PrivABoo

Investor Training: Investing in Climate Change Adaptation

Training Manual

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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1. Introduction

Brief overview of the training

Given the potentially high sustainable development impact of climate adaptation ventures, there is a growing interest from impact investors in climate change adaptation. Awareness of and access to tangible investment opportunities still remain limited. According to the Global Risk Institute[1], investors struggle to assess the climate resilience of businesses and evaluate their investment portfolios in the context of adaptation to climate change.

To close this knowledge gap, the training provides an introduction to adaptation as an investment theme as well as relevant policy background such as NDCs and NAPs. It further discusses the private sector's different roles and the investment opportunity in adaptation, before diving deeper into measuring adaptation impact and conducting portfolio screenings.

The Private Adaptation Investment Bootcamp (PrivABoo)

The training module has been developed as part of the Private Adaptation Investment Bootcamp (PrivABoo). PrivABoo is a peer-learning approach targeting practitioners (entrepreneurs, start-ups, companies, investors, accelerators, enterprise support organizations, …) at various stages of climate change adaptation investments and finance, mixing & matching different learning formats (networking, dialogue, training and individual advisory services), with the aim to equip small- and medium-sized enterprises (SMEs) and impact investors with tools, information, and skills to scale up SMEs with business models in the field of climate change adaptation & resilience, build a network that enables knowledge sharing, business creation and acceleration, and innovation partnerships, and develop a scalable approach to promote private adaptation finance and investments.

PrivABoo is a product of the project Private Adaptation Finance (part of the global GIZ climate project NDC Assist II), which is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, on behalf of the German Federal Ministry for Economic Cooperation and Development, until the end of 2025.

[1] [1] Global Risk Institute. (2020). Managing Climate Risk: The Implications for Investors. Retrieved from https://globalriskinstitute.org/publications/managing-climate-risk-the-implications-for-investors/

2. Workshop Objectives

The aim is to equip (impact) investors with the skills to identify suitable investment opportunities, understand challenges and requirements in impact measurement for adaptation, and conduct a portfolio screening for adaptation relevant businesses.

The Module will focus on:

- helping investors gain a better understanding of investment opportunities in climate adaptation
- supporting investors in understanding how to identify suitable businesses to invest in, and screen their existing pipeline for adaptation relevant business models
- providing investors with the knowledge and tools they need to invest in adaptation relevant businesses

Expected key takeaways

- ✓ Participants can identify suitable adaptation investment opportunities.
- ✓ Investors can identify the right criteria to find the right businesses to invest in.
- ✓ Investors have access to an overview of different tools, databases, and resources that they can use to identify investment opportunities

3. Training Methods

The training materials are best used in an in-person, interactive setting. It can be implemented for one investor or several investors. In either case, it is recommended to **complement the materials with information and discussion questions relevant to the local policy and environmental context that the investor(s) find themselves in**.

The training may also be implemented in a virtual setting. For virtual trainings, frequent breaks and sufficient interactive elements are always recommended to keep up participant engagement.

In the past, participants have benefited from one-on-one sessions with trainers/experts following the trainings to receive tailored advisory and support in identifying specific investment opportunities or developing investment strategies.

The sessions encompass the following training methods:

- **Lecture:** Provide theoretical knowledge and key concepts.
- **Group Discussion:** Encourage exchange of ideas and peer learning
- **Hands-on Exercises:** Engage in practical activities to reinforce learning
- **Peer learning presentation:** Participants share their results of an exercise or group work with the plenary

The following elements should also be considered:

- **Cultural Sensitivity & Inclusivity:** Participants may come from diverse backgrounds and contexts. Encourage open discussions while respecting different perspectives on climate adaptation.
- **Tailoring Content**: Adapt the training materials to suit the specific knowledge level and expertise of the participants and their contexts in their countries.

4. Agenda & Schedule

Please find below a proposed agenda for the training. Note that each training must be tailored to participants' knowledge gaps and training needs and the agenda can therefore be flexibly shifted, leave out certain aspects, or add additional ones.

Day 1 Add Date

Time	Activity / Topics	Format
8:30	**Participants' arrival and registration**	
9:00	**Plenary Session: Opening** Formal opening of the meeting, followed by an introduction to the program and the specific goals and outcomes of the day.	Plenary
9:30	**Setting the Scene:** Understanding climate change adaptation • Overview of the science of climate change, climate change mitigation and adaptation • Getting familiar with climate change impacts and risks in the country context • Understanding the implications for the investor(s) *Including group work: Review of climate risk profiles and identification of implications for the investors' target groups*	Plenary + group work
10:30	**Coffee break**	
11:00	**International and national climate policy** • Overview of the international climate policy landscape, including the Paris Agreement, National Determined Contributions and National Adaptation Planning • Overview of major national climate policy documents and understanding the implications for the investor(s) *Including group work: Review of summaries of the country's NDC and National Adaptation Plan*	Plenary + group work
12:00	**The Private Sector's Role in Adaptation** • Understanding the role of the private sector in climate change adaptation • Present three different ways of framing private sector contributions to adaptation	Plenary
13:00	**Lunch break**	
14:00	**Investment opportunities in climate change adaptation** • Understanding business opportunities in adaptation *Including group work: Screening investors' portfolio companies for climate change adaptation impacts; identifying an adaptation rationale*	Plenary + group work
15:30	**Coffee break**	
16:00	**Monitoring adaptation benefits** • Overview of status quo and challenges of monitoring adaptation impacts and of different adaptation indicators	Plenary + group work

	• Examples of adaptation monitoring of existing impact funds *Including group work: Identifying potential adaptation indicators for the investors' portfolio companies. Discuss potential approaches for adaptation monitoring.*	
17:00	**Closing of the session and reflection on the key findings of the day**	Plenary

5. Classroom Guidelines

Establish Ground Rules for a Collaborative Learning Environment

To create a productive and inclusive learning space, it is essential to establish ground rules at the beginning of the training. These rules should be agreed upon by participants to ensure a respectful and engaging environment. Some suggested ground rules include:

- Listen actively and respectfully to others.
- Encourage open and honest discussions.
- Be mindful of speaking time to allow everyone to contribute.
- Maintain confidentiality where necessary to create a safe space.
- Keep mobile phones on silent and minimize distractions.
- Approach disagreements with curiosity rather than conflict.

Trainers should facilitate a discussion with participants to co-create and document these ground rules, making sure they are visible throughout the training.

Encourage Active Participation, Peer Learning, and Respect for Diverse Perspectives

A successful training session relies on active engagement from all participants. To foster this, trainers should:

- Use a variety of interactive techniques such as group discussions, role-playing, and hands-on exercises.
- Encourage participants to share their experiences, insights, and perspectives.
- **Promote peer learning** by fostering collaboration and knowledge-sharing among participants.
- Create an inclusive atmosphere by ensuring that all voices are heard and valued.
- Respect different learning styles by balancing lectures with participatory activities.
- Provide opportunities for reflection and peer feedback.

Peer learning plays a crucial role in reinforcing concepts and enhancing practical understanding. By exchanging insights and best practices, participants can collectively strengthen their adaptation impact strategies.

Use Visual Aids and Storytelling for Effective Communication

Visual aids and storytelling techniques can enhance understanding and retention of key concepts. Trainers should:

- Use slides, infographics, and videos to present complex ideas in a clear and engaging way.
- Incorporate real-life case studies and success stories to illustrate key points.
- Encourage participants to share their own experiences through structured storytelling exercises.
- Utilize charts, diagrams, and other visual elements to simplify data-heavy content.
- Adapt visual and storytelling techniques to suit the audience's needs and preferences.

By integrating these methods, trainers can make the learning experience more engaging, relatable, and impactful.

6. Exercises, Activities, Case Studies & Assignments Overview

In this section of the manual, the facilitators can find all the materials and exercises that participants should prepare before and during the workshop.

Preparation Exercises and Materials

Depending on the exact contents covered and time available for the training, it may make sense to ask participants to read documents or prepare inputs in advance. For example, trainers can share the given country's climate change profile or policy background so participants can read up on it before the training starts. This provides for a more efficient training schedule.

During the Workshop

A key exercise proposed for the investor training is the porfolio screening. Trainers can use the template provided on the next page and adjust it based on their needs. An example is provided in the first line, you can delete it before sharing it with participants or keep it as an orientation for them.

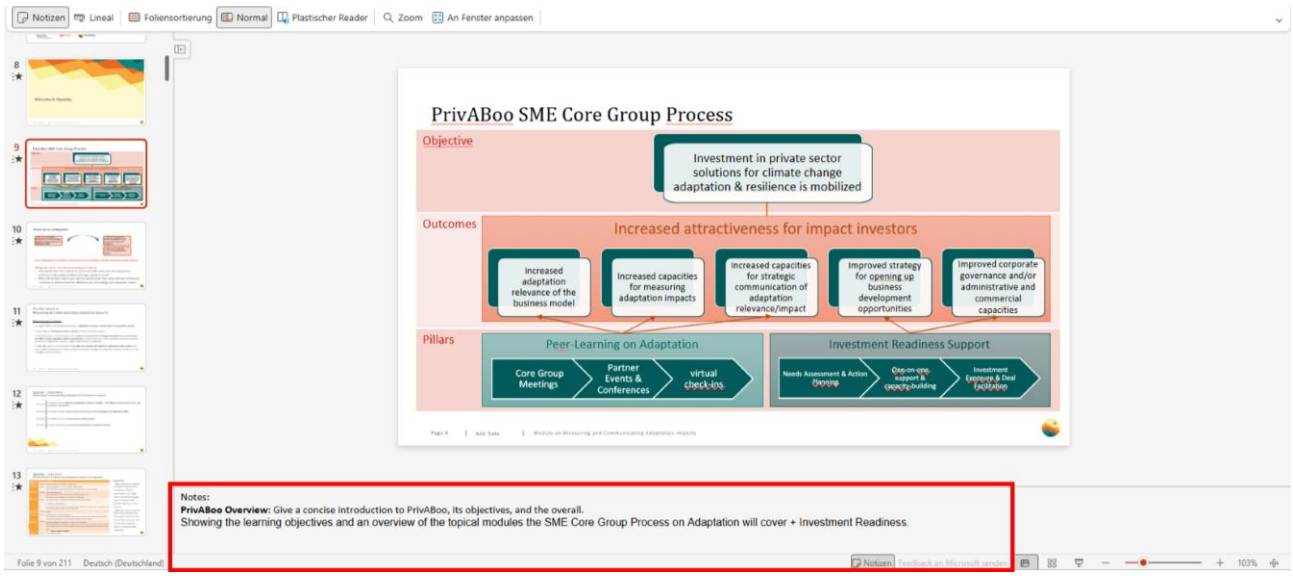
Other supporting handouts, documents and background information need to be prepared by trainers for the specific training context and based on participants' knowledge and training needs.

Portfolio screening for adaptation impacts

General Information		Climate impacts and risks		Adaptation relevance		
Company	**Sector**	**Focus of business model**	**Key climate change impacts and sector-specific risks**	**Adaptation relevance of business model**	**Description of adaptation rationale**	**Potential adaptation indicators**
ABC	Agriculture	Climate smart irrigation for smallholder farmers	"Temperature increase and heat waves. Dry and wet periods likely to become more extreme. Increased numbers in extremely dry months. Declining yields of wheat, rice and maize."	Increase the resilience of smallholder farmers to climate variability by improving water availability, reducing vulnerability to drought, and stabilizing agricultural productivity under changing weather patterns.	ABC's climate-smart irrigation solutions help farmers maintain consistent crop yields despite weather extremes. The rationale rests on improving water-use efficiency, enabling farmers to make informed irrigation decisions, and lowering their dependency on unreliable rainfall. These interventions collectively reduce climate-related losses, protect livelihoods, and strengthen long-term agricultural resilience.	Reduction in seasonal crop losses attributable to drought or rainfall variability; Percentage improvement in water-use efficiency per hectare; Number of farmers using climate-smart irrigation technologies; Increase in average yields during climate-stress periods

7. Presentation Notes for Trainers

Slides are designed to provide trainers with a structured approach to providing content efficiently, **containing notes and instructions**, as shown below in the red frame, providing essential guidance for facilitators on developing both short and long training sessions, ensuring key messages are conveyed clearly, and incorporating interactive elements to enhance participant engagement. Trainers should use the slides as a foundation but adapt them as needed to fit the audience's level of expertise and engagement style.



8. Evaluation & Follow-Up

Evaluation is a crucial component of the training process as it allows both trainers and participants to assess the effectiveness of the workshop, identify key takeaways, and highlight areas for improvement. Gathering feedback helps ensure that learning objectives are met and provides insights for refining future training sessions. Additionally, evaluation fosters a culture of continuous learning by encouraging participants to reflect on their progress and how they can apply the acquired knowledge and skills in their professional contexts.

