Challenges in Mobilising Green Finance for Local Development

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Abstract The need for sustainable development and the transition toward a low-carbon economy has created a significant demand for green finance. To address this issue, this chapter aims to analyse green financing mechanisms in the context of local development through an extensive review of existing green policies and their impact on enhancing the local development process. The chapter reviews the existing literature on the topic and identifies the connection between green financing mechanisms and the role of the EU in their further development. Furthermore, the chapter also analyses successful green finance initiatives in the European Union. Lastly, it presents the main challenges in mobilising green funds and proposes means to solve them. The propositions aim to provide valuable insights and guidance for policymakers, financial institutions, and local leaders seeking to accelerate the transition to a low-carbon economy and attain sustainable development goals by 2040.

Keywords: • green finance • green initiatives • sustainable finance • sustainable development

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1 Background

Mitigation and adaptation to climate change have been at the forefront of public debates in recent years. Not only does climate change affect economic growth, but it also has distinct effects on human well-being. Climate change affects human health severely, both directly and indirectly: it leads to the depletion of natural resources, which again triggers natural disasters (Afzal et al., 2022: 5150). If European countries are to fulfil EU2050 net-zero targets and foster economic growth (in accordance with the Paris Agreement), channels for mobilising finance need to be enhanced and deepened.

Green finance represents a vast potential for climate change mitigation and adaptation processes. As per the GEF definition (Krushelnytska, 2017: 4), green finance refers to financial investments and instruments issued for sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy. It is, therefore, an essential manner by which economies can grow without damaging the environment, and thus, it is necessary to understand the channels through which this type of funding can be mobilised.

Numerous studies have shown that green finance not only brings benefits from the environmental side, but it also fosters economic development. It does so mainly by impacting finance structure and financial effectiveness and fostering high-quality economic development in general (Nenavath & Mishra, 2023: 2; Wang & Wang, 2022: 3; Zakari, 2022: 7). For the green finance process to run smoothly, two things are to be fulfilled; greening finance and financing green. To put things in perspective, 'greening' refers to the support in the system, and 'financing' refers to the mobilisation of the funds, whether from public or private sources (UK PACT, 2021: 2). In that regard, it is important to assess challenges that are present both in raising awareness and greening the financial system, as well as challenges concerning the mobilisation of the funds.

Existing studies that have been conducted to connect mitigation and adaptation activities and their connection to local development provide some important conclusions and recommendations based on the particular initiatives they analyse (Creutzig et al., 2020: 5; Mi et al., 2019: 587; Moore et al., 2021: 19).

Creutzig et al. (2020: 5) discuss several important aspects, the first of which pertains to gaining a deeper understanding of cities, focusing on data-related challenges. The second and third aspects involve the examination of potential actions within urban areas, with one perspective rooted in social science, such as the expansion of demand-side policies, and the other perspective considering environmental factors, such as the integration of mitigation and adaptation strategies. Lastly, the fourth aspect addresses the challenge of effectively implementing knowledge at the local level, particularly concerning governance issues.

Mi et al. (2019: 587) concluded that efforts are needed to reduce uncertainties in emission inventories and bridge the gap between researchers and policymakers for city-level climate change mitigation. Furthermore, they indicate the need to investigate further the interdependencies between climate adaptation and mitigation measures in urban areas.

Moore et al. (2021: 19) conducted a systematic literature review on climate change mitigation transformations, revealing conceptual diversity and underscoring the need for more research in this field, especially in lower-income economies and challenging sectors.

However, it is important to note that even though analysed papers give important recommendations for climate-related activities, particularly on the local and regional level, they examine how proposed activities can be financed; consequently, there is a lack of an approach to how green finance mechanisms are connected to local development. Accordingly, this study will deal with the state-of-the-art in terms of the green financing process from the local perspective, the main challenges present in the process of mobilisation, and the successful examples that justify the importance of green finance for local development in the European Union. Finally, the study will direct towards the main implications that can be drawn from the analysed cases and conclude with recommendations for local governance on the possibilities of closing the green financing gap.

