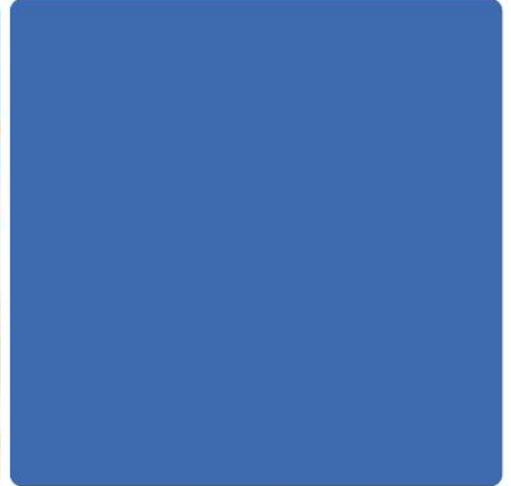
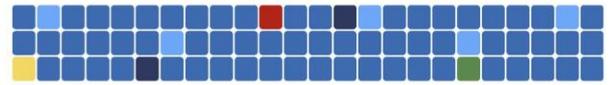


Draft white paper
for policymakers
and Practitioners





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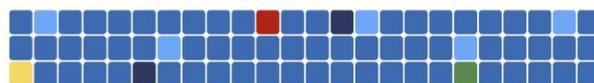
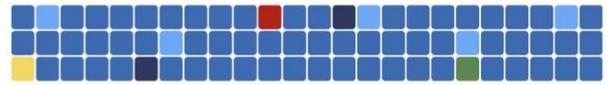


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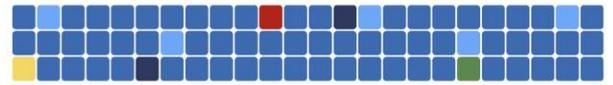
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Abstract:

The paper aims to provide policy recommendations to Public Authorities (PAs) for unlocking public and private financing. It analyses the barriers, drivers, enablers, and opportunities in the regions involved in CLIMATEFIT, providing guidelines for policymakers. It also outlines how funding from public sources can attract additional financing from the private sector and integrate macroeconomic impacts into policy design.



Introduction

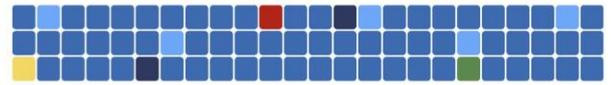
Ambitious mitigation and adaptation actions must address climate change's unavoidable and ongoing impacts. This requires a **coordinated effort from multiple actors, such as local authorities and financial market players,** particularly in scaling up climate adaptation investments. Addressing the challenges of adaptation financing goes beyond relying solely on public funding: **the private sector must play a central role** in contributing to practical solutions.

As stressed in deliverable 1.1, the Climate Policy Initiative's "Global Landscape of Climate Finance 2023" report reveals that while **adaptation finance** reached an all-time high of \$63 billion, representing a 28% increase from 2019/2020, it **remains significantly below the estimated annual need of USD 212 billion** for developing countries by 2030. Public actors account for 98% of adaptation finance, with the private sector's contributions being minimal and fragmented. **Challenges in tracking adaptation finance,** especially from the private sector and local governments, **impede a clear understanding of progress.** These challenges include defining what constitutes adaptation, linking climate risks to effective measures, the lack of impact metrics, and confidentiality issues. Despite these difficulties, **increasing private sector investment in adaptation is crucial, as it can yield economic benefits ranging from 2 to 10 times the investment.**

To contribute to bridging the adaptation financing gap, this paper aims to provide **policy recommendations to Public Authorities (PAs) at the EU, national, and local levels on how to unlock, catalyse, and leverage public and private financing for new resilient investment opportunities.** The insights gained through the interviews conducted under CLIMATEFIT's WP1 (Stocktake, Understand, and Capitalise), were the baseline for the current analysis.

The paper is divided into chapters, sections, and subsections. Chapter 1 will present the state of the art on adaptation finance policies. Starting with an **overview of the European Landscape** (section 1.1), the draft paper will comprehensively analyse the current EU adaptation policy under the Mission on Adaptation to Climate Change (subsection 1.2.1), which is crucial for the project activities, showcasing the project territories learning stories, and the bigger picture of the investment landscape of supply and demand approaches in association with the Paris Agreement and the 2030 Agenda for Sustainable Development.

The following subsection (1.2.2) examines the EU Sustainable Finance Framework, which is centred around mapping the macroeconomic aspects of adaptation financing. It specifically examines the **impacts of climate change risks on the broader economy,** considering the **EU Taxonomy,** the **EU Green Bond Standard,** the **Corporate Sustainability Directive (CSRD),** and the **Sustainable Finance Disclosure Regulation (SFDR).** Expanding on EU regulation targeting financial markets, this paper introduces **additional measures for specific Financing and Investment Entities (FIEs)** regarding the risk-based forward-looking framework and the role of the insurance sector in mitigating the escalating uninsured economic losses resulting from climate-related hazards. Subsection 1.2.2 will assess the weaknesses and gaps in the current European regulatory framework,



identifying the necessary areas for improvement to develop recommendations that effectively address existing regulatory shortcomings.

The last section (1.3) of the first chapter will present the need of robust and coordinated efforts.

After outlining this general framework, Chapter 2 delves into the macroeconomic analysis for climate adaptation policies and the **impact of climate change transition and physical risks**. Building on the study of the macroeconomic risks mentioned above (section 2.1), the subsequent section will identify the main macroeconomic risks related to adaptation and the corresponding macro-fiscal policies adopted to address them, as outlined in the adaptation plans of the countries represented in this project (section 2.2). The objective is to provide a comparative overview of the measures implemented to ensure economic resilience in the face of climate change.

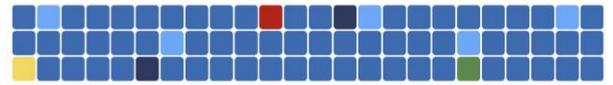
Based on this analysis, the paper aims to provide a **comprehensive overview of the state of the art and identify potential contradictions and shortcomings**. Indeed, Chapter 3 presents an extensive set of policy recommendations aimed at enhancing the effectiveness of adaptation finance across multiple levels of governance, namely the EU, national and local levels. Several key areas of analysis informed these recommendations: the assessment of existing European and national regulatory frameworks relevant to mobilising financial flows for climate adaptation, as discussed in Chapter 1; the in-depth evaluation of macroeconomic risks related to adaptation and the corresponding macro-fiscal policies adopted in three of the project's participating countries, outlined in Chapter 2; insights gained from discussions held under the Chatham House Rule with financial sector actors and key stakeholders, and findings from other work packages within the project, particularly WP 1 constitute the basis of the policy recommendations.

By integrating these diverse analytical perspectives, the last chapter aims to equip European, national, and local policymakers with targeted recommendations to strengthen the enabling environment for adaptation finance. These recommendations focus on addressing regulatory gaps, improving financial risk management related to climate impacts, and enhancing coordination between public and private actors to scale up investment in climate resilience. To achieve this, it will identify laws, regulations, procedures, administrative actions, incentives, and voluntary practices adopted by governments and other institutions, utilising a multi-level governance approach. The assessment will consider both direct and indirect governmental interventions, ensuring a comprehensive evaluation of mechanisms that facilitate the mainstreaming of climate finance.

1. State of the art: an EU adaptation policy analysis

1.1. The EU's strategy for adaptation

The European Union is committed to enhancing climate resilience through a comprehensive framework, which, among other things, enables the effective steering of capital flows towards public and private adaptation projects.



In 2021, the EU adopted a **New Strategy on Adaptation to Climate Change to improve data availability on climate risks, implement faster adaptation solutions, and ensure the systematic integration of adaptation into policies across both the public and private sectors, including agriculture, transport, power infrastructure, and insurance, as well as** enhance international measures. The strategy emphasises the central role of the private sector, highlighting the need for increased collaboration between the private and public sectors in financing adaptation. To achieve this goal, the strategy aims to **support the private sector in identifying risks and directing investments toward adaptation and resilience interventions, thereby avoiding maladaptation and reframing adaptation as an investment opportunity** rather than a burden. Additionally, it seeks to enhance comprehensive and harmonised data availability, crucial for making informed climate-related decisions, by promoting common standards for recording and collecting data on climate-related losses and physical climate risks. A vital component of this strategy is the creation of a Risk Data Hub¹, which will centralise data registration at the EU level from both public and private sectors. The Strategy also stresses the importance of initiatives within the regulatory framework on sustainable finance, which will act as a catalyst and incentive for channelling private financing towards enhancing climate resilience.

Despite various framework initiatives on adaptation, it has been reported that **Europe's current policies and adaptation actions are not keeping pace with the rapidly growing risks, considering the accelerating pace of climate change and the increasing severity of its impacts, as highlighted by the Climate Risk Assessment (EUCRA) (see Figure 1).** The **EUCRA underscores that, in many cases, incremental adaptation will not be sufficient.** Since numerous measures to improve climate resilience require long-term implementation, urgent action may be needed even for risks that are not yet critical.

In response to the EUCRA, the Commission's communication "Managing climate risks - protecting people and prosperity"² outlines **critical actions that the EU and its member states must take to manage better these increasing climate risks.** The Commission aims to equip society for effective action by, among other things, creating the right preconditions for financing climate resilience.

¹ The Risk Data Hub aims to transform the EU's fragmented information into collective knowledge; see, for more information: <https://data.jrc.ec.europa.eu/collection/id-00326>.