For this purpose, 2 key activities are defined.

- **Review and recap session:** at the end of the workshop, participants should discuss personal key learnings and findings from the workshop, and which next steps they can implement to establish or further develop the impact measurement, portfolio screening, and communication.

- **Feedback Questionnaire:** Collect insights on workshop effectiveness.

Disclaimer

Impact investing for climate change adaptation

Training Module for Investors

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Private Adaptation Finance

Objective of the Training

To equip participants with a **hands-on understanding of climate change adaptation**, the investment opportunity, and how to integrate adaptation into investment strategies.

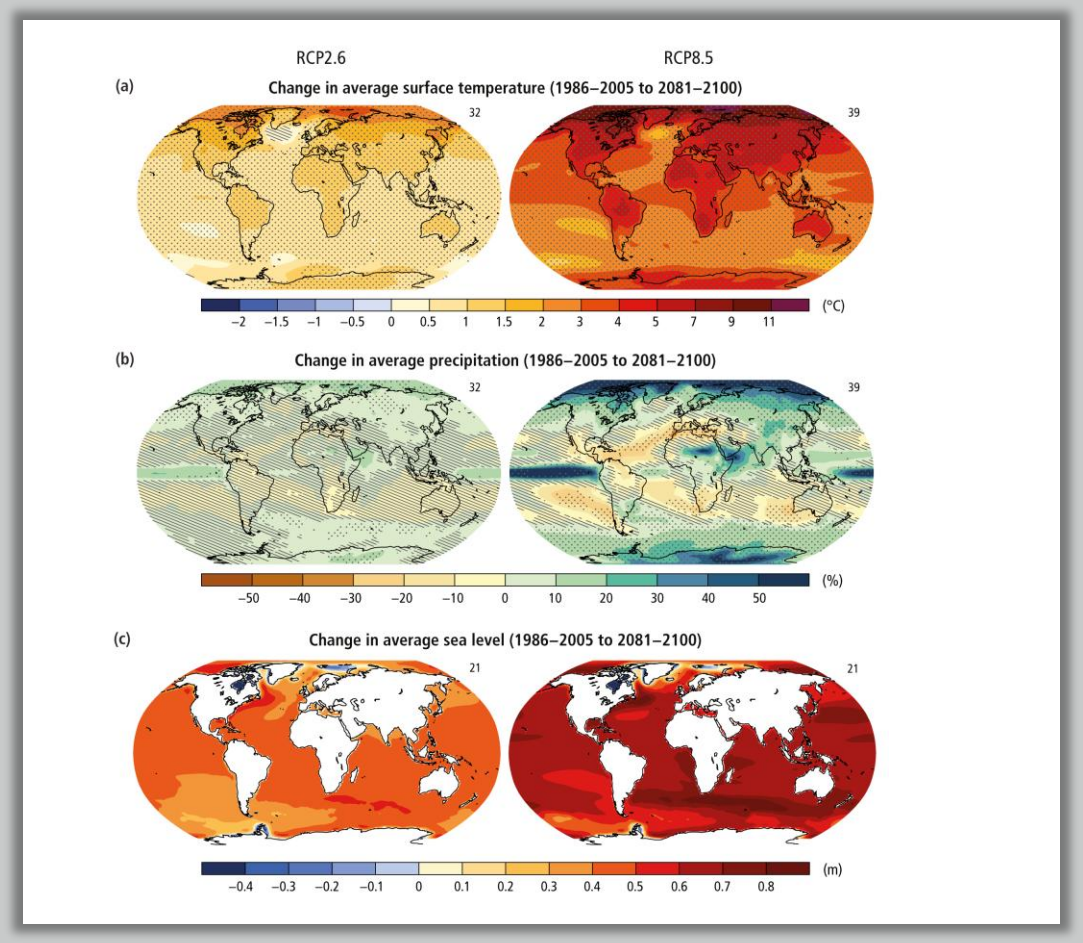
Contents of the Training

1. Understanding Climate Change Adaptation
2. Climate Change Regime: Policy Overview
3. The Private Sector’s Role in Adaptation
4. The Investment Opportunity in Adaptation
5. Portfolio Screening for Adaptation Impacts
6. Measuring Adaptation

Understanding Climate Change Adaptation

The climate is changing

- The science is clear
- The impacts are already significant. The outlook is potentially catastrophic
- We are not doing enough to address the issue



Climate impacts can increasingly be attributed to human influence


Rising temperatures, heat waves


Sea level rise


Melting ice


Ocean acidification


Changing rainfall patterns


Changes in extreme events

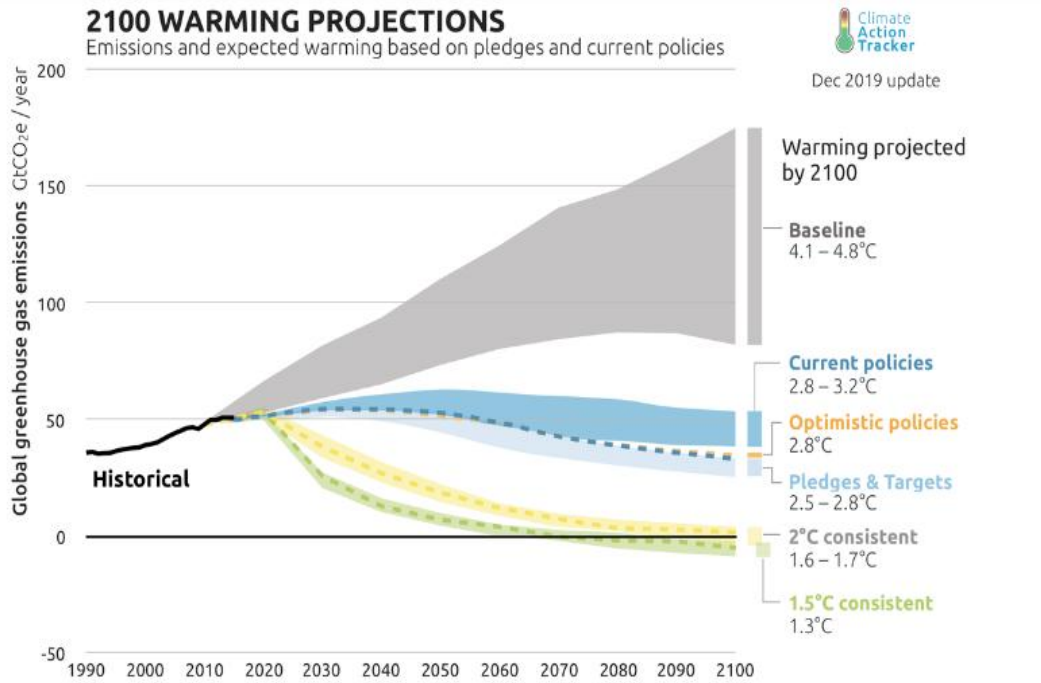
High level of certainty

Less certain, and regional differences

Climate impacts and adaptation needs also vary between countries and regions.

For your country's climate risk profile, Check the World Bank's Climate Change Knowledge Portal (for example)

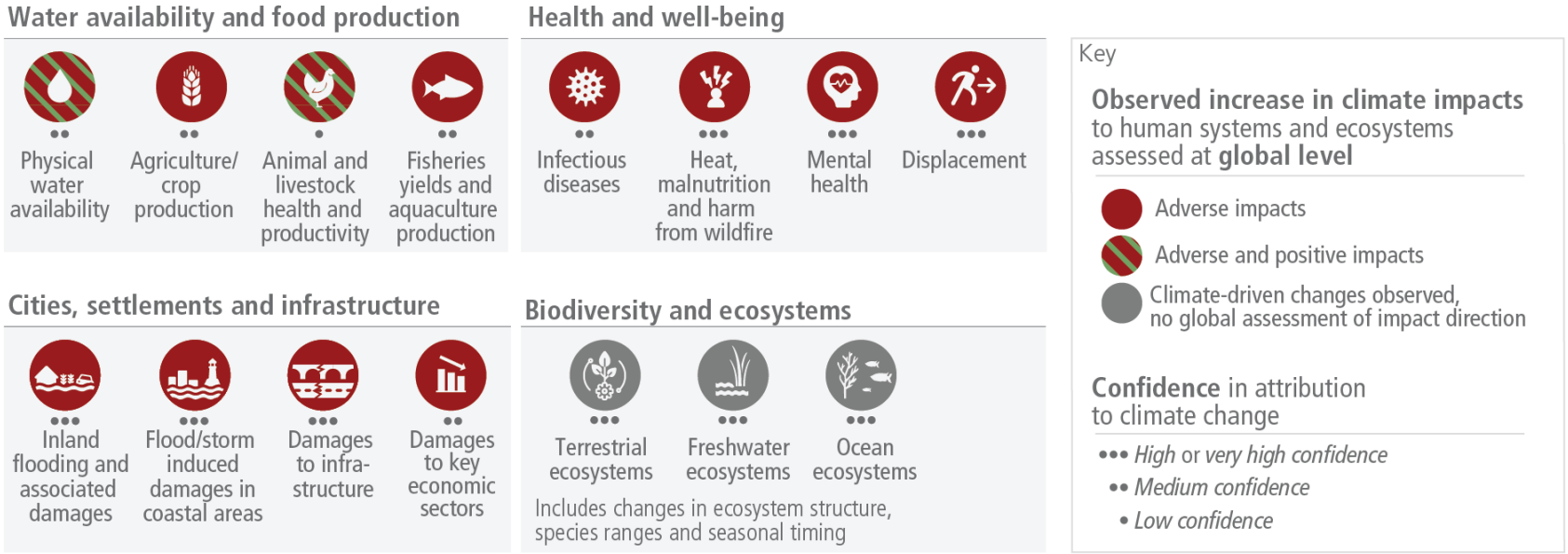
Without policies, global warming is expected to reach about 4.5 °C above pre-industrial by 2100



Source: New Climate Institute & Climate Analytics (2019)

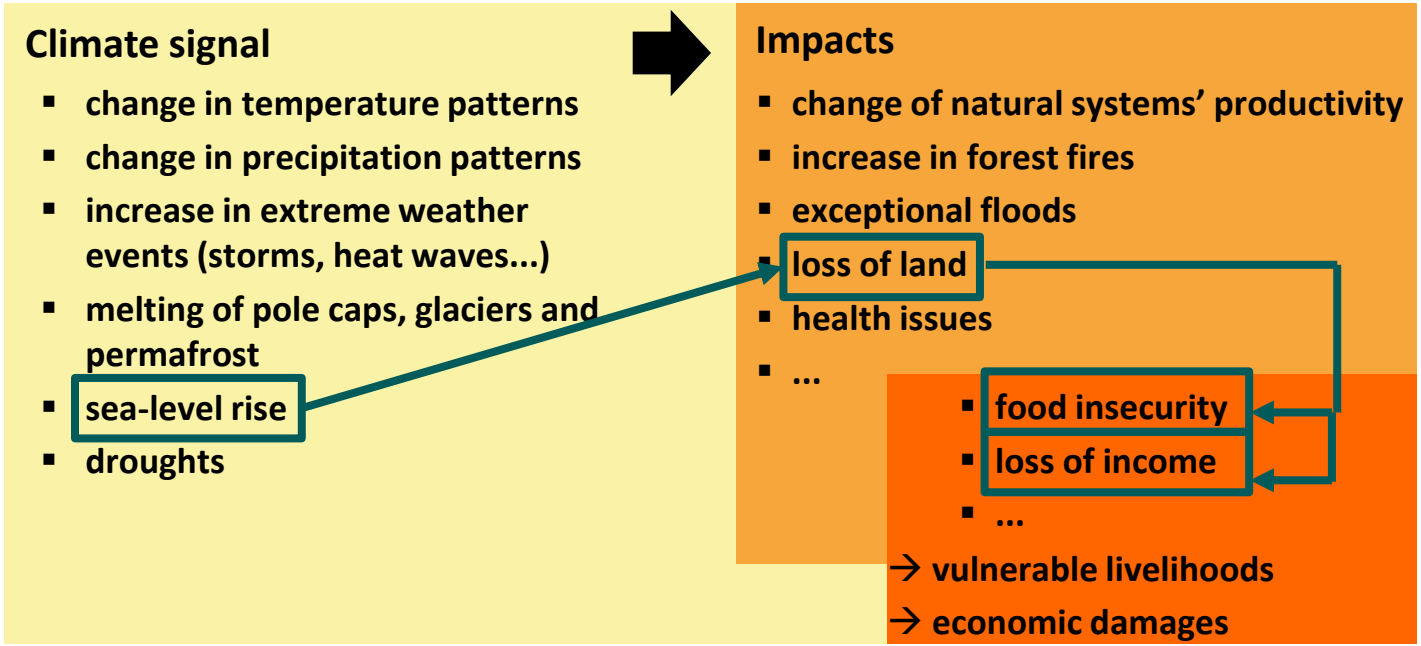
Adverse impacts from human caused climate change will continue to intensify

a) **Observed widespread and substantial impacts and related losses and damages attributed to climate change**



