latest available science on ways in which risk and impact assessments can be done (IPCC, 2022). At regional levels, risk assessments have been conducted for entire continents (see the European Climate Risk Assessment). Nationally, countries have set in place methods for impact and risk assessment such as

the South Africa Risk and Vulnerability Atlas (Department of Environment, 2020). Other platforms that are useful for risk and impact assessments include the IPCC Climate Change 2022: Impacts, Adaptation and Vulnerability, Summary for policy makers, the IPCC Interactive Atlas, the Climate risk dashboard and the Climate Change Knowledge Portal.

It is important that at this step, the coordination team assesses available data to inform the development of the policy, the capacities available, sectors involved, socio-economic limitations and the timescales at hand. In some cases, assessments are commissioned as part of this process if the information is not readily available. It is especially important that this process clearly provides information on the specific implications for communities, natural ecosystems and the built environment. The tools and resources mentioned above can be used in this process. Once the information on vulnerability, risk and impacts is available it can be reviewed by various stakeholders, validated and used for the development of the policy (UNFCCC, 2012; IPCC, 2022).

2.2 Implementation

After planning, the next step in the policy cycle is implementation. Implementation plans are critical in this process. Adaptation policies have to include specific guidelines covering their timelines, specific strategies, enforcing actors, and resources required.

2.2.1 Prioritisation of Measures, Timelines and Plans

Prioritisation is a key step in this process, where the policy has to include the key areas of intervention in a way that effectively addresses climate risks. This can be done by considering the feasibility of the proposed policy strategies as identified in the vulnerability, risk and impact assessment as well as during the stakeholder engagements (Ruangpan et al., 2021). Multi-criteria decision making is one method that can be used to prioritise (Akbari et al, 2020).

One tool that may be helpful in this process is the cost of inaction. Cost of inaction includes socio-economic and environmental impacts that occur as a result of failure to implement adaptation measures. Socio-economic losses may include death from extreme heat, loss of crops and livestock, infrastructural damage, displacement due to flooding, etc. Environmental losses can include erosion, biodiversity loss and ecosystem service provision. It should be noted here that delaying adaptation ultimately results in increased adaptation costs, thus there is usually a strong economic case to not delay adaptation efforts. For the 2022 Pakistan floods, 30 billion USD was lost as a result of inadequate preparedness and action (World Bank, 2022). It is estimated that the 2022 European heatwaves led to an increase in food inflation by 0.7% in Europe (Kuik et al., 2023). Responsive policies are therefore critical in bridging the cost of inaction.

A cost-benefit analysis (CBA) can also support prioritisation where policy strategies are evaluated on the basis of how much they cost and the related benefits. When undertaking the CBA, it is important to first determine the scope and especially the climate risk as well as the end goal of the policy strategy. A quantification costs and benefits analysis then follows where direct costs (e.g. seawalls) and indirect costs (cost of operation) and direct benefits (flood control) and indirect benefits (jobs generated) are estimated. To compare costs and benefits, the net present value and sensitivity analyses are often used. CBAs should consider issues of equity, by considering which groups will benefit and which groups will lose. There are various tools that have been designed for CBA and other economic approaches for use by stakeholders. For example, the Nairobi Work program has a toolkit on assessing the costs and benefits of adaptation options.

Multi-Criteria Decision Analysis (MCDA) is another method for prioritizing options. MCDA involves defining objectives and criteria then rating the selected adaptation options against the criteria. Once done it is also possible to engage stakeholders to consider where they think the most priority lies for these criteria. MCDA methods include PROMETHEE, a probabilistic multi-criteria analysis that was used in Jena city highlighted in the Climate Change Adaptation in Urban Environments Report; weighted sum method; and, Analytic Hierarchy Process (AHP) among others. After this a sensitivity and uncertainty analysis can be conducted across multiple identified scenarios to help prioritise options that perform well under all of them or under specific scenarios.(Abdullah, Siraj and Hodgett, 2021; IPCC, 2023; Digkoglou and Papathanasiou, 2025)

Decision-Making under Deep Uncertainty (DMDU) also presents another way of prioritising adaptation options when formulating policies. Increasingly, policymakers and other decision makers are faced with uncertainty when considering climate extremes, uncertainty in climate and impact models as well as ineffective adaptation and loss and damage thus need to apply this as a way of responding to and anticipating uncertainty in adaptation policy. Approaches used for DMDU include robust decisionmaking (RDM) where strategies are evaluated across possible futures under different scenarios; and dynamic adaptive policy pathways (DAPP) where strategies are implemented in a flexible manner that allows for continuous modification based on emerging risks, new data and evidence etc.(Haasnoot et al., 2013). The Netherlands Delta Program also highlighted above uses this approach with stakeholder engagement. In DMDU objectives need to be defined followed by identifying the uncertainties then applying DMDU tools as mentioned above for different strategies then selecting the most appropriate options for prioritisation (IPCC, 2023; Lempert et al., 2024; Arroyo-Santos et al., 2025). MCDA can also be used together with DMDU to make for robust adaptation options in adaptation policies.

Other considerations even with simple approaches should include the co-benefits potential where there is need to consider the mitigation or other co-benefits of the given adaptation strategy. For example, the planting of trees to combat urban heat has the co-benefit of carbon sinking, biodiversity and sustainable development goals. Synergies and trade-offs are also an important consideration. Sustainability is another aspect where there is a need to consider whether the proposed strategies are sustainable. Uncertainties are also an element that must not be forgotten especially given the state of climate risks which have become increasingly unpredictable thus flexibility to make changes must be built into the policy implementation plan. All strategies included must be data-driven as this enables informed decision making and optimal outcomes (IPCC, 2023).

Key questions to consider in the prioritisation of strategies in the implementation plan

Is the policy strategy feasible?

What are the costs of inaction?

Has a cost-benefit analysis been conducted?

What are the synergies and trade-offs?

Is the prioritised policy strategy sustainable?

What are the inherent uncertainties and how can they be addressed?