² Communication "Managing climate risks - protecting people and prosperity" COM(2024) 91 final: <https://shorturl.at/uzqkl>

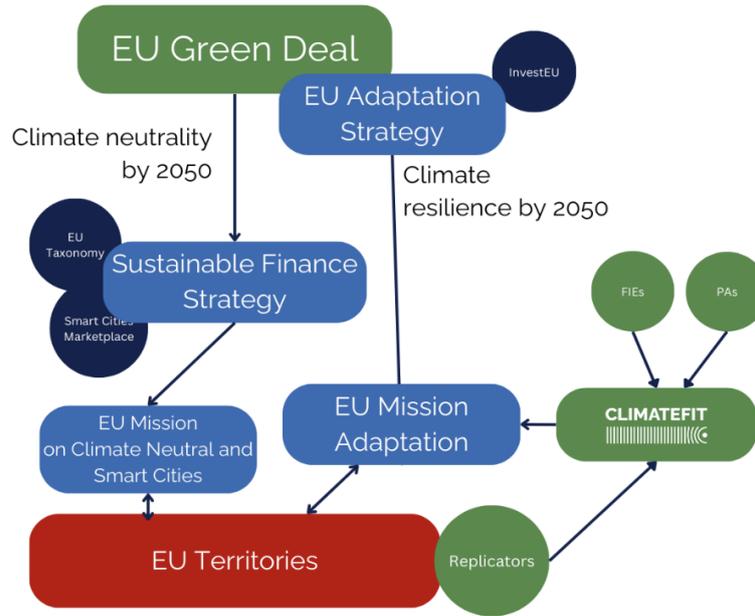
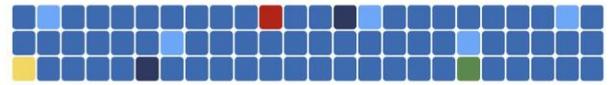


Figure 1: CLIMATEFIT's position within the EU regulatory, policy, and project landscape³

Figure 1 illustrates how CLIMATEFIT is positioned, connecting PA and FIEs with the broader EU Landscape with the development of Sustainable Financing Strategies that can benefit from existing EU Taxonomy and Smart Cities Marketplace tools.

³ Source: ICLEI; CLIMATEFIT D6.6 Exploitation and Upscale Plan, 2023

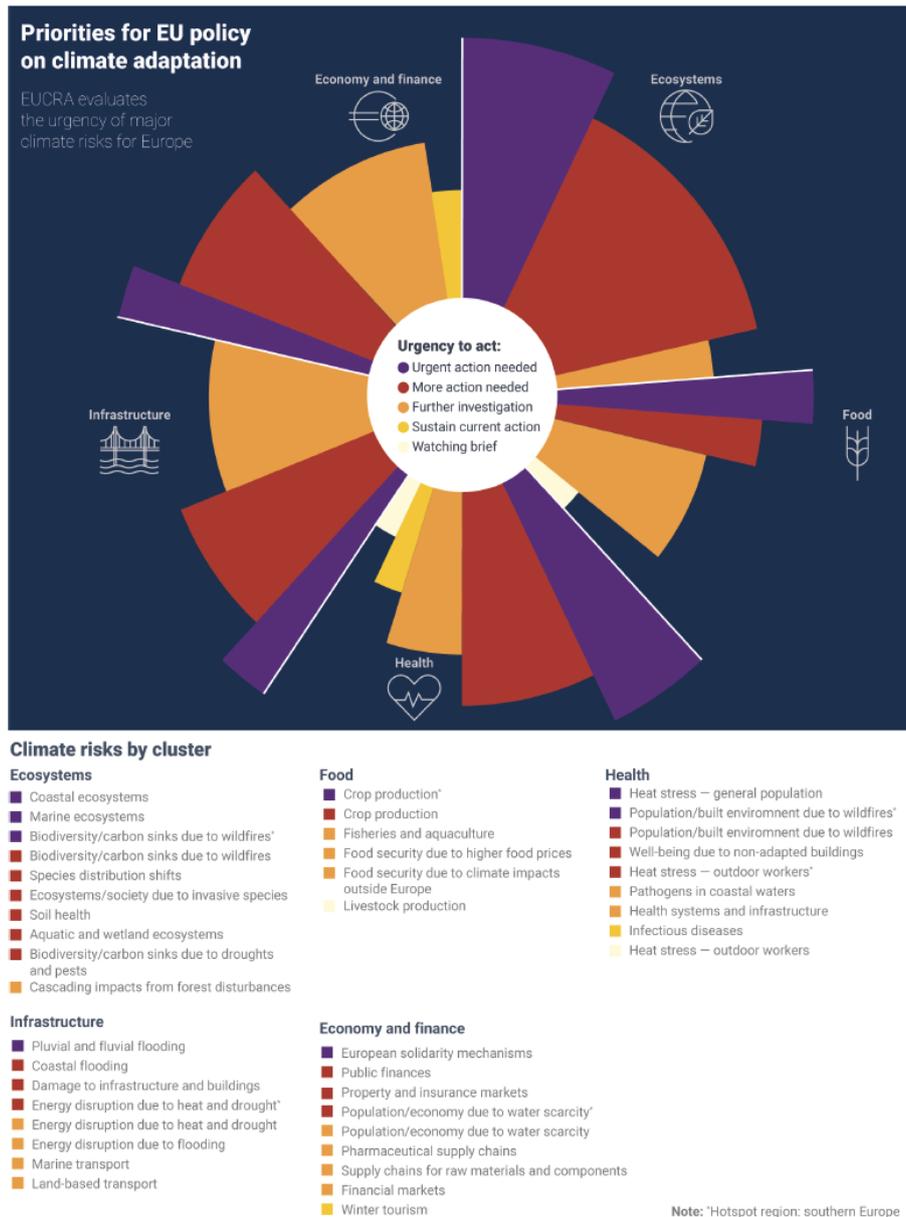
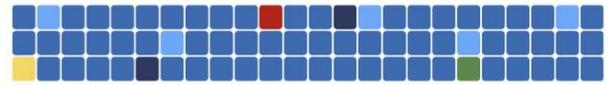
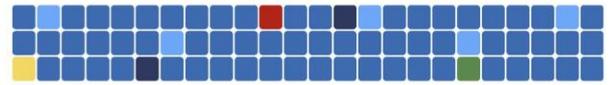


Figure 2: Major climate risks for Europe and the urgency to act on them⁴

1.2. The EU Sustainable Finance Framework

As anticipated in the CLIMATEFIT FIE Landscape Report (produced under T1.2), one of the key drivers of climate finance has been EU policy and regulation, specifically in the area of sustainable finance. Such policies and regulatory frameworks have been expanding rapidly and broadening the range of stakeholders, requirements, standards, and guidance provided. The primary aim of these initiatives is to redirect capital flows toward sustainability-related activities, including climate change initiatives and projects, which are essential for the EU following its commitment to the Paris Agreement and the 2030 Agenda for

⁴ Source: EEA, 2024



Sustainable Development. Since 2018, the Commission has been developing a comprehensive policy agenda for sustainable finance, focusing on shared classifications, **ESG** (Environmental, Social, and Governance) **data quality and comparability, and transparency**. Asset managers and asset owners, among others, are now required to disclose information on both (a) how they include ESG factors into their decision-making processes, as well as (b) how they consider the principal adverse impacts of their investments on sustainability factors (double materiality). After establishing a comprehensive and innovative regulatory framework to direct investments toward European environmental and climate goals, the main challenge for the new Commission will be coordinating compliance, innovation, and resilience in the coming years. The critical regulatory initiatives relevant to adaptation financing will be detailed in the following paragraphs.

1.2.1. EU Taxonomy, EU Green Bond Standard, CSRD, SFDR

With climate adaptation as one of its six environmental objectives, the Taxonomy Regulation is **key in promoting transparency for companies and investors**.

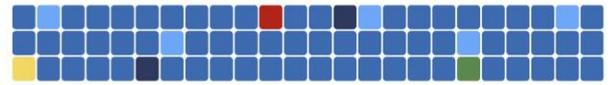
The EU Taxonomy was introduced to provide a transparent and standardised tool to **classify economic activities based on their environmental impact**, helping investors, companies, and public authorities, thereby enabling the assessment of an investment's degree of environmental sustainability. To be EU Taxonomy-aligned, an **economic activity must**:

1. contribute substantially to one or more environmental objectives;
2. do not significantly harm any environmental objectives;
3. be carried out in compliance with minimum social safeguards at the entity level.

The EU Commission has further specified the criteria for determining the conditions under which a particular economic activity qualifies to significantly contribute to and establish climate change mitigation or adaptation in the EU **Taxonomy Climate Delegated Act**⁵. This regulatory process is designed to provide stakeholders with a clear and reliable framework for their investment decisions.

The environmental objective of Climate Change Adaptation differs fundamentally from other environmental goals. While most objectives assess the impact of economic activities on the environment (an "inside-out" perspective), Climate Change Adaptation instead focuses on the risks that climate change poses to economic activities (an "outside-in" perspective).

⁵ Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives.



To contribute to this objective, activities must implement adaptation solutions that either significantly reduce the risk of adverse climate impacts—current and future—on the economic activity or substantially mitigate those impacts without creating additional risks for people, nature, or assets. This unique perspective influences how economic activities are assessed in terms of their substantial contribution to adaptation: the contribution of most economic activities to the environmental objective of Climate Change Adaptation is limited to improving their climate resilience or becoming adapted to climate change; therefore, such economic activities are referred to as ‘adapted activities’⁶.

Accordingly, the DNSH criteria for Climate Change Adaptation do not evaluate potential harm to the environment but rather the risks that environmental changes pose to economic activities.

Regarding the **“do no significant harm” principle, the generic approach applicable to each activity is based on the following: a robust climate risk and vulnerability assessment; for activities with a lifespan of more than ten years, “state-of-the-art”** modelling must be used under 10 to 30 years of climate scenario projections. For other investments, less sophisticated models can be used; **implementation of physical and non-physical solutions** to reduce the most significant physical climate risks relevant to that activity, where those activities do not affect adaptation efforts of others; **nature-based solutions** or **blue or green infrastructure**; **consistency with other adaptation efforts**; **monitoring and measurement** against **pre-defined indicators**, remedial action considered where those indicators are not met; **compliance with the DNSH criteria for that activity** (in other words, the climate mitigation activities they relate to must themselves not cause significant environmental harm).

The **Sustainable Finance Disclosure Regulation (SFDR)**⁷, which has been in force since March 2021, has enhanced **financial market transparency**. It mandates financial markets participants and financial advisors operating in the EU to integrate ESG factors into their risk management processes, promoting more effective risk management practices. The SFDR requires financial institutions to **disclose ESG factors**, encouraging investors to **better account for sustainability risks and impacts**.

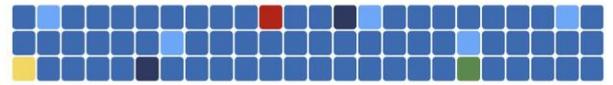
The **Corporate Sustainability Reporting Directive (CSRD)**⁸ is crucial in promoting transparency. It requires certain companies to disclose information about their risks (including physical and transition risks), opportunities, and impacts on various environmental and social issues, including climate change, biodiversity, water, and the treatment of employees in their value chain.