2 Green finance mechanisms: an overview

Climate change has been at the forefront of public debates for decades. Started with the Montreal Protocol (1987)[1], it continued with the introduction and ratification of the UN Framework Convention on Climate Change (1992)[2], from which the annual forum named Conference of the Parties (COP) has drawn its roots. COP meetings have set the foundations for the Kyoto Protocol (UNFCCC, 1997) and the Paris Agreement (UNFCCC, 2015). Ever since the Kyoto Protocol entered into force, followed by the Paris Agreement, efforts to strengthen and enforce climate commitments have surged among European countries, both through the influence of multinational organisations and through the country level as well (Muchiri et al., 2022: 11; Workman et al., 2019: 593).

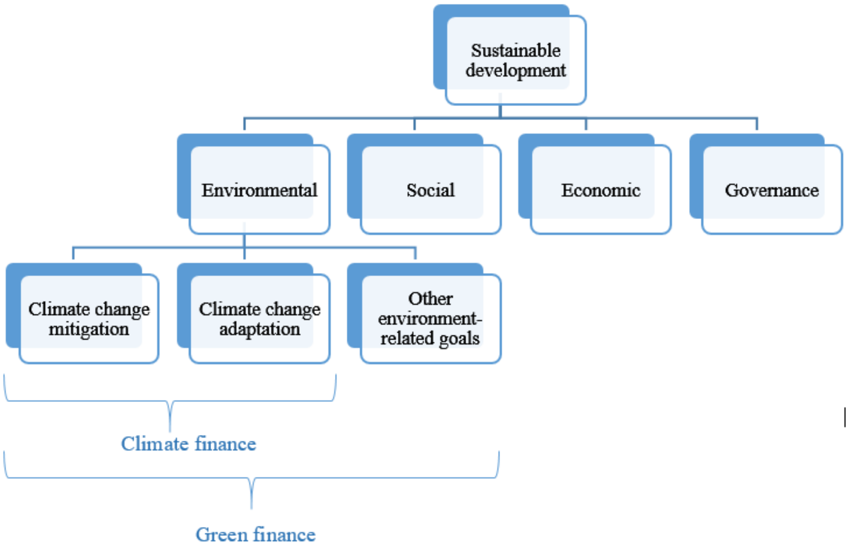
Climate commitments to this date have best been shown through the green financing process. Green finance does not have a single definition accepted by all parties concerned, but papers that have dealt with this topic allow us to withdraw the working definition. As the International Finance Corporation has stated (IFC, 2017), financial institutions, governments, and international organisations tend to define green finance (and sustainable finance) in different ways based on their underlying goals. According to several authors (Berrou et al., 2019: 32; Muchiri et al., 2022: 2), the term ‘green finance’ refers to the supply of financial services for green investments and policies, such as the promotion of ecologically friendly products and the mitigation of carbon damage through the issuance of green financial instruments. Udeagha and Muchapondwa (2023: 639) define green finance as an economic endeavour that, in theory, supports environmental enhancement and deals with climate change mitigation and adaptation, while at the same time promoting conservation of the resources.

As noted by (Lindenberg, 2014: 1), there is no common definition of green finance but rather several different ones. Höhne et al. (2012: 7) gave the following definition of green finance:

> […] a broad term that can refer to financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy. Green finance includes climate finance but is not limited to it. It also refers to a wider range of other environmental objectives, for example, industrial pollution control, water sanitation, or biodiversity protection. Mitigation and adaptation finance are specifically related to climate change-related activities: mitigation financial flows refer to investments in projects and programs that contribute to reducing or avoiding greenhouse gas emissions (GHGs), whereas adaptation financial flows refer to investments that contribute to reducing the vulnerability of goods and persons to the effects of climate change.