2.2.2 Financing

Finances can be a limiting factor in implementing adaptation policy. Consideration of financing in implementation involves budgeting, resource mobilisation and allocation as well as tracking to ensure accountability. Globally, adaptation finance lags behind mitigation finance with much less funding directed towards adaptation efforts outlined in NDCs and NAPs (Climate Policy initiative, 2024). At the 2024 COP 29 in Baku, efforts to achieve a balance between mitigation and adaptation and increase the amount of finance for developing countries through the New Collective Quantified Goal (NCQG) was agreed at only $300 billion from the initially proposed $1.3 trillion by 2035. At the subnational level this can be especially challenging as budgets are already limited. As a result, there is a crucial need for integration of adaptation policy both vertically and horizontally as discussed in the 'developing a strategy' section.

In this phase, therefore, it is important to consider the amount of resources required to fund the policy. This should cover human (e.g. staff to lead implementation), technical (e.g. technology such as computers and software available for data collection, monitoring and analysis) and financial resources (funds required for mangrove planting or setting up a local adaptation plan or strategy).

Climate risk and impact analyses and cost benefit analyses discussed above can also be helpful in this budgeting phase as they already provide relevant information regarding required resources (Roy et al, 2017; Cook-Patton et al, 2021; Ruangpan et al, 2021). In addition to the amount of funds required, it is also crucial to document where they are expected to come from, for example national treasury, international climate finance, public-private partnership, specific taxes or levies, community mobilisation, philanthropy among other blended sources. In their NDCs, for example, most developing countries provide for conditional and unconditional targets indicating that they will domestically fund part of their climate targets while the rest will be funded via international climate finance (2024 NDC Synthesis Report | UNFCCC, 2024). Examples of funding mechanisms can be consulted in table 2.

Innovative financing sources have been designed and implemented in many cases, for example, the city of Johannesburg implemented green bonds in 2014 to fund their green transport project that involved hybrid and biogas-fuelled buses.

Table 2. Funding mechanisms and their characteristics.

Funding Mechanism	Source	Examples
National/regional budget	Government	25% of the European budget is dedicated to climate-related expenditure
National Climate Change Fund	Government Other sources	Bangladesh Climate Change Trust Fund
Subnational budget	Government	Kenya's county level climate funds mandated under Kenya's Climate Change Act funds local adaptation
Levies or taxes (e.g. carbon tax)	Government	EU Carbon Border Adjustment Mechanism (CBAM)
International climate finance	Green Climate Fund Adaptation Fund Global Environment Facility Loss and Damage Fund	GCF provides fuds from developing countries to adapt to climate change
Insurance	Government Private sector Local government	In 2024, Grenada received US$ 43 million from the CCRIF as payout for tropical cyclone and excess rainfall policies after Hurricane Beryl

Funding Mechanism	Source	Examples
Green bonds	Government Private sector Local government	City of Johannesburg green bonds
Grants	Philanthropies Development organisations Civil society Private sector	Bezos Earth Fund
Public private partnership	Government Private sector	Financing Cities Adaptation to Climate Change through Public-Private Partnerships and Corporate Social Responsibility (LIFE CITYAdaP3)
Loans	Government World Bank/IMF Regional MDBs	Worldbank
Debt-for-Climate Swaps	Government Developed countries	GCF working paper on debt for climate swaps Ecuador Debt-for-Nature Swap in Galapagos Islands

Source: Authors of this report

There are also tools for tracking adaptation finance that have been developed for example the MDB methodology for adaptation finance tracking which can be useful especially where adaptation interventions are integrated in other sectors.

2.3 Monitoring, Evaluation, and Learning

Fig. 2 Essential MEL framework elements.

Source: Authors of the report

Monitoring, Evaluation, and Learning (MEL) is a critical element in the climate adaptation policy cycle as it ensures that there is a framework for tracking the implementation of the policy once it is finalised. This can be used as a tool for measuring the effectiveness and success of policies over a given time period and enable review and update. It can support tracking of how resources are utilised in implementing the policy and the cost-effectiveness and suitability of adaptation options. MEL can support adaptive management, promote stakeholder engagement across the implementation loop to ensure effectiveness and also generate evidence on best practices that can be replicated (Silva Villanueva, 2011; Noltze et al., 2021; OECD, 2021). The UAE Framework for Global Climate Resilience provides a way in which adaptation can be tracked and this can be utilised in designing and implementing MEL for adaptation policy.

A MEL framework in adaptation policies has to include indicators including key performance indicators, sources of data and verification as well as timelines within which monitoring and evaluation is conducted and by who. Selected indicators have to be specific, measurable, attainable, relevant and timebound (SMART) (OECD, 2021; Seyisi, Mantlana and Ndhleve, 2023). Monitoring of policies should be continuous thus the chosen framework has to incorporate elements that enable this. An example is the monitoring of urban heat or sea level rise.

Policy evaluation is the stage in the policy cycle in which it is determined whether the goals and objectives have been met. This can be done at the beginning of the policy implementation, and at regular intervals thereafter to keep track of progress. It is also important that the process of policy formulation and implementation is evaluated as well as its eventual impacts and outcomes. Some approaches that can support this are the cost-benefit analysis discussed before, which can provide a good basis for tracking implementation. This can include, for example, comparison of morbidity and mortality data after the deployment of a heat action plan or other related policies. The OECD evaluation criteria focuses on the relevance, coherence, effectiveness, efficiency, impact and sustainability of policy strategies and it is a relevant framework to consider.

When it comes to learning, all data and information collected for monitoring and evaluation have to be assessed and the results should be used to modify, review and update areas that need it. Highlighting case studies and success stories is important in this process and should be included in the design of the policy MEL framework. As already reiterated, MEL is an iterative process, thus the loop continues throughout the policy implementation period (Coger et al., 2021; Noltze et al., 2021; OECD, 2021).

At this stage of the adaptation policy cycle it is important that stakeholders are extensively engaged to determine and come up with an effective MEL framework. This can improve MEL by ensuring that all actors are clear about their specific roles and responsibilities on MEL, which in turn, can include citizen science where communities are able to input data. There should also be provisions for incorporating new approaches such as emerging technologies, evolving climate risks and data in MEL and the overall implementation of policies (Coger et al., 2021).

