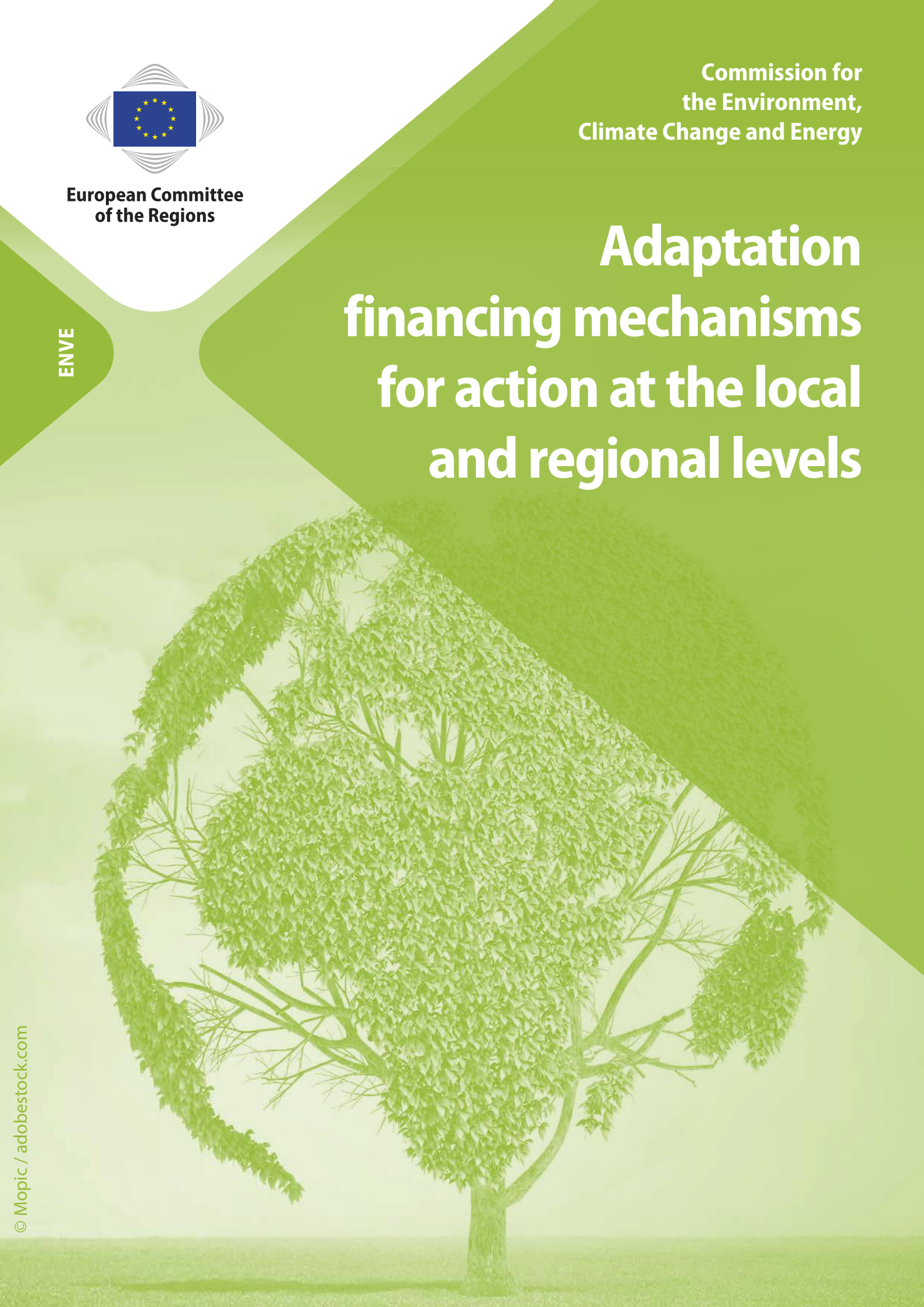
European Committee of the Regions

Commission for the Environment, Climate Change and Energy

ENVE

Adaptation financing mechanisms for action at the local and regional levels



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Catalogue number: QG-01-24-016-EN-N; ISBN: 978-92-895-3661-5; DOI: 10.2863/3463764

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CAP	Common Agriculture Policy
CINEA	European Climate, Infrastructure and Environment Executive Agency
CoR	European Committee of the Regions
DNA	Deoxyribonucleic acid
EAFRD	European Agricultural Fund for Rural Development
EEA	European Environment Agency
EIB	European Investment Bank
ERDF	European Regional Development Fund
ESF+	European Social Fund Plus
ESG	Environmental, social and governance
ETC	European Territorial Cooperation
EU	European Union
IoT	Internet of Things
JASPERS	Joint Assistance to Support Projects in European Regions
JTF	Just Transition Fund
LRAs	Local and regional authorities
NGO	Non-governmental organisation
PES	Payment for ecosystem services
PO	Policy Objective
PPP	Public-private partnership
RRF	Recovery and Resilience Facility
SIB	Social Impact Bond

Summary

This report explores the crucial role of public and private financing for local and regional climate adaptation efforts across the European Union (EU). As cities and regions face increasing climate risks, local and regional authorities (LRAs) must secure adequate funding to address the challenges posed by climate change.

Public adaptation financing fosters local innovations and solutions, protects vulnerable communities, and promotes cost-efficient adaptation responses. Public funds also mobilise additional investments by reducing risks for private investors, while supporting long-term governance capacity and transparency. Various EU sources, such as Cohesion Policy, the Common Agricultural Policy (CAP), the LIFE programme and the EU research and innovation programme (Horizon Europe), provide grants and loans for adaptation. However, LRAs face a number of barriers in accessing these and other public funds, such as lack of awareness of available funding, limited technical capacity and restricted access to climate data and information. Budget constraints, legal borrowing limits and strict eligibility requirements for some funds further hamper LRAs' ability to secure the necessary financing. Finally, political unwillingness to support adaptation or differing climate priorities and objectives at different levels of government further complicate access to public finance for adaptation. **Addressing** these **challenges is essential** to ensure that LRAs can effectively **leverage public funding and attract private investment** for adaptation projects.

Private sector adaptation financing helps to close the substantial gaps that public funds alone cannot cover. It also serves as a source of co-financing and supports the long-term availability of funds, ensuring the sustainability of projects beyond political cycles. Additionally, private financing promotes risk-sharing between public and private entities. It can bring valuable expertise and innovative solutions to accelerate implementation, develop local capacity, and incentivise businesses to adopt sustainable and climate-resilient practices. Private investment sources include tax incentives, blended finance, green bonds, public-private partnerships (PPPs), crowdfunding, philanthropic funding, and pooled investment funds. Insurance mechanisms support adaptation projects by reducing risks for investors. However, LRAs face significant challenges in attracting private financing, including lack of awareness of non-grant options, fear of debt, insufficient expertise, inadequate financial data, small project scale or difficulty in project aggregation, high transaction costs, poor credit ratings, and various regulatory constraints. **Overcoming these barriers is vital** to **realise the substantial investments** necessary to make European regions and cities resilient and adapted to climate change.

Lessons from **four case studies** of LRAs successfully using private or blended financing for adaptation projects **highlight the importance of pooling resources, sharing risks** between public and private actors, and **involving a variety of stakeholders** in the design and delivery of measures. Sweden centralises the issuance of green bonds to raise funding in large amounts to lend to smaller municipalities. Bilbao (Spain) showcases the added value of a PPP in sharing risks and costs between different public and private entities while implementing a city adaptation strategy. Brittany (France) benefits from pooling investors' resources for carbon credits and directing them to local adaptation measures, in cooperation with regional governments and farmers. Finally, Slovakia demonstrates the valuable role of partnerships between different stakeholders in securing public and private financing.

To overcome the barriers in accessing private adaptation financing, **LRAs should prioritise adaptation, allocate** sufficient financial and human **resources**, **develop** clear **strategies** to design projects that attract investors, and **identify available funding** options by using existing guides. They should focus on **designing projects that can draw private investment** through risk-sharing mechanisms, such as PPPs, or by pooling smaller projects. **Building capacity** through training and by taking advantage of existing resources and training opportunities is also essential.

Private investors are encouraged to use adaptation projects as opportunities to diversify portfolios and manage financial risks, improve business resilience to climate risks, strengthen environmental, social, and governance (ESG) objectives, and establish partnerships with LRAs. Investors should also **adjust their risk assessment models** to capture broader benefits, making adaptation investments more attractive and financially viable.

EU and national policymakers should make adaptation a clear policy and funding priority to signal political commitment to both LRAs and private investors. Policymakers should **support innovative financing models** at EU and national level to lead by example and provide lessons for successful public-private collaborations. It is essential to **provide consistent guidance** on sustainable adaptation investments, **address legal barriers,** and **create flexibility in LRA financing** to allow borrowing, formation of PPPs, or pooling of projects. Finally, **raising awareness and providing training for LRAs** on adaptation financing will be central to long-term success.

Introduction

European cities and regions are increasingly exposed to extreme weather events and other impacts of climate change, resulting in significant human, nature and economic losses, as well as strain on regional and local public budgets. Adaptation actions are needed, particularly at regional and local level, which is the first to prepare for and respond to climate risks. This means ensuring funding and financial flows throughout the whole process of planning, implementing and monitoring adaptation actions at local and regional level.

While public resources are crucial to kick-starting actions, they are unlikely to be sufficient. Private financing is necessary to complement public funding, especially for long-term investment efforts. In this context, local and regional authorities (LRAs) in the European Union (EU) are investing in adaptation using different financing sources rather than relying solely on public funding. However, they face challenges in navigating and accessing available funding opportunities and attracting private investment.

This study uses literature review and research on four specific examples to:

- Assess the different sources of public and private adaptation financing in the EU for local and regional action, as well as the main constraints LRAs face in accessing these sources;
- Assess innovative tools and instruments for mobilising private adaptation financing and provide examples of LRAs using different private financing sources;
- Provide policy recommendations to ease LRAs' access to adaptation financing, while minimising administrative burdens.

The study is structured as follows: Part 1 presents an overview of the EU public adaptation financing available and barriers to accessing that funding; Part 2 presents an overview of the role of private adaptation financing and barriers to accessing that financing; Part 3 presents the findings from specific case studies from cities or regions that have used private financing or blending methods for adaptation; Part 4 concludes with a set of recommendations for different stakeholders.

1. Public adaptation finance for EU local climate action

1.1 Importance of adaptation finance for local action

Adaptation action is both necessary and more effective at local level, for several reasons:

- **Fosters local innovations and solutions**: LRAs, with their deep understanding of the specific environmental, social, and cultural contexts of their communities, design and implement more relevant and effective adaptation strategies than actors at other governance levels. With adequate finance, LRAs can tailor solutions to their communities' vulnerabilities and risks, avoiding the maladaptation[1] that can increase vulnerability to climate change[2].

- **Protects and empowers climate-vulnerable communities**: Adaptation finance supports LRAs in ensuring that local communities, which are often on the frontlines of climate change, are provided with the resources and decision-making power needed to build resilience. It also ensures that the most vulnerable citizens receive the support needed and that they are heard, empowered and included in adaptation actions. This approach addresses the root causes of vulnerability and tackles social inequalities exacerbated by climate change[3].

- **Manages climate risk**: By directly funding cities and regions, local adaptation strategies can effectively improve adaptation efforts to ensure that they are sustainable and better reflect future challenges. This targeted approach is essential to long-term resilience and addressing the needs of local communities[4]. By financing adaptation efforts, LRAs can prevent or mitigate damage, saving money and reducing economic losses in the long term.

- **Supports cost-efficient adaptation responses**: Local communities can address adaptation needs more swiftly and cost-effectively than national or

[1] The Intergovernmental Panel on Climate Change (IPCC) defines maladaptation as 'actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increase or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future'. It is most often an unintended consequence, *Climate Change 2022: Impacts, Adaptation and Vulnerability, Annex II: Glossary*.

[2] World Resources Institute, *Locally led adaptation: From principles to practice*, 2022; Schipper, L., *Maladaptation: When adaptation to climate change goes very wrong*, 2020.

[3] World Resources Institute, *Locally led adaptation: From principles to practice*, 2022; Steinbach. D. et al., *The good climate finance guide for investing in locally led adaptation*, 2022; Soanes, M. et al., *Principles for locally led adaptation*, 2021.