The primary objective of the CSRD is to **provide external stakeholders, notably investors, customers, and the public, with a clearer understanding of companies’ risks related to ESG factors and their readiness for the transition**.

⁶ EU, Disclosures Delegated Act — second Commission Notice, questions 8, 18, and 19

⁷ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector

⁸ Directive (EU) 2022/2464 of the European Parliament and of the Council of December 14, 2022, as regards corporate sustainability reporting



The **reporting, where mandatory, must follow the European Sustainability Reporting Standards (ESRS)**. A specific climate reporting standard, **ESRS E1**, outlines the **disclosure requirements for climate-related hazards that can result in physical climate risks for the organisation and its adaptation strategies to mitigate these risks**. Moreover, according to ESRS E4 on biodiversity and ecosystems, the undertaking shall disclose how biodiversity and ecosystem impacts, dependencies, risks, and opportunities originate from and trigger adaptation of its strategy and business model.

CSRD's reporting requirements were set to maximise interoperability and align with international standards and the framework created by the Task Force on Climate-related Financial Disclosures (TCFD) recommendations⁹. In addition, TCFD recommendations were finally incorporated into the International Financial Reporting Standards (specifically, IFRS S2) established by the International Sustainability Standards Board (ISSB), making it an even more reliable global point of reference.

The EU Taxonomy, SFDR, and CSRD are closely interconnected (see Figure 3). Financial market participants under the SFDR and companies under the CSRD can utilise the EU Taxonomy to classify and report their economic activities regarding environmental sustainability. In the figure below, you can see a graphical representation of this interconnection.

Two examples of when the taxonomy will be used:
in disclosures of financial products and reporting by large companies and listed companies.

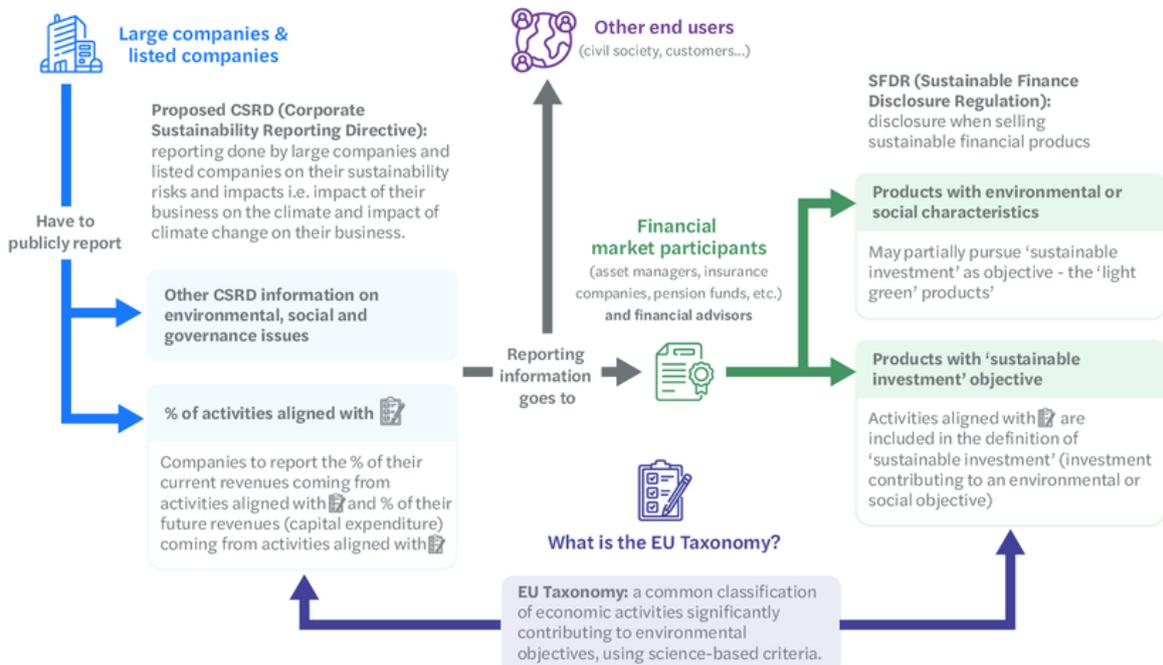
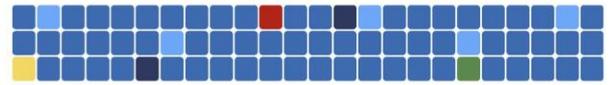


Figure 3: How does the EU Taxonomy fit the sustainable finance framework¹⁰

⁹ <https://www.fsb-tcf.org/recommendations/#overview>

¹⁰ https://www.researchgate.net/figure/How-does-the-EU-Taxonomy-fit-with-the-sustainable-finance-framework-65_fig2_364650373



The European Green Bond Regulation¹¹ introduced the **European Green Bond Standard (EU GBS)**, a voluntary label based on the EU Taxonomy. With this regulation, the EU aims to bolster the **effectiveness, transparency, and credibility of the European green bond market**.

The EU GBS's emphasis on the **use of proceeds is a critical** feature that ensures the financing aligns directly with the issuer's sustainability objectives. This requirement, which mandates that proceeds **must finance or refinance economic activities contributing to at least one of the six taxonomy environmental objectives**, including climate change adaptation, promotes transparency and sustainability in the market.

- *Taking stock*

Efforts to enhance transparency and disclosure in financial markets, led by the EU's sustainable finance framework, can help direct capital toward investments that are better equipped to withstand the impacts of climate change.

Nevertheless, a key challenge for investing in adaptation is ensuring that disclosure mechanisms highlight the benefits of adaptation, rather than solely focusing on potential physical climate risks. An excessive emphasis on risk exposure could inadvertently divert financial flows from areas that require the most investment for effective adaptation. Transparency around adaptation efforts is also crucial, as it enables decision-makers to consider the benefits of relevant investments. Transition plans, which were created to address a similar issue for climate mitigation, could serve as a helpful model. These plans provide a mechanism for ensuring transparency about how reporting entities intend to adapt to the impacts of climate change, thereby providing insight into their plans for adapting to a changing climate¹².

1.2.2. Risk-based forward-looking framework: Solvency II and CRR/CRD III

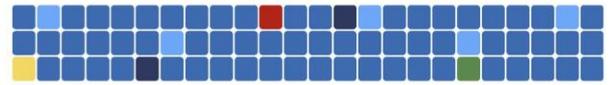
Expanding on EU regulation targeting financial markets, additional measures have been introduced for specific financial operators regarding the **risk-based forward-looking framework**.

The **insurance sector plays a crucial role in mitigating the escalating uninsured economic losses** resulting from climate-related hazards. With extreme weather events on the rise and adaptation measures falling behind, there is a pressing need to bolster climate insurance coverage. The European Commission is at the forefront of addressing these issues through:

- **climate resilience dialogue**

¹¹ Regulation (EU) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds and optional disclosures for bonds marketed as environmentally sustainable and for sustainability-linked bonds

¹² OECD (2024), Climate Adaptation Investment Framework, Green Finance and Investment, OECD Publishing, Paris, <https://doi.org/10.1787/8686fc27-en>



- **promotion of best practices**
- **exploration of innovative solutions**

Furthermore, EIOPA has issued an Opinion on **integrating climate change scenarios in the Own Risk and Solvency Assessment (ORSA) and additional guidelines for national supervisory authorities**. This guidance emphasises the vital role of insurers in integrating climate change risks into their risk management and governance frameworks. Despite the limited use of scenario analysis for these risks, often only for the short term, EIOPA advocates a forward-looking approach to ensure industry solvency and viability, promoting short- and long-term risk assessments. Supervisors should collect data through regular reports, and EIOPA will commence monitoring compliance two years after publication.

According to Solvency II, (re)insurance undertakings must integrate **sustainability into their investment and underwriting strategies, which are monitored by risk management and actuarial functions**. As part of the prudent person principle, **insurers must also consider the potential long-term impact** of their investment strategy and decisions on sustainability factors. In addition, remuneration policies must also consider integrating sustainability risks into their risk management systems and include information on how their policies do so.

Through regular stress testing, disclosure requirements, and the Own Risk and Solvency Assessment (ORSA), **Solvency II promotes transparency and resilience**, positioning the insurance sector as a crucial player in the EU's broader strategy for sustainable finance and climate adaptation (EIOPA).

The banking and investment sector also faces increasing pressure to address climate change impacts and align with sustainability goals. Central banks and regulators worldwide are recognising their role in managing climate and environmental risks. Initiatives like the **Networking for Greening the Financial System (NGFS)** and the **Institutional Investors Group on Climate Change (IIGCC)** aim to analyse and manage these risks while mobilising finance for a sustainable economy.

On the regulatory side, the last versions of the **Capital Requirements Regulation (CRR)**¹³ and the **Capital Requirements Directive (CRD)**¹⁴ stress the critical role of sustainability risk assessment and integration and their **potential impact on bank capital requirements**. More in detail, CRR III introduces new rules that mandate the consideration of ESG risks in both Pillar 1 and Pillar 3¹⁵. These regulations are

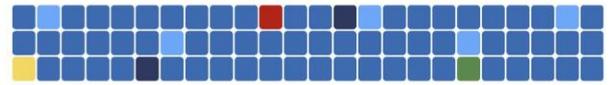
¹³ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012

¹⁴ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC Text with EEA relevance

¹⁵ In the Basel Framework, specifically Basel III, the pillars refer to different components of bank regulation and supervision:

Pillar 1: Pillar 1 focuses on minimum capital requirements. It establishes the minimum amount of regulatory capital banks must hold to cover their credit, market, and operational risks. Pillar 3:

Pillar 3 focuses on market discipline and transparency. It requires banks to disclose key



built upon standardised ESG definitions and supplemented by corresponding Pillar 2 requirements outlined in CRD VI.

In addition, CRR introduces a **Pillar 3 data hub** maintained by the European Banking Authority (EBA). Banks, except small ones, must submit data at each reporting period to be published on the hub, with the EBA proposing specific disclosures for small institutions. New disclosures under CRR III include ESG risks, market risks, and crypto assets.