Creating a green finance system would help advance technology in the areas of energy efficiency, renewable energy, and environmental preservation. According to Chenguel and Mansour (2023: 2), the primary goal of the green financing process is the maximisation of the beneficial effects of green investments while limiting their negative effects to align financial flows with climate objectives. Furthermore, Benedetti et al. (2021: 848) argue that numerous green financing tools can be greatly used for measuring and managing risks associated with and caused by the climate change surge. Hence, it is a crucial tool for addressing issues with energy consumption and advancing sustainable development from an economic standpoint (Zhang & Wang, 2021: 3436). Additionally, green financing aims to advance a green economy in which the funded industries are predicted to reduce carbon emissions dramatically (Cai & Guo, 2021: 2). Because inclusive green financing helps to reduce and increase resilience to the negative effects of climate change, it can be used to create equitable green growth (Desalegn & Tangl, 2022: 2). Figure 1 represents a schema for understanding the scope of green finance mechanisms.

Figure 1: The scope of green finance



Source: Prepared according to UNEP (2016).

As shown in Figure 1, green finance comprises climate finance within itself but also deals with other environmental issues. The tools through which green finance covers the mentioned scope are numerous and diverse. Green finance includes but is not limited to the following instruments: green bonds, green loans, green funds, green indices, green project financing operations, and green asset-backed securities (Berrou et al., 2019). From the EU's stance, green bonds, loans, and green project financing operations play the most important roles. In the next section of the chapter, the role of the green financing process in the context of local development will be explained; particular significance will be given to the role of the EU in the above-mentioned process.

3 Nexus between green finance and local development: the role of the EU in scaling up the level of mobilised funds

Understanding the environmental efforts which the EU has shown throughout the last couple of decades, it becomes clear that the utmost goal is to connect these efforts to the objectives that have been ever-present, and these include development, high-quality jobs, as well as highly developed competitiveness on the local level. Consequently, the European Commission states that one of its main aims is to 'achieve sustainable development based on balanced economic growth and price stability and a highly competitive market economy with full employment and social progress' (The Treaty of Lisbon, 2009)[3]. To fulfil this, the EU's strategy has been to openly quantify environmental targets to make it easier to track results and eventually allocate more resources (Marini, 2019: 120). Particular significance here can be given to the role in which green finance accelerates local development.

Local development *per se* is a concept that can be analysed from different angles; it thus lacks the unequivocal grounds for a proper and precise definition. It has been defined from many different aspects in different papers, which has only put an additional emphasis on its complexity and deepened the need to address it in a more precise manner.

Adamowicz (2023: 5) defined local development as a series of political, social, cultural, and economic reforms that raise the standard of living for all citizens. In other words, the author defines development as the process of transitioning from one condition to another that is more complex and advanced, or even more ideal in certain ways. Key components of the local development process, pointed out by the OECD (Kamal-Chaoui, 2019: 2), include leadership, strategic capability, and the dedication of local actors to collaborate and coordinate efforts to articulate a shared vision of their community's future. Kamal-Chaoui (2019: 15) also indicates 'good practices' for local development and explains the criteria according to which they can be considered as such.

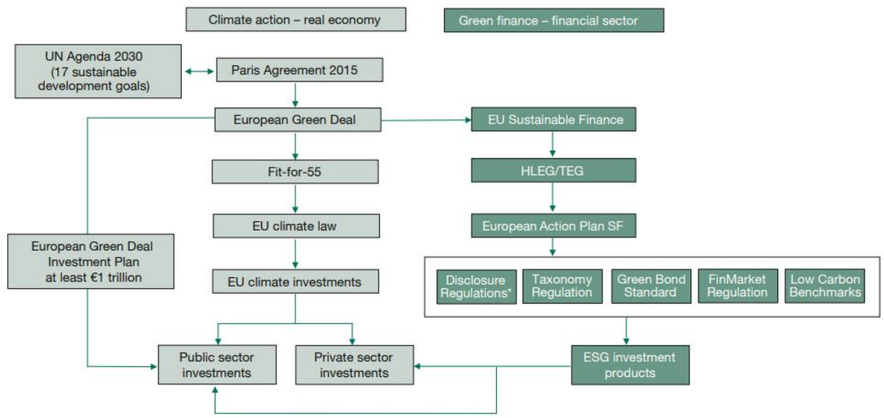
Overall, local development can be regarded as a multifaceted network of political, social, economic, and environmental efforts that bring well-being to the habitants while simultaneously establishing infrastructure that provides conditions for sustainable and long-term economic growth.

