

# Addressing Climate Change Through Integrated Responses: Linking adaptation and mitigation

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March 2022

## Introduction

Sustainable development, climate change adaptation, and mitigation are inextricably interconnected, with potential for conflicts and trade-offs, as well as synergies and co-benefits (Adaptation Committee, 2020). Countries have established national policy processes aimed at addressing these complex issues. Inherently, these policies and strategies often have interconnected objectives and common themes, which creates a foundation for alignment and joint activities to provide common solutions to these challenges (Dazé et al., 2018).

Exploring opportunities for synergistic and joint mitigation–adaptation actions could create long-term impacts and broad political support (Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ], 2019). To achieve holistic actions, a coherent and coordinated approach is crucial for exploring the synergies and trade-offs between mitigation and adaptation and realizing integrated solutions.

This policy brief aims to build on a series of recent peer learning events focused on addressing climate change through integrated responses by linking adaptation and mitigation at the planning and implementation stages (see Box 1). It seeks to increase the conceptual understanding, awareness, and knowledge of joint adaptation and mitigation actions and provide the rationale for fostering integrated actions that could create long-term impacts and broad political support. It also unpacks how to assess synergies and trade-offs as part of a coherent planning and implementation process and identifies concrete steps to advance and strengthen integrated climate strategies.



The brief targets country-level policy-makers and planners who work on adaptation and mitigation planning processes, such as National Adaptation Plans (NAPs), nationally determined contributions (NDCs), and long-term low greenhouse gas emission development strategies (LTS).

### **Box 1. About the Peer Learning Summit**

The NAP Global Network and the Low Emission Development Strategies Global Partnership, with assistance from the Support Project for the Implementation of the Paris Agreement implemented by the GIZ, jointly hosted learning and capacity-development activities in three sessions to support countries in designing and applying integrated approaches in their adaptation, mitigation, and development agendas.

The Peer Learning Summit brought together representatives and experts from a number of countries that have undertaken first steps toward integrated planning approaches. Through a facilitated exchange, participants had the opportunity to hear from experts and peers on designing and implementing integrated strategies, to learn from one another, and to reflect on their own processes. This enabled the identification of concrete next steps they can take to ensure that mitigation and adaptation planning processes are aligned and build on one another. See the key messages and resources from the Peer Learning Summit [here](#).

## **The Rationale for Linking Adaptation and Mitigation**

Climate change poses significant threats to people's lives and livelihoods and impedes poverty reduction efforts and equitable access to sustainable development. Mitigation and adaptation to climate change are the two main ways to address these threats. Mitigation refers to actions that reduce anthropogenic greenhouse gas (GHG) emissions by switching to low-carbon energy systems and increasing carbon sinks, such as forests, vegetation, and soil. Adaptation actions enhance the adaptive capacity of human and natural systems to the changing climate and increase their resilience to vulnerabilities and impacts.

Fundamentally, mitigation and adaptation are two sides of the same coin. They are both instruments to help confront one of the great challenges facing humanity. On the one hand, the less effective global mitigation is, the more adaptation is needed to avoid the worsening climate impacts. On the other hand, approaches focusing on mitigation or adaptation in siloes may produce negative trade-offs that undermine the overall progress of climate action. This section explains the rationale for linking adaptation and mitigation and pursuing an integrated approach to climate action and sustainable development.

While the climate community has traditionally focused more on emission reductions, the record-breaking extreme weather events around the world and the associated economic and social costs highlight the need for adaptation actions. The Organisation for Economic Co-operation and Development (OECD) (2019) estimated that climate-induced sea-level rise alone could cost up



to USD 5.5 trillion in economic damages by the end of the century. Meanwhile, rising emissions will only make countries and communities more vulnerable to climate impacts, thus requiring more adaptation measures to protect lives, livelihoods, and natural ecosystems. Therefore, choosing mitigation or adaptation is not a binary task—tackling the climate and environmental crises requires both, urgently and ambitiously.

However, to this day, mitigation and adaptation have largely been addressed separately (OECD, 2021). The majority of climate projects have either a mitigation focus or an adaptation focus; for those where both mitigation and adaptation are considered, one is often prioritized over the other (Adaptation Committee, 2020). The reasons behind this siloed approach are threefold.