1.3. Coordination efforts between the EU and Member States

In addition to defining policies for adaptation at the European level and establishing a regulatory framework for sustainable finance, **adaptation actions require robust and well-coordinated measures at the national and regional level**. To this end, the European Commission adopted new guidelines in July 2023 to assist Member States in updating and implementing comprehensive national adaptation strategies, plans, and policies following the European Climate Law and the EU Strategy on adaptation to climate change. **The guidelines on adaptation strategies and plans** aim to help Member States upgrade their preparations for the rapidly intensifying impacts of climate change¹⁶.

One of the most critical bottlenecks identified at national and regional levels is the **access and availability of finance**. Adequate funding is a top priority to help drive investment in a range of adaptation solutions, advance adaptation upscaling from local to **regional and national levels**, and best **empower communities** for locally led (hence, locally appropriate) action¹⁷. Here, the Commission's guidelines indicated the need to "identify the projected or already incurred costs of non-adaptation (i.e., the financial loss and damage associated with climate change), as this may justify reallocating existing funds to adaptation."

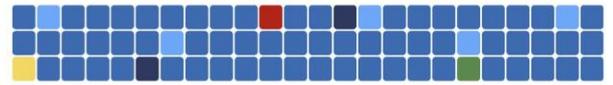
EU funding instruments play a significant role in supporting climate change adaptation. There is a wide range of these instruments that could be utilised, such as the EU's critical **funding programme for research and innovation** (Horizon Europe), the **European Regional Development Fund**, the **Cohesion Fund**, through investment in the environment and Trans-European Transport Networks, and the **Just Transition Fund**. These funds can be instrumental in alleviating the negative impacts of the transition for territories most affected by the transition to climate neutrality and resilience. However, bridging the national and private funding gap is crucial to address the adaptation finance gap.

While the term "**Adaptation Financing Gap**" was first coined in reference to developing countries, it is increasingly relevant within the EU. According to the

information on their risk exposures, risk management practices, and capital adequacy to stakeholders.

¹⁶ https://climate.ec.europa.eu/news-your-voice/news/building-climate-resilient-future-2023-07-26_en

¹⁷ <https://climatepromise.undp.org/news-and-stories/what-climate-change-adaptation-and-why-it-crucial#:~:text=NAPs%20are%20also%20crucial%20because,effective%20strategies%20to%20build%20resilience.>



United Nations Environmental Program Adaptation Gap Report (UNEP, 2022), which introduced this term regarding **insufficient finance for adaptation in developing countries**, the annual cost of adaptation in developing countries alone are estimated to reach between \$160-340 billion by 2030. The UNEP Report suggested that public budgets will not be able to address the financing challenge alone. A similar reasoning can also be applied to the EU context. Indeed, the recent Report by the World Bank and the European Commission on “Economics for Disaster Prevention and Preparedness in Europe”, estimates adaptation costs of between €15 billion to €64 billion up to the 2030s.

The report also indicates that “Risk data, analytical tools, and examples can guide decision-making toward high-priority areas and enable a strategic approach that maximises benefits of investing in resilience”. Thus, **applying localised risk assessments becomes crucial** due to inadequate climate data and the uncertainty surrounding the necessary funding, given the unpredictable nature of climate risks and impacts. These assessments categorise climate risks into two main types: **transition risks**, which stem from shifts toward a low-carbon economy, such as policy changes, and **physical risks**, which arise from the direct impacts of climate change, including the increased frequency of extreme weather events.

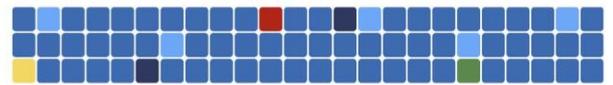
Climate physical risks arising from the impact of natural hazards (e.g. hurricanes, floods, droughts) on physical assets lead to plant destruction, lower firms' productive capacity and output, and lower value of firms' financial contracts. This, in turn, **negatively affects the value of the portfolio of financial actors** (e.g. banks, insurance, pension funds) who hold such contracts. For instance, a firm whose productive capital is destroyed by severe floods and has borrowed from a bank may not be able to repay the interests and principal of the loan, affecting the recovery rate and the bank's balance sheet.

Climate transition risks stemming from a disorderly transition to a low-carbon economy, defined as a situation in which climate policies (e.g. carbon tax) and regulations are implemented too late to reach the climate targets and cannot be fully anticipated by investors. In this context, **high-carbon firms are expected to experience higher costs and lower revenues**, giving rise to “carbon stranded assets” (Leaton, 2011; Ploeg & Rezai, 2020; Cahen-Fourot et al., 2021). Carbon stranded assets, in turn, can lead to significant adjustments in asset prices, with potential implications on economic and financial stability (Gros et al., 2016; Battiston et al., 2017; Stolbova et al., 2018).

- *Taking stock*

Integrating localised risk assessments into national and regional investment planning is beneficial and essential for mainstreaming climate risk awareness into business and investment decision-making processes. This integration **facilitates more informed and efficient capital allocation** at regional and national levels. It paves the way for a smooth transition towards a low-carbon and resilient economy, ensuring that investments and strategies are well-aligned with environmental and economic sustainability goals.

Furthermore, it is paramount to engage all pertinent stakeholders across various levels of climate governance, including those especially vulnerable to climate change. Effective adaptation planning requires the active participation of



stakeholders at all levels, especially local authorities, who are often on the front lines of climate impacts. These **stakeholders play pivotal roles in both planning and executing adaptation strategies.**

Nevertheless, without the right institutional setting that can overcome coordination challenges among sectors and levels of government, the adaptation finance gap is likely to persist. This **gap is particularly pronounced at lower governance levels**, primarily responsible for implementing most adaptation measures. Here, it is essential to highlight that the World Bank and the European Commission 2024 Report underlines that "the urgency to develop "adaptation pathways" is paramount. These decision-making approaches enable countries to prepare and act amidst uncertainty, informed by current and future climate risk" (WB and EC, 2024).

Therefore, **Member States shall implement a comprehensive approach to climate adaptation policymaking.** Coordination at multiple levels and integration mechanisms are essential to address gaps in governance, technical, and financial capacity among different government departments (horizontally), and across all levels of local authorities, including regions and local administrations (vertically). This is crucial for ensuring sustainable and resilient climate-risk-informed planning and investments.

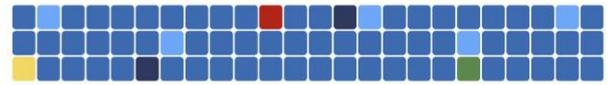
The implementation of such comprehensive approach is further reinforced by international frameworks such as The Paris Agreement, the introduction of climate-related laws, the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations¹⁸ and, most recently, the increased awareness of the risks and physical effects described in the Special Report of the Intergovernmental Panel on Climate Change (IPCC) on Global Warming 1.5°C. These frameworks underscore the need for institutional readiness, especially at the local level, to mainstream climate-related risks into public planning and private investment decisions. all guide the discussion around **enhancing the city climate governance management practices and systems, including the most minor local and regional authorities.** The matter is how to best enhance the capacity and expertise necessary for administration and implementation, and to mainstream climate, physical, and transition risks into business and investment decision-making.

2. Macro-economic analysis: Policies for adaptation

2.1. Macroeconomic impacts of climate change risks

There is already significant evidence of an unsettling connection between business and climate change. Climate change's growing impact drives unprecedented physical risks, such as rising sea levels and the increased frequency of extreme weather events. Climate change risks and opportunities permeate most economic sectors and industries. According to the European Environment Agency's 2024 report on "Climate change impacts, risks and adaptation", between 1980 and 2021, weather- and climate-related extremes

¹⁸ Task Force on Climate-Related Financial Disclosures (TCFD). <https://www.fsb-tcfd.org/>



caused economic losses estimated at €560 billion in the EU Member States, of which €56.6 billion from 2021. Noting that certain climate impacts, such as loss of human lives, biodiversity loss, or loss of cultural assets, are difficult to value in monetary terms, damages from climate change are expected to set the global economy back an estimated \$38 trillion a year by 2049, with a likely range of between \$19 trillion and \$59 trillion, warned a trio of researchers from Potsdam and Berlin in Germany in a peer-reviewed study published in the journal Nature (Forbes, 2024).

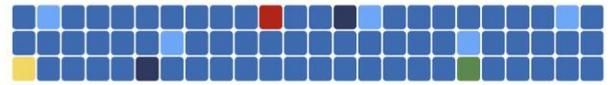
The two main **financial risks** associated with climate change are the **physical effects of a changing climate** and the **risks associated with the shift to an economy with net-zero emissions**. An organisation's reputation, "social licence to operate," and eventual exposure to litigation threats may be seriously jeopardised by a failure to manage these risks. Analysis by the Sustainability Accounting Standards Board (SASB) indicated that 68 of 77 industry sectors across the economy are subject to material climate-related risks. At the same time, its impacts are differentiated depending on factors such as the relevant market and geography¹⁹. The influential Task Force on Climate-related Financial Disclosures (TCFD) has recognised vital industrial sectors that are at 'high risk' of material climate-related risk as noted below:

- **Financial services** – banks, insurance companies, asset owners (including pension funds) and asset managers.
- **Energy** – oil and gas, coal, electric utilities.
- **Transportation** – air freight, passenger transport, maritime, rail, trucking, automotive, and components.
- **Materials and buildings** – metals and mining, components, construction materials, capital materials, real estate management and development.
- **Agriculture, food and forest products** – beverages, agriculture, packaged foods and meats, paper and forest products.
- **Health** - material to organisations involved in health and human services.

As noted in the previous section, **acute risks connected to an increase in the frequency and severity of extreme weather occurrences are included in the category of physical risks**, and they compound over time. They can increase the danger of physical damage to projects, power plants, and equipment, and their costs can become significantly worse under high emissions scenarios. Physical risks **significantly impact supply chains, human health, the integrity of the built environment, and ecosystem loss**, resulting in increased costs and reduced revenues.

Climate change-related physical risks may also impact **insurance coverage**, resulting in consequences for uninsured loss and the need for additional capital expenditures. Disruptions to supply networks can also be caused by severe weather events, such as intense precipitation resulting in inland flooding, which

¹⁹ Sustainability Accounting Standards Board, 2021, Climate Risk Technical Bulletin, Available online: <https://www.sasb.org/wp-content/uploads/2021/05/Climate-Risk-Technical-Bulletin2021-042821.pdf>



can potentially **disrupt supply chains and /or operations** and significantly impact income.