Source: IPCC (2022)

Climate impact chain



Responding to Climate Change: Mitigation and Adaptation

Mitigation and adaptation are complementary strategies to respond to climate change

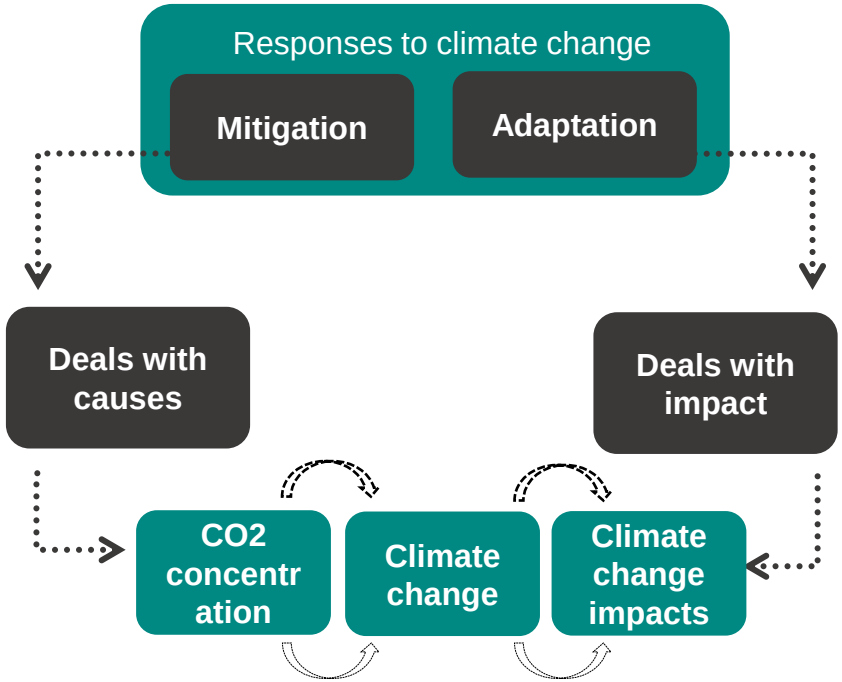
In addressing climate change, the two main responses are climate change mitigation and adaptation.

Climate Change Mitigation

- Reduce amount of emissions released to the atmosphere.
- Reduce current CO2 concentration in the atmosphere.

Climate Change Adaptation:

- Cope with existing and expected climate change.
- Provide a response to actual or expected climate hazards and impacts.



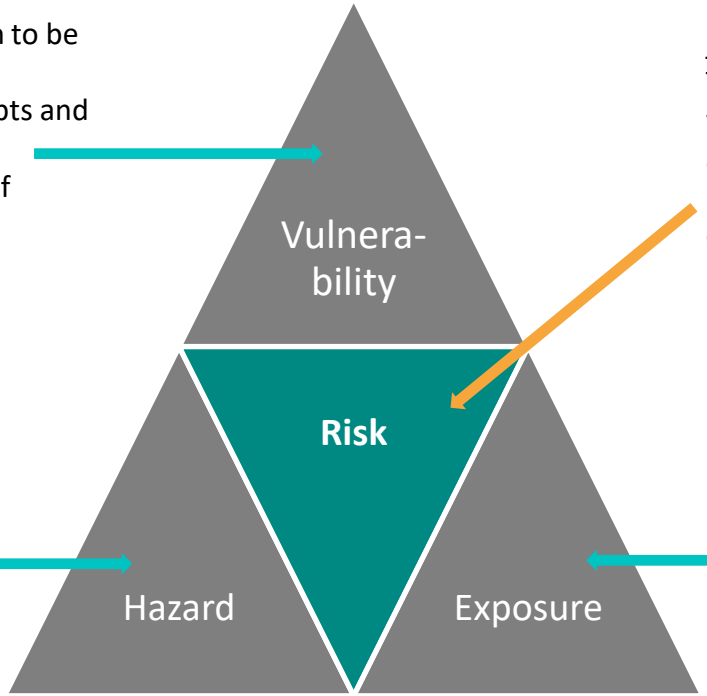
What is adaptation?

"**Adaptation** refers to **adjustments in ecological, social, or economic systems** in response to **actual or expected** climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to **moderate potential damages** or to **benefit from opportunities associated with climate change**." (UNFCCC)

Adaptation to the risks of climate change (IPCC 2014)

Definition:
The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Definition:
The potential for consequences [= impacts] where something of value is at stake and where the outcome is uncertain.. Risk results from the interaction of vulnerability, exposure, and hazard.

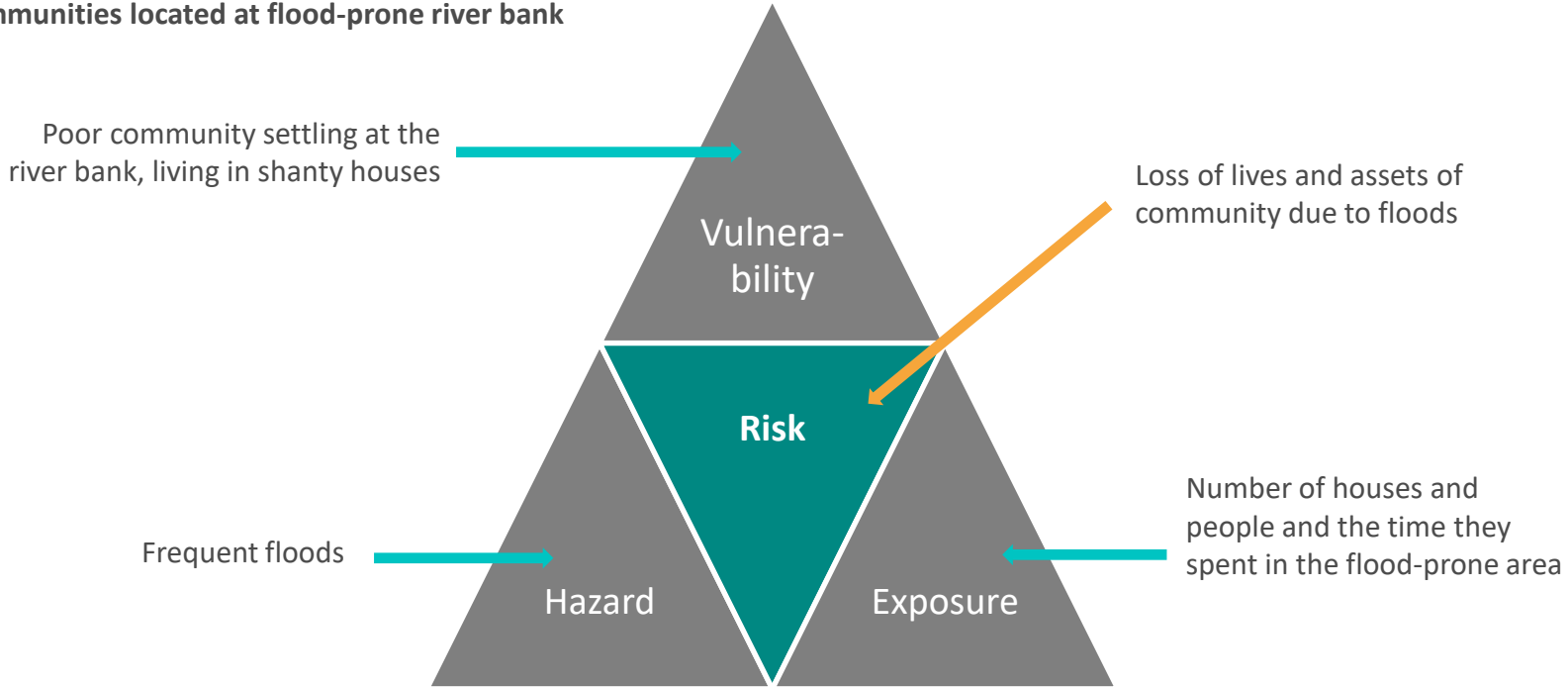


Definition:
The potential occurrence of a climate related physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources..'

Definition:
The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected

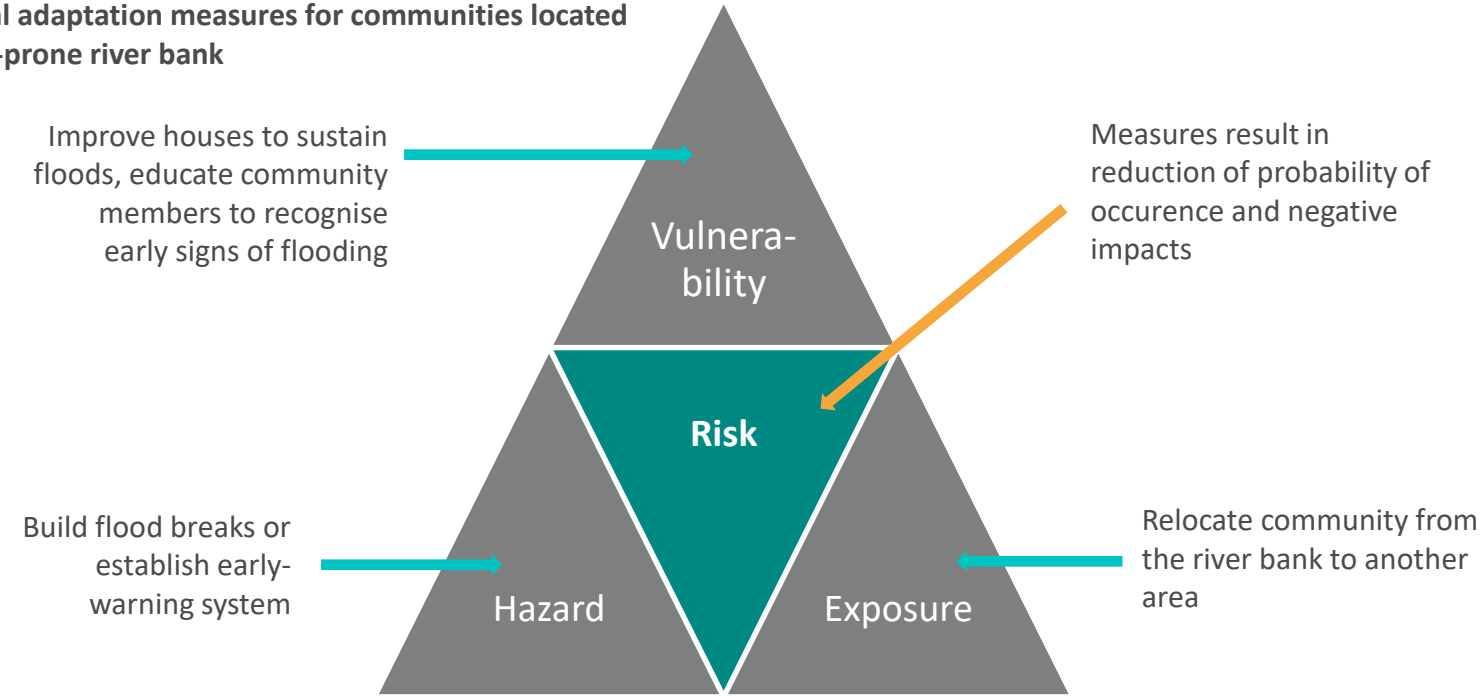
Adaptation to the risks of climate change (IPCC 2014)

Example:
Communities located at flood-prone river bank



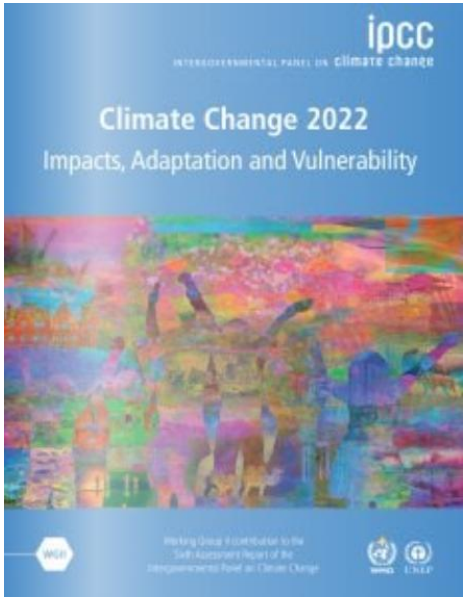
Adaptation to the risks of climate change (IPCC 2014)

Example:
Potential adaptation measures for communities located at flood-prone river bank



Adaptation measures, enabling conditions, and climate resilient development

- There is progress and awareness is increasing
- Progress is uneven, gaps remain, and the feasibility of implementing adaptation options varies
- Adaptation to water-related risks and impacts make up the majority of documented adaptation actions
- Adaptation can have many co-benefits
- Enabling conditions are key for implementation, accelerating, and sustaining adaptation
- Information and knowledge matter
- With increasing global warming, adaptation options decrease, and loss and damage increase



Group work and discussion

1. Take some time to review the GHG emissions and climate risk profiles of [country]
2. Is there any information that you find surprising?
3. Taking into consideration specific target groups of [investor‘s] investment strategies, which climate risks are most relevant in the short- to medium-term? Which ones in the medium- to long-term?
4. What are the main adaptation needs of your target groups?