First, many sectors continue to underestimate the need for adaptation, and adaptation remains at the periphery of global climate action (Laudauer et al., 2015). Second, mitigation actions are mainly addressed at a larger scale, whereas adaptation actions happen locally and are more context specific to local realities and capacities. This presents a scale challenge to governments seeking to explore these synergies. Third, related to this scale issue, there is often an artificially constructed division between mitigation and adaptation at the institutional level that creates barriers to moving integrated solutions forward (Adaptation Committee, 2020). For instance, a country's environment or energy ministry might be in charge of mitigation actions, while the emergency management, agriculture, or other line ministries might be in charge of specific adaptation actions. As a result, different sets of stakeholders and actors are involved in each domain, with limited inter-communication, assessing the synergies and trade-offs between mitigation and adaptation actions during their planning and implementation processes.

Continuing to address mitigation and adaptation in siloes is inefficient and wastes valuable resources. The siloed approach will, at worst, lead to stranded assets, lost opportunities for maximizing synergies, duplication of work, higher overall project costs, and the displacement of limited staffing capacities in developing countries (OECD, 2021). On a macro level, it risks designing climate projects that are not future-proof and undermining emission-reduction efforts, and it misses transformative opportunities to achieve holistic climate action and sustainable development. Therefore, achieving synergistic and integrated climate action requires effectively linking mitigation and adaptation and realizing a framework for identifying and assessing synergies and trade-offs.

## Assessing Trade-Offs and Synergies

By exploring synergies and assessing trade-offs (see Box 2), countries can improve their understanding of how actions addressing climate change mitigation can either benefit or hinder climate change adaptation and vice versa. It can help increase coherence and effectiveness—or, at a minimum, avoid one undermining the other while also avoiding double-work—and achieve the highest benefit with limited financial resources. In addition, an integrated climate narrative might be more compelling from an economic perspective. Studies have shown that cross-cutting projects perform better in impact potential, efficiency, and effectiveness (Adaptation Committee, 2020).



## Box 2. Key concepts

**Trade-offs** in relation to climate change adaptation and mitigation refer to a situation in which prioritizing either adaptation or mitigation considerations is diminishing or counterproductive for the other. Multiple factors could lead to this compromise, including inadequate conditions, competition among means of implementation, the negative consequences of pursuing both simultaneously, and a lack of technical capacities (Landauer et al., 2015). For example, Finland and Sweden are adapting to increased precipitation by building new drainage systems; but these grey infrastructures are built with high-emission grey materials and could have a negative impact on climate mitigation efforts that lead to an overall increase in GHG emissions (Neset et al., 2018).

**Synergies** in climate action happen when mitigation and adaptation actions interact with each other to produce better results and increase effectiveness than if they were tackled separately (Duguma et al., 2014). It means that measures that control GHG emissions also address or integrate the impacts of climate change or vice versa. For instance, ecosystem-based adaptation (EbA) uses the power of natural ecosystems, such as mangrove forests and healthy soils, to provide adaptation functions while acting as a carbon sink for mitigation.

Assessing trade-offs and synergies requires a conceptual understanding of the relationships between mitigation and adaptation. The questions below seek to illustrate the relationship between adaptation and mitigation and offer a practical starting point to maximize synergies and minimize trade-offs by assessing “if” an adaptation project contributes to GHG emissions and vice versa—“if” a mitigation project is vulnerable to current or projected climate impacts (see Box 3).

## Box 3. Starting point to assess synergies and trade-offs between adaptation and mitigation:

**When designing mitigation actions**, it is crucial to ask:

1. Is the mitigation measure vulnerable to future climate impacts?
2. Does the proposed mitigation project undermine resilience or increase the vulnerability of parts of the system?

Similarly, **when designing for adaptation actions**, attention should be paid to the questions:

1. Is the project carbon intensive, or would it impede mitigation efforts?
2. Can the adaptation project be designed in a way that also serves mitigation functions?