What has been stated previously by Garofoli (2009: 232) is that without the ability to mobilise resources and capabilities and without the coordination of different actors at the meso-economic level, it will not be possible to obtain high social and economic performances at the national level. In other words, national economic competitiveness and quality of life at a national level depend highly on the extent to which it is possible to exert effective local development strategies in the best part of national territories.

In such a framework, allocating resources to fund the environmental transition while keeping economic development at the desired level has proven challenging. To understand the significance of the actions the EU has already taken, it is important to assess how different institutions have helped shape the EU's green agenda.

The EU's policies and efforts, which took an exponential surge after the Paris Agreement, can be seen in Figure 2.

Figure 2: The interaction between climate protection and green finance in the EU



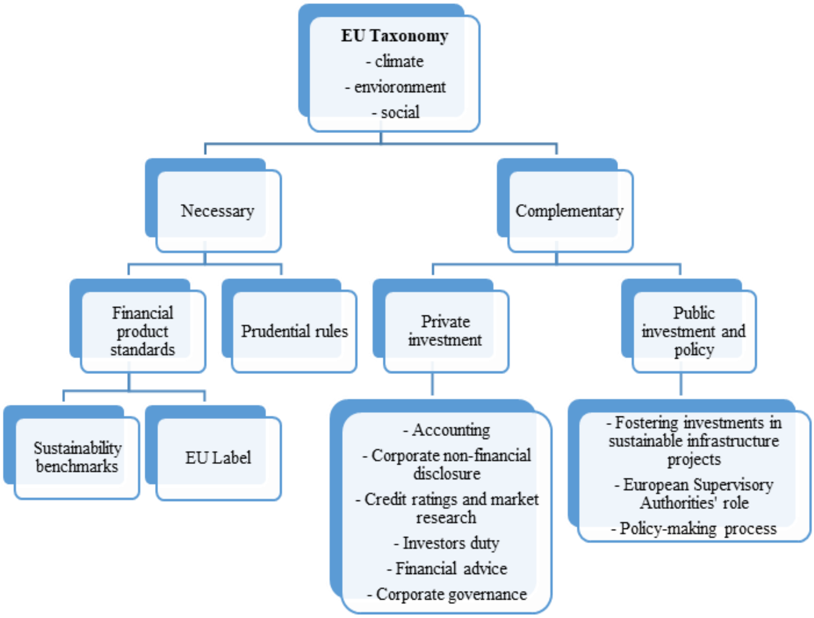
Notes: SF = Sustainable Finance, HLEG = High-level Expert Group, TEG = Technical Expert Group, *Sustainable Finance Disclosure Regulation, Non-Financial Disclosure Regulation, Corporate Sustainability Reporting Directive.

Source: Brühl (2021: 324).

Apart from tools and mechanisms shown in Figure 2, a pivotal role in green financing enhancement has been attributed to the European Investment Bank, established in 1958 to provide funding for projects that foster the process of achieving EU aims, both within and outside the EU. The EIB's products and services are arranged into three pillars: lending, blending, and advising. Lending, as a primary service, refers to the loans aimed at supporting jobs and growth, and aligning with EU goals; blending refers to allowing clients to combine EIB financing with additional investment, while advising refers to technical assistance. The role EIB has taken in the green financing process lies in the issuance of Climate Awareness Bonds (CAB), the first green bonds ever issued. As per the latest evaluation (EIB, 2021: 47), EIB CABs mobilised and raised EUR 33.7 billion in 17 currencies from 2007 to 2020. Considering that the green bond market is growing steadily, the EIB, the leading green bond issuer in the EU, will remain a focal intermediary in green fund mobilisation. What can particularly be challenging from a local perspective is that local governments and organisations may not exert the necessary expertise and resources to plan, implement, and monitor green projects effectively. Furthermore, finding reliable partners on the local level and ensuring the funds reach their intended targets represents another challenge. Thus, it is necessary to create cohesion on the local and regional levels, when it comes to (1) local capacities and infrastructure (know-how); (2) monitoring and proper evaluation of the implemented green projects, and (3) regulatory frameworks.