Climate Change Regime: Policy Overview

Climate Change Regime: Policy Overview

Global frameworks to address climate change

United Nations Framework Convention on Climate Change (UNFCCC) - 1992

- **General framework** with broad principles, general obligations, basic institutional arrangements, **and an intergovernmental process** for agreeing to specific actions over time
- **Objective:** "*stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*"
- **Actions through decisions** by the Conference of the Parties **and other legal instruments**

Kyoto Protocol - 1997

- **Top down approach**: setting internationally binding emission reduction targets for **developed countries only**
- **Pre-2020**

Paris Agreement - 2015

- **Bottom up approach**: countries make individual pledges (NDCs) to communicate their targets.
- **All countries** obliged to take action
- **Post-2020**

The goals of the Paris Agreement

Mitigation

- **Limit global warming** to well below 2°C, pursue efforts to limit to 1.5°C
- Achieve **net zero emissions** in the second half of the century

Adaptation

- **Increase ability to adapt the adverse impacts of climate change** and foster climate resilience and low greenhouse gas emissions development
- **Engage in adaptation planning and implementation** through e.g. national adaptation plans, vulnerability assessments

Finance

- Work towards **making finance flows consistent with low greenhouse gas emissions and climate-resilient development**

Nationally Determined Contributions (NDCs)

NDCs are a major vehicle for the implementation of the Paris Agreement

New policy and climate action instruments

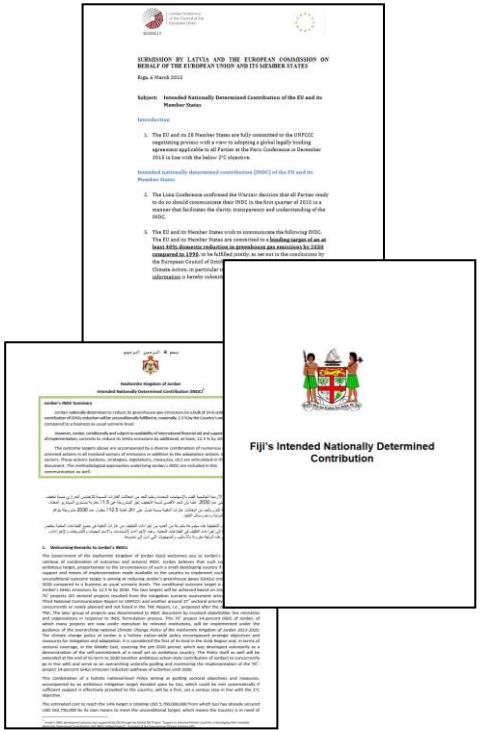
- In preparation of the Paris climate conference in 2015, countries outlined their **post-2020 climate actions**, known as Nationally Determined Contributions (NDCs).

Ambitious aspirational documents

- NDCs set out **high-level objectives and a vision** that a country seeks to accomplish through its mitigation and adaptation efforts.

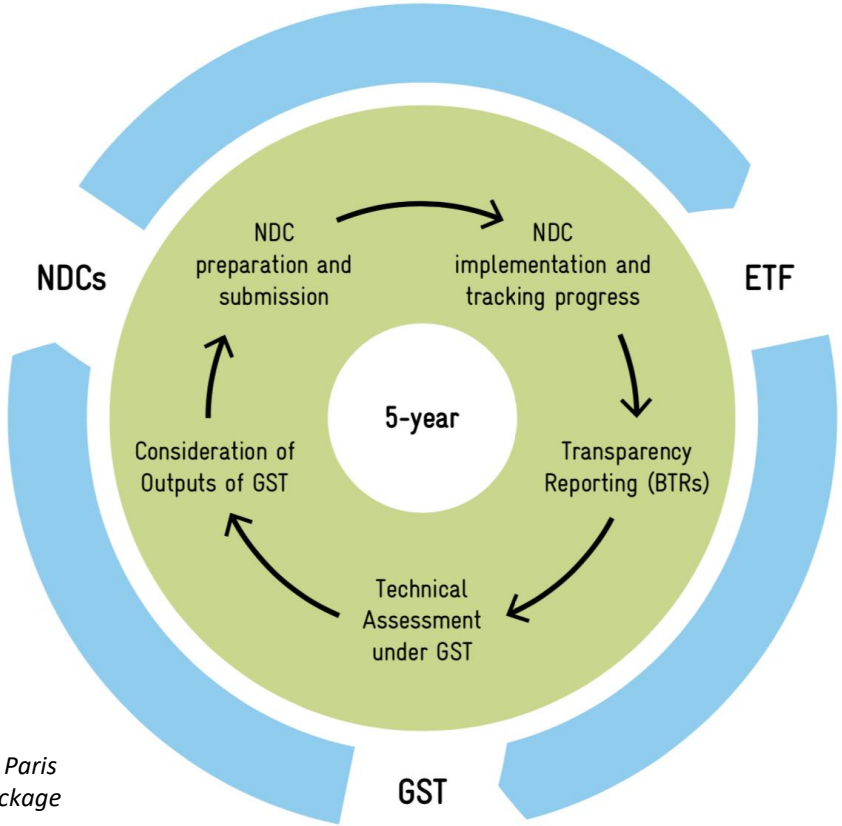
Key guiding documents for international donors

- Bi- and multilateral donors are increasingly looking to NDCs as a **basis for cooperation**, understanding these documents as enshrining a **country's key priorities**.



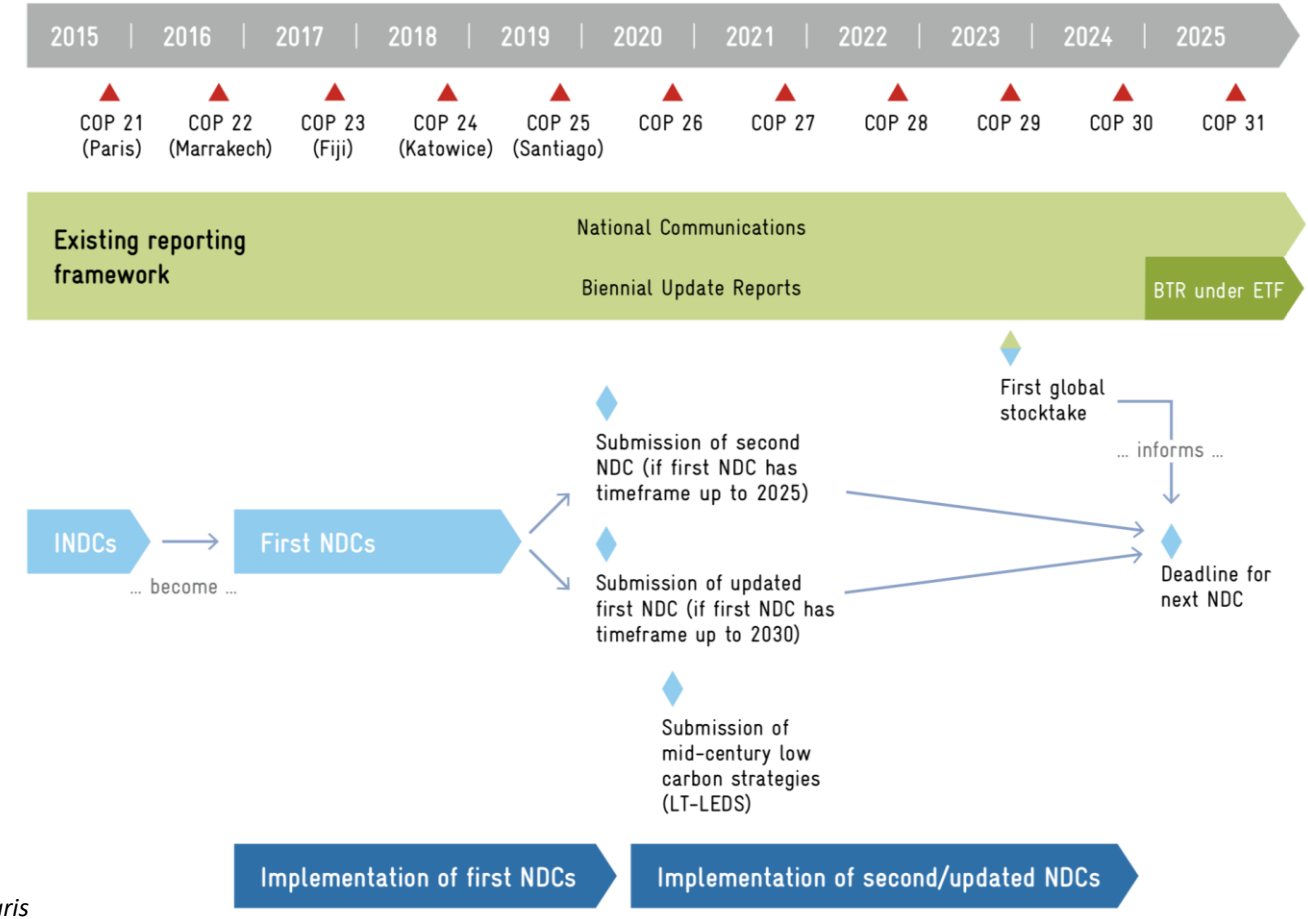
Ambition mechanism of the Paris Agreement

The NDC Cycle, the Enhanced Transparency Framework and the Global Stocktake



Source: GIZ (2019). *Next steps under the Paris Agreement and the Katowice Climate Package*

Timeline for NDC and transparency related processes under the Paris Agreement



Source: GIZ (2019). *Next steps under the Paris Agreement and the Katowice Climate Package*

Adaptation planning – bridging the international and national level

United Nations Framework Convention on Climate Change

Paris Climate Agreement

Legally binding international treaty on climate change, adopted by 196 Parties at COP 21 in Paris, on 12 December 2015

- **Nationally Determined Contributions**

  Efforts by each country to reduce national emissions and adapt to the impacts of climate change

  - **National Adaptation Planning (NAP)**

    Strategic process by a country to identify and address **medium- and long-term priorities** for adapting to climate change

    - **document (plan)**
      - NAP roadmap
        - NAP framework
          - NAP documents
    - **process (planning)**

Any questions?

Group work and discussion

1. Take some time to review the summaries of [country's] NDC and National Adaptation Plan (focus on pages 3 &4)

2. Is there any information that you find surprising?

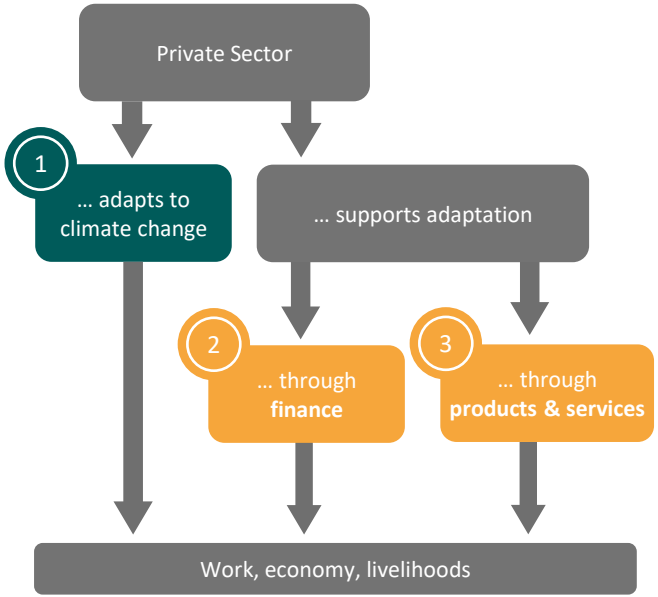
3. Which aspects of the policy documents may be relevant to [investor's] current operations? Which aspects might become relevant in the future?

The Private Sector’s Role in Adaptation

What Role does the Private Sector play in Adaptation?