[4] European Environment Agency (EEA), *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.

international actors. This efficiency is crucial for timely responses to the rapidly evolving impacts of climate change[5].

- **Mobilises additional investments**: Local adaptation finance for well-designed projects increases the likelihood of mobilising additional investment from national governments and international institutions, as well as the private sector by 'de-risking' the investment[6]. Many EU funds require some co-financing, which potential beneficiaries such as LRAs can provide from their own budgets.

- **Strengthens local institutions**: Adaptation finance is essential to long-term development of local governance processes, capacity, and institutions. By investing in local capabilities, communities can manage adaptation initiatives independently over the longer term, reducing dependency on external funding and ensuring sustained resilience[7].

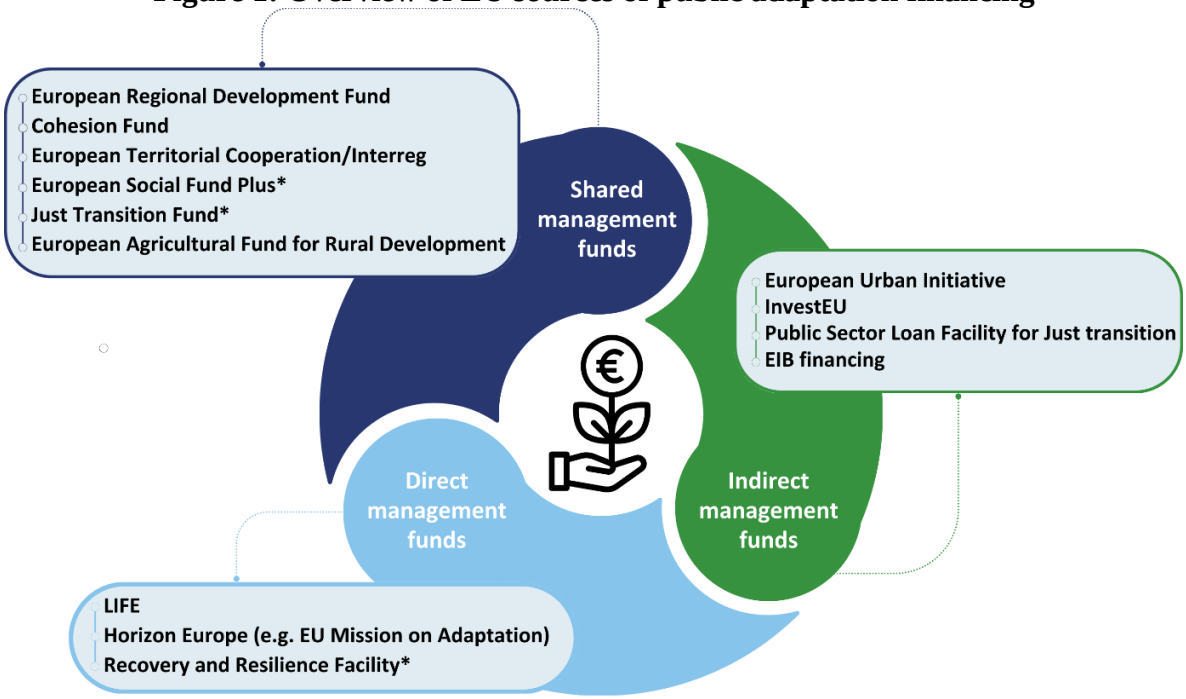
- **Enhances transparency and accountability**: Financing adaptation at local level improves transparency and accountability, as local stakeholders can directly monitor and evaluate the use of financial resources[8].

1.2 Main sources of public adaptation financing in the EU

There are various sources of public adaptation financing in the EU, encompassing EU and national-level funds. These latter vary between Member States, with LRAs in each country having different options available to them. At EU level, multiple funds are available under Cohesion Policy, the Common Agriculture Policy (CAP), the LIFE programme, the EU research and innovation programme (Horizon Europe) and others. Many EU sources provide adaptation financing in the form of grants, as well as loans and guarantees (notably through the European Investment Bank, EIB). Funds under the Cohesion Policy are spent according to operational programmes defined at national or regional level, with possible differences in the objectives prioritised across countries and regions. Other EU funds such as LIFE or Horizon Europe are centrally managed at EU level and all potential beneficiaries have access to the same calls for proposals. Figure 1 presents an overview of the key EU funds for adaptation (see Annex 2 for details on each fund).

[5] Steinbach, D. et al., *The good climate finance guide for investing in locally led adaptation*, 2022.
[6] World Resources Institute, *What it takes to attract private investment to climate adaptation*, 2023.
[7] Steinbach, D. et al., *The good climate finance guide for investing in locally led adaptation*, 2022.
[8] World Resources Institute, *What it takes to attract private investment to climate adaptation*, 2023; Steinbach, D. et al., *The good climate finance guide for investing in locally led adaptation*, 2022.

Figure 1: Overview of EU sources of public adaptation financing



Source: Authors.
Note: *Adaptation is not a principal objective of these funds, but can be integrated into sustainability or transition projects supported by the fund.

1.3 Key barriers hindering LRAs' access to public adaptation financing

Despite the variety of funds available, LRAs face several barriers to accessing public adaptation financing.

Awareness and knowledge gaps

- **Lack of awareness of public funding options**: LRAs are often unaware of the variety of financing options available for climate action, particularly private financing options. Typically, grant-based public financing instruments are better known among LRAs, but they might not always be aware of all available public funds[9].

- **Limited access to climate data and information**: LRAs often struggle with limited access to detailed and relevant climate data, which is crucial to identifying risks, developing vulnerability assessments, planning adaptation measures, and applying for funds. This in turn can significantly hinder their ability to develop 'financially attractive' adaptation investment projects and

[9] European Committee of the Regions (CoR), *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017.

secure the necessary financing[10].

Capacity issues

- **Insufficient internal administrative and technical capacity**: Smaller LRAs, in particular, lack the administrative capacity and technical expertise to prepare successful funding applications and manage funds effectively. Insufficient technical expertise can limit the development of robust, fundable adaptation proposals[11], as well as successful execution of the financed project.

Financial limitations

- **Budgetary constraints and insufficient internal budgets**: Limited financial resources at local level make it difficult for LRAs to invest their own resources in adaptation projects, co-finance projects, or bridge funding gaps. This financial strain is a major barrier to leveraging larger public or private funds for climate adaptation initiatives[12]. Limited budgets also restrict LRAs' ability to hire the necessary personnel or consultants to assist with funding applications, and may create personnel turnover, posing continuity risks in adaptation project management.

- **Legal constraints on borrowing/spending**: Public entities at regional and local level often face legal restrictions on borrowing for investments, limiting their ability to (co-)finance large-scale adaptation projects or meet co-financing requirements for grant-based funds[13].

- **Strict eligibility or technical requirements of some funds**: Meeting the strict and complex requirements of EU or international funds, such as co-financing and technical specifications, availability of multiple partners or other eligibility requirements, poses significant challenges for LRAs, especially those with limited experience or expertise[14].

Governance issues

- **Political reluctance to support adaptation**: Low public acceptance or differing political priorities can hinder access to climate finance. Local politicians may prioritise other projects due to electoral cycles or perceived immediate needs[15].

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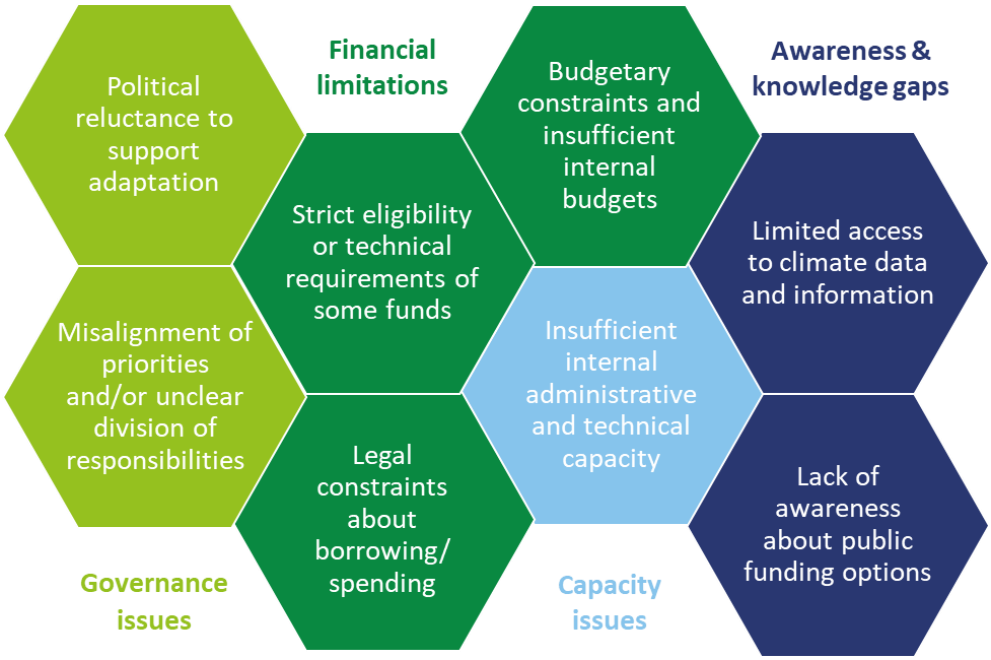
[10] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023; CoR, *Climate change adaptation: Challenges and opportunities for the EU local and regional authorities*, 2020.
[11] CoR, *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017.
[12] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023; CoR, *Climate change adaptation: Challenges and opportunities for the EU local and regional authorities*, 2020.
[13] CoR, *Obstacles to investments at local and regional level*, 2016.
[14] CoR, *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017.
[15] Ibid.; CoR, *Financing climate action (part 2): cities and regions investing in energy*, 2019.

- **Misalignment of priorities and/or unclear division of responsibilities**: The practical implementation of adaptation projects might be hindered by differing priorities and climate ambitions across governance levels. For example, lower adaptation goals at national level may result in lower financing allocations for adaptation at regional or local level. Unclear division of responsibilities between different governance levels and institutions may also complicate investment in adaptation[16].

Figure 2: Key barriers for LRAs in accessing public adaptation funding



Source: Authors.

[16] CoR, *Climate change adaptation: Challenges and opportunities for the EU local and regional authorities*, 2020.

2. Role of the private sector in financing local climate adaptation

2.1 Importance of private adaptation financing

Private financing is important for local adaptation for several reasons:

- **Closes adaptation finance gaps:** Adaptation requires significant investment, for which the available public financing is insufficient to address current and future needs. Investment needs for adaptation in the EU are an estimated EUR 35 billion to EUR 500 billion annually[17]. Private sources can be an alternative to public adaptation funds.

- **Provides co-financing**: Despite the availability of national and regional intergovernmental grants, municipalities still bear 45% of the responsibility for climate investment[18]. These investments are primarily funded through local taxes, user fees, and income from investments. The costs of crucial adaptation measures often exceed these budget sources, however, presenting a major challenge for many LRAs[19]. Private financing can bridge the gap between LRAs' own resources and public adaptation financing by providing additional capital, especially for large-scale investments[20]. Many public funding sources (e.g. Cohesion Policy funds, EIB loans) require some co-financing, which could be sourced privately.

- **Long-term availability of financial resources**: Public funding for climate adaptation can be constrained by limited political support, given the long-term nature of these projects. Extended timelines between initial planning and eventual returns may not align with short-term political cycles, reducing their appeal. By contrast, private financing can provide the necessary long-term sustainability for adaptation projects[21], as investors seek enduring returns over time.

- **Risk-sharing**: Private financing facilitates public-private collaboration, especially in economically challenging contexts, and allows financial risk-

[17] European Commission: Directorate-General for Climate Action, Forster, D. et al., *Climate mainstreaming in the EU budget – Preparing for the next MFF – Final report*, 2017.
[18] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.
[19] European Commission: Directorate-General for Climate Action, *Analysis of information provided by the signatories of the charter of the Mission Adaptation to Climate Change*, 2023.
[20] World Bank, *Innovative finance solutions for climate-smart infrastructure: New perspectives on results-based blended finance for cities*, 2019.
[21] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.

sharing[22] through mechanisms like Public-Private Partnerships (PPPs)[23] and social impact bonds (SIBs)[24]. This risk-sharing encourages investment in climate adaptation and helps public administrations to deliver services more effectively while reducing costs[25].