Different countries and subnational actors have developed various forms of MEL frameworks that incorporate some of the above. MEL frameworks have become increasingly participatory to encourage the general public to contribute directly to the process as well as provide real time data and information, e.g. when monitoring sea level rise or air quality. The UNFCCC Adaptation Committee has in fact developed a technical paper on Monitoring and evaluation of adaptation at the national and subnational levels that policymakers and decision makers can use during policymaking and implementation.

Some examples of policies are included below:

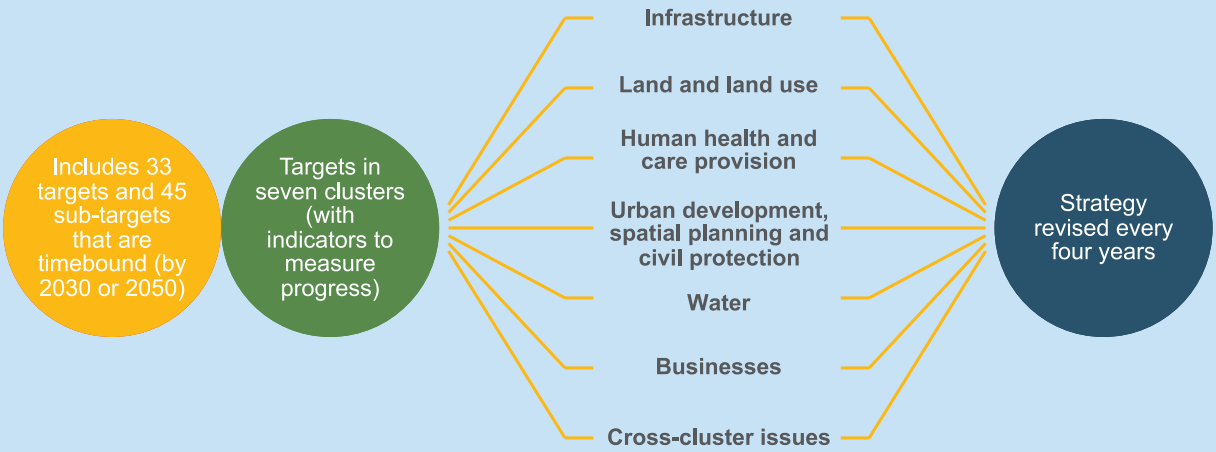
Germany's Federal Climate Adaptation Act

Germany's Adaptation Act was finalised in 2023. In terms of the planning of this policy, it recognises the participation of districts, municipalities and the public in the policy process. It also provides for climate risk analysis to inform actions. The climate risk analysis is to be updated every eight years

On Implementation, it mandated the development and execution of a climate adaptation strategy with measurable targets based on a climate risk analysis latest by September 2025. Germany finalised this strategy in December 2024. Local levels are also required to develop their strategies. Beyond the strategies, it provides for the formulation of adaptation plans at district level.

For MEL, there is a provision for the publication of a periodic monitoring report on climate change impacts and the status of the climate adaptation strategy targets. The relevant authorities at the national and subnational level are mandated with the fulfilment of the policy provisions. For the review and update, it provides that the adaptation strategy will be updated every four years and amended if the monitoring report reveals that the targets were not met.

Germany's Adaptation Strategy



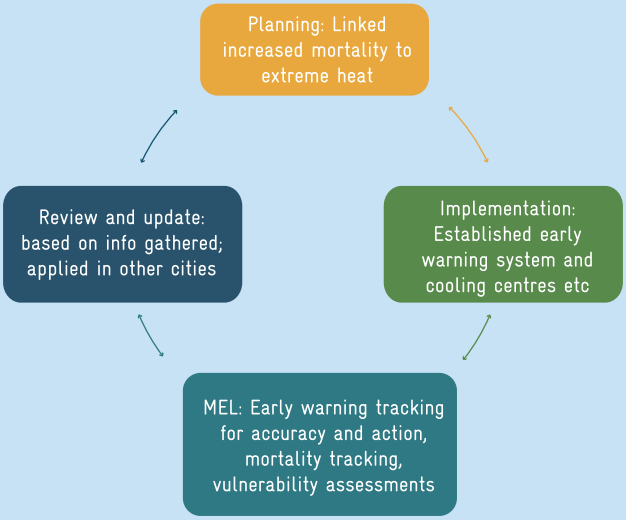
Ahmedabad Heat Action Plan

First developed in 2013, it has evolved to meet emerging needs and challenges over the years, including increased frequency of heat waves.

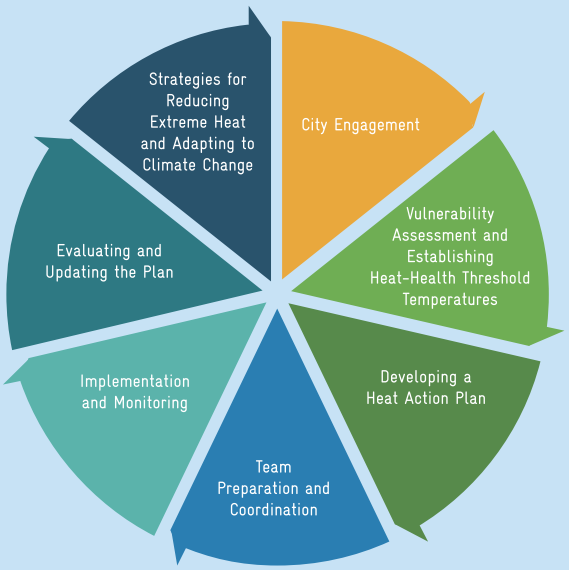
Key pillars

- Public awareness and community outreach (based on forecasts for early warning
- Early warning systems and coordination across agencies.
- Capacity building within the health sector.
- Heat exposure reduction and promotion of adaptive measures.

HAP details responsibilities by department/agency during heatwave days and it includes activities and protocols for different heat alert levels.