Applying a mitigation and adaptation climate lens to projects to assess synergies and trade-offs strengthens resilience and puts countries on a pathway that is less carbon intensive. Realizing this linkage ensures mitigation and adaptation measures are not counterproductive but instead are mutually reinforcing and working toward the common goal of supporting sustainable development and protecting lives, livelihoods, and ecosystems.

## An Integrated Approach to Climate Action

Enabling the coherent and synergistic implementation of adaptation and mitigation requires intentional coordination among government actors and flexibility to ensure the integration of (new) information and learning (see Box 4). Most importantly, viewing mitigation and adaptation together offers a pathway to identify common objectives and goals so that resources are allocated more efficiently and can achieve more effective outcomes (GIZ, 2019).

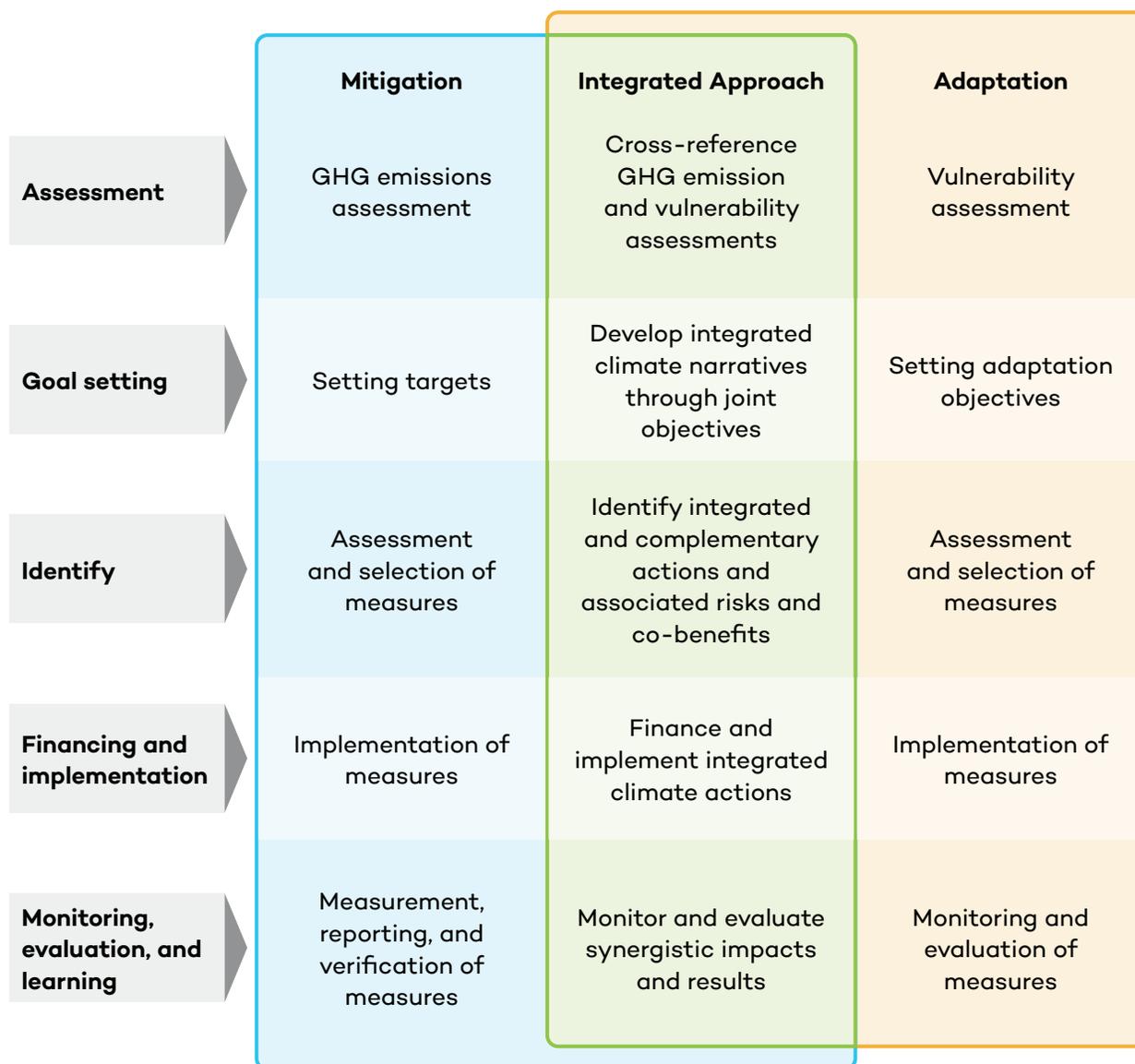
Both the mitigation and adaptation planning cycles offer entry points for synergistic planning and implementation. Figure 1 presents interactions along the planning cycles that offer opportunities for a more integrated approach. This framework was developed by reviewing the most up-to-date literature on integrated climate action and incorporating insights from the Peer Learning Summit. Instead of siloing the adaptation and mitigation planning cycles, the two processes are aligned and merged into an integrated approach to assessing synergies and trade-offs, as well as evaluating co-benefit opportunities in climate action.