At the same time, **transition risks can include policy and regulatory responses** (such as emissions reduction laws, trade laws and tariffs, prudential regulation and heightened planning and building codes), technological developments (in areas such as renewable energy and electric vehicles) and shifts in stakeholder preferences (including of investors, insurers, customers, and the community)²⁰.



Figure 4: Climate-Related Risks, Opportunities, and Financial Impact²¹

²⁰ Climate risk governance guide: An introductory resource for directors on climate risk governance. ACID, 2021. Available Online: <https://www.aicd.com.au/risk-management/framework/climate/climate-risk-governance-guide.html>

²¹ TCFD: <https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf>

2.2. Relevant macroeconomic policies

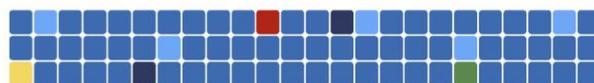
Building on the analysis of the macroeconomic risks mentioned above, the following section aims to identify the main macroeconomic risks related to adaptation and the specific policies responses adopted to address them in the adaptation plans of CLIMATEFIT's leader territories (Italy, Romania, France, and the Flemish region). While many responses involve fiscal policies, other types of policy measures are also considered where relevant. The objective is to provide a comparative overview of how different regions are working to strengthen economic resilience in the face of climate change.

In this D6.3 we analysed the plans available on the Climate-ADAPT website, along with the Italian adaptation plan. The national plans of Belgium, and Romania have not been published, but an analysis of the regional adaptation plans of Flanders (Belgium) and Alba Iulia (Romania) will be included in D6.4.

Italy: Piano Nazionale di Adattamento ai Cambiamenti Climatici (PNACC), Ministero dell'Ambiente e della Sicurezza Energetica, January 2023²²

Macroeconomic risks	Macroeconomic policies
High adaptation costs for key sectors (Infrastructure, agriculture, water management, and urban resilience require significant investments)	EU Multiannual Financial Framework (2021-2027) and Recovery and Resilience Facility (RRF) allocate funds for climate adaptation; Public-Private Partnerships (PPPs) to finance adaptation projects
Reduced economic competitiveness (Sectors unable to adapt to climate risks may suffer productivity losses)	Tax incentives and subsidies for businesses investing in climate-resilient technologies and practices; Green fiscal reform to support low-carbon economic transformation
Increased fiscal pressure from climate-related disasters (Higher public spending on emergency response and recovery)	Disaster risk reduction funding from EU and national budgets; Integration of climate adaptation into fiscal planning to prevent reactive spending
Regional economic disparities (Uneven adaptation capacity leads to economic imbalances between regions)	EU Cohesion Funds and Just Transition Mechanism to support climate adaptation in vulnerable regions
Rising insurance costs and financial instability (Climate risks increase insurance claims and financial market exposure)	Climate risk assessments integrated into financial regulations; Incentives for climate-resilient insurance mechanisms and catastrophe bonds
Higher public health expenditure (Heatwaves, new diseases increase healthcare costs)	National health adaptation strategies funded through EU and national budgets; Investments in public health infrastructure for climate resilience
Disruptions in infrastructure and supply chains (Extreme weather	Investments in climate-resilient infrastructure through national and EU

²² <https://va.mite.gov.it/it-IT/Oggetti/Documentazione/7726/11206>

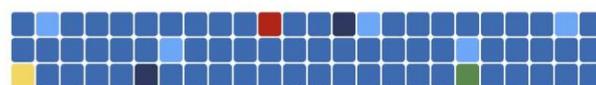


events affecting transport, energy, and industry)	funds; Smart grid modernisation and adaptation of transport networks
Potential loss of private investment (Uncertainty about climate risks discourages long-term investments)	Creation of climate risk disclosure frameworks; Financial incentives for private investments in adaptation projects

France: **Troisième Plan national d'adaptation au changement climatique. 2024-2028²³, consultation document**

Macroeconomic risks	Macroeconomic policies
High adaptation costs for key sectors (Infrastructure, agriculture, water management, urban resilience require significant investments)	Increased public financing through the Barnier Fund and Green Fund for adaptation projects; Integration of climate adaptation into national budget planning
Decreased economic competitiveness (Lack of adaptation investments could make businesses and industries less competitive)	Tax incentives and subsidies for companies investing in adaptation technologies; Integration of climate resilience into business planning
Rising insurance costs and financial instability (Increased exposure to climate risks leads to higher insurance premiums and financial market disruptions)	Establishment of a Climate Risk Insurance Observatory to monitor and regulate insurance markets; State-backed insurance mechanisms to ensure affordability
Increased public spending on climate disasters (Floods, droughts, and heatwaves increase government expenditures for emergency response and recovery)	Strengthening disaster risk prevention policies ; Expansion of the Barnier Fund to support community-level adaptation projects
Disruptions in critical infrastructure and supply chains (Transport, energy, and water networks affected by extreme weather events)	Large-scale public investments in climate-proof infrastructure, including resilience planning for transport and energy sectors
Regional economic disparities (Certain regions, mainly coastal and overseas territories, face higher adaptation costs)	EU Cohesion Funds and national financing mechanisms to support regional adaptation initiatives and infrastructure resilience
Higher healthcare expenditures (Heatwaves, vector-borne diseases, and air pollution increase health costs)	Expansion of public health adaptation programs , investments in cooling infrastructure for hospitals and urban areas
Impact on labour productivity (Heatwaves and extreme weather reduce worker efficiency and increase health risks)	Implementation of workplace adaptation policies , including adjustments to working hours during extreme heat

²³ https://consultation-pnacc.ecologie.gouv.fr/sites/default/files/2024-10/Document_de_presentation_du_PNACC_3.pdf



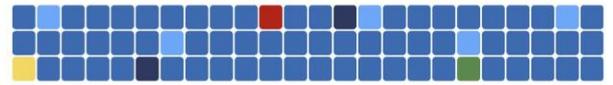
Tourism sector vulnerabilities (Coastal and winter tourism affected by climate risks)	Support for climate-resilient tourism strategies, financial aid for adaptation in affected regions
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Portugal: National Adaptation Plan (P-3AC), 2019²⁴

Macroeconomic risks	Macroeconomic policies
High adaptation costs for key sectors (Infrastructure, agriculture, water management, and urban resilience require significant investments)	Portugal 2020 and POSEUR (Sustainability and Efficient Use of Resources Program) provide financial support for climate adaptation projects
Decreased economic competitiveness (Industries and businesses struggling to adapt may face productivity and financial losses)	Tax incentives and subsidies for companies investing in adaptation technologies; integration of climate resilience strategies into economic policies
Increased fiscal pressure from climate-related disasters (Floods, droughts, and wildfires increase public expenditures)	Fundo Ambiental (Environmental Fund) supports disaster risk prevention and emergency response measures
Rising insurance costs and financial instability (Increased exposure to climate risks leads to higher insurance premiums)	Creation of climate risk assessment mechanisms for financial institutions and insurance markets
Disruptions in critical infrastructure and supply chains (Extreme weather events affect transport, energy, and industry)	Investments in climate-resilient infrastructure through EU and national funding mechanisms
Regional economic disparities (Certain regions, especially coastal and arid zones, face higher adaptation costs)	EU Cohesion Funds and national financing mechanisms to support adaptation in vulnerable regions
Higher healthcare expenditures (Heatwaves, vector-borne diseases, and air pollution increase health system costs)	National health adaptation programs , investments in climate-resilient healthcare infrastructure
Impact on labour productivity (Heat stress and extreme weather events reduce worker efficiency)	Implementation of workplace adaptation policies , including climate-proofed working conditions
Tourism sector vulnerabilities (Coastal erosion and reduced winter tourism impact revenues)	Financial support for climate-resilient tourism strategies and adaptation of cultural heritage sites

The analysis of Italy, France, and Portugal's adaptation plans highlights common macroeconomic risks, including high adaptation costs, increased fiscal pressure from climate-related disasters, regional economic disparities, and rising insurance

²⁴ <https://files.diariodarepublica.pt/1s/2019/08/14700/0001000045.pdf>



costs. All three countries adopt similar macro-fiscal policies, relying on EU and national funds, tax incentives, disaster risk reduction programs, and investments in climate-resilient infrastructure.

- *Taking stock*

Several gaps and limitations emerge from the analysis. One major challenge is the lack of precise quantification of macroeconomic impacts in the adaptation plans. While all three countries acknowledge the potential economic disruptions caused by climate change, they rarely provide detailed financial estimates of how these risks could affect GDP, employment, or long-term economic stability. Without such data, it becomes difficult to assess whether the proposed fiscal policies are sufficiently robust to address the scale of the challenge.

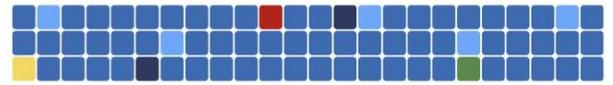
Another missing element is a clear strategy for private sector engagement beyond tax incentives. While businesses are expected to play a role in adaptation, there is little mention of mechanisms to mobilise private investments in resilience projects or to encourage financial institutions to integrate climate risks into their long-term investment strategies. Given that public funding alone is unlikely to cover all adaptation needs, stronger public-private partnerships and financial instruments (such as green bonds or adaptation-focused investment funds) could enhance the effectiveness of these plans.

Additionally, the plans tend to focus more on short- and medium-term financing rather than on developing a long-term macro-fiscal strategy for adaptation. Climate change is a permanent and evolving risk, yet the fiscal measures outlined often rely on temporary funding mechanisms (such as EU budget cycles) rather than establishing structural and permanent financial frameworks that could ensure a continuous flow of resources for adaptation beyond 2030.

Finally, social and employment policies linked to adaptation receive limited attention. While some measures address labour productivity risks due to heat stress, there is little discussion on how adaptation policies will interact with job creation, social protection, or workforce retraining in sectors affected by climate change. A more integrated approach could ensure that adaptation strategies not only protect economies from climate-related disruptions but also contribute to inclusive and sustainable economic growth.