- **Bridges capacity gaps and accelerates implementation**: Beyond financial resources, private investment often brings valuable expertise, innovative solutions, and advanced technologies to adaptation projects. These contributions can significantly enhance LRAs' capacity to plan, execute, and manage adaptation initiatives. Private sector involvement can provide advanced data analysis tools, project management practices and specialised knowledge often unavailable in the public sector[26].

- **Incentivises sustainability investments**: Private financing can incentivise businesses and industries to adopt climate-resilient practices[27], promoting market trends towards sustainability and resilience. An influx of private capital stimulates local economies by creating jobs and fostering new businesses.

2.2 Sources of private adaptation financing

The Climate Policy Initiative categorises subnational climate finance into two main types. The first includes local governments' own revenue, along with private resources. These revenues enable LRAs to generate more funds and create the fiscal capacity to finance climate-friendly investments. On the other hand, own-source revenue can serve as an incentive for residents, businesses and other stakeholders to make climate-smart decisions[28]. These financial activities are recorded in the public budget.

The second type includes indirect or non-local government financing from sources such as households, businesses and developers, where investments are not reflected in the government budget. In this case, local governments act as facilitators or regulators to encourage investment.

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[22] Heuberger, R. and Stadelmann, M., *4 reasons why blended finance is our best bet in adapting to climate change*, 2021.
[23] PPPs are long-term contractual agreements between the government and a private sector partner. The latter typically finances and delivers public services using publicly provided capital assets (e.g. infrastructure, hospitals), sharing the risks (OECD, *Government at a Glance Southeast Asia 2019*, 2019).
[24] SIBs are outcome-based social investments where private investors fund innovative social services. If the expected benefits are achieved, investors are repaid with a return based on the level of results (Davis, R., *Social impact bonds – Private finance that generates social returns*, 2014).
[25] Fankhauser, S. et al., *Case studies in adaptation finance*, 2023.
[26] World Resources Institute, *What it takes to attract private investment to climate adaptation*, 2023.
[27] World Bank, *Innovative finance solutions for climate-smart infrastructure: New perspectives on results-based blended finance for cities*, 2019
[28] Boukerche, S. et al., *The state of cities climate finance part 2: The enabling conditions for mobilizing urban climate finance*, 2021.

Between these two categories is a spectrum of funding mechanisms that involve varying degrees of LRA involvement and financial commitment. Public investment by LRAs can serve as crucial 'seed money' that unlocks additional private investments of varying types and scales[29]. The way forward involves creatively blending these different funding sources, fostering a systemic approach to climate adaptation.

Figure 3: Examples of private adaptation financing options

Source: Authors.

Options to use LRAs' public sources to leverage private investments

1. **Fiscal policy and results-based financing**. These mechanisms incentivise private investment in climate adaptation by reducing the tax burden through tax exemptions or reductions and making funding contingent on the achievement of specific outcomes[30]. For instance, Berlin's stormwater fee system charges property owners based on the amount of impervious surface, encouraging them to adopt green infrastructure solutions such as rain gardens and permeable pavements to reduce their fees[31]. Similarly, Bratislava's stormwater market provides grants for green infrastructure installations, such as green roofs and rain gardens, and rewards property owners who implement these measures with reduced fees[32].

[29] EEA, *Financing urban adaptation to climate change*, 2017.
[30] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.
[31] Khoury-Nolde, N. and Nolde, E., *Rainwater fees for a fair and sustainable rainwater management*, 2021.
[32] City of Bratislava, Grants for Rainwater Management, 2024

Options for LRAs to raise private financing

1. **Blended finance (borrowing and leveraging instruments)**. LRAs may be able to borrow directly from domestic or international capital markets, including through the issuance of green bonds. National governments can provide additional support to LRAs by establishing financial intermediaries (e.g. municipal investment fund or bank) and through credit enhancement or guarantees that facilitate LRAs' access to credit[33]. For instance, by 'blending' grants/donations and loans, or using loans from public banks backed by guarantees from the EU or national governments, LRAs may more easily attract additional financing from private banks or other investors.

   Banks can also create targeted financial incentives, including discounted rates, extended loan terms, revolving credit lines, and partnerships with multilateral development banks or companies (e.g. housing developers) to boost market demand and mainstream residential adaptation finance[34]. Smaller, less well-resourced municipalities whose projects are typically too small to attract investors can aggregate projects, allowing LRAs to issue a bond together or obtain private financing together[35] (See Sweden and Slovakia case studies in Section 3.)

2. **PPPs**. PPPs involve collaboration between LRAs and private sector companies to finance and implement climate adaptation projects. These partnerships leverage the strengths and resources of both sectors, often leading to innovative and effective solutions. Municipalities typically provide regulatory support and partial funding, while private companies contribute capital, expertise, and efficiency in project execution. They are well suited to urban infrastructure with high upfront costs and long-term returns[36]. (See Spain and France case studies in Section 3.)

3. **Crowdfunding**. Crowdfunding platforms raise small amounts of money from a large number of people to fund specific adaptation projects. This approach can support small-scale projects and engage the community in climate adaptation efforts. Crowdfunding can be donation-based, loan-based or equity-based, depending on the structure of the campaign[37]. For example, a crowdfunding campaign to protect Austria's *Hochmoor Schrems* peat land

[33] Plastic Smart Cities, Blended financing, 2023; World Bank, *Innovative finance solutions for climate-smart infrastructure: New perspectives on results-based blended finance for cities*, 2019.
[34] Shu, G., *How the commercial banking sector can fuel a nature-positive future*, 2024.
[35] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.
[36] EEA, *Financing urban adaptation to climate change*, 2017.
[37] Plastic Smart Cities, Blended financing, 2023; World Bank, *Innovative finance solutions for climate-smart infrastructure: New perspectives on results-based blended finance for cities*, 2019.

involved a wide range of stakeholders. Run by the COMÚN Foundation and the local government, the initiative increased the park's budget by 20% and highlighted the importance of working together to preserve natural habitats[38].

4. **Philanthropic funding**. Philanthropic organisations[39] provide grants and donations to support climate adaptation projects. They can play a critical role in mobilising additional private financing, such as testing new ideas and approaches that can eventually be scaled-up with more risk-averse funding sources[40], complementing loans in blending operations. The *Fondazione Compagnia di San Paolo* funded a collaborative project in northern Italy to support small municipalities in developing and implementing local adaptation actions, including capacity-building and stakeholder engagement[41].

5. **Pooled investment funds**. Funding from multiple investors is pooled to finance adaptation projects. These funds reduce individual investment risk by spreading investment across a portfolio of projects. These funds are managed by professional fund managers, who allocate capital based on project viability and potential returns. For example, in 2021, AXA IM Alts launched a Natural Capital Strategy, committing EUR 500 million to support nature-based solutions[42]. (See France case study in Section 3.)

6. **Insurance mechanisms**. Insurance products can offer coverage for adaptation projects, reducing financial risk and making investments more attractive to private investors. They can cover infrastructure projects such as flood barriers, or provide incentives for businesses to adopt adaptive measures[43]. For instance, the German Insurance Association launched risk awareness campaigns to increase flood insurance uptake, raising coverage from 19% in 2002 to 41% by 2018[44]. In France, the insurance industry collaborates with the public sector to manage extreme weather risks, using risk transfer, disaster risk reduction financing, and data-sharing[45].

[38] Climate-ADAPT, *Public-private partnership for a new flood-proof district in Bilbao, Spain*, 2023.
[39] Philanthropy involves foundations, corporate funders, and individuals using their resources for public good, supporting areas such as education, health, science, environment, culture, and development. It complements government and private sector efforts and uniquely responds to immediate societal challenges while also focusing on long-term solutions (Philea, Philanthropy in Europe, 2023).
[40] Plastic Smart Cities, Blended financing, 2023; World Bank, *Innovative finance solutions for climate-smart infrastructure: New perspectives on results-based blended finance for cities*, 2019.
[41] Impact Week, *Fondazione Compagnia di San Paolo: Impact generator*, 2023.
[42] AXA, AXA and biodiversity, 2024.
[43] Sasson, I. et al., *Building climate resilience in cities through insurance*, 2021.
[44] Surminski, S., Roezer, V. and Golnaraghi, M., *Flood risk management in Germany: Building flood resilience in a changing climate*, 2020.
[45] European Commission: Directorate-General for Climate Action, *Using insurance in adaptation to climate change*, 2018.

7. **Payment for ecosystem services (PES)**. PES schemes incentivise landowners and other stakeholders to maintain and enhance ecosystem services that contribute to climate adaptation. These services include water purification, flood control, carbon sequestration, and biodiversity conservation[46]. PES schemes create a financial mechanism to pay for the benefits provided by healthy ecosystems. For example, the Vittel PES Programme is a 18-30-year scheme working with local farmers to protect groundwater quality in the Vosges region of France by providing financial incentives and technical support to reduce agrochemical use and adopt sustainable practices[47].

2.3 Key barriers hindering LRAs' access to private financing

LRAs experience several barriers in accessing private adaptation financing.

Awareness and knowledge gaps

- **Lack of awareness of private finance options**: LRAs' insufficient awareness of climate finance options is especially prevalent for non-grant-based options such as blending facilities, revolving funds, and green bonds from public sources, equity and debt instruments, or other options[48].

- **Fear of debt and financial risk**: When a municipality takes on debt, it must also repay the loan. LRAs' capacity to meet these repayment obligations depend on the size and stability of their revenue streams and the reliability of intergovernmental fiscal transfers. Many LRAs are hesitant to borrow due to fear of excessive debt and associated financial risks[49].

Capacity issues

- **Insufficient internal capacity**: Many LRAs lack the necessary knowledge and capacity to effectively use financial instruments for climate adaptation[50]. They might have insufficient experience with financial markets or lack the skills and resources to manage complex funding processes effectively.

- **Inadequate municipal financial data**: LRAs require the capacity to secure climate finance through borrowing or leveraging private funds. This entails ensuring the quality of municipal financial data, balance sheets, and accounting information systems, which will help to accurately assess the

[46] Climate Change Committee, *Progress in adapting to climate change*, Report to Parliament, 2023.
[47] Fripp, E., *Payments for Ecosystem Services (PES): A practical guide to assessing the feasibility of PES projects*, 2014.
[48] CoR, *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017.
[49] Boukerche, S. et al., *The state of cities climate finance part 2: The enabling conditions for mobilising urban climate finance*, 2021.
[50] Wishlade, F. and Michie, R., *Financial Instruments in Practice, Uptake and Limitations*, 2017.

liabilities and risks associated with city borrowing[51].

- **Difficulty in structuring PPPs and project aggregation**: Structuring effective PPPs and aggregating projects to meet the minimum size required by external financiers pose significant challenges for LRAs. Many smaller cities lack the expertise and negotiation skills needed to structure PPPs effectively. Bundling multiple projects together to attract financing is complicated by the need to align risks, technologies, and legal agreements across projects and municipalities[52].

Financial limitations

- **Limited scale of projects**: Local governments, particularly smaller municipalities, often undertake projects that are too small-scale to attract private investors[53].

- **High transaction costs**: The high costs associated with issuing bonds or structuring PPPs can be prohibitive for local governments. Transaction costs include search expenses, contracting processes, monitoring and verification, and managing delivery risks[54].

- **Limited creditworthiness and risk perception of investors**: Many LRAs struggle to attract private investment due to their limited creditworthiness and the perceived high risk associated with climate adaptation projects. Low credit ratings make these authorities less appealing to investors, which are often sceptical about the profitability and viability of adaptation initiatives[55].

- **Challenges demonstrating project bankability**: Ensuring the 'bankability' of climate action projects is complicated by insufficient data on future returns on investment and the benefits of adaptation measures. Many adaptation projects are perceived as too risky, low-return or non-profitable, making them less attractive to investors[56].