### Box 4. An enabling environment for integrated climate action

Though there are clear benefits to integrated climate action, it is unlikely to happen without a strong commitment or mandate by relevant high-level actors and effective institutional arrangements. Different ministries or departments are generally responsible for different policy issues (adaptation and mitigation). Institutional linkages and strong and functioning coordination mechanisms, as well as recognizing the interconnectedness of policy processes, are the foundation of more synergetic implementation of climate mitigation and adaptation action (Dazé et al., 2019).



**Figure 1.** An integrated approach to climate action combines both the mitigation and adaptation planning pathways



**Cross-reference GHG emission and vulnerability assessments.** The first step in both mitigation and adaptation projects’ design and planning processes is assessment. For mitigation projects, this entails a comprehensive accounting of GHG emissions to create a baseline understanding of the sources of emissions and the emission levels. For adaptation projects, vulnerability and risk assessments are conducted to identify the most vulnerable community members and infrastructures and understand adaptation needs. As a starting point, using an integrated approach, the GHG emission assessments and the vulnerability and risk identification should cross-reference each other—where mitigation assessment is cognizant of the adaptation



need and vice versa. This cross-referencing moves away from a siloed approach and ensures project teams are aware of the interlinkages between mitigation and adaptation, allowing decision-makers to consider actions holistically for the next steps.

**Develop integrated climate narratives through joint objectives.** The second step is to translate the joint assessments into targets and objectives that are interlinked. Creating joint objectives means aligning progress with meeting both adaptation and mitigation objectives so resources can be used more efficiently, outcomes can be more effective, and synergies are made possible (GIZ, 2019). Developing an integrated narrative geared toward both mitigation and adaptation makes a case for synergies and trade-offs to be considered in the development phase of a project. It ensures that the project team considers the impacts of mitigation actions on adaptation and vice versa. It also allows synergistic projects to pursue multiple benefits simultaneously. Examples of integrated approaches can be found in many different sectors—for example, in energy, infrastructure, agriculture, water, or cities. Box 5 describes an example of how Grenada is using an integrated climate narrative to lower its water sector’s GHG emissions while increasing resilience to water insecurity.

### **Box 5. Case study on Grenada’s water–energy efficiency project**

Grenada’s Climate-Resilient Water Sector project, funded by GIZ and the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), intends to address Grenada’s water insecurity risks due to worsening climate change impacts. The planning and design of the project are based on the assumption that the lower the water loss in the water distribution network, the less stress the water production system would experience over time, building resilience. The project, however, took a synergistic approach and linked adaptation actions to Grenada’s mitigation efforts outlined in its NDC. The project upgraded water distribution infrastructures to reduce leakage and improve distribution efficiency while also replacing the pressure-reducing valves in the old system with microturbines and installing solar photovoltaic panels that provide green power to water treatment plants and pumping stations. By forming an integrated climate narrative and developing joint objectives, Grenada’s Climate-Resilient Water Sector project was able to create both adaptation and mitigation benefits, increasing the overall resilience of the small island nation.