3. Mainstreaming adaptation finance: guidelines for policymakers and practitioners

This chapter presents a set of policy recommendations designed to help make adaptation finance a reality and close the adaptation finance gap across multiple levels of governance. These recommendations are informed by several key areas of analysis: the assessment of existing European and national regulatory frameworks relevant to mobilising financial flows for climate adaptation, as discussed in Chapter 1; the in-depth evaluation of macroeconomic risks related to adaptation and the corresponding macro-fiscal policies adopted in three of the



project's participating countries, outlined in Chapter 2; insights gained from discussions held under the Chatham House Rule with financial sector actors and key stakeholders; and findings from other work packages within the project, particularly WP 1.

By integrating these diverse analytical perspectives, this chapter aims to equip policymakers at the European, national, and local levels with targeted recommendations to shape an enabling environment for adaptation finance. These recommendations focus on addressing regulatory gaps, improving financial risk management related to climate impacts, and enhancing coordination between public and private actors to scale up investment in climate resilience.

3.1. Policy Recommendations for EU Policymakers

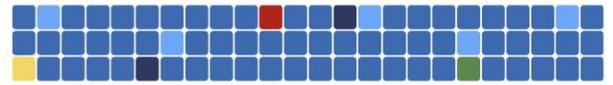
At the European level, adaptation finance requires a coherent and integrated approach that aligns existing regulatory frameworks, financial instruments, and policy objectives. Given the cross-border nature of climate risks and the role of the EU in setting common financial and sustainability standards, European institutions play a crucial role in creating an investment-friendly environment for adaptation. This section outlines key recommendations to refine EU policies and financial mechanisms to better support adaptation investments across member states.

A) Enhancing transparency for climate adaptation investments

As highlighted in WP 1.1, one of the key barriers to scaling up climate adaptation investments is the lack of standardisation in ESG data. The absence of clear, harmonised frameworks for adaptation-related disclosures limits market transparency, making it difficult for investors to assess the resilience benefits of adaptation investments. Investors, though concerned about the significant recent changes in financial regulations related to sustainable finance and climate risk disclosure, were supportive of further and more stringent regulation of all types (fiscal, financial and industry) that require all businesses to disclose and assess their climate risks and impacts, fostering transparency and accountability in climate-related investments. Currently, the EU sustainable finance framework places a disproportionate emphasis on risk exposure, which could discourage financial flows to sectors and regions most in need of adaptation funding, as it diverts attention away from the potential for resilience-building. To enhance the effectiveness of the EU sustainable finance framework in supporting climate adaptation, disclosure mechanisms must highlight both the risks and the benefits of adaptation investments.

To achieve this objective, EU institutions and supervisory bodies should develop clear **guidelines and supporting materials to help financial actors systematically integrate adaptation considerations into their decision-making processes**. These resources should:

- Clarify best practices for reporting on adaptation benefits, ensuring financial disclosures reflect how investments enhance resilience rather than solely emphasising exposure to climate risks.



- Introduce standardised metrics to assess and compare adaptation efforts, improving investors' ability to evaluate the long-term sustainability and effectiveness of adaptation investments.
- Ensure alignment with existing EU regulatory frameworks, such as the Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy, to promote coherence and usability across financial markets.
- Possibly, integrate adaptation efforts within transition plans, which provide a potential mechanism for providing transparency about how reporting entities plan to adapt to the impacts of a changing climate²⁵. The analysis of transition plans should also consider regional fixed effects (Italian banks, for instance, are pushing for structured transition plan analyses that also consider regional variations)²⁶.

The EU can improve market confidence in adaptation investments by implementing similar mechanisms and driving capital toward resilience-enhancing initiatives.

B) Expand the EU Sustainable Finance Taxonomy for adaptation

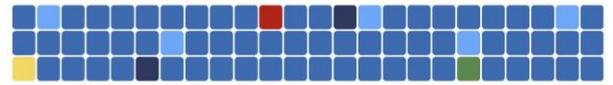
The EU Taxonomy plays a crucial role in directing investments towards sustainable activities. However, while it has been effectively rolled out for climate mitigation, its adaptation framework remains fragmented and lacks the necessary detail to support investments in adaptation resilience. Different stakeholders²⁷ stressed the necessity of developing a more integrated and comprehensive approach to adaptation to the EU Taxonomy. EU institutions should:

- establish a detailed framework that explicitly addresses a broader range of climate risks beyond water-related risks, including extreme weather events such as storms and heatwaves. Expanding the scope of adaptation criteria to include resilience against diverse climate threats would ensure that financial instruments can support investments in infrastructure and systems that mitigate the impact of such events.
- develop a more granular classification system for adaptation resilience by expanding the EU Taxonomy, which should enable relevant stakeholders to identify which activities are "adaptation resilience-enabling." Currently, Taxonomy is not detailed enough to support investments for adaptation

²⁵ . Transition plans were developed to address an analogous issue for climate mitigation. The UK's Transition Plan Taskforce's Adaptation Working Group has already produced guidance on how adaptation can be integrated within transition plans, offering a potential blueprint for the EU to embed adaptation disclosures into financial reporting frameworks.

²⁶ Results from the private workshop on adaptation finance organised by the CLIMATEFIT project as part of xx .The event, held under Chatham House rules on 19th March 2025, brought together around 25 financial and investment entities for a closed-door discussion in which participants will share insights, exchange experiences on how to overcome the main barriers for investing in adaptation projects, and identify new opportunities in adaptation investments.

²⁷ Results from the private workshop on adaptation finance organized by the CLIMATEFIT project as part its of capacity building series. The event, held under Chatham House rules on 19th March 2025, brought together around 25 financial and investment entities for a closed-door discussion in which participants shared insights, exchanged experiences on how to overcome the main barriers for investing in adaptation projects, and identify new opportunities in adaptation investments.



resilience; without a well-defined and standardised approach, assessing financial materiality on adaptation resilience remains uncertain, limiting investor confidence. A more granular framework should be developed, complemented by supporting instruments and initiatives.

- align the Taxonomy with international standards as harmonisation efforts are essential to create a coherent global financial ecosystem for sustainable investments. The EU should actively engage in international dialogues to align its taxonomy with other frameworks, ensuring consistency in adaptation financing and facilitating cross-border investments.
- leverage public funding for adaptation investments, for example by integrating the Taxonomy into public funding mechanisms. This process should be accelerated and expanded to ensure that adaptation investments receive adequate financial support (for example, central banks could use the taxonomy for interest rates and transport credits, among others).

3.2. Policy Recommendations for National Governments

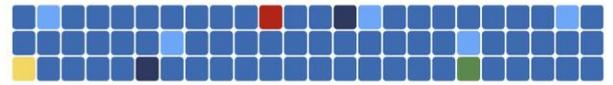
A) Create national adaptation investment strategies

To effectively mobilise private sector investment in climate adaptation, national governments should **develop comprehensive adaptation investment strategies that align with National Adaptation Plans (NAPs)** and provide a structured roadmap for financing resilience efforts. While NAPs identify climate risks, they often lack clear investment pathways, creating a disconnect between adaptation needs and private sector participation. As highlighted in Chapter 2, current adaptation plans mainly rely on public funds, but private capital is essential to bridge the adaptation finance gap.

Adaptation projects often struggle to attract private finance due to long payback periods and non-monetizable benefits. As highlighted in WP 1.1, adaptation projects face competition from mitigation-focused investments, such as renewable energy, which have a well-established investment track record. Investing in climate adaptation remains challenging due to unreliable cash flows and revenue streams, making it harder to attract private sector interest.

A significant barrier is that the value created usually benefits a broad set of stakeholders, making it difficult for individual investors to capture financial returns. However, investment in resilience can generate value if the social rate of return is recognised correctly through avoided loss and damage, reduced service disruption, optimised lifecycle costs, improved cash-flow stability, and broader economic, social, and environmental co-benefits. National administrations should adopt measures to correctly recognize the social rate of return.

Furthermore, FIEs in the AIL study identified the lack of an overarching, stable, and long-term-oriented policy framework covering all types of climate hazards as a key barrier to private investment. Investors also raised concerns about regulatory instability, with frequent changes in climate commitments creating uncertainty. Additionally, governments were criticised for failing to provide a clear and urgent



vision for climate adaptation, with a strong call for governments to act as co-players in adaptation efforts rather than just regulators.

Moreover, financial and investment entities pointed out two key regulatory barriers:

- Contradictory public regulations (e.g., conflicting policies on planning, water, and the environment) create uncertainty for investors.
- The lack of aligned financial and non-financial incentives discourages private sector participation in adaptation finance.

To address these challenges, national adaptation investment strategies should:

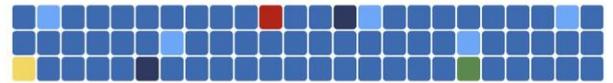
- Establish a stable, long-term policy framework that covers all types of climate hazards, providing regulatory certainty and reducing investment risks.
- Set targets on the social rate of return on investment and embed them in regulatory frameworks to ensure resilience is adequately valued.
- Introduce regulation and new finance structures to capture the monetary benefits of adaptation investment.
- Develop targeted financial and non-financial incentives (e.g., tax deductions, subsidies, and risk-sharing mechanisms) to attract private capital.
- Expand financial instruments, such as green bonds, adaptation-focused investment funds, conditional lending and mandatory insurance²⁸ to mobilise private investment.
- Ensure alignment across policy areas, integrating adaptation investment strategies with broader economic, infrastructure, and environmental policies to eliminate regulatory contradictions.
- Position governments as co-players in adaptation, fostering public-private collaboration through strategic partnerships and co-financing mechanisms.
- enhance data aggregation and standardisation to translate complex urban challenges into bankable projects to enable stakeholders to utilise adaptation data effectively.

By integrating investment strategies into adaptation planning, governments can bridge the financing gap, provide market stability, and create an enabling environment for private sector participation. A well-defined, long-term strategy will enhance financial flows toward resilience-building efforts, strengthening national climate adaptation capacity.

