WINNER
German Sustainability Award 2024

Avoiding maladaptation and monitoring adaptation actions

Time to Adapt: Embedding Resilience in Local and Regional Plans

10.12.2024

adelphi

Agenda

1. Avoiding maladaptation
2. Monitoring and evaluation of adaptation actions

1 Avoiding maladaptation

What is maladaptation and why should we talk about it?

Actions that are meant to address physical impacts of climate change but may lead to **increased risk** of

- adverse climate-related outcomes, including via increased greenhouse gas (GHG) emissions,
- increased or shifted vulnerability to climate change,
- more inequitable outcomes, or
- diminished welfare, now or in the future.

Most often, maladaptation is an **unintended consequence** (after IPCC, 2022).

➔ Adaptation as a topic will become more important, development pathways and infrastructure etc. is being adapted accordingly now and in the coming years

➔ Crosscutting topic in the face of complex system changes and uncertainty

➔ We need to try getting it right from the start

Examples of Maladaptation

Table with maladaptation examples

Heat-adapted buildings (insulation of walls/basements)	Impact of flooding was not considered -> materials were dissolved in floods, inundation and pollution
Relocation of power lines underground to protect against storms	Impact of rising groundwater levels and flooding was overlooked -> outages, increased maintenance costs, eventual need for costly redesign Impact of earth movements during long dry spells was not accounted for -> increase in maintenance costs
Installation of cooling systems for thermal power plants to increase resilience to heatwaves	Cooling systems heavily depend on local freshwater sources, but impact of increasing water scarcity was not fully considered -> insufficient water supplies to operate cooling system and exacerbated water stress for surrounding communities

Maladaptation variations

- Any action can have a negative effect in the same, or very different sector/ group and potentially only at a much later point in time.
- To minimize the risk of maladaptation: need to (re-)assess and modify planned adaptation actions, if risks are detected.

Do No Significant Harm (DNSH) Criteria

Maladaptation is formalized by the EU Commission in different form by the 'Do No Significant Harm' (DNSH) principle

- Recovery and Resilience Facility (RRF) regulation: Member States need to provide a DNSH assessment for every measure individually (i.e. each reform and each investment) of their Recovery and Resilience Plan (Article 14 of the RRF Regulation)
- EU Taxonomy for Sustainable Activities: for activities that contribute to the second objective ("Adaptation") there are a number of DNSH checks that should ensure that there are no negative effects on the other five objectives

Self-assessment checklist for maladaptation

Checklist which allows to pre-check (ex-ante) adaptation actions to be used primarily by regional planners

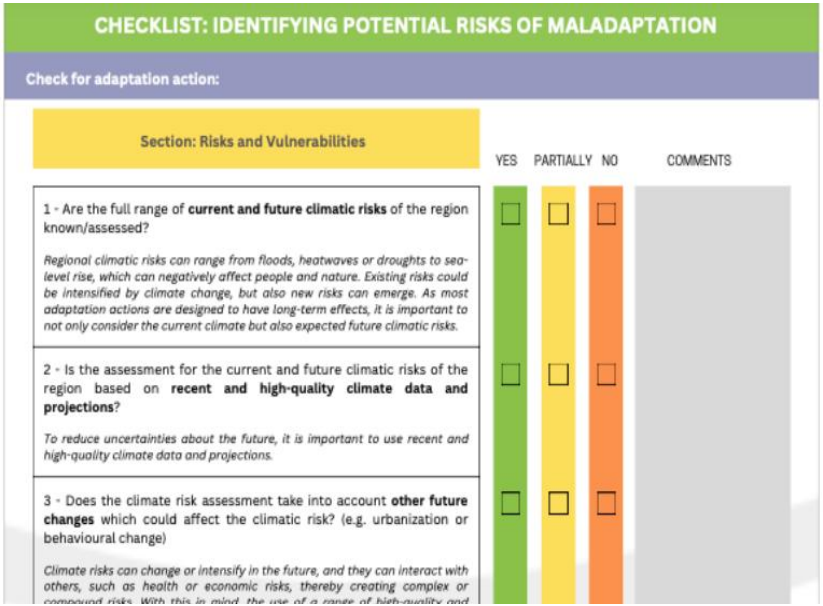
Goal: Decrease risks of maladaptation by spotting them during the planning phase