Ahmedabad city has published How-to Manual: Steps to Develop a Heat Action Plan Based on Ahmedabad's Experience as a resource for other cities. It lays out the steps which it followed for its development as outlined below.



3 Developing an Adaptation Strategy

3 Developing an Adaptation Strategy

3.1 From Policies to Strategies

Climate risk is complex and multi-dimensional, affecting multiple sectors on varying time and spatial scales. As a result of this, standalone policies are likely not enough to significantly reduce climate risk, and multi-pronged approaches and policies will need to be combined into robust adaptation strategies that are overseen across multiple levels and mainstreamed for various actors. Understanding climate adaptation as an ecosystem of interrelated policies and actors can help to establish more effective risk reduction, while also benefiting from synergies of mutually aligned efforts.

Typically, the most common standardised approach to developing adaptation strategies occurs at the national level, in the form of a **National Adaptation Plan** (NAP). These plans involve national efforts to address climate risk given the countries access to resources, knowledge and capacity.

3.2 Vertical Integration

While a national-level adaptation strategy may establish a NAP as an initial step, the question of vertical integration will determine practical implementation and local effectiveness. Sub-national adaptation actors are increasingly being utilised to implement adaptation goals, coordinate across levels, and disburse financial resources.

Climate Financing through sub-National Governments

The UN Capital Development Fund's Local Climate Adaptive Living Facility (LoCAL) works to help developing countries and least developed countries access financing for adaptation and climate resilience. LoCAL works to strengthen national adaptation goals by providing funding, capacity building, and guidance for sub-National and local governments. A key mechanism of vertical integration is the delivery of international climate financing through existing sub-National mechanisms, as well as through performance-based climate resilience grants (PBCRGs), which ensures initiatives are overseen by local mechanisms. Delivery of funding through existing channels helps to develop capacity for further finance options and lead the way for scalable funding options.

Source: UNCDF

One way that NAPs can be 'localised' or 'downscaled' to an even smaller scale is through the development of a Local Adaptation Plan of Action (LAPA). These are community-focused, bottom-up plans addressing the most important local needs and priorities for adaptation, helping to realise the overall goals of NAPs. LAPAs were first established in Nepal by the national Ministry of Environment, which has also developed a framework on LAPAs.

In Europe, more than 800 adaptation plans have been developed at the city-scale. The EURO LCP Initiative works to collect and assess the state of adaptation in these cities, determining whether these plans are satisfactory. The initiative even created an open-source Climate Change Adaptation Scoring Tool to assess local plans.

In addition to considering local and sub-national scales, vertical integration also involves coordination with transnational and supranational levels. A 2023 analysis of 41 submitted NAPs found that more than 60% of countries linked their NAP to the transboundary and regional level. A briefing note from the NAP Global Network found that most references to transboundary risk revolved around shared water resources, identifying risks to fishery stocks, irrigation, reservoir levels, flooding, and hydropower production (IISD, 2023). For coastal countries, transboundary risks of ocean acidification, ocean warming, and threats to fish and coral populations were particularly important.

Regional Cooperation in Adaptation – Southern African Development Community

The Southern African Development Community (SADC) is an intergovernmental bloc of 16 member states in Southern Africa working towards economic integration, cooperation, and stability. The SADC developed a climate change strategy and action plan to highlight opportunities for mitigation and adaptation across sectors. The plan references the importance of transboundary management (specifically water management), regional cooperation among member states, and coordinated adaptation efforts between national governments.

The action plan highlights that while member states are responsible for developing their own strategies and NAPs, an additional framework of transboundary risk can provide much needed context and understanding beyond national borders.

Source: Southern African Development Community

Despite the clear relevance of transboundary risk to adaptation goals, most NAPs do not take a systematic or unified approach to understanding transboundary risk. After all, there is no internationally accepted definition or widely accepted framework on transboundary risk, and many NAPs are limited to national boundaries and authorities.

Nevertheless, the increasing consideration of interdependent economies, ecosystems, and governance highlights the importance of cross-border cooperation. While national-level actors may lack the knowledge and capacity to fully understand transboundary risk, there is great opportunity for non-state actors, civil society, and intergovernmental bodies to work on cross-border resource management and governance. These approaches can facilitate cooperation and knowledge sharing between borders while still maintaining

national sovereignty over natural resources. The African Adaptation Initiative, for example, is a pan-African effort with the goal of assessing transboundary risk, implementing adaptation on the continent, facilitating knowledge sharing, and filling in finance gaps. While national-level authorities are often involved in such initiatives, there is also a unique role for sub-national and local governments to play, as these authorities directly oversee and manage the resources and territories of interest, conferring crucial expertise on local conditions.

Vertical Integration of Adaptation Strategies		
Level	Actors	Implementation
Local Adaptation	NGOs, Civil Society, Village Associations, City officials	Local Adaptation Plans of Action, Urban Adaptation Plans
Sub-national Adaptation	Sub-national authorities, municipal governments,	State and Provincial adaptation plans, multi stakeholder committees
National Adaptation	National Ministries	National Adaptation Plans
Regional and Trans-boundary	Intergovernmental bodies, supranational organisations, non-state actors	Regional and Intergovernmental adaptation strategies

Fig. 3 Levels, actors and implementation instruments of adaptation strategies (vertical integration)
Source: Authors of this report

3.3 Horizontal Integration

While vertical integration refers to coordination of efforts across different levels, horizontal integration describes the process of aligning common objectives and initiatives across sectors. Since climate change is a multi-sectoral risk, it is imperative that actors work across sectors to pursue mutually beneficial adaptation strategies.

There are many ways in which horizontal integration can be realised, such as through liaison programs, joint committees, interagency initiative, expert dialogues and joint funding schemes.

Often, there are strong synergies and co-benefits for adaptation across sectors. There are clear linkages between water and agriculture, for example, or between human health and urban planning. Identifying and aligning common goals can allow stakeholders to work together, sharing unique knowledge and funding opportunities from their respective sectors.