Apart from the abovementioned, the milestone of the EU's efforts in this field is marked by the *Action plan for financing sustainable growth*. In Figure 3, the role of EU taxonomy is presented.

Figure 3: Role of the EU taxonomy in the Action Plan for sustainable growth



Source: European Commission (2018: 14).

In the action plan (European Commission, 2018: 2), the authors have stated that the plan is laid out with three main goals: (1) reorienting capital flows in the direction of sustainable investments to be able to accomplish growth labelled as sustainable and inclusive; (2) managing financial risks arising from climate change, environmental degradation, and social issues; and (3) fostering transparency and long-term in both financial and economic activity.

To achieve this, the EU must make particular efforts, in various segments of the green financing process. According to Brühl (2022: 259), to attract more money for sustainable investments, a taxonomy that accurately defines sustainability objectives, the categories, and technical standards for sustainable operations is necessary. However, taxonomy is rather undeveloped in the area of sustainable financing. Various definitions and approaches exist, though no particular officially accepted definitions have been set out. That refers both to the definitions of green finance, as well as to what can be considered a green activity and what cannot. Having a clear definition and the distinction of various activities will lead to more successful measurements and proper monitoring of the green finance activities, as well as their impact on the aims set out in the action plan. Furthermore, what can be drawn out from the action plan are the EU's intentions to give clearer standardisation of green financial instruments and enhance climate benchmarks and disclosure requirement guidelines.

The EU's action plan on climate change and green financing is closely tied to local development efforts within its member states. By promoting sustainable finance practices and facilitating investments in environmentally friendly projects, the EU contributes to the growth of local economies while simultaneously addressing climate change. These initiatives create opportunities for local businesses and communities to participate in the transition to a low-carbon economy. For example, the development of renewable energy infrastructure not only reduces greenhouse gas emissions but also stimulates job creation and economic growth at the local level. Similarly, sustainable building projects and energy-efficient renovations improve the living conditions of residents while reducing energy costs and environmental impact. By aligning green financing with local development goals, the EU supports a holistic approach to addressing climate change that benefits communities, economies, and the environment alike.

Successful examples of green financing mechanisms that enhance local development are numerous. Tax incentives under the green financing framework have been introduced in various EU countries, including Germany (Zhao et al., 2021: 3) and Spain (Cobos, 2023). Furthermore, the French cities of Lyon and Paris have introduced detailed plans on how green financing mechanisms (particularly green bonds) will be used to tackle climate change mitigation and adaptation. These papers thoroughly examine areas for which green financing funds are being (or will be) used, as well as the monitoring and reporting plan (Direction des finances, 2022: 9; Mairie de Paris, 2017: 3).

However, even though the significance of the green financing mechanisms for local development is well understood and confirmed through the above-mentioned practices and initiatives, proper addressing of challenges present in the process is also needed. Identified challenges include, but are not limited to, poorly developed taxonomy on sustainable/green finance, non-standardised Environmental, Social, and governance (ESG) disclosure requirements, and a general lack of information in the general public regarding the extent of the benefits for local development that can be drawn from green financing mechanisms. The next section of the chapter presents the main challenges identified in the process and proposed action toward their neutralisation.

4 Challenges present in the mobilisation of the funds and the means to solve them

Understanding the extent of the need to address climate change mitigation and adaptation issues and its indisputable connection to local development, it is crucial to define ways to reduce the effects of climate change, implement adaptation measures and assess the challenges present in that process.