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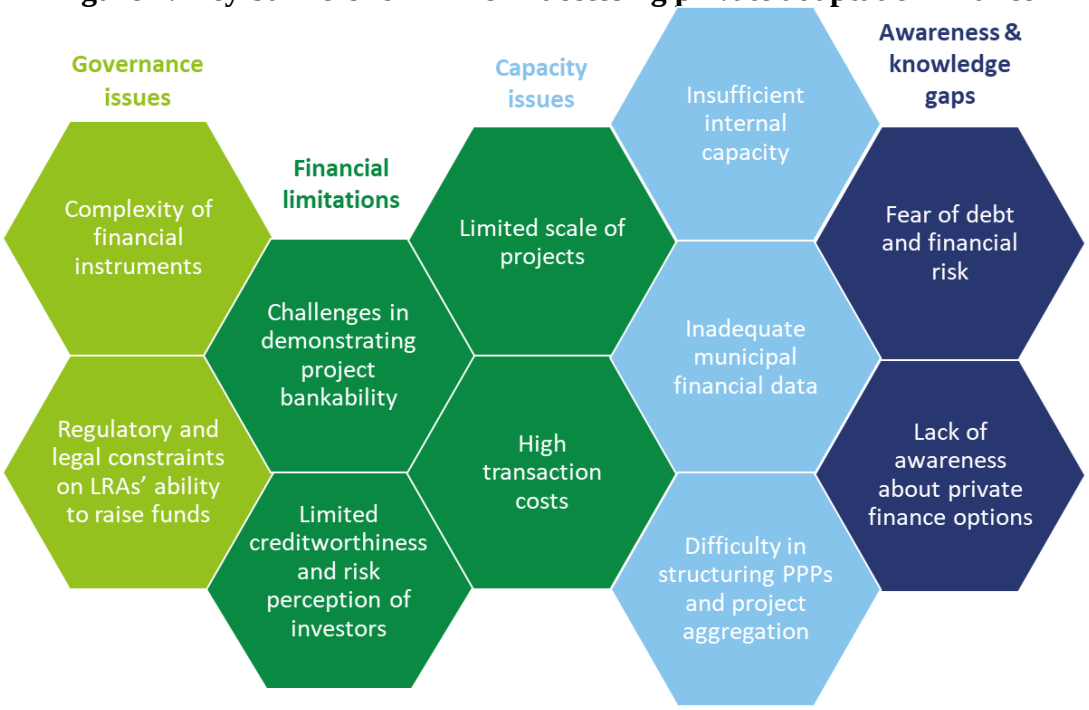
[51] Boukerche, S. et al., *The state of cities climate finance part 2: The enabling conditions for mobilising urban climate finance*, 2021.
[52] Windisch, S., *Smaller cities' access to external finance: Practical challenges and solutions for clean energy projects*, 2019.
[53] CoR, *Small urban areas: a foresight assessment to ensure a just transition* , 2022.
[54] Fankhauser, S. et al., *Case studies in adaptation finance*, 2023.
[55] Boukerche, S. et al., *The state of cities climate finance part 2: The enabling conditions for mobilizing urban climate finance*, 2021.
[56] World Resources Institute, *What it takes to attract private investment to climate adaptation*, 2023; CoR, *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017; CoR, *Climate change adaptation: Challenges and opportunities for the EU local and regional authorities*, 2020.

Governance and regulatory issues

- **Complexity of financial instruments**: The complexity of financial instruments such as green bonds or municipal bonds can deter local governments from engaging in such financing methods[57].

- **Regulatory and legal constraints on LRAs' ability to raise funds**: For LRAs in numerous EU countries, regulatory constraints such as debt ceilings, tendering procedures, and the limitations on management costs and fees continue to pose challenges to the use of certain financial instruments[58]. In some cases, LRAs face legal restrictions on incurring debt, restricting their ability to secure climate financing. Consequently, they cannot directly access international climate funds and must rely on national authorities[59].

Figure 4: Key barriers for LRAs in accessing private adaptation finance



Source: Authors.

[57] EEA, *Financing urban adaptation to climate change*, 2017.
[58] EEA, *Urban adaptation in Europe: What works? Implementing climate action in European cities*, 2023.
[59] CoR, *Financing climate action: Opportunities and challenges for local and regional authorities*, 2017.

3. Case studies: LRAs' experiences in using private financing or blending methods for climate adaptation

Four case studies were selected for further investigation. They reflect a geographical balance across the EU, as well as different private or blended financing methods for climate adaptation, different sizes of LRAs, and a mix of urban and rural areas.

Section 3.1 presents an example of municipal green bonds issued in **Sweden**, highlighting the benefits of centralising the issuance of green bonds. The role of ***Kommuninvest*** as an aggregator to raise funding in large amounts and use the proceeds to lend to smaller municipalities is a leading example that has already been replicated in Denmark, Finland and Norway.

Section 3.2 presents a case study from **Spain,** where the **Zorrotzaurre** peninsula in Bilbao was converted into a resilient urban island using investments from public and private sources. It showcases the added value of a PPP, with risks and costs shared between different public and private entities. It also highlights good practices in the consideration and valuation of adaptation measures as part of a broader city adaptation strategy.

Section 3.3 presents another PPP, where the Livelihood fund invested in measures to improve the **soil quality in Brittany**, **France**. It highlights the role of rural areas and farmers in adaptation and the importance of LRA support. In this case, private financing was ensured by a fund pooling the resources of multiple companies and directing them to sustainability projects in exchange for carbon credits.

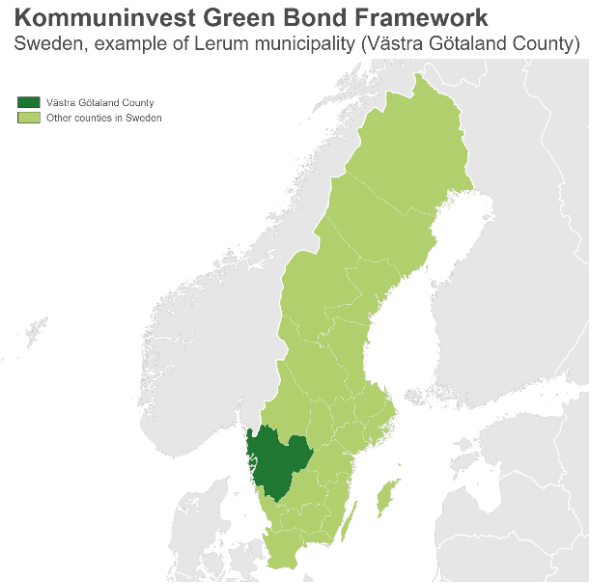
Section 3.4 focuses on a **LIFE project** implemented in **Bela, Slovakia**, to restore the good ecological status of waterways across several river basins. It demonstrates the valuable role of partnerships between different stakeholders to secure EU financing from different funds, as well as private financing.

3.1 Green bonds in Sweden

Kommuninvest Green Bond Framework

Project description

Name: *Kommuninvest* Green Bond Framework



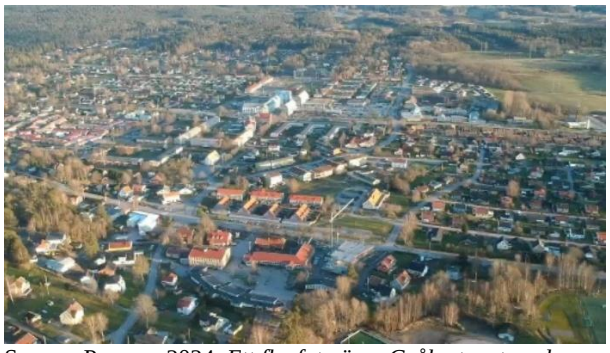
Location: Sweden (295 member municipalities and regions)

Duration: 2015-present

Overview and objective: *Kommuninvest* is a local government funding agency representing municipalities. Through its Green Bonds Framework, it aims to raise funds for projects making a positive environmental impact. This supports municipalities to reach their environmental and climate targets, in line with the Swedish goal of zero net emissions of greenhouse gases by 2045. Projects include climate adaptation measures[60].

In June 2024, *Kommuninvest* raised SEK 4.5 billion (EUR 0.39 billion) in a green bond with 21 investors. The bond matures in June 2031 and has a total interest of more than SEK 4.7 billion. The bond contributes to the financing of the more than 600 approved investment projects[61].

The municipality of Lerum, aerial view



Source: Paxxen, 2024, *Ett flygfoto över Gråbo taget med en drönare*. Wikimedia Commons. Licensed under CC-BY-SA-4.0.

Adaptation measures financed: Among the most recent projects financed is a new primary school with adaptation measures in Norra Hallsås in the Lerum municipality[62]. This is the first time the Lerum municipality has been granted *Kommuninvest's* green loans.

The school has been designed to preserve and fit with the surrounding nature. There will be an amphibian pond adjacent to the school, as well as a tunnel adjacent to the school to safeguard biodiversity. In the schoolyard, rainwater solutions connect the area to the Säve River, including through a larger pond and other adaptations in the school yard that can handle a larger amount of water. These measures will help the area to manage substantial water volumes during heavy downpours. Where felling of forests and blasting in rocks are necessary, they will be minimised.

[60] Kommuninvest, Green Bond Framework, 2024.
[61] Kommuninvest, Kommuninvest issues SEK 4.5 billion in Green Bond, 2024.
[62] Kommuninvest, Ny grundskola i Norra Hallsås i Lerums kommun, 2024.

Kommuninvest Green Bond Framework

Financing

Funding sources: Investors in the Green Bonds Framework are usually fixed-income investors that want their funds to make a difference for the environment. These include large pension funds and institutional investors, such as Crédit Agricole, Danske Bank, Nomura, and TD Securities[63].

The net proceeds from the green bonds are used for a green portfolio of loans disbursed by *Kommuninvest.* A green register tracks the allocation of net proceeds from green bonds to green loans, ensuring that proceeds are only used to finance or refinance green projects. *Kommuninvest* is committed to ensure that the total volume of green loans disbursed always exceeds the outstanding volume of green bonds.

To be included in the green portfolio, a project must meet specific pre-conditions. It must be based in Sweden, form part of systematic environmental work by the applicant municipality, and relate to environmental and climate objectives to mitigating or adapt to climate change or manage other environmental issues, such as protection of biodiversity or circular economy.

Projects under the Green Bond Framework are carefully evaluated and selected. *Kommuninvest's* environmental department identifies and verifies projects against a set of eligibility criteria for green loans, the financial department selects and sends for appraisal the completed green loan application forms, and the Committee for Green Financing[64] gives the final approval. Ongoing green loan eligibility is evaluated annually over the lifetime of the loan.

The Framework is subject to external review. Cicero and S&P Global Ratings have provided a second opinion verifying its credibility, impact and alignment with the International Capital Market Association Green Bond Principles[65].

Cost breakdown: The green loan for the Lerum municipality school is around SEK 421 million (approximately EUR 36 million) and covers the financing of the entire project[66]. It was given the status of a green project, eligible for financing in February 2024 and is part of the municipality's Agenda 2030 work.

Innovative nature of the financing method: Sweden has been dominant in the green bond market since 2014, and is the sixth largest nation globally on labelled green bonds issuances[67]. The City of Gothenburg was the first city to issue a green bond in 2013, and *Kommuninvest* is the largest issuer[68].

[63] Lee, G., *Green investors flock to Kommuninvest four year paper*, 2023.
[64] The Committee for Green Financing includes representatives from *Kommuninvest's* management, sustainability function and lending department, as well as three external members, consisting of representatives of from at least two member municipalities/regions, relevant organisations in the public sector and/or academia.
[65] The International Capital Market Association promotes the development of the international capital and securities markets, setting out guiding rules, principles and recommendations in the sector. The Green Bond Principles are voluntary guidelines that seek to support issuers in financing in sustainable projects with positive environmental impacts.
[66] Lerum Municipality, *Kommunen tar upp Gröna lån för ett hållbart samhälle*, 2024.
[67] Torvanger, A. et al., *Green bonds in Sweden and Norway: What are the success factors?*, 2021.
[68] Climate Bonds Initiative, The Green Bond Market in the Nordics, 2018.

Kommuninvest Green Bond Framework

Lessons

Success factors: Environment and sustainability are key priorities for Sweden and are therefore well integrated into policy and budgetary considerations. There is also a considerable number of green investors in the country.

A key success factor for *Kommuninvest* is its role as aggregator, enabling it to raise funding in large amounts and use the proceeds to lend to smaller municipalities that would otherwise struggle to find investors.

Investors do not take on direct project credit risks, as green bonds are not linked to the financing of specific projects. However, as green loan approval precedes the green bond funding, finance-ready projects are available before the issuance of the bond, and investors know in advance which projects they are financing. This reduces their transaction and due diligence costs[69].

Challenges and limitations: A main challenge is the approval of environmental projects. *Kommuninvest's* role has always been to provide financing support for general investments, necessitating a framework to evaluate and verify projects from an environmental perspective. Accordingly, the Committee for Green Financing was established and became operational in 2015.