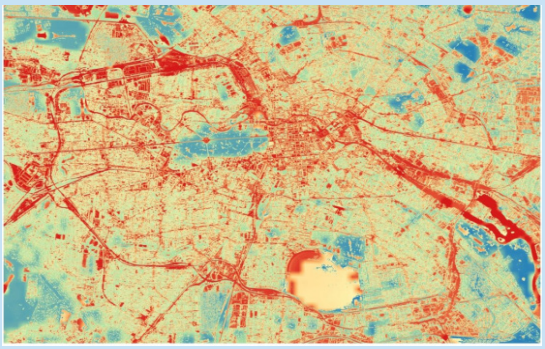
Despite the promise for mutually beneficial collaboration between sectors, key stakeholders are often unaware of synergies and opportunities. It is therefore essential for research institutions and government authorities to facilitate dialogues and partnerships. This process often begins with research and education of stakeholders on the climate risks that their sectors face, and over time develops into bilateral dialogues based on trust and partnership. Increasingly, funding schemes for research projects are requiring diverse stakeholder input and co-development to ensure that research is applicable across sectors.

Sectorally-informed adaptation planning in Berlin

In Berlin, Germany, trends of increasing urbanisation and heat stress pose important questions about future planning and urban development. In 2023 a team of climate researchers, urban planners, and local health authorities came together to understand strategies for future urban development.

The process began with a series of workshops to understand the interests and needs of various sectors, including urban planning and health officials. After co-developing various urban development scenarios with city officials, researchers conducted high resolution (1 x 1 meter) heat stress modelling across the city.

The results of this research indicated that different urban policies can significantly alter health outcomes for Berlin's population. Findings from the project are being used to inform ongoing policymaking decisions.



Source: Climate Analytics

As a mediator between different sectors, it is crucial that the co-development process take into account different needs, objectives, and motivations between stakeholders. This is especially important if sectors have traditionally competed against each other (for example, in places where water resources are scarce, industry and agriculture may represent diverging interests). On the other hand, platforms that strategically align interests and promote win-win collaboration can facilitate long standing cooperation, while delivering a multitude of co benefits.

Horizontal Integration of Adaptation		
Sectors	Aligned Interests	Policy Opportunities
Agriculture – Municipal Water – Hydropower	Water for irrigation, human use, sanitation, energy	Water conservation strategies, wastewater recycling
Health – Urban Planning – Biodiversity	Green spaces in cities, access to nature, conservation	Nature-based solutions, urban forestry, parks and outdoor recreation
Infrastructure – Transportation – Buildings	Reduction of physical damage from flooding, heat, extreme weather	Updating building codes, retrofitting, sourcing resilient materials
Research – Industry – Insurance	Understanding of future climate risks	Research funding, risk management tools

Fig. 4 Sectors, aligned interests and policy opportunities of adaptation strategies (horizontal integration). Source: Authors of this report

4 Case Studies and Global Best Practices

4 Case Studies and Global Best Practices

4.1 Community-based adaptation in Bangladesh

Community-based adaptation can be a powerful tool to tackle the challenges posed by climate risks and countries like Bangladesh have opted for a strategy that emphasises the role of communities and local action in risk adaptation. Next, we will present some of the policy instruments used for that purpose in that country.

4.1.1 National Adaptation Programme of Action (NAPA)

The Bangladesh National Adaptation Programme of Action (NAPA) was prepared by the Ministry of Environment and Forest (MOEF) and guided by a Project Steering Committee composed by other ministries and with contributions from local governments representatives, members of the scientific community, media, NGO and CBO representatives, ethnic groups and others. It was published in 2005 in response to the decisions of UNFCCC's COP7 (UNDP, 2025a).

NAPA contains a description of the context, key environmental stresses, a diagnostic of adverse effects of climate change, key adaptation needs and criteria for selecting priority activities (MOEF, 2005).

4.1.2 Empowering populations and regions

Civil society involvement in -and appropriation of- adaptation initiatives is key to their success, especially at the local level. This process needs to be adapted to the characteristics of the communities, especially in countries of highly differentiated ethnic and cultural groups. Bangladesh has made provisions to tend to their specific needs as it will be highlighted in the next section.

Best Practice

Empowerment of vulnerable groups can reduce overall climate risk. Consider how climate policies can provide opportunities and voices to groups such as women, minority groups, low-income, and rural people.

Under the UNDP's Community-Based Adaptation (CBA) Programme in Bangladesh, a series of grassroots initiatives were implemented in the Patuakhali District, a low-lying coastal region along the Bay of Bengal increasingly affected by river floods, droughts, saline intrusion, and cyclones. To counter the climate-related threats to the area's two main economic activities—rice cultivation and fishing—local teams of 18 to 20 women led projects such as seed banks, planting nurseries, vegetable gardens, livestock rearing, and climate change awareness campaigns. These efforts not only helped sustain livelihoods under changing conditions but also positioned women as key agents of adaptation and resilience.

Moreover, the establishment of Women Resource Centres and Women Groups helped create local-level capacity-building for women, teaching them valuable financial management, negotiation skills and operational know-how (*GBSS Fact Sheet*, 2012).

Another example of this tailored approach being used in Bangladesh is the action taken at Atulia Union, in the Southwestern Coastal region. A very specific short programme funded through a small grant (USD $59.565) by the Global Environment Facility (GEF) and contributions in kind from the community, focused on improving capacity to influence adaptation and biodiversity plans, teaching sustainable aquaculture practices, developing a monitoring system for aquatic animals potentially affected by saline intrusions and other factors, planting programs to improve ecosystem and community resilience and documenting and disseminating project learning through media, conferences and knowledge products (UNDP, 2025c).

4.1.3 Piloting Climate-Resilient Development Initiatives

As previously mentioned, coastal and riverine floods as well as cyclones are significant issues in Bangladesh. Probably one of the most concerning examples of these is the river island of Char Kazul, which in monsoon season is left practically isolated from the mainland due to the swell of the Bura Gaurango river. Climate change models show a longer cyclone season with increased frequency in events, increasing the likelihood of riverbank erosion, saline intrusions, abnormally high tides and rainfall, among other phenomena.