3.3. Policy Recommendation for EU Policymakers and National Governments

A) Strengthening Public-Private Partnerships (PPPs) for climate adaptation

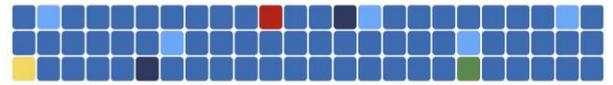
²⁸ In Italy, for example, there is already a system in place for national catastrophe insurance, which could serve as a model for linking insurance policies with adaptation strategies (Italian NAT CAT system introduced with Law Decree 31st March 2025 n. 39)



Public-Private Partnerships (PPPs) have the potential to play a critical role in financing and implementing climate adaptation projects, particularly in infrastructure and public service provision. Indeed, **PPPs** offer a unique opportunity to **share climate-related risks** between the **public** and **private sectors**, ensuring that infrastructure investments are financially viable and resilient. To fully leverage Public-Private Partnerships (PPPs) as a tool for climate adaptation, EU and national policymakers should establish a standardised framework that integrates climate resilience throughout the entire PPP lifecycle. Indeed, Standardized climate resilience criteria within PPP agreements will improve investor confidence and facilitate the scaling-up of adaptation projects across EU member states. This framework should ensure that adaptation considerations are embedded in project selection, contract design, risk allocation, financing mechanisms, and performance monitoring. By doing so, governments can mobilise private capital for climate-resilient infrastructure while ensuring financial sustainability and effective risk management.

To achieve this, the framework should include the following key elements:

- **Mandatory climate risk assessments and adaptation planning**
 - PPP projects should be required to assess climate risks at the early planning stage and integrate adaptation measures that enhance resilience to extreme weather events and long-term climate shifts.
 - These assessments should align with national adaptation strategies, EU policies, and global frameworks, such as the UNECE PPPs for SDGs and the World Bank's Climate Toolkits for Infrastructure PPPs. Indeed, international best practices, including UNECE and World Bank guidelines, already provide a foundation for integrating adaptation into PPPs. Still, more explicit policy alignment at the EU level is needed.
- **Embedding climate resilience in public procurement and contract design**
 - Clear adaptation requirements should be incorporated into bidding processes and contractual obligations, ensuring that climate risks are systematically addressed.
 - Contracts should define risk-sharing mechanisms between public and private actors, considering the long-term uncertainty of climate impacts while providing financial stability.
 - Climate resilience Key Performance Indicators (KPIs) should be integrated into contract management and project evaluation.
- **Blended finance and innovative funding mechanisms**
 - Governments should deploy blended finance approaches, such as resilience bonds and guarantees, to reduce financial risk and attract private investment in adaptation projects that may otherwise be perceived as unprofitable.
 - Fiscal sustainability should be ensured to prevent debt traps or excessive financial burdens on public authorities.
- **Local stakeholder engagement and community participation**



- PPP frameworks should prioritise participatory approaches, ensuring communities, local governments, and key stakeholders are actively involved in adaptation project design and implementation.
- Local engagement is crucial, as end users are directly affected by climate risks and possess valuable knowledge that can inform more effective resilience measures.
- **Scaling up replicable and transferable adaptation PPP models**
 - Case studies like Malmö's Western Harbour partnership demonstrate that well-structured PPPs can drive effective urban climate adaptation
 - Replicable financing and governance models should be developed and standardised across EU countries, drawing from initiatives such as LIFE CITYAdap3, which fosters PPP-driven urban adaptation strategies.

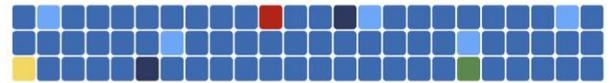
By implementing these measures, policymakers can create an enabling environment for private sector investment in climate adaptation, ensuring that PPPs contribute to economic development and long-term resilience and sustainability.

3.4. Policy Recommendations for Local Authorities

A) Strengthening financial sector engagement

To effectively mobilise private sector investment in climate adaptation, relevant policymakers should establish governance structures and policy frameworks that facilitate financial sector engagement by ensuring policy integration and addressing socio-economic risks associated with adaptation projects. This requires:

- Creating enabling governance structures that reduce political and bureaucratic delays that increase transaction costs.
- Integrating mitigation and adaptation policies at sub-national levels to maximise synergies and reduce trade-offs between the two.
- Ensuring cross-sectoral coordination by aligning adaptation finance strategies with urban planning, economic development, nature conservation, and water management.
- Embedding financial planning into policy design. Availability and redistribution of public funding in municipal budgets ought to match the financial needs of public investment in adaptation, both through direct investment and leverage to crowd in private financing.
- Leveraging social and political support for climate action; as extreme weather events intensify, local governments can use public awareness to build momentum for more substantial financial sector involvement.
- Mitigating the risk of exacerbating social inequalities, ensuring that adaptation projects benefiting from private financing do not contribute to gentrification or the displacement of vulnerable communities.
- Establishing regulatory mechanisms to address complex property rights issues, such as monetising avoided costs or property value gains from



adaptation investments, to provide financial incentives for private participation.

- Enhancing strategic engagement with financial institutions, moving beyond general stakeholder consultation to structured, long-term collaboration on adaptation finance. About this, in the framework of CLIMATEFIT, the Flanders region developed an investment strategy and organised a workshop with different stakeholders to provide information on the project and their investment strategy to understand to what extent private actors could be interested in LRT.

The experience of the Flanders region (one of the leader territories involved in CLIMATEFIT) teaches that attempting to engaging private entities too early, without clear investment cases, can be ineffective, as financial actors prioritise concrete opportunities with well-defined risk-return profiles. Sector federations can serve as effective intermediaries, ensuring financial institutions' perspectives are considered even before developing specific investment cases. A structured collaboration space fosters long-term stakeholder commitment, enabling ongoing input and increasing transparency in investment planning.

This can be achieved by:

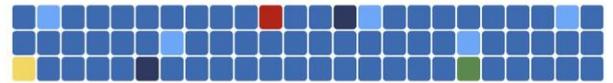
1. Developing a clear stakeholder strategy, identifying when and how to engage relevant actors, including financial institutions, sector federations, and local governments.
2. Leveraging sector federations (such as banking and insurance associations) as intermediaries to gather insights from financial entities before concrete investment proposals are available.
3. Creating digital collaboration platforms (e.g., SharePoint or similar tools) to facilitate continuous engagement, feedback exchange, and document sharing, ensuring transparency and sustained involvement.
4. Tailoring engagement approaches to local contexts, including using native languages and adapting strategies to specific regional needs to enhance participation and effectiveness²⁹.

By strengthening governance structures, embedding finance in adaptation planning, and strategically engaging the financial sector, policymakers can create a more stable and effective investment environment for climate resilience.

B) Leverage the European Network of Local Resilience Taskforces (EUNLRT) to strengthen climate adaptation finance

To enhance their capacity to mobilise climate adaptation finance, local governments should participate in the European Network of Local Resilience Taskforce (EUNLRT), supporting its consolidation and expansion. This network, created in the framework of the CLIMATEFIT project, would serve as a structured platform for collaboration between public authorities, FIEs and other key stakeholders, facilitating the exchange of best practices, policy alignment, and capacity-building efforts.

²⁹ For further information on the process put in place by VO DOMG please see Annex II.



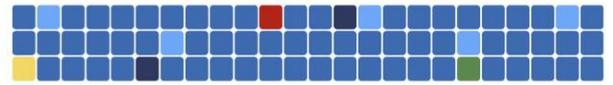
The EUNLRT should:

- Facilitate peer-to-peer learning among local governments to strengthen their financial and governance capacities for adaptation.
- Support public-private cooperation by providing structured interaction between PAs and FIEs to align investment opportunities with local resilience needs.
- Scale up successful adaptation financing models from pilot projects like CLIMATEFIT, ensuring replicability across European regions.
- Reinforce policy coherence by integrating local-level adaptation financing strategies with broader EU sustainable finance frameworks and climate policies.
- Justification
- Local governments face significant barriers in accessing and structuring adaptation finance, often lacking the necessary expertise, institutional support, and investor engagement mechanisms

The CLIMATEFIT project has demonstrated the effectiveness of Local Resilience Taskforces (LRTs) in bridging the gap between public authorities and financial actors, creating a more structured and strategic approach to adaptation finance.

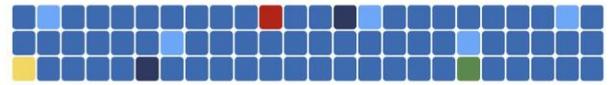
A European Network of LRTs would provide continuity, scalability, and knowledge-sharing beyond individual projects, ensuring that adaptation finance becomes a long-term, systemic solution rather than a fragmented, project-based approach.

By expanding and participating in the EUNLRT, policymakers can ensure that local and regional governments are better equipped to attract investment, implement transformative adaptation strategies, and drive systemic climate resilience across Europe.



Annex I | Overarching barriers to adaptation finance (focus on market barriers -market failures)

Barrier	Description
Lack of knowledge or advice	Investors lack expertise in climate adaptation, making it challenging to assess investments and identify technical solutions. Other barriers include a lack of understanding of climate change impacts and best practices. Additionally, competition with mitigation technologies hinders the adoption of adaptation measures (Glover & Granberg, 2020).
Unstable policy	Changing regulations and unstable policy frameworks hinder investor confidence and access to sustainable finance. Investors involved in CLIMATEFIT expressed concerns about fluctuating climate policy and changes in rules on sustainable finance, disclosure, and climate risk.
Limited projects	High risk and low returns deter investment in adaptation projects. Identifying financially feasible adaptation initiatives is challenging due to unreliable cash flows and revenue streams. Adaptation projects also face competition from well-established low-carbon and mitigation investments. The Adaptation Investment Landscape (D1.1) highlights the need for improved institutional frameworks to facilitate project bundling and enhance risk-return ratios.
Lack of ESG data standardisation	Data gaps and the absence of standardised ESG metrics make measuring and monetising adaptation benefits difficult. Unlike low-carbon technologies, adaptation-related financial perspectives and metrics remain underdeveloped, limiting investor confidence (Adaptation Investment Landscape, D1.1).
Low returns	Adaptation is often seen as a public good rather than a profitable investment, leading to limited financial interest. Monetising adaptation remains challenging and is not widely perceived as an attractive part of investment portfolios.