Private sector involvement in adaptation falls into three broad categories:

1. investing in their own resilience,
2. investing in the adaptation of others,
3. providing climate adaptation goods and services



Functions of the private sector in adaptation
(adapted from Byiers and Rosengren 2012)

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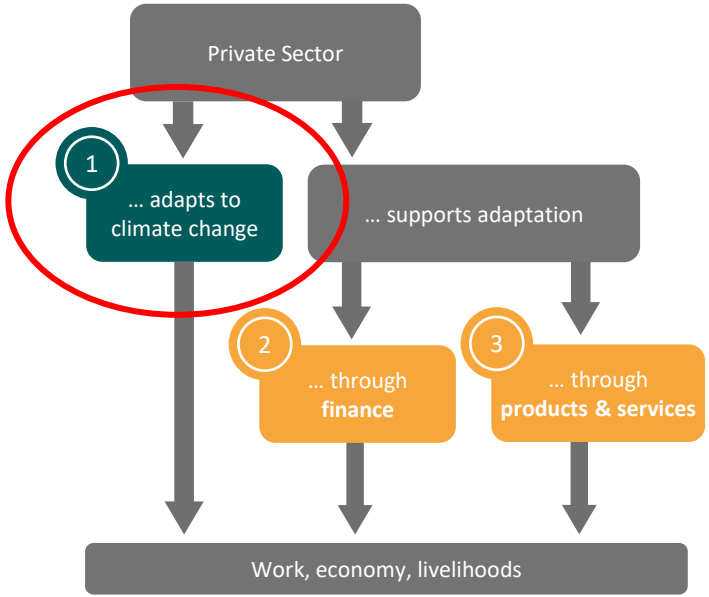

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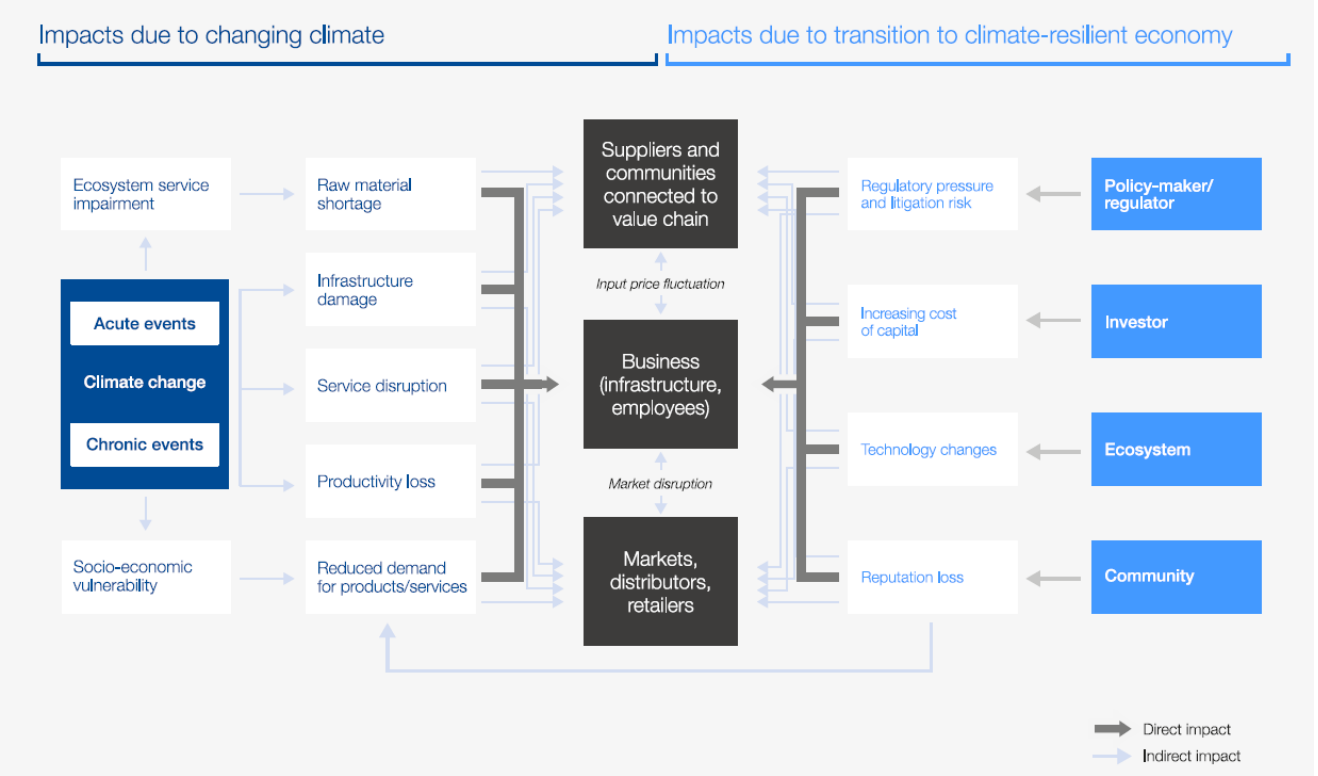
Climate Change Impacts on businesses



Source: WEF White Paper (2023)

Examples: Climate Risks Requiring Business Adaptation Action

Impacts of Climate Change	Knock-on Impacts on Business
Temperature change	Requirement for cooling equipment for employees and to maintain stable temperatures for climate sensitive industrial processes.
Precipitation change impacting agricultural yields	Change in availability and quality of climate-sensitive natural resources as input materials for production, increased competition and cost for resources.
Sea level rise and extreme weather events including flooding	Risk of damage of assets (buildings and equipment), business interruption to water and energy supplies, supply chain and logistics, increased costs to weatherproof buildings and storage facilities and higher costs of insurance policies.
Water stress	Increased competition and cost for water resources.
Biodiversity loss	Change in availability of natural resources as input materials.
Human health and increase in incidence of disease	Health of employees and workers in supply chain compromised, and riding costs of healthcare.
Changing socio-cultural preferences	Changes in consumer behaviour and demand for specific products and services.

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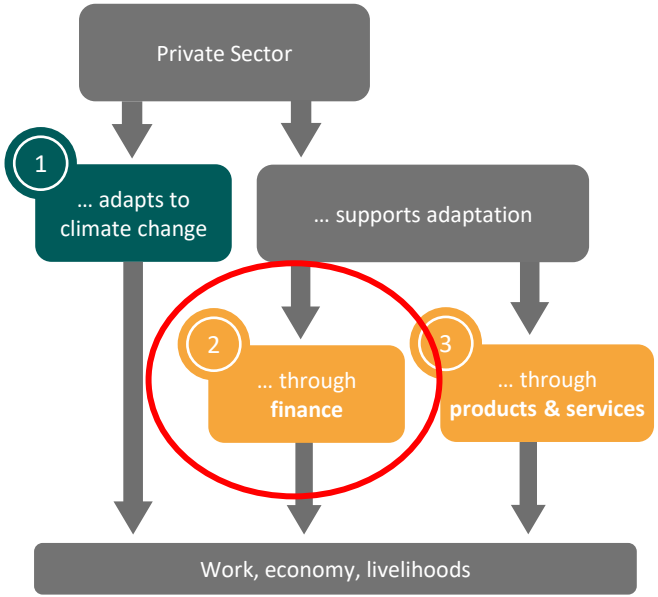
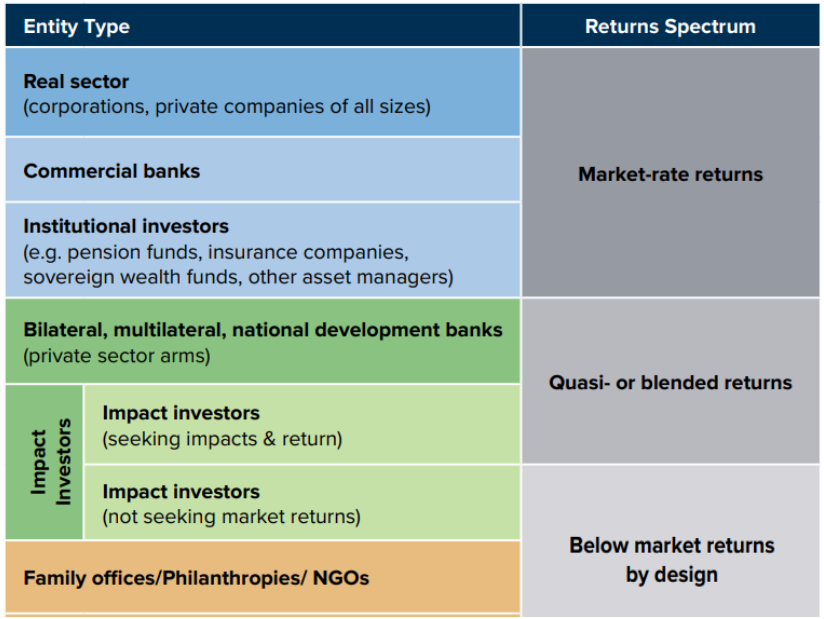


Functions of the private sector in adaptation
(adapted from Byiers and Rosengren 2012)

Role of the Private Sector trough financing

- **Mobilize investments** into adaptation solutions, to close the adaptation finance gap and **accelerate existing solutions** to respond to current and oncoming climate risks
- **Private adaptation finance challenges:**
  Adaptation business models **can often not be identified** by capital providers due to both insufficient communication and awareness of the adaptation relevance from solution providers.
  - Difficulty to quantify the current levels of private investment in adaptation.
  - Need to mobilize more private sector investment in adaptation.



Role of the Private Sector through financing – examples

CATALYST FUND

Funds early-stage tech startups that build the resilience in climate-vulnerable communities

lrf landscape resilience fund

Aims to mobilize USD 100 million by 2026 for climate adaptation projects

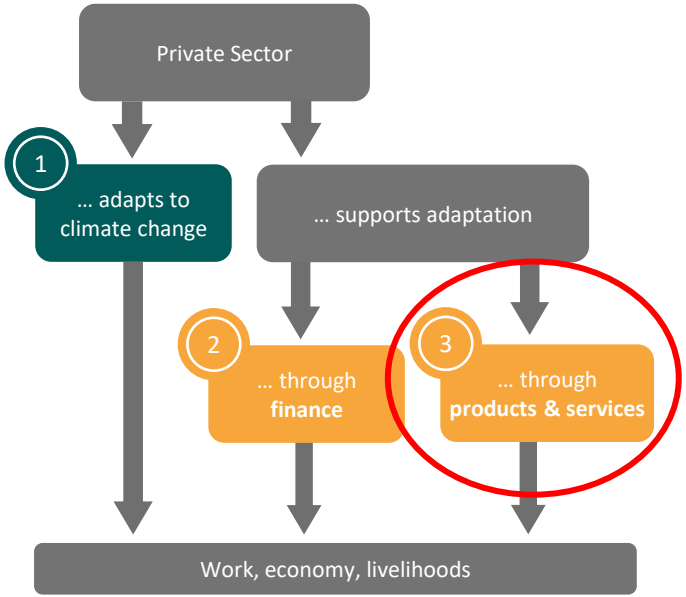
ARAF
Acumen Resilient Agriculture Fund

A USD 58 million impact fund and the world's first equity fund designed to build the climate resilience of smallholder farmers.

What Role does the Private Sector play in Adaptation?

Private sector involvement in adaptation falls into three broad categories:

1. investing in their own resilience,
2. investing in the adaptation of others,
3. **providing climate adaptation goods and services**



Functions of the private sector in adaptation
(adapted from Byiers and Rosengren 2012)

Why Businesses Should Focus on Adaptation

Climate change impacts businesses and their value chains across geographies; this has implications for **financial performance**

By adapting to and building resilience to climate change, businesses can mitigate risks to the operations and value chains and **avoid economic losses** due to climate impacts

Climate change adaptation presents **opportunities** for business growth, innovation, efficiency, and sustainability

Businesses can capitalize on opportunities by investing in climate change adaptation solutions, thereby gaining from **increased revenue and cost savings**

As climate change is a systemic issue with cascading impacts, global adaptation efforts require **multi-stakeholder collaboration** to succeed

By complementing goverment and public sector efforts, businesses can **contribute to protecting communities and ecosystems** and gain from mutually beneficial outcomes

By investing in adaptation, companies can lead and help galvanize a system response, while protecting their business

Source: WEF White Paper (2023)

Role of the Private Sector through products & services – examples

FLOODBASE

Satellite-based flood tracking solutions that improve **flood disaster response**, enabling communities to prepare and respond to climate disasters by **reducing the barriers** to scientific information and capital

KHEYTI
Smart Farmer Revolution

Provides farmers with a “greenhouse in a box” solution, a package of greenhouse and irrigation technology, finance, training and access to markets, allowing farmers to **grow crops with less water** and **more resilience to changing climate conditions**, improving incomes

KOOLBOKS
LIFE IS KOOL

Solar-powered cooling system to **reduce food waste**, especially in a context of declining agricultural yields as a result of climate change (thus improving food security), and to **improve access to healthcare**, including during natural disasters.