In light of this discouraging outlook, the Climate-Resilient Development Initiatives (CNRS) were implemented. They aimed to boost local adaptation efforts in cases like that of Char Kazul. For this island, a project implemented from 2011 to 2012 sought to increase agricultural productivity and to reduce climate-related risks by renovating houses and boats and by restoring mangrove forests (UNDP, 2025b). Besides these efforts, the adaptation measures included:

- Demonstrating saline-tolerant rice varieties and alternative crops
- Establishing live fences as protection for homes and cattle during cyclones
- Education efforts via meetings, presentations and workshops about climate change impacts and adaptive strategies

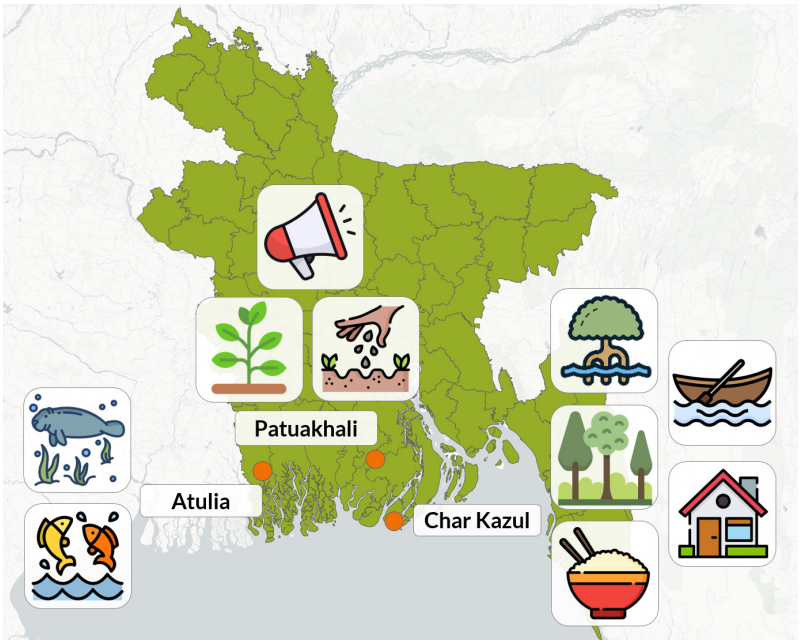


Fig. 5. Main activities associated with the projects in Patuakhali, Atulia and Char Kazul, Bangladesh.
Patuakhali: Seed banks, plant nurseries and climate change communication. **Atulia:** Aquaculture and marine animals monitoring.
Char Kazul: Saline-resistant crops (rice), live fences cultivation, mangrove restoration and houses and boats enhancement.
Source: Authors of the report with graphic inputs from Freepik (Mihimihi, Freepik, NarakOrn, Iconixar, Icongeek26, Peerapak Takpho, Agus raharjo, surang).

4.2 Multilevel Adaptation in the European Union

Europe is currently the fastest warming continent on Earth, resulting in substantial climate risk. In response, the European Union has taken a strong approach to adaptation by integrating efforts across governance levels and administrative borders. By streamlining local efforts, national policies, and supranational strategies under a common goal of climate adaptation and risk reduction, the EU is promoting a robust and ambitious model for adaptation.

4.2.1 European Climate Risk Assessment

The first European Climate Risk Assessment (EUCRA) was released in 2024 and identified 36 major climate risks facing the continent. In addition to identifying risks, the EUCRA assessed current policies and their effectiveness in risk reduction. Finding that many of the risks are significantly outpacing existing adaptation strategies, the assessment highlights the need for urgent action.

As the first CRA for the continent of Europe, the EUCRA provides a basis of knowledge and acts as a foundational 'stepping stone' for European adaptation efforts. By investigating particular regions, sectors, and populations that are at higher risk, the EUCRA is able to highlight specific needs and direct policymakers to solutions.

4.2.2 Top-Down Coordination

The European commission has produced multiple policy frameworks, funding schemes, and initiatives to implement climate mitigation and adaptation across Europe. The **European Green Deal** (EGD) is a set of policies aimed at making Europe the first carbon-neutral continent by the year 2050. The EGD covers a wide range of focus areas such as transportation, agriculture, and pollution-reduction. A key focus of the EGD is to decouple economic growth from carbon emissions and resource use, while paving the way for a socially just, innovative, and modern economy. The EGD also lays out a roadmap for financing the transition to a green economy by mainstreaming climate change into existing institutions. For example, the lending arm of the European Union, the European Investment Bank, has become one of the largest sources of climate finance in the world and is informally referred to as the 'European Climate Bank'.

While the European Green Deal addresses important issues of economic transition and climate mitigation, the **EU Adaptation Strategy** provides a complementary framework for adapting to the unavoidable consequences of climate change. Similar to the EGD, the adaptation strategy has a time horizon of 2050, by which the EU will be fully climate resilient. The strategy mandates adaptation commitments from individual member states as well as at the EU-level. Under the strategy, individual member states are encouraged to provide **National Adaptation Strategies** (NASs) based on national needs and capacity. While there is no one-size-fits-all approach to developing a NAS, the European Commission provides guidelines for member states to assist in the process. General recommendations include taking a sectoral approach to adaptation and mainstreaming efforts under existing policies and mechanisms.

Best Practice

Consider trans-boundary and cross-border risk as opportunities for regional cooperation, shared economic development, and knowledge sharing.

The European Commission has also worked to encourage transnational cooperation among various macro-regions. These regions have common interests and needs based on shared geography, borders, cultural, and environmental conditions, facilitating opportunity for knowledge sharing beyond administrative boundaries. The South West European region, for example, covering southern France, Spain, mainland Portugal, and the

Principality of Andorra, developed the Pyrenean Climate Change Strategy in 2021. The strategy envisions regional resilience to the impacts of climate change, sustainable management of natural resources and biodiversity, and socially-just, climate resilient economic development.