Other (non-finance related) lessons: The construction of the new school in Lerum municipality is an example of how climate adaptation measures can be integrated in different categories of projects. It also shows the role of *Kommuninvest* in supporting even very small municipalities to achieve climate goals. Currently, *Kommuninvest* supports 295 of Sweden's 310 local governments, comprising 280 municipalities and 15 regions. *Kommuninvest* is their largest lender and among the largest credit institutions in Sweden.

Replication strategies: The Swedish example is recognised worldwide. The Nordic Public Sector Issuers (which includes *Kommuninvest*) has developed a position paper on green bond impact reporting as a practical guide to reporting the environmental impact of projects financed through green bonds, including impact indicators for all projects' categories, calculation methods and reporting practices[70]. This is a useful source of replication strategies. The *Kommuninvest* example is particularly suitable for other areas where the issuing of green bonds can be centralised to meet the needs of LRAs.

The initiative has already been replicated by similar local government agencies in Denmark, Finland and Norway. The Finnish Municipality Finance issued its first green bond in September 2017[71]. *Kommuninvest's* features are highlighted in a study providing guidance on green bond issuers for the Asian Development Bank Institute[72].

[69] SEB and German Federal Ministry for Economic Cooperation and Development, *Green Bonds – Ecosystem, Issuance, Process and Regional Perspective*, 2018.
[70] Nordic Public Sector Issuers, *Green Bonds Impact Reporting*, Position paper, 2024.
[71] United Nations Framework Convention on Climate Change (UNFCCC), *Green Finance and the Aggregation of Swedish local government investment projects*, 2023.
[72] ADBI, *Green Bond Experience in the Nordic Countries*, Working Paper Series, 2018.

***Kommuninvest* Green Bond Framework**
Additional information: Gothenburg's green bonds The City of Gothenburg is a municipality on the west coast of Sweden. With a population of almost 600,000, it is Sweden's second-largest city. The City of Gothenburg has been committed to sustainable development for a long time and aims to be one of the world's most progressive cities in environmental and climate matters. It was the first city in the world to issue a green bond in 2013[73], as well as the first to have international green bonds quoted in euro on London Stock Exchange green bond list[74]. Gothenburg set up a Green Bond Framework similar to *Kommuninvest*[75]. Green bond proceeds are used to finance a portfolio of green projects promoting the transition to low-carbon and climate-resilient growth. These include climate adaptation measures, such as investments in infrastructure and the existing built environment[76].

[73] Climate Bonds Initiative, The Green Bond Market in the Nordics, 2018.
[74] Triple Pundit, *LSE's 'green' bond segments launch sees City of Gothenburg's issue first to list*, 2015.
[75] City of Gothenburg, Green Bond Framework, n.d.
[76] Zamani, M. B. and Dessi, S., *Local governments' approach towards green bonds: An opportunity for Italian municipalities to finance green projects in the public real estate sector*, Masters thesis, 2019.

3.2 PPP in Spain

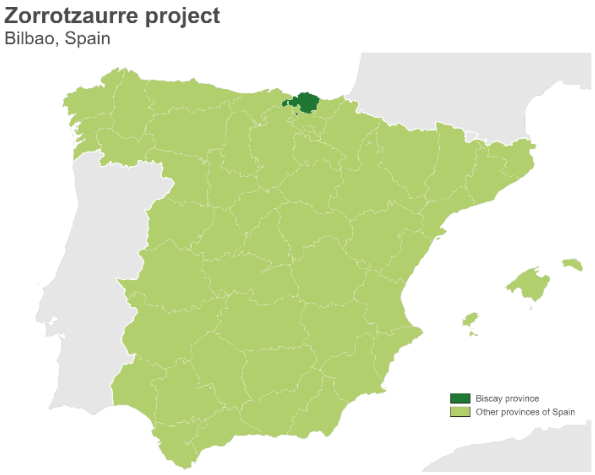
The Zorrotzaurre project in Bilbao

Project description

Name: *Zorrotzaurre*

Location: Bilbao (Basque Country), Spain

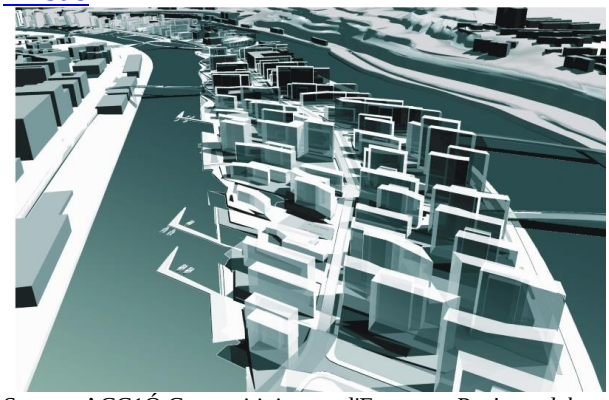
Duration: 2012-present (estimated 30 years)



Overview and objective: *Zorrotzaurre* was a peninsula in Bilbao, in the Deusto canal through which the Nebioi River flows. The peninsula was practically abandoned and polluted by industrial activity and the project aimed to transform it into a residential island, with a wide range of economic activity, to meet the growing demand of Bilbao for new housing and associated infrastructure[77].

The *Zorrotzaurre* project is a public-private initiative.

Rendering of the Zorrotzaurre project in Bilbao



Source: ACC1Ó Competitivitat per l'Empresa, *Projecte del barri de Zorrotzaurre, Bilbao*, 2012. Flickr. Licensed under CC BY 2.0.

Adaptation measures financed: The climate vulnerability assessment included in Bilbao's Climate Change Adaptation Plan highlighted that the city's flood risk stems from the combined effect of three climate change-induced hazards: sea level rise, river flooding, and pluvial flooding. Given its location and topography, *Zorrotzaurre* is particularly vulnerable to these hazards[78].

A study by the Basque Centre for Climate Change[79] revealed significant potential economic benefits from converting the peninsula into an island. Opening up the Deusto canal by 50 metres would change the hydrographic structure, helping to mitigate flood risks and reduce economic losses in Bilbao (for details see the next table).

Several other actions were taken as part of broader efforts to adapt to climate change in the *Zorrotzaurre* area and mitigate the risks posed by extreme weather events. One measure raised ground level across the eastern and western sections of the peninsula by 1.5 metres to safeguard newly constructed buildings from severe rainfall. Another crucial intervention is the ongoing construction of a one-metre barrier to protect the 47 existing buildings situated

[77] Climate-ADAPT, *Public-private partnership for a new flood-proof district in Bilbao, Spain*, 2023.
[78] Mendizabal, M. et al., *Bilbao Climate Change Adaptation Plan*, Bilbao Climate Change Office, Bilbao City Council, 2019, p. 60.
[79] Martinez-Juarez, P. et al., *Climate change, flood risk and adaptation measures: challenges in assessing damage and evaluating of measures*, Basque Center for Climate Change N. 97, 2020, p. 205.

along the riverbank. Three large stormwater tanks were constructed to mitigate flood risk in the neighbourhoods on the opposite side of the canal. Finally, green, open spaces were developed as part of the climate adaptation strategy[80].

Table 1. Economic impact of *Zorrotzaurre* island

Flood return period	Base scenario (€M)	Island scenario (€M)	Reduction (%)
10 years	5.53 – 6.84	0	100%
100 years	241.34 – 294.43	78.62	67%
500 years	444.3 – 538.24	307.91	31%

Source: Authors' elaboration based on Martinez-Juarez, P. et al., *Climate change, flood risk and adaptation measures: challenges in assessing damage and evaluating of measures*, 2020.

Financing

Funding sources: The *Zorrotzaurre* project was a PPP, with funding sourced proportionally to the ownership stakes of each party. The Contracting Board comprised the Spanish government, the Basque government, Bilbao City Council, and a number of private entities (*Acciona inmobiliaria S.L.U*, *Vicinay Cadenas S.A.*, and *Loiola Gestión Inmobiliaria S.L*). In total, 51% is owned by the public administration and 49% is owned by private entities[81]. The residents of *Zorrotzaurre* did not form part of the Board and were exempt from paying any of the costs of the project. They were, however, involved in the development of the construction plan through public participation processes.

Cost breakdown: Initially, the projected expenditure for the opening of the Deusto Canal was estimated at EUR 12.1 million; however, the final cost reached EUR 21 million. This included the construction of the two new bridges to the island (EUR 7.7 million), repair of the docks, decontamination and restoration of the canal bank (EUR 11 million), and network connections (EUR 2.8 million)[82]. The flood protection barrier required an investment of EUR 1.68 million, while the stormwater tanks were budgeted at EUR 5.7 million[83].

In line with the agreement reached by the project's Management Board, comprising public and private shareholders, Bilbao City Council covered the costs associated with the opening of the Deusto Canal, as well as the installation of the flood protection barrier and the stormwater tank, while the Basque government financed one of the new bridges. The expenses for other adaptation measures, such as ground level elevation works and the creation of public green spaces, would be funded by the Zorrotzaurre Management Board in proportion to their share in the project[84].

Innovative nature of the financing method: As a PPP, private shareholders benefitted from a level of assurance due to the involvement and financial commitment of the public administration, which ensures comprehensive support and engagement in the project's success.

[80] Climate-ADAPT, *Public-private partnership for a new flood-proof district in Bilbao, Spain*, 2023.
[81] Jacobs, M. and Estensoro, M., *Smart City Development in Zorrotzaurre, Bilbao: A case analysis*, Basque Institute of Competitivity, 2020, p. 13.
[82] Zorrotzaurre, *Zorrotzaurre Financial feasibility study*, 2011.
[83] Climate-ADAPT, *Public-private partnership for a new flood-proof district in Bilbao, Spain*, 2023.
[84] Ibid.

The Zorrotzaurre project in Bilbao

Lessons

Success factors: A key factor that significantly contributed to securing private financing was the establishment of the Management Board, where private shareholders participated according to their percentage stake in the project. This PPP featured a Contracting Board and a Management Board, which oversaw the execution of the works and ensured the efficient coordination and operation of the project. The role of the Contracting Board is defined in the Basque Law for urban planning and it is responsible for preparing and managing land reorganisation and urbanisation projects. It developed the first phase of the *Zorrotzaurre* project. The role of the Management Board was permanent and was designed to steer the implementation process of the entire project[85]. This robust hybrid management structure, where both public and private shareholders had clearly defined roles and responsibilities, contributed significantly to the project's success.

Challenges and limitations: Coordination of a large number of shareholders presented a significant challenge. Despite the Management Board, the involvement of numerous shareholders made the decision-making process more complex. Due to the heavy industrial activity in the area in the past, decontamination and relocation of many of the industries off the island was necessary, with the costs borne by the Management Board.

Other (non-finance related) lessons: Residents play an important role in urban redevelopment, even when they are not direct financial contributors to the project. Although the residents of *Zorrotzaurre* were not included as formal members of the partnership, their input was actively sought and valued. The plan also incorporated two periods of public consultation, during which residents had the opportunity to submit their claims. These consultations resulted in several adjustments to the original plan, ranging from minor tweaks to more substantial changes, reflecting the project's responsiveness to community concerns. For instance, the rehabilitation of some of the old industrial buildings in *Zorrotzaurre*, notably the 'papelera' which became a design school[86]. This inclusive approach led to the creation of a dedicated programme, funded equally by the PPP, to assist residents in renovating their homes to enhance accessibility and energy efficiency[87].

Replication strategies: It is essential to develop a framework that ensures equitable risk-sharing, financial transparency, and active shareholder engagement. The involvement of both sectors can provide the necessary financial leverage and enhance the project's credibility, attracting further investment. LRAs planning similar projects should demonstrate a long-term commitment to adaptation and the PPP to sustain momentum and project completion. Replication efforts should incorporate a flexible financial plan that can accommodate unexpected costs and adjustments in project scope given any evolving risks.

[85] Jacobs, M. and Estensoro, M., *Smart City Development in Zorrotzaurre, Bilbao: A case analysis*, Basque Institute of Competitivity, 2020, p. 13.
[86] Papelera, *ZAWP - Papelera*.
[87] Climate-ADAPT, *Public-private partnership for a new flood-proof district in Bilbao, Spain*, 2023.