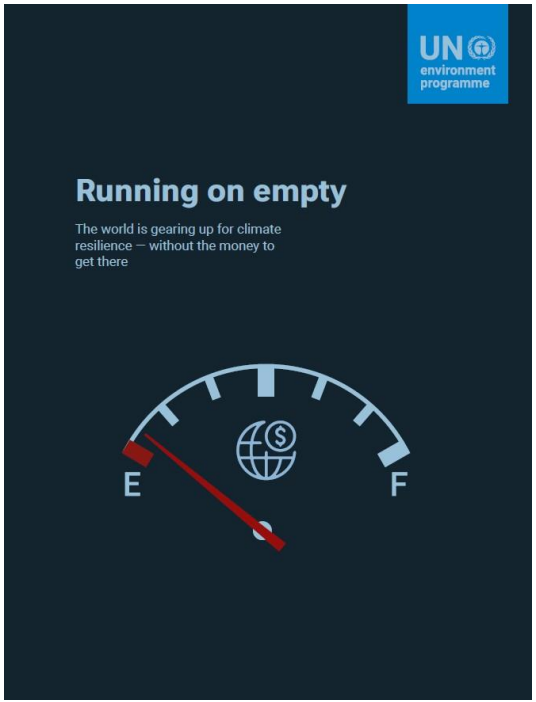
ARCTIC
INFRASTRUCTURE

Supporting public and private institutions in planning, designing, and implementing innovative urban **climate-resilient infrastructure** in Sub-Saharan African cities, e.g. through the integration of **nature-based solutions** into infrastructure and urban spaces.

The Investment Opportunity in Adaptation

Significant growth in market opportunities

- The latest Adaptation Gap Report estimates **annual adaptation costs in developing countries of USD 310 billion by 2035**
- Financial losses from extreme weather events, such as floods, heatwaves and droughts are estimated to **increase by 20% by 2040**
- As of 2022, **only 5% of the USD 1.3 trillion** in total annual climate finance was specifically earmarked for adaptation



Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

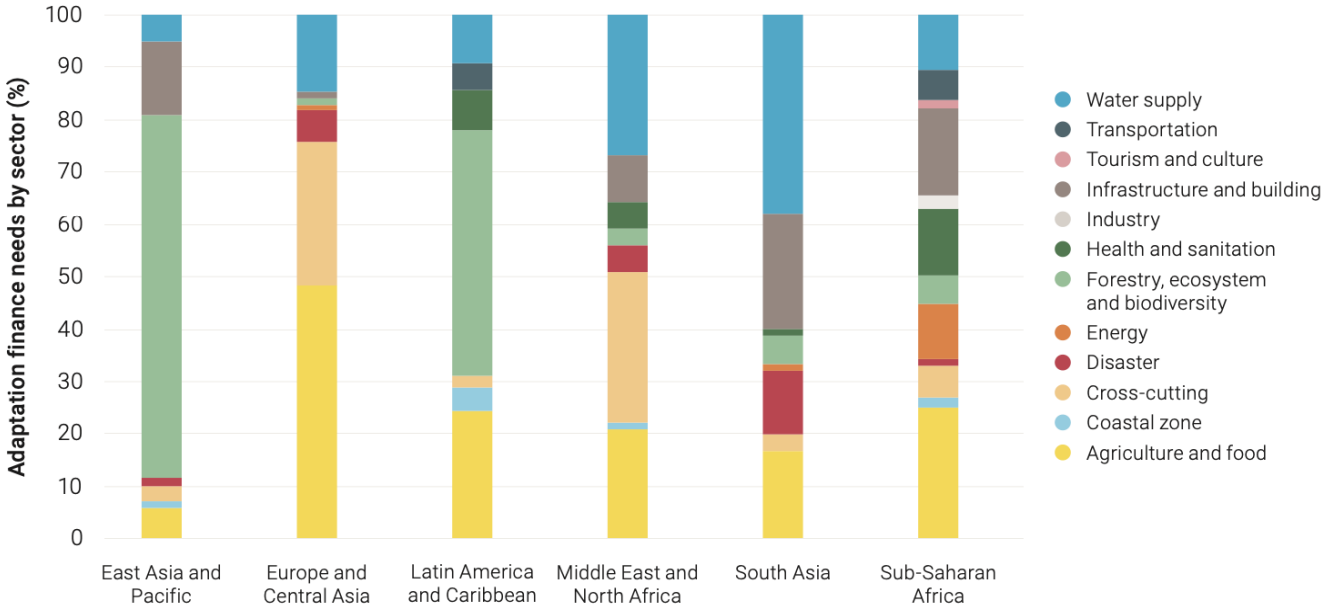
Significant growth in market opportunities

- The global climate adaptation market is expected to reach **USD 2 trillion a year in 2026**
- The **market for drought tolerant seeds**, for example, is expected to grow by over 6% per year, the **market for drip irrigation technologies** by over 10% per year (over the coming 5 years)
- For every USD 1 invested in adaptation, it is expected to **yield over USD 10 times** the benefits over a 10-year period
- The **average ROI** for adaptation investments is estimated at **27%**, though likely higher

Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction*
WRI (2025). *Strengthening the investment case for climate adaptation: A triple dividend approach*

Significant growth in market opportunities

Figure 4.3 Sectoral distribution of adaptation finance needs by region. Shown as a percentage of total reported adaptation finance needs for each respective region



Source: UNEP (2025). Adaptation Gap Report 2025

The business case for climate change adaptation

Urgency and increasing awareness among various stakeholders on adaptation

Investor interest, expectations and literacy on climate change and adaptation increasing

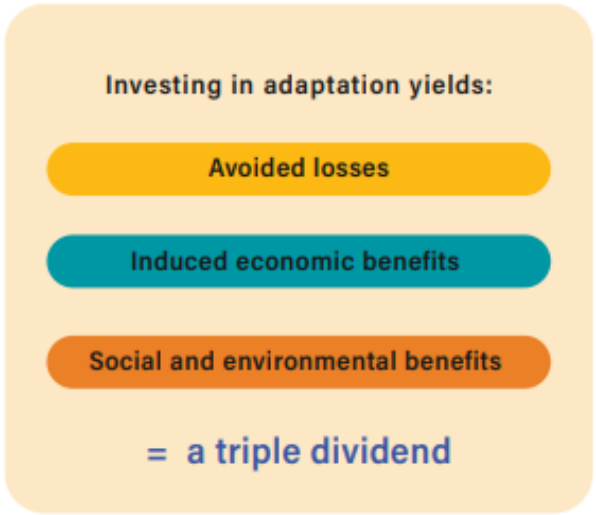
Relevant tools and resources are increasingly available, also for SMEs

Expectations for increasing availability of adaptation finance

Tangible business opportunities with worsening climate impacts

The business case for climate change adaptation

Triple dividend approach:

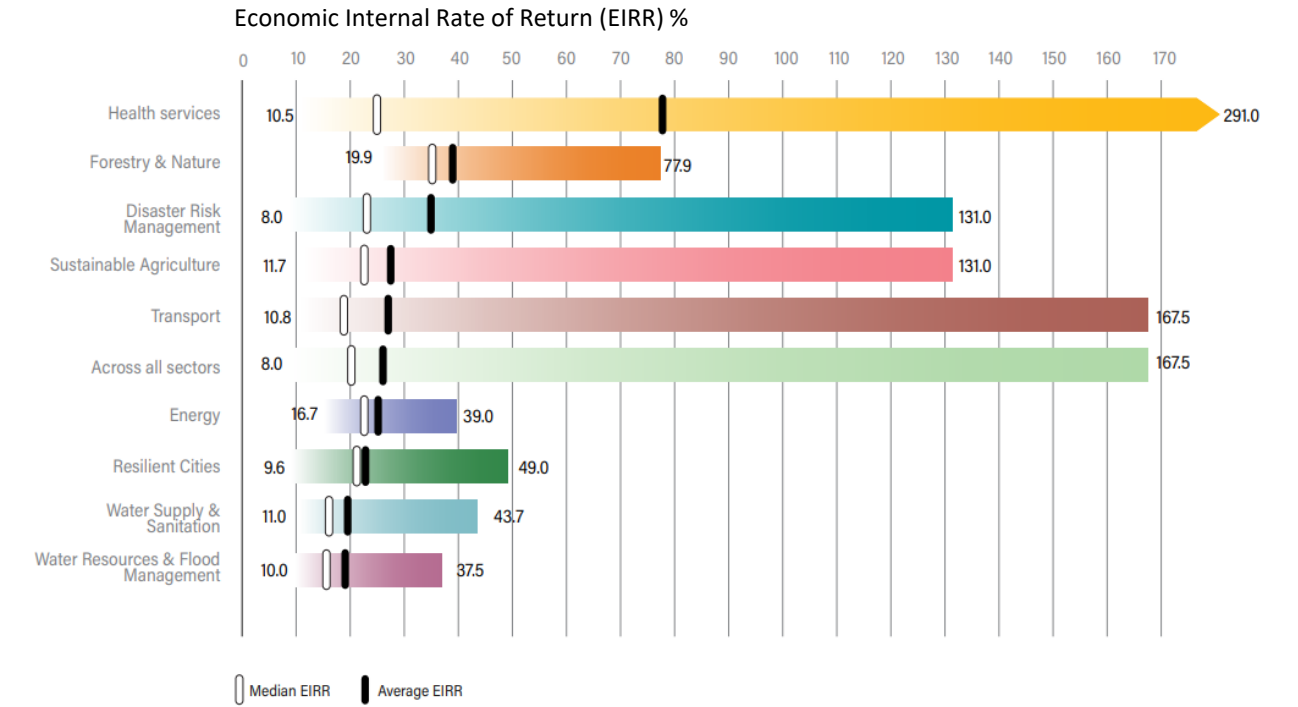


- Adaptation can yield three dividends: avoided losses, induced economic benefits, and social and environmental benefits.
- Aggregating total benefits across dividends is better than promoting each dividend separately.
- The second and third dividends accrue even when the anticipated disaster does not occur, meaning they don't rely on the probabilities of disaster risk.
- Benefit-cost ratios of adaptation investments are often much larger than assumed (BCRs > 5).
- The total benefits of adaptation investments include significant private benefits.

Source: WRI (2025). Strengthening the Investment Case for Climate Adaptation

Economic Value from Investing in Climate Adaptation

Figure 8 | **Range, median, and average returns of adaptation investments by subsector**



Source: WRI (2025). [Strengthening the Investment Case for Climate Adaptation]

Portfolio Screening for Adaptation Impacts

Screening a portfolio for adaptation impacts may serve to…

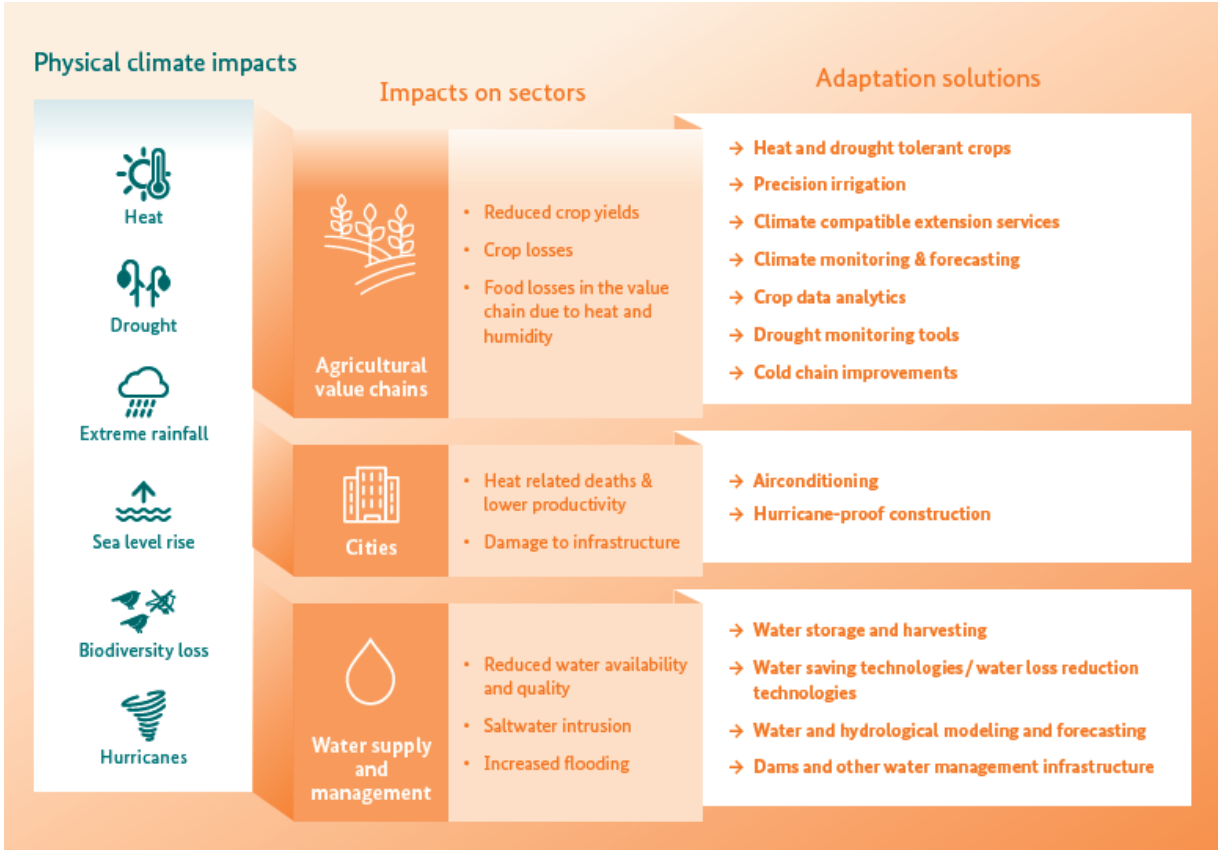
… familiarize investment staff with the topic,

… provide a basis for reporting on adaptation impacts to investors,

… lead to a refined strategy to proactively target climate adaptation investments, and

… support investee companies in strengthening their adaptation business cases.