Table 1: Challenges in the Green Finance Mobilisation Process

Identified challenge	Envisaged action/Proposition towards the solution of the challenge
Development of a more detailed EU taxonomy of green finance	Taxonomy is rather undeveloped in the area of sustainable financing. Various definitions and approaches exist, though no particular officially accepted definitions have been set out. This refers to both the definitions of green finance, of what green financing activities are comprised, and what can be considered a green activity and what cannot. Having a clear definition and the separation of the activities will lead to more successful measurements of the green finance activities, as well as their impact on the aims set out in the action plan.
ESG disclosure framework enhancement	Local development could be further enhanced with green financing initiatives through the establishment of the proper ESG disclosure framework which would require financial institutions and companies to disclose their environmental, social, and governance (ESG) performance. The EU should continue to develop and enforce consistent ESG disclosure standards to enable investors to make informed decisions about the sustainability of their investments.
Lack of information/ awareness about green financial instruments and practices	The EU can encourage the issuance of green bonds and other sustainable financial products to provide investors with opportunities to support environmentally friendly projects and initiatives. It can do so by raising awareness among the broader public and by capacity-building initiatives on the local level.
Lack of local/regional collaboration initiatives	Given the global nature of environmental challenges, the EU can enhance local development using green finance mechanisms by collaborating with international partners to promote sustainable finance practices globally, aligning efforts with other regions and initiatives. Furthermore, authorities should encourage a shift from short-term profit-driven perspectives to long-term sustainability by offering incentives such as tax benefits or reduced regulatory burdens for sustainable investments.

Source: Author's work.

The challenges and solutions presented in Table 1 provide a foundational framework for guiding the efforts of scaling up the green financing funds on the local level. However, the proposed actions should be viewed as dynamic and adaptable.

Moreover, ongoing monitoring and assessment of the impact of green financing initiatives will be essential to ensure that the allocated resources drive the intended outcomes. As the EU and its member states commit to ambitious sustainability goals, the resilience and adaptability of green finance strategies will be pivotal in shaping the future of local development, fostering sustainable growth, and preserving the environment for generations to come.

5 Discussion and conclusion

The objective of this chapter was to shed light on the importance of green finance for local development, by explaining the nexus between green financing mechanisms and the EU's development on the local level. To this extent, a thorough analysis has been done to explain the state-of-the-art in the area of green finance, the main tools in the green financing process, the level to which these have been implemented in the EU so far, and the role of the EU governance in the process of scaling up green finance. The focal point of the chapter is the challenges that the EU faces in this process. The main challenges that have been identified are connected to the lack of regulation and standardisation, as the whole concept of green and sustainable finance is a nascent and nebulous one.

The future success of green finance initiatives on the local level in the European Union largely depends on establishing robust regulatory frameworks and incentives that promote environmentally sustainable investments. This includes setting clear guidelines and standards for green finance products, offering tax incentives or subsidies for green projects, and ensuring that financial institutions adhere to environmentally responsible lending practices. Additionally, effective communication and education campaigns to raise awareness among local communities about the benefits of green finance and its impact on the environment are crucial. Public support and understanding can drive demand for green financial products and services to facilitate it and scale it up.

Furthermore, a comprehensive ecosystem that integrates sustainable infrastructure development, access to affordable green loans, and technical assistance for project implementation must be established to unleash the full magnitude of green finance's potential for local development. This involves collaborating between government, businesses, and environmental organisations and creating dedicated green investment funds and platforms that connect investors with local green projects. Moreover, ensuring transparency and accountability in the allocation of green funds and monitoring the environmental impact of financed projects is vital to building trust and credibility in the green finance sector.

Finally, constant improvement in financial literacy and education, specifically geared towards EU2040 objectives, would be beneficial. This encompasses educational initiatives that highlight how green finance can contribute to achieving EU2040 climate and sustainability goals. Local communities should be well-informed about the long-term economic and environmental benefits of sustainable finance choices aligned with EU2040. Furthermore, research and innovation in green financial products and technologies should prioritise solutions that directly support the EU2040 agenda, fostering a vibrant ecosystem of green finance options across the EU.

Notes:

[1] https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol.
[2] https://unfccc.int/process/the-convention/history-of-the-convention#Essential-background.
[3] https://www.europarl.europa.eu/factsheets/en/sheet/5/the-treaty-of-lisbon.

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