4.2.3 Bottom-Up Initiatives

The strong guidance, coordination, and support from the European Commission sets the scene for strong grassroots efforts from local and subnational levels. The **Covenant of Mayors** (CoM) was first launched as a cooperative network of European mayors in 2008, with the goal of uniting local governments and offering an opportunity for city authorities to voluntarily agree to implementing climate and energy objectives based on the pillars of climate mitigation, adaptation, and energy poverty alleviation. By uniting energy poverty, climate mitigation and adaptation, the CoM is able to unite cities with diverse needs, economic conditions, and priorities under a common framework of shared goals.

The creation of grassroots networks such as CoM can allow for enhanced vertical coordination of adaptation goals. The European Commission's Directorate General Climate Action developed the **Mayors Adapt** framework, an initiative to encourage urban-level climate adaptation. Despite being initiated at the supranational level, Mayors Adapt is implemented through CoM, to engage local actors in the process of adaptation.

The EU Adaptation Strategy also places an emphasis on regional and subnational involvement in adaptation efforts. Currently, 326 regional and local authorities from 25 EU Member States have signed the EU Mission on Adaptation to Climate Change charter, thereby agreeing to pursue local resilience by the year 2030.

4.2.4 Enabling Factors

In order to unite bottom-up and top-down adaptation efforts, the European Commission has created a robust environment of funding, research support, and capacity building to support policymaking.

According to the Multiannual Financial Framework 2021-2027, at least 25% of the European budget must be dedicated to climate-related expenditures. As a result, strong efforts must be made to integrate climate finance into all European funding streams. Some EU-level institutions that focus on climate adaptation are shown in figure 6.

European Adaptation Finance		
Title	**Focus Area**	**Mechanism**
LIFE Programme (Climate Change Mitigation and Adaptation sub-programme)	Environment and climate action	Grants
Horizon Europe	Research and innovation, climate adaptation and sustainable development	Grants
Just Transition Fund	Just transition, reducing regional inequalities	Grants, Technical Assistance
European Regional Development Fund	Regional and transnational cooperation	Grants, facilitating regional cooperation
Cohesion Fund	Reduction of socioeconomic disparities, infrastructure, energy	Grants
European Investment Banks	Climate finance (European and global)	Loans, technical and financial expertise
European Agricultural Fund for Rural Development	Agriculture, food, forestry sectors	Grants through national and EU co-financing
Climate KIC	Climate innovation, place-based transformation	Innovation support and education

Fig. 6 Title, focus area and mechanisms of European Adaptation Finance programmes, funds and institutions. Source: Authors of this report

Best Practice

Integrate minimum climate expenditures into budgets, mainstreaming funding across different sources, mechanisms, and institutions.

Another enabling factor for adaptation is knowledge sharing and management. The European Climate Adaptation Platform Climate-ADAPT is a partnership between the European Commission and the European Environment Agency (EEA). Climate-ADAPT provides open-source data, tools, case studies, and acts as a platform for adaptation-focused policy documents (such as NASs). By unifying urban, regional, and national data, policies, and cases, the platform provides an entry point for adaptation knowledge and policymaking efforts.

5 Policy Recommendations

5 Policy Recommendations

5.1 Policy Translation

The policy cycle, from agenda setting to policy evaluation, is inherently context-sensitive. The success or failure of a plan, program, or policy often depends on how well it aligns with local cultural, social, economic, and biophysical conditions, especially given that climate change is neither spatially nor temporally uniform. Translation of policies within these varied contexts therefore contributes to their feasibility and success.

A common pitfall in policy design and implementation is the direct transfer of policies that were successful in foreign contexts, even if those contexts appear similar or analogous. One example of this is the so-called 'best practice fallacy,' which refers to the mistaken belief that certain policy responses are universally effective silver bullets.

In the context of climate change adaptation, failing to account for local conditions in policy design and implementation can lead to a misdiagnosis of soft barriers to adaptation (socioeconomic constraints, for example), ultimately undermining the policy's effectiveness. Consideration of these aspects can be done during policy translation where approaches such as embedded and adaptive governance, localisation, place-based policy, and co-production with communities and stakeholders help tailor and translate policies to their specific contexts.

5.2 Validity Through Time

Another relevant aspect is the need for plasticity in policies, understood as the ability to effectively and efficiently respond to changes through time. In this sense, two concepts are pivotal: Adaptive governance and adaptation pathways. The former refers to an approach that prioritises flexibility, iteration cycles and constant learning, while the latter refers to a "decision-focused approach to account for future uncertainties and complexities in planning and implementation of adaptation actions" (Sparkes et al., 2023).

For this, the framework proposed by the cited authors entails seven critical elements, namely: targeting specific decisions / decision makers, sequencing actions considering future uncertainty, communicating pathways visually, monitoring and evaluating to learn and inform implementation, engaging diverse stakeholders, addressing vulnerability symptoms and root causes and addressing adaptation as an integral component of sustainable development.

Other frameworks addressing decision-making in a changing climate emphasise the value of blending different types of governance (Soininen et al., 2025). Highlight the benefits of applying transition, transformation, adaptive, and anticipatory governance in an integrated manner, rather than treating them as separate or sequential approaches—as has traditionally been the case, with adaptive and anticipatory governance to adaptation, and transition and transformation linked to mitigation.

5.3 Integration Across Scales

Embedding and coordinating adaptation policy across governance levels and sectors ensures that plans, programs, and policies remain relevant and actionable across local to global scales. This approach generally avoids one-way decision-making, be it top-down or bottom-up, by integrating the expertise and experiences of diverse stakeholders and decisionmakers across scales.

Another important aspect worth highlighting is that effective vertical and horizontal coordination often requires a degree of polycentricity, where power is distributed rather than centralised, allowing actors across different levels and sectors to contribute to a holistic approach to climate change adaptation. Key principles of multilevel governance also include subsidiarity, proportionality, complementarity, accountability, transparency, responsiveness, and autonomy.

5.4 Public Involvement

In addition to being appropriate for local contexts and conditions, adaptation policy should be well integrated and supported by local populations. This is essential, since long-term adaptation strategies may require continuous resource investment or behaviour changes. There is opportunity to gauge public opinion in the planning process – largely through stakeholder workshops, focus groups, and public opinion polls – as well as in the MEL phase.