Simple approach for identifying adaptation benefits



Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

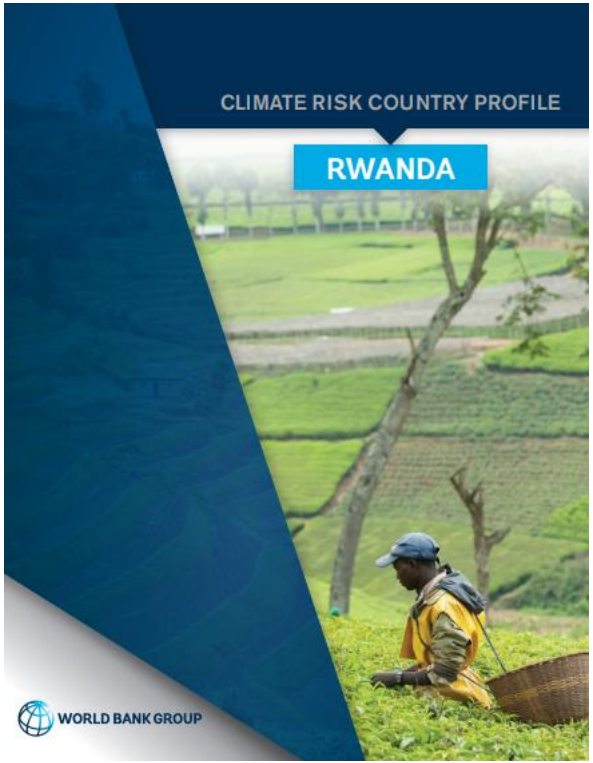
Robust methodology for identifying adaptation impacts

STEP 1: DETERMINING CLIMATE IMPACTS AND RISKS

- Determine **climate change impacts** in the country / region where an investee company is active, such as prolonged periods of drought, sea level rise, more frequent strong rainfall etc.
- Determine **climate change risks and vulnerabilities** in the company's target (sub-) **sector** or population, such as risks to food security, damage to houses and other infrastructure etc.

Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

Robust methodology for identifying adaptation impacts



WORLD BANK GROUP | Climate Change Knowledge Portal
For Development Practitioners and Policy Makers

Source: Rwanda Climate Change Data

Robust methodology for identifying adaptation impacts

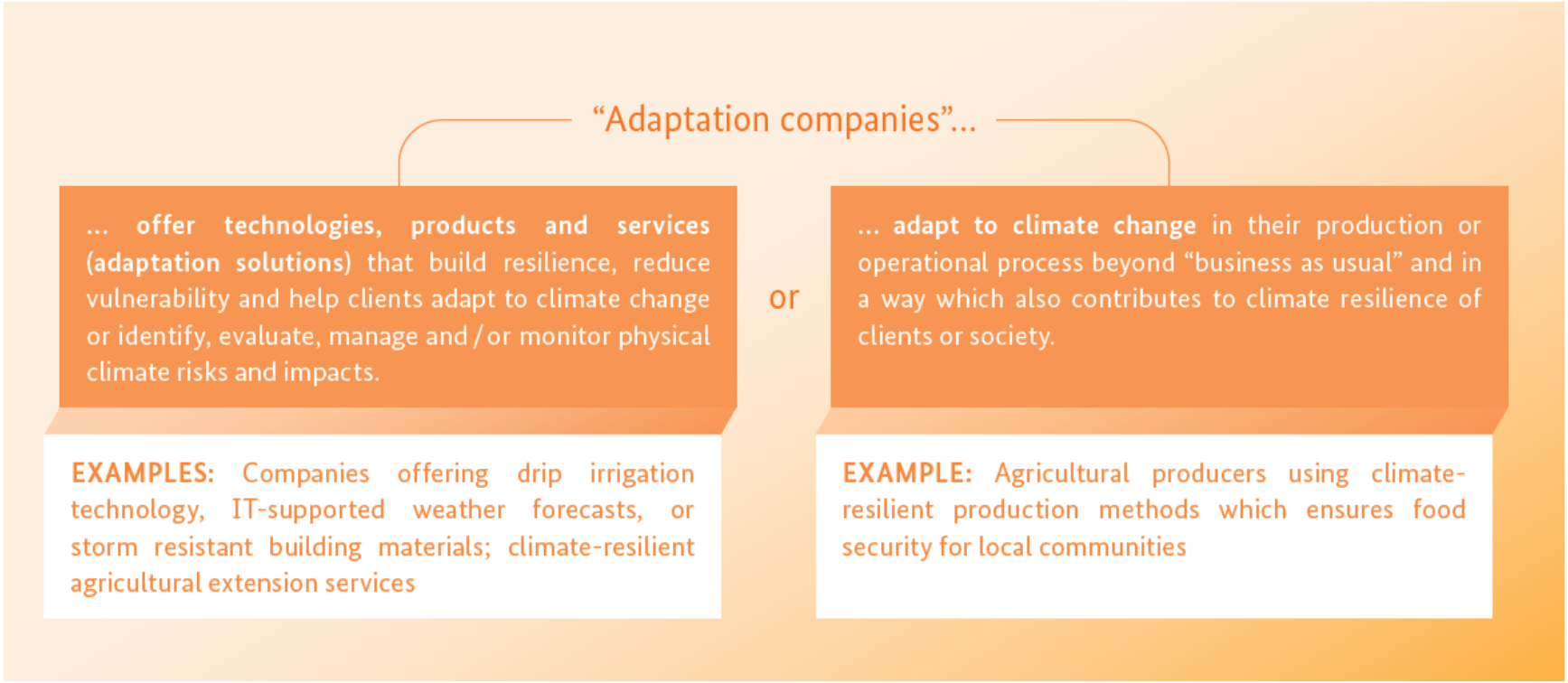
STEP 2: ANALYSE ADAPTATION RELEVANCE OF PORTFOLIO COMPANIES

Evaluate whether the company's business model has an adaptation relevance. Namely if the company

- **offers adaptation solutions** (technologies, products, services, knowledge solutions that help the company's clients to adapt to the specific climate change impacts, risks and vulnerabilities identified in step 1, or
- **applies adaptation solutions** (e.g., technologies, alternative or adjusted production processes, alternative crops etc.) in their business practices in a way that addresses or reduces the specific climate impacts, risks and vulnerabilities identified for the region and sector, and increases climate resilience of clients or the society at large.

Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

Adaptation Companies



Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

Robust methodology for identifying adaptation impacts

STEP 3: CONSIDER INTEGRATING CLIMATE ADAPTATION INTO INVESTMENT MANDATE

Evaluate whether the company's business model has an adaptation relevance. Namely if the company

- Review investment strategy and mandate to consider the potential for integrating climate adaptation more explicitly
- Integrate climate adaptation indicators and impact measurement into your approach and reporting
- Communicate climate adaptation focus as part of investment mandate to attract climate adaptation dealflow

Source: GIZ (2025). *Impact Investing for Climate Change Adaptation: an Introduction.*

Adaptation Relevance – case studies

Case Example

African Venture Philanthropy Alliance (AVPA)

Report: Priming Private Sector Investment in Climate Adaptation Innovations in East Africa

Stable Foods: Building low-cost irrigation-as-a-service for smallholder farmers

The adaptation challenge	Increased rainfall disruption, the breakdown of normal rain patterns, at the same time as greater drought, soil drying and runoff are increasing crop vulnerability to rainfall gaps, and hampering planning and investment.
The enterprise solution	Stable Foods has launched collective irrigation systems in western Kenya, developing boreholes and installing pumps and distribution piping to subscribers who access the irrigation as a service on a pay-as-you-go metering system. The subscribers are also provided with agricultural extension and market linkages.
Finance and sustainability	The business was founded by a group of entrepreneurs in partnership with venture studio Pyramidid Ventures, and has been built with seed investment from Acumen Resilient Agriculture Fund (AFAF) and Mercy Corps Ventures. The subscribed irrigation infrastructure has demonstrated sustainability in western Kenya and Stable Foods is now seeking new investments to provide the CapEx for expansion.
The impact	Increases yields by 5-8 times, provides irrigation that is affordable for 90 percent of smallholder farmers compared with 4 percent who can afford the current solutions, and secures an estimated 8-fold increase in earnings for subscribing farmers by allowing them to move to three harvests a year, supported by training in growing irrigated off-season crops that earn higher prices, and making sales via Stable Foods' food stores.

Source: AVPA & Lemelson FoundationD

Case Example

https://www.youtube.com/watch?v=Z5n_YPY4A2g

Case Example: Cold Hubs

Which kind of solution are they offering? What's their narrative?

Problem: In developing countries, 45% of food spoils mainly due to lack of cold storage

Solution: Solar-powered cold storage

Business Model: Pay-as-you-store subscription model. Farmers pay a daily flat fee for each crate they store

Type of Adaptation SME

1. Adaptation solution type
Does the solution help to assess and/or address physical climate risks?
► Crops storage in cold rooms

2. Targeted climate hazard and risks
What type of physical climate risks can the solution help address?
► Heat stress / reduced agricultural productivity

3. Sector
To which economic activities can the adaptation solutions be used/applied?
► Agriculture

Business opportunity: Provide technological solutions to farmers to adapt to heat stress, improving their income and resilience

Case Example: DripMasters drip irrigation systems

We Are The Drip Irrigation Experts

Drip Masters EA is a Kenyan irrigation company, that provides technological leadership with the widest range of cost-effective and customized solutions.

We offer a ONE STOP SHOP solution to the farmer: specially tailored, top quality solutions and products that deliver higher productivity per unit of resources. Our expertise contributes to higher yields, lower risks, and savings of precious resources.

Drip Masters' mission is to produce and market product that will enrich and enhance the lives of rural residents. Our products create prosperity for small farmers and bring a better way of life to other people in rural areas.

Case Example: DripMasters drip irrigation systems

Is my business adaptation-relevant?
What are the key climate related risks in my country/region?

GIZ_Climate-risk-profile-Kenya (Agrica)

Federal Ministry for Economic Cooperation and Development

giz KFW

Climate Risk Profile: Kenya

Summary

This profile provides an **overview of projected climate parameters and related impacts** on different sectors in Kenya until 2080 **under different climate change scenarios** (called Representative Concentration Pathways, RCPs). RCP2.6 represents the low emissions scenario in line with the Paris Agreement; RCP6.0 represents a medium to high emissions scenario. **Model projections do not account for effects of future socioeconomic impacts.**

Agro-ecological zones might **shift, affecting ecosystems, biodiversity** and **crop production**. Models project regionally varying changes in species richness and an increase in tree cover in response to climate change.

Agriculture, biodiversity, health, infrastructure and water are highly vulnerable to climate change. **German development cooperation is committed to addressing these challenges by seeking to mainstream climate change adaptation into its cooperation portfolio.**

Per capita water availability will decline by 2080 mostly due to population growth. Model projections indicate that **water saving measures are expected to become particularly important after 2030**.

Depending on the scenario, **temperature** in Kenya is projected to **rise by between 1.2 and 3.2 °C by 2080**, compared to pre-industrial levels, with higher temperatures and more temperature extremes projected for the north and east of Kenya.

The **population affected** by at least one **heatwave** per year is projected to **rise** from 0.6 % in 2000 to 6.0 % in 2080. This is related to 59 more very hot days per year over this period. As a consequence, **heat-related mortality** is estimated to **increase by a factor of five** by 2080.

Kenya Country Profile (World Bank)

Global Center on Adaptation
Adaptation Exchange

Sectoral Adaption Planning

Agriculture

~28% of GDP; contributions to agricultural GDP: Crops (78%), livestock (20%), fisheries (2%) | Over 65% of exports | rain-dependent | agricultural land (2018): 28.99% of total land area | provides ~80% of total employment and supports over 80% of rural population.