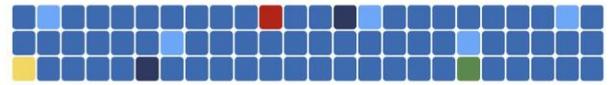
Annex II | The role of public authorities in unlocking private investments

Role of Public Authority	Description	Examples
Enabler	When private investments are impossible due to regulatory or structural barriers, the public authority creates new or modifies existing frameworks to enable investments.	<ul style="list-style-type: none"> - Changing or creating regulations and legislation - Establishing governance structures - Restructuring authorisations - Launching subsidy calls - Imposing new obligations or standards
Facilitator	When frameworks exist but barriers remain, the public authority provides support to reduce or remove these barriers.	<ul style="list-style-type: none"> - Providing information (websites, guidelines, training, webinars) - Creating multi-stakeholder platforms - Offering financial incentives (subsidies) - Improving system accessibility (more straightforward navigation of forms) - Supporting projects through administrative or financial assistance
Awareness Raiser	When stakeholders are unaware or lack urgency, the public authority increases awareness and encourages engagement.	<ul style="list-style-type: none"> - Organizing awareness campaigns - Encouraging stakeholder involvement to increase ownership and commitment
Enthusier & Inspirer	The public authority incentivises participation by offering indirect benefits.	<ul style="list-style-type: none"> - Enhancing stakeholder image (certificates) - Showcasing organisations as ambassadors - Providing financial benefits (premiums, tax reductions) - Granting access to specific systems (e.g., trading systems)

Examples from Flanders:

1. The [tool Groenblauwpeil](#) (“green blue level”) [klimaataadaptatietools](#) (“climate adaptation tools”)

The public authority of Flanders was one of the leading partners in setting up the tool Groenblauwpeil. This tool allows civilians and professionals to enter **data on plots and projects**, allowing them to score them on their **“blue” and “green” levels**. The tool ends with a general score for the plot or project and provides



several recommended examples of measures if the user wishes to optimise their score. The Vlaamse Milieu Maatschappij (“Flemish Environment Agency”) provides a tool, klimaataadaptatietools, with a similar set-up at a project level.

This is an example of an authority taking on the combined role of enabler and facilitator. The government sets up an entirely new system and provides more concrete information for project initiators to make their projects more adapted to climate change.

2. The Green Deal collaborative projects in Flanders

The Flemish Green Deals (which should not be mistaken for the European Green Deals) are initiatives of the Flemish **Government to make businesses and sectors “greener”** with projects on water, food, circular economy, adaptation, etc. These are voluntary, ambitious agreements between companies, organisations and the government to realise sustainable actions together in the short term. This collaboration ensures that businesses are better supported when they want to invest to become “greener”.

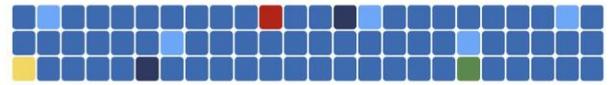
This case is an example of a public authority taking up the role of facilitator, and it also raises awareness by facilitating the **joint involvement of different stakeholders**.

3. The policy instrument “stedenbouwkundige lasten” (urban development fees)

Activities that reasonably impact the environment may only be carried out in Flanders if a permit is obtained. The authority to approve this permit lies with the public government, which is also authorised to impose additional obligations in certain circumstances. One of these obligations is “stedenbouwkundige lasten” (**urban development fees**). They originate from the benefit a beneficiary derives from their permit and the additional tasks a government must assume by implementing this permit. This ‘fee’ can take a **financial form** or the form of **additional activities** that have to be performed on the plot in question by the beneficiary. If a financial fee is imposed on a permit, the beneficiary of the license must pay a certain amount of money to the public authority. The authority, in return, can only spend the collected money on the implementation of spatial policy, including climate adaptation projects. The Flemish government has set up this legal framework, and the ‘fees’ can be applied by the local, provincial and regional governments in their permit policy. This case is an example of a **government** taking up an enabling role by creating a framework and imposing a new system.

4. Tax on water pollution in Flanders

A tax is a measure by which the government imposes a compulsory contribution to its general expenditure. Against a tax, there is no individually identifiable performance by the government. So, **there must always be some public interest in imposing a tax**. Anyone who consumes water from a water company or their own water catchment or discharges water must pay a wastewater treatment fee. Households usually pay this contribution through the water bill, while large consumers must submit a declaration of their water every year. This way, both families and businesses indirectly invest in cleaner water. This case is an example of a public authority taking up the enabler role by imposing an obligation on water consumers to pay for wastewater treatment.



5. *Financial compensations in Flanders*

Sometimes, the government can restrict private plots, such as limiting construction rights, because the plot is in a flooding zone. In such cases, the **government is obligated to financially compensate the plot owner for such imposed restrictions**. Some examples are:

- [vergoeding vrijwillige bedrijfsreconversie](#) (compensation for voluntary business conversion);
- [compenserende vergoeding overstromingsgebied](#) (compensation for flooding zone);
- [compenserende vergoeding natuurinrichting](#) (compensation for nature development).

This case is an example of a public authority taking up the enabler role by imposing an obligation and setting up a system as compensation.

6. *Purchase obligations in Flanders*

In some instances, **the owner of a plot can oblige the government to purchase it**. This can happen **when the government imposes plans or activities** that could severely compromise existing business operations or plots within designated nature areas. Some examples are:

- [koopplicht landinrichting](#) (purchase obligation land development);
- [koopplicht natuur](#) (purchase obligation nature);

This case is an example of a public authority taking up the role of enabler by setting up a framework to compensate others.

7. *Budget funds in Flanders*

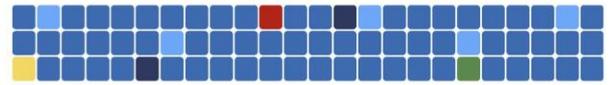
Generally, a government's resources are collected and spent globally. This means that all **aggregate revenue is earmarked for aggregate expenditures**. An **exception to this principle is provided in the form of budget funds**. In this way, specific revenue can be allocated to specific expenditures. This allows the government, for example, to allocate money to a fund that can only be spent on climate adaptation projects. The **money invested** by the government in these projects **can, in turn, activate private capital investments**.

This case is an example of a public authority taking up the role of enabler by setting up a regulatory framework for money to be spent only on a specific expenditure, such as climate adaptation.

8. *The [web page on Green economics](#) in Flanders*

The Department of Environment & Spatial Development has a web page dedicated to green economics and the department's related activities and operations. The web page contains more information on the topic and links to other websites, projects and initiatives. **Sharing this information can inspire others to invest in projects contributing to the green economy**.

This case is an example of a public authority facilitating by providing more information and redirecting to other initiatives.



9. [Grondenbank \(land bank\) in Flanders](#)

A land bank can be considered an inventory of different plots owned by the government. The government can use these plots to trade with other plots in projects. This can be viewed as an **alternative to financial resources used to buy and sell plots**. The Flemish government established this framework but can also be established on other levels, such as the local level.

This case is an example of a public authority taking up the role of an enabler by setting up the regulatory framework.

10. [Administrative fine in Flanders](#)

The offender in an environmental infringement, environmental crime or urban planning infringement will receive an **administrative fine**. This will increase the government's resources, which it may later invest in, such as climate adaptation.

This case is an example of a public authority taking up the role of enabler by imposing an obligation on offenders of the legislation in force.

11. [The Blue Deal in Flanders](#)

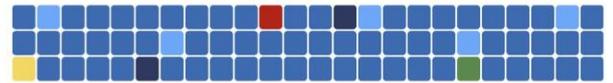
The Blue Deal is an ambitious programme that tackles water scarcity and drought on the ground. It comprises diverse actions and activities. The Flemish government funded the programme through public funding. In addition to the public funding, the **various actions are financially supported by investments from (agricultural) companies, local governments, sector organisations, knowledge institutions and non-profit associations**.

This case is an example of a public authority taking up the role of enabler by setting up the regulatory framework.

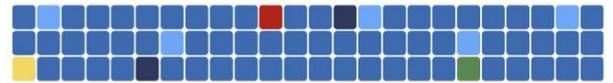
12. [Subsidies from the Flemish government](#)

The Department of Environment & Spatial Development uses subsidies to implement its policies. Certain subsidies issued by the Department are intended for physical investments in infrastructure and realising projects on the ground. In recent years, several subsidy initiatives have been launched on climate adaptation, green-blue landscaping, and biodiversity, as well as dealing with and supporting SMEs to reconcile their business and economic activities with climate-adaptive and nature-based measures. These subsidies are directed towards provinces, local governments, research institutions, nature and environmental associations, landscape organisations and the private sector in realising these various projects. These subsidies are mainly organised on a one-off basis. Some examples of such subsidies are:

- [Groenblauwe dooradering in de bebouwde ruimte](#) ("Green-blue veining in urban areas"). This subsidy is part of the **Flemish Blue Deal**, and the Flemish government received financial support from the European Recovery and Resilience Facility. Subsidies were attributed to local governments that applied to the call with ambitious climate adaptation and development projects.

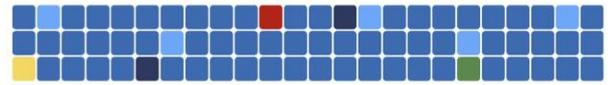


- [Groenblauwe parels](#) (“Green-blue pearls”). Like the example above, this subsidy is part of the Flemish Blue Deal. It has a similar focus but targets projects on a smaller scale. The subsidy targets various target groups, such as local governments, non-profit organisations, inter-communal associations, etc.
- [KMO's in een omgeving voor de toekomst](#) (“SMEs in an environment for the future”). With this subsidy, the Flemish government wants to encourage SMEs to combine their business and economic activities with climate-adaptive and nature-based measures. This call was aimed at organisations, associations, local authorities, companies, and partnerships between them. This is an example of a public authority taking up the role of facilitator, as it facilitates the implementation of climate adaptation projects by providing financial support to realise the projects.



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The CLIMATEFIT project aims to support EU territories in their just and transformational journey toward climate resilience by bridging the financial gap, providing critical insight and building the capacities of (i) Public Authorities (PAs) to identify, orchestrate and attract various public and private financing sources and (ii) Financing & Investment Entities (FIEs) to identify and access resilient investment opportunities. CLIMATEFIT opens a significant opportunity to foster innovative resilience investments in vulnerable EU territories and to boost competitiveness and EU leadership in a growing market. The project will build on a deep understanding of existing initiatives to sustain systemic and catalytic resilience investments by engaging its Technical Partners, PAs and FIEs in the co-creation of twenty innovative investment strategies, ten concrete and scalable investment plans and four bankable transformational investment cases, increasing the bankability of resilient project pipelines across a diversity of scales, financing gaps, contexts, barriers to financing, climate risks and vulnerabilities, biogeographical regions, adaptive capacities and maturity regarding climate change represented from its twenty case studies grouped in three clusters: Northwestern, Eastern and Southern.