3.3 Pooled investment funding in France

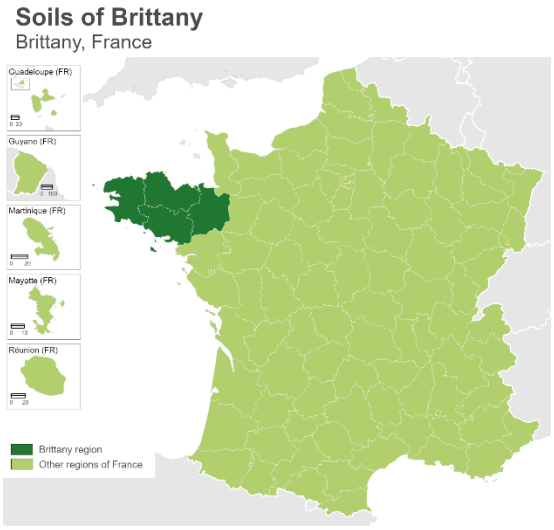
Soils of Brittany: Livelihoods project in France

Project description

Name: *Soils of Brittany by Livelihoods*

Location: Brittany, France

Duration: 2021-2031



Overview and objective: 'Soils of Brittany' (*Sols de Bretagne*) is an adaptation project carried out by a PPP, in which the private financing comes from a fund pooling the resources of multiple companies for investments in carbon offsetting. The main objectives of the project are to:

(1) Promote regenerative agriculture; (2) Support farmers to transition to regenerative practices and train the younger generation of farmers; (3) Contribute to climate change mitigation by sequestering CO_2.

It will support around 100 farmers to transition to regenerative agriculture, covering 11,000 hectares of land in Brittany. Regenerative agricultural is a practice that restores soil health and increases biodiversity, enhancing the adaptative capacity and resilience of the land. The project will also contribute to the sequestering of 140,000 tonnes of CO_2 in the next 10 years[88].

Agricultural land in the Brittany region.

Source: psl-px., *DSC06394*, 2016. Flickr. Licensed under CC BY-NC-SA 2.0.

Adaptation measures financed: Brittany has very strong agricultural and food production sectors, but intensive cultivation has led to degradation of the land, massive loss of biodiversity and soil that can no longer regenerate. These issues are exacerbated by the risks posed by climate change. As the leading agricultural region in France and the third largest in Europe, Brittany has placed the agroecological transition at the heart of its economic, social and environmental strategy. It devotes an annual budget of EUR 100 million, including regional and European funds, to building exemplary production models for farmers, consumers and the environment[89].

[88] Livelihoods, Supporting farmers to regenerate the soil and biodiversity, 2021.

[89] Livelihoods, Launch of 'Soils of Brittany', Press release, 2021; For further information on Brittany's agriculture, see L'agriculture bretonne, unique et plurielle.

Soils of Brittany: Livelihoods project in France

Regenerative agriculture focuses on the restoration of soil health[90]. It provides solutions to adapt to climate change by regenerating landscapes. Key adaptation measures include: reduction of tillage and ploughing to preserve soil structure, reduce erosion and maintain moisture levels; permanent soil cover, using plant cover to protect and nourish soil, improve water retention and maintain its temperature; diversification of crop rotations that allow the regeneration of soil biomass and increase its fertility. These measures enhance soil's resilience to extreme weather conditions.

Financing

Funding sources: The project is financed by a combination of private and public financing. It involves a PPP between the Livelihoods Carbon Funds (Livelihoods Carbon Fund 2), the Brittany region, the Regional Chamber of Agriculture and the *Sols d'Armorique* association.

Livelihoods Carbon Funds are impact investment funds that leverage the carbon economy to support agricultural and rural communities to live in sustainable ecosystems[91]. They invest in large-scale projects in rural areas of Africa, Asia and Latin America, aiming to empower farmers and local communities, restore ecosystems contributing to climate action, and create value across agricultural supply chains. Funding derives from long-term private companies' commitments to invest in carbon credits.

The Livelihoods Carbon Fund 2 was launched in 2017 and is committed to investing EUR 100 million and sequestering 12 million tonnes of CO_2 over 20 years[92]. It is financed by *Crédit Agricole, Danone, Firmenich, Hermès, Michelin, SAP, Schneider Electric, Voyageurs du Monde* and *Eurofins*. Investors provide financial contributions and receive carbon credits with a high social value, which are used to offset part of their emissions.

Cost breakdown: The project's investment amounts to EUR 6 million over 10 years, distributed equally between Livelihoods and the Brittany region. The financial aid will be partially paid directly to the farmers involved in the project, who will be able to invest it according to their needs, reinforcing their entrepreneurial competences. During the first five years of the project (transition phase), farmers will receive EUR 80 per hectare annually; then, during the remaining five years (maintenance phase), they will receive EUR 46 per hectare. The other portion of the investment will finance the technical support and training needed for the transition to regenerative agriculture[93].

Innovative nature of the financing method: This is the first Livelihoods project in Europe and it is financed by an innovative model that pools private investors' resources. Its innovative aspect is underscored by the Brittany region's pioneering role in regenerative agriculture. Some farmers in the region adopted this approach as early as 20 years ago[94]. While still marginal, the practice is becoming increasingly widespread.

Lessons

Success factors: The project takes place in the third-largest agricultural region in Europe,

[90] Livelihoods, Regenerative agriculture: from the key principles to the practice, 2021.
[91] Livelihoods, Livelihoods Funds – Who we are, 2021.
[92] Livelihoods, The Livelihood Carbon Funds, 2021.
[93] Livelihoods, Supporting farmers to regenerate the soil and biodiversity, 2021.
[94] Ibid.

Soils of Brittany: Livelihoods project in France

which is already a pioneer in regenerative agriculture. The presence of a group of farmers already engaged in the practice and motivated to restore the health of their land helped the project to succeed. It not only involves a monetary aid to invest in regenerative agriculture, but also training programmes for farmers, including the younger generations, to provide them with the knowledge and instruments to rethink the management of their farms and fields. The attention to socioeconomic issues, such as generational turnover, alongside environmental and adaptation measures, is particularly useful to ensure long-term success. Lastly, its unique investment model represents a key success factor, as the aggregation of private funds into a common pool makes the financing process more efficient for the individual companies.

Challenges and limitations: As is it still in the early stages, there is little information available on the project's progress. An important challenge is farmers' freedom to invest the financial aid they receive – making good use of this support is crucial. Participants needed to present a request to the Brittany region, with only those farmers who own arable land of at least 20 hectares and a useful agricultural area (with a CAP declaration) eligible to submit a request[95].

Other (non-finance related) lessons: There is a willingness among farmers to adapt their practices in favour of their lands' health. Regenerative agriculture has positive environmental impact and adaptation benefits and also reduces production costs. Farmers who have already adopted this model reported increased margins and decreased costs, as well as an improved quality of life[96].

Replication strategies: The project aims to inspire similar initiatives across France, leveraging a network of farmers committed to sustainable agriculture. *Sols d'Armorique* will mobilise its network of farmers and the network of the Association for the Promotion of Sustainable Agriculture[97], which groups more than 1,000 farmers into 13 regional associations, to spread information about the project to a wider public. The Soils of Brittany example is suitable for other rural areas where LRAs, farmers and private investors can work together on adaptation efforts.

[95] Region de Bretagne, Agriculture de conservation des sols, n.d.
[96] Livelihoods, Supporting farmers to regenerate the soil and biodiversity, 2021.
[97] APAD, L'agriculture de conservation sols une agriculture productive et durable, n.d.

3.4 Blended finance in Slovakia

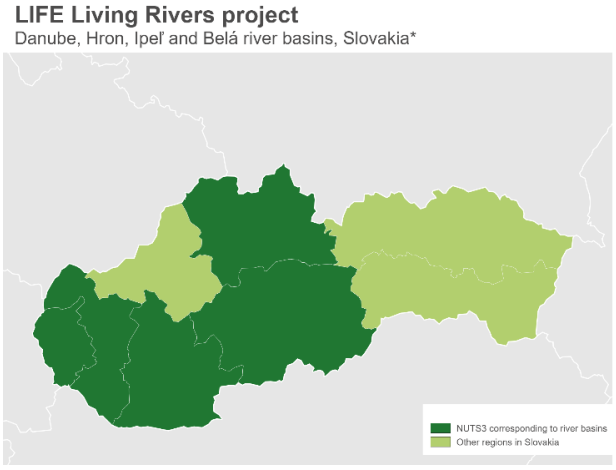
The LIFE Living Rivers project – Belá in Slovakia

Project description

Name: LIFE Living Rivers project

Location: Danube, Hron, Ipeľ and Belá river basins, Slovakia

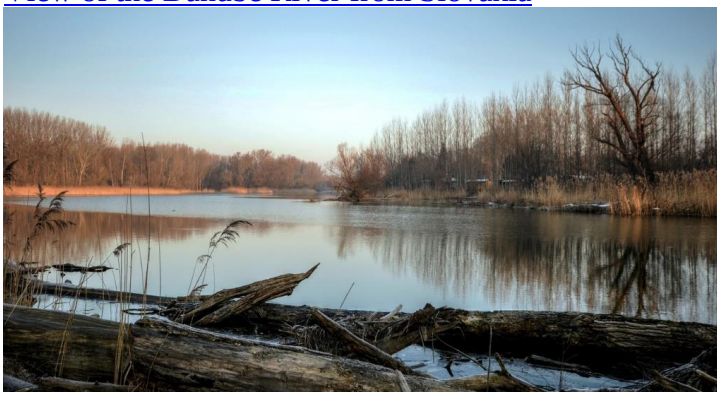
Duration: 2023-2032



*NUTS 3 regions corresponding to river basins are: the Bratislava, Trnava, Nitra, Žilina, and Banská Bystrica regions.

Overview and objective: The LIFE Living Rivers project aims to restore nearly 350 kilometres of Slovak rivers, including the Danube, Hron, Ipeľ and Belá[98]. The 10-year initiative addresses the poor ecological condition of more than half of Slovakia's rivers by implementing solutions to improve up to 344 kilometres of waterways. The project seeks to increase climate resilience, water retention and biodiversity, and reduce flood risk[99]. The project is led by the Research Institute of Water Management and nine partner organisations from Slovakia and Czechia.

View of the Danube River from Slovakia



Source: LubosHouska, *Lužný Les Water River*, Pixabay. Licensed under CC BY-NC-SA 2.0.

Adaptation measures financed: The Living Rivers project employs a range of adaptation measures to enhance the resilience of river ecosystems, restore natural habitats, and address the impacts of climate change. These measures are aligned with the broader objectives of the Water Policy Concept and the third River Basin Management Plan for the Danube and Visla Rivers. Key actions include the use of nature-based solutions and green infrastructure, hydro-morphological improvements and restoration of degraded ecosystems. The project also focuses on sustainable land, wetland and forest management practices. Innovative monitoring techniques will be used to track progress, while public awareness and stakeholder engagement efforts will help to ensure the project's success.

[98] Catch me, LIFE Living Rivers Project – Belá, 2023.

[99] European Commission, Implementation of the river basin management plan in selected river sub-basins in Slovakia (LIFE21-IPE-SK-LIFE Living Rivers/101069837), LIFE Public Database, 2023.

The LIFE Living Rivers project – Belá in Slovakia

Financing

Funding sources: The financing method for the project is a multi-layered approach that combines public, private, and EU funding. The total budget is EUR 27.8 million, with the EU contribution covering 60% of the costs (EUR 16.7 million) and the remainder covered through a mix of national funds, private sector contributions, and coordinated complementary funding from various sources. The EU granting authority is the European Climate, Infrastructure and Environment Executive Agency (CINEA).

The project mobilises an additional EUR 86 million in complementary funding, including EUR 62.4 million from the Recovery and Resilience Plan, EUR 23.7 million from the Operational Programme Quality of Environment, and EUR 25,000 from private funds[100].

Cost breakdown:

Table 1: Funding allocation per partner

Role	Type of organisation	Name	Eligible costs (€k)	Max EU grant (€k)
Coordinator of the project	Public (state-subsidised non-profit organisation)	Water Research Institute - Slovakia	4,196	2,518
Beneficiary	Public	Ministry of the Environment - Slovakia	89	53
Beneficiary	Public (state-owned enterprise)	Slovak Water Management company	7,932	4,760
Beneficiary	Public (state agency)	State nature protection of the Slovak Republic	650	390
Beneficiary	Non-governmental organisation (NGO)	Bratislava regional conservation association - Slovakia	4,205	2,521
Beneficiary	NGO	WWF Slovakia	2,001	1,201
Beneficiary	NGO	Catch me if you can - Slovakia	1,027	616
Beneficiary	Public (university)	University of South Bohemia - Czechia	1,739	1,043
Beneficiary	Public (state agency)	Tatra National Park - Slovakia	499	299
Beneficiary	Public (state-owned enterprise)	Slovak Operator of hydropower plants	5,458	3,275
		Total	**27,799**	**16,677**

Source: CINEA, Grant Agreement: Project 101069837 – LIFE21-IPE-SK-LIFE Living Rivers, 2022.