Public involvement in the policy making process and popular support for desired adaptation outcomes encourage individual actors to contribute to common goals and replicate policies across society.

5.5 Adaptation Integration in Development Policy

Adaptation and mitigation of climate change does not have to threaten development goals. On the contrary, ignoring the risks of climate change threatens economic and social development, with the World Meteorological Organization reporting that climate change could reverse progress made towards the UN's Sustainable Development Goals (United in Science, 2024). When it comes to projected economic losses due to climate change, developing countries and regions are particularly vulnerable, with agriculture being the most at-risk sector (Adom, 2024).

Low-Emission Climate-Resilient Development (LECRD) is a strategy to meet development goals with consideration of the negative impacts of climate change. This approach commits to pursuing actions that do not significantly contribute to climate change and that are resilient to its effects, thereby uniting goals of mitigation, adaptation, and development. LECRD can be realised by integrating climate and development goals across policies, financial mechanisms, and sectors.

Integrating adaptation into development policy

Key Concepts:

- All parties of the Paris Agreement are asked to formulate a long-term low greenhouse gas emission development strategy (LT-LEDS)
- The NDC Partnership works to align the missions of the 2030 Sustainable Development Goals and the Paris Agreement Development can benefit from climate, development, and biodiversity co-benefits

Resources:

Guidance on how to develop a LT-LEDS

Long-term strategies portal

Communities of Practice:

NDC Partnership

Climate & Development Knowledge Network

6 Conclusions

6 Conclusions

This report has highlighted the opportunity to enact climate adaptation through a robust policy planning process. The policy cycle is an iterative and ongoing process consisting of planning, implementation, and monitoring, evaluation & learning. Utilising this cycle can help develop effective policies, which can be scaled to contribute to long-term strategies. We summarise our cross-cutting findings here.

6.1 Cross-cutting Findings

Multilevel Governance

Policy planning occurs on a variety of scales, jurisdictions, and administrative boundaries. At the local level, community-based initiatives are important to address needs and local conditions that would otherwise be overlooked. At the international level, global institutions, such as the IPCC and UNFCCC, provide useful frameworks, research on global impacts, and coordination of national efforts. Generally, the national level provides mediation between local needs and international guidance. Multi-level governance is a key process that allows strategies to be vertically integrated, with top-down and bottom-up efforts reinforcing each other.

Sectoral Mainstreaming

Climate impacts will affect all sectors of society. Therefore, adaptation too should have a cross-sectoral focus. Adaptation strategies should be relevant, applicable, and implemented with multiple sectors involved, in a process of horizontal integration. Naturally, key stakeholders in these areas can provide important insight and useful data that can support policy planning and implementation.

Systematic and Iterative Solutions

Adaptation cannot be achieved with single policies. Furthermore, adaptation policies that are not mutually supporting or working together are unlikely to drive deep change. The policy planning process should not only consider individual effectiveness, but rather, effectiveness of multiple policies working together in a unified strategy. Embedding adaptation into existing policy processes (such as urban planning, development, health, etc.) can help to mainstream and strengthen efforts.

Funding

Adaptation policy needs to consider the funding for its implementation. Funding is critical as it facilitates the implementation of the identified strategies. There are multiple approaches to funding that can be included in the policy including the allocation of resources from the national government, the local or city government authority as well as other sources such as public-private partnerships among others. It is critical that these sources are identified so as to facilitate smooth implementation and also ensure the integration of adaptation in related development initiatives.

MEL

Monitoring, evaluation and learning are critical aspects of the adaptation policy cycle. A MEL framework has to be envisioned in the policy development process so that it is deployed at policy implementation to support the tracking of the set strategies and objectives. Monitoring, Evaluation, and Learning (MEL) can enhance policy success by strengthening stakeholder engagement and ensuring that each actor effectively fulfils their role. For example, a government agency responsible for humanitarian rescue during floods can be better supported through MEL systems. These systems improve data availability, enabling timely strategy updates, informing further research, and facilitating the identification and replication of best practices. MEL frameworks should be dynamic and adaptable so as to address any emerging climate risks that need adapting to.

Gender Mainstreaming

Throughout the adaptation policy cycle gender mainstreaming, a policy approach that systematically promotes gender equality by considering differential needs and impacts, is important. This enables the identification of specific gender dynamics at planning, implementation as well as MEL. Consideration of how strategies impact women, youth, indigenous people, persons with disability and other marginalised groups is important in the successful planning and implementation of the selected strategies.

6.2 Next Steps

This report provides guidance on initiating the adaptation policy process. We have provided a general framework to follow, as well as actionable tools and best practice examples.

Since adaptation is a locally-dependent process, the next steps require that adaptation-focused actors utilise and translate this information into their respective contexts, considering the wide range of specific resources, capacity, limitations and opportunities available.

We call on local actors, decision makers, and adaptation practitioners to situate their specific conditions within a subnational, national, and international context. Existing national strategies, such as a NAP, for example, can provide important guidance for further work in a local area. In addition to guidance, upper levels of governance can provide financing opportunities, capacity, and facilitation of knowledge transfer among local regions. Even if the state of national adaptation planning is lacking in your region, the initiation of local processes can feed into much needed awareness raising and support international efforts.

Sectoral leaders and stakeholders have specific expertise, insights, and access to data that they can contribute to the policymaking process. Considering how climate change and adaptation efforts will affect your sector is an ongoing process – and one that is incredibly useful to policymakers. We call on stakeholders to join ongoing dialogues and expertise sharing venues, which can mutually benefit both climate adaptation goals and your respective sector.

Finally, national and supranational adaptation experts should continue to work towards large-scale adaptation goals, while further integrating and involving local actors. Adaptation can only be realised when large-scale efforts meet local initiatives. This requires continued provision of financing, capacity, and knowledge and technology transfer to local and frontline communities.

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Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered Offices
Bonn and Eschborn
Friedrich-Ebert-Allee 32 + 36
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66
E info@giz.de
I www.giz.de

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15