- Crops: maize, wheat, rice, tea, coffee

Main climate change impacts

Increased short-term crop failures and long-term production declines due to changes in precipitation patterns

Production losses magnified by indirect impacts of drought and flooding such as increased rates of runoff and soil erosion, and insect, disease and weed infestations

Altered mix and distribution of agriculture and livestock pests due to rising temperatures

Crops yields may increase in temperate and tropical highlands, Rift Valley and high plateaus, due to increases in rainfall and slightly warmer temperatures

Decrease in key crops yields in arid and semi-arid regions due to drought, rising temperatures and increased pests and diseases

Reduced productivity and livestock numbers due to increasing water scarcity

Case Example: DripMasters drip irrigation systems

Is my business adaptation-relevant?
Which climate change risks and vulnerabilities are my costumers facing?

Kenya Country Profile (worldbank)

and sensitivity, the agriculture sector is one of the most vulnerable to climate change. Rising temperatures will likely alter the mix and distribution of agriculture and livestock pests, while the increased incidence of droughts, coupled with reduced rainfall projections for the arid and semi-arid regions, is expected to reduce yields in key crops: maize,

Is my solution aligned with mentioned Adaptation options/strategies?

Adaptation Options

Both the sensitivity of the agricultural sector to a changing climate and the high reliance of this sector on rainfall and limited water resources have important implications for Kenya's farmers, fishermen, women, and the wider economy. The sector will benefit from targeted research aimed at improving the knowledge base of specific climate change related impacts. Improved access to seasonal information is necessary to better inform farms and fisher-folk on decisions regarding planting and the timing of fishing activity. Improved water resources management, specifically increasing use of irrigation as an adaptive strategy, could improve production during reduced rainfall periods.[55]

Global Center on Adaptation
Adaptation Exchange
Sectoral Adaption Planning

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- Crops: maize, wheat, rice, tea, coffee

Main climate change impacts +

Proposed adaption strategies −

- Improved knowledge base of CC-related impacts; and improved accessibility of seasonal information for farmers and fishers
- Improved water resources management, specifically increased use of irrigation and water management models at basin scales
- Improved land management action for conservation of grasslands and forests
- Use of water and resource-efficient technologies (e.g., drip irrigation), or more resilient crop varieties

Case Example: DripMasters drip irrigation systems

Key climate related risks in my country /region?

Which kind of option or solution am I offering?

How do customers benefit from my solutions to become more resilient or to enable them to adapt to climate change impacts?

If I am looking for investment, what are the growth opportunities I'm looking for?

Climate change risk / impact

Drought

Water scarcity

High dependency on rain-fed agriculture in Kenya

Adaptation solution

Migrate from rain fed Agriculture towards modern irrigation technologies.

Indicators / Impact opportunity

- Crops Yields?
- Farmers income?
- Other benefits?

SDGs

- **Food security:** Enhance agricultural productive capacity
- Strengthen resilience and **adaptive capacity** to climate-related hazards

Growth & investment opportunities

- Scale up Business Model?
- Expand Markets?
- R&D / New products or technologies?

Group work – portfolio screening for adaptation impacts

General Information		Climate impacts and risks		Adaptation relevance		
Company	**Sector**	**Focus of business model**	**Key climate change impacts and sector-specific risks**	**Adaptation relevance of business model**	**Description of adaptation rationale**	**Potential adaptation indicators**
ABC	Agriculture	Climate smart irrigation for smallholder farmers	"Temperature increase and heat waves. Dry and wet periods likely to become more extreme. Increased numbers in extremely dry months. Declining yields of wheat, rice and maize."	Increase the resilience of smallholder farmers to climate variability by improving water availability, reducing vulnerability to drought, and stabilizing agricultural productivity under changing weather patterns.	ABC's climate-smart irrigation solutions help farmers maintain consistent crop yields despite weather extremes. The rationale rests on improving water-use efficiency, enabling farmers to make informed irrigation decisions, and lowering their dependency on unreliable rainfall. These interventions collectively reduce climate-related losses, protect livelihoods, and strengthen long-term agricultural resilience.	Reduction in seasonal crop losses attributable to drought or rainfall variability; Percentage improvement in water-use efficiency per hectare; Number of farmers using climate-smart irrigation technologies; Increase in average yields during climate-stress periods

Any questions?

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On behalf of Federal Ministry for Economic Cooperation and Development (BMZ)

german cooperation
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Private Adaptation Finance

Measuring Adaptation

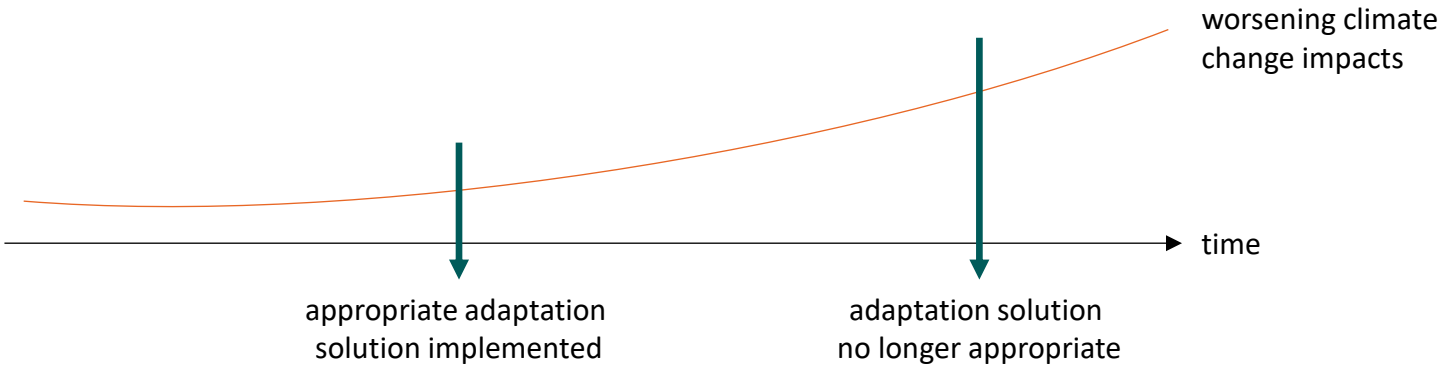
Why is measuring adaptation so challenging?

- **There is no universal indicator** to measure adaptation success irrespective of context

  ≠ Mitigation: reduction of GHG emissions

- Adaptation is not an objective or end point, but a **continuous process**

  ≠ Mitigation: 2°C target and corresponding carbon budgets



Adaptation Indicators

A typical cross-sectoral indicator used frequently is

Total number of people (customers / beneficiaries) benefitting from access to adaptation solutions
(for example in agriculture, tourism, etc.)

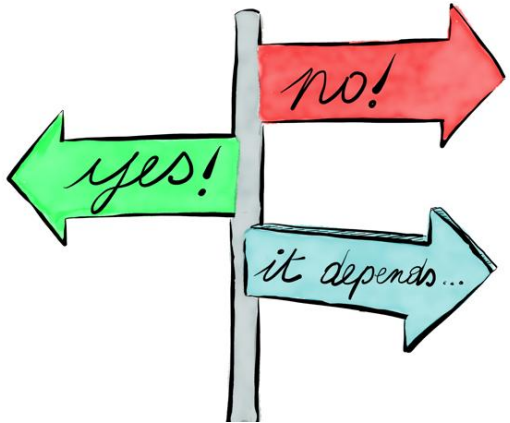
What is NOT an adaptation indicator?

- generic
- lacks context- and geography-specific elements
- does not explain pathway of adaptation

Are these adaptation indicators?

- ? Cubic meters of fresh water saved
- ? Water loss caused by leakage reduced from 25% to 22% of pumped water
- ? Degree of integrated water resources management (IWRM) implementation *[SDG6 "clean water": indicator 6.5.1]*

Context determines whether a particular indicator captures or measures adaptation



What is an investor's impact investment thesis?

Impact investment thesis = tool for screening investment opportunities

- Many investors articulate a specific social and/or environmental change, they wish to support through their capital
- Some investors utilize a single overarching impact thesis for their entire investment portfolio
- Others operate across several impact themes or focus areas, with different portfolios for each
- Impact thesis serves as their North Star/mission/vision towards which the portfolio is driving

Check an investor's website or impact report for their key performance indicators (usually aggregated at portfolio level) to see if your adaptation indicators align!

Examples

MERCY CORPS VENTURES

CATALYST FUND

See also: https://thegiin.org/creating-a-strong-investment-and-impact-thesis/

Case Study: omnivore

- Impact investor based in India
- Invests in companies that are shaping the future of agriculture and food systems
- Omnivore developed their own simplified framework by drawing on other more complex frameworks as references, including the SDGs, IRIS+ and operating principles for impact management adopted by GIIN members

4 Pillars of their theory of change

- Boosting smallholder profitability
- Promoting agricultural sustainability
- Enhancing smallholder resilience
- Catalysing climate action

Key Performance Indicators

6.4 Mn Smallholder farmers reached	**USD 0.8 Bn** Economic value created for smallholder farmers	**USD 1.1 Bn** Sales to organized buyers	**USD 0.4 Bn** Loans enabled to smallholder farmers
USD 0.7 Bn Insurance coverage enabled	**1.2 Mn MT** GHG emissions avoided	**0.9 Mn MT** Food waste avoided	**7.4 Bn L** Water saved
	1.3 Mn hectares Area under sustainable cultivation	**8.2 Mn kg** Reduction in chemical usage	

Source: https://climatecollective.net/impactmetrics/case-studies/

Examples of adaptation indicators for impact investments (I)

Indicator	Adaptation relevance
% of poor people in drought-prone areas with access to safe and reliable water	Poor people are especially vulnerable during droughts as they often lack the resources to buy water or rights to access supplies.
% of urban households with access to piped water	Urban households without access to piped water spend time fetching water and face increased risks of waterborne diseases from contaminated sources.
# of cubic meters of water conserved	Climate change puts additional pressures on water resources; promoting water-saving across all sectors and uses, particularly in region experiencing shortages can support climate adaptation.
% of water demand being met by existing supply	Climate change combined with other changes (e.g. population growth) brings additional pressures on water resources, threatening the viability of its supply. To get a complete picture of adaptation it is important to consider both the supply and the demand side, i.e. if supply falls short demand may need to be reduced.
% of households at reduced flood risk due to construction of new or enhanced defenses	Flood defenses construction can minimize the negative impacts of floods on properties in the context of climate change.
% of livestock insured against death due to extreme and slow-onset weather events	The indicator provides information on the progress in implementing insurance schemes for the livestock sector and allows for temporal and territorial comparisons.

Source: GIZ (2022). *Impact Investing for Climate Change Adaptation: an Introduction;* GIZ/IISD (2014). *Repository of Adaptation Indicators*

Examples of adaptation indicators for impact investments (II)

Indicator	Adaptation relevance
% of farmland covered by crop insurance	Crop insurance mechanisms against climate risks can help farmers cope against the negative impacts of climate hazards. By showing farmers the level of exposure to climate risk of their crops through their insurance premium, this mechanism encourages them to give greater consideration to this risk factor in decisions making.
% of additional fodder for grazing livestock	Building food reserves for livestock helps to adapt to situations in which grazing does not provide sufficient fodder due to unfavorable weather conditions.
Increase in agricultural productivity through irrigation of harvested land	The indicator gives information on potential increases in productivity resulting from irrigating agricultural land as an adaptation measure (efficiency of adaptation action). The generated data allows to make temporal and territorial comparisons of productivity levels.
Increase in the % of climate resilient crops being used	Drought and flood resistant crops can help farmers adapt to a changing climate.
% of cultivated surface cultivated with drought resistant varieties	Farm land which is cultivated with drought resistant varieties helps to sustain the livelihoods of farmers and their families. It makes them less vulnerable to the adverse effects of severe droughts.
Turnover generated by agricultural cooperatives	The turnover of agricultural cooperatives increases or is stable if the adaptation process of agricultural production to the specific climatic conditions has been successful.

Source: GIZ (2022). *Impact Investing for Climate Change Adaptation: an Introduction;* GIZ/IISD (2014). *Repository of Adaptation Indicators*

Climate Collective Foundation (CCF) and the Aspen Network for Development Entrepreneurs (ANDE) recently published a Climate Metrics Guide to provide SGBs, impact investors, and ESOs with a consolidated list of available tools and frameworks for climate impact measurement, along with guidance on how to select best-fit resources based on their sector and impact goals.

Group work and discussion

1. What could be suitable indicators for measuring the adaptation impact of the companies identified previously?
2. How difficult would it be for [investor] to collect the respective data?

Group work

General Information		Climate impacts and risks		Adaptation relevance		
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