Innovative nature of the financing method: The project uses an innovative blended financing model, combining EU grants, national funds, and private sector contributions. A key innovation is the mobilisation of EUR 86 million from different funds, including EUR 25,000 from private funds.

[100] European Commission, Implementation of the river basin management plan in selected river sub-basins in Slovakia (LIFE21-IPE-SK-LIFE Living Rivers/101069837), LIFE Public Database, 2023.

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Despite modest direct financial input from the private sector, the PPP plays a crucial role in helping to develop innovative solutions. Private sector expertise, especially in environmental technologies, supports the project through modern monitoring techniques (e.g. Internet of Things (IoT) -based hydrological monitoring, Deoxyribonucleic acid (DNA) metabarcoding). By fostering sustainable business models around nature-based solutions, the project ensures long-term impact, financial sustainability, and ongoing support for future efforts.

Lessons

Success factors: An integrated financing approach, combining EU grants, national funds, and private sector contributions, enables the project to leverage diverse resources, ensuring comprehensive financial coverage and risk mitigation. Alignment with national and EU strategic objectives, such as the Water Framework Directive and Habitats Directive, plays a crucial role in attracting significant funding from both public and private sectors. Early involvement of private entities fosters strong PPPs, securing funding, technical expertise and innovative solutions. The coordination of complementary funding from sources such as the Recovery and Resilience Facility and the Cohesion Policy ensures full financial support for the project.

Challenges and limitations: Limited private sector funding was contributed (EUR 25,000) due to perceived high risks and low immediate returns from nature-based solutions. To address this, the project highlights non-financial benefits such as reputational gains, corporate social responsibility and innovation opportunities, while public funds are used to reduce investment risk.

Coordinating multiple funding sources with different requirements also presents difficulties. The project has implemented strong financial oversight, assigning dedicated roles and ensuring clear communication between funders and partners.

Engaging private stakeholders in a long-term project might sometimes be challenging due to uncertainties around benefits and changing regulations. To mitigate this, stakeholders are involved from the start, while regular updates and early successes keep them engaged.

Other (non-finance related) lessons: Early and continuous stakeholder engagement, involving local communities, government bodies, NGOs, and private sector partners, was crucial in bringing diverse perspectives and expertise to the project. The use of innovative monitoring techniques, such as DNA metabarcoding, telemetric surveys, and IoT-based hydrological monitoring, provides real-time, accurate data that improves adaptive management strategies. Additionally, the project shows the value of designing initiatives with replication and scalability in mind, ensuring that benefits can be applied to other river basins in Slovakia. Efforts to raise public awareness and acceptance of nature-based solutions through educational campaigns and media outreach help to build broader support for biodiversity and climate resilience interventions.

Replication strategies: Key factors for successful replication of the project include strong alignment with policy frameworks, such as the Water Framework Directive and Habitats Directive, which helps to secure public and EU funding by meeting broader environmental objectives. Emphasising that nature-based solutions can deliver various co-benefits, such as

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enhanced biodiversity, climate resilience, and flood mitigation, while meeting legal objectives, can be used by LRAs implementing similar projects to attract public support and funding.

A blended financing approach, combining public grants, private sector contributions, and national or regional funding, diversifies financial risk and ensures adequate support for project components, while enabling scaling. LRAs planning similar projects should carefully identify the different funding sources available and consider how they can complement one another.

Cities or regions implementing similar investments should plan a robust communication strategy to raise public awareness, build support, and enhance stakeholder participation, ensuring long-term success and sustainability. Early and ongoing stakeholder engagement, involving local communities and different partner stakeholders, fosters collaboration and a sense of ownership, making project implementation smoother.

4. Policy recommendations and conclusions

The complexity of financing local and regional climate adaptation efforts requires a multi-faceted approach that engages LRAs, the private sector, and policymakers at both EU and national level. This section provides targeted recommendations for each stakeholder group to address barriers and enhance availability and effectiveness of adaptation financing, particularly from private sources.

4.1 Recommendations for LRAs

Attracting private financing is essential for LRAs to complement limited public funds and implement ambitious climate adaptation projects. Key actions should be taken to make adaptation projects attractive to private financiers.

1. **Prioritise adaptation and allocate resources.** The first step for LRAs is to make adaptation a clear priority. This requires strong political commitment, ensuring that sufficient resources, both financial and human, are allocated to climate adaptation initiatives. By reallocating priorities and budgets or increasing funding, LRAs can hire and train the necessary personnel and build capacity to develop and implement adaptation projects effectively.

2. **Develop a clear adaptation strategy**. Adaptation planning begins with a well-defined strategy. LRAs must demonstrate a strong capacity to identify climate risks and vulnerabilities while designing projects that address them effectively. This requires staff competence in gathering relevant data, analysing climate projections, and using tools such as the Regional Adaptation Support Tool or the Urban Adaptation Support Tool to assess the most pressing risks. By combining robust data with actionable strategies, LRAs can design compelling projects that address local climate impacts and appeal to private investors by showcasing long-term benefits and financial viability.

3. **Identify available funding options.** Once a strategy is in place, the next step is identifying where funding can be sourced. Alongside public funds, LRAs should explore private financing options, such as green bonds, PPPs, philanthropic funding, and impact investment funds. LRAs can leverage existing support services and databases to identify and learn how to access existing financing opportunities. Sources such as the Mission on Adaptation Funding and Financing Guide or the Covenant of Mayors Financing Opportunities Guide are a good starting point for LRAs to get an overview of the different EU funding and private financing options available. Specialised advisory services such as the InvestEU Advisory Hub and Financing Instruments Advisory (fi-compass) offer practical tools and learning

opportunities on the use of financial instruments. The European PPP Expertise Centre supports LRAs to develop PPPs, offering strategic advice, sharing good practices and preparing projects. Finally, Project Development Assistance may offer support to develop large-scale projects that can attract private financing. Leveraging these services will ensure that LRAs are well-equipped to navigate the complex landscape of adaptation financing, choose the options best suited to their needs, and successfully apply for the necessary investment. (See Annex 3 for further support services).

4. **Design projects that will attract private investment.** Designing projects that appeal to private investors is essential to leverage additional funding. LRAs should create an enabling environment that encourages private sector participation, for example through risk-sharing mechanisms such as PPPs. Pooling projects across municipalities can lower administrative costs, improve efficiency, and create larger-scale projects whose higher return potential is more attractive to investors.

   LRAs also need to navigate the often-complex funding application process effectively. When seeking private financing, such as green bonds, impact funds or PPPs, LRAs must prepare strong proposals that clearly demonstrate financial viability, long-term benefits and risk mitigation strategies. This involves building partnerships with private investors and financial institutions, aligning projects with investor priorities, and meeting eligibility criteria. Tailoring applications to meet private sector expectations and ensuring clear alignment with their investment goals will significantly enhance the chances of securing private funding.

5. **Build capacity through training and resources**. LRAs must ensure that their teams have the knowledge and skills to develop successful project proposals, apply for funding, and implement adaptation projects effectively. LRAs should ensure that in-house staff are well trained or that they can access specialised external resources throughout the entire lifecycle of adaptation investments. Training and capacity-building opportunities (e.g. through the Mission on Adaptation Technical Assistance or Climate-ADAPT) should be sought where in-house expertise is lacking. With the necessary expertise at hand, LRAs can engage effectively with stakeholders, including the private sector, communities, and investors, throughout the project lifecycle, enhancing accountability and fostering long-term partnerships. Transparent reporting on project outcomes and financial performance can strengthen investor confidence, laying the groundwork for future financing opportunities.

4.2 Recommendations for private investors

Investing in local climate adaptation projects offers a unique opportunity for the private sector to diversify portfolios and manage climate risks faced by businesses, as well as creating positive social and environmental impacts. The following recommendations highlight what the private sector can do to invest in regional and local climate adaptation initiatives.

1. **Use adaptation initiatives as an opportunity to diversify investment portfolios and manage risk**. Investing in adaptation projects offers an opportunity to diversify by investing in new sectors, such as green infrastructure, nature-based solutions, and urban resilience projects. This diversification helps to manage investment risk by spreading exposure across different types of projects. It also has the benefit of contributing to stability in the face of climate-related uncertainties[101]. By entering into the climate adaptation space, investors can enhance the resilience of their overall portfolio.

2. **Use adaptation investments to secure business resilience to climate change**. Adaptation projects not only benefit the communities in which they are implemented, but protect the infrastructure and supply chains on which businesses rely. By investing in regional or local adaptation initiatives that produce public benefits, companies can safeguard their own operations from climate-related disruption[102]. This ensures long-term business continuity and resilience, especially in regions vulnerable to climate impacts.

3. **Use adaptation investments to strengthen Environmental, Social and Governance (ESG) objectives and invest in sustainability**. There are growing expectations for businesses in all sectors to become more sustainable and meet ESG goals. Some large institutional investors, such as pension funds, are intentionally divesting from environmentally or socially unsustainable businesses. Local and regional climate adaptation projects offer an opportunity for all investors to enhance their ESG performance and accomplish sustainability targets. Convincing management boards and corporate decision-makers to recognise the long-term benefits of these adaptation investments is essential. To ensure that ESG investing delivers meaningful change, businesses can consult existing guidelines on adaptation-friendly projects. For example, the EU adopted the EU taxonomy for sustainable activities to steer investments compatible with the European Green Deal objectives by providing common definitions and protecting from greenwashing. Another example is the EIB's Climate action and environmental sustainability eligibility list.

[101] Boukerche, S. et al., *The state of cities climate finance part 2: The enabling conditions for mobilising urban climate finance*, 2021.
[102] EEA, *European Climate Risk Assessment*, EEA Report No 1/2024, 2024.

4. **Use regional and local adaptation investments to establish partnerships with the public sector**. Partnering with LRAs on climate adaptation projects provides an opportunity for businesses to invest in research and innovation. Developing new technologies and solutions for climate resilience can position companies as leaders in the growing adaptation market. Collaborative research and innovation initiatives can lead to breakthrough innovations that benefit both local communities and businesses, opening new avenues for growth and profitability[103]. Capitalising on the growing political will to prioritise adaptation can strengthen relationships with public sector entities, build credibility in the community, and create impactful projects over time[104].

5. **Adjust risk assessment models to capture broader benefits**. Traditional risk assessment models may underestimate the wider benefits of adaptation projects. The costs and benefits of adaptation can be difficult to quantify using standard models, but these projects often offer long-term returns that go beyond direct financial gains. Investors should adjust their risk models to account for these broader benefits, such as reduced climate risk to supply chains or infrastructure[105]. By framing the assessment to capture the full scope of projects impacts, adaptation investments can become more attractive and viable.

4.3 Recommendations for EU and national policymakers

EU and national policymakers have a key role in creating an environment that encourages private sector investment in regional and local adaptation projects. The following recommendations outline how policymakers can support this process.

1. **Make adaptation a policy and funding priority**. Prioritising adaptation at the highest policy level gives a clear signal to both LRAs and private investors that there is political will at all levels to pursue adaptation projects. While climate mitigation has received significant attention and funding, adaptation has often been underfunded, despite its central importance in addressing the impacts of climate change. Policymakers need to elevate adaptation as a priority in both national and EU funding strategies. This could be achieved by allocating a greater share of EU and national funds towards adaptation projects. Policymakers should advocate for private sector engagement by

[103] European Commission: Directorate-General for Research and Innovation, Steeman, J. et al., *Why investing in research and innovation matters for a competitive, green, and fair Europe: A rationale for public and private action*, 2024.
[104] EEA, *Financing urban adaptation to climate change*, 2017.
[105] EEA, *Assessing the costs and benefits of climate change adaptation*, 2023.

demonstrating that public funds can be used to de-risk adaptation projects, making them more attractive to private investors. The recently announced ambition of the European Commission's President-Elect to develop a European Climate Adaptation Plan to support Member States' preparedness and planning[106] could present an opportunity to strengthen the political focus on adaptation, carefully consider the investment gap, and involve all levels of governance, including LRAs, in its design. This would ensure that the needs of LRAs are well reflected in the plan. The European Commission could also expand the EU Mission on Adaptation to involve more cities/regions and allocate additional resources.