- 1 Page guideline on how to fill in the checklist
- 3 pages of checklist questions (16 questions in total)
- Based on 5 different categories of 'Risks of maladaptation'

See https://regilience.eu/wp-content/uploads/2023/12/REGILIENCE-maladaptation-tool202311.pdf (developed by Teresa Geidel from Fresh Thoughts)

Overview

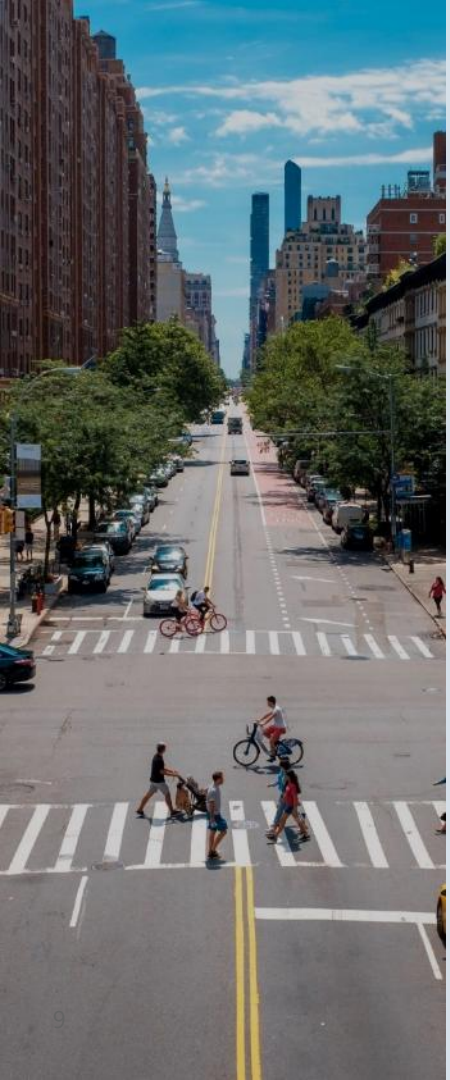
- Checklist dives into
  - Risks and vulnerabilities
  - Developing the adaptation strategy / measures
  - Expected impacts
  - Monitoring and evaluation



CHECKLIST: IDENTIFYING POTENTIAL RISKS OF MALADAPTATION

Check for adaptation action:

Section: Risks and Vulnerabilities	YES	PARTIALLY	NO	COMMENTS
1 - Are the full range of **current and future climatic risks** of the region known/assessed? *Regional climatic risks can range from floods, heatwaves or droughts to sea-level rise, which can negatively affect people and nature. Existing risks could be intensified by climate change, but also new risks can emerge. As most adaptation actions are designed to have long-term effects, it is important to not only consider the current climate but also expected future climatic risks.*	☐	☐	☐	
2 - Is the assessment for the current and future climatic risks of the region based on **recent and high-quality climate data and projections**? *To reduce uncertainties about the future, it is important to use recent and high-quality climate data and projections.*	☐	☐	☐	
3 - Does the climate risk assessment take into account **other future changes** which could affect the climatic risk? (e.g. urbanization or behavioural change) *Climate risks can change or intensify in the future, and they can interact with others, such as health or economic risks, thereby creating complex or compound risks. With this in mind, the use of a range of high-quality and*	☐	☐	☐	



2 Monitoring and evaluation of adaptation actions

Difference between monitoring and evalation

Monitoring means tracking progress in real time while evaluation assesses the effectiveness, outcomes, and long-term impacts

- Monitoring is continuous and informs course corrections
  - Regularly measuring water levels in reservoirs after implementing a flood control dam to check its immediate performance
  - Monitoring tree survival rates in a reforestation project to adjust irrigation or planting techniques if needed
- Evaluation is periodic and determines success or failure
  - Reviewing whether a flood control dam has reduced overall flood damage over several years and improved community resilience
  - Evaluating whether reforestation has effectively reduced local heatwaves or improved biodiversity after 5-10 years

Why is monitoring and evaluation important?

Ensures accountability and transparency

- Demonstrates how resources are used and whether adaptation measures achieve intended goals, and builds trust among stakeholders / citizens

Facilitates learning and improvement

- Identifies what works and what does not, enabling course corrections and informing future strategies for greater effectiveness

How to approach this?