*Source: GIZ, 2019, p. 5.*

### **Identify integrated and complementary actions and associated risks and co-benefits.**

This step requires improved facilitation and coordination between mitigation and adaptation experts to draw from each other’s expertise to cross-evaluate identified options, projects, and actions for advancing emissions and climate vulnerability reductions. It involves asking the questions identified above to detect mitigation strategies and projects that are exposed to climate impacts or increase vulnerability (e.g., low-carbon energy projects in flood-prone areas). Similarly, adaptation strategies and projects that are highly carbon intensive should be flagged



and reconsidered (e.g., concrete flood protection). In addition, actions should be screened for multiple benefits (e.g., health, environmental, and social benefits) to identify the most promising and effective adaptation and mitigation options. Nature-based solutions (NbS) have emerged as measures of integrated climate action, and many countries are embracing them to meet mitigation and adaptation targets (see Box 6).

### Box 6. NbS as an instrument for integrated measures

NbS foster linkages between adaptation and mitigation. NbS can help mitigate climate change by sequestering carbon, such as by planting trees and limiting deforestation, while also contributing to climate resilience (greenspace contributes to cooling urban areas). Restoring a wetland can protect low-lying communities from flooding and enhance water storage while removing and storing carbon at the same time. NbS are often more cost-effective than employing artificial or engineered infrastructure if their ability to deliver multiple objectives and ecosystem services—as well as factors such as lower maintenance costs—is taken into consideration (OECD, 2021).

**Finance and implement integrated climate actions.** Aside from the actual implementation of solutions on the ground, this step also entails budgeting and financing. An integrated approach ensures that financing for implementation is allocated to projects that either: (i) meet multiple objectives, (ii) have considered the contextual relationship and addressed potential trade-offs between adaptation and mitigation, and (iii) at a minimum, do not undermine one or the other (see Box 7).

### Box 7. Haiti: Financing integrated climate action through the Green Climate Fund

The Green Climate Fund (GCF) has found that cross-cutting projects (i.e., projects that employ an integrated approach) perform better in terms of efficiency, impact potential, and effectiveness (NAP Global Network, 2021). GCF has funded the Scaling Smart, Solar, Energy Access Microgrids project in Haiti that seeks to install 22 community-scale solar and battery storage micro-grids in southern Haiti where no grid power existed. The project aims to provide renewable energy to communities that are the most vulnerable to climate impacts and improve people's lives and livelihoods (GCF, 2020a). The new renewable power grid replaces the use of diesel generators, which reduces Haiti's emissions, while delivering adaptation and gender-responsive, resilience-building benefits to local communities (GCF, 2020b).

**Monitor and evaluate synergistic impacts and results.** Monitoring and evaluation of adaptation actions and measuring, reporting, and verifying mitigation outcomes need to include a well-rounded set of indicators that assess the performance and impacts of mitigation projects



on climate vulnerability, as well as adaptation projects' potential impacts on GHG emissions. This may involve adjusting and reviewing project implementation if necessary. Attention should also be paid to monitoring social, economic, and environmental co-benefits (e.g., health benefits, job creation, species habitat, etc.).

## Conclusion

The process of integrating both mitigation and adaptation processes and projects can be complex, but exploring opportunities for joint actions will likely create long-term impacts and ensure that climate change strategies' objectives for mitigation and adaptation are mutually supportive.

Most importantly, attention should be paid to integrating considerations of potential interactions (synergies and trade-offs) throughout the planning cycles of adaptation and mitigation projects. This begins with asking “if” an adaptation project contributes to GHG emissions (and vice versa) and “if” a mitigation project is vulnerable to current or projected climate impacts. This should be underpinned by effective means of monitoring and evaluation to ensure actions do not negatively impact people and ecosystems.

Sectors that offer more opportunities for synergies between adaptation and mitigation (such as agriculture, water, urban areas, and energy) and measures such as NbS are low-hanging fruits for more integrated climate mitigation and adaptation actions. Learning from these sectors can open avenues for other areas where a synergistic approach is not as apparent.



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Supported by:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



based on a decision of the German Bundestag

## ACKNOWLEDGEMENTS

This policy brief was made possible by the Support Project for the Implementation of the Paris Agreement (SPA), which is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and funded by the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) under its International Climate Initiative (IKI). The contents have been jointly produced by IISD, the GIZ SPA Project, and the LEADS Global Partnership.