2. **Support innovative financing models at EU and national level**. By creating strong incentives and examples at macro level, private funding will become more accessible at regional or local level. Policymakers should promote financing models that align public and private interests by establishing regulatory frameworks that encourage the use of PPPs, green bonds, blended finance and other financing methods for climate adaptation for projects at all governance levels. The use of non-grant financing methods and blended finance should be more widely adopted at both EU and national level to attract private investment in adaptation projects and provide lessons for successful collaboration.

3. **Clear guidance on sustainable adaptation investments.** The EU Taxonomy for sustainable activities is a key tool in guiding private (and public) investment towards projects that align with environmental and climate goals. Regularly updating what constitutes a 'sustainable adaptation investment' will provide clarity for public and private investors and financial institutions, allowing them to confidently allocate funds to adaptation projects. Providing targeted guidance on specific types of adaptation investments, such as green and blue infrastructure or nature-based solutions, can further strengthen potential investors' knowledge of these approaches and facilitate the design of such projects.

4. **Address legal barriers and create flexibility in LRA financing.** The legal and regulatory framework that governs LRA financing is a key obstacle to private investment in local adaptation. In many EU countries, LRAs face strict borrowing limits or legal restrictions that hinder their ability to raise funds for large-scale adaptation projects. Policymakers should work to revise these legal barriers by introducing more flexible rules on municipal borrowing, debt ceilings, and PPPs. Allowing LRAs greater financial autonomy would enable them to engage more effectively with private investors and develop financing

[106] Von der Leyen, U., *Political Guidelines for the next European Commission 2024-2029*, 2024.

models that share the risk and responsibility for adaptation projects. Adopting legal frameworks that facilitate the pooling of funds or joint projects between multiple LRAs can also help to reduce costs and attract private investment by creating economies of scale.

5. **Provide training and raise LRAs' awareness of adaptation financing.** LRAs must be equipped with the necessary knowledge and skills to access financing for adaptation projects. EU and national policymakers should support awareness-raising and capacity-building initiatives that provide training for LRAs on accessing both public and private funding sources. Policymakers should promote the wider use of existing initiatives that offer technical assistance to help LRAs to design and implement adaptation projects and activate (co-)financing opportunities. Where opportunities for capacity-building are missing, they should be developed.

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Annex 2: EU sources of public adaptation financing

Table 1: List of EU sources of public adaptation financing

Funding source	Targeted sectors	Financing vehicle	Relevance to LRAs	Indicative financing 2021-2027**
Shared management funds: EU Cohesion Policy				
European Regional Development Fund (ERDF)	Regional development, economic competitiveness, innovation, sustainable urban development, infrastructure, energy efficiency, disaster risk management, environmental protection	Grants to LRAs and other beneficiaries for eligible projects under national or regional operational programmes	Supports a wide range of projects that drive economic growth and environmental sustainability at regional level	Climate budget: EUR 73 billion for Policy Objective (PO) 2 Greener Europe[107]
Cohesion Fund	Environmental projects, sustainable transport, water and waste management, climate resilience, infrastructure development	Grants to LRAs and other beneficiaries in Member States with Gross National Income (GNI) per inhabitant below 90% of the EU average[108], through national or regional operational programmes	Provides substantial financial support for essential infrastructure and environmental projects, directly benefitting local and regional development	Climate budget: EUR 20 billion for PO2 Greener Europe[109]

[107] Based on the Cohesion Open Data Platform (accessed 21 August 2024).
[108] In the 2021-2027 programming period, this covers 15 Member States: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia, Slovakia.
[109] Based on the Cohesion Open Data Platform (accessed 21 August 2024).

Funding source	Targeted sectors	Financing vehicle	Relevance to LRAs	Indicative financing 2021-2027**
European Territorial Cooperation (ETC or Interreg) under ERDF	Cross-border, transnational, and interregional cooperation, regional development, climate adaptation strategies	Grants to LRAs and other entities for cooperation projects under various Interreg strands (A, B, C and D)	Promotes cooperation and knowledge-sharing across borders, helping LRAs to develop and implement joint climate adaptation strategies	Total budget: EUR 10 billion across the four strands
European Social Fund Plus (ESF+)*	Indirectly through capacity-building and skills development for climate adaptation	Grants to LRAs, public bodies, and non-profit organisations through national or regional operational programmes	Enhances local capacities and skills, crucial for effective implementation of climate adaptation measures	Total budget: EUR 95 billion[110]
Just Transition Fund (JTF)*	Economic diversification, social inclusion, and sustainable development in transitioning regions	Grants to LRAs and other stakeholders in regions heavily impacted by the transition to a low-carbon economy according to approved Just Transition Plans	Supports regions facing economic challenges due to the low-carbon transition, helping to diversify local economies and build resilience. Represents one of the pillars of the Just Transition Mechanism	Total budget: EUR 19.7 billion[111]
Shared management funds: EU CAP				
European Agricultural Fund for Rural Development (EAFRD)	Rural development, sustainable agriculture, forestry, biodiversity, climate resilience in rural	Grants and financial support to LRAs, farmers, and rural communities through rural development	Enhances resilience and sustainability of rural areas, which is crucial for local economies and	Total budget: EUR 95.51 billion

[110] Based on the Cohesion Open Data Platform (accessed 21 August 2024).
[111] Ibid.

Funding source	Targeted sectors	Financing vehicle	Relevance to LRAs	Indicative financing 2021-2027**
	areas	programmes	communities dependent on agriculture and forestry	
Centrally management funds				
LIFE programme	Environment, climate change adaptation and mitigation, nature conservation, biodiversity, sustainable development	Grants for pilot and demonstration projects, direct application by LRAs and other entities	Funds innovative projects that directly address local environmental and climate challenges, encouraging practical solutions and knowledge-sharing	Climate budget: EUR 0.95 billion is available for the Climate strand[112]
Horizon Europe	Research and innovation, climate science, adaptation technologies, socioeconomic resilience	Grants for research projects, collaborative projects involving LRAs, research institutions, and private sector entities	Facilitates innovation and research collaboration, enabling LRAs to implement cutting-edge solutions for climate adaptation and mitigation	Climate budget: EUR 13.5 billion is available for the Climate, Energy & Mobility cluster[113]
EU Mission on Adaptation to Climate Change under Horizon Europe	Implementation of EU Adaptation Strategy	Grants from Horizon Europe in the form of calls for proposals	The Mission will provide assistance and a platform for information exchange. LRAs can participate in Mission projects and/or commit to the Mission Charter (to achieve climate resilience by 2030 by	Adaptation budget: EUR 123.97 million for 2024[114]

[112] Based on Regulation (EU) 2021/783 of the European Parliament and of the Council of 29 April 2021 establishing a Programme for the Environment and Climate Action (LIFE).
[113] Based on Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination.
[114] Climate Adapt, Mission Adaptation Funding Calls (accessed 21 August 2024).

Funding source	Targeted sectors	Financing vehicle	Relevance to LRAs	Indicative financing 2021-2027**
			achieving regional and local adaptation goals)	
Recovery and Resilience Facility (RRF)*	Recovery and resilience, green and digital transition	Grants and loans to different eligible entities to support national recovery plans, including green and resilient infrastructure	Provides significant financial support for local recovery and green transition projects, boosting resilience and sustainability in line with national plans	Total budget: EUR 291 billion in loans and EUR 357 billion in grants for reforms in the Member States
Indirectly managed funds				
European Urban Initiative under ERDF	Urban development, innovation, sustainable urban solutions	Grants (up to 80% co-funding and up to EUR 5 million) for pilot projects implemented by LRAs to test new and innovative solutions	Supports urban authorities to test and implement scalable innovative solutions to urban challenges. Provides capacity-building and knowledge-sharing	Total budget: EUR 450 million
InvestEU Programme	Sustainable infrastructure, innovation, digitisation, social investment, skills development, climate resilience projects	Loans, guarantees, and equity financing provided by the EIB and other implementing partners	Provides comprehensive financial instruments to support a wide array of local projects, fostering economic growth and sustainability. Includes the second pillar of the Just Transition Mechanism	Total budget: EUR 26.2 billion EU budget guarantee aiming to mobilise EUR 372 billion in additional investments
Public Sector Loan Facility* under Just	Economic diversification, social inclusion and	Grants and preferential loans (and advisory	Provides financing on preferential terms to public	Total budget: EUR 1.5 billion over four years until

Funding source	Targeted sectors	Financing vehicle	Relevance to LRAs	Indicative financing 2021-2027**
Transition Mechanism	sustainable development in transitioning regions	support) provided by the EIB for projects that do not generate sufficient revenue, especially targeted at public entities in transitioning regions	entities for their just transition projects. Represents the third pillar of the Just Transition Mechanism	2025
Support from the EU's public bank				
EIB	Infrastructure development, climate adaptation and mitigation, renewable energy, sustainable urban development	Loans, guarantees, and technical assistance directly to LRAs and other eligible entities. Available support includes EIB – Municipal Framework Loans	Offers large-scale financial and technical support for major infrastructure projects, essential for urban and regional development	Aggregate figure not available. Indicatively, in 2023 the EIB invested EUR 19.1 billion for climate action, EUR 22.7 billion for climate action and environmental sustainability, and EUR 2.5 billion for environmental sustainability. By 2025, the EIB to raise the share of adaptation support to 15% of the Bank's overall finance for climate action[115].

Note: *Adaptation is not a principal objective of these funds, but can be integrated into sustainability or transition projects supported by the fund. **Provides an indication of the financial allocation available under the fund in the programming period 2021-2027, the amounts are indicative and based on allocations rather than spent amounts, the budget might not be specifically for adaptation.

[115] EIB, EIB climate action explained, (accessed 9 October 2024).

Annex 3: Support services for adaptation financing

Table 2: Examples of support services for EU financing sources

Service	Support provided	Relevance to LRAs
InvestEU portal	Matching project promoters and potential investors	Facilitates contact with potential investors worldwide
European Investment Advisory Hub at the EIB	Project development support throughout all stages of the project cycle (from pre-feasibility to financing), financial advice	Facilitates access to a wide range of advisory and technical assistance programmes and initiatives in the EU, provides a cooperation platform to leverage, exchange and disseminate expertise, and serves as an instrument to assess and address new advisory needs
Joint Assistance to Support Projects in European Regions (JASPERS) at the EIB	Support through the entire project cycle, from planning to execution, as well as technical training, to aid promoters to secure EU funding	Provides free assistance to national, regional and local authorities
European PPP Expertise Centre	Exchange of good practices and guidance, assistance in policy development for legal and regulatory frameworks on PPPs, support for PPP project preparation	Supports public sector entities to deliver PPPs
Smart Cities Marketplace under Horizon 2020 and Horizon Europe	Technical assistance and matchmaking with investors for urban projects (including urban development, digital economy, energy, environment and biodiversity, integrated urban development)	Facilitates the development of smart, sustainable urban projects through technical assistance and investment matching
European City Facility under Horizon 2020	Grants for developing investment concepts, feasibility studies, and other preparatory work for sustainable energy projects and climate action planning	Provides financial resources for the early stages of project development, enabling LRAs to attract further investment for sustainable energy initiatives
Financing instruments advisory (fi-compass)	Advice on financial instruments under the EU Cohesion Policy, Common Fisheries Policy and CAP funds	Although aimed at managing authorities, the platform offers information on the functioning and use of financial instruments
Mission on Adaptation Funding and	Information on different public funds and other financing	Explains the benefits of different options to help LRAs in their

Service	Support provided	Relevance to LRAs
Financing Guide	options, such as PPPs, crowdfunding, and philanthropic funds	decision-making
Covenant of Mayors Financing Opportunities guide	Information on different EU funds and other financing options relevant for investment in the climate measures of signatories	Provides an overview for LRAs to identify the different financing options available and where to find more detailed information
Project Development Assistance	Technical and financial advisory support provided by the EIB, especially small-scale projects and projects in lower-income Member States	Helps LRAs to develop their projects, improving their bankability

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ISBN 978-92-895-3661-5
doi:10.2863/3463764

QG-01-24-016-EN-N

European Committee of the Regions

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