Simple first steps

- Establish goals for an adapation activity whose achievement can be verified, e.g. by establishing a logical framework or theory of change
- Differentiate goals over time
  - What is the immediate output of the action? What are medium-term outcomes (for example, two to three years after implementation)? What are long-term impacts?
- Establish a monitoring plan: when and how to check if progress towards the goals is being made
- If progress is limited: check for causes and adjust

Challenges for monitoring and evaluation in adaptation to climate change (I)

Assessing attribution

- Separating the effects of specific adaptation measures from broader social, economic, or environmental changes is challenging

Establishing baselines and targets

- Adaptation outcomes are often context-specific and difficult to quantify (e.g., how to measure “resilience” or “reduced vulnerability”)

Dealing with long time horizons

- Many adaptation-benefits manifest over decades, complicating short-term assessments and making it hard to link interventions to outcomes

Challenges for monitoring and evaluation in adaptation to climate change (II)

Data gaps and uncertainty

- How to monitor success for increasing resilience against extreme events if events do not happen

High costs and capacity requirements

- Monitoring and evaluation often demand significant financial, technical, and human resources, which may not be readily available

Political considerations

- Thorough monitoring and evaluation can uncover mistakes and lack of progress which might be considered risky by some

Key information sources and frameworks (II)

Guidance tools for monitoring and evaluation

Urban Adaptation Support Tool and Regional Adaptation Support Tool:

- Clear step-by-step guidance with links to useful sources for setting up a M&E system
- Guidance for defining indicators
- Provision of a self-check

Transition Handbook from RAMSES Project:

- Clear step-by-step guidance
- Guiding questions for indicators

Key information sources and frameworks (III)

Indicator frameworks for monitoring and evaluation

- EU SDG Indicators: Holistic framework but not directly targeted for measuring climate resilience
- Resilience Maturity Model: Highly flexible model but not directly targeted for measuring climate resilience (rather resilience in general)
- OECD Resilient Cities Indicators: Based on existing platforms but not directly targeted for measuring climate resilience (rather resilience in general)

Key information sources and frameworks (IV)

Indicator frameworks for monitoring and evaluation

- IMPETUS Resilience Metrics: Cover climate vulnerability, climate adaptation and resilience as the main three pillars of the framework but does not rely on publicly available data
- ISO 37123: Sustainable cities and communities – Indicators for resilient cities: Standardized and accepted support guidelines with drafted indicators but does not specifically focus on climate resilience and standard has to be purchased
- EU Green City Accord: Indicators Guidebook with a thorough yet easy-to-understand description of each indicator but only focuses on environmental management

Monitoring and evaluation examples (I)

Global Indicator of Climate Change Adaptation in Catalonia

As part of the *Catalan Strategy for Adapting to Climate Change*, a **monitoring and indicator system** was established to assess measures taken and to **track the adaptive capacity** in the region

- Review cycle: 5-10 years
- Monitoring of 42 indicators
- Sectors covered: agriculture and livestock; energy; water management; forest management; industry, service, and trade; mobility and transport infrastructure; research, development, and innovation; health; tourism; and urban planning and housing

Monitoring and evaluation examples (II)

Climate Impact and Climate Adaptation Monitoring framework of North Rhine Westphalia (Germany)

The **monitoring framework** was initially developed to monitor climate impacts, but indicators targeted towards **measuring adaptation** and reactions of nature that **enhance the adaptive capacity** of the region were integrated

- Monitoring of 79 indicators, with 15 describing adaptation responses
- Clustered in five areas: climate, environment (water, forestry, soil, biodiversity and agriculture), humans (health, education, disaster management), planning and construction and economy

Key information sources and frameworks (I)

EU Mission on Adaptation to Climate Change

The EU Mission was developed to ensure that regions and cities can cope with (future) climate change impacts

- The monitoring, reporting, and evaluation mechanism assesses the progress made and communicates the outputs, outcomes and impacts of actions and processes in the regions
- It is built on key impact pathway indicators to track progress. The three complementary impact categories are: 1) scientific impacts (such as knowledge and technologies), 2) societal impacts (such as local and regional transformations), and 3) economic impacts

adelphi

Sitz der Gesellschaft
Berlin

Standorte

Alt-Moabit 91
10559 Berlin
T +49 (30) 8900068-0
F +49 (30) 8900068-10

Landwehrstrasse 37
80336 München
T +49 (30) 8900068-140
F +49 (30) 8900068-1

E office@adelphi.de
I www.adelphi.de

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